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of present conditions
and recent progress

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preface

Canada 1974 is the 43rd 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, history, 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 graphics section of Statistics Canada under the direction of Denis Laframboise.

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Sylvia Ostry
Chief Statistician of Canada

October 1973

contents

The Land and the Environment . . . viii

Geography	1
Climate	16
Canadian Landscape	22

The People and Their Heritage . . . 30

History	31
Native Peoples	39
Bilingualism	46
Multiculturalism	48
Religion	50
Arts and Culture	54
Scientific Activities	63
National Museums	81
Libraries and Archives	86
The National Capital	88
National Parks	91
Recreation	94
Mass Media	100
Population	107

Governments and Their Services . 112

Government	113
Department of Agriculture	122
Citizenship	124
Consumer and Corporate Affairs	127
Education	129
Protection of the Environment	146
External Relations	151
External Affairs	151
CIDA	162
CESO	165
CUSO	166
IDRC	167
National Defence	169
Health Care	171
Immigration	176

Industry, Trade and

Commerce	178
Labour	180
Manpower Programs	186
Regional Economic Expansion	189
Veterans Affairs	190
Social Welfare	192

The Economy 198

Economics	199
Economic Growth	207
Economic Council of Canada	214
Industrial Growth	220
Natural Wealth	226
Agriculture	226
Fisheries	240
Forestry	243
Minerals and Energy	249
Business, Finance, and Industry	265
Capital Expenditures	265
Housing	269
Public Finance	272
Banking, Savings, and Insurance	280
The Labour Force	284
Manufacturing	289
Domestic Trade	294
International Trade	304
Balance of International Payments	311
International Travel	315
Transportation and Communications	317
Transportation	317
Telecommunications	329
Postal Services	335

Acknowledgements 336

Index 341

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 that 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 $83^{\circ} 07'N$

Lowell Glacier in Kluane National Park, Yukon Territory. Seventeen thousand years ago, glacier ice covered most of Canada. Approximately 1 per cent of the country is still covered by ice sheets.



much of Canada lies in high latitudes so that with the exception of a few coastal 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 the 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.

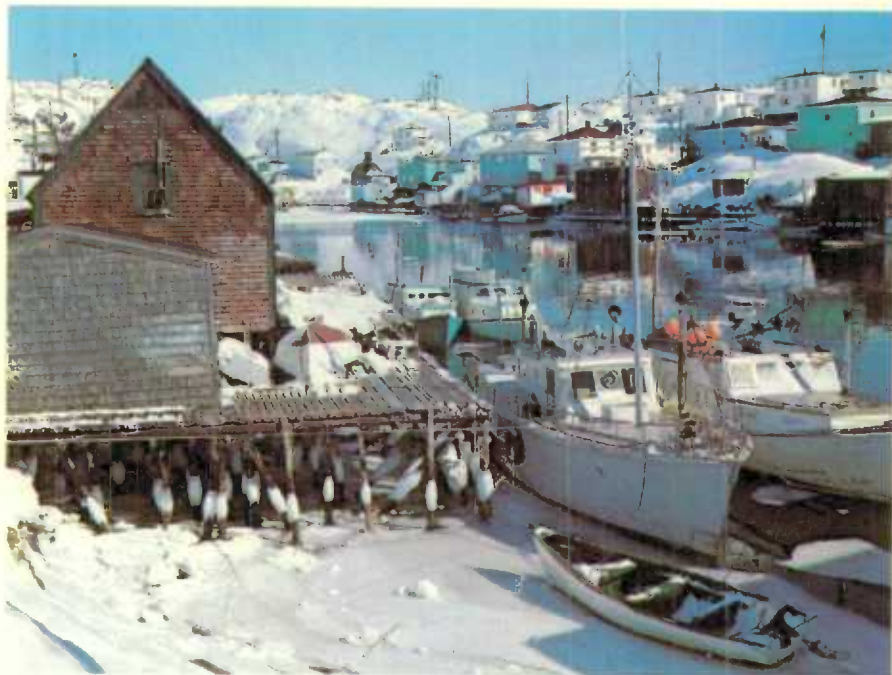
Ample space, great distances, variations in resources, and the history of geographical development fostered the emergence of distinct regions within the country. Population is concentrated in the southern part of Canada, but even there the continuously settled farm regions and urbanized areas are separated 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 became dominant in Newfoundland.



Fisheries in Newfoundland have remained a primary resource since the 16th century when European fishermen discovered the natural wealth of this region.

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 technical 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 cultivable land were produced. That was a main task of the 18th and 19th centuries,

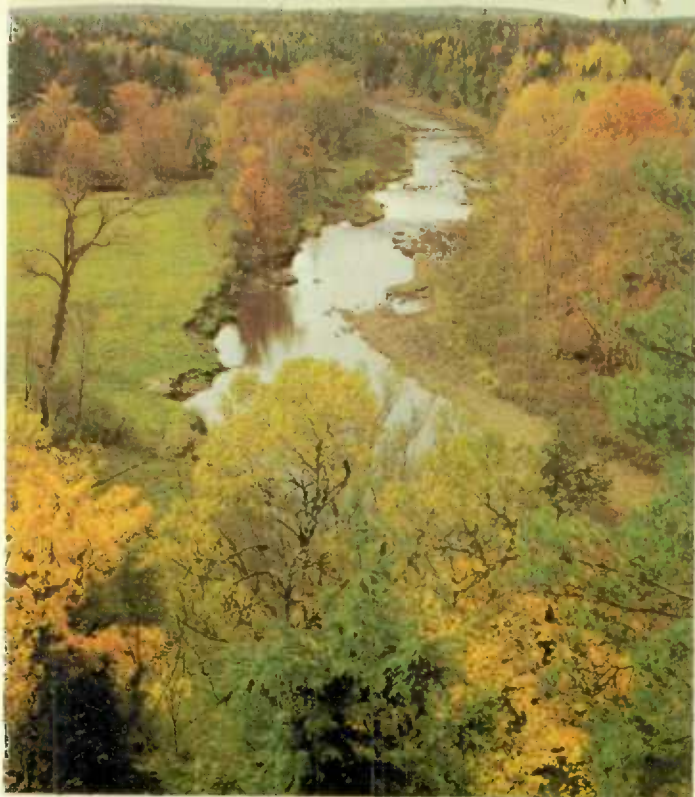
yet even today less than 1 per cent of Newfoundland, 3.6 per cent of Nova Scotia and New Brunswick, and 40 per cent of Prince Edward Island is improved agricultural land. Forests became a great resource of the region, especially in New Brunswick, in the early 19th century in the age of timber exports 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 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.

Among the Maritime Provinces, P.E.I. is the area best suited to agriculture.



The East River area of Nova Scotia forms part of the colourful pattern of forested land and winding rivers of Appalachian Canada.



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 Palæozoic rocks, over 300 million years old. This Palæozoic 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.

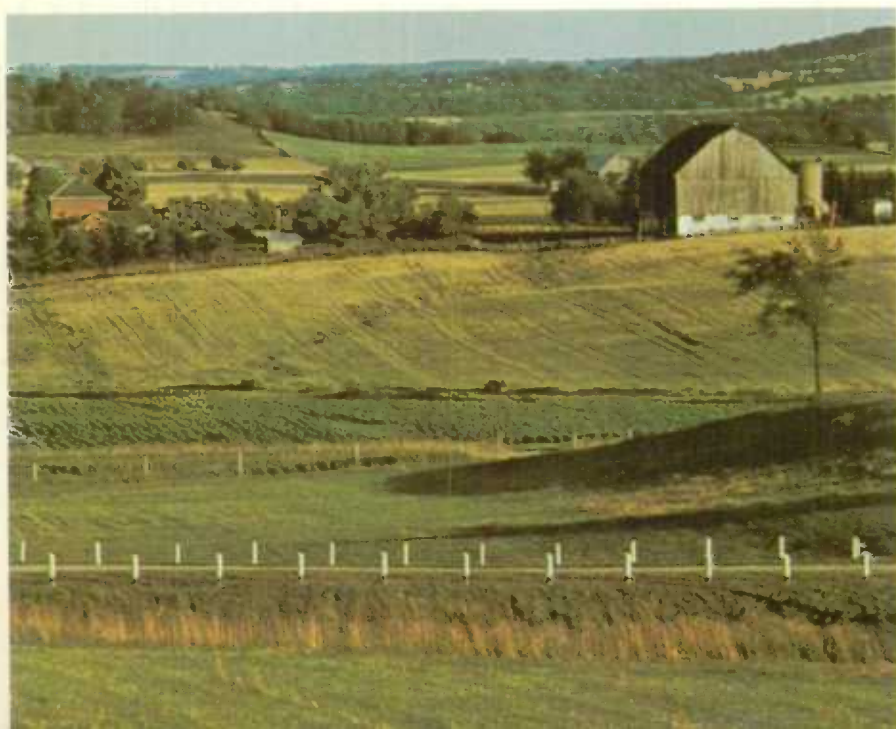
East of the Frontenac Axis the lowlands are about 75 miles wide at Montreal but they narrow towards Quebec. The Laurentide Scarp, marking the edge of the Shield, is the boundary to the north, and "Logan's Line," a fault zone, is the boundary on the south with the Appalachians, but the plain itself is 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 Palæozoic 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 although 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 gullying 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 in this area that make Ontario the leading farming province in Canada.

Owing to the fertile St. Lawrence Lowlands, Ontario is 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.

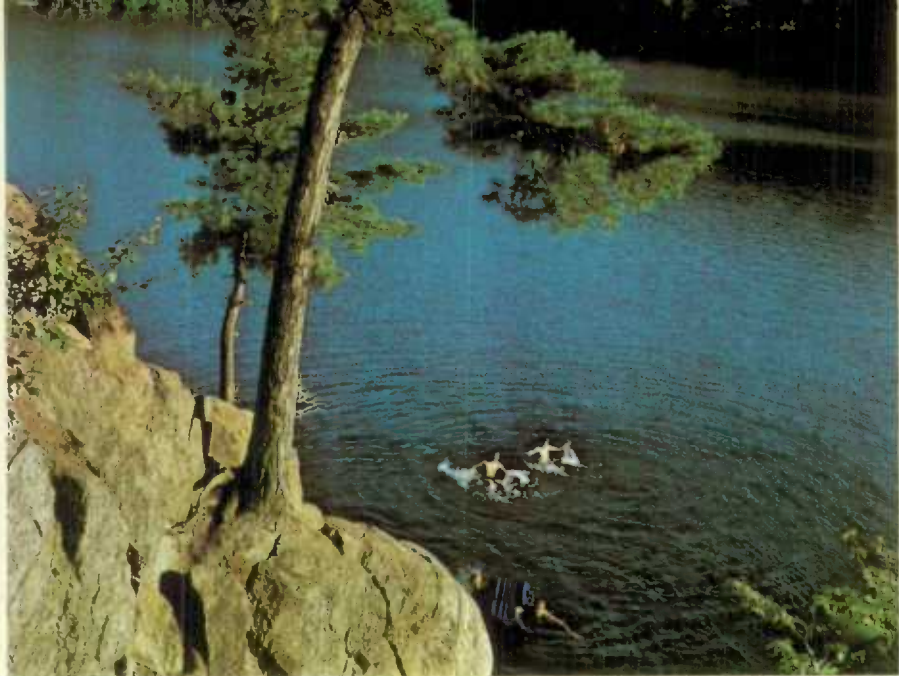
The story of the development of this region is not linked to the primary resources of the region alone. Of great importance is the great river, the St. Lawrence, and the Great Lakes, which make communications with other parts of the continent and with markets overseas relatively easy. Gradually this 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 Palæozoic 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 Palæozoic 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 many more are likely to be discovered. In the Palæozoic plains of the far north there are possibilities for petroleum discoveries.



Rocks of the Canadian Shield range in age from over 4,000 million to about 570 million years old.

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 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 they 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 foot 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 buffalo, 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 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.

Combines picking up swathed grain, north of Neepawa, Manitoba, a province of cultivated fertile plains.



Cordilleran Region

The Cordilleran Region, about 500 miles wide and 1,500 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 are high: 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.

Icefields and tributary glaciers above Athabasca Glacier in the Columbia Icefields, the greatest expanse of glacial ice in the Rockies.





Above the ranchland of B.C. lies the Crowsnest Pass, a natural corridor through the Rocky Mountains which forms the boundary between Alberta and British Columbia.

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 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 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 30 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

The purple colouration of this aurora borealis is caused by emissions from molecular nitrogen. Most auroral displays appear greenish due to strong emissions from atomic oxygen. The luminous streamers appear to converge overhead since they trace the earth's vertical magnetic field lines.



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 yields 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. 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



spring



summer



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 succes-

sion of cyclonic storms brings 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 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, Newfound-



Weather balloons for upper air sounding are released from the weather ship CCGS Vancouver.

land 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 south-eastward 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 Inuit 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 into 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. 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 (including 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 bordered with willow screens. The spruces taper in size 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.

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



Walrus



Toad



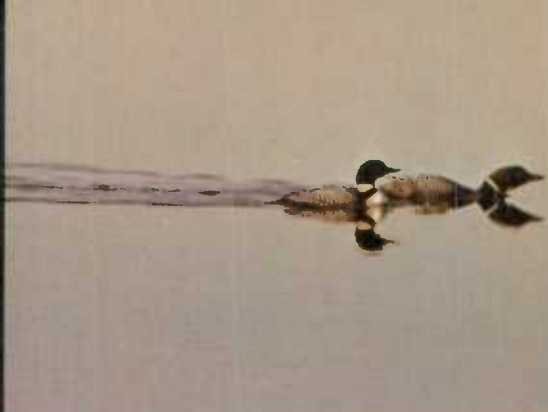
Baby seal



Raccoon



Ten-point buck



Common loon



Mallard duck



Hawk



Common noddy



Mountain goat

in clumps or isolated or in open, regular formations, with a variable undergrowth of tall shrubs (alders, junberries, 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 trees are stunted and patches of tundra occupy the high and dry sites, to the south, where trees are both taller and closer and undergrowth more lush and where water-course edges and protected topography allow full growth 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, junberry, 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 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.



Abandoned cars, collected on Vancouver Island, are crushed and brought to the Richmond steel recycling plant to be shredded and the metal sold.

Recycling

At Abitibi Provincial's operation at Thorold recycled paper passes through a chlorine washer which decolorizes the bleachable dyestuffs and removes lignin. At this plant, approximately 35,000 tons of secondary fibre are processed per year from old printed paper.



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 lusher vegetation. The presence of many plants unknown in the Arctic frequently gives 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 goats.

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 broad-leaved 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.

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 understory of evergreen madrone, of large-leaved maples, of dogwood and alders, and of tall, luxuriant ferns. Mosses and lichens often 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.

PIERRE DANSEREAU

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 Inuit, 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 17th 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 char-

Ursuline convent, Quebec. In 1639, Ursuline nuns arriving in Canada began a program of education for girls.



acterized 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 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.

By 1663 the colonists numbered fewer than 2,500 and the future was bleak. It was saved only 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 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 consti-



Hudson's Bay Co. fur-trade canoes navigating Lake Superior in 1869. Artist, Frances Anne Hopkins accompanied the travellers.

tutional 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's Bay Company in the west. This was quickly achieved but the first new province, Manitoba, was established only 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, 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 farmer's 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

A monument of the Highlander stands facing Pictou harbour in Nova Scotia, where Scottish settlers landed in September 1773 after a voyage of 11 weeks in the *Hector*.



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 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.

The first four years of the Trudeau government saw continued, but ultimately unsuccessful, constitutional negotiations. In October 1970 the government responded to the kidnapping of a British diplomat, and the kidnapping and murder of a Quebec Cabinet minister, by the *Front de la Libération de Québec* by proclaiming the War Measures Act. Some changes in foreign policy were designed to affirm Canadian sovereignty and reduce the country's military commitment in Europe. Increasingly, however, economic problems took precedence over all others with inflation and unemployment creating serious difficulties. When the government asked for a renewed mandate in October 1972 the electorate replied in an uncertain voice: 109 Liberals, 107 Conservatives, 31 N.D.P., 15 Social Credit, 1 Independent and 1 without party affiliation. Once again instability and uncertainty characterized the political scene, reflecting economic problems, ethnic tensions, and regional conflicts.



- 4. Restoring paintings and furniture.
- 2. Draftsman making final drawings from field notebooks.
- 3. Artifacts being pieced together.
- 1. Mending a beaded jacket.



The Native Peoples

Indians

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

Geography, not language, was the foundation of their cultures. The six 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 groups of the eastern woodlands were dependent on game, fish, and wild fruits. This necessitated the development of advanced modes of transportation and housing: canoes, snowshoes, toboggans and portable dwellings. They were made from birch bark, animal hides, and other natural resources that abounded in their environment. The more hostile environment encountered by the northern nomads did not allow them the 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 permanent settlements and a more complex social order. This included the development of religious societies and a more advanced political structure. Their homes, being permanent, were favourable for the development of pottery and decorative art. Their bark longhouses became centres for social and religious functions.

Algonkian, Athabaskan, and Sioux linguistic groups made up the plains culture tribes. These roamed the vast expanses of the Prairies following the buffalo herds that provided food, clothing, and shelter. Consequently, their culture—material, religious, and social—was closely related to the hunt. The feather head-dress and magnificent regalia used in their religious and social celebrations made them one of the most colourful cultural groups on the continent.

Woodland north of the Churchill River and the Mackenzie River system was home for the nomad Athabaskan linguistic group. The economy of this tribe depended on caribou, moose, hare, fish, and berries. They used canoes and snowshoes for travel. The migration of caribou and moose demanded easily movable tents in summer. The winter shelters were more permanent dwellings of bark and logs. Because of this mobility and the scattered locations of wandering groups, there existed no inter-tribal political structure.

The mountain and plateau dwellers were of four linguistic groups: Athabaskan, Salishan, Kootenayan, and Tlingit. Economically, the interior plateau of British Columbia and the Yukon provided fishing, hunting, and gathering. Wicker cage traps and dip nets were used to catch salmon. Roots and berries were gathered in spruce root baskets. Types of dwellings varied from skin and rush tents to semi-subterranean houses and rectangular log and bark huts. In social, political, and economic relationships, there was a tendency towards the social organization of the Pacific Coast culture.

Tribes of the West Coast were numerous: Tsimshian, Haida, Salishan,

Kwakiutl, Bella Coola, and Nootka. With an abundance of food and raw materials provided so readily by the environment, the West Coast tribes had leisure time to develop their remarkable totemic art, basketry, weaving, and artistic painting which is of lasting beauty. The material culture of the West Coast Indians centred on the gigantic cedar tree which abounded in the rain forests of the West Coast. Cedar fibres were used for clothing, mats, and room partitions. The roots served for basketry. The large trees were used in massive buildings, in dug-out canoes, totem poles, and household utensils. West Coast tribes are unique in that they had a stratified society of nobles, commoners, and slaves. The potlatch ceremonies were not only an indication of noble status, but ensured the welfare of the nobleman's family in the event of death or disability. The ceremony was conducive to inter-tribal trading and exchange of knowledge.

Religion among all tribes included a reverence for nature which supplied food and other necessities for life. At adolescence, each youth fasted alone in the wilderness and received his dream vision of the spirit that would guard him through his life—bird, beast, fish, thunder, the being in the rock or waterfall—any 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 even included neurological surgery and the treatment of psychosomatic ailments.

With the arrival of European settlers, all these cultures were undermined. The Europeans brought with them new weapons and technology, new economic values, alcohol, and new diseases which raged unchecked across the continent and played havoc with the tribal system. By the 1880's, with food becoming a rarity and the population reduced by half through wars and disease, the Indian culture had reached its nadir.

Today, Indians are organized into 566 bands and live on some 2,200 reserves covering 6 million acres of land. The Indian-Eskimo Affairs section of the Department of Indian Affairs and Northern Development is responsible for effective education, economic development, and community development in consultation with elected Indian leaders across the country.

Indian parents are expressing a new interest in the education of their children and school committees have been formed to ensure that the needs of their children are satisfied. Increasing numbers of Indian people are employed in schools while more schools are providing courses in Indian languages. Language instruction is one of the many ways of passing the long-established Indian culture from one generation to another.

Economic development programs create employment by developing the resources of the reserves. Today, Indian people are involved in many projects such as tourist outfitting, guiding, recreational operations, farming, and crafts merchandising. Loans, guidance, and the services of experts are readily available to bands wishing to improve the standard of living on the reserves.

Times and attitudes have changed since the 1800's. Today, consultation with the Indian people is commonplace. The Indian people are defining their own needs, offering their own solutions, and actively taking part in making the necessary changes. Administration begins at the local level with band councils encouraged



The ornamental dress of the Blackfoot, Stoney, Sarcee, and Cree is often seen in the western provinces.





Mount McKay ski area on the Fort William Indian Reserve is an Indian-owned and -operated resort near Thunder Bay, Ont.

to administer programs on reserves. Making the reserves better places to live, the councils manage housing, road building, and utility programs as well as social services and community affairs. Where highly technical knowledge is required, the Indian people are trained, enabling them to lead in the operation of programs. Indian people hold increasingly higher positions in the Department of Indian Affairs in Ottawa. Here they can see to it that decisions and changes are agreeable to both native and newcomer alike.



Inuit (Eskimos)

During recent years the many changes and developments in the Canadian North have affected almost every aspect of the lives of the more than 17,000 Eskimos (or Inuit as they prefer to be called) living there. These northern people have survived for many centuries in spite of the harsh conditions under which they have had to live and in recent years they have been offered new opportunities and facilities for strengthening their capacity to survive.

Early accounts and archaeological research show that the Canadian Inuit once ranged farther south than they do now, particularly on the Atlantic seahoard. Traditionally they were mainly a coastal people and they settled by the sea. Seals, walrus, fish, polar bears, and whales were their sources of food, fuel, and clothing. Centuries ago one group, however, broke away from the others to follow the caribou herds to the interior, where they formed a culture that was much different. They lived on the caribou herds and fish from the inland lakes; they made fires from shrubs instead of blubber and rarely visited the sea.

The early explorers of the Canadian Arctic met Inuit from time to time over a period of some 300 years but had few dealings with them. Development in arctic Canada came at a much later date than in other arctic lands. However, early in the 19th century with the arrival of the whaling ships and the men of the Hudson's Bay Company, changes began to take place. Through their dealings with whalers and factors the Inuit began to move into a position of some dependence upon the white man's goods and supplies. The old Stone Age wandering life was becoming less attractive to them.

Trading posts were built along both shores of Hudson Strait by 1923, down the east coast of Hudson Bay to Port Harrison and up the west coast of Hudson Bay to Repulse Bay. A similar development took place in the western Arctic. The Hudson's Bay Company now has some 30 posts in arctic regions.

With the Second World War came a rapid development in long-range air travel and this broke down the isolation of the Arctic. Airstrips for defence installations and meteorological and radio stations were established in many places. Early in the 1950's the Canadian government began to introduce steps to prepare the Inuit to take their rightful place in the economy of the changing Arctic. Social developments such as improved education, health and welfare services, and housing, together with the development of resources involving the Inuit were enthusiastically activated.

For hundreds of years the Inuit carved ivory and stone sculptures in their spare time. In 1959 an administrator of the Department of Indian Affairs and Northern Development taught some artists how to make prints, as well as encouraging Inuit to increase their production of sculptures. Inuit works of art are now prized by collectors in North America and Europe.

Igloos are built in less than 20 minutes during a building contest at the Spence Bay Spring Games.



Inuit fisherman in northern Labrador salt their catch at Saglek Fjord.

Canadian Inuit are full citizens in every respect and enjoy the same rights and bear the same responsibilities as other Canadian citizens. Present government policy is based on the principle of equalizing opportunities for Inuit while at the same time enabling them to retain as much of their culture as they wish, so that they, as a group, may make their distinctive contributions to our multicultural society. To attain this, the federal government either directly, or indirectly through the government of the Northwest Territories, is involved with the Inuit people in the following programs:

- (1) Government. Inuit are elected members of the Territorial Council of the Northwest Territories. Inuit settlement councils have been functioning for many years and many settlements are moving towards "hamlet" status in local government.
- (2) Local Administration. The massive Northern Rental Housing Program could not have attained the goals achieved up to the present without the participation of the Inuit. Community development and rental housing management were combined in this program.
- (3) Co-operatives. Since 1959 Inuit have developed and managed 36 consumer and producer co-operatives, with a turnover of well above \$2 million annually. Total responsibility for co-operative development in the Northwest Territories was assumed by the territorial government in 1969.

(4) Education. Full financial support is provided by the federal government. The first Canadian Inuit doctor, teacher, and pilot have already graduated.

(5) Social Organization. Through the Secretary of State Department the federal government provides funds to Inuit Tapirisat, the national Inuit organization, which lists among its objectives:

(a) to help preserve Inuit culture and language and promote dignity and pride in the Inuit heritage;

(b) to assist the Inuit in becoming aware of their own situation, aboriginal rights, government plans, legal matters, and educational opportunities so that they may determine those things of a social, economic, educational, and political nature that will affect them and future generations;

(c) to assist the Inuit in their right to full participation in Canadian society and their sense of belonging to it and to promote public awareness of those rights.

(6) In addition, the federal government, through the Department of Indian Affairs and Northern Development, has recognized the Inuit as a disadvantaged people and has made a contribution commitment to the Inuit Tapirisat of Canada in the amount of \$100,000 to research questions of concern to the Inuit people, including legal rights and moral claims in respect to lands and waters in the North.

The future of the Canadian Inuit is one which has caused some concern. In the development of the Canadian North it is of the highest importance in the government's program.

Cape Dorset in April.



Bilingualism

Throughout Canada's history the existence of two major linguistic groups has been one of the dynamic forces that has helped shape the country and contributed to its unique character. To safeguard this valuable national heritage, the government has taken a number of steps to ensure equal participation in Canada's future by her 16 million English-speaking and 6 million French-speaking citizens.

In 1963, a Royal Commission on Bilingualism and Biculturalism was appointed to inquire into various 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. After careful study and discussion the final version of the Bill was unanimously adopted by Parliament.

The Official Languages Act, which came into force in September 1969, 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."

The government's bilingualism policies are based on the premise that the right of English-speaking Canadians to speak English and of French-speaking Canadians to speak French must be protected. It follows that, as a general rule, the citizen should be able to deal with the Government of Canada and work for his government in his own language.

The Bilingualism Development Program

In order to implement its official languages program, the government created a bilingualism development program within the Department of the Secretary of State. The responsibility for different aspects of the program was given to two branches.

The Language Administration Branch was set up in 1970 to implement a number of measures stemming from recommendations made by the Royal Commission in Books II, III, and VI of its Report, on federal government activities outside the public service. The branch formulates, administers, and evaluates programs designed to promote the development of bilingualism in such areas as education. It is also involved in helping provincial and municipal governments, private enterprise, and non-profit associations in activities where the official languages are used, either through technical assistance or grants.

The Social Action Branch is responsible for the development of a grants program designed to attain two 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.

In order to meet these goals, the Social Action Branch has set up the following eight grant programs: support to provincial associations, group development, cultural centres, cultural promotion, conferences and meetings, international

participation, youth activities, special and national projects. Through this series of programs, the government hopes to ensure equality of opportunity for both French- 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.

Commissioner of Official Languages

The *Official Languages Act*, of 1969, created the position of Commissioner of Official Languages for Canada. The first occupant of this office took up his duties on April 1, 1970.

In consideration of section 2, of the Act "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 functions, those of language ombudsman and linguistic auditor general. It should be noted that his powers can only be brought to bear in matters of federal jurisdiction.

In order to implement the government's policies on bilingualism, the Public Service Commission has created its own French language training course, *Dialogue Canada*, which incorporates not only the latest concepts in language training but also aspects of French Canadian culture.



The Commissioner is appointed by Parliament for seven years and is eligible to be re-appointed for a further term not exceeding seven years. He is required to submit an annual report to Parliament on his activities during the preceding year.

Official Languages Development Program

The Official Languages Branch of the Treasury Board Secretariat is responsible for ensuring the implementation of the official languages policy within the public service and for the development and communication of the operational policies and procedures through which functional bilingualism can be made to work effectively. The Treasury Board Secretariat is the central agency responsible for organization and personnel management in the public service as a whole. The newly-created Branch in the Secretariat has assumed the responsibilities that previously were handled by a division in the Personnel Policy Branch of the Treasury Board and 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 and, more recently, the Resolution adopted by Parliament in June 1973, concerning the implementation of the official languages policy within the public service.

Multiculturalism

In October 1971, the Prime Minister announced the federal government's policy on multiculturalism. This announcement was the government's response to the recommendations of the Royal Commission on Bilingualism and Biculturalism which had examined the questions of cultural and ethnic pluralism in Canada and the status of the country's various cultures and languages. When introduced in the House of Commons, the principle of multiculturalism was supported by leaders of the opposition parties and accepted as the most suitable means of assuring the cultural freedom of Canadians. The new policy gave public recognition for the first time to the valuable contribution made to Canada by its many and diverse cultural groups and promised continuing support and encouragement to these groups.

In November 1972, the position of Minister of State responsible for Multiculturalism was created to administer the policy. The following May, the 102-member Canadian Consultative Council on Multiculturalism was established to provide a source of consultation to the Minister on matters pertaining to the implementation of the multicultural policy. Approximately 80 per cent of the Council's membership is drawn from Canada's minority ethno-cultural groups; the rest represent native, French, and English communities. The Council may be summoned by the Minister once a year to a national meeting and to regional meetings as required for the purpose of reviewing policy and evaluating multiculturalism programs.

Implementation of the government's multiculturalism policy is carried out by the Citizenship Branch of the Department of the Secretary of State and a number

of federal cultural agencies which have developed special programs designed to encourage respect for individual and group identities within the larger Canadian context.

Several funding programs in support of multiculturalism are co-ordinated by the Citizenship Branch. The Multiculturalism Grants Program awards funds to groups for projects that promote an awareness of Canada's multicultural diversity and encourage Canadians to share their cultural heritage with their fellow citizens. The Multicultural Centres Program helps to finance the development, establishment, and ongoing operation of community multicultural centres supporting the cultural activities and identities of Canada's ethno-cultural groups.

The Canadian Identities Program established in the spring of 1973 spans most areas of cultural expression and is designed to increase the awareness of different life styles and cultural traditions within our society. Various programs dealing with festivals, theatre, film, programming for radio and television, research and publishing, the collecting and exhibiting of folk arts, crafts, and artifacts are administered by the Citizenship Branch and the federal cultural agencies.

In the area of multicultural studies, the Citizenship Branch commissions professional scholars to write histories of ethnic groups in Canada and undertake research related to its multiculturalism programs. The Branch is also involved in the establishment of a co-ordinating service for academics pursuing ethnic studies and in the initiation of a visiting professors' program in Canadian universities.

With regard to services for adult immigrants, the Citizenship Branch administers funds, under the terms of federal-provincial agreements, to underwrite provincial costs for official-language teaching and orientation programs. To inform elderly people and recent immigrants having a limited command of English or French about federal activities and programs affecting them, the Citizenship Branch together with other government departments and agencies is extending its use of the ethnic media to provide detailed information on old age pensions, immigration regulations, consumer protection, and so on.

In the field of third-language teaching, the Citizenship Branch provides grants to ethnic organizations for the production of texts and audio-visual aids oriented to the Canadian point of view. This is a consequence of discussions with several provinces which revealed a serious lack of language teaching materials relevant to the needs of children growing up in Canada.

Several federal agencies have established special programs in support of multicultural objectives. The National Film Board is working on a new series of feature documentaries on inter-cultural relationships and special ethno-cultural events in various parts of Canada. This is in addition to a series of short films now in production featuring individual ethnic groups. The Board also prepares and distributes ancestral-language versions of NFB films originally produced in French and English. In addition to collecting artifacts and data on ethno-cultural groups in Canada, the National Museum of Man administers a related program of displays, travelling exhibits, and publications. The Public Archives collects and exhibits ethno-cultural documentation, and also searches out and catalogues ethnic materials in multicultural archives across the country. The National Library administers a program to buy and circulate books in other languages through the public library system.

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 autonomous churches.



The Moravian Mission buildings, established in 1771 at Hopedale, Labrador, are among the oldest on the Labrador coast. Church services are still held weekly in this building.

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 75 per cent of the population of Canada, according to the 1971 census. Other familiar denominations have substantial numbers of adherents. Presbyterians come first with upwards of 872,000, and Lutherans follow with upwards of 716,000. 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 1971 census at fewer than 220,000.

In the western provinces, Canadians coming from branches of the Ukrainian (Greek) Catholic were 134,878 in 1961 in Manitoba, Saskatchewan, Alberta, and British Columbia; in 1971, in the same provinces they were 144,000.

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



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1. Concrete church in Côte St. Luc area of Montreal, Que.
2. The chapel at Fort Ste. Marie, Midland, Ont.
3. Unitarian church in Ottawa, Ont.
4. Church in Richibucto, N.B.





Stained glass window of the church of St. Théophile, in Laval
Ouest, Que.

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.

ERNEST MARSHALL HOWSE

Arts and Culture

What is frequently termed the "cultural pattern" of a nation is a mosaic of many intricately adjusted parts touching almost every aspect of the way of life of a people. A country's art in all its forms mirrors this ever-changing pattern.

Canada's Cultural Heritage

Canada's "cultural pattern" stems from a rich and varied artistic heritage. Predominant in English-speaking Canada is the Anglo-American influence, a combination of this country's firmly established British tradition and the more recent but widespread cultural impact of the United States. For French-speaking Canadians in Quebec, New Brunswick, and in sizable communities elsewhere, Canada's French-language heritage is the cultural point of reference. A more diffused cultural influence is Canada's multicultural tradition, the result of massive waves of immigration to this country, around the turn of the century and after the Second World War. The artistic traditions of this nation's first inhabitants, the Indians and Inuit, constitute another important strand in Canada's cultural fabric.

Historical Development of the Arts

Not until the early 1950's is there any marked advance in Canada's cultural development. Up until then, in spite of considerable achievements in some areas, progress in the arts was intermittent with much of the creative stimulus coming from outside rather than from within the country. As Canada was essentially a pioneer society until well into the 20th century, Canadians were of necessity concerned with economic and physical survival. With vast distances separating settled areas, the exchange of ideas was difficult and costly, thus limiting the climate required for rapid development of the arts.

In the prosperous decade following the Second World War, economic affluence, improved communications, and an awakening of public interest combined to provide unprecedented encouragement for the arts. The already well established arts such as painting and poetry began to acquire new dimensions while innovative trends began to appear in the fields of music, theatre, and the visual arts. In other areas such as ballet and film, still fairly new in Canada, an interest in contemporary expression began to manifest itself. At this time a growing sense of national pride led Canadians to take a greater interest in their country's art and its future development.

In contrast to the rather leisurely artistic development characterizing Canada's early years, the last three decades have seen an increasing commitment of public funds, federal, provincial, and municipal, in support of the arts. Of particular interest during this period is the federal government's growing involvement in cultural matters.

An important breakthrough for the arts came in 1949 when the federal government established a Royal Commission on National Development in the Arts,



The Centennial Auditorium is part of a new development in Saskatoon, Sask.

Letters and Sciences. The Commission's hearings attracted widespread public interest and briefs poured in from all parts of the country. In 1951 the Commission published its findings, generally known as the Massey Report. Six years later one of its principal recommendations was implemented when Parliament approved legislation to create the Canada Council, a major source of financial support to the Canadian arts community ever since.

In the 1960's artistic activity and interest in the arts continued to gain momentum. In preparation for Canada's 100th anniversary celebrations in 1967, communities from one end of the country to the other planned a variety of cultural projects. Hundreds of new buildings dedicated to the arts began to spring up across the country. Throughout centennial year, theatres and arts centres across the nation were booked with performances by touring companies and local groups. The year's highlight, Expo 67, brought together for the first time creative and performing artists from all over Canada, providing them with a unique opportunity to demonstrate their capabilities to their countrymen and to the world. If the term cultural explosion has any meaning, then it could surely be applied to the burst of creative activity in Canada during 1967.

Although the natural slowdown in artistic activity following centennial year may have seemed like a slump, in fact the next few years were to see the realization of a number of government initiatives with far-reaching implications for the arts in Canada.

A new Broadcasting Act was approved by Parliament in 1968 with the objective of providing a broadcasting system that would be Canadian-owned and predominantly Canadian in character and program content. The Act called for the



Adaptation of Tlingit, modern Yukon beadwork.

creation of an agency to supervise and regulate national broadcasting, the Canadian Radio-Television Commission (CRTC). This same year the government issued a directive to the newly created CRTC requiring 80 per cent Canadian ownership and complete control of radio and television stations, as well as cable television systems that were then under foreign control. The effect of this directive was to transfer the ownership of tens of millions of dollars into Canadian hands in a sector vital to Canada's cultural development.

Two other important steps taken in 1968 were the establishment of the Canadian Film Development Corporation with its mandate to foster and promote the development of a feature film industry in Canada, and the incorporation of the National Gallery and three other museums in Ottawa under one administration—the National Museums of Canada.

In 1969 the National Arts Centre opened. Established to encourage the performing arts in the National Capital Region and to support the Canada Council in promoting the arts throughout the country, the Centre has been a success from its inception with an attendance average of over 78 per cent for all productions.

A Cultural Policy for Canada

In 1968 the federal government announced its intention of formulating a comprehensive cultural policy. Committed to the principle of cultural democratization, the new policy was to ensure the diffusion of culture to all segments of Canadian society. This would be achieved by a more equitable distribution of financial resources and by closer co-operation and co-ordination of activities among the federal cultural agencies and the three levels of government.

By this time, the Department of the Secretary of State had become a focal point for the arts in Canada. Charged with ensuring the co-ordination of cultural activity at the federal level, the Secretary of State was spokesman in Parliament and responsible in varying degrees for nine cultural agencies—the Canadian

Broadcasting Corporation (CBC), the National Film Board (NFB), the National Library and Public Archives, plus the five agencies already referred to—the Canada Council, the Canadian Radio-Television Commission, the Canadian Film Development Corporation, the National Arts Centre, and the National Museums Corporation. It was natural, therefore, that responsibility for development and implementation of the new policy should be assigned to the Secretary of State.

One of the first measures taken by the Secretary of State's Department to implement the cultural policy was to set up machinery to provide better co-ordination of the activities of the agencies mentioned above. As a consequence, since 1969 seminars have been held annually to discuss the short- and long-term objectives of the various agencies and the measures proposed to achieve these goals.

In 1970, the government stated that its priorities for cultural development were the democratization and decentralization of culture. While democratization on the one hand would ensure access to the arts and encourage cultural expression at all levels of society, decentralization, on the other hand, would facilitate the diffusion of culture throughout the various regions of Canada. During 1971 national consultations were held to discuss needed changes in the museum and publishing fields which resulted in major announcements in both areas the following year.

Federal Publishing Policy

In February 1972, the Secretary of State announced the first phase of a federal book-publishing policy, the principal aim of which was to promote the growth of a truly Canadian industry capable of publishing all talented Canadian authors and of ensuring the widest possible distribution of their works. The new policy was based on the assumption that a publishing industry controlled by Canadians was essential for Canada's cultural growth and for the development of this

An Inuit print on display at Povungnituk, on the east coast of Hudson Bay.



country's international identity. Because of the urgent nature of the difficulties facing Canadian publishers at this time, priority was given to stimulating the growth of Canada's book-publishing industry. Financial assistance was made available in the form of increased grants to publishers for the publication of Canadian works with additional funds provided for the translation, purchase, and exporting of Canadian books. In addition, the government announced its intention to entrust private publishers, wherever possible, with the publication and the development for commercial use of non-official publications sponsored by federal departments, organizations, and Crown corporations.

National Museum Policy

In March 1972, the Secretary of State announced a new policy for museums, based on the principles of democratization and decentralization of the national cultural heritage, and proposing that the movement of objects, collections, and exhibits be increased and expanded throughout the country.

The program implementing this new policy involves both large and small museums with emphasis on increasing the existing capability of the former to radiate beyond their immediate surroundings. Smaller institutions are encouraged to upgrade their receiving and exhibition facilities to participate more effectively in local exhibition networks.

The National Museums of Canada is the agency responsible for the program, the important features of which can be described briefly as follows:

- (1). An "Associate Museum" network has been established, including the National Museums of Canada, so that existing disparities in museum collections, activities, and standards in various parts of Canada can be raised to a common professional level. The creation of a balanced network throughout the country allowing for the exchange of exhibits will permit the Associate Museums to fulfil their obligations in the regions they serve.
- (2). Special grants are being provided for projects to upgrade staff and facilities in museums and galleries throughout the country.
- (3). National Exhibition Centres are being established; they are designed to receive exhibitions in areas not serviced by museums.
- (4). Training Assistance is being made available to increase the number of museum professionals and to provide catalogue assistance to institutions with limited resources for carrying out this important work.
- (5). A Museumobile Program is under way to bring specially designed exhibits to areas where collections are not exhibited because of inadequate facilities.
- (6). An Emergency Purchase Fund has been created to allow the purchase of objects and collections deemed to be of particular significance to the Canadian cultural heritage, which might otherwise be lost to the country through sale abroad.
- (7). A Canadian Conservation Institute is being established with headquarters in Ottawa which will have five regional branches throughout Canada devoted to restoration and preservation projects.
- (8). A National Inventory is being developed to evaluate information held by Canadian institutions with the object of improving information systems to better serve museums across Canada.

Federal Film Policy

In July 1972 the Secretary of State announced the first phase of a new film policy designed to support a more rational development of Canada's film industry. Despite the rising quality and quantity of films being produced it was evident that better co-ordination of cinematographic activity in federal institutions was required. Measures announced included the doubling of the statutory appropriation for the Canadian Film Development Corporation to \$20 million and the undertaking of that institution to review its policies on distribution and on films produced for television. This resulted in an agreement with Odeon and Famous Players to increase the showing of Canadian films in their theatres.

Under the new policy, the NFB has begun to decentralize its production operation to offer greater encouragement for regional productions and film makers; the Board is no longer the exclusive agent for government-sponsored films but will have to compete with the private sector for these contracts; the CBC will broadcast an increasing number of Canadian films; a Film Festival Bureau has been created to handle and co-ordinate Canadian participation in film festivals at home and abroad; and finally, an advisory board with representatives from the film industry and the cultural agencies has been set up to advise the government on its participation in film matters.

The Performing Arts

As a result of federal government initiatives of the mid-1950's and the subsequent support provided by provincial and municipal governments and the private sector, festival and regional theatres, orchestras, opera and dance companies of international calibre now exist in most parts of Canada. To develop these facilities further, a cultural policy for assistance to the performing arts is already in an advanced stage of development.

As part of this policy a National Touring Office was recently established in Ottawa to ensure greater access to the performing arts by the widest segment of the population and at the same time to promote a balanced development of the activities of performing arts groups in Canada. The Touring Office operates as a subsidiary of the Canada Council and is served by an advisory board of performing arts professionals from across the country. It does not, however, have any control over artistic content nor does it supplant current touring arrangements of Canadian companies or the work of commercial impresarios.

In addition to its domestic responsibilities the National Touring Office also arranges overseas tours of Canadian companies formerly handled by the National Arts Centre for the Department of External Affairs and assists performing groups coming to Canada under cultural exchange arrangements with other countries.

Federal Expenditures for the Arts

The extent of the government's commitment to cultural development is measurable not only by its policy pronouncements but also in monetary terms. In 1951, the year of the Massey Report, the federal government spent roughly \$12 million on cultural activities largely to maintain such agencies as the CBC, the



1. National Ballet's *Romeo and Juliet* at the National Arts Centre, Ottawa.
2. *Colour the Flesh the Colour of Dust* presented at the Neptune Theatre, Halifax, N.S.
3. Canadian Opera Company in Toronto, Act II of Verdi's *Aida*.





1. Theatre and music are among the many arts fostered at the Banff Centre.
2. *La Mégère Apprivoisée* at the Théâtre du Trident, Quebec, Que.
3. *She Stoops to Conquer* at Stratford, Ont.



NFB, and the National Museums. By 1966-67, 15 years later, some \$170 million was spent. The figure for 1972-73 is approximately \$400 million.

In spite of government austerity measures and the fight against inflation in the years since 1968, federal funds were made available to support programs in fields where new initiatives were imperative: \$9.5 million to museums and art galleries to implement the new decentralization policy, \$2 million to Canadian publishing firms to alleviate the serious financial difficulties being faced by that industry, \$1.5 million for the film policy, and \$5 million over a five-year period for the establishment of an "art bank" aimed at encouraging Canadian artists and art galleries and at making the public aware of our contemporary artistic production.

Direct Assistance to Artists

In addition to the encouragement for cultural expression provided by its agencies, the government, through a broad program of fellowships and grants, administered by the Canada Council, provides funds to professional artists in such fields as music, opera, dance, theatre, the visual arts, and writing. At the non-professional level, the Council now awards grants under its new Explorations Program to encourage developing forms of creativity, research and participation in the arts.

Two other government programs which have incidentally affected the arts scene are the Local Initiatives Program (LIP), sponsored by the Department of Manpower and Immigration and the Opportunities for Youth Program, administered by the Department of the Secretary of State. The LIP program is designed to help the ranks of the unemployed, and in this context, has provided seed money to support new performing and creative arts movements.

Opportunities for Youth is a summer student employment program for persons under 25, in operation from May to September. By providing funds for amateur projects which enable youth to apply their artistic skills and to learn in the process, this program has helped stimulate a new interest in the arts and in art education.

Although the Secretary of State Department does not provide direct assistance to individual artists, it does provide annual operating grants to several national organizations representing the various artistic disciplines. The most comprehensive of these is the Canadian Conference of the Arts with a membership of over 150 arts organizations and associations. Formed in 1944 to gain recognition for the growing role of the arts in Canadian life, this organization has contributed greatly to Canada's cultural development.

Other Assistance for the Arts

Culture is by no means the exclusive preserve of the federal government. The Government of the Province of Quebec, for example, has had a long tradition of support for the arts. Some provincial governments have agencies similar to the Canada Council that provide public funds for the support and encouragement of professional artists and organizations. Substantial aid to the arts is also provided by municipal governments, particularly those of the larger cities. Fund-raising activities organized by public-spirited private individuals are yet another source of cultural support. Private support from business and industry, however, lags far behind public or government support.

Scientific Activities

Science and technology are powerful factors affecting the way of life of all Canadians. Only in the past ten years has science policy been recognized both nationally and internationally as a vitally important component in decision-making. Most people now realize that science and technology are basic contributors both to prosperity—through the development of industry and the utilization of natural resources—and to many of the serious problems faced by industrial societies. Scientific activities are being actively examined and their objectives and methods of operation are being questioned. In both industry and the North, science is being asked to provide means to increase production and prosperity while minimizing pollution and other threats to the quality of life.

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 effort of many years was warmly applauded by Canadians and particularly by Canadian scientists.

Canada's first domestic communications satellite was launched from its pad at Cape Canaveral, Florida on November 9, 1972. At present Canada has two working satellites in orbit.





Sulphur-based paints, sulphur-asphalt mixtures and sulphur-foam insulations are expected to be used for highway construction in the near future.

Science Policy

Canadian scientific policies seek 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 policies are strongly influenced by our federal system of government; many aspects of science and technology in public affairs are the prerogatives of the provincial governments. These in turn are recognizing their role. Quebec, for example, has its own advisory science council and a government committee at the ministerial level, headed by the minister of industry, to deal with science and technology. 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 science policy-making, then Canada soon should have the most efficient and productive scientific effort 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 produced a comprehensive study entitled *A Science Policy for Canada*. The Science Council of Canada produced reports on science in general plus others dealing with various special areas of scientific research and development. The new Ministry of State for Science and Technology, formed in August, 1971, has emerged from its organizational phase with one major science policy decision already behind it.

The Senate Special Committee on Science Policy, under the Chairmanship of Senator Maurice Lamontagne, held extensive public hearings in 1968 and 1969, and by 1972 had published three reports: Vol. I, *A Critical Review: Past and Present*, Vol. II, *Targets and Strategies for the Seventies*, and Vol. III, *A Government Organization for the Seventies*. The Committee pointed in its reports to

many gaps and weaknesses in Canada's research efforts. They said, for example, that Canada has been neglecting: (1), life and social research (medicine and sociology, for example); (2), engineering and development activities (known as "applied research" directed toward producing Canadian technological breakthroughs); and (3), a consciousness of the economic and social objectives toward which much research could be directed.

The Committee felt that Canada had over-concentrated on "basic" research—although it did not think that such research should be cut back—while neglecting "applied" research. In the Committee's view Canadian industry must perform more of Canada's research and development (R&D) and the Canadian government also must spend more money on R&D, especially in industry. In addition there are no adequate systems to process and make readily available existing information on science and technology in Canada.

The Science Council of Canada (SCC), 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. A listing of the subject matter in some of the very recent SCC reports and background studies provides a cross-section of Canada's current science policy issues: innovation, multi-national firms, foreign direct investment, basic research, natural resources, and environmental issues.

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 the industrial, social, and health aspects of science. Social innovation—the "innovation of our future"—is highly dependent on how science and technology are used and hence will be a key concern. The current ferment in science may lead to a structure for Canadian science that is

Acoustic properties of floor, wall, and ceiling systems are tested at the Domtar Acoustical Laboratory in Sunneville, Que.





Short Take-off and Landing aircraft in flight over Ottawa.

able to project and respond to future scientific and technological needs. In a complex society, using complex technologies, the scientific organization must be sophisticated and alert; it must develop new approaches, and predict and avoid adverse consequences.

The objective of the new Ministry of State for Science and Technology (MOSST) is, in the broadest sense, to assure the optimum use of science and technology in support of Canada's national objectives. The ministry's primary function is to formulate policy. It has a key role to play in co-ordinating federal research and development programs and in fostering co-operative relationships with the provinces, with industry, and with universities, as well as with other nations.

In August 1972, the then Minister of State for Science and Technology, the Hon. Alastair Gillespie, announced the government's new "contracting-out," or "make-or-buy" policy, under which all new R&D requirements of the federal government, except those falling within certain narrow criteria, will be contracted out to industry instead of being undertaken in government laboratories. It was observed that Canadian industry does too little R&D in relation to its indicated need, at a higher proportional cost than that in many other leading industrialized nations. Furthermore government expenditures on in-house research seem large compared to current levels of industrial research. The main thrust of the policy is to help ensure that the results of R&D are translated effectively into more Canadian industrial capacity.

One of the first tasks facing the MOSST as a new ministry was to take an overview of Canada's national resources in science and technology. During MOSST's first year, the survey of the funds and manpower assigned by the federal government to scientific activities was extended to the social sciences and

humanities. The results of these surveys are published in MOSST's annual "Green Book" entitled *Scientific Activities: Federal Government Costs and Expenditures*.

MOSST is also studying reporting mechanisms for research in progress in industry and universities, and, as part of its "national audit" of research resources, is engaged in a survey of highly qualified manpower so that universities can better forecast national needs. Productive consultations have been established between the ministry, private industry, the universities, and other levels of government. Some other ongoing policy concerns of the ministry are space technology, oceans policy, northern science policy, technology forecasting and assessment, and international co-operation.

Research and Development

The importance of both social and industrial innovation to the quality of life in Canada has been a repeated theme in recent reports, articles, and conferences on research and development. The need for qualified native Canadians has been stressed in particular in the 1972 Gray Report on *Foreign Direct Investment in Canada*, for example.

An efficient communications network is essential for Canada, a nation with a population of 22 million spread across an area of 3.85 million square miles. In 1971, Telesat Canada, owned jointly by the government and private corporations was developed to keep Canada's communications in the forefront. Telesat Canada launched Anik I in 1972, the first satellite for operational communications in Canada. It carries telephone messages east, west, and north across Canada and into isolated places. The CBC provides also both French and English television via Anik. This system consists of a geostationary satellite weighing approximately 1,100 pounds and a ground-station network.

The Canadian Centre for Remote Sensing of the Department of Energy, Mines and Resources has been designated as the program planning office for resource satellites and remote airborne sensing. Canada is monitoring and recording data from the Earth Resources Technology Satellite (ERTS) A, which was launched by the United States in 1972. Air traffic navigation and control is another field of technology where satellites are expected to make a contribution during the next decade.

Applied and basic research, especially the success of the Alouette-ISIS series of ionospheric research satellites, has gained for Canada a reputation as a nation with advanced capabilities in space science technology.

Transportation is another continuing problem in Canada. The Transportation Development Agency and the National Research Council of Canada are investigating air-cushion vehicles for interurban use. The Canadian government and Bell Aerospace of Canada are involved in hovercraft trials. Short Take-off and Landing aircraft (STOL) are a very promising development. Research and development are being directed to increasing the speed of conventional railway traffic. Transportation is not confined to people. Pipelines for solids such as coal, iron ore, sulphur, and potash are being developed for the Ministry of Transport at the Saskatchewan and Alberta Research Councils. Finally, oil and gas pipelines continue to be improved.

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

Science and Technology for the North

The North, in which Canadian scientists have been interested over the last half-century, has now become the focus of intensive national research and investigation. Initially the discovery of oil in northern Alaska in the spring of 1968 was responsible for the sense of urgency in Canada. It was immediately apparent that the Mackenzie River valley would be considered the principal alternative route for oil and gas pipelines from northern Alaska to continental markets in the south. And since then, Canadian oil and gas resources have been discovered in the same general region.

In 1973, despite the readiness of developers to proceed with the Mackenzie valley pipeline, construction was halted while a whole range of factors—from resources depletion and native rights to balance of payments and inflation—were debated within and without the federal government. The large-scale development of northern resources is seen as a certainty; it is timing, method, and rationale that are in dispute.

Many provincial governments are now facing the policy problems of the new frontier as the custodians of a huge segment of the Middle North and Subarctic.

Patterns of sea ice coat the water near a geological survey camp on Spence Bay.





The 45 ton Voyageur, an amphibious air cushion vehicle was recently tested for arctic regions and offers year-round mobility.

Controversy over native rights and development priorities has surrounded the Quebec government's James Bay hydro project, which is in its early stages.

1973 saw restrictions set on exports of Canadian oil and gas in the face of rapidly growing American and world demand. Experts are predicting that the end of the fossil fuel era will soon be in sight. Research on alternative energy sources such as fusion are in the planning stage in Canada.

In 1972-73 the cost of on-going scientific activities in the North by federal government departments was about \$30 million.

Science and Technology for the Oceans

The Speech from the Throne in late 1972 included among government priorities a review of marine research and development. Canada borders on three oceans and has the world's second largest continental shelf. Our awareness of the importance of the shelf has been forced on us by a myriad of problems: non-renewable and biological resource management; Canadian federal-provincial jurisdictional questions; ocean transport and pollution control, and the related problems of international law; and the challenge of surface and underwater transport in ice-covered waters. The Ministry of State for Science and Technology has been given the task of formulating federal policies for marine research and development.

SCITEC

The Association of the Scientific, Engineering and Technological Community of Canada (SCITEC) aims at involving Canada's entire scientific community including those concerned with the physical, biological, social, health, engineering, and agricultural sciences. It was founded in 1970 by the national organizations representing these disciplines and professions. Representatives of more than 50 societies have already come together at several conferences and meetings under the auspices of SCITEC.

Research in Agriculture

The Canada Department of Agriculture—through its Research, Health of Animals, and Economics Branches—carries out a broad program of research that encompasses all areas of agriculture.

The high quality of Canada's farm produce and the notable gain that has occurred in agricultural productivity is due in large measure to research. The ability of Canadian agricultural research to respond quickly to changing demands of the industry, coupled with prompt application of research findings, are major factors in maintaining international markets for the country's farm produce.

Research Branch. Employing about 900 scientists at 45 establishments across Canada, the Department's Research Branch is the country's largest agricultural research organization. Its work is directed towards solving the problems of the production, protection, and utilization of agricultural crops and livestock. Its diversified research activities range from animal nutrition and production, through food processing and storage, to plant diseases and pests, and soil studies.

The research program has produced many significant achievements recently. Work by animal research specialists at the Lacombe, Alta., station provided the basis for the country's current hog and beef grading systems.

Specialists at Vancouver have successfully removed virus diseases from most potato varieties, helping Canada's seed potato industry capture a major export market for such potatoes.

After winning an international award for their development of the "Rolltherm" cooker, which enables small processors to compete for the institutional trade, food processing specialists at the Summerland, B.C., station recently won another for a process to make concentrated fruit aroma crystals for use in processed and baked foods.

"Cryogran eggs," a new process for producing quick-frozen egg melange, was another recent international award winner. In the process developed by the Branch's Food Research Institute and Engineering Research Service at Ottawa, droplets of pasteurized melange are frozen in liquid nitrogen and the resulting pea-sized granules provide a product that is free-flowing and easily measured to any volume. The process overcomes the problems encountered by the baking industry in handling conventional 40-pound bulk lots of frozen egg melange.

Development of new plant varieties is an important aspect of research efforts to help farmers. Indicative of the efforts being made in this area, seven new varieties were announced by the Department in the first two months of 1973. They are a new durum wheat, Wakooma; two low erucic-acid rapeseed varieties, Midas and Torch, that are superior in seed yield or oil content to earlier varieties; the barley variety, Hector; Juno, an orchardgrass; and the alfalfa varieties Angus and Algonquin.

Animal Diseases Research. Research on animal diseases is carried out by the Animal Pathology Division of the Health of Animals Branch at nine laboratories across Canada, of which the Animal Diseases Research Institute in the national capital area is the largest.

In addition to research, the Division provides the diagnostic services essential for eradicating and controlling diseases such as brucellosis, for certifying the health of livestock being exported and imported.



A method of removing toxic substances from rapeseed has been discovered at the University of Saskatchewan. Dr. Kozłowska, co-worker on the study, is feeding rapeseed into a water solution to study conditions under which toxic materials are removed from intact seeds.

The Division's research program is directed primarily towards the development of means to identify diseases in animals and to indicate animals that may be carrying disease organisms. Research is directed also towards developing procedures that would reduce economic losses caused by disease and parasites.

At the Sackville, N.B., laboratory, researchers are studying the problem of internal parasites in cattle and the economic losses they cause as a result of the animals' infections. At the Animal Diseases Research Institute in the national capital area, research work has cleared the way for commercial production of a vaccine for Marek's disease, a serious and costly problem in poultry. There, also, work on transplantation of fertile ova from sow to sow and from cow to cow has played an important part in developing a program to increase production of exotic breeds by the use of ovum transplants. The project was undertaken to study the possibility of transmitting disease if the ovum transplant becomes established as a means of importing exotic breeds. Meantime a material, developed by scientists at the Institute and showing promise for control of liver abscesses in feeder cattle, is being tested on large groups of cattle by the Division's scientists at Lethbridge, Alta.

Economic Research. Research is important for solutions to economic problems in agriculture. The Research Division of the Economic Branch identifies the economic problems of the industry and, through the collection, analysis, and interpretation of data, assists in formulating programs and policies to solve the problems.

To meet its responsibilities—including forecasts of trends—the Division carries out studies of farm management, resource use, farm income, market structure, and agricultural productivity. It also assesses the impact on agriculture of changing conditions such as prices, trade, and technological developments. Among recent projects undertaken was a study to estimate the potential North American market for Canadian hogs and pork; the aspects to be considered are product form; quality, cost of production, and competition from non-Canadian sources of supply. In others, research economists examine the competitive position of the country's tender fruit industry and study various factors involved in the marketing of Nova Scotia apples, New Brunswick potatoes, and British Columbia beef.

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; it engages in mineral and metallurgical research, both technological and economic; and it carries out a number of policy-making and administrative tasks affecting Canada's resources and the industries associated with them.

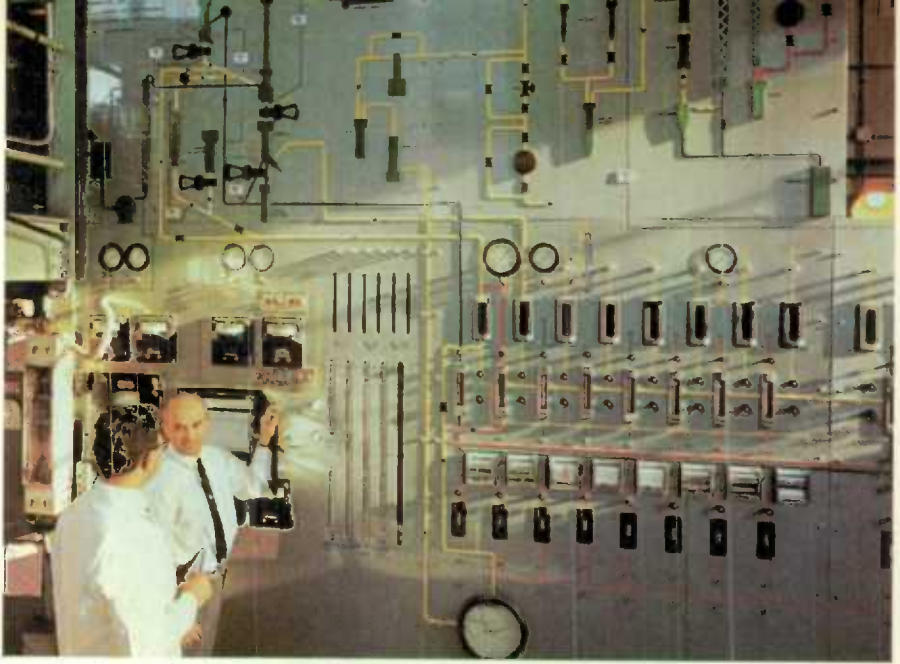
The Geological Survey of Canada provides mapping, detection, and interpretation services as well as research and advice in the earth sciences and co-ordinates these for a national and regional inventory of formations of rocks and surface materials, their structures, minerals, landforms, and conditions of stability.

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. The Arctic terrain differs greatly from that familiar to construction engineers 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.

The greatly increased interest in the resource potential of our extensive continental shelves—submarine extensions of the continent that may vary from a few miles to hundreds of miles—has resulted in more extensive geological studies. The Geological Survey has an office in Vancouver, B.C., and the Atlantic Geoscience Centre in Dartmouth, N.S., and both are engaged in marine geology. Submarine geological and geophysical surveys are carried out along traverses at right angles to the coast line, to analyze basins, to determine the fuel and mineral potential, to delineate the continental margin, and to consider the engineering and environmental problems connected with developing the seabed on the shelf and slope.

Rock samples from the Great Bear Lake area are collected by helicopter for geochemical analysis by the Geological Survey to provide leads to new mineral deposits in the Canadian North.





Scientists in the Fuels Research Centre of the Mines Branch in Ottawa study a pilot plant operation designed to investigate chemical reactions on crude oils.

The Canadian Shield—that vast expanse of ancient igneous rock occupying about half of Canada's territory—has proven to be a great storehouse of mineral wealth in its southern, better-known reaches, and it is logical to assume that it should be equally rich in the North. As a start in obtaining detailed data on the resource potential of the northern Shield, geologists have begun a major study of a 40,000-square-mile area north of Yellowknife, N.W.T., where the gold mines will soon be exhausted.

The Mines Branch carries out many types of research, such as that 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.

An example of metallurgical research is that concerning the behaviour of molten metals in moulds. This is studied with X-ray fluoroscopic equipment, movie films, and fluidity tests. It is interesting that it has become possible to produce alloys that can be stretched, when exposed to certain temperatures and loading conditions, by as much as 25 to 50 times their original size. Such alloys are said to be superplastic. The Department's metallurgists are studying superplasticity in zinc-aluminum alloys and in steel.

Another field in which Mines Branch specialists are active is pollution abatement. Conventional smelting processes release considerable amounts of noxious sulphur-dioxide gas. The scientists have now been able to modify some of these methods so as to reduce the sulphur to a solid form, which is easily removed.

Canadian coal is once again attracting much attention, especially from metallurgists at home and abroad. However, the coal has to be treated extensively



Canada's environmental problems are being studied by the Centre for Remote Sensing whose scientists interpret infra-red images taken continuously by satellite. Built-up areas of the Ottawa and the St. Lawrence River region are bluish-green, as indicated on the island of Montreal; forest land is reddish.

before it can be used in industrial processes. Research is being carried out on the coking of Canadian coals, on the possibility of transporting coal in slurry pipelines, and of using it as a fuel in combination with oil.

Greater concern for the environment and for the conservation of non-renewable resources has prompted research into the use of mineral and industrial waste. The Department has started an inventory of Canada's mineral-waste resources, which will be used as a basis for selecting research projects on the use of this waste. The conversion of waste gypsum from fertilizer plants into construction materials is one project that has already produced results.

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.

Gravity studies also 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 probability of earthquake in various parts of Canada—a valuable aid to architects and builders.

A number of very important papers have been published on the detection, location, and identification of underground nuclear explosions. The Department assisted External Affairs in the preparation and presentation of working papers for the Conference of the Committee on Disarmament. This work attracted favourable attention around the world and editorial comment in scientific journals, political magazines, and hearings on disarmament and arms control in the United States Senate.

Scientific field work in the high Arctic, such as in the Queen Elizabeth Islands, is fraught with risks and unusual difficulties for men and instruments; it is also very costly. 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.

A relatively new addition to the Department's assemblage of scientific disciplines is remote sensing. This activity is carried out with various types of sensors—chiefly photographic cameras and television-type scanners—that are mounted in specially equipped aircraft and in satellites. The past year saw the establishment of the Canada Centre for Remote Sensing, which was to co-ordinate the use of airborne and orbital sensing throughout Canada. Data are derived from the Earth Resources Technology Satellite (ERTS) launched in July 1972 by the U.S. National Aeronautics and Space Administration. Canada possesses its own receiving and processing facilities for imagery transmitted by the satellite. Each image received from ERTS covers an area 115 miles square, in several spectral bands. The knowledge of Canada's land and water environment that will be gained through remote sensing will be of great value to planners in the fields of agriculture, forestry, water management, transportation routes, and so forth.

The Fisheries Research Board of Canada

The Fisheries Research Board, established by Act of Parliament, is responsible for advising the Minister of the Environment (who is also the Minister of Fisheries) on all aspects of biological, technological, and oceanographic investigations necessary to the development of Canada's fishing industry and the protection of this resource.

The Board consists of a permanent chairman and 18 members appointed by the Minister for five-year terms. The majority of the members are scientists drawn from universities and research foundations across Canada, but the membership also includes representation from the fishing industry at large.

There are nine research establishments from coast to coast, a headquarters staff in Ottawa, and research vessels on both the Atlantic and the Pacific coasts. Fisheries scientists provide a continuous flow of information affecting the conservation and utilization of many commercially-valuable stocks, including anadromous and freshwater fishes, marine fishes and mammals, invertebrates, and aquatic plants. Their widely-diversified activities include biology, limnology, oceanography, productivity, water pollution, and food technology.



1. Salmon are tracked by an ultra-sonic transmitter inserted in the stomach of the fish.
2. A bottom grab is used to obtain a sample of the floor of Hudson Bay.
3. After two years at sea, hatchery-born pink salmon return to Vancouver, B.C.



Of necessity, development goes hand in hand with research to support industries that depend on fishery resources: the primary fishing industry, the processing and distributing industry, and the businesses that are based on recreational fishing and aquaculture. The results of fisheries research are also used by the government in setting catch quotas and other regulations and in arriving at agreements with other fishing nations on harvesting the catch in international waters.

The following random examples will help illustrate the wide range of research projects undertaken by fisheries scientists over the past year: (1), tagging nearly 100,000 herring in the Northwest Atlantic to investigate habits and movements of stock; (2), developing a method to freeze salmon sperm for more than a year without loss of its ability to fertilize; (3), fitting sonic transmitters to Atlantic salmon to track their movements; (4), developing a new nutritive product known as functional fish protein; (5), devising a diver-operated plankton collector, found particularly useful in studying the behaviour of larval lobsters; (6), testing super-chilling processes in the marketing of better quality fish fillets; and (7), analyzing underwater noise produced during dragging, and its effect on fish.

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 forestry research. The Service's annual budget is approximately \$35 million. It 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), forest harvesting, reforestation in clear-cut areas, forest hydrology, water pollution abatement, land classification for national parks, the likely environmental effects of developments 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, mensuration, and tree improvement.

Within industry, the pulp and paper companies make the largest contribution to research. Many of these companies conduct research into pulping and paper technology and most are sustaining members of the Pulp and Paper Research Institute of Canada, in Montreal, Que. 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



Containerized planting is becoming an integral part of reforestation. The Forestry Service is testing this machine which is capable of loading 50,000 paper-pot seed containers per hour.

City, the University of Toronto, and the University of British Columbia in Vancouver, B.C. 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, Ont. 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.



Studies of the effect of logging on the environment are conducted by the Forestry Service in its current research program.

Health Science Research

Health science research differs from most other areas of research in Canada in that it is almost entirely carried out in universities and associated institutions and hospitals. There is as yet only limited health research in industry. A number of government agencies such as 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, increasingly, research programs directed towards the solution of local problems of health. There are, however, no large central laboratories devoted to medical research as there are 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 health science 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 extramural sources for the costs of their research has been estimated at \$67.7 million for the 1972-73 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 \$8 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 faculties through a number of programs and provincial agencies.

The major extramural source of funds for research, however, is the federal government, which contributed approximately \$48.5 million in the 1972-73 fiscal year. Of this amount, over \$10 million was provided through National Health and Welfare which has primary responsibility for public health research, and \$37.4 million was channelled through the various programs of the Medical Research Council which has responsibility for the support of basic, applied, and clinical research in the health sciences other than public health.

The Medical Research Council and a number of other agencies play a vital role in developing skilled research personnel in the health sciences to meet Canada's future needs. Research fellowships and studentships are available to Canadian students or landed immigrants to enable them to take postgraduate training in research. A limited number of awards are also available to highly qualified candidates from abroad who wish to take advanced training in Canada in

preparation for an academic career in their native countries.

As a general rule, health science research undertaken in Canada is a reflection of the special interests of the individual investigators in the universities. The neurosciences, cancer research, biochemistry, and human physiology are all areas in which Canada has highly developed research programs, and there is increasing interest in interdisciplinary research in fields such as medical genetics and biomedical engineering. As in other countries, more attention is also being paid to investigations aimed at improving the delivery of health care so that the best use can be made of available resources.

In addition to the programs of individual scientists or groups of scientists, a number of collaborative studies involving many centres are under way, among them a therapeutic trial of the use of human growth hormone in the treatment of certain types of dwarfism, and the clinical trial of antilymphocyte serum in kidney transplantation.

A research worker in the antibiotics department of Canada Packers in Toronto.



National Museums of Canada

A board of trustees, reporting to the Secretary of State, administers all the National Museums of Canada. The National Gallery, the National Museum of Man, the National Museum of Natural Sciences, and the National Museum of Science and Technology share the responsibility of collecting and exhibiting the products of nature and the works of man in order to promote interest and knowledge therein throughout Canada.

The National Gallery of Canada

The beginnings of the National Gallery are associated with the founding of the Royal Canadian Academy of Arts in 1880. In 1973, therefore, the Gallery entered its ninety-third year of existence. It continues to further the basic objectives outlined in a 1913 statute, that is, to encourage and cultivate artistic taste and public interest in the fine arts.

The Gallery has always had a particular concern for national art. The collection of Canadian art is the most extensive and important in existence and it is continually being augmented. Over 60 per cent of all new acquisitions since 1966 have been Canadian. There are now more than 11,600 works of art in the collections.

While the National Gallery rightfully gives specific reference to Canadian art, its collections have been built up along international lines. The holdings include many old masters, twelve of which have been acquired from the famous Liechtenstein collection. In 1972, the Gallery acquired two major works for its collection of European art, *The Temptation of Eve*, by Baldung Grien and *The Martyrdom of St. Erasmus* by Nicolas Poussin. Both are considered to be outstanding works much coveted by other galleries. The collection of prints and drawings is also being enlarged.

The highlight of the Gallery's Ottawa program in 1972 was the major exhibition of mediæval art, *Art and the Courts*. This exhibition focused on the art of France and England from 1259 to 1328 and involved loans of national treasures from each of these countries and other lenders. Other major exhibitions included *Thomas Davies, Toronto Painting 1953-1965*, *Seventeenth and Eighteenth Century French Drawings in North American Collections*, *Alfred Pellin*, *Claude Tousignant*, and *Nineteenth Century German Master Drawings*. The National Gallery also participated in the XXXVI Venice Biennale by exhibiting the works of two Canadian painters, Walter Redinger and Gershon Iskowitz.

The extension program continued to be a major part of the National Gallery's activities in 1972. The Gallery circulated 24 exhibitions across Canada which were shown in 39 cities. The exhibitions varied from *Bertram Brooker* to *Comic Art Traditions in Canada*, and from *Picasso and the Vollard Suite* to an exhibition of conservation techniques called *Progress in Conservation*. The policy of exploring the art of a single region of Canada in detail was continued with *Manitoba Mainstream*.

An active program of lectures, films, and guided tours was again maintained by the Education Division for visitors to the Gallery in Ottawa. For those Canadians unable to visit the nation's capital, lecture tours continued, and National



National Gallery of Canada

Wave No. 4 by James B. Spencer is a recent acquisition of the National Gallery.

Gallery publications were made available to other centres. The Gallery also continued its support of the Canadian Centre for Films on Art which handles the promotion of art films as well as their distribution, in conjunction with the Canadian Film Institute. The Gallery's reference library continues to be available to the public. It now contains more than 40,000 volumes and periodicals on the history of art and other related subjects.

The National Museum of Man

The National Museum of Man is concerned with the conservation of Canada's cultural heritage through research, preservation, and education. This includes assisting Canadian universities and museums as well as facilitating foreign research in Canada. The Museum expects to open its doors again to the public in 1974 after a major renovation of the Victoria Memorial Building.

The Canadian Centre for Folk Culture Studies is both a research institute and a repository of the largest archive in Canada of folk-culture materials. The archival collections include approximately 4,700 accessioned items of folk culture artifacts including musical instruments, 116 sound collections on 3,300 tapes, and 23 extensive manuscript collections, about 30,000 photographs and slides, and a collection of video-tapes, films, and phonograph records, all related to folk culture.

The Archæological Survey of Canada has undertaken more than 300 research projects in Canadian prehistory in the past 12 years (40 of them in 1973) which

have dramatically altered knowledge of Canada's past. The archaeology collection embodies over two thirds of a million objects ranging from 10,600-year-old Nova Scotian lanceheads to 2,500-year-old Inuit (Eskimo) art. The physical anthropological collection contains more than 30,000 specimens.

The Ethnology Division concentrates primarily on the Inuit, Indian, and Métis cultures of Canada in its collections, exhibitions, publications, and research. The collections number some 35,000 specimens and the division has rapidly growing archives of audio and manuscript material.

The Canadian War Museum's collection includes material from the French period to Canada's participation in two World Wars. It also contains Canada's national collection of war art. During 1973, the war museum celebrated the 500th anniversary of Nicolaus Copernicus with an exhibition *Polish-Canadian Co-operation in Two World Wars*. There was also a naval display commemorating the 50th anniversary of the Royal Canadian Naval Volunteer Reserve, and a continuing film and lecture series free to the public.

The History Division undertakes research in Canadian history and has collected and restored over 15,000 items of period furnishings, including the Schwarz collection of Canadiana.

The Communications Division of the National Museum of Man began an extension program in 1970 to provide access across Canada to the museum's collection and to ensure museum service to communities. In 1972-73, twelve travelling exhibitions included *Oonark-Pangnark* Inuit art, *Ksan—Breath of our Grandfathers, What's It?* (an exhibition of curiosities), *Continuity and Change*, *The Ukrainian Folk Heritage in Canada*, and two West Coast Ethnology exhibitions.

Natural Sciences

The facilities of the National Museum of Natural Sciences in Ottawa will be reopened to the public in 1974, after extensive renovation. The Museum now has greatly increased space for new exhibit halls displaying 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 in those important sanctuaries.

Palaeontological studies have been concerned with ice-age mammals and dinosaurs. They include the description of ice-age mammals from Saskatchewan and unglaciated regions of the Yukon Territory, and studies on reptilian diversity and environments prior to the extinction of the dinosaurs in Canada. A bone fleshing tool from the Old Crow River indicates that man lived in the Yukon 27,000 years ago, before the peak of the last glaciation.

In the field of mineralogy, augmentation of the Museum's collections of rocks, minerals, gems, and ores was continued through field and other activities. A major acquisition was the Bradley collection of minerals from Mont-St-Hilaire, Que.

As part of the Canadian government's cultural heritage policy, a program has



1. One-horned mountain goat mask, an exhibit of 'Kean art.
- 2, 4. Taxidermists prepare exhibits.
3. Twelve-thousand-year-old skeleton of a winged eagle.

been launched to make museum service available to communities across the country with the assistance of "associated museums." As part of the program of decentralization, a display of 80-million-year-old reptile remains from Alberta was presented in the Nova Scotia Museum, Halifax, N.S. A representative collection of the bones of ice-age mammals excavated from the Yukon was placed on display during Discovery Day celebrations in Dawson, and other travelling displays were placed in museums across Canada.

Science and Technology

The newest of Canada's National Museums is the Museum of Science and Technology, opened in November 1967.

It is one of the capital's most popular museums: well over half a million visitors passed through its doors in 1972. 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, relate these principles to the development of technology. Pulling, pushing, climbing, and touching some of these exhibits challenges the skills of people of all ages to expand their understanding of technological history. 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.

This past year, the newly renovated agriculture section opened to demonstrate the development from muscle-power to motor-powered machinery. A new collection of model ships has been added to the marine exhibit; it represents the important early advances in ship construction. The acquisition of small marine engines, principally used by ships on the Great Lakes, also indicates this development.

Acquisitions have proceeded apace. Thus the museum was fortunate in obtaining a DHC-1 Chipmunk, the first aircraft designed by de Havilland Aircraft of Canada, to augment its significant collection of some 90 aircraft housed mainly at Rockcliffe, known as the National Aeronautical Collection. Printing in North America from colonial days to the present is covered by the important Dietch Collection of printing equipment, which includes a Ramage and a Columbian, and interesting specimens of linotype and monotype machinery. An example of inter-departmental co-operation in the preservation of historical material is a varied selection of motion picture equipment received from the National Film Board.

As part of the museum's extension program of loans to other museums and participation in special events, the National Aeronautical Collection demonstrated vintage aircraft and flew the Nieuport 17 and an Avro 504K during the International Air Show at Abbotsford, B.C.

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 in the museum. Development is proceeding to make the National Museum of Science and Technology the chief source of authoritative information in all its fields.

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 scale. The federal government funds library operations in the Yukon and the Northwest Territories. 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.

The concept of the library as a community resource centre is receiving much attention. Along with this greater involvement in the local community is a growing trend towards bringing the public library to those who cannot or do not come to it—the elderly, the shut-in, the economically disadvantaged, the imprisoned—and in providing special materials and facilities for those who cannot, by reason of physical handicaps such as blindness, use those normally provided. Libraries have in many cases taken advantage of the recent availability of federal government "Local Initiative Project" grants to finance pilot projects in such "outreach" programs.

The emphasis in school libraries has shifted from the conventional notion 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 that support graduate studies in the universities has been conducted by the National Library, and the multi-volume report of the survey appeared in 1972 and 1973. This survey, together with that of federal government libraries also conducted by the National Library, will give impetus to the streamlining of acquisitions policies of both academic and government libraries. It will also encourage a greater sharing of resources.

Special libraries in Canada number more than a thousand. 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 largest government collections are those of the National Library, the National Science Library, the Library of Parliament, and the Department of Agriculture Library, all in Ottawa.

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. The National Library offers a companion service for researchers in the social sciences and humanities.

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 through which it provides libraries and researchers with the location of needed material.

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. A task group on cataloguing standards and another on a machine-readable cataloguing format have both produced their recommendations and still another group was making an intensive study of the union catalogues in 1973. The production of *Canadiana* has been automated and the first computer-based issues were produced in 1973.

Eight Canadian universities offer postgraduate degrees in library science. The Faculty of Library Science of the University of Toronto alone offers a doctoral program. Post-secondary courses in community colleges for the training of library technicians are available in most parts of the country. As the application of automation to library operation 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.

Archives

Interest in archives is steadily increasing in Canada. The recommendation of the Symons Commission on Canadian Studies, sponsored by the Association of Universities and Colleges of Canada should lead to a sustained effort in that field. The archives section of the Canadian Historical Association, the *Association des archivistes du Québec*, and the Canadian chapters of the American Records Management Association are very active, and new associations of archivists are being formed.

Good records management is becoming one of the major concerns of provincial archives. They have inaugurated new programs or continue to improve their services, through expert advisors and centres for dormant records. Commercial firms are also more and more conscious of the benefits to be derived from good management of their records. The Canadian Religious Conference is preparing an inventory of Roman Catholic religious archives and intends to create study groups and mechanisms to better preserve these archives and make them more accessible to researchers.

In 1973, the Public Archives of Canada launched their diffusion program. This involves the close co-operation of provincial archives. The practical aspects of distribution were discussed at the third annual meeting of provincial and federal archivists in April 1973. Some 300,000 pages of historical documents on microfilm will be deposited in each of the provincial archives, and ten separate exhibitions will circulate in various parts of the country during the year. A fairly large number of slides of documents will be made available to the general public, educational institutions, and the information media.

Canadian archives also play a significant role on the international stage. A joint project of France and Canada resulted in the publication of a *Guide des sources d'archives sur le Canada français*, in two volumes, dealing respectively with French and Canadian sources.

Many Canadians are active in the American Society of Archivists and on international committees dealing with microfilm and computer applications to archives. Canada will host, in the fall of 1974, a round table on archives to which the heads of all national archives will be invited.

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 require decades—if it ever can be fully accomplished—but the objective is unwavering: a region where French and English and the 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—the 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.

In the NCC Region, 1,983 lots measuring 25' by 50' are available for rent at \$10 per year to city dwellers who like to garden.





Travellers portage around the locks on the Rideau River in Ontario.

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 participated in an important way in urban expansion by overseeing the construction of government buildings inside and outside the



Local artists display their handicrafts outside the Arts Centre in Ottawa, Ont.

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. 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 the E. B. Eddy Co., which has been in business in the same place since 1851. Its eventual aim is to obtain all this land within ten 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 it attractive to live as well as work downtown.

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.

National Parks

In 1885, the federal government acquired 10 square miles of land around the mineral hot springs at Banff, Alta., and dedicated it to the people of Canada. That first park has grown to include 2,564 square miles of mountain wilderness, serviced campgrounds, world-famous ski facilities, and a bustling townsite.

Now, 89 years later, there are 29 national parks preserving some 50,000 square miles of Canada's natural heritage. The parks range in size from the 17,300 square miles of Wood Buffalo National Park to the 594 acres of St. Lawrence Islands National Park. Eleven of the parks have been created since 1968. Planning for these and future parks emphasizes the goal of setting aside areas representative of each physically different region of this diverse land. Development and interpretive programs aim at reconciling the not-always-amicable demands for both recreation and conservation of natural features and ecosystems.

The national parks system reaches into every province and both territories. These parks take in a wide variety of land and marine scapes, as well as of flora and fauna. The parks added in the last five years now spread the system as widely as geographically possible, with parks on the eastern coast of Newfoundland and the western coast of Vancouver Island, from the southernmost mainland tip of Canada to inside the Arctic Circle.

Among the features now protected are: the largest non-polar ice-fields in the world; Virginia Falls, Canada's highest waterfall; rain forests; Indian rock carvings. The rounded, lake-filled topography typically left behind by extensive glaciation and the harsh wilderness of the Precambrian Shield are represented in the expanded system. National parks now encompass coastal features such as offshore sandbars, deep fjords, rugged cliffs, abundant marine life and mountains rising dramatically from coastal plains.



Glacier National Park, established in 1886 on the summit of the Selkirk Range in B.C., attracts campers, skiers, and climbers.



Pingos in the Arctic (large mounds of ice covered by soil forced up by the pressure of expanding ice in the subsoil), are among the unique wonders of nature and are considered national landmarks. This pingo is near Tuktoyaktuk, N.W.T.

Parallel to the aim of conserving the land is that of preserving Canada's human heritage. To that end, more than 600 national historic sites have been commemorated by cairns, tablets, monuments or full-scale reconstructions or restorations. The program began in 1917, when Fort Anne at Annapolis Royal, N.S., was transferred from the Department of the Militia and declared Canada's first national park of historic significance. Since then, some 76 major national historic parks and sites have been identified.

This system presents a tangible record of Canada's human history. It includes battlefields contested by French and British in the 17th and 18th centuries, by British and Americans in the Rebellion of 1837, and in the North West Rebellion of the 1850's. There are fortifications that were designed to defend harbours, trading posts, and 17th-century French settlers, and 19th-century Northwest Mounted Police posts. Dwellings have been reconstructed and restored to reflect past lifestyles, from the elegance of an 18th-century French military governor's quarters to the simplicity of an early 17th-century timber habitation. Also preserved are the homes of three Canadian Prime Ministers and three Fathers of Confederation. Reminders of early economic history such as the outposts of the fur trade and the trading post that started Canada in the salmon export trade are included. Finally, there are memorials to specific achievement, such as the homestead of the man who introduced scientific farming methods to the Prairies, and the RCMP Arctic patrol ship which was the first to navigate the Northwest Passage from west to east and the first to circumnavigate the North American continent.

A complex project with both natural and human history components is the Klondike Gold Rush International Historic Park. A joint undertaking of the United States, Canada, the Yukon Territory, and British Columbia, it is being developed to commemorate the famous Gold Rush of 1898. The reconstructed Palace Grand Theatre and S.S. Keno in Dawson are elements of the plan already open to the public. The historic Chilkoot and White Pass Trails will eventually be important features of the park.

The traditional national parks and national historic parks and sites are the base for expansion. New goals are recognized: those of extending the scope of Parks Canada and taking initiatives to provide escape for the growing hordes of Canadian city dwellers.

Canada owes a considerable historic debt to her vast marine environments and her miles of inland waterways. A federal-provincial committee is already studying the feasibility of establishing a national marine park in the Strait of Georgia; other areas along the country's 60,000 miles of ocean coastline might also prove suitable. Many of Canada's rivers are still in their natural, unharnessed state; the South Nahanni is just such a river, now protected as part of Nahanni National Park. Inland waterways were once the most efficient transportation routes available to the explorers and *coureurs de bois* who opened up the country; these historic waterways offer a range of potential recreational uses. At a later stage, natural waterways were modified with artificial channels to fill more sophisticated commercial and military purposes; eight of these historic canal systems were recently transferred to the National and Historic Parks Branch of the Department of Indian Affairs and Northern Development.

Where the waterways didn't go, the pioneers had to beat out reliable overland routes; now, in co-operation with the relevant jurisdictions, the federal government proposes historic land trails for the hiker, the horseman, and the cyclist. Throughout the land, there are many small but unique wonders of nature, such as the Nouveau Québec crater, the frozen pingos of the Arctic, and mountain and marine cave systems. It is hoped that these will be protected as national landmarks. Finally, as an alternative to highways and superhighways, scenic and historic parkways—carefully designed low-speed routes through areas of scenic beauty or historic interest—are being considered.

On board the *Grande Hermine*, Jacques Cartier explored the St. Lawrence River in 1535.



Recreation

Nothing in modern history has changed the life style of man more than the continuing trend towards leisure. To exist in a leisurely manner is to do what you enjoy doing most. Since the beginning of mankind, recreation and the enjoyment of life have been synonymous. To take part in recreational activities throughout the world has become the vogue, as the jet age now offers a blend of travel and excitement which dreamers in bygone decades could not foresee.

The mention of Canada conjures up visions of wide-open spaces and unlimited recreational facilities. In this urbanized world, more and more people are seeking the solitude and serenity of those distant hills and, in 1972 alone, over 40 million discovered them in Canada.

The Splendour of Spring

It sometimes happens overnight. Suddenly it's spring, the snow has melted and the warm sun welcomes you back to the beauties of nature. The land is alive and it's time to travel, to explore. There are 50,000 square miles waiting to be discovered by visitors to Canada's national parks. Among the best in the west are Yoho, Banff, Jasper, and Glacier National Parks; in Ontario, the St. Lawrence Islands and the Georgian Bay National Parks are popular, as are La Mauricie and Forillon in Quebec. Fundy, Cape Breton Highlands, Prince Edward Island, and Terra Nova National Parks are the pride of the Atlantic Provinces.

Camping continues to be a favourite family recreation, and complete facilities are available from coast to coast. There are also 650 provincial parks and thousands of municipal grounds open to the public, providing facilities, comfort, and safety in any area the visitor may wish to investigate.

Hiking, horseback riding, white-water canoeing, and mountain climbing are some of the activities possible in most parks, as well as fishing, boating, swimming, golf, and tennis.

Flower festivals are major attractions in the spring, particularly in Nova Scotia's Annapolis Valley, the Botanical Gardens in Montreal, Ottawa's tulip display, and the Victoria Horticultural Society's annual show in British Columbia.

Summertime

The lure of the open road reaches its peak during the summer, as people of all ages feel the urge to visit new places, make new friends, see new things. Among the attractions are more than 75 historic sites recalling Canada's past, including the 18th century Fortress of Louisbourg on Cape Breton Island, Lower Fort Garry on the Red River in Manitoba, and the northern Klondike Gold Rush International Historic Park.

Concerts, festivals, fairs, rodeos, and exhibitions abound during July and August. The successor to Expo 67, Man and His World, is still Montreal's "in" place for entertainment. The Stratford Shakespearean Festival is renowned for

its summer performances, and the Calgary Stampede annually attracts thousands of visitors.

Power boating and sailing are favourite sports in Canada, which has more than a million rivers, lakes, and waterways. Regattas are held every weekend, and one of the most popular is the Valleyfield Regatta in Quebec, featuring powerboat racing. Drivers from all over North America compete for prizes.

Other sports attractions include the Royal Canadian Henley Regatta at St. Catharines, Ont.; the Canadian Open Golf Championship; and the International Tuna Cup Match, which takes place in September off the coast of Nova Scotia.

Autumn Colours

A certain chill in the wind welcomes Canadians to their most spectacular season, a time when professional athletes and amateur photographers attempt to capture the imagination and image of a country simultaneously.

The Montreal Expos are heading into the home stretch of baseball's National League, as the Toronto Argos hit mid-season stride in the Canadian Football League, as the Vancouver Canucks commence another full schedule in the National Hockey League. Who can remain neutral on Thanksgiving weekend when so much rivalry is taking place on the playing fields. And on college campuses, from Simon Fraser in British Columbia to St. Francis Xavier in Nova Scotia, the fall foliage signifies a return to full-scale activities.

The aesthetic joys of the season, however, belong to the patrons of the arts. Symphony orchestras, theatre and ballet companies all begin schedules which take them to Vancouver, to the O'Keefe Centre in Toronto, to Ottawa's National Arts Centre, and Place des Arts in Montreal. The national museums and art galleries often feature some of their finest presentations during the fall season.

Spectacular scenery in a cool, crisp atmosphere awaits the autumn traveller, who is free to explore a country at its colourful best.

Winter

Canadians have learned not only to live with winter, but to enjoy its blessings—and they are considerable. Skiing has always been the main winter attraction, and the facilities that are available range from helicopters in the Bugaboos of British Columbia, to chair-lifts and rope tows in the Muskoka region of Ontario, to poma lifts and T-bars in Quebec's Laurentians.

Snowmobiling came on the scene only a few years ago but it already ranks as one of the most popular amusements for people of all ages. Ice racing with autos and sail craft, curling, skating, and hockey are other winter pastimes enjoyed by millions.

Carnivals are taking place almost every weekend during January and February, featuring festivities such as the snow queen's coronation and a gala snow ball, and competitions which usually include hockey and basketball tournaments. Highlights of the Quebec Winter Carnival, perhaps the most famous of all celebrations, are a parade, street dancing, and canoe races across the frozen St. Lawrence River.



1. Racing on the Ottawa River.
2. Throwing the caber is a popular event at Highland Games.
3. Bronco riding at the Calgary Stampede.





1. Horse show at the Ottawa exhibition.
2. Dominion Day in Toronto, Ont.
3. The Military Tattoo on Signal Hill at St. John's, Nfld.



5



International Travel

Every country in the world has native sons now living on Canadian soil, and the cultural richness of Canada is the result of the substantial contribution made by each ethnic group to its destiny. The influences of those origins are reflected in celebrations which take place throughout the year.

Scottish Highland Games are held in seven Nova Scotia and Ontario locations during the summer months. The games in Antigonish feature caber tossing, massed pipe band contests, dancing, and all the activities usually associated with the gathering of the clans. Similar events occur at St. Anns Nova Scotia Gaelic Mod in August, while New Glasgow is celebrating the Festival of the Tartans. Ontario's Highland Games are held in Brantford, Fergus, Maxville, and Toronto.

The national Ukrainian and Icelandic festivals are held simultaneously in Manitoba. Loyalist Days in July feature the re-enactment of the loyalist landing in 1783, and citizens of Saint John, N.B. dress in 18th century costumes for the occasion. Oktoberfests are celebrated in Kitchener-Waterloo, Ont. and in Calgary, Alta.

Such popular festivities assist the foreign traveller to identify with his new environment, and are perhaps responsible for the high increase in tourists from abroad. More than 268,000 visitors came to Canada from the United Kingdom in 1972; 89,000 from the Federal Republic of Germany; 68,000 from France; 52,000 from as far away as Japan. Altogether, Canada welcomed a record number of visitors that year. People came to appreciate the wide-open spaces, to enjoy that serenity, and to marvel at the abundance of recreational facilities.

Special Events

Five major events occurred in Canada in 1973, and each occasion was notable for its particular activities.

Kingston, Ont. celebrated its 300th birthday in 1973. The city grew from the Cataracoui post, established in 1673 by Count Buade de Frontenac and then granted to Cavalier de La Salle.





During her visit to Canada in 1973, Queen Elizabeth was presented with a horse of her choice by the RCMP, in honour of their centennial.

The Royal Canadian Mounted Police celebrated their 100th anniversary as Canada's national police force. The RCMP musical ride and band performed in all provinces. Colourful events, shows, and other attractions took place across the country, which commemorated the RCMP's history and achievements.

The province of Prince Edward Island celebrated its 100th year in Canadian Confederation, and the highlight was a visit by Queen Elizabeth and Prince Philip.

Pictou, in nearby Nova Scotia, honoured the arrival of the *Hector*, a ship which brought the first Scottish settlers to the area 200 years ago.

The city of Kingston, Ont., celebrated the tricentenary of its founding in 1673 by Count Buade de Frontenac, and a year-long calendar of events was crowned with a royal visit.

The Yukon Territory had two reasons to celebrate; 1973 was its 75th anniversary as a territory, and it is 75 years since the gold rush.

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.

The Mass Media

The Press

Newspapers, magazines, and periodicals are major vehicles for communicating information to Canadians.

In mid-1973, Canada's 100 English- and 12 French-language daily newspapers had a combined circulation of more than 4.5 million and served some 90 communities. Most daily newspapers are owned by groups and 12 such groups account for more than three quarters of national circulation.

In addition to the dailies, some 900 weekly or twice-weekly newspapers with a circulation of about 3 million serve smaller communities, the suburbs of the metropolitan areas, and some neighbourhoods of the larger cities. About 130 of the weekly newspapers are French language.

More than 80 newspapers, mostly weeklies, are aimed at Canadians whose mother tongue is neither French nor English. They are published in more than 20 languages and have a combined circulation of about 3 million. A daily newspaper is published in Italian in Toronto.

The farming community is served by more than 60 publications that cover all areas of farming and agriculture.

Some 500 publications with a circulation of about one million are directed at the country's business and professional communities. These periodicals include about 120 classifications of interest in business, trade, and industry.

The cultural and recreational fields are covered in about 300 publications; most are monthlies, some quarterlies, and a few weeklies. They emphasize such areas as education, sports, hobbies, religion, entertainment, boating, travel, the arts, music, television, and radio.

Films and Television

The National Film Board of Canada continues in its traditional role of producing and distributing films in the national interest, adhering to the principles of involvement in contemporary affairs established when the NFB was formed in 1939. During 1972 and 1973 its productions continued to reflect the Board's strong interest in national unity. Currently, the problems of energy resources, ecology, and the environment are being given particular emphasis.

The scope of the NFB's activities in Canada and around the world reflects the many facets of this unique film agency of the federal government. Its films and other audio-visual aids, including photographic exhibitions, are consistently being honoured at home and abroad. About 70 international awards are won each year. Staff members garner a fair share of individual recognition; Norman McLaren received both the Public Service Achievement Award and the Molson Prize of the Canada Council in 1972 and Colin Low was given the first Grierson Award for his outstanding contribution to Canadian cinema. Hundreds of invitations are received each year by the NFB for its staff to participate in international festivals, seminars, and workshops on the production, distribution, and technical aspects of films and related media.

Theatrical feature films produced recently include *Et du fils*, *Le temps d'une chasse*, *Taureau, OK . . . Liberté*, *La tendresse ordinaire*, *Les allées de la terre*, and *Cry of the Wild*. Shooting was completed on another feature, *Conflict Comedy*, in 1973.

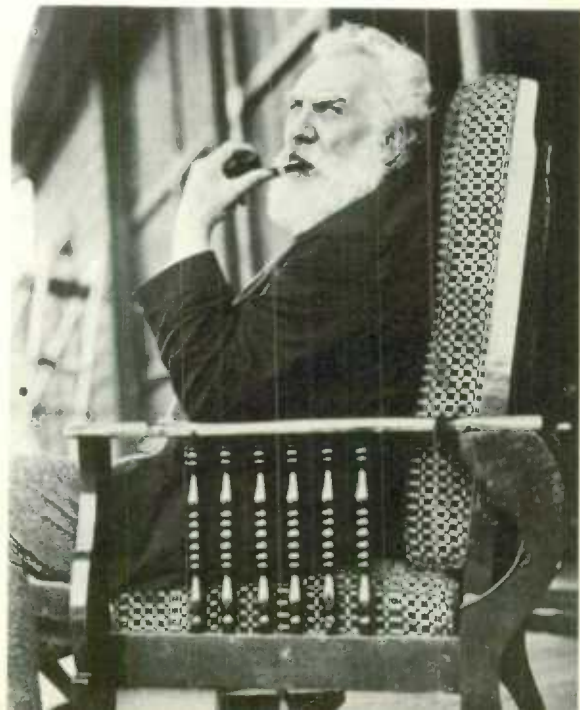
Television features are taking on a new importance with "A Matter of Fat," "Death of a Legend," "Le Réel du pendu," "Guérissez-nous du mal," "The Sea," "Jalbonski," and "The Sloane Affair" among the more prominent. A major 13-part series "Adieu Alouette," showing contemporary life in Quebec, was presented on the CBC-TV network in 1973. About 6,000 telecasts of NFB films are also shown by individual television stations annually in Canada alone.

Community use of NFB films increases steadily. Almost one million films were screened last year from 27 NFB libraries in Canada. To encourage the development of community film distribution services across the country, the board has introduced a new program offering a discount to libraries purchasing films in quantity and undertaking to serve their communities. Abroad, NFB films loaned by the Department of External Affairs in 81 countries reached an audience of over 70 million in 1972.

The Board continues to extend its commercial distribution of films in about 100 countries through television and theatres.

To support and assist those Canadians teaching or learning one or the other of Canada's two official languages, the Board is producing a series of Language Learning Support films. In keeping with Canada's multicultural character, films about the major ethnic populations are being made. Some existing films are being prepared in the languages of Canada's larger ethnic groups.

"For You, Mr. Bell", a National Film Board production, is a tribute to Alexander Graham Bell, a man of genius and compassion.



Production facilities are being decentralized from the operational headquarters in Montreal to bring film makers in closer association with the people of the various regions. The Vancouver production office has been expanded, one in Halifax opened in 1973, with offices in Winnipeg and Toronto to follow.

The Still Photography Division was reduced in size in 1972 when Information Canada took over the operation of its stills library in Ottawa. This division now encourages and assists Canadian photographers by organizing travelling photo exhibits and publishing some of the outstanding works. A permanent photo display gallery is maintained in Canada's capital.

The Challenge for Change/*Société nouvelle* project continues to stimulate and assist communities in social action, often by the use of video-tape and access to cable television. In 1971-72, Challenge for Change/*Société nouvelle* went further into social change and experimental projects. It produced among others: "Urbanose," a 15-film documentary series about the "self-destruction" of Montreal and other modern cities; "Un soleil pas comme ailleurs," a documentary about the Acadians; "Le Bonhomme," a daring cinematographic essay on dropping-out; distribution of "Chez nous, c'est chez nous" on the planned demolition of villages; four major films in the feminist series "En tant que femmes." The "Vidéographe" magnetoscopic experiment started by *Société nouvelle* is now on its own.

A television feature on the world-famous film documentarian and founder of the NFB, the late John Grierson, showing his impact on communications is completed and will be followed by others exploring his ideas regarding the film medium.

For 1974 the outlook for the NFB appears to be in keeping with the traditions established by Mr. Grierson, with a continuous regard for developments in Canada and abroad. The NFB strives to remain in the forefront of change as it affects the social, economic, and cultural aspirations of Canadians. Research and experimentation in all areas of film production, distribution, and application to public needs and interests will be maintained.

A scene from Anne Hébert's *Kamouraska*, starring Geneviève Bujold.



Private Film Makers

Canada's private motion picture industry experienced some changes during 1972. Television commercials and sponsored documentaries represented over 75 per cent of some 4,000 productions completed that year, and remained the backbone of the private sector. Total revenue for the 156 companies actively engaged in production and laboratory operations exceeded \$32 million. Feature film production, through the financial resources of private investors and government funding, decreased to 17 releases in English and French. In 1972, more than 77 educational institutions across Canada offered various film courses, an increase of 50 per cent.

The Canadian Radio-Television Commission

The Commission's day-to-day function is to license and regulate the 349 AM and 92 FM radio stations, the 534 television and 8 shortwave broadcasters, and the networks with which they are affiliated. However, the Commission's job goes beyond this responsibility to concern itself with the social and cultural implications of these media. It works to assure all Canadians access to at least one network of radio and television service through extension of service guidelines and by encouraging use, in remote northern areas, of low-power relay and satellite transmission.

Also of concern is the economic base of broadcasting; special regulations on domestic ownership and the over-concentration of that ownership have been enforced to allow for a true diversity of Canadian voices. The development of domestic talent has been encouraged through content regulations on both radio and TV guaranteeing Canadians a look at their culture and their social milieu as opposed to those solely imported from other countries. Such policies have kept broadcasting in Canadian hands. As well, they have helped in the development of related industries such as recording and film-making.

Policy guidelines in the area of cable television have assured protection for domestic broadcasters while at the same time increasing the number of program sources available to the average household. Provision of locally programmed channels has encouraged a whole new generation of community broadcasters who are devising ways to meet the communication needs of their communities. On the technical side, mid-band conversion now allows for a 20-channel capacity on more systems found in the signal-crowded urban centres.

Other experiments encouraged by the Commission are to be found in the whole new field of student and community radio broadcasting. Several native groups are at present broadcasting to their communities in their native tongues, and additional applications are being processed from a number of groups in both rural and urban centres. This is a step beyond traditional public or private, AM or FM radio, providing in effect a form of third voice in most communities.

In the more traditional broadcasting areas, a third television network began broadcasting in early 1974, providing southern Ontario and portions of western Canada with an additional service. Global Television will originate new local programs, adding to the service already provided by the Canadian Broadcasting Corporation, Radio-Canada, the CTV television network, or TVA in Quebec.

Educational television (ETV) will be expanding in the coming years as plans develop in the provinces of Alberta and Quebec to join Ontario in broadcasting full-range ETV to their residents on the UHF band.

The CRTC's 15 commissioners—five full-time including the Chairman and Vice-Chairman, plus ten part-time—meet several times each year, in centres across the country, to listen in public hearings to both the broadcasters and the citizens who may intervene in applications or licence renewals. All decisions and policies receive a maximum of open public debate to ensure that the national trust of the airwaves is protected for the people of Canada.

The Canadian Broadcasting Corporation

The CBC is a publicly-owned corporation established by the Broadcasting Act "for the purpose of providing the national broadcasting service" in Canada. The CBC was created on November 2, 1936, replacing an earlier public agency, the Canadian Radio Broadcasting Commission, which had been operating since 1932.

The CBC reports to Parliament through the Secretary of State. It is financed mainly by public funds voted annually by Parliament, and obtains additional revenue from commercial advertising. The directors and officers of the CBC are responsible for its policies and operations.

CBC facilities extend from Atlantic to Pacific and into the Arctic Circle. The head office of the Corporation is in Ottawa. The network centre for English-language radio and television is in Toronto, with regional production centres in each of the main geographical areas of the country. French-language operations are centred in Montreal, with local outlets at other points in Quebec and in most other provinces. The CBC Northern Service provides northern communities with national, local, and shortwave radio programs and with national television. Live television service to the North began to replace taped and delayed programs in 1973 with the inauguration of the Canadian communications satellite Anik. Community television in the North will be developed as local facilities become available.

Radio Canada International, the CBC's shortwave service, has its headquarters in Montreal and its transmitters near Sackville, N.B. It broadcasts daily in 11 languages to Europe, Africa, Latin America, the Caribbean area, North America, and Australasia. It also distributes music and spoken-word transcriptions to broadcasting organizations in other countries. In 1973, Radio Canada International won an award presented by Radio Sweden and other organizations for providing the best coverage of the United Nations Environment Conference held in Stockholm the previous summer. The award was based on the results of a survey conducted among shortwave listeners in more than 100 locations around the world.

In other international activities the CBC sells a variety of its programs to other countries, is a frequent winner of international program awards, and belongs to international broadcasting organizations such as the *Communauté des Télévisions Francophones* and the Commonwealth Broadcasting Conference. The CBC Armed Forces Service, in co-operation with the Department of National Defence, provides recorded and shortwave radio programs for Canadian military



Inuit drawings decorate the walls of the CBC station CFFB at Profisher Bay, N.W.T.

CBC Election Central during the 1972 federal election.



bases abroad. The CBC has offices in London, Paris, New York, and Washington, as well as news bureaus in Moscow, the Far East, and Lima.

CBC program schedules are varied, reflecting the principle set out in the 1968 Broadcasting Act that "the national broadcasting service should be a balanced service of information, enlightenment and entertainment for people of different ages, interests and tastes covering the whole range of programming in fair proportion." Program content is largely Canadian—60 to 70 per cent in television and usually more in radio—with a selection of programs from other countries. The CBC is the major employer of Canadian talent, engaging about 30,000 Canadian artists and performers in the course of a year. It provides continuing support for the arts in Canada through such means as the broadcast of Canadian music, drama and poetry; the commissioning of special works; and the sponsorship of talent competitions. It also produces Canadian films, presents local public concerts in many communities, and participates in international program festivals and competitions. It gives co-production assistance to independent Canadian producers, and circulates books and recordings derived from Canadian programs. The CBC itself employs a staff of about 9,000.

The range of the CBC is substantially complete, with CBC radio service accessible to 98.7 per cent of Canadians and CBC television to 97.3 per cent. In all, there are more than 400 outlets for CBC radio (including CBC stations and privately-owned affiliates plus auxiliary relay transmitters), and more than 350 for CBC television. Some small or remote communities are still unserved, and an accelerated coverage program is under way to extend facilities to these areas as soon as capital funds allow.

Private Broadcasting

Incorporated in 1926, the Canadian Association of Broadcasters has 583 members, including the CTV and *Radiodiffusion Mutuelle Limitée* networks.

In 1972, private radio, with 299 AM and 76 FM radio stations employed more than 6,000 persons and private television with approximately 50 stations employed more than 4,000.

Head office of the Canadian Association of Broadcasters is in Ottawa, and there are branches in Toronto and Montreal.

An important function of those offices is the gathering and distribution of many Canadian programs and some foreign ones. CAB also produces "Report From Parliament Hill," a non-profit, non-partisan free-time radio series featuring reports by members of Parliament. Running since 1944, and aired by 80 stations, the series is private broadcasting's longest running public service series.

The CAB carries on a program of in-station training for foreign students. CAB stations qualify for awards, presented at the Association's annual meeting, for excellence and originality, for exceptional news presentations, and for major engineering achievements. Recent figures show private television's expenses increased by 9 per cent over the previous year. Revenue was up nationally by 9.3 per cent and locally by 18.3 per cent. Private radio's expenses increased 8 per cent and its revenues increased nationally by 10.2 per cent and locally by 6.4 per cent.

Population

The relentless increase of population to more than 3,600 million and mankind's growing migration from rural areas to urban agglomerations have been the major demographic concerns of the world in this decade. In mid-1970, the population of the world was estimated to be 3,632 million of which 321 million lived in North America. Only a little over 21 million were in Canada. Canada enjoys a unique status in the world: within its territorial boundaries, it has 6.8 per cent of the world's land area but only 0.6 per cent of the world's population. The internal distribution of the population among the provinces and their relative growth provide one of the graphic profiles of Canadian demographic experience.

The post-censal estimates of population for Canada as of June 1, 1972, was 21.83 million—an increase of about 260,000 in a year. This contrasts with an average annual increase of 311,000 per year between 1966 and 1971 and 334,000 between 1961 and 1971. The reduction can be attributed mainly to the significant decrease in the number of births per year and the lessening of the flow of immigrants from other countries.

This trend has affected the distribution of population unevenly among the provinces; in only three of the provinces has their share of the population increased. In 1961, out of every hundred 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 9.5, Manitoba's from 5.1 to 4.6, and Saskatchewan's from 5.1 to 4.3. The 1972 estimates show further increases in the proportion of the population in Ontario (35.8), British Columbia (10.3), and Alberta (7.6).

Numerical and Percentage Distribution of the Population of Canada by Province

Province or Territory	Population in Thousands				Percentage Distribution			
	1961 Census	1966 Census	1971 Census	1972 Estimate	1961	1966	1971	1972
Newfoundland.....	458	493	522	532	2.5	2.5	2.4	2.4
Prince Edward Island	105	109	112	113	0.6	0.5	0.5	0.5
Nova Scotia	737	756	789	794	4.0	3.8	3.7	3.6
New Brunswick	598	617	635	642	3.3	3.1	2.9	2.9
Quebec.....	5,259	5,781	6,028	6,059	28.8	28.9	27.9	27.8
Ontario.....	6,236	6,961	7,703	7,825	34.2	34.8	35.7	35.8
Manitoba.....	922	963	988	992	5.1	4.8	4.6	4.5
Saskatchewan.....	925	955	926	916	5.1	4.8	4.3	4.2
Alberta.....	1,332	1,463	1,628	1,655	7.3	7.3	7.5	7.6
British Columbia.....	1,629	1,874	2,185	2,247	8.9	9.4	10.1	10.3
Yukon.....	14	14	18	19	0.1	0.1	0.1	0.1
Northwest Territories.....	23	29	35	36	0.1	0.1	0.2	0.2
Total.....	18,238	20,015	21,569	21,830	100.0	100.0	100.0	100.0

Totals may not add, owing to rounding.

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 11.28 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 65.5 per cent or about 13.1 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 in 1966. There were only 29 such cities in 1961.

The urban development is typified by the growth of the 22 metropolitan areas of Canada (as delineated by the 1971 census) whose population increased by 11 per cent between 1966 and 1971, while that of the rest of Canada increased by only 4 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 the rural areas are revealed by the figures of successive censuses. The urban population has increased from 69.6 per cent in 1961 to 73.6 and 76.1 in 1966 and 1971 respectively. (The definition of the urban areas covers all cities, towns, and villages of 1,000 and over, whether incorporated or not, as well as the urbanized fringes of urban areas having a minimum population of 1,000 and density of at least 1,000 persons per square mile. The remainder of the population is classified 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. The reduction in the rural population from 30.4 per cent in 1961 to 23.9 in 1971 has been associated with a much steeper decline in the rural farm population; it declined from 11.4 per cent in 1961 to 6.6 per cent in 1971.

Rural and Urban Population and Percentage, Canada and Provinces, 1971¹

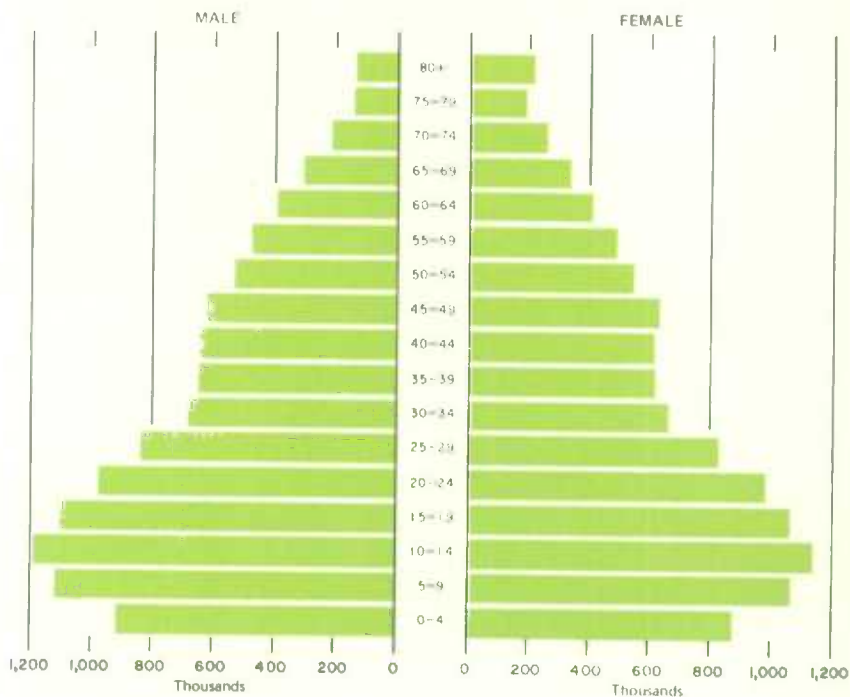
Province or Territory	Total Population	Percentage	Urban ²	Percentage	Rural	Percentage
Newfoundland.....	522,100	100.0	298,800	57.2	223,305	42.8
Prince Edward Island.....	111,640	100.0	42,780	38.3	68,860	61.7
Nova Scotia.....	788,960	100.0	447,405	56.7	341,555	43.3
New Brunswick.....	634,560	100.0	361,145	56.9	273,410	43.1
Quebec.....	6,027,765	100.0	4,861,245	80.6	1,166,520	19.4
Ontario.....	7,703,105	100.0	6,343,630	82.4	1,359,475	17.6
Manitoba.....	988,250	100.0	686,445	69.5	301,800	30.5
Saskatchewan.....	926,240	100.0	490,630	53.0	435,610	47.0
Alberta.....	1,627,875	100.0	1,196,255	73.5	431,620	26.5
British Columbia.....	2,184,620	100.0	1,654,405	75.7	530,215	24.3
Yukon.....	18,390	100.0	11,220	61.0	7,170	39.0
Northwest Territories.....	34,810	100.0	16,830	48.3	17,980	51.7
Total.....	21,568,310	100.0	16,410,785	76.1	5,157,525	23.9

¹Figures may not add, owing to rounding.

²See definition of rural and urban above.

The distribution of the population by sex and by province in 1961, 1966, and 1971 shows some significant changes. Over the years the number of men per

Age and Sex Distribution of Population (Estimated) 1972



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 towards 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 the population by age in 1961, 1966, and 1971 indicates that the 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 estimated figures for 1972 indicate that those under 15 constitute 28.8 per cent and those in the labour force 63.0 per cent. The percentage for the group aged 65 and over edged upwards very slowly to 8.2 in 1972.

The preceding chart shows the age and sex pyramid of the 1972 estimated population for the whole of Canada. It may be remarked that the numbers in the age group 0-4 have diminished significantly in recent years and the pyramid stands on a narrower base. This situation will have an appreciable effect on the numbers entering school and the work force in the future. The bulge in age groups such as 10-14 and 15-19 portends a faster growth in those entering the labour force in the very near future. The smaller numbers in the age group between 25 and

45 are attributable to low birth rates during the period of the depression and the Second World War.

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 to June 1966 and July 1966 to 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.....	1,858	766	890	426	21,569
Average per year.....	370	153	178	85	

According to the 1971 census the number of families in Canada—including the Yukon and Northwest Territories—was 5,071,000, an increase of 555,000 since 1966 and 934,000 since 1961. The average number of persons per family in Canada on June 1, 1971, was 3.7, a drop of 0.2 from 3.9 in 1961 and 1966.

The number of families with no children (accounting for 30.5 per cent of all families in 1971) or with only one child showed a sharp increase in 1971 from 1966 and 1961: in 1971 the percentage was 51.1 as against 48.4 in 1966 and 49.6 in 1961. A decreasing trend was shown for families with three or four children: in 1971 such families accounted for 20.6 per cent as against 21.9 per cent in 1966 and 20.9

Average Number of Persons in Families, Canada, 1971

	Total Families	Average Number in Family
Newfoundland.....	108,135	4.4
Prince Edward Island.....	24,260	4.0
Nova Scotia.....	180,720	3.8
New Brunswick.....	140,430	4.0
Quebec.....	1,357,185	3.9
Ontario.....	1,881,840	3.6
Manitoba.....	235,995	3.6
Saskatchewan.....	215,760	3.7
Alberta.....	382,110	3.7
British Columbia.....	533,630	3.5
Yukon and Northwest Territories.....	10,815	4.3
Canada	5,070,680	3.7

per cent in 1961. The number of families with five or more children declined to a low level of 7.1 per cent in 1971 which contrasts sharply with 9.2 per cent for the same group in 1966.

The 1971 census shows significant differences among the provinces in the distribution of families by number of children. Families with no children, for example, constituted only 23.6 per cent in Newfoundland but 34.2 per cent in British Columbia. Ontario, Manitoba, and Saskatchewan were close behind British Columbia with 31.6, 33.2, and 32.9 per cent respectively. Quebec was the second lowest with 27.8 per cent in the no children category; in all other provinces this category constituted in the neighbourhood of 29 or 30 per cent. At the other end of the scale families with five or more children accounted for as much as 16.6 per cent of families in Newfoundland and as low as 4.6 per cent in British Columbia (other provinces falling in between). This points up interesting relationships between urbanization and the variation in the size of families.

Population 15 Years and Over by Marital Status 1961, 1966 and 1971

Marital Status	Numerical Distribution			Percentage Distribution		Percentage Increase	
	1961	1966	1971	1961	1966	1971	1966-71
Population 15 and over.....	12,046,325	13,423,123	15,187,410	100.0	100.0	100.0	13.1
Single.....	3,191,206	3,764,833	4,290,675	26.5	28.0	28.3	14.0
Married ¹	8,024,304	8,723,217	9,777,605	66.6	65.0	64.4	12.1
Widowed.....	778,223	870,297	944,020	6.5	6.5	6.2	8.5
Divorced.....	52,592	64,778	175,110	0.4	0.5	1.2	170.3

¹Includes separated.

The distribution of population by marital status gives yet another interesting facet of the demographic profile of the Canadian population. The accompanying Table shows population 15 years and over distributed by marital status categories for the census years 1961, 1966, and 1971. The number of single persons increased by 14 per cent during the 1966-71 period while the general increase of persons 15 and over was 13.1. The rate of increase in the single population appears to be decreasing when we consider that the same population increased by about 18 per cent during the 1961-66 period. But the most interesting aspect was the phenomenal increase in the divorced category: an increase of 170 per cent was observed during the period 1966-71. (This may be due to the liberalization of the divorce laws.) However, it may be remarked that the number of persons in the divorced category is small and any slight increase is thereby magnified in percentage terms.

The variations in the distribution of population by marital status by province provide some interesting insights. The largest proportion of single persons in the adult group lived in Quebec, while Alberta and British Columbia accounted for the smallest. The largest proportion of married people lived in British Columbia in 1971 while the Northwest Territories had the smallest number. The proportion of the divorced was higher in British Columbia than any other province (1.6 per cent of all persons) while Newfoundland had the lowest proportion (0.1 per cent of all persons).

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 thing



The Canadian flag flying off the coast of Labrador. The new flag was raised on February 15, 1965.

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 Queen's Visits



Her majesty Queen Elizabeth visited Canada twice during the summer of 1973, meeting the people of Canada and their leaders, Governor-General, the Rt. Hon. Roland Michener (left) and the Prime Minister of Canada, the Rt. Hon. Pierre Trudeau (right).



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, 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 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 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. It is customary, insofar as representation in Parliament permits, for the Cabinet to include at least one minister from every province, with the more populous provinces receiving greater representation.

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 Cabi-

Senators, members of the House of Commons, and the nine justices of the Supreme Court, wearing scarlet robes, participate in the opening of Parliament.



net 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 seek dissolution of Parliament, leading to a general 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. In October 1973, the Senate had 73 Liberals, 1 Independent Liberal, 17 Progressive Conservatives, 1 Social Credit, 2 Independents, and 8 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 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.



The Legislative buildings in Edmonton, Alta. Each province of Canada has its own legislature.

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 CCF party joined forces to launch a new party. (The CCF—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 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 local and private nature.

The Northwest Territories are ruled by a Commissioner, appointed by the Government of Canada, and a council of 14, of whom 4 are appointed by the central government and 10 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.

Canada Department of Agriculture

From the introduction of a veterinary inspection service in 1869 and the establishment of an Experimental Farms Service in 1886, the scope of the Canada Department of Agriculture's responsibilities has grown with the country's agricultural industry.

Today, more than 30 Acts of Parliament provide the authority for the Department's diversified activities. These include inspection and grading of farm products, research into the physical and economic problems of agriculture, safeguarding crops and livestock from disease and insect pests, and enforcement of laws governing sales of feed, fertilizers, and pesticides. The Department administers price support, crop insurance, and other programs to assist farmers. It also provides marketing services, including market reports and forecasts, consumer-oriented food advisory services, and supervision of race-track betting.

Toward the close of 1972, the Food Systems Branch was established to bring a new federal approach to agricultural co-ordination and development, based on a market-oriented food systems idea. The Branch's work involves consultation, analysis, and co-ordination of the various segments of the commodity systems. Initially, activities are being concentrated on beef, oilseeds, and high-energy grains.

In addition to the new branch, the Department is composed of six others: Economics, Health of Animals, Production and Marketing, Research, Finance and Administration, and Personnel Administration.

Special Agencies

The Canadian Grain Commission, which reports to the Deputy Minister of Agriculture, administers the Canada Grain Act. Its responsibilities include licensing grain elevators, testing the protein content of wheat, and supervising the grading and handling of grain in Canada.

The Canadian Dairy Commission and the Canadian Livestock Feed Board are responsible to the Minister of Agriculture. The Dairy Commission supports the

Purebred Charolais bull, at a cattle auction south of Calgary.



market price of major processed dairy products and makes direct payments to milk producers to supplement their returns from the market. The Feed Board ensures the 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.

The National Farm Products Marketing Council, appointed in 1972 shortly after the Farm Products Marketing Agencies Act was passed by Parliament, is the newest of the special agencies. It is responsible to the Minister of Agriculture. The Council's role is to oversee the establishment and operation of national marketing agencies for various farm commodities. About year-end, the Canadian Egg Marketing Agency became the first agency established under the legislation.

Programs and Policies

The first Australian cattle to be imported into Canada arrived at Edmonton International Airport during 1972. The planeload of Murray Greys and Australian Shorthorns spent 90 days at the Department's new livestock quarantine station near the airport, then were released to their buyers. Meantime, the importation of cattle from Europe, which began in 1966, is continuing. Permits to import more than 900 head of cattle were issued in 1972. Cattle from Austria, France, Federal Republic of Germany, Italy, and Switzerland can be imported into Canada through either the Grosse Île or St. Pierre quarantine stations. Incoming cattle are held for a mandatory 90-day period for observation and tests before being released to the buyers.

Canada got a new beef grading system during the year. The system, based on studies by the Department's research branch and on proposals by the beef industry, introduced a more precise system of measurement of the quality and quantity of beef in a carcass.

Five new wheat grades—No. 2 and No. 3 Canada Western Red Spring Wheat and three utility grades—were introduced during the year, completing a conversion to new grades begun in 1971 with the introduction of No. 1 Canada Western Red Spring Wheat. Wheat of either No. 1 or No. 2 Canada Western grade is binned at terminals according to protein levels. The introduction of the new grades is designed to improve sales of Canadian wheat on world markets.

The Farm Credit Act underwent amendment during the year. The result was an increase in the maximum amount that an individual can borrow from the Farm Credit Corporation, the removal of the minimum age of 21 years as a qualification for a loan, and the restriction of loans to Canadian citizens or landed immigrants.

A program designed to help the small farm owners of Canada was launched in early 1972. By year-end, six provinces—Alberta, Ontario, British Columbia, New Brunswick, Prince Edward Island, and Nova Scotia—had signed Small Farm Development Program agreements with the federal government. The program's features include a farm listing service, farm management consulting services, a land transfer scheme, assistance to farmers wishing to retire or leave farming for another occupation, and special credit facilities to promote the development of profitable family farms.

Citizenship

The Citizenship Branch of the Secretary of State is concerned with all aspects of citizenship from granting citizenship status to encouraging citizens to help identify and resolve the social issues that directly affect their lives. Its over-all objective is to develop a stronger Canada, a country in which there is understanding and respect among individual groups and in which all Canadians can play an active role in their communities. The Branch consists of a headquarters staff in Ottawa with regional offices and citizenship courts located in the major centres across the country.

Citizenship Development

The most effective way for individuals to make an impact on the quality of their lives is through the organizations that they themselves have created to meet their particular needs. The Citizenship Branch, through its various programs, makes financial resources available to citizens' organizations and unstructured social groups to enable them to pursue their activities and realize their goals.

Under its Travel and Exchange Program, grants are provided for projects which encourage personal interaction among Canadians from different regions of the country to enable them to develop a greater understanding of the cultural and geographic diversity of Canada. Priority is given to economically and culturally disadvantaged groups, geographically isolated communities, native peoples' groups, senior citizens, and mentally or physically handicapped Canadians.

Financial assistance is provided under the Native Citizens' Program to ensure the preservation and development of native cultures in the context of Canadian society. This takes the form of core-funding of native associations and support for Friendship Centres and cultural education centres in various locations across the country.

Funds and advisory services are made available under the Citizens' Organizations Program to voluntary agencies for projects that strengthen Canadian identity and train and orient citizens for community organization and voluntary action.

A program of education to promote human rights across the country is conducted under the Citizens' Rights and Freedoms Program which also provides grants to assist in the operations and activities of human rights and civil liberties in Canada.

Finally, under the Citizens' Culture Program, grants are awarded to ethno-cultural groups for projects that meet the objectives of the federal government's multiculturalism policy and that support the development, establishment, and ongoing operation of multicultural centres.

Opportunities for Youth, launched as an experiment in the summer of 1971, is yet another program administered by the Citizenship Branch. Entering its third year of operation, the program provides an opportunity for young Canadians, in partnership with their communities and the federal government, to work during the summer months on projects that are of benefit to their communities.



1

1. Highland dancing during a competition at Lansdowne Park in Ottawa.
2. An Italian religious holiday in Montreal, Que.
3. Ukrainian dancers.
4. French folk dancing.



3



Citizenship Registration

Canada was the first country in the Commonwealth to adopt a distinctive and separate Citizenship Act. It came into force on January 1, 1947. Its purpose was to give a clear and simple definition of Canadian citizenship and to provide a common status for all the people of Canada that would help unite them as Canadians.

According to the Act, a Canadian citizen is a person who is either born in Canada or is naturalized in this country. A child born outside Canada to Canadian parents may become a Canadian citizen upon the registration of his birth with the Registrar of Canadian citizenship. All British subjects who, prior to January 1, 1947, had resided in Canada for a period of twenty years, or who had Canadian domicile, or women who had married Canadian citizens and had taken up residence in Canada, automatically acquired Canadian citizenship status at that time.

In general, a person wishing to become a Canadian citizen must be 21 years of age or older, have been admitted to Canada as a "landed immigrant" and have resided here for five years. He or she must be of good character, understand the responsibilities and privileges of citizenship, have an adequate knowledge of English or French, and intend to live here permanently.

The granting of citizenship is the responsibility of Citizenship Registration, which includes the office of the Registrar of Canadian Citizenship, examination and administrative divisions in Ottawa, and courts of Canadian citizenship located in major cities throughout the country. Facilities for obtaining citizenship elsewhere are provided by these courts operating on circuit, by the law courts, and, in remote areas, by individuals designated for the purpose.

One Opportunities for Youth project provided summer recreation for Halifax children in 1972.



Consumer and Corporate Affairs

The Department of Consumer and Corporate Affairs officially came into being on December 21, 1967, when the Act of Parliament creating it received royal assent. The Department was established to bring together, under one Minister, all the federal laws that regulate transactions in the Canadian market-place. Much of the legislation it administers existed long before the Department was created, but responsibility for enforcement and administration had been divided among a number of government departments.

The new Department was assigned the role of fostering an efficient and workable market system for the benefit of all Canadians, whether they be consumers, investors, or businessmen. Its existence reflects Parliament's view that the competitive market system is the basis of an efficient economy and can be structured to operate for the good of the Canadian society as a whole.

To this end, it proposes appropriate policies and legislation to promote efficiency and productivity on the part of those who supply the market with goods and fair economic treatment for all concerned in commercial transactions. One result of the Department's existence has been a marked extension of the concept of consumer rights and the provision of information on all matters of interest to the widest possible consumer audience.

Organization

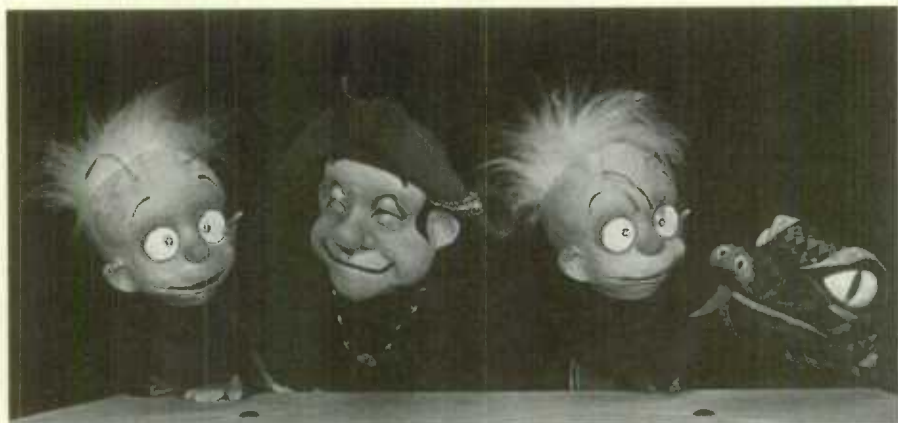
Responsibility for the achievement of these objectives is shared by five bureaus. Since the Department is essentially a regulatory body, administering a complex variety of statutes and regulations, the administrative structure is designed to provide considerable flexibility and administrative control.

The Bureau of Consumer Affairs develops legislative proposals and programs and provides technical guidance to the field staff of the Bureau of Field Operations on a number of important consumer protection laws dealing with packaging, labelling, weights and measures, and hazardous products. It also provides a focal point for communication between the Department and the public through "The Consumer, Box 99, Ottawa." In addition to dealing with complaints directed to Box 99, the Bureau carries out an extensive consumer information program.

The Bureau of Corporate Affairs concerns itself with the legal framework that governs the orderly conduct of business. It grants charters of incorporation to new businesses and presides over bankruptcy proceedings for insolvent companies and the licensing of trustees in bankruptcy.

Since June 1972, the Bankruptcy Branch has extended its program to individuals so deeply in debt that a declaration of personal bankruptcy is the only solution to their financial problems. The Branch administers such poor debtor liquidations for a fee of only \$50, compared to the \$500 or more charged by trustees in private practice. Even that fee can be waived if the debtor is unable to pay. To qualify, a person must have debts totalling \$500 or more and a total income of less than \$5,000 a year.

The Bureau of Intellectual Property grants patents, after ensuring that applications meet the requirements of novelty and inventiveness and do not infringe



A Consumer and Corporate Affairs program in the summer of 1973 involved sending 10 teams of puppeteers across the country to give shows in children's playgrounds stressing safety precautions and hazardous products.

existing patents. It also grants licences authorizing companies to produce and sell patented products, without the consent of the original patent holder when there is evidence that the protection is being used in a manner contrary to the public interest. Compulsory licences to import drugs can be issued without evidence of patent misuse. The Bureau also registers trade marks and industrial designs and certifies registration of applications for copyright of literary, dramatic, musical, or artistic works.

The Office of the Director of Investigation and Research administers the Combines Investigation Act, the present form of legislation which, since 1889, has aimed at maintaining a competitive market system. The Act gives the director wide powers to conduct inquiries when he has reason to believe there may have been a violation of the Act with respect to agreements, mergers, monopolies, price discrimination, promotional allowances, misleading representation as to price, false and misleading advertising, or retail price maintenance.

The results of his inquiries are sent to the Restrictive Trade Practices Commission for consideration and public report, or to the Attorney General of Canada for such action as he may be pleased to take. The Attorney General also decides whether charges should be laid following reports of the Commission.

The Bureau of Field Operations is responsible for the administration of the Department's field force across Canada, which operates from regional offices in Vancouver, Winnipeg, Toronto, Montreal, and Halifax, plus district offices in 25 other cities across Canada. The Bureau implements and enforces the laws and regulations administered by the Department and ensures that they are uniformly applied and interpreted in all parts of the country.

The field force includes inspectors dealing with a wide range of matters from food inspection to hazardous products and specialists in the fields of bankruptcy, and false and misleading advertising. In addition, a consumer consulting, information, complaints, and inquiry service is provided at each regional office and in some district offices.

Education

The beginnings of the post-industrial society are upon us. As Daniel Bell and others have suggested, the creation of a service economy and the pre-eminence of professional and technical occupations characterize the structure of a post-industrial society.¹ Thus the problem of producing the required professional and technical manpower is one that education must face.

A second major problem of modern-day education lies in the area of learning. If one stops to consider that children today, by the time they are leaving the elementary school, have accumulated, in many ways more knowledge than the greatest philosophers of ancient times, then the problem is evident. The extremely high input of data and basic information in today's society has created a need for new methods of instruction. In trying to arrive at a solution, one is hampered by the fact that western society values individualism, which creates a demand for greater flexibility in teaching methods.

To solve these problems, an important step has been taken in Canada through the development of an array of educational structures at the tertiary level. Further steps include those at the elementary and secondary levels where programs are being structured around such innovations as non-graded systems, promotion by subject, and the elimination of departmental examinations, with an emphasis on continuous evaluation. New teaching methods include the use of educational aids (closed circuit and educational television, tape recorders, overhead projectors) to facilitate and enrich the learning process of individual students.

At the same time, there has been a concomitant need for an increase in professionalization of the teaching staff at all educational levels. In part, this has resulted in shifting teacher-training programs to universities with an accompanying decrease in teachers' colleges in Canada.

Educational Jurisdictions

Under the British North America Act, section 93, the provinces are generally responsible for education, except for private schools and federally-sponsored schools for Indian and Inuit (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 the development of distinctive educational systems in the various 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.

¹Daniel Bell, "Notes on the Post-Industrial Society," *The Public Interest* (Winter 1967, and Spring, 1968).

Changes in the original departments of education in some provinces have created a second governmental department dealing exclusively with post-secondary education. 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.

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



An old schoolhouse near Bolton, Ont. During the last decade, local educational administrations have been restructured and larger school districts created.



Brooksbank elementary school in North Vancouver, B.C.—like many new schools—is of an interesting, individual design.

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 5 regional boards. In Nova Scotia, the consolidation of school boards was recently initiated with the formation of 3 regional municipal boards, and plans are under way to amalgamate school boards into 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 by 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 integrated 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 organizations. 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; the rest came under four secondary divisional boards and 44 smaller elementary district



Three- and four-year-olds attending child-care courses at Highland Park High School in Ottawa are pupils of the high school students, as well as their teachers.

boards. In Saskatchewan, recommendations regarding implementation of consolidated school districts are being considered.

School Organization. Kindergarten classes are offered in all but three provinces, Prince Edward Island, New Brunswick, and Alberta. The other provinces provide this education to five-year-olds in the publicly-controlled school system. However it should be noted that these services are predominantly found in the larger urban centres. Throughout Canada there are an increasing number of nursery schools and kindergartens that are privately operated for children from three to five years of age.

The traditional organization of elementary and secondary schools has been grades 1 to 8 in elementary and 9 to 12 in secondary. Modifications on this particular arrangement have come through the introduction of junior high schools. Junior highs have developed in all provinces except Newfoundland, Quebec, and Saskatchewan, and generally include grades 7, 8, and 9, with senior high schools providing grades 10, 11, and 12 and 13 in Ontario.

Most secondary schools offer technical and commercial subjects as options in the academic curriculum. Vocational, technical, and commercial secondary schools, at one time located only in large cities, are now an integral part of the school system, province-wide in many provinces. An increasing number of composite schools offer optional programs in academic or technical subjects, such as agriculture, home economics, and commerce, allowing more 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 organizations, which allow 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 a "credit" system. In the secondary schools, implementation of this policy is leading to increasingly flexible individual program scheduling, optional diversified courses, and promotion by subject.

The western provinces are also encouraging a less rigid classification by grade. In Saskatchewan the traditional 12 elementary-secondary grades are in the process of being replaced by four divisions, each consisting of three years of school for a student making normal progress. In Divisions I and II, the principal of non-grading with continuous evaluation and flexible promotion has been adopted. Division III programs have been designed to accommodate the special problems of the young adolescent. At present, progress is still being made in the development of both Divisions III and IV. The newly developed programs stress more flexibility, which makes allowance for individual differences. Students are encouraged to discover facts and think for themselves; at the core of these divisions is the belief that students should develop values, skills, and ideas or concepts rather than learn by rote.

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 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 Inuit (Eskimo), Indian, and Métis living in isolated settlements. Responsibility for education was moved from the federal Department of Indian Affairs and Northern Development 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

The Thirteenth Hour is a student's interpretation of a Halloween radio program prepared by the Manitoba Schools Broadcast Branch.



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. The Yukon has chosen to follow the British Columbia school curriculum although the program is adapted to incorporate material relevant to the heritage of the native peoples.

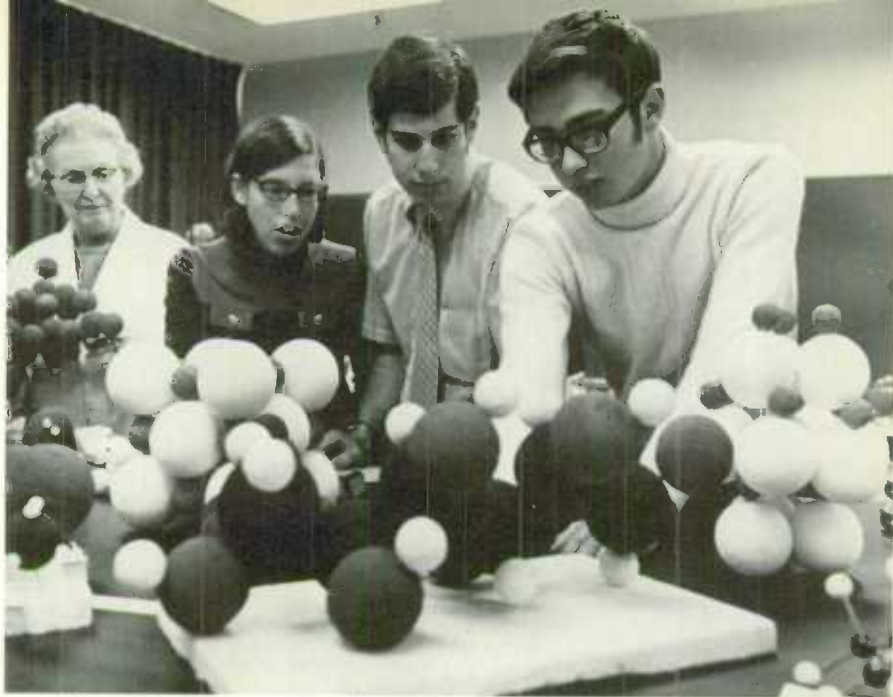
That the Northwest Territories and Yukon are facing the challenge of preparing their students to compete in contemporary Canadian society is indicated by the fact that more children are enrolled in school and more children are staying in school longer and completing grade 12.

Enrolment. Enrolments of public, elementary, and secondary students over the past two decades have increased fairly rapidly, a result of the high post-war birth rate in Canada. Public school enrolments at the elementary level began to decline in 1971-72 as a result of the lower birth rates in the mid 1960's. This decline can be expected to have an effect on secondary enrolment in future years. However, for the present and immediate future, the expectation is that enrolment in secondary educational institutions will continue to increase, as elementary school students of the mid and late 1960's who are from earlier high birth-rate cohorts now move into the secondary system, and students stay in school longer before entering the labour force.

Enrolment as a percentage of the population in the early 1950's was around 18 per cent. By the early 1970's this had risen to approximately 26 per cent, again as a result of the high birth rates in the early 1960's, and of students' staying in school longer. Between 1970-71 and 1971-72 this proportion dropped slightly in all provinces except Newfoundland and the Northwest Territories where it rose slightly; in Saskatchewan it remained constant. It is expected that this percentage will drop in the future, primarily as a result of the present declining birth rates, even though students will remain in the school system for longer periods.

Total enrolments between 1970-71 and 1971-72 in the public elementary and secondary school system declined from 5,650,335 to 5,640,515 or about .2 per cent. Quebec experienced the greatest decline during this period; it decreased by 17,086 students, while Ontario increased its enrolments by 8,959 students. The drop in total enrolment is primarily a result of declining enrolments in the elementary sector and not the secondary sector. The total enrolment decrease between 1970-71 and 1971-72 was even more pronounced the following year, 1972-73. In all provinces except British Columbia and the Northwest Territories total enrolments declined.

Student enrolments declined at all levels, except the pre-elementary. The increase at this level was not because the population was greater but because more facilities were opening. Student enrolments at the elementary level declined 1.1 per cent from 1971-72 to 1972-73, while at the secondary level enrolments declined only .1 per cent. At this time it is expected that the decline at the second-



The science lesson takes on a new dimension for these Halifax high school students.

ary level is only a random fluctuation.

Over the 1970-71 to 1971-72 school year the number of teachers increased from 258,414 to 262,517, a rise of 1.6 per cent in the combined elementary-secondary teachers category. The result of decreased enrolments and increased teachers is generally a reduction in the student-teacher ratio across Canada (1970-71 = 21.9:1; 1971-72 = 21.5:1).

Vocational and Technical Education

In the last decade there has been a rapid development of vocational and technical education in Canada. For the purposes of this presentation vocational education includes all training (the great majority of cases not requiring a complete high school education for entrance) for occupations requiring varying degrees of skill normally taking less than one year to acquire, and in the performance of which greater emphasis is placed on manipulative skills and pre-determined procedures rather than on the application of ideas and principles. Technical education, on the other hand, prepares students for occupations that require high school graduation for entrance, and at least one year's training (and usually two to three). This schooling requires the application of ideas and principles in a semi-professional role.

Vocational training is available in publicly-operated trade schools and similar institutions, in private trade schools and business colleges, in provincially-registered apprenticeship programs, in publicly-supported training-in-industry programs for employees and in on-the-job training programs introduced as a measure to offset unemployment. Institutions similar to public (provincially-operated) trade schools include adult vocational centres, trade divisions of



Under the direction of an Indian carpenter, these youngsters at a residential school in the Northwest Territories plane the wood for making snowshoes.

community colleges and schools for specific occupations such as nursing aid schools, forestry schools, and police and fire fighters training establishments. Not included in this discussion are vocational and composite high schools. While in some provinces the courses offered in these secondary schools continue to provide training leading to employment, changing aims and school organizations have made the distinction between academic and vocational students less and less recognizable.

In instances where applicants do not have the required academic background to proceed with vocational training, there are upgrading courses to bring trainees to the required educational level. Many vocational centres also offer language training for those who do not have the proficiency in either English or French to receive instruction in a vocational course. Short "orientation" courses are also made available that guide trainees into the proper skill areas and help them brush up prerequisite skills. A training-on-the-job program introduced by the federal government in the fall of 1971 provided 40,000 jobs that first year.

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.

Tertiary Education

The past decade has witnessed an extraordinary increase of enrolment in the tertiary level of education which has surpassed the elementary-secondary rate of growth during the same period. This educational level has 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. Over the decade the increase in enrolments was especially marked in the universities and community colleges, although at present there is a short fall in enrolment in the former.

Several factors 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 that cater for individual interests and abilities, and the supposition that education beyond the secondary level is a path to increased social mobility.

Community Colleges and Related Institutions

Community colleges have developed to meet the need for various types of programs and an increase in students seeking post-secondary education in other than the university sector. Enrolments in these institutions are rapidly increasing because of the community colleges' flexible open-door policies. Further, the need for semi-professional personnel in a system that is rapidly moving towards a service economy has recently stimulated increased enrolments. These institutions are discussed in the context of that need.

Included is the provision of the junior years of university-related colleges, from which graduates may apply for admission to the senior years of a degree-granting institution as well as for other credit and non-credit programs. Included in this classification are, specifically, regional colleges in British Columbia, public colleges in Alberta, a college of Applied Arts and Sciences in Saskatchewan, colleges of Applied Arts and Technology in Ontario, general and vocational colleges (CEGEP) in Quebec and, generally, colleges of agricultural technology, institutes of technology, technical institutes, and schools of para-medical technologies.

Most colleges are provincially supported and exercise various degrees of autonomy. High school graduation is a prerequisite for entrance to post-secondary programs, but where this is lacking, many colleges provide a qualifying year. In addition, or alternatively, some institutions permit older applicants without the necessary qualifications to attend classes as "mature" students.

Technical programs are of two or three years duration, very rarely four, and in three main divisions—applied arts, business, and technical studies. Completion of two- or three-year programs leads to a Diploma of Technology (DT) or to a Diploma of Applied Arts (DAA). A certificate is usually given in recognition of the completion of one-year programs.

Provincial Systems of Community Colleges

In the Atlantic Provinces, community colleges include 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 to employment. 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-1960's, 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 1971-72 total enrolment in this educational sector was 82,689, with enrolments in CEGEP accounting for 91.5 per cent, or 75,679 students.

The electrical engineering department of the University of Manitoba co-operates actively with the Research Board of Manitoba Hydro.



In Ontario in 1965, colleges of applied arts and technology (CAATs) were established in 20 regions. They are oriented to providing vocational and technical education. Other institutions in this educational sector include the Ontario College of Art, the Ryerson Polytechnical Institute, four colleges of agricultural technology, and a school of horticulture. In 1971-72 there were 37,981 students enrolled in the CAATs and other related institutions.

In setting up a community college structure, Manitoba in 1969 redesignated the Manitoba Institute of Technology and Applied Arts and 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 only vocational programs. One church-related institution, 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.

There are eight regional colleges (including Vancouver City College) in British Columbia that offer two-year terminal courses, or technical programs as well as university transfer programs. Included in the technical programs are those articulated with programs at the British Columbia Institute of Technology, where the second year is completed. In addition to these nine institutions, there are two private colleges offering university transfer programs; two colleges of art, and the Vancouver Vocational Institute which offers programs classified as post-secondary by the province. The College of Art and Vancouver Vocational Institute are a part of the Vancouver City College.

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 have been 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 1971-72 the total enrolment in nurses' (R.N.) diploma programs within hospital schools, regional schools of nursing, and community colleges was 26,034. This represents a modest decrease of 511 students or 1.9 per cent from 1970-71.

Teacher Training

The trend during the past few years has been to phase out the teachers' college or normal school which at one time was the principal post-secondary non-university institution. Previously, only teachers at the secondary level were required to have university degrees, but now candidates for both elementary and secondary teaching certificates are required to have a degree in all but two provinces, Nova Scotia and New Brunswick. Even in those two, teachers' colleges are being phased out and university professional training for teachers is being stressed. Some teachers in Ontario and Quebec were trained in teachers' colleges in 1971-72, before those institutions were completely abolished. The total enrolment of 5,297 is less than half the enrolment in the previous year.

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 are 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 past two decades, many universities were expanded considerably. In addition, several new universities were chartered—such as Simon Fraser, Brock, Lethbridge, and Trent—and some institutions were given degree-granting status—for example, the University of Victoria and Notre Dame University of Nelson, B.C.

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 aptitude 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, architecture, 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. In 1971-72, 323,029 full-time students were enrolled in degree, diploma, and certificate programs in universities, 206,631 (or 64.0 per cent) of whom were men. It is noteworthy that in the past 10 years part-time enrolment increased at a higher rate than full-time enrolment.

An interesting trend began to develop in 1970-71 in regard to full-time enrolment in universities. The western provinces showed much lower rates of increase than

had been expected. In 1971-72 the pattern was repeated not only in the western provinces but almost nation wide. The rapid expansion of university enrolments during the 1960's was past and projections for the first half of the 1970's showed much more modest increases.

When first considered, this might seem to contradict some of the predictions of Daniel Bell, referred to previously. However, this is not the case. While it is true that the previously expected increases in full-time enrolments have not been as high as expected, and have decreased in some instances, the over-all view of post-secondary education gives a different picture. At present it appears that the rise in importance of the community college will substantially increase. In general, universities will continue to produce professionals, while community colleges will specialize in producing technical manpower, who in some instances will become support staff for the professional.

Unlike the community colleges, universities experienced only small gains in full-time enrolments: 1.9 per cent from 1970-71 to 1971-72, whereas annual increases during the 1960's were in the order of 12 to 14 per cent and in the 1969-70-1970-71 school year, 5.7 per cent. Hardest hit by the declining enrolments in the university sector were Saskatchewan, Alberta, and British Columbia which actually suffered a decline in full-time enrolment between 1970-71 and 1971-72.

It has been projected that by 1974-75, the total post-secondary education sector will involve about 580,957 students, up from 475,041 in 1970-71 in Canada, an increase of approximately 22 per cent. Such a projected increase in tertiary education points in part towards a post-industrial society, characterized by a service economy and an increased development of professional and technological manpower.

The University of Calgary. Over 60 degree-granting universities exist in Canada.



Table 1. Statistical Profile of Public Elementary-Secondary Education,¹ 1971-72 (Fall), 1972-73

Province		Total Population of Canada June 1971	Total Enrolment ²	Enrolment as % of Population (2 ÷ 1)	Students ²				Full-time Teachers ³			Student Teacher Ratio (2 ÷ 10)
				Pre-Elem.	Elem. ⁴	Sec. ⁴	Ungraded	Elem. ⁵	Sec. ⁵	Total		
Newfoundland	1971-72	522,105	162,818	31.2	12,887	86,764	60,059	3,108	4,891	1,757	6,648	24.5
	1972-73		161,712		12,618	85,341	59,851	3,902				
Prince Edward Island	1971-72	111,640	30,570	27.4	...	16,665	13,313	592	1,123	516	1,639	18.7
	1972-73		28,932		...	15,599	12,922	411				
Nova Scotia	1971-72	788,960	214,780	27.2	15,347	107,083	88,737	3,613	6,501	3,368	9,869	21.8
	1972-73		211,262		14,587	105,799	89,309	1,587				
New Brunswick	1971-72	634,555	175,997	27.7	...	93,268	81,640	1,089	5,180	2,776	7,956	22.1
	1972-73		173,851		...	90,538	82,277	1,036				
Quebec	1971-72	6,027,780	1,568,671	26.0	100,964	762,938	704,769	...	40,300 ⁶	37,700 ⁶	78,000 ⁶	20.1
	1972-73 ⁶		1,565,750		93,150	791,900	680,700	...				
Ontario	1971-72	7,703,105	2,031,360	26.4	149,148	948,449	902,958	30,805	57,992	34,496	92,488 ⁷	22.0
	1972-73		2,028,114		157,919	922,238	915,268	32,689				
Manitoba	1971-72	988,245	244,452	24.7	15,548	118,502	103,988	6,414	7,351	4,380	11,731	20.8
	1972-73		238,861		14,903	114,210	106,395	3,353				
Saskatchewan	1971-72	926,245	243,579	26.3	4,707	123,927	111,450	3,495	7,265	3,451	10,716	22.7
	1972-73		234,152		4,338	116,953	106,631	4,230				
Alberta	1971-72	1,627,875	427,968	26.3	2,500 ⁶	222,224	199,374	3,870	12,995	7,526	20,521	20.9
	1972-73		425,251		2,916	216,195	201,260	4,878				
British Columbia	1971-72	2,184,620	524,305	24.0	19,855	256,830	241,098	6,522	12,433	9,679	22,112	23.7
	1972-73		526,061		22,681	250,441	246,381	6,558				
Yukon	1971-72	18,385	4,806	26.1	19	2,917	1,820	50	181 ⁶	68 ⁶	249 ⁶	19.3
	1972-73		4,749		—	2,812	1,904	33				
Northwest Territories	1971-72	34,810	11,209	32.2	1,100	7,155	2,461	493	489 ⁶	99 ⁶	588 ⁶	19.1
	1972-73		11,369		1,185	7,296	2,842	46				
Total, Canada	1971-72	21,568,305	5,640,515	26.2	322,075	2,746,722	2,511,667	60,051	156,701	105,816	262,517	21.5
	1972-73		5,610,064		324,299	2,719,322	2,507,740	58,703				

¹Includes separate schools.

²Does not include in 1971-72 (1972-73)*: 147,905 (155,910) students in private elementary, secondary, kindergarten, and nursery schools; 29,242 (28,990) students in schools operated by the federal Department of Indian Affairs and Northern Development; 4,569 (..) students in Department of National Defence schools overseas; and 3,251 (3,410) and 636 (660) students in schools for the deaf and blind, respectively.

³Does not include in 1971-72: 4,244 teachers in private elementary, secondary, kindergarten and nursery schools, teachers in schools operated by the federal Department of Indian Affairs and Northern Development, teachers in Department of National Defence schools overseas; and 643 and 133 teachers in schools for the deaf and blind respectively.

⁴Elementary figures based on grades 1-6; secondary based on grades 7-12/13.

⁵Elementary figures based on grades 1-8; secondary based on grades 9-12/13.

⁶Estimate.

⁷Preliminary—received from Ontario Ministry of Education.

.. figures not available.

... not appropriate or not applicable.

— nil or zero.

Table 2. Full-time Enrolment in Tertiary Education, 1971-72¹

Province	Community Colleges and Related Institutions ²		Univ. Transfer Prog.		Teachers' Colleges		Non-Univ. Sector Diploma Schools of Nursing ³		University Sector Univ. and Affil. Colleges	
	Total	Males	Total	Males	Total	Males	Total	Males	Total	Males
Newfoundland.....	848	647	—	—	—	—	700	11	7,077	4,429
Prince Edward Island	391	192	—	—	—	—	193	—	1,771	990
Nova Scotia	934	604	164	136	797	197	998	4	16,291	9,849
New Brunswick	702	611	—	—	707	104	1,007	8	10,952	6,893
Quebec.....	36,147	18,515	46,542	27,734	736	..	7,979	324	62,819	41,787
Ontario.....	37,981	25,581	—	—	3,057	1,063	9,386	131	134,422	86,779
Manitoba	2,555	1,700	—	—	—	—	1,275	23	17,351	10,781
Saskatchewan	2,026	999	75	63	—	—	837	10	14,801	9,249
Alberta	8,577	..	2,268	..	—	—	2,045	14	28,769	18,030
British Columbia	5,707	..	5,785	..	—	—	1,614	25	28,776	17,844
Total, Canada	95,868	..	54,834	..	5,297	..	26,034	550	323,029	206,631

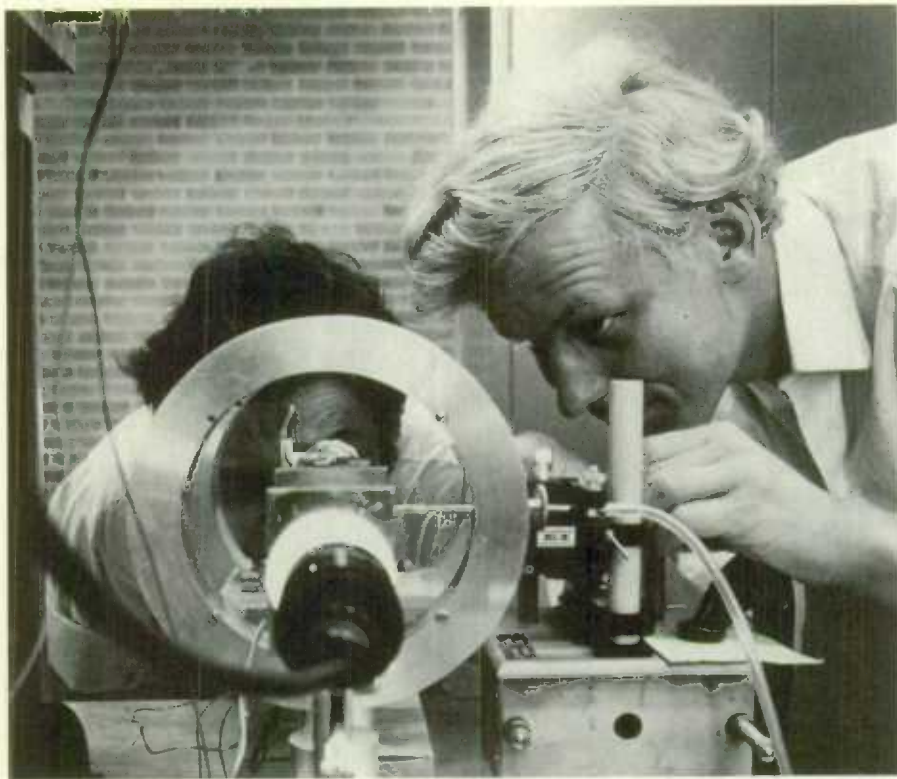
¹Includes enrolments in the non-university sector (including post-secondary courses in community colleges and related institutions); teachers' colleges (outside the universities); and diploma schools of nursing; and in the university sector (including universities and affiliated colleges).

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.

.. figures not available.

— nil or zero.



At the research centre, recently created by the Université du Québec in co-operation with Bell Northern, experiments are conducted on tiny magnetized areas whose data storing potential seems both enormous and inexpensive.

Financing

In 1969, 1970, and 1971, total expenditures on education were \$6,573,894,000, \$7,408,860,000, and \$8,023,569,000 respectively, representing increases of \$834,966,000 (or 12.7 per cent) and \$614,709,000 (or 8.3 per cent) over these time periods. Of these totals, expenditures by public school boards on the financing of elementary-secondary education across Canada were 55.4 per cent, 55.8 per cent, and 55.7 per cent in 1969, 1970, and 1971 respectively.

Federal government expenditure at the elementary-secondary school level for 1969, 1970, and 1971 was \$204,089,000; \$194,403,000; and \$188,783,000 respectively, representing 27.7, 24.2 and 23.3 per cent of the total federal government expenditure, not including transfer payments. The greatest amounts spent by the federal government are in the areas of university and vocational-occupational training. 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. In 1969, 1970, and 1971 the expenditures by the federal government in this area were \$296,855,000,

\$357,475,000, and \$350,391,000 respectively. In the same years federal government expenditure on universities was \$199,581,000, \$205,044,000, and \$220,545,000.

The contribution of the federal government to education in Canada is an important one. In 1969, 1970, and 1971 total expenditures, including transfer payments, were \$1,386,128,000, \$1,621,110,000, and \$1,739,001,000 respectively. This represents about 21 per cent of all monies spent on education in those years.

Table 3. Educational Expenditure of Public School Boards for 1969-71 Calendar Years¹

Province	Local Taxation	Provincial Government	Federal Government	Fees	Other	Total
Thousands of Dollars						
Newfoundland.....	1969 648	49,186	—	906	1,844	52,584
	1970 700	52,621	—	950	1,900	56,171
	1971 750	66,862	—	1,000	2,000	70,612
P.E.I.....	1969 3,710	8,454	—	60	100	12,324
	1970 3,850	10,943	—	—	16	14,809
	1971 2,235	14,342	—	—	50	16,627
Nova Scotia.....	1969 41,817	50,432	795	29	405	93,478
	1970 47,760	63,072	562	8	966	112,368
	1971 55,352	68,938	620	10	1,545	126,465
New Brunswick.....	1969 —	64,279	—	11	185	64,475
	1970 —	72,877	—	17	141	73,035
	1971 —	81,576	—	20	250	81,846
Quebec.....	1969 424,868	588,897	5,807	4,645	6,383	1,030,600
	1970 425,000	740,000	6,300	5,100	7,000	1,183,400
	1971 430,000	810,000	6,700	5,430	7,460	1,259,590
Ontario.....	1969 739,573	685,647	10,032	3,942	20,203	1,459,397
	1970 786,183	848,426	11,094	3,759	19,297	1,668,759
	1971 831,620	897,480	11,000	3,700	20,000	1,763,800
Manitoba.....	1969 63,870	79,478	593	847	2,184	146,972
	1970 75,884	81,293	802	833	2,885	161,697
	1971 79,006	99,064	755	630	2,686	182,141
Saskatchewan.....	1969 83,004	62,152	2,142	149	2,826	150,273
	1970 84,523	71,592	2,473	743	99	159,430
	1971 82,376	75,766	1,903	987	2,181	163,213
Alberta.....	1969 135,421	154,941	4,920	1,958	3,634	300,874
	1970 134,631	193,608	4,732	2,289	727	335,987
	1971 145,500	214,800	5,290	2,517	4,481	372,588
British Columbia.....	1969 180,170 ²	129,278	3,343	178	9,542	322,511
	1970 197,537	150,524	4,961	159	7,586	360,769
	1971 210,845	171,433	4,702	222	17,376	404,578
Yukon.....	1969 —	4,828	314	53	226	5,421
	1970 —	4,299	454	60	95	4,908
	1971 —	5,212	550	73	115	5,950
N.W.T.....	1969 401	432	6	—	43	882
	1970 471	478	—	—	4	953
	1971 600	610	22,269	—	35	23,514
Canada.....	1969 1,673,482	1,878,004	27,952	12,778	47,575	3,639,791
	1970 1,756,539	2,289,733	31,378	13,918	40,718	4,132,286
	1971 1,838,284	2,506,083	53,789	14,589	58,179	4,470,924

¹All figures for 1969 are final, those for 1970 are preliminary, and all 1971 figures are estimated.

²Includes provincial government grants (\$51,388), to reduce local taxation.

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 previously involved in work related to the environment and renewable resources have been integrated into the Department which has two principal components: Fisheries and Marine Service, and Environmental Services. Each is headed by a senior assistant deputy minister. Fisheries and Marine Service is responsible for fisheries research, fisheries development, and fishing operations on both coasts and in inland waters, ocean-oriented activities which include oceanography and hydrography, as well as the administration of harbours for small craft. Environmental Services include: Atmospheric Environment Service; Environmental Management Service (including Canadian Forestry Service, Inland Waters Branch, Canadian Wildlife Service, and Lands Directorate); Environmental Protection Service; and Planning and Finance 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 the environment in general and of resources in particular.



The \$400,000 biochemical lagoon undergoes tests at Imperial Oil's Winnipeg refinery. Waste water is treated in the lagoon before discharge into the Red River nearby.

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 beforehand and to control the impact of major works of man on the environment. The Government of Canada is committed to ensuring that all significant environmental effects of major developments are calculated before commitments are made for industrial and construction developments. It seeks also to ensure that development plans include measures for minimizing environmental damage and maximizing environmental benefits.

The fourth goal involves the launching of various long-range environmental programs and provision of leadership and support in carrying them out. Until such programs come into being, there is also an immediate need to build up new knowledge about specific areas of primary concern—the atmosphere, the continental shelves, coastal waters, the Great Lakes, and water bodies subject to intensive human use. Another important concern is the ecologically vulnerable areas of the Arctic and Subarctic.

The fifth goal of Environment Canada is to promote and support co-operative action by nations to protect the environment. Environmental problems, in many crucial instances, transcend national boundaries, and will be solved only by international action. For instance, national pollution havens—countries in which pollution standards may be more lenient—can place nations that demand higher standards at a competitive disadvantage in economic terms. International co-operation is essential in the gathering of new knowledge through research and other studies. Particularly important in this connection is the build-up of new knowledge about the world's atmosphere, oceans, fisheries, and migratory birds, and about new environmental protection technology.

The sixth goal is to develop an environmental information and education program. 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 including the causes, costs, and cures of pollution.

Federal Legislation

A considerable amount of new or amended legislation aimed at protecting the environment has been introduced by the federal government over the past few years.

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.

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 that 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 or solve environmental problems that come under the jurisdiction of the Department. Its activities include problem surveillance, control of air and water pollution, solid wastes management, control and disposal of environmental contaminators, control of activities having an ecological impact, noise control, environmental emergency contingency planning and 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 that limit the amount of discharge of pollutants into water frequented by fish. Other regulations are being developed for other major industrial sources of pollution.



The skimming head in the foreground, the boom in the background, and other oil-spill equipment are transported by mobile vans to strategic locations.

Wide-ranging studies of the effects on marine life of environmental pollutants are conducted at St. Andrews, N.B.



To control water pollution in other areas the Department administers the nutrient control provisions of the Canada Water Act for cleaning agents and water conditioners—manufactured, sold, or imported—in Canada, 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 promulgated recently for four major pollutants—sulphur dioxide, suspended particulates, carbon monoxide, and total oxidants.

The Environmental Protection Service operates a test facility that 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. A program of 50,000 mile durability testing has been introduced recently. A program of national emission standards for air pollutants, which are a significant hazard to health, is under way as well as a program of National Emission Guidelines for 15 major stationary sources of air pollution.

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 response to environmental emergencies, and the development of protocols for testing chemicals that may be dangerous to the environment.



A successful tailings restoration program has been accomplished without using topsoil near Williams Lake, B.C. Cleared areas are seeded by plane with a mixture of grass, fertilizer and legumes. This photo was taken approximately 2½ years after first application of seed.

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 help Canadian travellers and foreign citizens abroad.

In December 1972 Canada had diplomatic, consular and/or trade representation in 129 countries. (The asterisk denotes non-resident representation and the country shown in parenthesis is that in which the accredited Canadian representative resides.)

*Afghanistan (Pakistan)	*Guinea (Senegal)	Philippines
Algeria	Guyana	Poland
Argentina	Haiti	Portugal
Australia	Holy See	*Romania (Yugoslavia)
Austria	*Honduras (Costa Rica)	*Rwanda (Republic of Zaire)
*Bahamas (Jamaica)	Hong Kong	*San Marino (Italy)
Bangladesh	Hungary	Senegal
*Barbados (Trinidad)	*Iceland (Norway)	*Sierra Leone (Nigeria)
Belgium	India	Singapore
*Bolivia (Peru)	Indonesia	*Somali Republic (Ethiopia)
*Botswana (South Africa)	Iran	South Africa
Brazil	*Iraq (Lebanon)	Spain
Britain	Ireland	Sri Lanka
*British Honduras (Jamaica)	Israel	*Sudan (Arab Republic of Egypt)
*Bulgaria (Yugoslavia)	Italy	*Swaziland (South Africa)
*Burma (Malaysia)	Ivory Coast	Sweden
*Burundi (Republic of Zaire)	Jamaica	Switzerland
Cameroon	Japan	*Syrian Arab Republic (Lebanon)
*Central African Republic (Cameroon)	*Jordan (Lebanon)	Tanzania, United Republic of
*Chad (Cameroon)	Kenya	Thailand
Chile	*Korea (Japan)	*Togo (Ghana)
China, People's Republic of	*Kuwait (Iran)	*Tonga (New Zealand)
Colombia	Lebanon	Trinidad and Tobago
*Congo, People's Republic of (Republic of Zaire)	*Lesotho (South Africa)	Tunisia
Costa Rica	*Liberia (Ivory Coast)	Turkey
Cuba	*Libya (Egypt)	*Uganda (Kenya)
Cyprus	*Luxembourg (Belgium)	Union of Soviet Socialist Republics
Czechoslovakia	*Malagasy Republic (Ethiopia)	United States of America
*Dahomey (Ghana)	Malaysia	*Upper Volta (Ivory Coast)
Denmark	*Mali (Senegal)	*Uruguay (Argentina)
*Dominican Republic (Venezuela)	*Malta (Italy)	Venezuela
*Ecuador (Colombia)	*Mauritania (Senegal)	*Viet-Nam, Democratic Republic of (People's Republic of China)
Egypt, Arab Republic of	*Mauritius (Tanzania)	Viet-Nam, Republic of
*El Salvador (Costa Rica)	Mexico	*West Indies, Associated States (Trinidad)
Ethiopia	*Monaco (France)	*Western Samoa (New Zealand)
*Fiji (Australia)	*Morocco (Spain)	Yugoslavia
Finland	*Nepal (India)	Zaire, Republic of
France	Netherlands	Zambia, United Republic of
*Gabon (Cameroon)	New Zealand	
*Gambia (Senegal)	*Nicaragua (Costa Rica)	
Germany, Federal Republic of	*Niger (Ivory Coast)	
Ghana	Nigeria	
Greece	Norway	
Guatemala	Pakistan	
	*Panama (Costa Rica)	
	*Paraguay (Argentina)	
	Peru	

Canada is also represented on the International Commission for Supervision and Control in Laos, and maintains a small delegation in Vientiane. 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: (1), contributing to social and economic development; (2), working to stop the arms race; (3), promoting peace-keeping and peace-making through the United Nations; (4), reconciling Canadian objectives in southern Africa; (5), taking measures to prevent further deterioration in the human environment; (6), promoting international co-operation in the peaceful uses of satellite systems; (7), promoting international co-operation in the use of the seabed beyond the limits of national jurisdiction; (8), promoting observance of human rights, including adherence to and respect for various United Nations conventions; (9), contributing to the progressive development and codification of international law; (10), projecting Canada as a bilingual country within the United Nations context; and (11), 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 co-ordinates 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 over \$500 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 as intimately related. Canadians and Americans are constantly involved in exchanges at all levels—governmental, corporate, and personal. As a result differences and frictions can 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 environment 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 so on. Canadian and American legislators meet every year in the Canada-United States Inter-Parliamentary Group to discuss matters of common concern.

The two countries are each other's best customer, a fact reflected by the existence of a Ministerial Committee on Trade and Economic Affairs. Canadian exports to the United States account for about 68 per cent of Canada's total exports, and the exports of the United States to Canada approximately 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.

Finally, there is a continual intermingling of Canadians and Americans across the shared border: there were over 38 million visits by Americans to Canada in 1972 and over 36 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. There are 32

Queen Elizabeth and Commonwealth heads of government met in Ottawa in August 1973. Commonwealth countries cover about one quarter of the earth's land surface and their leaders represent approximately 850 million people.



sovereign states in the Commonwealth, including Nauru. Although fully independent since 1968, Nauru holds "special" membership which entitles it to all the advantages of membership except attendance at Prime Ministers' Conferences. The West Indies Associated States of Antigua, Dominica, Grenada, St. Kitts-Nevis-Anguilla, St. Lucia, and St. Vincent through their special relationship with Britain in defence and foreign affairs are appropriately involved within the Commonwealth. The Commonwealth of the Bahama Islands became a member of the Commonwealth upon independence July 10, 1973. Commonwealth countries cover about one quarter of the earth's land surface and represent approximately 850 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-



Mrs. Indira Gandhi proceeds, amidst applause, to address the Canadian Parliament.

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 \$1,741 million. The Canadian allocation to SCAAP from 1960 to March 1972 totalled more than \$216 million, while approximately \$140.6 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. In January 1973, 266 students were studying in Canada under this plan. During 1972 in the fields of education and technical assistance Canada provided 1,130 Canadian educators and advisers to assist developing countries in Southeast Asia, Africa, and the Caribbean area, of which 541 were assigned to Commonwealth countries.

Relations with the Commonwealth Caribbean

The present relationship between Canada and the Commonwealth Caribbean has resulted as 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. Canada's common association in the Commonwealth has also contributed to understanding through mutually shared traditions, institutions, and values, resulting in 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 current phase of Canadian relations with the Commonwealth Caribbean dates from the Commonwealth/Canada Conference held in Ottawa in July 1966, which established a broad framework of guidelines along which relations between the two areas could develop. Considerable progress has been made in realizing the recommendations agreed to at the conference. As part of the continuing process of consultation and review of relations, a special Canadian Mission to the Commonwealth Caribbean in the fall of 1970 visited 13 countries and territories. Specific discussions on a wide range of matters of bilateral interest were held during the visit.

In 1971 there was an estimated \$450 to \$550 million of Canadian investment in the region. During 1971, Canadian exports reached \$116.8 million and imports totalled \$100 million. In the last five years more than \$100 million has been allocated to the Commonwealth Caribbean under the Canadian development assistance program. More than 3,000 Canadians live as permanent residents in the region and about 125,000 visit the islands annually. During 1971, more than 12,000 West Indians immigrated to Canada. There are Canadian High Commissions in Jamaica, Trinidad and Tobago, and Guyana, and these three countries, as well as Barbados, maintain High Commissions in Ottawa. The Canadian government opened a High Commission in Barbados in 1973. There is also a Commissioner for the Eastern Caribbean in Montreal who represents the six West Indies Associated States (Antigua, Dominica, Grenada, St. Kitts-Nevis-Anguilla, St. Lucia, and St. Vincent) and Montserrat.

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 that 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 accession to 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. Western Europe is assuming increasing economic and political importance for Canada in the context of the Canadian government policy of diversification of its external economic relations.

Canada has a substantial interest in developing its relations with the Communist countries of Eastern Europe. This derives both from the benefits of increased trade, scientific and technological co-operation and cultural exchanges, and from the benefits of strengthening *détente* in Europe. An important step towards *détente* was taken with the opening, in November 1972, of talks in Helsinki preparatory to a conference on security and co-operation in Europe.

A new era in Canadian-Soviet relations, based on a more candid and friendly atmosphere and on the principle of mutual benefit, was opened in 1971 with the signing of the Protocol on Consultations, the Industrial Exchanges Agreement, and the General Exchanges Agreement and their expansion and implementation in 1972-73. These provide for regular and long-term co-operation between Canada and the USSR. At the same time, Canada has been pursuing improved relations with the other East European countries in the hope of arranging similar mutually advantageous agreements. At present, Canada has resident diplomatic missions in Moscow, Prague, Warsaw, Belgrade, and Budapest and maintains diplomatic relations with Romania and Bulgaria through non-resident ambassadors.

Canada and the Middle East

Canada enjoys cordial bilateral relations of increasing significance with most countries in the Middle East. As the Arab-Israeli dispute, however, has made the area a source of chronic tension for the past quarter-century, the achievement of a peaceful solution to the conflict has been a matter of continuing concern to the Canadian government. Canada has participated in United Nations' efforts to bring calm and stability to the area, and has extended its support to measures seeking to bring about a just and lasting peace in the Middle East.

Canada has contributed substantially to various agencies engaged in assisting victims of the dispute. Traditionally a leading donor to the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) since the



The new External Affairs building on Sussex Drive, Ottawa, named in honour of Lester B. Pearson, a former Prime Minister.

latter's establishment in 1949, Canada has pledged (subject to Parliamentary approval) \$1.6 million to this Agency for 1973. Canadian support has taken the form of cash, food aid, and other commodities necessary for the relief of the refugee population. 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. Moreover, Canadian personnel served in Gaza and Sinai with the United Nations' Emergency Force (UNEF) from the inception of the force until its withdrawal in May 1967.

Canada and Africa

Canada in the past had a certain latent interest in Africa because of the missionary and commercial activities of Canadians. Formal relations have developed rapidly over the past 10 years, with the accession to independence of the majority of former colonial territories. The increasing voice of these newly independent states in world affairs, the recognition of their development problems, and the importance of the political issues affecting the whole African continent account for this evolution.

Direct relations were first established with former British colonies as they became independent within the Commonwealth. Increasing contacts and diplomatic relations with the newly-independent French-speaking African states soon followed as a result of the increasing emphasis that the Canadian government placed on French culture in this country as well as the important role played by

francophone African countries in their continental affairs. Canada now has diplomatic relations with almost all the independent African states and there are resident Canadian missions in 14 countries on that continent. The development of bilateral diplomatic and commercial relations has been accompanied by a significant and growing program of Canadian aid to Africa. This program, with its English and French components, directed more than \$95 million of aid funds to the African continent in 1971-72 and \$112.5 million in 1972-73.

Canada and the French-Speaking Community

Canada is a bilingual country with more than six million French-speaking inhabitants. Anxious to make the most of this special characteristic internationally, Canada has established close links with other francophone countries. Its bilateral relations with France have developed greatly in recent years through political consultations, parliamentary visits, cultural and scientific exchanges, increased trade, exchanges of government officials, defence production co-operation, and the like. To its relations with French-speaking European countries has been added considerable bilateral aid to the French-speaking Third World. Thus a growing proportion of Canadian economic aid has been directed to francophone countries in Africa. In 1972-73 CIDA allocated \$68 million—21 per cent of Canada's bilateral aid budget—to these countries.

Canada has played an active role in developing multilateral co-operation between French-speaking countries, a policy based on the recognition of the value to Canada of its ties with an international community of some 30 countries with 150 million inhabitants. Canada is a founding member of the *Agence de coopération culturelle et technique*, which came into being as a result of the conference of the wholly or partly French-speaking states of the world held at Niamey, capital of the Republic of Niger, in March 1970. In 1972 Canada was the host for the first annual meeting of the Agency's general conference. This conference formally noted the conditions agreed upon by the federal and Quebec governments by which the latter was admitted as a participant to the institutions, activities, and programs of the Agency. This event confirmed Quebec's special interest in co-operation between French-speaking countries. Since that time the governments of New Brunswick, Ontario, and Manitoba have become involved in the Agency's activities. Canada is also a member of the Conference of Education Ministers of the Francophone States of Africa and Madagascar. Likewise, Canada is a founding member of the Conference of the Youth and Sports Ministers of Francophone Africa and Madagascar which came into being in Paris in December 1969; the fifth Conference is to be held in Canada in 1974. In 1971 Canada participated in the Conference of Ministers of the Civil Service of French-speaking countries. Canadian participation is on the basis of full federal co-operation with the provinces interested in these organizations.

Canada and Latin America

Canada has diplomatic relations with all of the Latin American republics and conducts its relations with them through all 14 resident diplomatic or consular

missions. As envisaged in the foreign policy paper on Latin America, which was published in 1970, progress has been made in the development and the intensification of relations with these countries and with inter-American institutions.

In 1972, Canada became one of the first nations to be accredited as a permanent observer of the Organization of American States; a Canadian permanent observer mission was opened in Washington under an ambassador accredited to the OAS. Canada has been a member of five inter-American organizations linked with the OAS—the Pan American Institute of Geography and History, the Inter-American Statistical Institute, the Inter-American Centre for Tax Administrators, the Centre for Latin American Monetary Studies, and the Postal Union of the Americas and Spain. It has joined three more of these institutions: the Pan American Health Organization, the Inter-American Institute of Agricultural Sciences, and the Inter-American Development Bank.

The most significant Canadian commitment to the development of this region was Canada's accession to full membership in the Inter-American Development Bank (IDB) in 1972. Canada has subscribed to the bank's ordinary capital fund \$242 million (US)—\$40 million of it paid in and \$202 million callable. Canada is also contributing \$60 million (US) to the bank's fund for special operations, making a total cash contribution of \$100 million (US) payable over an initial period of three years. Prior to Canadian membership IDB had administered Canadian loans totalling \$74 million for Latin American development over a period of eight years.

Bilateral relations were also intensified with countries in the area. For example, the Canadian program of bilateral development assistance to Latin American countries, expected to amount to \$10-12 million annually, progressed from the planning to the implementation stage. Those countries that most need and can most effectively use Canadian technical assistance are receiving a major part of

The President of Mexico, Luis Echeverria addressing Parliament during his spring visit to Ottawa.



available resources through sustained programs. Other countries in the region are eligible to receive assistance *ad hoc* and project by project; in 1972 both Cuba and Haiti were included in this group. In order to concentrate Canadian assistance within those sectors where Canadian technical expertise is most applicable to the needs of the region, emphasis has been given to projects in education, agriculture, fisheries, forestry, and public administration. Canadian aid funds are also available through non-governmental organizations in Canada that are engaged in developmental and humanitarian work in the poorer countries of Latin America, and through disaster-relief organizations.

Bilateral relations with Latin American countries have broadened in a number of other ways. For example, a series of youth, cultural, scientific, and technical exchanges projected at the Canada-Mexico Ministerial Committee in October 1971 was begun. New initiatives in disseminating information about Canada were launched and a Canadian Library Centre was opened in Mexico City. Closer consultation and liaison with Latin American countries was cultivated on a widening range of questions of mutual interest such as the law of the sea, environmental improvement, narcotics control, anti-hijacking measures, emergency relief, and disarmament.

Canada's trade and economic relations with Latin American countries expanded in 1972. Exports and imports for the first 10 months of 1972 were respectively \$509 million and \$551 million, increasing from \$460 million and \$494 million respectively for the first 10 months of 1971. In money terms this represented a 10.7 per cent increase in Canada's exports and an 11.5 per cent increase in imports. Approximately three quarters of Canada's exports to Latin America consisted of semi-manufactured and fully manufactured goods. The bulk of Canadian imports from this area consisted of crude or raw materials. The use of long-term financial facilities, extended by the Export Development Corporation, has promoted Canadian exports to Latin America and indirectly assisted Latin American economic development.

Asia and the Pacific

For many years Canada has had important links, both official and private, with a number of states in Asia. Previously these contacts were restricted to a small group of Canadians and were limited in scope but during the past decade Canadians have become increasingly aware of their position as a Pacific as well as an Atlantic nation. With the development of modern transportation and communications, the Pacific Ocean has ceased to be a barrier and, because of the expanding interest in Asia and its importance, contacts between Canadians and the peoples of Asia and the Pacific are growing rapidly in number and variety. At the present time Canada has diplomatic relations with 20 countries in Asia and has resident diplomatic missions in 13 countries.

Although some of these contacts have developed as a result of historic and traditional ties, as in the case of Australia and New Zealand, many new contacts have been economic in character: trade has increased and assistance for development has been provided. The importance of Asia as a trading area is evident from the emergence of Japan as Canada's third largest trading partner, with trade between the two countries in 1971 amounting to more than \$1,500 million, which

is one half of Canada's bilateral trade with Asia. The potential for further trade has also been recently recognized by Canada's solo trade fair in Peking in August 1972 which was inaugurated by the Secretary of State for External Affairs, and participation in the third Asian trade fair in New Delhi in October and November 1972.

Canada's relations with the countries of the Pacific Rim are of increasing importance. This is reflected in the Pacific section of the foreign policy review undertaken by the government early in 1970 and the growing number of contacts between Canadian Ministers and officials and their regional counterparts. The long-term objectives of regional co-operation and development are fundamental to the future growth and stability of the region and Canada's interest in the area has been expressed through participation in the Colombo Plan, membership in the Asian Development Bank and Canada's official observer status with the Economic Commission for Asia and the Far East. A significant proportion of Canada's total development assistance has been provided to the developing countries of Asia and the government has expressed its readiness to contribute to the economic rehabilitation of Indo-China when peace comes to the area.

For the past quarter-century parts of Asia have been a focus of tension and conflict. Canada has participated in various United Nations efforts to restore peace in Asia and has participated in the United Nations operation in South Asia and in Korea. Since 1954 Canada has been a member of the International Commission for Supervision and Control (ICSC) in Cambodia, Laos and Viet-Nam and this aspect of its involvement in Asia was further reinforced by its participation in the International Commission of Control and Supervision (ICCS) which was established by the Paris "Agreement on Ending the War and Restoring Peace in Viet-Nam". When the conditions for Canada's continued participation in the ICCS were not met, Canada withdrew from the new Commission on July 31, 1973. On that date Canada established diplomatic relations with the Republic of Viet-Nam and opened an embassy in Saigon. This was followed on August 21, 1973 by the establishment of diplomatic relations with the Democratic Republic of Viet-Nam.

Arms Control and Disarmament

Canada's interest in and concern with international arms control and disarmament negotiations are reflected in her active participation in the Conference of the Committee on Disarmament (CCD) since its inception, as well as in disarmament discussions in the United Nations. Canada has also joined in talks, which began in Vienna on January 31, 1973, to explore the modalities and participation in eventual negotiations on the reduction of force levels in central Europe. On May 17, 1972, Canada ratified a treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the seabed. This treaty entered into force the next day. On April 10, 1972, Canada signed the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxic Weapons and on their Destruction and later, on September 18, 1972, became the fifth state to ratify the treaty. In November 1972, the United Nations General Assembly adopted a resolution introduced by Canada which called for an agreement to halt all nuclear testing. Canada's ultimate objective in disarmament negotiations in the CCD, 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 has helped to reduce the likelihood of a general conflict originating in Europe. Canada also attaches importance to NATO's role in fostering east-west *détente* especially in moving from confrontation to negotiation. NATO provides Canada with a useful forum for continuing consultation and joint action not only in military and political fields but also in economic and social fields such as environmental problems.

Canada's military contribution to the Alliance includes 5,000 men in Europe as well as Canadian activities in defence of North America which 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 850 Canadian officers and men serving the United Nations and the International Control Commissions in countries around the world.

Canadian International Development Agency (CIDA)

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 the major areas where foreign aid is concentrated. Canada's allocation over the past 22 years has totalled approximately \$1,741 million.

In the past 12 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 sevenfold from \$64.4 million in the 1963-64 fiscal year to \$491 million for 1972-73, not counting 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 assistance to international development 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 the regional development banks.

Canadian bilateral aid is extended mainly in the form of goods and services. The principal recipients are: India, Bangladesh, Sri Lanka (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. Technical and educational assistance is also provided. Under the latter program, Canada sent 229 advisers and 719 educators to developing countries in 1972 and provided training in Canada for 1,514 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

Through CIDA, Canada has provided Tanzania with a grant to establish a vocational training unit at the training centre in Dar es Salaam.





Indonesians are instructed in drilling techniques for CIDA's first major project in Indonesia, to rebuild or repair 36 bridges in South Sulawesi province.

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 Latin American program to 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 1971-72. 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 has become involved in helping the private sector of developing countries' economies and expanding 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.

Canadian Executive Service Overseas (CESO)

This element of Canada's foreign aid program was created late in 1967. It was incorporated as a non-profit company by a large group of public-spirited Canadian business leaders at the request of the Canadian International Development Agency. CIDA was instrumental in forming CESO to help meet the need for more technical and administrative guidance in locally-owned enterprises in developing nations. CIDA's support plus assistance from Canadian industry constitutes CESO's "enabling power."

Enough time has now elapsed since the inception of CESO to lend significance to a review of activity. The basic task of organization is accomplished, although methods and practices are under constant review. There is a headquarters staff made up of a small group of executives with records of achievement in various professions and industries. This balance of skills and experience is maintained in the selection of representatives in major Canadian centres, and then in the choice of overseas representatives when it became apparent that they were needed. All these men are volunteers though some are paid a small honorarium and others a modest salary.

A CESO member in India advising an electrical component maker on quality control



One side of CESO's activity is the recruitment of specialists willing and able to serve overseas for up to six months without fee or salary but at no expense to themselves. The result of this effort is a roster of over a thousand people ready to serve. The roster is constantly renewed as volunteers come forward to replace those lost through normal attrition. The other major CESO activity is that of suitably employing the volunteers. This requires authorities in developing nations to be made aware of the availability of CESO service. Such promotional effort is a major responsibility of the overseas representatives supported by the work of the staff at headquarters. Thus the CESO organization in Canada provides volunteers for assignment to projects generated in large measure by its people overseas. The whole plan is deliberately set up so that all participants contribute to the effort and all share the benefits.

Canadian University Service Overseas (CUSO)

CUSO began sending volunteers overseas in 1962 to help developing nations bridge manpower gaps in their trades and professions until they could train their own people to fill the positions. From a handful of university graduates working in four countries, CUSO has expanded into more than 40 countries with over 1,200 volunteers sent during 1973 in response to requests for assistance. Those requests have changed and continue to change so that CUSO's initial emphasis on univer-

CUSO's agricultural training program in Papua, New Guinea, instructs young men in all aspects of agriculture, from bookkeeping to growing and reaping.



sity volunteers has shifted. Volunteers now come from virtually every walk of life and all ages from 19 to 80. But CUSO's principle of commitment between host nation and volunteer is the same in 1974 as it was in 1962 since the volunteers are paid by their hosts at rates equivalent to those their own nationals receive.

A new dimension for CUSO is now developing as volunteers and agencies propose projects which relate to the assistance requested. A volunteer sent to help with an agricultural training program finds that the villagers he is teaching need wells; he proposes a capital expenditure to improve the local water supply. A nursery school finds that it needs a day care centre and asks CUSO for help to build it. Returned volunteers at a university want to send teams of students overseas on summer assignments and ask help in meeting travel expenses. CUSO supports this kind of activity, albeit with the same principle that governs its volunteer program: communities in host nations must make this contribution to both planning and implementation, thus preserving the fundamental idea of two-way commitment.

An independent, non-profit organization, CUSO draws on four major sources for direct and indirect financial support. In 1972-73, CIDA provided a grant of \$6.7 million which was complemented by an estimated \$4 million paid in CUSO workers' salaries and benefits by overseas governments. A further \$400,000 was raised from the private sector. This amount included donations made by the hundreds of thousands of Canadians who took part in the Miles for Millions marches, and from individuals and organizations participating in the Sponsorship Program.

Indirect support—conservatively estimated at being worth over \$500,000 annually—comes from such sources as universities and colleges, which provide office space, equipment, and staff for local recruitment and selection committees; the mass media, which carry recruiting advertising free of charge; and pharmaceutical companies, which donate medical kits packaged by the Department of National Health and Welfare.

International Development Research Centre (IDRC)

In 1970 the Canadian Parliament created the IDRC to support research into the problems of developing countries. The purpose was to promote the economic and social advancement of those regions through the adaptation of scientific and technical knowledge. This is done by providing funds for approved projects to be conducted throughout the developing world by the scientists and technologists of the countries and areas involved, in accordance with their own priorities.

The IDRC has received its initial funds entirely from the Canadian government as annual grants. The grant in 1972-73 was \$8 million and this is expected to rise in future years to approximately 5 per cent of Canada's foreign aid budget. The Centre is a public corporation with an international Board of Governors. The Chairman, Vice-Chairman, and 9 others of the 21 Governors must be Canadian citizens, but the first Board (1970-72) had members from six developing countries, and from Britain, France, the United States, and Australia. The first Chairman was the late Lester B. Pearson.



In Caqueza, Colombia, a farmer and his neighbours collectively harvest trial plots, with yields recorded by IDRC.

Four program areas have been set up to focus efforts on research in Agriculture, Food, and Nutrition Sciences; Information Sciences; Population and Health Sciences; and Social Sciences and Human Resources.

Examples of the kinds of projects funded are the following:

- (1). A project of rural development in Caqueza, Colombia, to help small subsistence farmers to improve both their productivity and their income, not only through technology but through instruments such as credit and improved marketing.
- (2). The establishment of an Industrial Extension Service in South-East Asia to strengthen and improve co-ordination of the existing national services aiding small industries.
- (3). An attempt to assess the feasibility of controlling the blackfly that carries the disease *onchocerciasis* (African river blindness), by the introduction of a parasitic worm.
- (4). A study of the problem of urban squatters, which plagues most large Far Eastern cities as a result of the migration of masses of rural people to urban centres.

Proposals are judged on such factors as whether they fit into priorities of developing countries; whether they are likely to have useful application beyond the country involved; whether the research will help close gaps in living standards inside these countries; whether they will make full use of local resources and people; and whether they will leave behind investments in better trained or more experienced researchers.

IDRC maintains close touch with CIDA's programs and with other Canadian government departments, and co-operates both with Canadian research institutions and other international agencies.

As at December 31, 1972, IDRC had approved 81 projects involving 74 grantees in some 60 countries, to an amount of \$11 million.

National Defence

As stated in the White Paper on Defence dated August 1971, a catastrophic war between the super powers constitutes the only major military threat to Canada. Since in such an event there would not be much that Canada itself could do directly in self-defence, its overriding defence objectives must be to prevent nuclear war by promoting political reconciliation, by working for arms control and disarmament, and by contributing to the system of stable mutual deterrence. The government's policy therefore is to contribute to peace by participating 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 and providing 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 that 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 Minister of National Defence.

The manning level of the forces has been progressively reduced over the past eight years. In 1964 the total strength was approximately 120,000; by late 1972 it approximated 83,000, and it is planned to stabilize the total strength at around this figure. In 1972 the defence budget was \$1,863 million.

CF-5 fighters are capable of long-range strategic flying after being refuelled in flight by a Canadian Forces Boeing 707/347C.



Mobile Command, the largest user of manpower, now has a field force of three Combat Groups, 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 group, artillery, engineer group, and various support units; 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.

In 1972 the modernized program for the Restigouche destroyers was completed and three of the four DDH-280 class, gas-turbine equipped helicopter destroyers were delivered to the Department of National Defence. The fourth ship was delivered in 1973. The building program that introduced modern support ships into the forces has been completed.

The re-equipping of jet interceptor squadrons with an improved version of the CF-101 has been completed. The re-equipping with a family of observation, utility, and transport helicopters, and light over-snow vehicles for land forces is continuing. New long-range maritime patrol aircraft are being considered to replace existing machines.

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 and officers and men of other nations are receiving training in Canada. Mutual aid provides training for Canada's NATO partners.

HMCS *Iroquois*, first of a new destroyer/helicopter 280 class.



Health Care

Responsibility for the administration of health care services in Canada is a direct concern of the 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.

Medical Care Program. The Medical Care Act was passed by Parliament in December 1966 and began to operate on July 1, 1968. By April 1, 1972, all provinces 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, provided that the provincial plan meets specified conditions. These conditions are that medical services be comprehensive and the coverage universal, that the insurance be administered by public authority, and that benefits be portable between provinces. The federal contribution to the provinces under this program totalled \$589 million in the fiscal year 1971-72.

Hospital Insurance and Diagnostic Services. The federal-provincial hospital insurance program now covers 99 per cent of the 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 services that are provided as insured benefits varies 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 1971-72 amounted to \$1,187 million.

Mortality Rates. Like most other developed nations in the world, Canada has benefited from advances in medicine and in socio-economic conditions which have been reflected in a longer life expectancy and a lower infant mortality rate. In the period from 1941 to 1968 life expectancy at birth for males rose from 63 to 69 years, while the female rate rose from 66 to 76 years. The infant mortality



rate of 61.1 per 1,000 live births in 1941 fell to 17.5 per 1,000 live births in 1971, when the provincial rates varied from 15.3 in Ontario to 22.9 in Newfoundland. A concurrent drop in the maternal mortality rate from 36 to 1.8 per 10,000 live births also occurred. Widespread epidemics of communicable diseases have largely been eliminated, with the result that the leading causes of death in 1969 were ischemic heart disease, cerebro-vascular disease, motor vehicle accidents, and pneumonia. The over-all mortality rate for the entire country fell from 10.1 per 1,000 in 1941 to 7.3 per 1,000 in 1971.

Personnel. At the end of 1971 the country had 32,625 active civilian physicians, a ratio of one doctor for every 666 persons. As of July, 1970, there was an adequate supply of registered nurses, some 141,303 in all; 75,368 graduate nurses were employed in general and chronic hospitals in 1970. Dental services are not usually included in most provincial health insurance plans, except under very limited circumstances. On January 1, 1972, the ratio of dentists to population was 1:2,814. As might be expected, the largest number of health personnel tended to congregate in urban areas, leaving rural and remote areas of the country with less access to adequate health care.

National Health and Welfare. On the national level, the Department of National Health and Welfare is the chief federal agency for health matters. In conjunction with other federal agencies and with provincial and local health agencies it works to raise the health level of all Canadians. The health side of the Department is organized into three branches: Health Protection, Medical Services, and Health Programs. In addition, there is a Long-Range Health Planning Group, and the separate Medical Research Council.

The Health Protection Branch provides services to protect the Canadian public



from environmental health hazards of all types. The Health Programs Branch administers federal aspects of Canada's two important health insurance programs, hospital and medical insurance. The Medical Services Branch has direct responsibility for the health care and public health services of Indians and Inuit (Eskimos) and of all residents of the Yukon and Northwest Territories, as well as quarantine and immigration medical services, public service health, a national prosthetics service, and civil aviation medicine.

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, and the formulation of dosage norms. This information is carefully studied 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 the 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 this problem. 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 for treating only 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 general 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. Most cities in Canada also have 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.

The success of programs for the rehabilitation of injured workers under provincial workmen's compensation, for war veterans through the Department of

Development of rehabilitation services has been promoted through the National Health Grant Program.



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. Family planning is defined as the knowledge and practices that enable couples to plan the number and spacing of their children. It is viewed as a means of enhancing the physical, social, and economic well-being of Canadian families. The federal family-planning program, centred in the welfare side of the Department of National Health and Welfare, informs Canadians about the purpose and methods of family planning. It assists in the training of health and welfare personnel in those aspects of their work that are related to family planning and sex education. It also promotes research in family planning and aids family-planning programs operating under public or voluntary auspices through federal grants-in-aid and joint federal-provincial shared-cost programs. Family Planning Grants are available to governmental and non-governmental organizations for the support of services and for training, demonstration, and research projects.

Canadian children benefit through health and welfare programs of the federal government.



Immigration

More than 10 million immigrants have come to Canada since Confederation. Here they have played a major role in the development of the country. Canada's non-discriminatory and universal immigration policy allows for the recruitment of immigrants with skills required by the economy. Due to economic conditions in the principal source countries, and the changes in demand for manpower in Canada, the flow of immigration has varied from year to year. Since World War II, Canada has admitted more than 3.5 million immigrants, primarily from Great Britain, Italy, the United States, West Germany, 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.

During 1972, Canada received 122,006 immigrants, a minimal increase of 106 people over 1971, the first time since 1967 that immigration has climbed.

Canada's labour force during 1972 was augmented by 59,432 immigrant workers. Many skilled immigrants continue to fill acute shortages of qualified people in certain areas, thus providing essential services to the Canadian public. In 1971-72 alone, Canada welcomed 987 physicians and surgeons, 55 dentists, 749 medical and dental technicians, 1,538 other professionals in the health services field, and 103 mining engineers. As well, immigrants brought more than \$340 million into the Canadian economy.

Ontario continued to attract the greatest number of immigrants, with 63,805. British Columbia was second with 20,107 immigrants, and Quebec received 18,592 immigrants.

On October 1, 1967, new immigration regulations came into effect and the principles governing the selection of immigrants were spelled out. An assessment system permits immigration officers to apply the same standards in the same way to potential immigrants from all areas of the world. By linking selection standards to conditions within Canada, the regulations ensure that the flow of immigrants is suited to the economic and manpower requirements of the country. There is a clear distinction between dependents 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, such as spouses and children under 21, must be directly related to citizens or permanent residents of Canada, who will be responsible for their accommodation, care, and maintenance. They 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 English or French, 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, sisters, parents or grandparents under 60, nephews, nieces, uncles, aunts, and grandchildren, but not cousins.

The immigration regulations of 1967 permitted visitors to apply for landed immigrant status from within Canada. On November 3, 1972, the Department

temporarily revoked this right because immigration policy was being abused.

On January 1, 1973, the Department introduced new Non-Immigrant Entry Records and Employment Visa Regulations to control the employment of visitors in Canada. All non-immigrants entering Canada for a period longer than three months are required to register at ports of entry, inland Canada Immigration Centres, or Canada Manpower Centres. In addition, people coming in to work must obtain employment visas. Visitors are not allowed admission to Canada to search for work but must have proof of a bona fide job offer. If there is no Canadian citizen or landed immigrant qualified and available for the job, the non-immigrant applicant will be issued an employment visa.

Not all non-immigrants are prevented from working in Canada. All diplomats and visiting armed forces personnel performing official duties here are exempt. Foreign newsmen, visiting businessmen, clergymen, and professional athletes do not need an employment visa, but they must register if they propose to stay here longer than three months. Foreign students legally in Canada before January 1, 1973, are also exempt; this exemption will apply until these students successfully complete the academic course in which they are now registered.

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. Early in 1973, as part of a world-wide extension of Canadian Immigration service, nine new offices were opened in the United States—at Boston, Buffalo, Detroit, Minneapolis, Seattle, Los Angeles, New Orleans, Dallas, and Atlanta. Arrangements are under way to expand immigration services in Africa, Asia, and South America. The 138 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 applications.

Potato sorting at Brooks, Alta. During 1972 Canada's labour force was augmented by 59,432 immigrant workers, including many skilled immigrants who filled acute shortages.



Industry, Trade and Commerce

The Department of Industry, Trade and Commerce has the responsibility for stimulating the establishment, growth, and efficiency of the manufacturing, processing, and tourist industries in Canada, and the development of export trade and external trade policies.

To achieve these goals, the Department offers assistance to its partners, the Canadian businessman and industrialist, through 15 incentive and development programs. At each phase of the product cycle, from research, development, and design through production to marketing, the Department is prepared to help with expert advice and information and in many cases financial assistance.

Thousands of interested viewers were attracted to the Industry, Trade and Commerce exhibit at the Canadian trade exposition in Peking, during August 1972.



In **Marketing**, the prime points of contact between businessmen and the Department are its 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 services offered by these Branches include: feasibility studies to determine the viability of opportunities in industry; relative efficiency studies to determine the competitive potential, regionally and internationally, of an industry; technical and statistical information; and advice about legislation.

In addition, they encourage and assist industry to participate in foreign trade fairs and missions and examine potential world markets for needed industrial products, mainly through the Department's Trade Commissioner Service.

Through its 81 trade offices in 59 countries, the Trade Commissioner Service acts as an export market consultant, secures market and credit information and brings together foreign buyers and Canadian sellers. The foreign-based trade commissioners can supply up-to-date information on export opportunities, terms of payment, tariffs, and import and exchange controls. Contacts are maintained with companies abroad.

The Market Development Group promotes Canadian industrial participation in capital projects abroad by co-ordinating the activities of a number of industrial sectors. This is in response to export opportunities for a variety of manufactured products and services, where such projects require an integrated system or package approach.

Strategically located in commercial capitals of Canada are eight regional offices to serve as focal points of contact with business and industry. Officers manning these posts are qualified to advise on the services available from the Department to improve the Canadian economic environment through increased productivity, and to promote Canadian products at home and abroad.

Promotion is all important in gaining recognition of the latest industrial development, and all of the activities mentioned are backed by strong promotional efforts stemming from the Information Services Branch. In Canada, industrial and trade development programs and activities are widely publicized. Internationally, foreign trade promotion programs are developed to stimulate consumers to accept Canadian products and services and, more important, to create a demand for them.

The Fairs and Missions Branch implements programs of outgoing and incoming missions and of national participation in trade fairs abroad. It provides a focal point for promotional activities in these areas and is responsible for managing individual projects and for co-ordinating the contributions required of other groups to meet established objectives.

The Promotion of Tourism is carried out by the Office of Tourism which includes the Canadian Government Travel Bureau and the Travel Industry Branch. The Travel Bureau promotes travel within Canada by residents and non-residents and co-ordinates its foreign promotional activities with provincial agencies and private interests. The Travel Industry Branch, however, is interested primarily in the domestic travel industry and works closely with other federal departments and agencies as well as provincial authorities concerned with promoting Canadian tourism.

Labour

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 the 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 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. 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 October 1, 1973

Jurisdiction	Hourly Rates
Federal	Workers 17 and over: \$1.90
Newfoundland	Workers over 18: \$1.40
Prince Edward Island	Workers 18 and over: \$1.40 (men) and \$1.30 (women); \$1.50 (both sexes) from July 1, 1974
Nova Scotia	Workers 18 and over: \$1.65
New Brunswick	Workers 18 and over: \$1.50
Quebec	Workers 18 and over: \$1.80 from November 1, 1973; \$1.90 from May 1, 1974; \$2.00 from November 1, 1974
Ontario	\$1.80
Manitoba	Workers 18 and over: \$1.75
Saskatchewan	\$1.75
Alberta	Workers 18 and over: \$1.75
British Columbia	Workers 18 and over: \$2.25 from December 3, 1973; \$2.50 from June 3, 1974
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, Yukon, and 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.

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 is the general standard. In Ontario, Saskatchewan, and Manitoba the vacation increases with the length of service (one week after the first year and two weeks thereafter in Ontario, and three weeks after five years in Saskatchewan and Manitoba). Vacation pay is payable on termination of employment before completion of a year's service.

Under federal, British Columbia, Alberta, and Saskatchewan legislation, employees are entitled to eight paid holidays; Manitoba provides for seven and has special provisions for Remembrance Day; and Nova Scotia for five. Employees who work on a holiday must be given premium pay in addition to a normal day's wages. Ontario requires an overtime rate to be paid when employees work on any 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 provinces 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 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

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, trade union, and employee
Manitoba	50 or more employees to be dismissed simultaneously or within 4 weeks	50-100 employees: 8 weeks 100-300: 12 weeks Over 300: 16 weeks	Minister of Labour and trade union or employee or posted in establishment

equal to the regular pay period is the usual requirement.

The federal, Nova Scotia, Quebec, Ontario, and Manitoba legislation requires the employer to give advance notice of mass lay-offs 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 given on termination of employment to an employee who has had five or more years of continuous service with his employer.

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 Manitoba, 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.

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.

Production line in a soup plant at Portage la Prairie, Man.



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. Since that time 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 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.

During 1972, benefit payments to recipients under the Act amounted to \$1,872 million.

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 20 per cent of the maximum weekly insurable earnings 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 started 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.



Telephone sets are assembled at Northern Electric's new division in Regina, Sask.

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 benefits are 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 in 1973 of \$107 per week and with a minimum of \$20 per week. For claimants (with dependents), whose average qualifying earnings (\$160 in 1973), are equal to or less than one-third of the maximum weekly insurable earnings, 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 \$107 maximum. The maximum insurable earnings and therefore the maximum benefit are subject to annual adjustment based on an index calculated from earnings of Canadian employees.

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 strives to provide the best possible manpower services to all Canadians. More than 4,000 counsellors in 390 Canada Manpower Centres across the country help people find employment and assist employers in securing efficient workers.

On February 1, 1973, a new way of matching jobs and workers was introduced. Known as the Job Information Centre, or Job Bank, it provides a rapid service for those who are job-ready, and leaves more counsellors free to help those with special needs. The Job Information Centre is a computerized system for receiving, distributing, and controlling job orders. Vacancies are listed on computer print-outs, which are updated daily. Job-ready clients may study these, select a job, and discuss it with a Canada Manpower counsellor. If the counsellor is satisfied that the worker is suitable, an interview is arranged with the employer.

Services for Employers

Under this heading is grouped a variety of services designed to help employers obtain, train, and make the most efficient use of qualified employees.

Through the Canada Manpower Consultative Service, plants and industries affected by large-scale modernization are assisted in overcoming the resulting adjustment problems of management and labour.

Businesses and industries that offer training programs for workers, either in the classroom setting or on the production line, may be partially reimbursed for training costs under two programs—the Canada Manpower Training-in-Industry and the Canada Manpower Training-on-the-Job Programs.

Employers are encouraged to hire and train new workers in anticipation of future needs, and to benefit from the most comprehensive recruitment and



Among the new community projects receiving grants from the federal Local Initiatives Program is a pioneer village re-created at Saskatoon (top) which draws more than 100,000 visitors annually. A grant was also awarded to the Paralympic Sports Association (bottom) to promote sports and recreation among persons in wheelchairs.



counselling services provided by the country-wide network of Canada Manpower Centres. From coast to coast, the Canada Manpower Centres are linked by a telecommunications system to facilitate the continuous flow of labour market information.

Services for Employees

Under the Canada Manpower Training Program, workers lacking occupational skills may be referred by a CMC counsellor to adult training courses. Persons who have been out of school for 12 months and are one year past their provincial school-leaving age are eligible for courses and training allowances.

The Canada Manpower Mobility Program provides grants for persons to leave a region where there is little or no possibility of finding suitable employment to take pre-arranged jobs or occupational training in other locations.

Responsibility for the vocational rehabilitation of physically and socially handicapped persons, formerly carried out by the Department under the Vocational Rehabilitation of Disabled Persons Act, was transferred to the Department of National Health and Welfare April 1, 1973.

The Department is actively involved in efforts to eliminate discrimination faced by women, young people, and native groups.

Special employment programs are also conducted for students, older workers, retiring members of the armed forces, and seasonal workers. In addition, there are services for disadvantaged clients who want to work but whose needs extend beyond the present range of departmental counselling, training, mobility, and placement. Diagnostic and special counselling services have been purchased from provincially approved agencies to help identify clients requiring outside help. Short training courses purchased under the Work Adjustment Training Program enable persons lacking work experience and self-confidence to develop their work talents.

Basic Job Readiness Training is an upgrading program to prepare functionally illiterate adults for employment, occupational training, or training-on-the-job.

The Local Initiatives Program (LIP) is aimed at creating additional employment when downward trends occur in the labour market. It encourages Canadians to initiate and implement new projects at the local community level. Financial support to cover salary costs and expenses is given to those groups whose projects meet the program's objectives.

The Local Employment Assistance Program is an experimental program to assist the hard-core unemployed to become conditioned to work, gain self-confidence, and establish a work history. Individual projects under LEAP may last for two or three years.

To help persons who have no access to normal manpower services and programs, the Department has developed an Outreach Program. Assistance is provided in the form of either additional personnel to extend special services or financial support for projects established by outside organizations.

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.

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.

The Sydney Steel Corporation, Sydney, N.S., was one of the first industries in the Maritimes to receive a grant under the Regional Development Incentives Act for expansion and modernization.



Veterans Affairs

The Department of Veterans Affairs administers a continuing program of assistance to nearly a million Canadian veterans. It provides medical treatment and services for eligible veterans as well as other services such as land settlement, home construction, and also welfare services for veterans and their dependents, and educational assistance for children of the war dead.

The Canadian Pension Commission is responsible for the administration of the Pension Act and is an independent body responsible to the Minister of Veterans Affairs. Pensions totalling nearly \$250 million for death and disability attributable to wartime service were paid to over 150,000 veterans and dependents last year.

The War Veterans Allowance Board is also an independent body. Nearly \$90 million in WVA and Civilian War Allowances was paid to veterans, widows, and orphans in the fiscal year 1972-73.

The Minister of Veterans Affairs announced May 15, 1972, a cost of living adjustment in the pensions and allowances paid to veterans and their dependents. The Pension Bill provides that the pensions and allowances paid under the legislation be reviewed in September each year and adjusted upward at the beginning of the following year by the percentage of increase in the Consumer Price Index during the preceding 12 months. The WVA income ceilings will also be increased by amounts equal to the increase in the respective allowances, so that the gap between the allowances and ceilings remains constant.

The Department is still responsible for operating eight hospitals and three veterans' homes in Canada. During the past year over 32,000 veterans were treated or given long-term care in these institutions.

Loans and assistance to veterans to engage in farming or part-time farming, commercial fishing, or building homes are provided under the Veterans Land Act. Since the Act was passed in 1942, loans and grants have been made to more than 134,000 veterans, including nearly 3,000 in 1972-73. From the beginning of operation to the end of 1972 loans advanced have totalled close to \$1,181 million of which 55 per cent, \$645 million, has been repaid.

In October 1972 friendships formed more than a quarter of a century ago in German-occupied Europe were renewed in Ottawa. Fifty-two survivors of the major French intelligence and escape networks of World War II spent the day with old wartime friends of the Canadian Branch of the Royal Air Force Escaping Society. While in the capital they laid a wreath at the national war memorial and were guests of the City of Ottawa at a luncheon and of the Minister of Veterans Affairs at a dinner.

In July 1972 the Minister of Veterans Affairs authorized the establishment of a Joint Study Group composed of Veterans Affairs officials and representatives of the veterans' organizations. The group investigated problems related to the basic rates and prepared a report of its findings which was received in November 1972.

On January 31, 1973, the Minister of Veterans Affairs announced that a study would be carried out on former European prisoners of war to identify any physiological or psychological long-term effect that incarceration may have had on these veterans.



Artist's impression of the DVA's new 400-bed Extended Care Building at Sunnybrook Hospital, Toronto, Ont.

Nearly a million Canadian veterans are included in DVA's continuing program of assistance.



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 Affairs and Northern Development. 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 income 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.

The Canada Pension Plan

With its counterpart, the Quebec Pension Plan, the Canada Pension Plan 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 \$5,600 a year in 1973. Under amendments to the Quebec Pension Plan the maximum was set at \$5,900 in 1973 in that province, with a basic exemption of \$700. The earnings ceiling is adjusted up to a maximum of 2 per cent (3 per cent under the Quebec plan) 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. The Plan also provides for survivors' benefits and disability pensions.

Old Age Security (OAS)

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 for 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 the application. Under an amendment to the Old Age Security Act in May 1972 the basic pension of \$80 was escalated annually, initially effective January 1972 and then from April in each year, to reflect changes in the Consumer Price Index. In April 1973 the monthly benefit was raised to \$100. An amendment to the Act in September provided for a quarterly escalation, which raised the monthly pension from October 1973 to \$105.30. The number of recipients of old age security was 1,803,030 at December 31, 1972, and payments for the fiscal year 1971-72 amounted to \$1,679 million.



Cash grants are made available to groups of retired citizens under the New Horizons Program, in this case for activities and transportation.

Guaranteed Income Supplement (GIS)

Old Age Security pensioners who have little or no other income may receive a supplement under the Guaranteed Income Supplement program introduced in 1967. The supplement is reduced by \$1.00 for every \$2.00 of income over and above the old age security pension. Both the OAS and GIS are escalated to reflect changes in the Consumer Price Index. Commencing in October 1973 escalation is on a quarterly basis. From that month and until upward revision is necessary, the combined OAS-GIS guarantees a monthly income of \$179.16 for a single pensioner and of \$341.80 for a pensioner couple. 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.

On December 31, 1972, there were 1,047,411 persons receiving full or partial supplements. Expenditures for the 1971-72 fiscal year amounted to \$526 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 of \$6 for children under 10 years of age and \$8 for children aged 10-15 was raised to \$12 from October 1973. On December 31, 1972, family allowances were being paid for 6,756,252 children in 3,095,012 families. Payments for the 1971-72 fiscal year amounted to \$554 million.



National Health and Welfare programs provide many benefits for children including family allowances; youth allowances; and, under the Canada Pension Plan, aid for orphans, children of widows, and children of disabled contributors.

Family assistance is paid at the family allowance rates for each child under 16 without a year's residence provided that he 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, 1972, there were 18,703 children in 8,921 families receiving this form of assistance. Payments in the 1971-72 fiscal year amounted to \$2.2 million.

Children resident in Quebec 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 16th 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, a monthly allowance 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. The monthly benefit, formerly \$10, was raised to \$12 in October 1973 under legislation passed in September 1973. Quebec has its own schooling allowances program for which it receives compensation from the federal government. It is comparable to the federal program that operates in other provinces. In December 1972, allowances were paid for 503,289 youths exclusive of those in Quebec. Federal expenditures on these youth allowances for the 1971-72 fiscal year were \$59.7 million.

Quebec assisted 185,384 youths in December 1972 and made payments of \$23 million during the fiscal year 1971-72.

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 shelter, food, clothing, and personal care, 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 20,000 a year.

Welfare Services

Welfare services 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.

Day care services for children of working mothers are available in all large centres under public and voluntary auspices. The development of such services is being encouraged by federal funds and, in a number of provinces, by provincial, capital, and operating grants.



The Vancouver Children's Aid Society provides practical help—from fixing faucets to helping with the newborn.

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.

In September 1972 the Department of National Health and Welfare introduced the New Horizons Program under which cash grants are made available to groups of retired citizens for activities of their own choice to benefit themselves and the community.

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 provides for 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 physical recreation and to assist Canadian participation in international competitions.

International Welfare and Social Security

Canada plays a prominent role in international welfare activities 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 non-governmental 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 people 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.

Grants are made under the federal Fitness and Amateur Sport Act to encourage amateur sport.



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.

* *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."

Edmonton, Alta., with the Legislative buildings in the foreground.



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 business organizations and unions. Unemployment can be disguised if not cured by simply preventing lay-offs. 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,



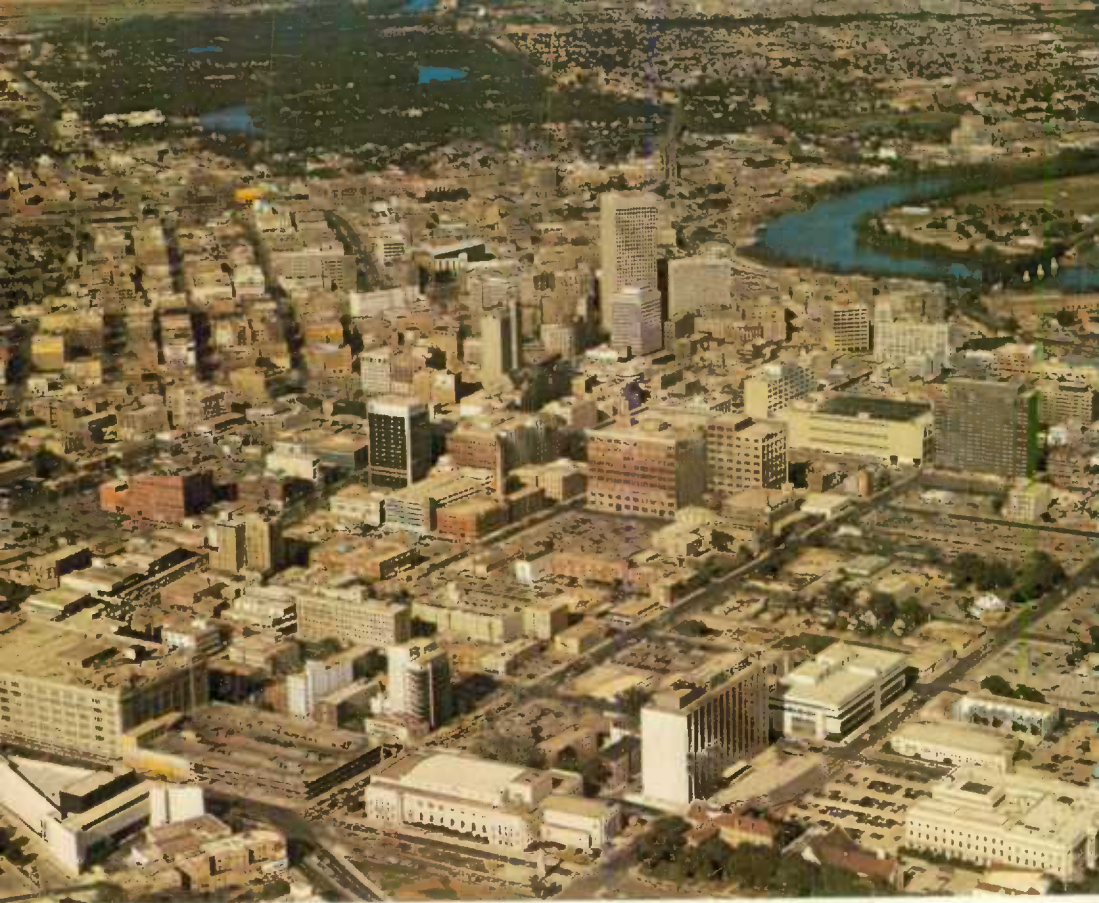
The new expressways of Saskatoon, Sask.

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



Winnipeg, Man.

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 inflation. 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 of 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 choosing 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.

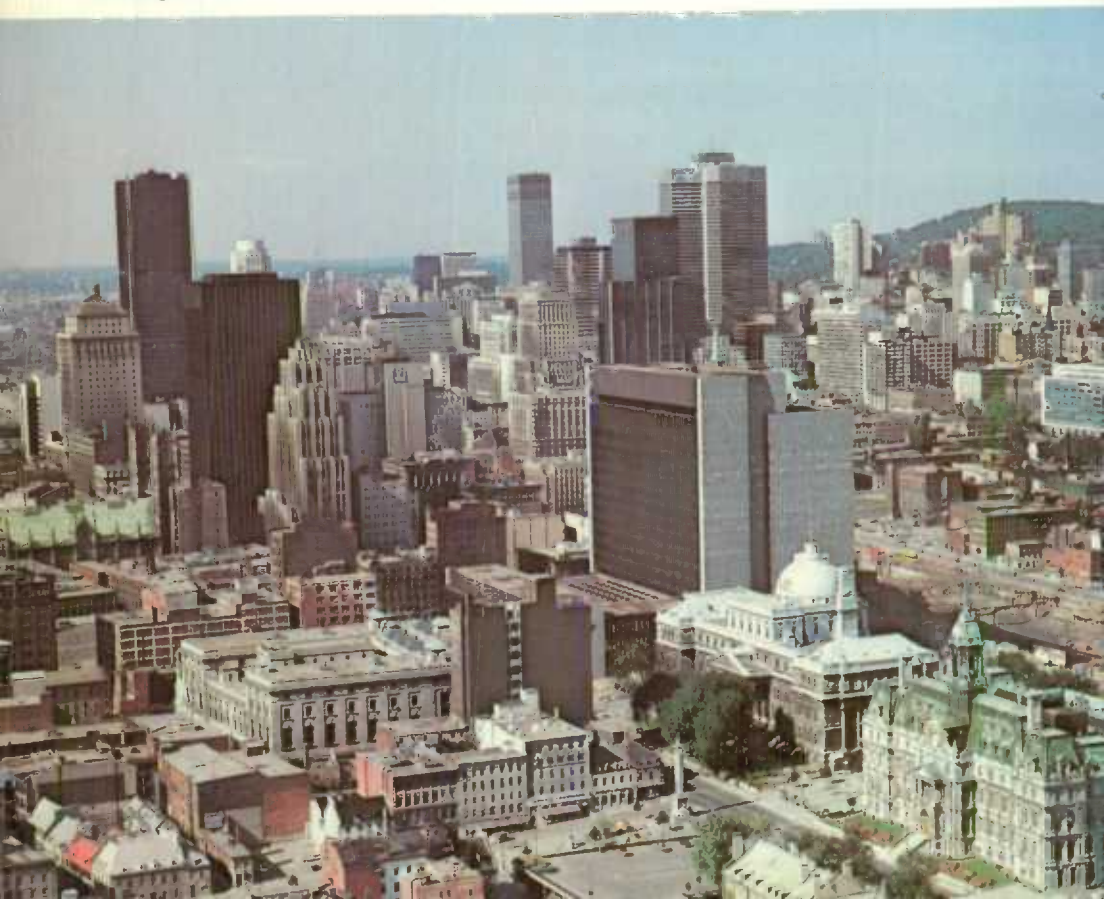
Canadians tend to be quite pragmatic in their approach to competition. Generally, they favour freer international trade, which gives them the option of buying

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

The Champ de Mars, Montreal, including the City Hall and both old and new law courts in the foreground.



Economic Growth in 1972

A second year of brisk economic activity, supported by continuing strong domestic demand, carried the Gross National Product (GNP) over the \$100,000 million mark in 1972. Preliminary estimates indicate the same real rate of growth as in 1971—5.5 per cent—despite certain adverse factors, including a number of work interruptions and a decline in agricultural production. The growth in output was accompanied by the largest employment gains since 1969, although almost equally large increases in the labour force prevented the unemployment rate from falling significantly. The expansion of production was accompanied by renewed price pressure, as reflected in the sharpest increase in the over-all implicit price index in many years.

Gross National Product at market prices rose by 10.6 per cent in 1972 to reach a level of \$102,900 million. This advance, the largest since 1966, surpassed the 8.9 per cent increase in 1971. Nearly half of the dollar gain reflected higher prices, particularly evident in the food, construction, and some merchandise exports components of demand, rather than a rising volume of production. The rise in the implicit price index for GNP was 4.9 per cent; in 1971 the rise was 3.3 per cent and in each of the inflationary years 1969 and 1970 it was 4.5 per cent.

In a continuing climate of expansionary fiscal and monetary policies, the forces of demand and production in 1972 generally followed the pattern of the previous year. Consumer outlays accelerated sharply in both years, in line with unusually strong growth in personal disposable income, which was again boosted by record increases in transfer payments in 1972. Housing outlays continued very strong as did government current expenditure, while increases in business investment on plant and equipment remained relatively modest. Domestic demand again outpaced production in 1972, resulting in a further deterioration in the balance of transactions in goods and services with non-residents, from a reduced surplus in 1971 to a deficit in 1972. Highlighting the income side in both years were very sharp increases in corporation profits and accelerated rises in labour income.

Although the economy was growing strongly in 1970 and 1971, the quarterly distribution of the gains was rather erratic. In 1972, the strength of demand was largely concentrated in the second and in the fourth quarters, which showed volume gains of 2.1 and 2.6 per cent respectively. These gains were in especially sharp contrast with the marginal increase of 0.3 per cent shown by the revised third quarter estimate. Much of the volatility in demand was apparently due to merchandise exports, which were affected by strikes at home and abroad and by other work interruptions, and to the uneven pace of consumer purchases of durable goods, especially automobiles.

Consumer Demand

In 1972, consumers spent \$6,200 million more on goods and services than in 1971, an increase of 11.6 per cent. This was more than any gain recorded in the 1960's and an advance from the 7.8 per cent increase in 1971. Even after removing the effect of increasing prices, up 3.6 per cent after a small 2.2 per cent increase in 1971, the volume gain of 7.6 per cent was the strongest since 1955. This upsurge

Relation between Gross National Product, Net National Income¹ at Factor Cost, Personal Income, Personal Disposable Income, and Personal Net Saving, 1972



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.

PLUS

MINUS

GROSS NATIONAL
EXPENDITURE

GROSS NATIONAL
PRODUCT

\$103.4 Bil.

Investment	\$22.8
Net Exports ²	\$-0.6
Government Current Purchases	\$20.5
Personal Consumption Expenditure	\$60.3
Residual Error	\$0.6

\$103.4 Bil.

Indirect Taxes Less Subsidies ³	\$13.7
Capital Consumption ⁴	\$11.6
Residual Error	\$-0.6
	\$7.8
	\$4.2
	\$8.9
Compensation of Employees	\$67.8

\$24.7

Entrepreneurial Income ⁵	
Interest and Miscellaneous Income	
Investment Income	
Residual Error	

**Equals
NET NATIONAL
INCOME**

\$78.7 Bil.

Minus

Earnings not paid out to Persons ⁶	\$11.8
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Plus

Transfer Payments to Persons and Interest on the Public Debt	\$14.8
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**Equals
PERSONAL
INCOME**

\$81.9 Bil.

Minus

Personal Current Taxes	\$15.6
------------------------	--------

Personal Savings

**Equals
PERSONAL
DISPOSABLE
INCOME**

\$66.3 Bil.

Personal Consumption Expenditure	\$60.3
Other ⁷	\$6.0

¹ At factor cost, that is at the cost of labour and capital used.

² Exports valued at \$24,497 million minus imports of \$25,305 million.

³ And miscellaneous valuation adjustments.

⁴ Includes accrued net income of farm operators from farm production and net income of non-farm unincorporated business.

⁵ Including inventory valuation adjustment and minus dividends paid to non-residents.

⁶ Consists mainly of undistributed corporation profits, corporation profit taxes and government investment income.

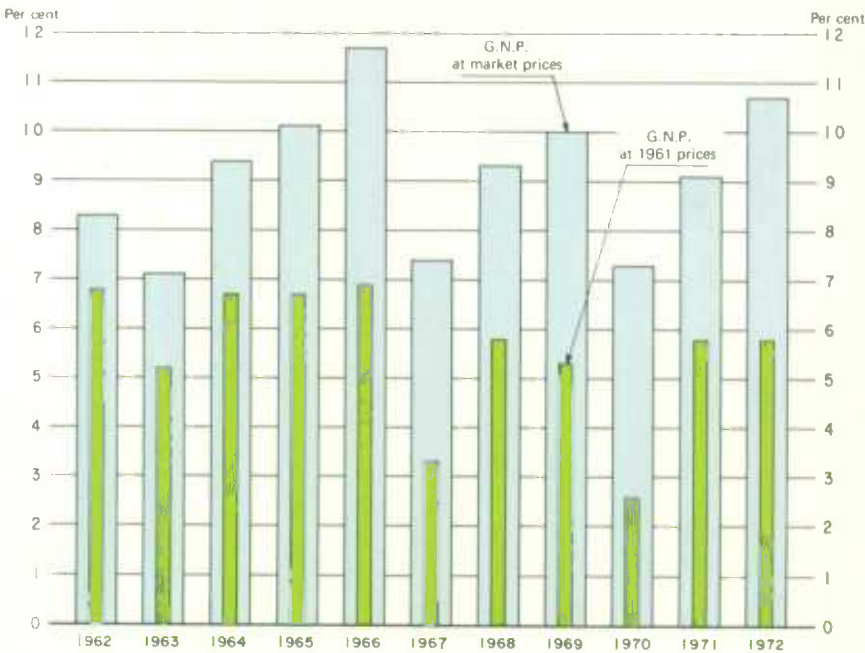
⁷ Interest on consumer debt and personal remittances to non-residents.

Some columns may not add due to rounding.

in consumer spending was very widely based; all major categories of personal expenditure showed unusually high rates of increase, ranging from 9.6 per cent for services to 15.6 per cent for durable goods. The goods categories as a whole showed a 12.9 per cent increase. The growth in consumer outlays, spectacular as it was, fell short of the 11.9 per cent growth in personal disposable income, resulting in a small increase in the already historically high personal saving ratio (personal saving as a proportion of personal disposable income) from 7.8 to 8.0 per cent.

As in the previous year, expenditure on durable goods paced the advance, but the gains within that group were much more widespread in 1972. Expenditure on new passenger cars continued to increase strongly, up 15.5 per cent after a 27 per cent increase in 1971. Most other durable goods showed sharp rises, in particular furniture and household appliances, in line with the continuing boom in new housing. Widespread increases in expenditure were noted in semi-durable goods,

In 1972 the GNP Increased by 10.7 per cent. With Prices Increasing by 4.6 per cent, the Gain in Volume was 5.8 per cent. Year-to-Year Change.





Headway builds a variety of government-financed rental housing throughout Ontario, for people of all ages.

up 12.5 per cent, and in non-durable goods, up 11.8 per cent. In the latter group, a 13 per cent increase in food outlays was largely due to sharp rises in prices.

Government Demand

Current spending by governments on goods and services rose by 11.9 per cent, about the same rate as in 1971. The major increases took place at the provincial and local levels and reflected mainly higher wage and salary payments, including substantial retroactive amounts. The increase in capital outlays of governments, on the other hand, was much smaller than in 1971.

Increases in government transfer payments to persons, mainly at the federal level, had a sharp expansionary effect on the economy. Unemployment insurance benefits more than doubled in 1972. With total expenditures rising more sharply than revenues, the government sector—on a national accounts basis and including the Canada and Quebec Pension Plans—moved from a surplus of \$98 million in 1971 to a deficit of \$1,004 million in 1972.

Capital Formation

The housing sector, supported by continuing favourable financing conditions, was another factor contributing strongly to the current economic expansion.

Almost 250,000 housing starts set a new record. Outlays rose by 18.8 per cent in 1972, following a 23.0 per cent increase in the previous year. However, much of the increase in 1972 reflected sharp price increases, especially of lumber. The increase in the volume of residential construction as measured in constant dollars rose by 9.5 per cent, less than the 15.9 per cent in 1971. The increase in 1972 was concentrated in the construction of single dwellings, in contrast with the previous year when apartment construction contributed almost equally to the expansion.

In contrast to housing, the increase in business plant and equipment spending remained relatively modest in 1972. These outlays rose by 6.4 per cent, up from 5.8 per cent in 1971. Spending on non-residential construction, affected by strikes, slowed considerably from a 10.1 per cent increase in 1971 to 2.7 per cent in 1972. This represented a decline in real terms. Spending on machinery and equipment, on the other hand, rose by 10 per cent, the highest increase in the last three years. Outlays on commercial vehicles, passenger vehicles for business use, farm implements, and non-farm imported machinery were especially great.

The rate of investment in non-farm business inventories rose from \$87 million to \$444 million. This was the first increase in such investment since 1969. For the year as a whole, the major part of the investment was concentrated in dealer holdings of durable goods. Stocks of manufacturers, on the other hand, were drawn down considerably and the stock-to-shipments ratio in 1972 was much below the ratio of the preceding year. Over half of the investment in non-farm business inventories took place in the first quarter, owing to a sharp increase in the stocks of retail dealers. In 1972, new orders rose much more sharply than shipments, leaving at the end of the year a large backlog of unfilled orders at the manufacturing level.

The External Sector

In the external sector, both exports and imports of goods and services rose at

Spending on machinery and equipment rose by 10 per cent in 1972, the highest increase in the last three years.



accelerated rates. However, the faster rate of increase in imports resulted in a sharp deterioration in the balance from a surplus of \$66 million in 1971 to a deficit of \$776 million. Most of the swing occurred in the merchandise account. Although merchandise exports rose by 11.5 per cent—almost twice the rate of the previous year—merchandise imports rose even faster, by 18.4 per cent.

Among exports, notable increases were recorded in crude petroleum and lumber. In imports, there were notable increases in machinery and equipment, in line with strong rises in this type of investment. An extended shutdown of a major automobile plant in Canada in the third quarter to switch its product line also contributed to the swing of the merchandise balance.

Incomes

Most income components displayed sizable gains in 1972. Labour income, which accounts for over half of the GNP, rose by \$5,600 million, or 10.9 per cent, to a level of \$56,900 million. This was the largest percentage increase since 1969; the gains in the two previous years were less than 10 per cent. The acceleration was entirely due to widespread and sharp increases in the service-producing industries, especially in trade, up 13 per cent from 8.6 per cent in 1971, and in public administration, which showed the same high rate of advance, 14.6 per cent, as in the previous year. The growth of wages and salaries in the goods-producing industries, up 8.4 per cent in 1972 from 8.1 per cent in 1971, was slowed by industrial disputes in construction and mining. However, wages and salaries in manufacturing rose by 9.8 per cent—a significant acceleration over the previous two years and slightly above the rate recorded in 1969.

Preliminary estimates of corporation profits indicate an increase of nearly 20 per cent. This gain, the largest since 1955, occurred on top of an already sizable increase of 15.9 per cent in 1971. Although industrial detail is not yet available, there are indications that the gains were widespread. As a proportion of the GNP,



Nickel chrome-plated bicycle rims awaiting assembly at the CCM Toronto plant.

corporation profits declined to low levels in 1969 and 1970, but sharp gains in 1971 and 1972 re-established this proportion at 10.5 per cent, only slightly less than that of 10.7 per cent in 1968. A larger proportion of the increase in business income in the last two years reflected sharp gains in inventory valuation, due to rising prices. The inventory valuation adjustment—a negative correction to the GNP in periods of rising prices—to remove that part of the increased value of stocks not due to current production, rose sharply in the last two years.

Sources of Personal Income, 1950, 1960, and 1970-72

Source	1950	1960	1970	1971	1972
Millions of Dollars					
Wages, salaries, and supplementary labour income	8,998	19,582	46,633	51,260	56,553
Military pay and allowances	154	559	914	908	962
Net income received by farm operators from farm production	1,165	1,023	1,121	1,441	1,597
Net income of non-farm unincorporated business including rent	1,882	3,192	5,325	5,624	6,106
Interest, dividends, and miscellaneous investment income	983	2,029	5,268	5,631	6,151
Current transfers:					
From government (excluding interest)	1,025	3,099	7,025	8,328	10,054
Charitable contributions by corporations	40	81	140	143	148
Personal remittances from non-residents	15	30	107	112	124
Personal Income	14,262	29,595	66,533	73,447	81,995

Disposition of Personal Income, 1950, 1960, and 1970-72

Disposition	1950	1960	1970	1971	1972
Millions of Dollars					
Personal expenditure on consumer goods and services:					
Durable goods	1,578	3,236	6,798	7,778	8,993
Semi-durable goods	2,162	3,577	6,645	7,222	8,125
Non-durable goods	4,896	9,002	16,205	17,369	19,412
Services	3,848	9,664	20,392	21,594	23,674
Total personal expenditure on consumer goods and services	12,482	25,479	50,040	53,963	60,204
Personal direct taxes and other deductions:					
Income taxes	612	1,979	8,774	10,097	11,408
Succession duties and estate taxes	66	158	259	275	228
Miscellaneous taxes	62	234	1,068	1,113	1,041
Employer and employee contributions to social insurance and government pension	237	657	2,446	2,561	2,862
Total personal direct taxes and other deductions	977	3,028	12,547	14,046	15,539
Other current transfers:					
To corporations	29	123	643	636	735
To non-residents	36	98	168	178	176
Total other current transfers	65	221	811	814	911
Personal savings	738	867	3,135	4,624	5,341
Personal income	14,262	29,595	66,533	73,447	81,995
Personal disposable income	13,285	26,567	53,986	59,401	66,456

The Economic Council of Canada

The Economic Council of Canada was established by Act of Parliament assented to on August 2, 1963. The Council is an economic advisory body with broad terms of reference. The central feature of its duties is to advise and recommend how Canada can achieve the highest possible levels of employment and efficient production in order that the country may enjoy a high and consistent rate of economic growth and that all Canadians may share in rising living standards. The Council is also to recommend what government policies will best help to realize the potentialities of growth of the economy and to consider means of strengthening and improving Canada's international financial and trade position. Finally its duty is to study how national economic policies can best foster the balanced economic development of all areas of Canada.

The initial work of the Economic Council was built around five basic economic and social goals—full employment, a high rate of economic growth, reasonable stability of prices, a viable balance of payments, and an equitable distribution of incomes. In setting these objectives, the Council has faced a twofold challenge. Not only has it undertaken the difficult task of defining goals that have many complex aspects, but it has been very much aware of the necessity of making them consistent with one another, incorporating their many important and complicated interrelationships. The Council has also stressed repeatedly that its concern has been not with one predominant goal, but with simultaneous achievement of the whole set of interrelated goals.

The Council consists of up to 28 members appointed by the Governor in Council. These include a chairman and two directors, who serve full-time in their professional capacity, and 25 members selected from industry, labour, finance and commerce, agriculture and other primary industries, and the general public. No government officials are appointed to the Council. The chairman and the directors (one of whom may be elected as vice-chairman by the Council) are appointed for seven-year terms. The other members, who are appointed for three-year terms "after consultation with appropriate representative organizations," are intended to reflect a very wide diversity of interests from the different private sectors of the economy and different regions of the country. Nevertheless, they sit on the Council as individuals and not as delegates of particular organizations or groups. Their knowledge and practical experience is complemented by a research staff, plus administrative and auxiliary personnel. The Council is therefore a mixed body, served in its deliberations by professional staff.

The Years to 1980

The Economic Council of Canada periodically undertakes an appraisal of Canada's economic potential over the medium-term future. In its *First*, *Fourth*, and *Sixth Annual Reviews*, the Council published measures of the aggregate potential growth of the Canadian economy. This was based on projections of the labour force, as well as its distribution by age and sex, educational attainment, and the number of hours worked per week, along with estimates of the increase in the stock of capital and the rate of increase in productivity. In its latest Review,

the Council employed a sophisticated new analytical tool, the CANDIDE model, to explore the period to 1980. The CANDIDE (CANadian Disaggregated InterDepartmental Econometric) model is a large-scale econometric model developed by agencies and departments of the Government of Canada over the past few years. Basically, an econometric model is a system of mathematical equations that represent the operation of a part of the economy or the national economy as a whole. The CANDIDE model is large, containing some 1,600 equations. It can be thought of as an accounting system of the whole economy, with year-to-year changes in particular components estimated on the basis of historical relationships, generally those pertaining to the postwar period. In this model, annual data as distinct from quarterly or monthly data, are used. This makes the model more useful for examining medium-term rather than short-term developments. It is dynamic, in the sense that changes in one variable are taken to affect other variables not only in the same year but also in subsequent years. The CANDIDE model attempts to relate activities in one industry with those in other industries. In the whole process, a high degree of interdependence between different economic activities is assumed.

An econometric model such as CANDIDE has a number of potential uses, one of which is to make conditional forecasts of the future values of the variables estimated in the model. This is what was done in the Council's 1972 *Annual Review* for the period to 1980. A wide variety of assumptions were made concerning influences that could affect the development of the Canadian economy over this period. The Council chose to present a number of alternatives indicating what we might strive to achieve. In the *Ninth Annual Review*, the Council examines six alternatives. In five of the six alternatives, a favourable external environment was assumed, with the American growth at a rate as high as the 1960's and a somewhat higher rate of growth for overseas industrial economies. Each of these alternatives differed in terms of assumptions concerning fiscal policy with variations both in the level of government activity and in the type of government expenditure. In the sixth alternative, where a less favourable external environment was projected, partial compensation for reduced foreign demand was assumed in the form of a very high rate of increase in government transfers to persons.

In all of these alternatives, a relatively high rate of growth in over-all output of the economy is projected for this decade, ranging from an annual average rate of 5.5 to 5.7 per cent, a rise from 5.4 per cent in the decade of the 1960's. The rate of unemployment for the last five years of the decade ranges from an average of 3.8 to 4.3 per cent. The rate of rise of prices over the decade, as reflected by the implicit deflator of gross national expenditure, ranges from 2.5 to 2.9 per cent annually, a decline from 3.2 per cent over the preceding decade, but this result is influenced by an assumption of no increase in the rate of indirect taxes and there is also no increase projected in interest rates. The projected increase in output per worker averages 2.4 per cent annually rather than 2.3 per cent over the 1960's.

Each of these alternative growth patterns was deliberately designed to produce high employment in the second half of the decade of the 1970's and, therefore, a low unemployment rate, averaging 4 per cent of the labour force. In making its

projections, the Council estimated how to proceed from the current economic situation to a fully employed situation with a minimum of delay while maintaining compatibility with acceptable cost and price stability. In addition to estimating long-run economic potential, however, the Council felt it was necessary to reassess economic circumstances regularly in the context of interim targets. This proposed framework of flexible performance indicators would be used, as the Council said in its last Review, "both as temporary objectives and as criteria for assessing progress." These national indicators are needed to insure consistency among policies and to relate in a systematic way the past, the present, and the future. They are particularly desirable in Canada in view of the wide regional disparities that exist and, in fact, they are necessary in view of the amount of decentralization of decision-making in our federal system.

The 1973-75 Performance Indicators

The initial set of indicators proposed covers the years 1973 to 1975. They are meant to be used as an internally consistent group and not to be taken one by one in isolation. They are directed to both private and public decision-makers. In each of its subsequent annual reviews, the Council will revise and update these indicators in the light of actual developments in the economy. The indicators are given in the following table:

A Quebec City shopping centre.





Performance Indicators for the Period 1973 to 1975

(1961 dollars)

	Proposed Average Annual Percentage Change
Part 1	
Gross National Expenditure.....	6.0
Consumer expenditures	5.5
Total investment	9.0
Investment in machinery and equipment, and non-residential construction.....	10.0
Housing construction.....	5.0
Government current expenditures.....	5.0
Exports of goods and services	6.0
Imports of goods and services	6.5
Part 2	
Real disposable income per capita.....	4.7
Output per person employed	2.8
Manufacturing industries, output per person employed	5.0
Total employment	3.1
Implicit price index of Gross National Expenditure.....	3.0
	Yearly Averages
Number of housing starts (thousands).....	245
Rate of unemployment in 1975 (per cent).....	4.5



The measurement of output per person employed is one of the important performance indicators for the estimation of future developments in the economy.

In addition to recommending the utilization of such a system of medium-term performance indicators, the Council made two recommendations as to the manner in which they should be used, namely:

"... that each year one of the federal-provincial meetings of prime ministers or of ministers of finance be devoted to the medium-term performance indicators developed by the Economic Council of Canada and to an examination of their implications for the federal and provincial governments."

"... that a national economic conference be convened each year under appropriate auspices to bring together representatives of the various sectors of economic activity, both public and private, for assessing the medium-term economic prospects in the framework of performance indicators that will be published annually by the Economic Council of Canada."

Research Program

A number of other research projects are under way at the Council. Some studies will form the basis of major Council publications, while others may be used in staff and special studies or as internal working papers. International trade has always been of great importance to Canada, and will continue to be so in the 1970's. During this decade Canada, like other trading nations, will be faced with the necessity of adjusting to the effects of a number of far-reaching changes in the international economy. This study will focus on some of the major commercial policy options that may be open to this country in the light of these changes.

The Council will continue to play a leading role in the maintenance and improvement of the CANDIDE model and will provide considerable research resources for this purpose. In addition, further development of the model for policy applications will be undertaken by many of the organizations making use of it, especially government departments and agencies.

In section 10 of the Council's Act, provision is made for the Council to study and give advice on a wide range of matters under special reference from the Minister. Work is at present proceeding under such a reference, namely an examination of "Cyclical Instability in the Construction Industry." A report on the findings, with recommendations for improvement, will be issued upon completion of the research.

On March 15, 1972 the Council accepted in principle the recommendation of the Senate Special Committee on Science Policy "to devote more emphasis to the long-term future in its work" and is thus committed to studying time horizons extending to the year 2000.

In a country such as Canada, with its wide regional differences, its highly decentralized system of private decision-making, and its constitutional system, which divides authority for economic policy decisions between the federal and provincial governments, national economic issues cannot be studied without consideration of regional implications. The Council must now reassess its approach to regional economic questions and envisage new directions for such research. In this area the CANDIDE model is likely to provide a useful framework. Some work has already been undertaken on the feasibility of developing a peripheral regional model within the CANDIDE program. Strengthening the model in this way would provide a useful systematic basis for further regional research.

In the *Eighth Annual Review*, the Council called for "the development of a comprehensive set of statistical measures to monitor the changing conditions of our society over a broad spectrum of concerns." Goal indicators were defined as information, compiled on a time-series basis, to measure relevant and significant dimensions of a specific goal area. At the present time the Council is undertaking the development of indicators in three fields—education, urban systems, and health—and intends to undertake work on indicators concerned with cultural and linguistic relationships. This choice should not be viewed as restrictive, since the testing and application of these indicators will lead to other areas as well. Also, the Council's past concern with distribution questions would be continued in this program, since the most important aspect of an indicator, from a policy viewpoint, is not so much its aggregate value as its distributional dimensions.

Financial markets are an important element of the Canadian economy, and the Council proposes to undertake research in this field. The type of study the Council envisages would cover the topic from two broad perspectives. First, the structure and evolution of domestic capital markets would be analyzed and the capacity of these markets to meet the needs of Canadian lenders and borrowers assessed. Second, an examination of the external environment would relate the operations of foreign financial markets to Canadian requirements and study the impact on the economy of financial flows into and out of the country. The implications of such flows for Canada's internal and external balance would be considered. The Council will undertake a comprehensive study of the characteristics and structure of the labour force and labour market. The review will be made of sources of information in these matters and an analysis will be made of how employment opportunities and the evolving system of social programs affect the supply of labour.

Industrial Growth

Early in the 1960's, the Canadian economy 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 period from the first quarter of 1961 to the fourth quarter of 1969, real output increased by 64.8 per cent or at an average quarterly rate of 1.4 per cent. In 1970, there was a dampening of the rate of growth, reflecting to some extent the tightened monetary and fiscal situation introduced in the previous year. From the fourth quarter of 1969 to the fourth quarter of 1970, total real output increased by an average .4 per cent quarterly. From the fourth quarter of 1970 to the fourth quarter of 1972, the rate of over-all growth quickened to match the 1961-69 pace.

As can be seen from the Table, the 2.2 and 2.3 per cent average quarterly increases in the output of manufacturers of durables in the two most recent expansionary periods were the highest for any major industry group except electric power and gas utilities and fishing and trapping in the 1970-72 period.

Quarterly Growth Rates¹

	4th Q. 1957- 1st Q. 1960	1st Q. 1960- 1st Q. 1961	1st Q. 1961- 4th Q. 1969	4th Q. 1969- 4th Q. 1970	4th Q. 1970- 4th Q. 1972
Real Domestic Product.....	1.1	-0.3	1.4	0.4	1.4
Goods-producing industries.....	1.2	-0.9	1.6	0.3	1.6
Agriculture.....	0.7	-3.7	0.9	1.0	0.4
Forestry.....	3.5	-2.0	1.3	-2.0	0.5
Fishing and trapping.....	-1.6	8.4	0.2	0.3	3.0
Mining.....	1.7	-1.0	1.4	4.1	1.6
Manufacturing.....	1.4	-0.6	1.8	-0.7	1.8
Non-durables.....	1.5	0.1	1.4	0.4	1.2
Durables.....	1.3	-1.6	2.2	-1.9	2.3
Construction.....	-0.5	0.5	1.3	0.3	0.8
Electric power, gas and water utilities.....	2.8	1.0	1.9	2.0	2.3
Service-producing industries.....	1.0	0.5	1.4	0.6	1.3
Transportation, storage and communication.....	1.1	0.9	1.6	0.6	1.8
Transportation.....	1.0	0.9	1.6	0.5	1.9
Trade.....	1.1	-	1.4	0.3	1.9
Wholesale.....	1.8	-0.9	1.7	0.3	1.6
Retail.....	0.8	0.4	1.3	0.2	2.0
Finance, insurance and real estate.....	1.0 ²	. 2	1.0	0.4	0.8
Community, business and personal service.....	1.3	0.5	1.6	0.7	0.9
Public administration and defence.....	0.5 ²	. 2	0.6	0.9	1.1

¹Based on the terminal years compound-interest rate formula.

²No data are available prior to 1961 on a 1961 base due to a break in historical continuity resulting from the implementation of the 1960 standard industrial classification and the 1961 weight and reference base for the indexes. The data for the 1957-60 period are on a 1948 standard industrial classification and 1948 weight and reference base.

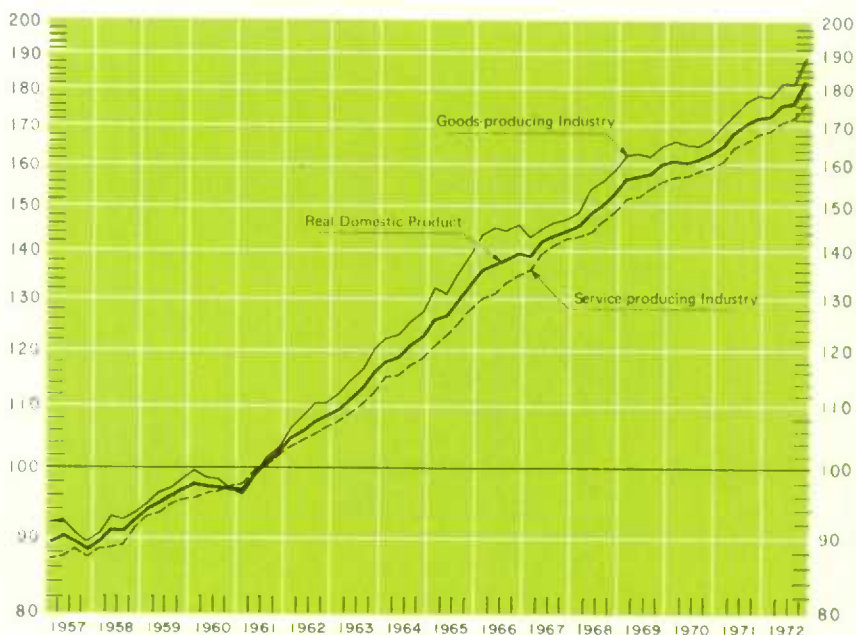
Despite the striking quarterly growth rate, fishing and trapping contributed less than 1 per cent to the change in total real output in the period from the fourth quarter of 1970 to the fourth quarter of 1972. The above-average advance of the durable manufacturing component in expansionary periods can in fact be said to be among the most notable features of the economy's performance since 1961.

The two most recent periods of expansion, when compared with the expansion in the late 1950's, reveal that some industry groups have advanced more slowly than during the earlier expansion. The deceleration in both electric power and gas utilities—which were still among the fastest-growing industry groups—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.

All these developments had started from a relatively small base, and required large-scale capital investments. Investment reached a high for that period in 1955-58. 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 changes have been made, it is not surprising to see a gradual easing in the rate of growth.

The following chart illustrates the growth since 1957 in total real domestic

**Real Domestic Product, by Industry, by Quarters, Index 1961 = 100,
Adjusted for Seasonal Variation**



product with a breakdown of the goods-producing and service-producing sectors. Over the past decade 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 1972 had increased by 394 and 264 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 prices. In addition, public concern about car safety has also been generally mentioned as a factor in the decline of car sales. Clearly, none of these factors offers a unique explanation.

Saint John Harbour, N.B., with vehicles assembled for shipment abroad.



By the second quarter of 1967, improved consumers' confidence, supported by liquidity and a buoyant export market encouraged an increased production of motor vehicles. However, during 1968 and 1969, various inhibiting factors such as strikes and shortages of parts directly or indirectly checked motor-vehicle production. Production slumped sharply in 1970 in response to the softening in consumer demand and the growing popularity of vehicles manufactured overseas, reinforced by the impact of an automobile strike. For these reasons total annual manufacturing output declined for the first time since 1958 and the increase in volume of retail trade was the slowest since 1957. In 1971, motor-vehicle production rebounded to its 1969 level. The industry made further good gains during 1972, despite an interruption in the second half of the year to permit a major producer to switch product lines.

The iron and steel industry has been another major contributor to industrial growth, increasing by 134 per cent since the first quarter of 1961. This industry as well experienced some levelling off during 1966 and 1967. However, since the end of 1967, the industry has made solid gains, if one deducts the direct and indirect negative effects of time lost in labour disputes in the latter part of 1969 and in 1970. This strong expansion continued through most of 1971 and 1972. By the fourth quarter of 1972, output of the iron and steel mills had increased by 22.5 per cent from the first quarter of 1971.

The increase in the volume of construction has been a notable feature of industrial growth since 1961, despite industrial disputes in 1969, 1970, and, to a lesser extent, 1972. This activity first surpassed its 1958 peak in 1962. In the intervening period, the output of the construction industry had hovered around its 1957 level. Large-scale new investments in industrial and social capital were made, however, during the mid-1960's in such industries as chemicals, pulp and paper, hydro-electric power development (which provided a boost to non-residential construction) and 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 scarce and costly funds, increasing costs, and strikes, as well as a June 1969 deferral of capital-cost allowances on commercial projects in three provinces have all contributed to some weakness in this sector since the beginning of 1970.

The growing demand for housing, stimulated by the influx of people from rural areas and immigrants from abroad to 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. 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 third quarter of 1970, reflecting scarcity of mortgage funds, rising interest rates, and higher 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. The renewed momentum in this activity continued



Mimico Yard, Toronto, Ont. By the end of 1972, transportation output had doubled from its 1961 level.

through 1971 and most of 1972 which had been affected by an industrial dispute in the third quarter. Nevertheless, for the year 1972, house-building activity set new records.

Throughout the 1961-72 period, the service-producing industries have been a significant source of growth in the aggregate output of the Canadian economy. In the period from the first quarter of 1961 to the fourth quarter of 1969, transportation, wholesale trade, and the community, business, and personal service industry groups all experienced above-average quarterly growth rates. Wholesale trade and transportation have continued to do so since the fourth quarter of 1970 to date. Over the period as a whole, railway transport has contributed the major share of the gains in transportation, although the output of the air and pipeline transport industries grew more rapidly. In general, transportation has 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, major 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. Transportation continued to make significant contributions to the change in total output in 1971 and 1972. In 1972, transportation, led by air transport, outpaced the rise in the output of all industries and by the end of the year, transportation output had doubled from its 1961 level.

Industrial disputes were a disruptive factor in industrial growth in 1972. The number of man-days lost that year surpassed the previous record set in 1969. The

industries primarily involved were mining, manufacturing, construction, transportation and utilities, and public administration.

Two features of the economy's performance which continued to be of concern at the end of 1972 were unemployment and prices. Employment in 1972 expanded at the fastest rate in three years. However, this opening up of employment was matched by the growth in the labour force, so that there was no significant improvement in the unemployment rate. Prices continued to be of concern. The Consumer Price Index was ahead by 5.1 per cent in 1972. In 1971 it had increased by 5.0 per cent.

In conclusion, the renewed vigour in production during 1971 and 1972 was supported by strength in critical components of domestic demand as well as in external demand. Consumer spending which was strong in 1971 was exceptionally buoyant in 1972, even after allowance for price changes. Business spending on machinery and equipment accelerated sharply in 1972 following the previous year's modest gain. The volume of merchandise exports increased by over 8 per cent in 1972, following a rise of nearly 6 per cent in 1971.

Coils of raw steel ready for shipment at a Hamilton steel plant.



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 30 per cent of the activity in the primary industry sector of the Canadian economy.

The total investment in Canadian agriculture amounts to more than \$24,000 million, with about 70 per cent of it in real estate, 17 per cent in machinery, and 13 per cent in livestock and poultry. Exports of agricultural products are an important source of foreign exchange for Canada, one of the world's five largest exporters of farm products. In 1972, agricultural exports amounted to a record \$2,135 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 production. In 1972, more than twice as many workers were engaged in agriculture as in all the other primary industries combined.

However, farm workers and farms have been declining in number. From 681,000 in 1961, the number of farm workers was down to 481,000 in 1972. By coincidence, the 1972 figure is the same as that for farms in Canada in 1961. Between that year and 1971, the number of farms dropped from 481,000 to 366,000.

Farming in British Columbia. Canada is one of the world's five largest exporters of farm products.





Winter on a farm in Prince Edward Island; Canada's smallest province is famous for its potatoes, butter, and cheese.

Although 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 45 people from his farming efforts—nine 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 366,000 farms in 1971, embracing a total of 170 million acres of land, 69 per cent were owned by farm operators and 31 per cent were rented in whole or in part. Eleven per cent of the farms were classed as "non-resident" meaning that the farm operator did not live on his farm.

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.

Although 82 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. (In 1971, there were 18 farms in these territories.)

There are five main types of farms: dairy, livestock (excluding dairy), grain, combination grain and livestock, and special crops. Farms specializing in general



Tobacco drying in Prince Edward Island.

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 40 per cent of Nova Scotia's farms are devoted to 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 by providing sufficient food for the population's needs and 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, flaxseed, and rye have been the traditional crops grown in the Prairie Provinces. However, recurring surpluses of cereal grains have prompted farmers in the region to modify their traditional production patterns by growing alternative crops. In this, they have been encouraged and assisted by

government measures, including the Grassland Incentive Program introduced in 1971 to switch land from grain to forage production for livestock. By the end of the program's second year, 2.7 million acres had been seeded to grass. Rapeseed acreage has increased and the crop has become an important source of income for many farmers. Smaller acreages are being used to grow crops such as sunflowers, mustard, peas, corn, safflower, buckwheat, potatoes, and sugar beets.

Export markets are important to Prairie farmers for sales of their crops, especially of wheat and oilseeds. Foreign markets are also important, although to a lesser degree, for the sale of coarse grain crops. Efforts to develop and maintain export markets for rapeseed, barley, and the other crops are continuing and farmers are being encouraged to match their crop production to the requirements of the domestic and export markets. At the same time, livestock production is being encouraged which would increase the value of domestic field crops.

Canada's 1972 wheat acreage of 21.3 million acres, although up by 1.9 million over 1971, is well below the 30 million acres of the late 1960's. The barley acreage in 1972 amounted to 12.5 million. It was 14 million acres in 1971 and 9 million towards the close of the last decade. Rapeseed acreage in 1972 amounted to 3.3 million, about 2 million acres less than in 1971 and about 1.5 million more than in the late 1960's.

On the Prairies, 1972 field crop acreages included 20.8 million acres of wheat, 11.9 million acres of barley, 4.7 million acres of oats, 3.3 million acres of rapeseed, 1.4 million acres of flaxseed, and 582,000 acres of rye. Summerfallow acreage in

A swather making a striking pattern in an immense grainfield near Prince Albert, Sask.



1972 amounted to 29 million acres, an increase from 26.2 million in 1971.

Field crop production is much more diversified elsewhere in Canada. The emphasis placed on livestock production has an influence on the kinds of field crops grown and a large proportion of the land is devoted to forage crops, pasture, and feed grains. Grain corn is grown for livestock feed as well as for industrial use and the crop has become an important one in Ontario where production has reached 100 million bushels a year. Grain corn is also increasing in importance in Quebec. Fodder corn is important in Ontario, where production amounts to more than 8 million tons annually.

Although its acreage is relatively small, tobacco has a high cash value. In Canada, it is surpassed only by wheat and barley in importance as a source of farmers' cash income. Most of Canada's tobacco production is centred in Ontario but some is grown in Quebec and a smaller amount in the Maritimes. Winter wheat and vegetables are other important sources of income for Ontario farmers. Vegetables in Quebec and potatoes in New Brunswick and Prince Edward Island are the major sources of income from field crops for farmers in those provinces.

Estimated Area, Yield, and Production of Principal Field Crops, 1971 and 1972

Crop	Area in Acres		Yield per Acre in Bushels		Production in Bushels	
	1971	1972	1971	1972 ¹	1971	1972 ¹
Winter wheat	341,000	365,000	41.3	43.5	14,083,000	15,878,000
Spring wheat ²	19,065,700	20,984,700	27.0	24.7	515,469,000	517,410,000
All wheat	19,406,700	21,349,700	27.3	25.0	529,552,000	533,288,000
Oats for grain	6,830,900	6,104,000 ^r	53.2	49.2	363,479,000	300,208,000
Barley	13,980,500	12,510,900	43.0	41.4	601,628,000	518,413,000
Fall rye	906,300	593,000	23.2	21.6	21,005,000	12,784,000
Spring rye	50,700	41,500	17.9	17.8	910,000	740,000
All rye	957,000	634,500	22.9	21.3	21,915,000	13,524,000
Flaxseed	1,763,300	1,421,000	12.7	13.4	22,321,000	19,017,000
Mixed grains	2,054,800	2,064,900	52.1	50.5	107,078,000	104,285,000
Corn for grain	1,410,100	1,317,000	82.2	79.4	115,977,000	104,597,000
Buckwheat	113,100	102,800	21.2	16.6	2,395,000	1,711,000
Peas, dry	80,800	67,600	23.8	23.5	1,927,000	1,587,000
Beans, dry	113,200	134,200	25.7	23.7	2,911,000	3,183,000
Soybeans	367,000	405,000	28.0	29.0	10,276,000	11,745,000
Rapeseed	5,306,000	3,270,000	17.9	17.5	95,000,000	57,300,000
			cwt.	cwt.	cwt.	cwt.
Potatoes ³	268,500	242,000	181.8	171.2	48,810,000	41,437,000
			lbs.	lbs.	lbs.	lbs.
Mustard seed	206,300	180,000	900	842	185,600,000	151,500,000
Sunflower seed	239,400	217,000	706	783	169,070,000	170,000,000
			tons	tons	tons	tons
Tame hay	12,354,000	12,859,000	2.00	1.88	24,732,000	23,929,000
Fodder corn	769,700	848,500	13.58	12.22	10,450,000	10,369,000
Field roots	9,900 ^r	10,400 ^r	13.43 ^r	12.31	133,000 ^r	128,000
Sugar beets	81,096	80,152 ^r	14.99	13.36	1,215,917	1,070,824

¹As indicated on the basis of conditions on or about October 25.

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

³The 1971 and 1972 acreage figures refer only to potatoes grown mainly for sale. The 1972 yield and production estimates also refer to the commercial crop only and are thus not strictly comparable to data for previous seasons when non-commercial acreage was also included.

^rRevised figures.



Commercial daffodil-growing at Bradner, B.C. Daffodil bulbs and flowers from Bradner supply half the demand in Canada.

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.

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 commercially 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 the 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



There were 541.9 pounds of fruits and vegetables, including potatoes, available for per capita consumption in Canada in 1971.

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. 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.

In recent years the supplies of fruits and vegetables available for consumption in Canada have been gradually increasing. The per capita domestic consumption of all fruits for 1971 of 252.8 pounds (fresh equivalent weight) was 2.4 per cent above the five-year (1965-69) average of 246.8 pounds. Of this total, 114.8 pounds per capita were fresh, 52.5 were canned, 3.2 pounds were frozen, and 60.1 were made into juice. Per capita consumption of vegetables, excluding potatoes, was 118.1 pounds for the same period and this was 2.7 per cent higher than the five-year average of 115 pounds. Each individual consumed on average 73.2 pounds of fresh vegetables, 26.4 pounds of canned vegetables, and 9.5 pounds of frozen vegetables in 1971 (fresh equivalent weight). This means that there were 541.9 pounds of fruits and vegetables, including potatoes, available for per capita consumption in Canada in 1971.

Livestock

Preliminary estimates for 1972 indicate that total cash receipts from farm produce were \$5,341 million of which \$3,063 million (57 per cent) came from livestock and animal products, a decrease from 60 per cent in 1971. Cattle (including calves) and pig sales in 1972 amounted to \$1,050 million and \$576 million respectively. This represents 20 and 11 per cent of total cash receipts. Cash receipts from the sale of sheep and lambs in 1972 increased to about \$8.9 million from about \$8.7 million in 1971.

Cattle. On June 1, 1972, the number of cattle and calves on farms in Canada (not including Newfoundland which had 7,138 head at the time of the June 1, 1971 census) was estimated at 13,656,500 head, up 3 per cent from 13,270,850 at the June 1, 1971 census. This represents a record high for this time of year. The number of milk cows and dairy heifers decreased, continuing the downward trend which began in 1962. Beef cows, estimated at 3,679,400 head increased by 5 per cent over a year earlier. There was an increase in all provinces. Beef cows, beef heifers, steers, and calves showed increases in 1972 over the year previous and the estimates represent all-time highs. Inspected slaughter of cattle in 1972, reported by the Canada Department of Agriculture, amounted to 2,878,591, up 3 per cent from 1971, while calf slaughter at 402,370 decreased by 13 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 1973.

Health of Animals reports exports of slaughter cattle (200 pounds and more) in 1972 amounted to 10,767, down 5 per cent from 1971, whereas feeder cattle (200 pounds and more) increased from 15,130 in 1971 to 52,084 in 1972.

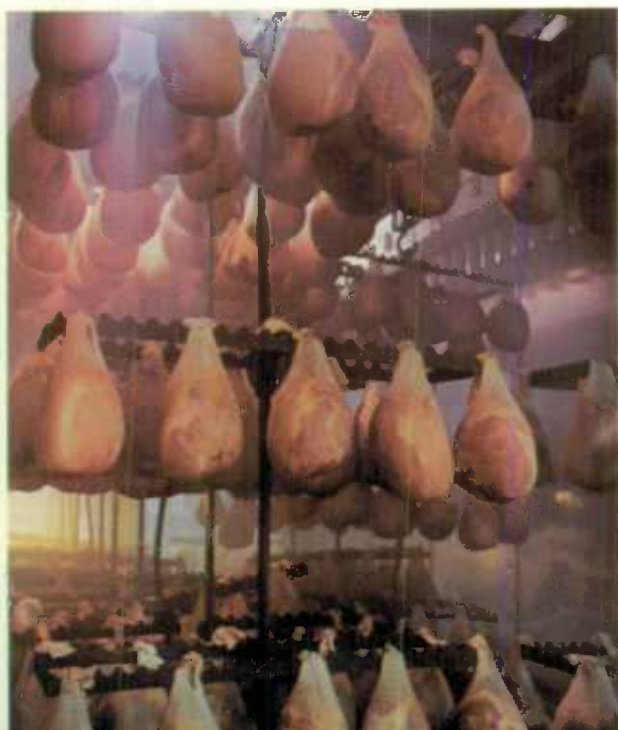
Inspected slaughter of cattle in 1972 amounted to 2,878,591 head, and of calves to 402,370.



The Canada Department of Agriculture reports that the weighted average price per hundredweight of choice slaughter steers at Toronto for 1972 was \$37.20; the value was \$34.30 in 1971. The weighted average price for good feeder steers was \$39.75 in 1972 and \$34.15 in 1971. These prices were well above the five-year averages (1967-71) of \$30.98 and \$30.89. Choice and good veal calves averaged \$45.35 in 1972 and \$40.05 in 1971. The five-year average was \$38.01.

Pigs. On June 1, 1972, pigs on farms in Canada (not including Newfoundland which had 14,630 at the June 1, 1971, census) numbered 7,150,000, down 6 per cent from June 1, 1971. Pig carcasses graded in 1972 totalled 9,357,143 according to the Canada Department of Agriculture; this was an 8 per cent decrease over 1971. The decreased slaughter raised prices, making the weighted, average price at Toronto \$35.10 per hundredweight for Index 100 hogs, up from \$25.80 in 1971. Despite higher prices and lower output Canada Department of Agriculture reports exports of pork increased by 6 per cent from 98,777,216 in 1971 to 105,579,674 pounds in 1972. Canada has now become Japan's main supplier of pork.

Sheep. The sheep and lamb population of Canada (not including Newfoundland, which had 9,384 at June 1, 1971) decreased by 1 per cent from 851,400 in 1971 to 845,000 in 1972. The West showed an increase of 2 per cent; the East had a decrease of 4 per cent. The breeding flock of sheep one year old and over remained unchanged. Inspected slaughter of sheep and lambs in 1972 was 214,769; it was 205,082 head in 1971. Exports of sheep and lambs increased from 5,780 in 1971 to 12,443 in 1972 according to the Canada Department of Agriculture. Imports of live animals increased from 30,891 in 1971 to 40,696 in 1972. The weighted average price for good lambs at Toronto was \$31.50 per hundredweight in 1972, higher than the 1971 price of \$30.65 and up from the 1967-71 average of \$30.68.



Canada Packers, ham smoke room. Canada is Japan's main supplier of pork.

Estimated Meat Production and Disappearance, 1970 and 1971

	1970	1971	1970	1971
	Beef		Veal	
Animals slaughtered..... No.	3,220,800	3,299,300	823,200	763,700
Meat exports..... '000 lb.	118,723 [†]	113,635	1	1
Meat production..... '000 lb.	1,805,823	1,836,602	97,068	92,494
Domestic disappearance..... '000 lb.	1,831,453 [†]	1,883,738	94,933 [†]	94,361
Per capita consumption..... lb.	85.6	86.9	4.4	4.4
	Pork		Mutton and Lamb	
Animals slaughtered..... No.	10,092,600	11,550,100	377,500	441,400
Meat exported..... '000 lb.	71,287 [†]	97,166	635	93
Meat production..... '000 lb.	1,328,114	1,510,964	16,619 [†]	18,989
Domestic disappearance..... '000 lb.	1,218,821 [†]	1,428,430	79,804 [†]	72,339
Per capita consumption..... lb.	56.9	65.9	3.7	3.3
	Offal		Canned Meat	
Production..... '000 lb.	121,267	130,071	147,316	2
Domestic disappearance..... '000 lb.	72,488 [†]	92,474	168,568	2
Per capita consumption..... lb.	3.4	4.3	7.9	2

[†]Revised.[†]Included with beef.[†]Owing to changes in source data, comparable information is not available.

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 [†]	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
1971.....	86.9	4.4	3.3	65.9	4.3	1	164.8

[†]Revised.[†]Owing to changes in source data, comparable information is not available.

Dairying. Milk is produced in every province of the country. According to estimates of June 1, 1971, there were 2.3 million milk cows producing a total of 17,800 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 contributed 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 62 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 1971, of total milk production 38 per cent was used in the manufacture of creamery butter, 15.6 per cent for cheese, and 9 per cent for concentrated milk products, including ice cream mix. Fluid milk sales accounted for about 30 per cent and farm use accounted for the balance. Farm use includes milk fed to livestock, farm home consumption, and farm-made butter.

There are fewer and bigger dairy farms than a decade ago. Using the census years of 1961, 1966, and 1971, there were respectively 309,000, 222,000, and 145,000 farms reporting milk cows.

The principal dairy breeds in Canada are Holstein, Ayreshire, Guernsey, and Jersey. In addition there is a small amount of milk from dual-purpose breeds.

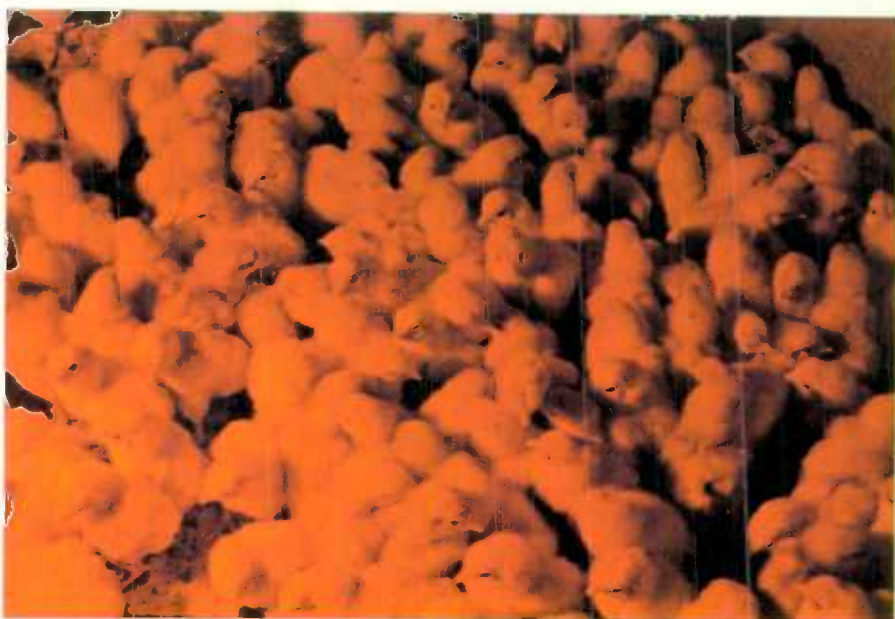
During 1971, the farm value of milk production was approximately \$769 million. The farm value of milk used in factories was \$391 million, and that for fluid sales \$329 million.

Milk Production and Utilization, Canada, by Regions 1969-71

Region	Year	Total Milk Production	Milk Used for Dairy Factory Products	Fluid Milk Sales	Milk Used on Farms
Thousands of pounds					
Maritimes	1969	852,582	404,959	354,322	93,301
	1970	829,481	386,524	355,332	87,625
	1971	804,684	357,440	367,278	79,966
Quebec and Ontario	1969	13,801,236	9,555,626	3,415,180	830,430
	1970	13,364,162	9,079,856	3,472,174	812,132
	1971	12,947,391	8,652,890	3,503,616	790,885
Prairies	1969	3,150,315	1,760,925	788,332	601,058
	1970	3,169,599	1,769,525	809,919	590,155
	1971	3,052,866	1,659,381	824,071	569,214
British Columbia	1969	907,249	327,108	529,997	50,144
	1970	949,357	336,080	562,877	50,400
	1971	972,217	345,006	579,679	47,532
Totals, Canada	1969	18,711,382	12,048,618	5,087,831	1,574,933
	1970	18,312,599	11,571,985	5,200,302	1,540,312
	1971	17,776,958	11,014,717	5,274,644	1,487,597

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



A flock of new chicks is kept warm by infra-red lamps on a farm near Neepawa, Man.

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, 1971

	Total Poultry Meat	Fowl	Chicken	Turkey	Goose	Duck	Eggs
	Thousand pounds eviscerated weight						'000 doz.
Stocks at January 1	70,104	6,401	30,434	32,230	392	647	5,801
Production	944,512	79,099	629,133	225,832	3,893	6,555	499,325
Imports	3,240	172	1,214	470	—	1,384	7,291
Total supply	1,017,856	85,672	660,781	258,532	4,285	8,586	512,417
Exports	12,910	—	8,330	4,560	—	20	3,670
Stocks at December 31	55,622	5,231	19,380	30,286	139	586	9,284
Eggs used for hatching .....	...	...	...	...	...	...	28,867
Domestic Disappearance	949,324	80,441	633,071	223,686	4,146	7,980	470,596
			pounds				dozen
Per capita	43.8	3.7	29.2	10.3	0.19	0.37	21.7

... Figures not applicable.



Canadian red fox furs are currently enjoying renewed popularity.

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 in British North America were united under the Hudson's Bay Company.

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	Average
			Value	Value
Dollars				
Wildlife				
Badger	2,014	20,900	10.38	9.74
Bear				
Black or brown	2,007	39,784	19.82	24.06
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	67,376	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.

Fisheries

Commercial fishing, the oldest primary industry in Canada, contributes approximately \$500 million annually to the nation's economy and provides full-time or seasonal employment for some 82,000 persons. For the past decade or so, the total fish catch has consistently exceeded one million metric tons, placing Canada among the leading fish-producing and fish-exporting countries in the world.

On the Atlantic coast, Canadians compete with fishing fleets from 14 or more countries in harvesting some of the world's most abundant stocks of fish and shellfish feeding on the continental shelf. In recent years, however, indications are that the intense fishing pressure is depleting what were once thought to be inexhaustible stocks, and for the first time in history national catch quotas for certain species have been agreed to by the fishing countries concerned.

Although the narrower continental shelf on the Pacific coast is less productive of marine life, careful management provides a continuing supply of salmon and other seafood products. In addition, the fisheries based on the central and northern lakes of Canada produce a valuable harvest of whitefish and other freshwater fish products.

Canadian commercial landings of fish and shellfish during 1972 of 2,266 million pounds represented a decrease in volume of some 11 per cent over the previous year. However fishermen were able to benefit from favourable market conditions which boosted their earnings to a total of \$230 million, an increase of 13 per cent over 1971.

A salmon seiner in the Rivers Inlet area of British Columbia. On the west coast, salmon landings reached a record high of 164.5 million pounds in 1972.





Ocean perch are found off the coast of the Atlantic Provinces.

The most noticeable drop in the over-all fisheries catch occurred on the Atlantic coast, where landings dropped off by 17 per cent to 1,849 million pounds from 2,231 million pounds in 1971. Although the decrease is attributed mainly to declining stocks, poor weather conditions in the early part of the season were also a factor. Two major species of the traditionally important "groundfish" group—cod and haddock—declined to 399 and 31 million pounds respectively, from catches of 594 and 91 million pounds five years ago. On the other hand, landings of redfish and small flatfish improved, to keep the over-all groundfish catch within 8 per cent of last year's catch.

Herring landings have been decreasing steadily since the peak year in 1968, dipping to 656 million pounds with a landed value of \$12.3 million, and the same trend applies to lobsters, the most valuable Atlantic fishery resource. However buoyant market prices resulted in all-time record earnings for lobster fishermen of \$36.5 million.

Another record high in earnings was established by scallop fishermen whose gross earnings of \$19.4 million represented an increase of 49 per cent over 1971.

On the Pacific coast, salmon landings reached an all-time high of 164.5 million pounds for a landed value of \$50 million, \$5 million better than the previous record set in 1971. The highlight of the season was the chum salmon catch (66.5 million pounds, valued at \$13.6 million), the largest since 1954. The pack of Pacific canned salmon in 1972 amounted to 1,171,000 cases (of 48 pounds), about 12 per cent lower than average.

The scarcity of halibut noted in 1971 worsened in 1972, with landings dropping by 14 per cent to 21.7 million pounds. Nevertheless, halibut fishermen profited from escalating prices, their earnings for the year totalling \$13.5 million, a boost of 67 per cent over 1971.

A ban on herring fishing for reduction purposes (that is, processing into fish meal and oil) imposed in 1968 as a conservation measure, continued in force in 1972 to allow stocks to recover. However a quota-regulated herring fishery for



Fish being processed at a factory in Prince Edward Island. Commercial fishing contributes approximately \$500 million annually to the Canadian economy.

human consumption produced earnings of \$2.7 million, largely from the highly-profitable roe trade with Japan.

Over-all landings of fish and shellfish on the Pacific coast amounted to 327.8 million pounds, valued at a record-setting \$73.4 million. This represents a 43 per cent increase in quantity and a 25 per cent increase in value over 1971.

The total catch of the inland fisheries is estimated at about 88 million pounds, worth an estimated \$14 million to fishermen.

The marketed value of Canada's fishery products in 1972 is expected to reach a new record high of \$500 million, of which \$350 million derives from export trade. The United States continues to be Canada's best export customer for fishery items (67 per cent), followed by Europe (20 per cent), and the Caribbean area and other countries (13 per cent).

The production of frozen groundfish fillets and blocks on the Atlantic coast totalled 233 million pounds, a 10 per cent decrease from the previous year. The downward trend in the production of salted groundfish continued in 1972, particularly in Newfoundland, the largest producing area. In that province, 45 million pounds of cod were used for salting, which is slightly less than half the amount salted in 1970.

The output of fish meal on the Atlantic coast declined to 81,000 tons from the 1971 production of 101,000 tons. Smaller landings of herring and increased use of this species for food accounted for a drop in herring meal production from 59,000 tons in 1971 to 37,000 tons in 1972.

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. The 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. The main deciduous trees are yellow birch, maple, oak, and basswood.

Cathedral Grove, Vancouver Island, B.C.





The number of production employees in logging has decreased as a result of mechanization and a drop in pulpwood production.

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

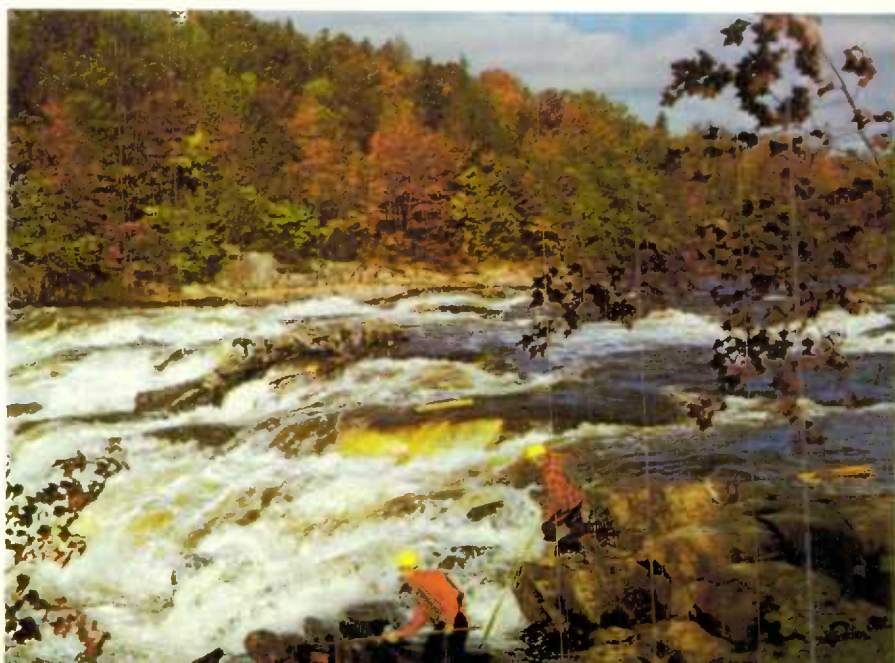
This group of industries accounted for approximately 18.3 per cent of all Canadian exports in 1972. It includes logging; the primary wood and paper manufacturing industries, using roundwood as their chief raw material; and the secondary wood and paper industries, using lumber, wood pulp, basic paper, and so on, as raw material to be converted into a host of different wood and paper products.

Logging. The output of Canada's forests in the form of sawlogs, veneer logs, pulpwood, poles, and other roundwood is estimated at 4,227 million cubic feet for 1971. This is a slight decrease in production from 1970 (4,288 million cubic feet). British Columbia accounted for approximately 47 per cent of the total, followed by Quebec with 22 per cent and Ontario with 13 per cent. In the provinces east of the Rocky Mountains the production of roundwood decreased by 125 million cubic feet from the level of production reached in 1970. Almost 124 million cubic feet of this decrease was due to a drop in pulpwood production because of less demand for this product by a depressed pulp and paper industry. In part this was counter-balanced by an increase in the production of sawlogs of 81 million cubic feet. As in 1970 about 3 per cent of the roundwood production was exported in the rough.

Further mechanization, particularly in pulpwood operations, coupled with a decrease in pulpwood production, resulted in a sizable reduction in the number of production employees in the logging industry (from 44,814 in 1970 to 40,126 in 1971). However, due to increased wage rates in all provinces the total wages paid to production workers remained constant at \$344 million. Total salaries and wages for this same period rose by about \$1.5 million to \$413 million.

The value of shipments by the logging industry increased slightly from \$1,620 million in 1970 to \$1,630 million in 1971.

Logs are driven down the winding Rivière Rouge to the mill in Hawkesbury, near Ottawa, Ont.





Great trucks with tandem trailers haul logs from mountainous areas of British Columbia.

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—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 14,017 million board feet in 1972, an increase of 8.6 per cent over 1971 when production amounted to approximately 12,908 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 50,963 man-years of employment in 1971 and paid \$366,440,000 in salaries and wages. The total value of shipments of their products amounted to \$1,395,507,000 of which lumber accounted for \$1,140,540,000 and pulp-chips for \$140,651,000. The value of exports of lumber amounted to \$829,437,000 in 1971 and to \$1,173,990,000 in 1972.

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 1971 these industries provided 40,883 man-years of employment and paid \$271,761,000 in salaries and wages. The value of shipments of their products was \$951,436,000. Of this amount the veneer and plywood industry accounted for \$311,887,000 and the sash, door, and millwood

industry (including the hardwood flooring industry and the manufacturers of prefabricated buildings) for \$396,037,000.

Pulp and Paper. The manufacture of pulp and paper has been Canada's leading industry for many years. Although 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 value of production of this one industry accounts for 3.1 per cent of the total Gross National Product and it contributed 11.9 per cent of the total value of domestic exports in 1971 (12.5 per cent in 1970 and 13.2 per cent in 1969). Canada is the second largest producer of wood pulp in the world (18,233,559 tons in 1971) after the United States (43,766,000 tons), and the largest exporter. It is by far the largest producer of newsprint, 8,524,215 tons in 1971, 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 68 per cent of the wood pulp manufactured in 1971 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 36.3 per cent of the total value of factory shipments in 1971. It is followed by Ontario with 25.7 per cent and British Columbia with 23.3 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.

One of the newest and largest newsprint machines in operation at Gatineau, Que.





A million seedlings a year are planted by Crown Zellerbach to replace mature trees that are harvested.

Paper-converting Industries. These include the asphalt roofing manufacturers, the paper box and bag manufacturers, and other paper converters. In 1971 this group counted 500 establishments (496 in 1970), employed 40,312 persons (40,709 in 1970) and paid \$293,698,000 in salaries and wages (\$276,718,000 in 1970); the value of factory shipments set a new record of \$1,168,584,000 (\$1,079,686,000 in 1970). 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, 1969-71

Item		1969	1970	1971
Establishments.....	No.	138	139	142
Employees.....	No.	75,427	80,371	79,397
Salaries and wages.....	\$'000	611,591	701,395	745,608
Value of shipments of goods of own manufacture.....	\$'000	2,771,276	2,850,836	2,832,267
Value added—manufacturing activity.....	\$'000	1,259,411	1,323,278	1,272,551
Pulp shipped.....	'000 tons	6,899	6,665	6,419
	\$'000	682,098	913,287	878,132
Paper and paperboard shipped.....	'000 tons	12,093	12,118	11,939
	\$'000	1,733,151	1,757,215	1,751,847
Newsprint exported.....	'000 tons	8,235	8,090	7,798
	\$'000	1,260,579	1,110,393	1,084,282

Minerals and Energy

The 24th International Geological Congress

Over 6,000 geologists from around the world attended the 24th International Geological Congress held in Montreal, Que., in August 1972. It was the largest scientific gathering ever held in Canada. The geologists, many of whom are leaders in their particular areas of specialization, heard a wide range of scientific papers, participated in a full spectrum of scientific discussions, and embarked on geological field excursions that took them from coast to coast and into the high Arctic. Apart from their scientific importance, many of the papers were of value to mineral exploration and to the world's mining and petroleum industries. Others contributed to environmental studies, conservation, engineering, and agriculture. Some dealt with the geology of the moon and our neighbouring planets. Canadian geologists figured prominently in the Congress. Canada was a fitting host to the Congress because of this country's contributions to the earth sciences, particularly in the development of new techniques for mineral exploration and studies of marine and Arctic geology.

Minerals

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

Gold frosted with white quartz. Since 1934 Canada has ranked third in world production of gold.





Open pit asbestos mine at Clinton Creek, Y.T.

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 \$6,341 million in 1972. A measure of the importance of mining to the Canadian economy may be found in the following figures. In 1971 expenditures by mining and exploration companies (excluding the petroleum and natural gas industry) for exploration, development, and capital and repair expenditure was greater than \$1,340 million; over \$5,000 million worth of mineral products exported—over one 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 1972 increased to \$6,341 million from \$5,968 million in 1971 and \$5,722 million in 1970. Metallic minerals accounted for 47 per cent of the value of Canadian mineral production in 1972. In order of importance the principal metallic minerals produced in Canada are copper, nickel, iron ore, zinc, lead, silver, and gold. Led by crude oil and natural gas, mineral fuels accounted for 37 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 1972 was crude oil with a value of production of \$1,548 million, up from \$1,357 million in 1971 and \$423 million in 1960.

Copper production in 1972 amounted to 800,620 tons, valued at \$810 million; the figures for 1971 were 721,430 tons and \$760 million. Canada ranks fourth in the production of copper in the non-Communist world. The major producing provinces were Ontario (288,231 tons), British Columbia (247,855 tons), and Quebec (172,190 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. Bethlehem Copper Corporation Ltd. at Highland Valley is the largest producer in British Columbia.

Nickel production in Canada in 1972 amounted to 256,467 tons, valued at \$698 million, a decrease from 294,342 tons and \$800 million in 1971. 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 1972. 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.

The fourth most important mineral in Canada is iron ore. Production in 1972 amounted to 44 million tons (worth \$517 million); in 1971 it was 47 million tons (worth \$555 million). The Iron Ore Company of Canada's Carol Lake mine in

Copper anode casting wheel at Noranda's copper smelter in Quebec.



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 USSR, the United States, and France.

Ranked according to value of production, zinc was the fifth most important mineral produced in Canada. Production was 1,323,646 tons, valued at \$505 million in 1972; in 1971 1,249,735 tons worth \$418 million were mined. Zinc mining 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 2,852,000 MMcf. (million cubic feet) worth \$381 million. Production in 1971 was 2,499,024 MMcf. (\$343 million) and in 1960 was only 523,000 MMcf. (\$52 million).

Natural gas by-products (propane, butanes, and pentanes plus) replaced asbestos in seventh place among Canada's most important minerals. In 1972, production amounted to \$245 million, up from \$193 million the previous year.

Asbestos production in 1972 was 1,692,000 tons valued at about \$220 million. Over 80 per cent of the asbestos produced in Canada comes from the province of Quebec; the rest comes from British Columbia, the Yukon, 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 over 40 per cent of the world's total supply of asbestos and is the world's leading producer.

Cement is the most important structural material produced in Canada and the

Precision blasting at the tantalum mine, Black Lake, Man.





A slurry tank used for storage of raw material at St. Marys Cement Co., Bowmanville, Ont.

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 largest of these are operated by the St. Lawrence Cement Company at Clarkson, Ont., Canada Cement Lafarge Ltd. 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 potash, molybdenum, and elemental sulphur.

Canadian potash production increased from less than \$1 million in 1960 to \$141 million in 1972 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 \$34 million in 1972. Over 75 per cent of the Canadian production comes from three mines in British Columbia which are operated by Canex Placer Ltd., British Columbia Molybdenum Ltd., and Brenda Mines Ltd.

In 1972, elemental sulphur production increased to 3,271,000 tons from 3,149,280 tons in 1971 but the value dropped to \$18.6 million from \$21.3 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.

Canada's Mineral Production, by Kind, 1971 and 1972

Mineral	1971		1972 ¹	
	Quantity	Value in Dollars	Quantity	Value in Dollars
Metallics				
Antimony.....lb.	323,525	243,614	470,000	290,000
Bismuth.....lb.	271,196	1,398,035	402,000	1,444,000
Cadmium.....lb.	4,063,805	7,883,782	3,748,000	9,481,000
Calcium.....lb.	355,247	291,504	477,000	342,000
Cobalt.....lb.	4,323,318	9,429,564	4,151,000	10,234,000
Columbium (Cb ₂ O ₅).....lb.	2,332,663	2,296,962	3,900,000	4,000,000
Copper.....lb.	1,442,860,080	760,016,078	1,601,241,000	809,895,000
Gold.....troy oz.	2,260,730	79,903,241	2,079,000	76,059,000
Indium.....troy oz.	..	..	..	..
Iron ore.....ton	47,352,181	555,135,728	43,710,000	517,150,000
Iron, remelt.....ton	..	30,824,497	..	38,353,000
Lead.....lb.	811,020,178	109,487,724	742,664,000	114,557,000
Magnesium.....lb.	14,467,305	5,163,921	11,688,000	4,548,000
Mercury.....lb.	..	..	..	..
Molybdenum.....lb.	22,662,732	38,367,344	24,844,000	34,022,000
Nickel.....lb.	588,683,212	800,064,068	512,934,000	697,528,000
Platinum group.....troy oz.	475,169	39,821,616	399,000	33,854,000
Selenium.....lb.	718,440	6,530,619	655,000	5,836,000
Silver.....troy oz.	46,023,570	71,796,769	48,488,000	80,489,000
Tantalum.....lb.	449,610	2,901,293	325,000	2,307,000
Tellurium.....lb.	24,448	148,397	48,000	288,000
Thorium (ThO ₂).....lb.	..	..	..	..
Tin.....lb.	318,999	421,079	361,000	657,000
Tungsten (WO ₃).....lb.	4,624,208	..	4,956,000	..
Uranium (U ₃ O ₈).....lb.	8,214,391	..	9,796,000	..
Yttrium (Y ₂ O ₃).....lb.	..	..	..	..
Zinc.....lb.	2,499,469,025	418,161,166	2,647,293,000	504,851,000
Total metallics.....	..	2,940,287,001	..	2,946,185,000
Non-metallics				
Arsenious oxide.....lb.	100,000	11,000	60,000	7,000
Asbestos.....ton	1,634,579	203,999,244	1,692,000	219,700,000
Barite.....ton	120,765	1,060,543	73,000	650,000
Diatomite.....ton	..	..	..	..
Feldspar.....ton	10,774	216,039	10,000	200,000
Fluorspar.....ton	..	2,819,091	..	5,300,000
Gem stones.....lb.	167,760	196,332	170,000	196,000
Grindstone.....ton	..	..	..	..
Gypsum.....ton	6,702,100	15,082,700	7,942,000	18,070,000
Helium.....Mcf.	..	..	..	..
Iron oxides.....ton	..	..	..	..
Lithia.....lb.	..	..	..	..
Magnesitic dolomite.....	..	..	..	..
brucite.....ton	..	2,673,053	..	2,555,000
Mica.....lb.	..	..	..	..
Nepheline syenite.....ton	517,190	6,206,014	560,000	7,065,000
Nitrogen.....Mcf.	..	..	..	..
Peat moss.....ton	337,324	11,803,436	370,000	13,160,000
Potash, (K ₂ O).....ton	3,999,511	134,955,000	4,130,000	140,500,000
Pyrite, pyrrhotite.....ton	317,948	1,161,800	130,000	495,000
Quartz.....ton	2,553,884	7,411,354	2,700,000	8,750,000
Salt.....ton	5,541,901	40,110,708	5,535,000	43,110,000
Soapstone and talc.....ton	65,562	1,060,136	80,000	1,535,000
Sodium sulphate.....ton	481,919	7,064,250	503,000	6,139,000

Canada's Mineral Production, by Kind, 1971 and 1972—Concluded

Mineral	1971		1972 ¹	
	Quantity	Value in Dollars	Quantity	Value in Dollars
Non-metallics, concluded				
Sulphur, in smelter gas..... ton	618,487	4,632,467	630,000	5,223,000
Sulphur, elemental..... ton	3,149,280	21,299,520	3,271,000	18,593,000
Titanium dioxide, etc..... ton	..	39,064,142	..	41,105,000
Total non-metallics.....	...	500,826,829	...	532,353,000
Mineral fuels				
Coal..... ton	18,432,199	121,727,177	20,949,000	154,151,000
Natural gas..... Mcf.	2,499,023,600	342,548,891	2,851,630,000	380,563,000
Natural gas by-products..... bbl.	85,678,080	193,191,039	106,947,000	245,412,000
Petroleum, crude..... bbl.	492,739,049	1,356,942,889	554,328,000	1,548,390,000
Total fuels.....	...	2,014,409,996	...	2,328,516,000
Structural materials				
Clay products (bricks, tile, etc.).....	..	48,583,262	..	48,998,000
Cement..... ton	9,066,795	191,244,394	10,010,000	210,340,000
Lime..... ton	1,598,254	23,485,637	1,606,000	23,891,000
Sand and gravel..... ton	213,291,000	152,628,000	215,600,000	155,900,000
Stone..... ton	73,514,842	96,537,073	74,200,000	95,250,000
Total structural materials.....	...	512,478,366	...	534,379,000
Grand total.....	...	5,968,002,192	...	6,341,433,000

¹Preliminary estimates.²Includes pyrophyllite.

.. Figures not available.

... Figures not appropriate or not applicable.
—Nil or zero.

Algoma Steel's 150 plate mill covers over 14 acres at the Sault Ste. Marie steelworks.



Canada's Mineral Production, by Class, 1962-72

Year	Metals	Non-metals	Fossil Fuels	Structural Materials	Total
	Millions of dollars				
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	450	5,722
1971.....	2,940	501	2,014	512	5,968
1972 ¹	2,946	532	2,329	534	6,341

¹Preliminary estimates.

Canada's Mineral Production, by Province, 1970-72

Province	1970		1971 ¹		1972 ²	
	Value in Dollars	Per cent	Value in Dollars	Per cent	Value in Dollars	Per cent
Newfoundland.....	353,280,818	6.2	343,431,278	5.7	303,509,000	4.8
Prince Edward Island.....	640,000	—	978,000	—	800,000	—
Nova Scotia.....	58,159,483	1.0	60,137,535	1.0	54,510,000	0.9
New Brunswick.....	104,790,555	1.8	107,133,849	1.8	132,194,000	2.1
Quebec.....	803,286,050	14.0	769,857,462	12.9	767,303,000	12.1
Ontario.....	1,593,038,670	27.8	1,554,153,901	26.1	1,521,415,000	24.0
Manitoba.....	332,214,150	5.8	329,913,482	5.5	311,154,000	4.9
Saskatchewan.....	379,190,476	6.6	408,853,455	6.8	420,901,000	6.6
Alberta.....	1,395,993,663	24.4	1,641,222,509	27.6	1,926,571,000	30.4
British Columbia.....	490,158,498	8.6	543,655,735	9.1	673,692,000	10.6
Yukon.....	77,511,933	1.4	93,110,570	1.6	102,756,000	1.6
Northwest Territories.....	133,814,295	2.4	115,554,416	1.9	126,628,000	2.0
Totals.....	5,722,058,591¹	100.0	5,968,002,192	100.0	6,341,433,000	100.0

¹Totals may not add due to rounding.

²Revised estimates.

³Preliminary estimates.

Petroleum and Natural Gas

The petroleum industry is Canada's leading mineral producer; it extracted about \$2,174,365,000 worth of hydro-carbon products in 1972, an increase of 14.8 per cent over 1971. Crude oil, Canada's most important mineral, contributed \$1,548,390,000 (554,328,000 barrels) to this total. Natural gas production accounted for \$380,563,000 (2,851,630 MMcf.) and pentanes, propane and butanes for \$245,412,000 (106,947,000 barrels). In addition, elemental sulphur is a very valuable by-product of gas processing plants. Alberta accounted for 83 per cent of all production, Saskatchewan for 11 per cent, British Columbia for 5 per cent, and all the other provinces for 1 per cent.

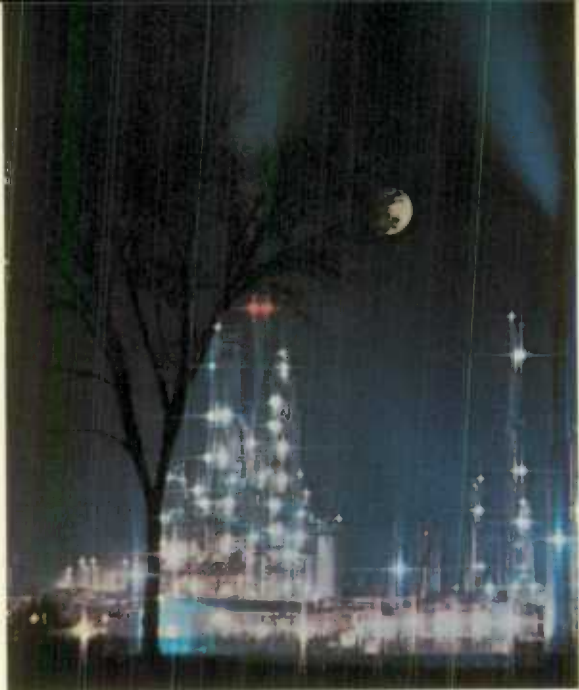


A flare from a flow test lights the deep Arctic night around Panarctic's Hecla F-62 major gas strike on Melville Island.

Shipments of all commodities increased in 1972. The production of synthetic crude increased by 18 per cent. Canada exports large quantities of natural gas and crude petroleum to the United States. In 1972 natural gas exports amounted to 1,007,053,829 Mcf. (thousand cubic feet) with a value of \$306,843,000. This was an increase of 10.3 per cent over exports in 1971, and the demand in the United States for natural gas continues to grow. Canada exported 341,252,881 barrels of crude oil valued at \$1,007,505,000 in 1972, an increase in value of 22.1 per cent over the figure for 1971. Imports amounted to 281,664,159 barrels. Refineries located east of the "energy line" (a line running from Pembroke Ont., 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 551,829,199 barrels in 1972, comprising 184,924,333 barrels of gasoline, 185,672,119 barrels of middle distillates, 110,869,773 barrels of heavy fuel oils, and 70,362,974 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 1972 the transportation of crude oil and its equivalent, liquefied petroleum gases, and refined petroleum products amounted to 484,249 million pipeline barrel miles, up 20.5 per cent from 1971, and that of natural gas to 1,597,389 million Mcf. miles, an increase of 15 per cent in a year.



Oil refinery at Bronie, Ont. Canada's total sales of refined petroleum products were 551,329,199 barrels in 1972.

In 1971 the total operating and capital expenditures of the petroleum industry amounted to \$1,696,757,000. The industry has made great efforts to find new reserves and increase its production of hydro-carbon products since 1961 when its investment was only \$716,158,000. In 1971 geological and geophysical work accounted for \$190,840,000 of the total; \$181,804,000 was spent on acquiring land or leases; \$281,922,000 on exploratory and development drilling; \$400,357,000 on capital additions; \$289,690,000 on field, well, and natural gas plant operations; and \$352,144,000 on royalties, taxes, and other miscellaneous expenditures. Sixty-three per cent of all expenditure, amounting to \$1,063,926,000, was in Alberta; 9 per cent in the Northwest Territories, Yukon, and Arctic Islands; 9 per cent in Saskatchewan, and 7 per cent in British Columbia.

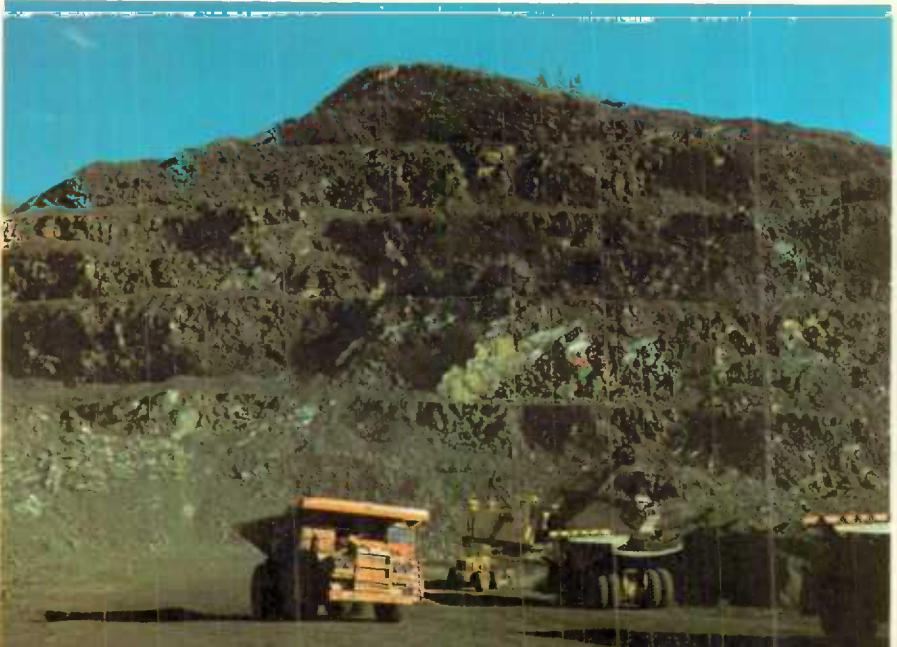
In recent years, there has been an enormous increase of geological and geophysical exploration in the Northwest Territories, in the Arctic Islands, and off the coasts of Canada. Panarctic Oil, a joint venture of the federal government and private investors, has found gas on Melville, King Christian, and Ellef Ringnes Islands and oil on the Fosheim peninsula of Central Ellesmere Island. Imperial Oil has made two oil finds on the Tuktoyaktuk Peninsula and two gas-condensate strikes 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.

Coal

Although 1972 showed another increase in western Canadian bituminous production (10.7 million tons while the 1971 figure was 8.2 million tons), this growth, like that of the previous year, was not as substantial as had originally been anticipated. Contracts, signed in the late 1960's to supply the Japanese steel industry with high-grade coking coal, called for the delivery by the western bituminous producers of over 12 million tons during 1972. However, because of the slowdown in the rate of growth in Japan's steel demands, and because of continuing technical difficulties, together with associated financial problems, only 9.3 million tons of coal were shipped from the mine sites. Because of this situation, attempts are now being made by the western producers to renegotiate the original contracts in terms of both quantity and price. Whereas 14.5 million tons were to be exported annually to around 1985, it now seems likely that about 13 million tons will be called for in each year of this period. Furthermore, the initial optimism of other companies engaged in exploration and feasibility studies has moderated recently. Any contracts that these companies may negotiate with Japanese steel interests will probably call for four to eight million tons annually by the mid-1980's.

The continued expansion of mine-mouth thermal plants in Alberta's sub-bituminous areas resulted in the increase in production of sub-bituminous coal from the 1971 figure of 4.4 million tons to 4.9 million in 1972. This trend should continue in the future, since the development of the few remaining hydro sites in Alberta and Saskatchewan cannot by itself meet the growing demand for electrical energy. Although Saskatchewan's 1972 lignite production remained at the 1971 figure of 3.3 million, future growth in production should take place.

A loading area at Cominco's fording coal mining property in Elk River Valley, B.C.



In eastern Canada, the continued rationalization of the Nova Scotia bituminous industry resulted in a further substantial fall in production—from 2 million in 1971 to 1.4 million in 1972. New Brunswick Coal Ltd., the provincially-owned coal operation in New Brunswick, also reported a drop in production—from 0.5 million to 0.4 million.

Canadian production of coal in 1972 increased to 20.7 million tons—12.4 per cent or 2.3 million tons more than in 1971. Excluding subvention payments, the preliminary value of this production amounted to \$154 million, up from the 1971 figure of \$122 million. Imports, 90 per cent of which go to steel mills and thermal plants in Ontario, reached 18.6 million tons, while mine shipments for export amounted to 9.4 million tons.

Production of Coal, by Province, 1971 and 1972

	1971	1972 ¹
	Short tons	
Nova Scotia	1,965,489	1,425,841
New Brunswick	517,209	441,924
Saskatchewan	3,300,186	3,281,434
Alberta	8,012,304	9,030,422
British Columbia	4,637,011	6,547,098
Total Canada	18,432,199	20,726,719

¹Preliminary estimates.



A 29-ton Ontario Hydro vehicle lifts linemen in insulated buckets up to 75 feet in the air to work on "live" 500,000 volt lines.



The underground powerhouse (1,000 feet below the surface) at Churchill Falls, Labrador. Upon completion of this hydro project, the capacity of the plant will reach 5,223,000 kw.

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 49,400,000 by the end of 1972.

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.



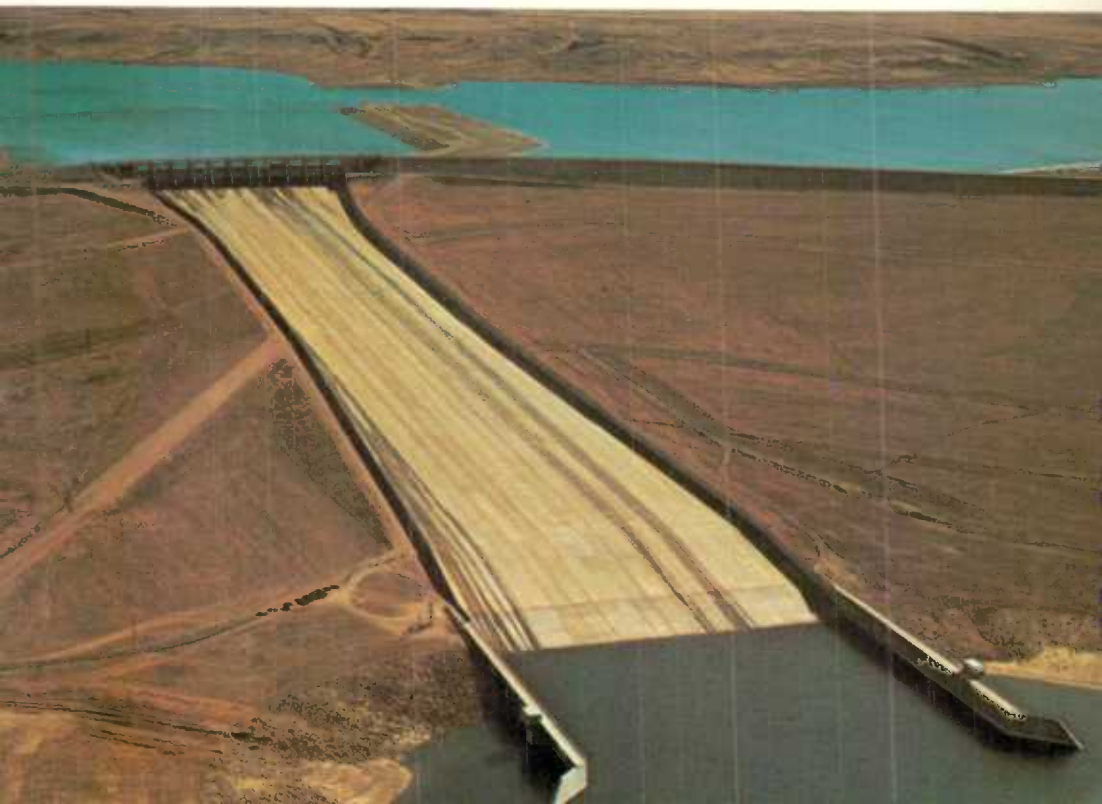
Ontario Hydro's Lakeview Generating Station, among the largest in North America, has the capacity to produce enough power to serve 1.6 million homes.

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 when plans for the development of a number of rivers flowing into James Bay become a 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 significant 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 should maintain hydro pre-eminence. Manitoba and British Columbia both have substantial amounts of thermal capacity but current development is still of hydro electricity.

The spillway of the Gardiner Dam in Saskatchewan.





The Bruce heavy water production plant, built by AECL and operated by Ontario Hydro, will produce 800 tons of heavy water a year.

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 kw. The second project is a four-unit 2,160,000-kw. capacity plant built at Pickering east of Toronto. Its four units came on line from 1971 to 1973. 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 1971 Canada's generating facilities produced 216,472 million kilowatt hours of electric energy, 74 per cent in hydro-electric stations. Energy exported to the United States exceeded by 3,942 million kwh. the energy imported, bringing the total available to Canadian users to 212,530 million kwh. In the same year, industry used about 55 per cent of the total energy available in Canada; homes and farms accounted for 22 per cent, and commercial customers for 14 per cent. Average domestic and farm consumption continues to rise year by year. In 1971 it was 7,488 kwh., ranging from a low of 4,296 kwh. in Prince Edward Island to a high of 9,210 kwh. in Manitoba. The average annual bill for domestic and farm customers was \$120.48.

Business, Finance, and Industry

Capital Expenditures

A sustained rising income in Canada depends upon, among other things, the capacity to produce and sell goods and services. This capacity and its efficiency in turn depend largely on the amount 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 encourage the production of goods and services in future periods.

Surveys of these capital expenditures are made 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 of the intentions to invest capital of all sectors of the economy for 1973, which was carried out early in the year, indicated that these expenditures were expected to reach a total of \$23,753 million. This represents an increase of nearly 9 per cent above the 1972 preliminary estimate of \$21,877 million. This increase, if accomplished, represents a moderate acceleration from 1971 when such spending rose by about 8 per cent.

The following Table shows a higher rate of increase of 13 per cent in capital spending intentions for 1973 by the service-producing industries compared to 7 per cent by the goods-producing industries, while in 1972 the increase was concentrated in the services sector with no growth apparent in the goods-producing sector.¹ The improved prospect for capital spending by the goods-producing industries in 1973 is mainly attributable to a resurgence in manufacturing investment. Such investment is expected to rise by about 9 per cent following two years of declining capital outlays. Most sectors of manufacturing contributed to the higher level, particularly secondary manufacturing. Large increases in expenditures by the petroleum refining and chemical industries are also predicted. Increases in capital spending by the agriculture and forestry industries also contribute to the rising level of investment in the goods-producing industries. The percentage increases in spending anticipated by these industries are much sharper but the impact in dollar terms is much less than that of manufacturing.

The principal area of weakness among the goods-producing industries is in the mining sector where investment is likely to decline slightly further in 1973, following a 10 per cent drop in 1972. Significant increases expected in outlays by the petroleum and gas sectors and a moderate rise in non-metallic mineral mines are not sufficient to offset sharp reductions for iron mines and non-ferrous metal mines.

The strong advance anticipated in capital spending in the service industries in 1973 is largely attributable to the business sector industries, namely, utilities, trade, finance, and commercial services. The greatest rate of growth is likely to be in the trade, finance, and commercial services group with an increase of more

¹The goods-producing industries are considered to be agriculture, fishing, forestry, mining, manufacturing, and housing. The service-producing industries are considered to be utilities, trade, finance, commercial services, institutions, and government departments.



than 20 per cent as a result of substantially higher levels of investment planned by retailers, real estate developers, hotels and financial institutions, followed by a rise of 18 per cent in utilities where outlays by electric power, telephone systems, and air transport companies are the principal contributors.

Investment plans by non-business services show an increase of only 3 per cent over that of 1972 with a 9 per cent advance in spending by government departments more than offsetting an anticipated 11 per cent decline in outlays by institutions. The largest reduction in spending by institutions is for educational facilities which more than offsets planned expansion for hospitals. Federal and municipal governments plan significant advances, but spending by provincial governments is likely to remain at about the 1972 level. While outlays for construction are expected to increase by less than 6 per cent in 1973 compared with a rise close to 8 per cent in 1972, the slower rate of advance is entirely attributable to an anticipated levelling off in house-building activity. This anticipated levelling off follows several years of rapid growth in this sector.

Capital spending in 1973 is expected to be higher in all major regions of Canada. Increases are expected to range from 12 per cent for the Prairie region to 6 per

cent for the Atlantic region. An increase of 10 per cent is expected for Quebec and 7 per cent for both Ontario and British Columbia inclusive of the Yukon and Northwest Territories. 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 Quebec, expansion programs by firms in the paper and allied industries, chemicals, non-metallic mineral products, electrical products, and machinery industries more than offset reductions in petroleum

Capital Expenditures Summary by Sectors, Canada, 1971 to 1973¹
(Millions of dollars)

Sector	Construc- tion	Machinery and Equipment	Total
Agriculture and fishing.....1971	228	722	950
.....1972	258	889	1,147
.....1973	275	1,025	1,300
Forestry.....1971	45	49	94
.....1972	50	59	109
.....1973	69	78	147
Mining, quarrying and oil wells.....1971	1,315	447	1,762
.....1972	1,173	420	1,593
.....1973	1,165	405	1,570
Manufacturing.....1971	873	2,121	2,994
.....1972	786	2,170	2,956
.....1973	888	2,329	3,217
Utilities ².....1971	2,228	1,760	3,988
.....1972	2,389	1,865	4,254
.....1973	2,737	2,300	5,037
Construction industry.....1971	17	290	307
.....1972	15	285	300
.....1973	15	280	295
Housing.....1971	4,025	—	4,025
.....1972	4,736	—	4,736
.....1973	4,740	—	4,740
Trade—Wholesale and retail.....1971	181	335	516
.....1972	205	422	627
.....1973	244	429	673
Finance, insurance and real estate.....1971	499	102	601
.....1972	736	112	848
.....1973	918	137	1,055
Commercial services.....1971	221	577	798
.....1972	208	835	1,043
.....1973	262	1,055	1,317
Institutional services.....1971	1,199	236	1,435
.....1972	1,016	210	1,226
.....1973	884	210	1,094
Government departments ².....1971	2,443	271	2,714
.....1972	2,726	312	3,038
.....1973	2,895	413	3,308
Totals (all sectors).....1971	13,274	6,910	20,184
.....1972	14,298	7,579	21,877
.....1973	15,092	8,661	23,753

¹Actual expenditures 1971, preliminary actual 1972, intentions 1973. A marginal adjustment is made in the estimates for the year 1972 to allow for a downward bias in the preliminary results indicated in past years.

²The outlays for the Ontario Water Resources Commission are included with provincial government departments beginning with the 1972 preliminary actual. These expenditures were previously included in other utilities and provincial government enterprises.

and coal products and transportation equipment industries. In Ontario, outlays in manufacturing are also expected to increase significantly in most industries with declines apparent only in the primary metals and wood groups. Utilities in Ontario and Quebec plan to invest in new capital at a faster rate than in 1972 and strong growth is looked for in the trade, finance, and commercial services group in Quebec. In the Prairie region increases are expected in manufacturing in the three provinces, in utilities, institutional services, and government departments in Manitoba and Saskatchewan and primary industries in Alberta. The sharpest rate of growth in the Atlantic region is anticipated for Nova Scotia with the most significant increase planned in the primary industries sector. In Prince Edward Island, all sectors participate in the advance while in New Brunswick it is mainly attributable to utilities and housing.

Capital Expenditures, Summary by Province, 1971 to 1973¹

(Millions of dollars)

Province		Construc- tion	Machinery and Equipment	Total
Newfoundland	1971	511	167	678
	1972	436	163	599
	1973	367	162	529
Prince Edward Island	1971	50	23	73
	1972	53	20	73
	1973	62	21	83
Nova Scotia	1971	369	259	628
	1972	376	209	585
	1973	453	247	700
New Brunswick	1971	286	211	497
	1972	302	179	461
	1973	342	194	536
Quebec	1971	2,836	1,314	4,150
	1972	3,028	1,636	4,664
	1973	3,253	1,862	5,115
Ontario	1971	4,662	2,798	7,460
	1972	5,247	3,000	8,247
	1973	5,382	3,462	8,844
Manitoba	1971	548	264	812
	1972	610	326	936
	1973	698	353	1,051
Saskatchewan	1971	394	270	664
	1972	426	379	805
	1973	454	418	872
Alberta	1971	1,536	603	2,139
	1972	1,652	687	2,339
	1973	1,829	818	2,647
British Columbia ²	1971	2,082	1,001	3,083
	1972	2,168	980	3,148
	1973	2,252	1,124	3,376
Canada	1971	13,274	6,910	20,184
	1972	14,298	7,579	21,877
	1973	15,092	8,661	23,753

¹Actual expenditures 1971, preliminary actual 1972, intentions 1973. Capital expenditures on machinery and equipment include an estimate for "capital items charged to operating expenses", in the manufacturing, utilities and trade totals.

²Includes Yukon and Northwest Territories.

Housing

Canada's 249,914 dwelling starts in 1972 established a new record in residential construction for the second consecutive year. Also higher than ever before were completed dwellings, 232,227. With a total of 674,095 starts in the past three years there will be little difficulty in exceeding the goal of one million starts for the five-year period 1970-74 which was set in 1969.

Canada's house-building activity has been stimulated by the high level of financial investment in the mortgage market by the private sector for both conventional and National Housing Act insured loans. In 1972 these sources together provided more than \$4,300 million for mortgage lending, \$1,700 million emanating from insured loans by approved lenders. Comparable figures for 1971 were \$3,553 million and \$1,590 million.

Direct investment of federal housing funds continued to reflect the emphasis of the government on increasing the production of social housing. Loan commitments made by Central Mortgage and Housing Corporation for housing totalled \$539.9 million during the year. Some \$484.4 million, or 89.7 per cent of this total, was expended on programs directly aimed at housing people with low or moderate incomes. This activity generated 34,132 low-cost dwelling units and hostel accommodation for 3,030 persons or 90.5 per cent of all housing units approved directly by CMHC during 1972.

NHA loan assistance for the production of social housing has been available for over 25 years but it is only recently that activity in this field has become a significant portion of the total NHA operation. From 1968 to 1972, 170,291 dwelling units were approved for low-income families and individuals compared to 64,428 for the same groups in the preceding 20 years.

The 1971 census indicates that the combined private and governmental effort in the field of housing is steadily improving living conditions. While complete detail is not yet available from the census it is clear that housing stocks are increasing faster than population, the incidence of overcrowding is decreasing rapidly, and the number of substandard dwellings has dropped by approximately 50 per cent. However, this desirable trend does not in all cases meet the regional, social, and economic housing disparities across Canada. To resolve this problem a wider range of techniques are needed to ensure the provision of decent accommodation where actual local shortages exist.

To this end an Act to amend the National Housing Act was passed by Parliament in June 1973. The four most pertinent proposals contained in this Act are: a provision for direct subsidies to low-income home owners; an extension of 100 per cent financing and direct grants to non-profit organizations and co-operatives providing accommodation for low-income occupants; grants for the rehabilitation of private substandard dwellings; and the extension of these aids without requiring contributions from any other level of government. Beyond the field of housing as such, the Act includes programs for the conservation, improvement, and protection of existing urban neighbourhoods threatened with deterioration, and for assistance in planning the future growth and development of new urban communities. These proposals, all representing departures from past policy, are indicators of the government's course in pursuing its objective of placing adequate housing within the reach of those whose incomes bar them from it now.



2



1. Birchaven Subdivision, North Bay, Ont.
2. Senior Citizens' Home, Burnaby, B.C.
3. Willow Park Subdivision, Calgary, Alta.
4. Public housing on Bennet Dr., Gander, Nfld.
5. Mont-Vie Towers, Vancouver, B.C.



6



- 6. Bellerive Acres, Montreal, Que.
- 7. Côte St. Luc — Winston Manor, Montreal, Que.
- 8. Public housing on Creighton St., Halifax, N.S.



8

Public Finance

Powers and Responsibilities of the Various Levels of Government

Under the British North America Act the Parliament of Canada has the right to raise "money by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the province in order to the raising of a revenue for provincial purposes." Thus the provinces have a right to share only in the field of direct taxation while the federal government is not restricted in any way in matters of taxation. The British North America Act also empowered the provincial legislatures to make laws regarding "municipal institutions in the province." This means that municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it." As a result of court decisions, the concept enjoys fairly broad interpretation and allows the provinces to impose income taxes, general sales taxes at the retail level, succession duties, and an assortment of other levies on ultimate purchasers or users of goods and services. In turn, municipalities, acting under the guidance of provincial legislation, tax real property, water consumption, and places of business. The federal government imposes direct taxes on income and indirect taxes such as customs duties and manufacturer's sales and excise levies.



With modern medicine adding years to the human life span, and benefits from pension plans assuring financial security, more and more Canadians are finding it possible to enjoy retirement.

National defence and postal services are the main areas of exclusive federal spending. In addition, large federal outlays are incurred for transportation and communications, health, social welfare, education, and the protection of persons and property where spending responsibility is shared to a greater or lesser extent with the provinces. Provincial government expenditure is particularly heavy in the areas of transportation and communications, health, social welfare, education, protection of persons and property, natural resources, and primary industries. Local government expenditure is concentrated on protection of persons and property, education, public works and sanitation, and waterworks.

There are other important areas of government expenditure. Substantial transfer payments of a general nature, that is, unrestricted as to their use or disposition, are made from the federal to provincial governments. The largest of these payments relate to equalization and fiscal compensation under the Federal-Provincial Fiscal Arrangements Act and the Established Programs (Interim Arrangements) Act. Provincial governments also make significant payments of a similar nature, mostly by way of general subsidies, to their local governments. Finally, all levels of governments (but not necessarily all governments) incur significant expenditure in servicing their indebtedness.

Organization of Government

The structure of government is not uniform from one level to another nor is it uniform among governments at the same level. Each government operates its affairs in the manner that it finds most convenient to its resources and most suitable to the discharge of its responsibilities. The resulting differences in the organizational structures of the various governments raises problems if one seeks to compare one government with another.

In consolidating the transactions of the various entities considered to belong to the governmental universe, care is taken to exclude those of bodies engaged in operations of a prime commercial nature. These bodies produce and/or sell goods and services on the open market at a price related to cost. Consumers normally have the freedom to buy or ignore their product. Unless protected by monopoly arrangements, they usually operate in fields that bring them into competition with privately-owned concerns. Examples of entities of this kind which are excluded from the government universe are the Canadian National Railways, Air Canada, the Canadian Broadcasting Corporation, Polymer Corporation, the St. Lawrence Seaway Authority, the provincial government liquor boards, and the provincial hydro-electric power and telephone companies.

Intergovernment Fiscal Arrangements

The uneven distribution of income among the regions of Canada and the imbalance that has traditionally existed between the resources and responsibilities of provincial and local governments has led in time to the development of intergovernment fiscal arrangements and the resulting transfers of important revenue between levels of government.

Under the arrangements that prevailed between 1967 and 1972, the federal

government partially withdrew from the income and estate tax fields to allow for the imposition of corresponding provincial levies. All provinces except Quebec expressed their personal income tax in terms of the corresponding federal basic tax and had it collected by the federal authorities. Quebec imposed and collected its own personal income tax. The situation for corporation income tax was very similar. All provinces except Ontario and Quebec expressed their levy in terms of federal corporation income tax and had it collected by the federal authorities. Ontario and Quebec imposed and collected their own corporation income tax. A special situation prevailed with respect to privately-owned power utilities. Of the federal revenue from these enterprises 95 per cent was transferred to the provinces. In the area of inheritance taxation, the federal government abated its estate tax collections by as much as 75 per cent to allow for the imposition of provincial succession duties. Some provinces chose not to impose succession duties or did not raise them to the extent necessary to constitute an exploitation of 75 per cent of the inheritance tax field. In such cases the federal government turned over to the provinces by way of transfers amounts equal to the difference between 75 per cent of its estate tax collections and the revenue that the provincial governments derived from the imposition of their succession duties.

The situation has changed somewhat since January 1, 1972. The federal government repealed its estate and gift taxes effective from that date and all provinces except Alberta took immediate steps to occupy the vacated tax fields. In early 1973, however, Prince Edward Island announced its intention to rescind its newly imposed succession duties and gift tax and to refund all monies already collected from these imposts. The federal-provincial tax collection agreements for the period 1972 to 1977 are thus similar to those that prevailed from 1962 to 1972 as far as personal and corporation income taxes are concerned but cover in addition gift taxes for all provinces other than Alberta, Quebec, and Prince Edward Island as well as succession duties for all provinces other than British Columbia, Alberta, Ontario, Quebec, and Prince Edward Island.¹ Alberta and Prince Edward Island have no succession duties or gift taxes. British Columbia and Ontario collect their own succession duties while Quebec collects its own succession duty and gift tax.

The present federal-provincial arrangements also maintain the situation that prevailed during the period 1967-72 with regard to the sharing of the federal corporation income tax on privately-owned power utilities: 95 per cent of the federal revenue from this source continues to be remitted to the provinces. A new feature of the present arrangements is that tax sharing has been extended to the taxation of corporation undistributed income; 20 per cent of the federal revenue from this source is turned over to the provinces.

Local governments owe their existence, powers, and responsibilities to provincial governments. When the fiscal resources of municipalities, school boards, and other local government entities no longer suffice to carry their expenditure, the assistance required to enable them to discharge their functions usually comes by way of transfers from provincial governments. Thus, by the very nature of the relationship existing between the parties involved, provincial-local fiscal arrangements are not so much the result of bilateral agreements as of *de facto*

¹The 1973 New Brunswick budget speech carried a notice to the effect that the provincial succession duties and gift tax would be repealed effective January 1, 1974.



Underground tunnelling for the subway extension in Montreal.

assumptions by provincial governments of ultimate responsibility for services traditionally provided by local governments. The provinces have to see that the services in question are furnished and, to this end, transfer revenue to local governments. Some of these transfers are of a general nature; they are not tied to specific requirements and take the form of subsidies for the broad operation of local government entities, especially municipal governments. The more substantial transfers made by provincial to local governments are, however, for specific purposes, and relate to such functions as education, transportation and communications, and social welfare.

Financial Transactions of the Various Levels of Government in the Fiscal Year That Ended Closest to December 31, 1970

Tables 1 to 4 inclusive provide information on the revenue, expenditure, assets, and liabilities of the various levels of government for the fiscal year that ended closest to December 31, 1970. The fiscal year concerned is the period April 1, 1970 to March 31, 1971 for federal and provincial governments and January 1, 1970 to December 31, 1970 for most local governments.

The data are cast in the financial management statistical framework which makes use of the financial statements of the various governments as its main source of information but which also standardizes government operations in order to arrive at statistics that are comparable among governments and levels of government. As a result, the data presented differ from the related transactions reported in the financial statements of the individual governments because the government universe of the financial management system differs from the government universes of the individual governments.

Federal Government's Transactions

In the period under review, the federal government derived a revenue of \$16,642,056,000 and incurred an expenditure of \$15,727,945,000. It thus realized a

surplus of \$914,111,000, much of it attributable to the operations of the Canada Pension Plan. Of the federal revenue, 38.4 per cent was obtained from personal income tax, 14.6 per cent from corporation income tax, and 13.7 per cent from general sales tax; these three sources accounted for 66.7 per cent of the total federal revenue. Social welfare, transfers to other levels of government, and protection of persons and property (national defence included) accounted for 26.0, 24.4, and 12.9 per cent respectively (63.3 per cent collectively) of the total federal expenditure.

The financial assets of the federal government amounted to \$30,017,817,000 and its liabilities to \$35,166,216,000 at March 31, 1971. Of its financial assets 59.0 per cent were in the form of loans and advances and 34.5 per cent pertained to investments in securities while 71.7 per cent of its liabilities related to bonds and debentures, and 14.7 per cent to payables.

Provincial Governments' Transactions

In the fiscal year 1970-71, the revenue of provincial governments amounted to \$15,014,663,000 and their expenditure came to \$14,848,598,000, leaving them with a surplus of \$166,065,000. The levies on personal income, general sales, motive fuel, corporation income, and health insurance premiums provided 18.3, 11.9, 7.3, 5.1, and 5.3 per cent respectively (47.9 per cent collectively) of the total provincial revenue. Provincial governments also obtained 24.4 per cent of their revenue in the form of transfers from other levels of government (mainly from the federal government). Health, transfers to other levels of government, education, and social welfare accounted for 26.6, 18.9, 12.0, and 9.8 per cent respectively (67.3 per cent collectively) of the total provincial expenditure.

On March 31, 1971, the financial assets of provincial governments stood at \$14,126,756,000 and their liabilities at \$14,686,033. Of their financial assets 44.6 per cent was in the form of investments in securities and 26.9 per cent related to loans and advances while 85.1 per cent of their liabilities was covered by bonds and debentures.

Local Governments' Transactions

During the fiscal year that ended closest to December 31, 1970, local governments derived a revenue of \$7,557,122,000 and incurred an expenditure of \$8,032,318,000. They thus accumulated a deficit of \$475,196,000. Real property taxes and transfers from other levels of government produced 47.7 per cent and 43.4 per cent respectively of total local government revenue. Education, transportation and communications, protection of persons and property, and the environment accounted for 50.3, 11.6, 7.8, and 6.7 per cent respectively (and 76.4 per cent collectively) of total local government expenditure.

At the end of the fiscal year, the financial assets of local governments amounted to \$2,512,124,000 and their liabilities to \$9,996,606,000. The bulk of their financial assets was in the form of receivables and investments in securities (35.2 per cent and 34.2 per cent respectively) while their liabilities related mostly to bonds and debentures (86.7 per cent of the total).

Table 1. Revenue of Federal, Provincial, and Local Governments

(Fiscal year ended closest to December 31, 1970)

Sources of Revenue	Federal Government			Provincial Governments			Local Governments		
	Amount	Share of Total Revenue		Amount	Share of Total Revenue		Amount	Share of Total Revenue	
	(\$000)	(%)		(\$000)	(%)		(\$000)	(%)	
1. Taxes:									
(a) Personal income taxes.....	6,395,232	38.4		2,752,508	18.3		...	...
(b) Corporation income taxes.....	2,426,428	14.6		763,010	5.1		...	...
(c) General sales taxes.....	2,281,350	13.7		1,786,462	11.9		...	...
(d) Real property taxes ¹.....	...	...		49,568	0.3		3,251,201	43.0	
(e) Customs duties.....	814,544	4.9		...	...		...	...
(f) Motive fuel taxes.....	...	...		1,093,934	7.3		...	...
(g) Health insurance premiums.....	...	...		791,265	5.3		...	...
(h) Social insurance levies ²	495,199	3.0		319,806	2.1		...	...
(i) Universal Pension Plan levies ³	813,050	4.9		272,894	1.8		...	...
(j) Other taxes.....	1,344,939	8.1		676,914	4.5		351,827	4.7	
Sub-total.....	14,570,742	87.6		8,506,381	56.6		3,602,828	47.7	
2. Natural resources.....	7,806	-		601,918	4.0		...	...
3. Privileges, licences and permits.....	30,543	0.2		504,094	3.4		80,131	1.1	
4. Other revenue from own sources.....	2,027,640	12.2		1,745,092	11.6		589,596	7.8	
5. General purpose transfers from other levels of government.....	-	-		1,239,770	8.3		356,271	4.7	
6. Specific purpose transfers from other levels of government.....	5,325	-		2,417,408	16.1		2,928,296	38.7	
Total.....	16,642,056	100.0		15,014,663	100.0		7,557,122	100.0	

¹The revenue of local governments includes \$9,456,000 in personal property tax.²Covers contributions for workmen's compensation, unemployment insurance, and vacation-with-pay schemes.³Covers contributions to the Canada and Quebec Pension Plans.

Table 2. Expenditure of Federal, Provincial and Local Governments

(Fiscal year ended closest to December 31, 1970)

Expenditures	Federal Government			Provincial Governments			Local Governments		
	Amount	Share of Total Expendi- ture	(%)	Amount	Share of Total Expendi- ture	(%)	Amount	Share of Total Expendi- ture	(%)
1. General government.....	941,019	6.0		697,510	4.7		334,870	4.2	
2. Protection of persons and property ¹	2,029,815	12.9		508,245	3.4		628,339	7.8	
3. Transportation and communications ²	975,898	6.2		1,293,227	8.7		937,296	11.6	
4. Health ³	117,856	0.7		3,949,338	26.6		156,676	2.0	
5. Social welfare.....	4,087,601	26.0		1,450,298	9.8		297,931	3.7	
6. Education.....	298,510	1.9		1,786,756	12.0		4,037,630	50.3	
7. Environment.....	—	—		18,276	0.1		536,361	6.7	
8. General purpose transfers to other levels of government.....	1,318,917	8.4		326,172	2.2		...	...
9. Specific purpose transfers to other levels of government									
(a) for transportation and communications.....	55,955	0.4		218,012	1.5		...	...
(b) for health.....	1,190,340	7.6		29,364	0.2		...	...
(c) for social welfare.....	408,844	2.6		173,627	1.2		...	...
(d) for education.....	573,861	3.6		2,264,750	15.2		...	...
(e) for other purposes.....	277,276	1.8		119,719	0.8		...	...
Sub-total—Specific purpose transfers	2,506,276	16.0		2,805,472	18.9		...	...
10. Other expenditure.....	3,452,053	21.9		2,013,304	13.6		1,103,215	13.7	
Total expenditure	15,727,945	100.0		14,848,598	100.0		8,032,318	100.0	

¹Includes national defence.²Includes postal services.³The expenditure of provincial governments includes \$2,320,243,000 in respect of hospitalization insurance.

Sources: See Table 1.

Table 3. Financial Assets of Federal, Provincial, and Local Governments
(Fiscal year ended closest to December 31, 1970)

	Federal Government		Provincial Governments		Local Governments	
	Amount	Share of Total Financial Assets (%)	Amount	Share of Total Financial Assets (%)	Amount	Share of Total Financial Assets (%)
Financial Assets	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)
1. Cash on hand or on deposit	774,217	2.6	1,561,692	11.1	352,741	14.1
2. Receivables	277,255	1.0	781,050	5.5	885,398	35.2
3. Loans and advances	17,714,718	59.0	3,794,212	26.9	—	—
4. Investments	10,207,811	34.0	6,308,543	44.6	—	—
(a) Canadian securities	162,288	0.5	—	—	—	—
(b) Foreign securities	—	—	—	—	—	—
Sub-total—Investments	10,370,099	34.5	6,308,543	44.6	859,077	34.2
5. Other financial assets	881,528	2.9	1,681,259	11.9	414,908	16.5
Total	30,017,817	100.0	14,126,756	100.0	2,512,124	100.0

Table 4. Liabilities of Federal, Provincial, and Local Governments
(Fiscal year ended closest to December 31, 1970)

	Federal Government		Provincial Governments		Local Governments	
	Amount	Share of Total Liabilities (%)	Amount	Share of Total Liabilities (%)	Amount	Share of Total Liabilities (%)
Financial Liabilities	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)
1. Borrowings from financial institutions	—	—	29,639	0.2	597,783	6.0
2. Payables	5,185,902	14.7	938,214	6.4	389,790	3.9
3. Loans and advances	253,424	0.7	683,960	4.5	—	—
4. Bonds and debentures	25,201,156	71.7	12,491,179	85.1	8,670,946	86.7
5. Other liabilities	4,525,734	12.9	583,041	3.8	338,087	3.4
Total	35,166,216	100.0	14,686,033	100.0	9,996,606	100.0

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 1972, Bank of Canada notes totalling \$4,056 million and coin totalling \$518 million were in circulation outside banks.

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 chequable accounts: current accounts and personal chequing accounts on which no interest is paid, and chequable personal savings accounts on which interest is paid. There are also non-chequable 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. On April 30, 1972, the chartered banks had 22,639,216 deposit accounts with an average of \$1,582 in each account.

Early Canadian coins.



Banks

There are ten 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 three 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. Each of the banks has a number of branches and in the largest banks the branch network extends throughout the country. As of September 1972, the banks operated a total of 6,459 branches in Canada. By the yardstick of total assets the two largest Canadian banks were among the top 30 banks in the world in 1971 and the three largest Canadian banks were among the 35 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 lending has typically been for relatively short terms, longer-term loans to business and mortgage loans for commercial and residential construction have grown very rapidly in recent years. 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 267 branches and agencies outside Canada as of September 1972.

Non-bank Financial Institutions

In 1972, 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, the Quebec savings bank, and sales finance and consumer loan companies. Insurance companies and investment dealers and stockbrokers also play important roles in the Canadian financial system.

While the chartered banks remain the largest financial institutions in Canada, the postwar period has witnessed the rapid growth and development of competing institutions. Among the fastest growing in recent years have been the trust companies and the mortgage loan companies, of which there are approximately 85 operating across Canada. Both 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. The bulk 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 individuals, manage companies in receivership, and act as financial agents for municipalities and corporations. Trust and mortgage loan companies are licensed and supervised either by the federal Department of Insurance or by provincial authorities.



Samples of early Canadian money from a collection at Université Laval.

Another important type of financial intermediary in Canada 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 also began lending to members at low cost. 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 their local character—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 and currency in the best interests of the economic life of the nation. The chartered banks are required 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 should the need arise. 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 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 the bank 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 legislation 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 economic and financial adviser.

Insurance

At the end of 1971, Canadians owned over \$133,000 million of life insurance, with an average of \$22,000 in force per household in 1971. 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 has written more than 90 per cent of the total business of the industry and holds assets in Canada of about \$16,000 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 340 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 bank manager weighing gold bricks during the Dawson City, Y.T. '98 Festival.

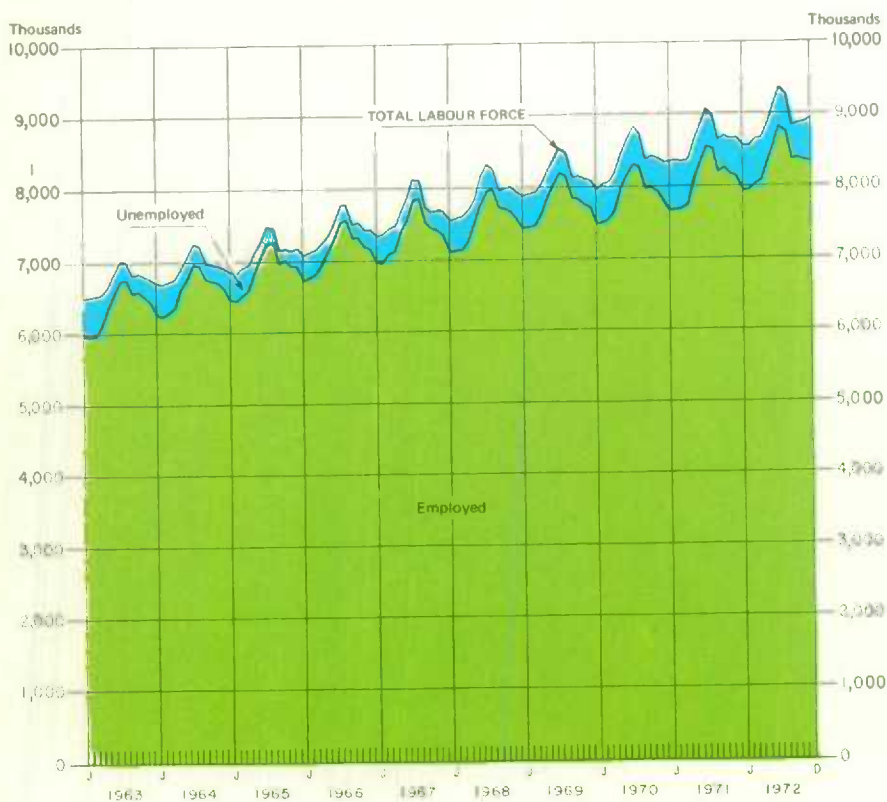


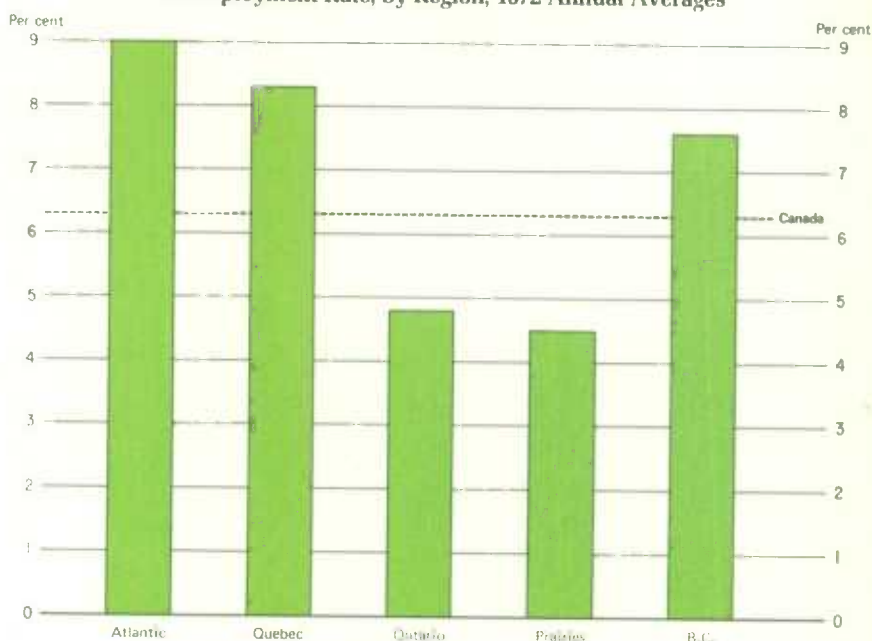
The Labour Force

In 1972, 56.5 per cent of the Canadian population 14 years of age and over were members of the labour force, that is, either had jobs or were looking for jobs. There were 8,891,000 persons in the labour force and 15,747,000 in the population 14 years and older. As shown in the accompanying table the participation in the labour force in 1972 varied a good deal for persons of different ages and sexes. Men in the labour force numbered 5,938,000 or 76.2 per cent of the male population of working age, and women 2,953,000 or 37.1 per cent of the female population of working age.

Chart 1 gives a picture of the change in the labour force and its two components—employment and unemployment—for all months between 1963 and 1972. As can be seen, over the last ten years the labour force has grown very rapidly, at an average rate of 3.1 per cent each year. For men, the annual rate of increase was 2.2 per cent and for women 5.2 per cent. Total employment in 1972 averaged 8,329,000 of which 5,533,000 were men and 2,796,000 were women. On the average

The Labour Force, Employed and Unemployed, 1963-72, by Months



Unemployment Rate, by Region, 1972 Annual Averages

in 1972, there were 562,000 persons unemployed. The unemployed represented 6.3 per cent of the labour force, which is the second highest unemployment rate during the period (1971 averaged 6.4 per cent). Chart 2 shows how the unemployment rate in 1972 varied by region with Ontario and the Prairies below the national average and the Atlantic Provinces, Quebec, and British Columbia above it.

The Labour Force, 1972, Annual Averages¹

Age group	Men			Women		
	Number	Distribution	Participation Rate	Number	Distribution	Participation Rate
	'000	%	%	'000	%	%
14 years and over.....	5,938	100.0	76.2	2,953	100.0	37.1
14-19 years.....	545	9.2	40.8	407	13.8	32.0
20-24 years.....	827	13.9	84.0	580	19.6	60.5
25-44 years.....	2,636	44.4	96.8	1,171	39.7	42.8
45-64 years.....	1,791	30.2	89.2	756	25.6	36.3
65 years and over.....	139	2.3	18.7	39	1.3	4.3

¹Figures not seasonally adjusted

Earnings and Hours of Work

Statistics Canada obtains information on average weekly earnings, average



Lead from the smelter at Trail, B.C. provides metal for battery manufacture at Calgary, Alta.

weekly hours, and average hourly earnings from a monthly survey of employment, earnings, and hours in some 51,000 non-agricultural reporting units (usually establishments) in Canada having 20 or more employees in any month of the year. These reporting units account for about 55 per cent of the total employment in Canada.

Average Hourly Earnings.¹ Among the industries for which data are presented in the accompanying table, average hourly earnings in 1972 showed increases ranging from 6.3 per cent in laundries, cleaners and pressers to 9.0 per cent in building construction. In manufacturing, average hourly earnings for Canada rose 7.9 per cent, while among the provinces increases ranged from 6.7 per cent in Saskatchewan to 11.6 per cent in Nova Scotia.

Average Weekly Hours.¹ From 1971 to 1972, average weekly hours rose in most of the industries for which data are presented in the accompanying table. The gains ranged from 0.5 per cent in non-durables manufacturing and urban transit to 2.4 per cent in building construction. Declines in hours worked were recorded in highway and bridge maintenance, laundries, cleaners and pressers, and mining,

¹Data on average weekly hours and average hourly earnings pertain only to those wage-earners for whom data on hours are reported.

**Average Hourly Earnings and Average Weekly Hours for
Hourly-rated Wage-earners, Annual Averages, 1961, 1971, 1972**

Industry and Province	Average Hourly Earnings			Average Weekly Hours			Changes in AHE		Changes in AWH	
	1961	1971 ¹	1972 ¹	1961	1971 ¹	1972 ¹	1961 to 1972	1971 to 1972	1961 to 1972	1971 to 1972
	Dollars			Number			Per cent		Per cent	
Industry										
Mining, including milling ...	2.13	4.04	4.34	41.8	40.4	40.3	103.8	7.4	- 3.6	-0.3
Manufacturing.....	1.83	3.28	3.54	40.6	39.7	40.0	93.4	7.9	- 1.5	+0.8
Durables.....	2.00	3.55	3.82	40.9	40.1	40.5	91.0	7.6	- 1.0	+1.0
Non-durables.....	1.69	3.02	3.25	40.3	39.2	39.4	92.3	7.6	- 2.2	+0.5
Construction.....	2.06	4.75	5.15	40.9	39.2	40.1	150.0	8.4	- 2.0	+2.3
Building.....	2.16	4.90	5.34	38.9	37.4	38.3	147.2	9.0	- 1.6	+2.4
Engineering.....	1.90	4.44	4.83	44.8	43.1	43.9	154.2	8.8	- 2.0	+1.9
Other industries:										
Urban transit.....	2.12	4.02	4.28	41.7	41.9	42.1	101.9	6.5	+ 1.0	+0.5
Highway and bridge maintenance.....	1.60	2.94	3.13	36.1	36.7	35.8	95.6	6.5	- 0.8	-2.5
Laundries, cleaners, and pressers.....	1.04	1.91	2.03	39.8	36.8	36.6	95.2	6.3	- 8.1	-0.6
Hotels, restaurants, and taverns.....	1.04	1.95	2.08	38.7	31.5	31.8	100.0	6.7	-17.8	+1.0
Manufacturing by Province: ²										
Newfoundland.....	1.69	2.72	2.98	40.5	40.0	39.9	76.3	9.6	- 1.5	-0.3
Nova Scotia.....	1.58	2.67	2.98	40.3	39.2	39.5	88.6	11.6	- 2.0	+0.8
New Brunswick.....	1.55	2.71	2.92	40.9	40.1	40.1	88.4	7.7	- 2.0	-
Quebec.....	1.65	2.89	3.09	41.5	40.3	40.6	87.3	6.9	- 2.2	+0.7
Ontario.....	1.94	3.47	3.74	40.5	39.8	40.2	92.8	7.8	- 0.8	+1.0
Manitoba.....	1.67	2.92	3.15	39.7	38.5	38.7	88.6	7.9	- 2.5	+0.5
Saskatchewan.....	1.98	3.45	3.68	39.0	39.2	38.7	85.9	6.7	- 0.8	-1.3
Alberta.....	1.96	3.47	3.74	39.7	39.2	38.9	90.8	7.8	- 2.0	-0.8
British Columbia.....	2.23	4.12	4.49	37.7	37.2	37.6	101.3	9.0	- 0.3	+1.1

¹ Data for 1971 and 1972 are preliminary.² Data for P.E.I. are not available.

An electronic assembly operation in Nova Scotia.



including milling. Average weekly hours in manufacturing rose in all provinces in 1972 except in Newfoundland, Saskatchewan, and Alberta, where declines occurred, and New Brunswick, where no change was recorded.

Average Weekly Earnings. Average weekly earnings of all employees in all industries surveyed were \$149.22 in 1972, 8.4 per cent (\$11.58) above the 1971 level. Increases ranged from 7.5 per cent in mining to 11.5 per cent in construction.

**Average Weekly Earnings, Specified Industries for
Canada, Annual Averages, 1961, 1971, 1972**

Industry	1961	1971 ¹	1972 ¹	Changes from	
				1961-72	1971-72
	Dollars			Per cent	
Forestry.....	79.02	155.53	172.92	118.8	11.2
Mining, including milling.....	95.57	177.00	190.29	99.1	7.5
Manufacturing.....	81.55	143.99	156.10	91.4	8.4
Durables.....	88.22	155.33	168.09	90.5	8.2
Non-durables.....	76.17	133.28	144.64	89.9	8.5
Construction.....	86.93	188.26	209.90	141.5	11.5
Transportation, communications, and other utilities.....	82.47	154.14	167.94	103.6	9.0
Trade.....	64.54	108.45	117.58	82.2	8.4
Finance, insurance, and real estate.....	72.82	129.59	140.95	93.6	8.8
Service.....	57.87	98.57	107.32	85.5	8.9
Industrial composite ²	78.24	137.64	149.22	90.7	8.4

¹ Data for 1971 and 1972 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.

Labour Organizations in Canada

Membership in labour organizations active in Canada totalled approximately 2,370,600 at the beginning of 1972. Of the total labour force, 26.7 per cent were union members. About 72.8 per cent of the members were in unions affiliated with the Canadian Labour Congress (CLC); 9.2 per cent were affiliates of the Confederation of National Trade Unions (CNTU); one half of 1 per cent were affiliates of the Council of Canadian Unions (CCU); the remaining 17.5 per cent were members of unaffiliated national and international unions and independent local organizations.

Of the total union members, 59.6 per cent belonged to international unions, chiefly AFL-CIO/CLC unions. National unions accounted for 40.4 per cent of union membership in Canada.

Twenty unions reported a membership of 30,000 or more in the 1972 survey. The five largest unions are the United Steelworkers of America (165,100 members); the Canadian Union of Public Employees (158,000); the Public Service Alliance of Canada (129,700); the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (103,000); and the United Brotherhood of Carpenters and Joiners of America (74,400).

Manufacturing

Manufacturing is the largest of Canada's goods-producing industries and accounts for roughly one quarter of all production of goods and services in the country. It makes a large contribution to the nation's exports, being engaged on an extensive scale in the processing of natural resources into industrial materials and being increasingly a source of highly manufactured goods which successfully penetrate world markets. The high productivity of Canada's manufacturing industries in relation to many other nations of the world is reflected in Canadians' high living standards. The rate of growth of productivity in manufacturing has, indeed, played a key role in the over-all expansion of the Canadian economy. Because this productivity is achieved in an important degree by the use of capital-intensive production processes (particularly of the nation's natural resources), manufacturing also accounts for a large part of Canada's capital expenditures.

The proportion of all wage and salary earners in Canada who were employed in manufacturing was 24.4 per cent in January 1973, according to a monthly sample survey. This is somewhat higher than the 22.2 per cent of total employment (including self-employed and other unpaid workers) accounted for by manufacturing, according to the same survey. For a combination of reasons, this monthly survey of households shows a higher employment in manufacturing than does the

Canada's largest industry, in terms of manufacturers' shipments, is the production of motor vehicles.

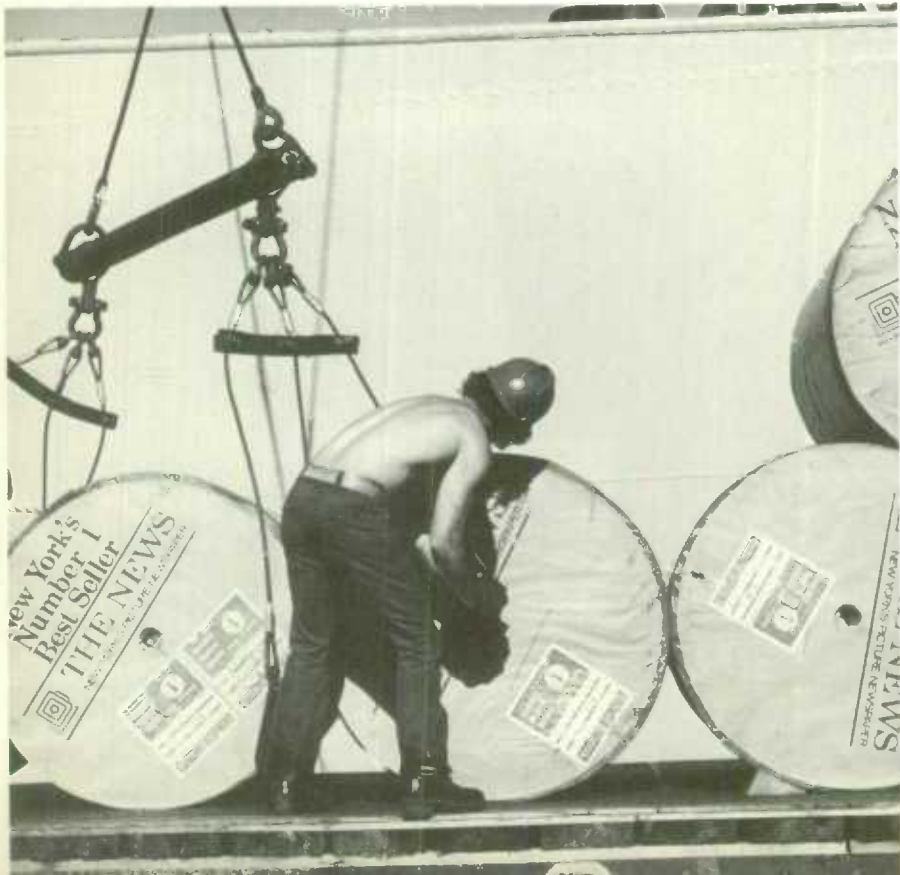


annual census of manufacturers, based on a survey of manufacturers. If the total number of employees reported by manufacturers in the 1970 census (the latest complete survey for all industries at the time of writing) is augmented by the percentage increase in such employees shown by a monthly survey of employers with 20 or more employees, an estimated average employment of approximately 1,649,000 persons in 1972 is estimated.

As indicated, about one quarter of the production of goods and services originates in the manufacturing industries, a relatively stable proportion in recent years. Preliminary data for 1972 indicate that 23.8 per cent of the gross domestic product at factor cost was accounted for by the manufacturing industries. This is a measure of output not considering inputs from other industries and other countries. Manufacturers' shipments of goods of their own manufacture, of course, include the value of production originating in other industries or in other countries and incorporated by the reporting manufacturer in the firm's own total output. This element of "double counting" is eliminated by the use of the gross domestic product at factor cost, that is, at the cost of the labour and capital used.

However, Canadian manufacturers' shipments, including their shipments to each other, do show an impressive size for the over-all transactions of manufacturers in goods of their own manufacture. In 1972 the figure passed the \$50,000

The production of pulp and paper is Canada's second largest industry, in terms of manufacturing shipments.



million mark for the first time. The preliminary total for 1972 as indicated by a monthly survey was \$55,335 million. This represents an increase of 10.1 per cent over the preliminary estimate for 1971; the average annual increase over the 1961-72 period was 7.9 per cent.

The largest industry in terms of manufacturing shipments is that of motor vehicle manufacturers. These establishments shipped products valued at \$4,056 million in 1972, according to preliminary estimates. This sum is more than \$1,000 million greater than the shipments of any other industry. The second largest industry is pulp and paper mills with estimated shipments of \$2,851 million in 1972. Slaughterers and meat processors had the third largest manufacturing shipments, \$2,372 million. Petroleum refining was fourth, with \$1,759 million, and iron and steel mills, fifth, with \$1,692 million.

These industries also ranked in the same order in the results of the 1970 census of manufacturers. Industries ranking sixth through tenth in the 1970 census were, in descending order of their 1972 preliminary estimate of shipments (shown in brackets): the dairy products industry (\$1,369 million); miscellaneous machinery manufacturers (\$1,278 million); motor vehicle parts and accessories manufacturers (\$1,272 million); sawmills and planing mills (\$1,135 million); and smelting and refining (\$1,080 million).

In a classification of whole industries to groups showing the economic use to which their products are chiefly devoted, the non-durable consumer goods industries accounted for \$15,391 million of manufacturing shipments in preliminary 1972 figures. (These data are also based on the monthly survey.) This amounts to 27.8 per cent of the shipments of all manufacturing industries. As industries producing durable consumer goods reported shipments of \$6,693 million, both types of consumer goods accounted for 39.9 per cent of all industry shipments. (Of course, these figures include shipments of some non-consumer goods by these industries and other industries shipped some consumer goods.) The industries classified as export-based shipped \$6,618 million, or 12 per cent of the total (although this figure bears no necessary relation to exports of manufactures.) Industries manufacturing construction materials and components had shipments of \$5,328 million and the machinery and equipment industries, \$5,292 million, or about 9.6 per cent of the total for each. Other "intermediate goods and supplies" industries accounted for the balance of 28.9 per cent.

There is not a regularly published exact measure of the value of goods exported by the manufacturing industries or of exports of manufactured goods as such. However, the total of domestic exports of fabricated materials, and of end-products roughly approximates exports of Canadian manufactures. These two categories of exports totalled \$14,316 million in 1972, or 13 per cent more than the previous year. It is almost three times the size of the figure of \$5,135 million for 1964, the year before the signing of the Canada-United States Agreement on Automotive Products. This treaty has served to greatly increase exports of manufactures. Whereas end-products (approximately equivalent to exports of finished manufactured goods) were 28 per cent of the 1964 total just mentioned, they were 53 per cent of the corresponding total for 1972. The automotive agreement made a large contribution to this change as well as influencing the level of manufacturing activity in the country.



Slaughterers and meat processors had the third largest manufacturing shipments in 1972.

Manufacturing Statistics, Selected Years, 1920 to 1972

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.....	1,287,966	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.....	1,637,001	11,363,712	20,047,801	46,380,935
1971.....	1,628,380	12,129,897	21,716,722	50,261,541
1972.....	1,649,000 ²	13,253,000 ²	24,104,000 ³	55,334,800 ⁴

¹Before 1952, data represent gross value of production.

²Estimates based on surveys of employment and earnings.

³Estimated on the basis of the ratio of "value added by manufacture" to "manufacture gross output" in earlier years.

⁴Based on the monthly survey of shipments by manufacturers.

The index of real domestic output of the manufacturing industries rose at an average annual rate of 5.2 per cent over the 1947-71 period and of 6.2 per cent over the 1961-71 period. This index measures the net output of the industry, not counting the effect of changes in price or of inputs from other industries and other countries. It is the gauge commonly used in measuring productivity; in the latest issued figures, output per man-hour worked in the manufacturing industries had risen at an average annual rate of 4.2 per cent over the 1960-70 period.

Prices in the manufacturing industries have risen less than in the economy generally, owing to advances in productivity. The preliminary industry selling price for all manufacturing industries was 132.8 in January 1973, indicating an advance of 32.8 per cent over the average for 1961, used as a base equalling 100. The average of this index for 1972 was 127.4, an increase of 4.8 per cent over the previous year.

In 1973, according to the preliminary results of a survey of investment intentions, manufacturers were expecting to spend \$888 million on new construction and \$2,329 million in capital expenditures on new machinery and equipment. This indicated total capital expenditures by manufacturers of \$3,217 million, an increase of 8.8 per cent, if these plans were completely fulfilled.

An oil refinery at Saint John, N.B. In 1972, estimated shipments of refined petroleum were valued at \$1,759 million.



Domestic Trade

The means by which goods are transferred from the producer and from secondary sources (for example, importers) to the final consumer are usually referred to as the channels of distribution. The principal channels are wholesalers and retailers. Included with wholesalers are agents and distributors who, rather than selling goods on their own account, sell on commission. Manufacturers' sales branches may engage in wholesale and retail selling. Sales through vending machines can be regarded as retailing functions. Mail-order and door-to-door solicitation are also retailing activities. In addition, there are co-operatives which carry out a variety of distributive and other functions.

Finally there are avenues for the performance of services to consumers, industry, and business. This service trade includes accommodation; restaurants; recreational, amusement, and entertainment facilities; equipment rental; management; research; advertising; consultation; data processing facilities; and many other specialized service functions. All of the foregoing channels of distribution will be briefly discussed in this section, including consumer credit which is an important adjunct to the entire marketing process.

The nature and activities 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 locating their stores in newly constructed shopping malls and multi-store, multi-level building developments that 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 now often sells 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 1972 retail sales in Canada rose by 49.6 per cent to an estimated total of \$33,929.7 million. This increase is related to population expansion, increases in income, and rises in the consumer price index. Retail sales increases above the national level were recorded in British Columbia, Alberta, and New Brunswick (54 to 63 per cent), those close to the national level were found in Newfoundland, Nova Scotia, and Ontario (49 to 51 per cent), below-average increases were recorded for Prince Edward Island, Quebec, and Manitoba (44 to 46 per cent), and a substantially below-average increase was noted in Saskatchewan (22 per cent).

Changes in the pattern of distribution are reflected in the varying rates of increase of different kinds of business. The largest increases from 1966 to 1972 were recorded by department stores (87 per cent) and by the "all other stores" category (75 per cent) in which liquor and beer stores form the largest single component. Above-average increases occurred in general merchandise stores



Since 1966, restaurant receipts have increased by 30.5 per cent to \$1,300.9 million in 1972.

(which includes sales through department store mail-order catalogues), women's clothing stores, and service stations and garages (54 to 59 per cent). Close to average increases were recorded in food (grocery and combination stores) and drug stores (47 to 51 per cent). Below-average increases occurred in men's clothing stores; shoe stores; and furniture, television, and appliance stores (42 to 45 per cent). Substantially below-average increases were reported from family clothing and jewellery stores (36 to 37 per cent), and increases between 21 and 30 per cent were recorded in "all other" food stores, general stores, variety stores, hardware stores, and fuel oil dealers. 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 and again in 1972 when sales were 30.5 per cent above the 1966 level.

Retail chain stores (excluding department stores) account for an increasing share of retail sales—from 24.3 per cent in 1966 to 28.0 per cent in 1972. When department stores are included with the chains, the increase in share was from 33.0 per cent in 1966 to 38.9 per cent in 1972. Compared to sales through independent stores, chain-store sales are strongest in the variety-store category where they account for 84 per cent of sales. Other kinds of business where corporate chains have a substantial share of sales are general merchandise stores, 79.3 per cent; grocery and combination stores, 54.6 per cent; shoe stores, 49.7 per cent; and women's clothing stores, 36.7 per cent.

As mentioned earlier, to compete more effectively with corporate chain stores, independent retailers in certain trades have affiliated in voluntary organizations 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 1966, 420 centres accounted for 9.3 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 with 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 in the statistics for retail trade). In 1971, direct sales amounted to \$805 million, supplementing the estimated 1971 retail sales of \$30,646 million. 1971 direct sales were 16.4 per cent above the 1966 level, but although a steady increase was reported each year, direct selling is not keeping pace with over-all retail sales. Two important categories, dairy products and bakery products, have been declining steadily for some years, in spite of increased retail sales of these products. The direct selling of frozen food plans has also declined.

On the other hand, sales by vending machine operators, which are also excluded from retail trade statistics, have increased by 50.9 per cent since 1966, reaching \$162.2 million in 1971. In this category, cigarettes form the most important component with sales of \$82.1 million, followed by cold beverages, \$26.2 million, and hot beverages, \$24.1 million.

Service Trades

Changes within the service sector can best be measured and analyzed through census results, since inter-censal 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. By 1966, receipts of the 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. Since 1966, restaurant receipts have increased by 30.5 per cent to \$1,396.6 million in 1972, and accommodation receipts reached \$1,250.5 million in 1969, of which hotel receipts amounted to \$1,044.3 million, a 32.1 per cent increase since 1966. Power laundries and dry cleaners reported receipts of \$260.1 million in 1970, an increase of 2.7 per cent since 1966. Finally, receipts from motion picture theatres reached \$119.8 million (taxes included), an increase of 34.8 per cent since 1966 and surpassed for the first time the record high of \$113.6 million established in 1953 (although the number of paid admissions is still only about one third of what it was then).

Retail Trade by Province and Kind of Business, 1970-72

Province or Territory and Kind of Business	1970	1971 ¹	1972 ¹	Percentage Change 1971-72
Millions of dollars				
Province				
Newfoundland.....	493.4	533.3	603.6	+ 13.2
Prince Edward Island.....	131.5	141.0	154.5	+ 9.5
Nova Scotia.....	930.0	1,022.9	1,132.5	+ 10.7
New Brunswick.....	740.5	834.8	918.2	+ 9.9
Quebec.....	7,074.1	7,681.4	8,485.6	+ 10.5
Ontario.....	10,885.0	11,877.2	13,014.2	+ 9.5
Manitoba.....	1,227.2	1,318.2	1,470.0	+ 11.4
Saskatchewan.....	1,018.4	1,138.9	1,274.9	+ 11.9
Alberta.....	2,274.0	2,466.6	2,779.6	+ 12.6
British Columbia, Yukon and Northwest Territories.....	3,259.8	3,631.9	4,096.7	+ 12.8
Total.....	28,033.9	30,646.1	33,929.7	+ 10.7
Kind of Business				
Grocery and combination stores.....	6,849.2	7,260.2	7,890.1	+ 8.7
All other food stores.....	640.1	654.2	717.7	+ 9.7
Department stores ²	2,852.3	3,184.1	3,687.9	+ 15.3
General merchandise stores ³	848.5	938.8	1,023.6	+ 9.0
General stores.....	575.2	616.5	678.0	+ 10.0
Variety stores.....	552.9	570.7	613.4	+ 7.5
New motor vehicle dealers ⁴	4,197.2	4,924.7	5,662.9	+ 15.0
Service stations and garages.....	2,530.7	2,694.9	2,892.1	+ 7.3
Men's clothing stores.....	446.0	475.6	508.3	+ 8.9
Women's clothing stores.....	561.4	621.8	672.5	+ 8.2
Family clothing stores.....	397.5	423.8	458.1	+ 8.1
Shoe stores.....	327.5	345.7	363.4	+ 5.1
Hardware stores.....	382.8	408.9	447.9	+ 9.8
Furniture, T.V., radio and appliance stores.....	847.4	942.3	1,069.0	+ 13.4
Fuel dealers.....	473.1	523.3	579.0	+ 10.6
Drug stores.....	840.0	907.0	980.8	+ 8.1
Jewellery stores.....	218.5	236.0	262.9	+ 11.4
All other stores ⁵	4,493.6	4,917.7	5,422.2	+ 10.2

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, as well as 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.

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 invest-

ment dealers, and interpersonal loans. The following table on national estimates of consumer credit as measured by the outstanding balances of selected holders of such credit illustrates the expanding use Canadians make of this facility. Noteworthy is the shift observed over the period towards a 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: they held 48.1 per cent of all outstanding balances at the end of 1972. Their balances included, in 1972, \$1,967 million against motor vehicle purchases alone compared to \$736 million held by sales finance companies, which until quite recently dominated the financing of automobile purchases.

Consumer Credit: Balances Outstanding, Year Ends 1966-72 for Selected Holders

Year End	Total ¹	Annual Change	Retail Dealers ²	Other Vendors ³	Cash Loans, Banks ⁴	Other Cash Loans ⁵
		Percentage				
			Millions of dollars			
1966.....	7,778	—	1,353	1,476	2,474	2,476
1967.....	8,616	+ 10.8	1,385	1,429	2,997	2,805
1968.....	9,856	+ 14.4	1,440	1,504	3,694	3,217
1969.....	11,134	+ 13.0	1,529	1,688	4,181	3,736
1970.....	11,706	+ 5.1	1,551	1,503	4,685	3,967
1971.....	12,684	+ 8.4	1,617	1,315	5,802	3,950
1972p.....	14,860	+ 17.2	1,781	1,489	7,174	4,415

¹Slight differences in totals are due to rounding.

²Includes both charge accounts and instalment credit of department stores, furniture and appliance stores, and other retailers.

³Includes instalment sales credit extended by sales finance and consumer loan companies, and credit card issuers and public utility companies.

⁴Personal cash loans (other than those fully secured and home improvement loans) extended by chartered banks and Quebec savings banks.

⁵Includes 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, institutional, and commercial users, and to other wholesalers, or in acting as agents in such transactions. For statistical purposes, wholesalers are classified into five types: wholesale merchants, agents and brokers, manufacturers' sales representatives, assemblers of primary products, and petroleum bulk tank plants and tank-truck distributors. Of these five types, wholesale merchants are by far the most important. They buy and sell goods on their own account and include export and 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 accompanying table shows sales by wholesale merchants according to the 1966 census and estimated sales for 1972, as measured by a panel of reporting establishments.

Wholesale Trade (Merchants), 1966 and 1972

	Sales		Change
	1966	1972	1972/1966
	Millions of dollars		Percentage
Total, All Trades	18,922.4	28,166.6	+ 48.9
Consumer goods trades	8,683.3	14,148.6	+ 62.9
Automotive parts and accessories.....	829.1	1,721.1	+107.6
Motor vehicles.....	328.7	741.7	+125.7
Drugs and drug sundries.....	396.2	700.6	+ 76.8
Clothing and furnishings.....	219.3	334.3	+ 52.4
Footwear.....	69.5	75.4	+ 8.6
Other textiles and clothing accessories.....	416.5	656.5	+ 57.6
Household electrical appliances.....	378.8	673.1	+ 77.7
Tobacco, confectionery, and soft drinks.....	668.1	1,081.0	+ 61.8
Fresh fruits and vegetables.....	417.9	607.0	+ 45.3
Meat and dairy products.....	589.0	871.6	+ 48.0
Floor coverings.....	163.2	318.6	+ 95.2
Groceries and food specialties.....	2,887.6	4,223.1	+ 46.2
Hardware.....	526.4	677.4	+ 28.7
Consumer goods residual.....	792.8	1,467.1	+ 85.1
Industrial goods trades	10,239.1	14,018.0	+ 36.9
Coal and coke.....	106.9	49.0	- 54.2
Grain.....	1,701.7	1,225.3	- 28.0
Electrical wiring supplies, construction materials, apparatus, and equipment.....	338.5	527.0	+ 55.7
Other construction materials and supplies, including lumber.....	2,257.9	3,730.7	+ 65.2
Farm machinery.....	920.8	958.3	+ 4.1
Industrial and transportation equipment and supplies.....	1,775.4	2,596.1	+ 46.2
Commercial, institutional, and service equipment and supplies.....	413.5	666.0	+ 61.1
Newsprint, paper, and paper products.....	366.3	448.0	+ 22.3
Scientific and professional equipment and supplies.....	201.2	367.6	+ 82.7
Iron and steel.....	757.4	1,446.0	+ 90.1
Junk and scrap.....	368.7	439.4	+ 19.2
Industrial goods residual.....	1,030.8	1,564.2	+ 51.7

An annual exhibit of automobiles from several countries is held in Montreal's International Auto Salon.



Co-operatives

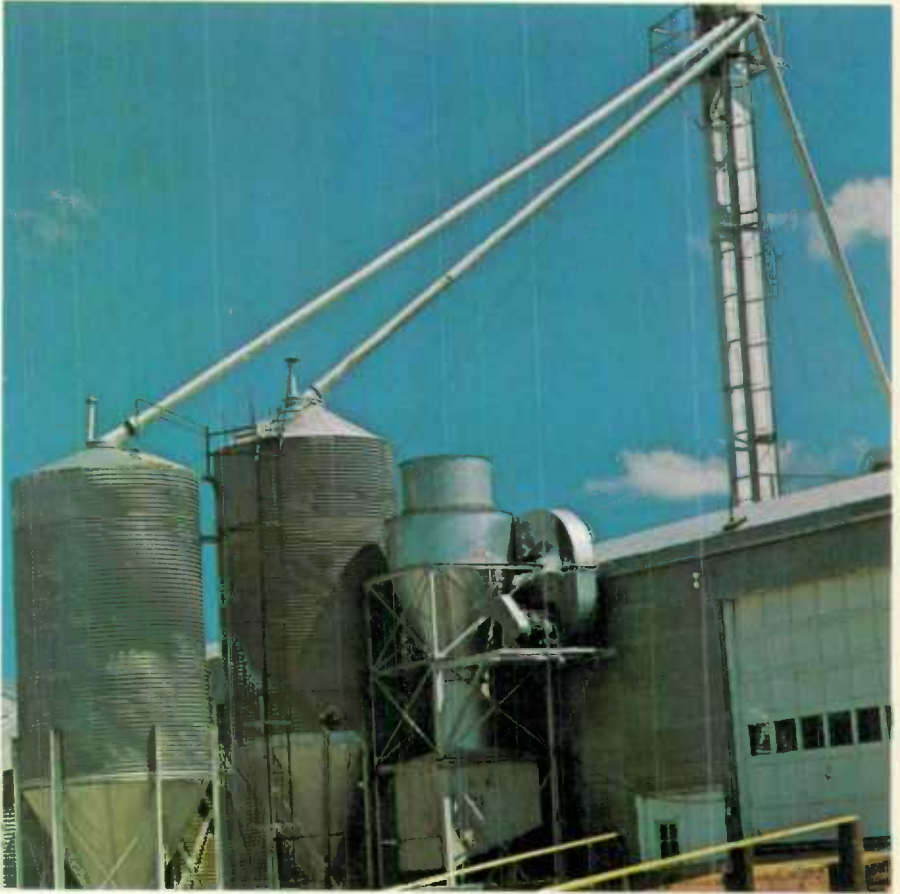
The co-operative movement is represented in all ten provinces of Canada. It was most readily adopted in the rural areas of the country where there were no marketing facilities for farm produce or where farmers were dissatisfied with the prevailing marketing practices. Because of this, the movement remains predominantly agricultural. Saskatchewan has the largest number of co-operative members—about 470,000—and contributes more than one quarter of the total business volume based on its dominance in the marketing of grains and livestock. It is only in the past decade that significant progress has been made in the urban sector with the establishment of co-operative supermarkets and shopping centres.

Total business volume of 2,400 local co-operatives with 1.8 million members amounted to \$2,382 million for 1971, an increase from \$2,179 million in the preceding year. Assets at year-end totalled \$1,264 million up slightly from 1970 on the strength of large increases in the service co-operatives in British Columbia and Alberta.

Gross volume as broken down by its three broad categories of business activity plus miscellaneous income consisted of farm product marketings, \$1,472 million; sales of merchandise and supplies, \$825 million; service revenue from transportation, \$67 million; and miscellaneous income, \$17 million. Farm products marketed by co-operatives include fruits and vegetables, dairy products, grains,

The intricate cutting of moccasin linings is one of the skills required to produce hand-made articles at the Southern Plains Handicraft Co-op Ltd., the first Indian handicraft outlet in southern Saskatchewan.





A rapeseed co-op in Manitoba. The co-operative movement has remained predominantly agricultural.

livestock, poultry and eggs, honey, maple products, wool, lumber, and other miscellaneous items. The largest commodity is grain which in 1971 came to \$628 million. A wide selection of merchandise and farm supply items sold to farmers include food, feed, petroleum, fertilizer and spray materials, hardware, machinery, building materials, clothing, home furnishings, and so on. In the services sector rural electric and medical insurance co-operatives have become the largest revenue-earning groups followed by housing, transportation and seed cleaning.

Gross sales volume of the seven co-operative wholesales expanded to \$713 million for 1971, a very substantial increase of \$83 million or 13 per cent over 1970. Farm product marketing rose 10 per cent led by dairy products, and grains and seeds; livestock was the only category registering a decline. Sales of supplies shot upward at a rate of 15 per cent or \$62 million with all merchandise categories sharing in the gain. In terms of dollars the largest gainers were feed and food, both worth \$12 million, followed by petroleum, worth \$11 million. In terms of percentages the greatest rates of increase were recorded by fertilizer and spray materials.

28 per cent; clothing and home furnishings, 26 per cent; and building materials, 22 per cent.

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 work in the Maritime Provinces to organize and assist co-operatives. In more recent years, university courses have been instituted short-term for co-operative management and personnel, and regular as a part of the university curriculum. The Coady International Institute was established at St. Francis Xavier University in 1960. It 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 price increases were a significant contributor to the rise in the All-Items Consumer Price Index during 1972. In the 12 months ending in December 1972, the Consumer Price Index advanced 5.1 per cent, with food prices rising on the average by 8.6 per cent and non-food prices increasing by 3.8 per cent. The advances of the all-items and food indexes were significantly greater than the average for the five preceding years but were similar to those of 1971, when food price levels were sharply rebounding from the declines of the last quarter of 1970.

December to December Percentage Changes in the Consumer Price Index and Its Major Components

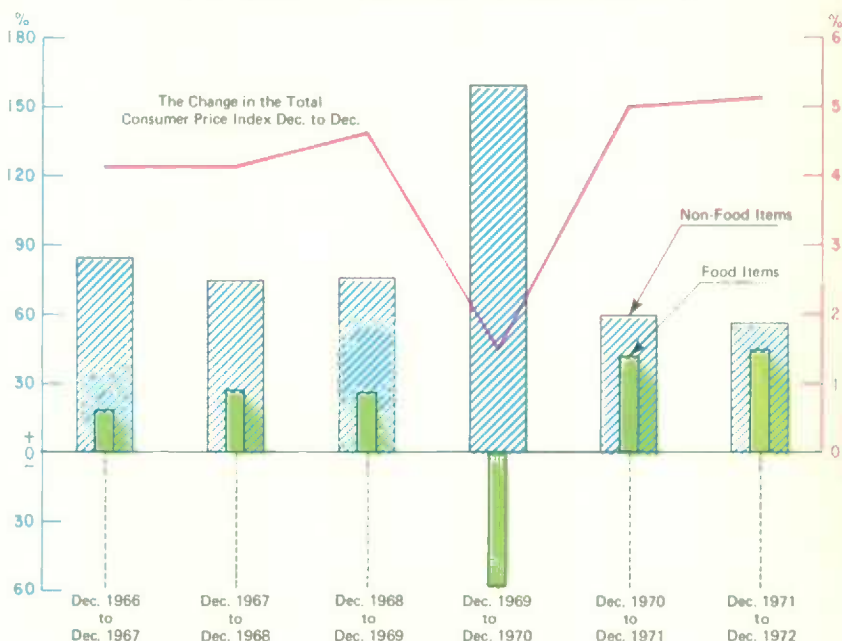
	Dec. 67	Dec. 68	Dec. 69	Dec. 70	Dec. 71	5-Year	Dec. 72
	Dec. 66	Dec. 67	Dec. 68	Dec. 69	Dec. 70	Average	Dec. 71
All Items	4.1	4.1	4.6	1.5	5.0	3.9	5.1
Food	2.7	3.9	4.3	-3.2	7.9	3.1	8.6
All Items other than food	4.5	4.2	4.7	3.3	3.9	4.1	3.8
Housing	4.5	4.8	5.5	4.5	4.8	4.8	5.0
Clothing	3.8	3.1	2.4	1.2	2.5	2.6	3.1
Transportation	4.6	1.9	5.4	3.4	4.3	3.9	1.4
Health and personal care	5.1	3.7	5.7	2.9	3.8	4.2	3.9
Recreation and reading	5.2	6.1	3.9	4.3	2.0	4.3	3.7
Tobacco and alcohol	5.1	6.0	4.1	0.1	2.6	3.6	3.9

The marked contribution of food price increases to the advance of the total Consumer Price Index in 1972 is clearly illustrated in the chart below. This compares the contributions of food and non-food items to changes in the total Consumer Price Index in 1972 to the contributions over the five preceding years. In the latest year, food price increases were responsible for 44 per cent of the advance in the total Consumer Price Index, or more than double their contribution over the previous five years. Of the foodstuffs that have contributed most to the rise in the food component of the Consumer Price Index in 1972, well over half are meat, fish and poultry, and if one adds fresh fruits and vegetables, about two thirds of the rise in food prices is accounted for.

Consumer price movements, when classified by commodities and services, offer another view of the incidence of the change in prices. In the 12 months to December 1972, commodity prices increased 4.9 per cent mainly because of the 8.6 per cent advance in food prices. Non-durable commodities other than food rose 3 per cent and the price of durables moved up 0.6 per cent over the same 12 months. Service prices continued their rate of advance of recent years by increasing 5.6 per cent in the 12 months to December 1972.

The purchasing power of the consumer dollar declined from 73¢ in December 1971 to 70¢ in December 1972 relative to \$1.00 on average in 1961.

Contribution of Food and Non-Food Items to the Advance of the Total Consumer Price Index for Selected Periods



International Trade

During 1972 Canada's international trade continued to expand vigorously. The volume of exports increased by 9.6 per cent over 1971, as against 5.7 per cent in the previous year, while imports grew at the even higher rate of 16.4 per cent, up from 10.3 per cent in 1971. Exports rose in value by \$2,173 million or 12.2 per cent to \$19,977 million and imports by \$3,043 million or 19.5 per cent to \$18,655 million. The balance of trade narrowed from a surplus of \$2,192 million in 1971 to a surplus of \$1,322 million, a drop of \$870 million, which exceeded the decline in the trade surplus of 1971 by \$194 million.

The volume of imports grew most strongly during the early part of the year, with a gain of more than 18 per cent in the first six months over the corresponding period in 1971, slowing down somewhat in the latter half of 1972, with increases of 13.5 per cent and 15.2 per cent for the third and fourth quarter respectively over those of 1971.

The volume of exports increased sharply in the second and fourth quarters of 1972 over the periods one year earlier; it showed gains of 11.9 per cent and 17.2 per cent, respectively. The rebound in the fourth quarter followed settlement of port strikes in the fall of 1972 which had curtailed exports in the preceding quarter.

Both import and export prices in Canadian funds rose significantly during the year, while the dollar floated downward relative to European and Japanese currencies and demand for foodstuffs and crude materials strengthened. Prices of domestic exports increased by an average of 2.8 per cent over 1971, but the price movement during 1972 exceeded 5 per cent in all sections except end-products, in contrast to virtual price stability in the two preceding years. Import prices climbed by an average of 3 per cent over 1971, up from 1.6 per cent one year ago.

Foreign Trade of Canada, 1966-72

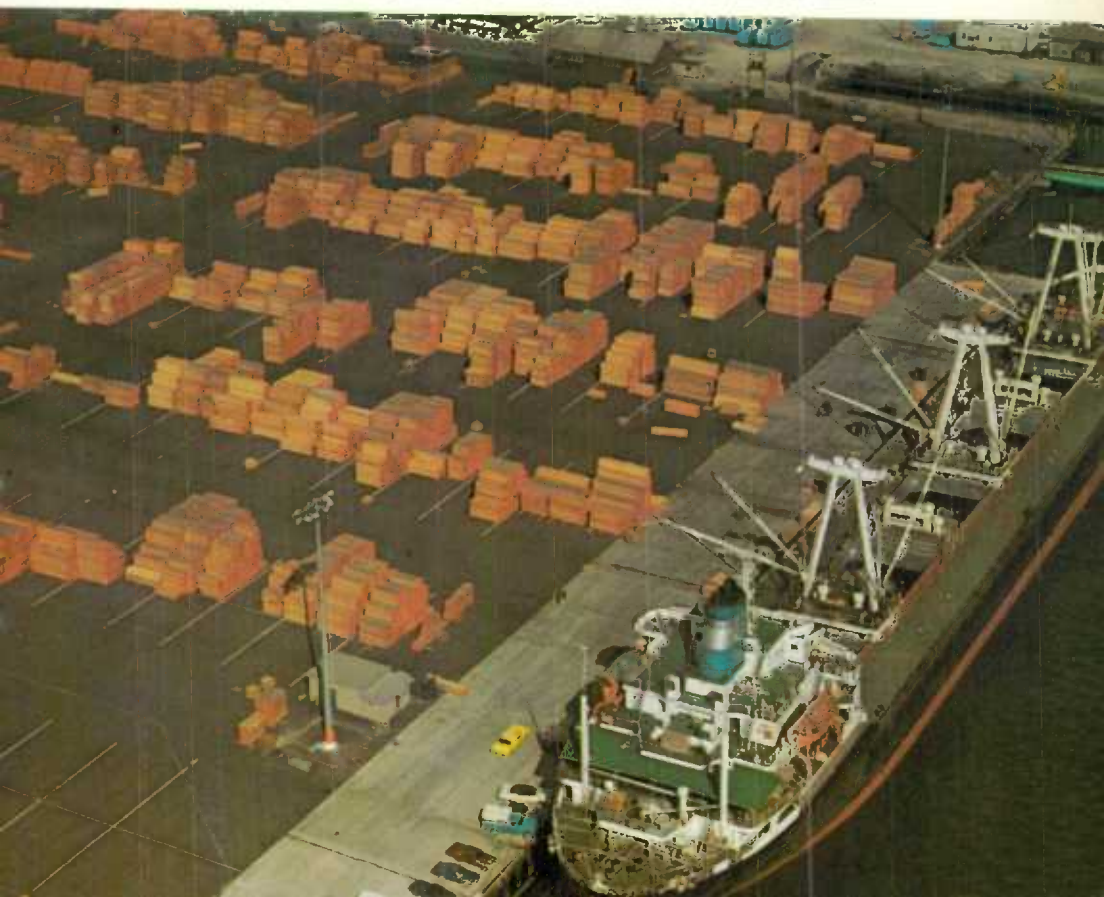
Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Exports	Re-exports	Total Exports			
	Millions of dollars					
1966	10,071	255	10,325	9,866	20,191	+ 459
1967	11,121	299	11,420	11,075	22,495	+ 345
1968	13,270	354	13,624	12,358	25,982	+ 1,266
1969	14,462	428	14,890	14,130	29,020	+ 760
1970	16,401	419	16,820	13,952	30,772	+ 2,868
1971	17,380	423	17,804	15,611	33,414	+ 2,192
1972	19,500	477	19,977	18,655	38,632	+ 1,322

International Developments

World trade expanded strongly following the restoration of some degree of order in the currency exchanges under the Washington Agreement. The volume of trade of countries in the Organization for European Co-operation and Devel-

opment rose by over 10 per cent in the early part of 1972, largely in response to increased demand in the United States. It levelled off somewhat during the second and third quarter, and again showed accelerated growth towards the end of the year. Exchange rates remained relatively stable throughout 1972. The Washington Agreement of December 1971 had resulted in a devaluation of the United States dollar by 8.3 per cent in terms of gold. The floating Canadian dollar remained close to parity with the United States dollar, a *de facto* devaluation with respect to major European currencies and the Japanese yen. In June, heavy outflows of short-term funds led to the floating of the pound sterling. Speculative pressures against European and Japanese currencies were resisted until February 11, 1973 when the President of the United States announced a further devaluation of the United States dollar, this time by 10 per cent. The system of fixed exchange rates for major currencies has been suspended, with the pound sterling, the Italian lira, and the Japanese yen floating independently, and the remaining European Community currencies intended to float jointly against the dollar. As before, the Canadian dollar has floated downward to slightly above parity with the United States dollar. Within 14 months, major currencies in Western Europe and Japan have been revalued in terms of the Canadian dollar by rates of between 7 per cent

The freighter Margaria taking on a load of lumber at a North Vancouver wharf.



for the Italian lira and 24 per cent for the yen. This has resulted in the increased price competitiveness of Canadian exports in Europe and Japan, and, conversely, the increased cost of imports from these areas.

The United States economy continued to expand at a brisk pace. Industrial output accelerated by about 6.5 per cent in 1972 after the August 15, 1971, announcement of new policy measures, including price and wage controls. The price level increased by a moderate 3 per cent, as against 4.7 per cent in the preceding year. Imports surged in volume by 14.5 per cent, despite devaluation, while exports grew more slowly at 9 per cent. Measured in American dollars, imports rose by over 21 per cent to \$55,600 million and exports by 14 per cent to \$49,700 million, which resulted in a trade deficit of approximately \$6,000 million. In January 1973 mandatory price and wage controls were replaced by a system of largely voluntary restraints.

On January 1, 1973, the United Kingdom, Denmark, and the Irish Republic became members of the European Communities after lengthy negotiations. The treaty between the European Community and the new members provides for a transition period ending July 1, 1977, for the alignment of industrial tariffs and a somewhat longer period for the harmonization of agricultural policies. Simultaneously, an agreement came into effect between the European Community and five EFTA countries (Austria, Liechtenstein, Portugal, Sweden, and Switzerland) regarding the establishment of a free-trade area for industrial products. Norway, the fourth applicant, decided not to join the European Community following a popular referendum and it has negotiated a separate agreement.

Japan experienced another year of strong economic growth. Industrial output increased by about 10 per cent. The value of exports and imports rose by close to 20 per cent giving a trade surplus of almost \$9,000 million, up from \$7,800 million in 1971. To counteract the rising trade imbalance, Japan cut tariffs on industrial and some agricultural goods by 20 per cent and liberalized quantitative restrictions effective December 1, 1972. In February 1973, following the second devaluation of the United States dollar, the Japanese finally let their currency float. It promptly rose some 16 per cent in value compared to the dollar.

Export Commodity Pattern

Domestic exports continued to shift in 1972 towards a larger share of end-products, which represent 36.2 per cent of all domestic exports, up from 35.6 per cent in 1971. The share of crude materials dropped slightly to 18.1 per cent from 18.6 per cent in the previous year, while the shares of fabricated materials and food, feed, beverages, and tobacco remained at 33.5 per cent and 11.5 per cent, respectively. Prices increased most for food and allied products—by an average of 4.9 per cent over 1971 although the December 1972 price level was 13.7 per cent above that of December 1971. The advance in prices of non-food products was more moderate, with 3.3 per cent for fabricated materials, 1.8 per cent for end-products, and 1.6 per cent for crude materials.

Domestic exports of end-products jumped by 12.5 per cent in volume and 14.5 per cent in value to \$7,063 million, including automotive goods valued at \$4,682

million. Shipments of fabricated materials increased 9.2 per cent in volume and 12.8 per cent in value to \$6,528 million, spurred by the strong demand for softwood lumber which more than offset reduced exports of aluminum and nickel. The volume of crude materials shipped grew 7.8 per cent with receipts up by 9.5 per cent to \$3,541 million. A 28-per-cent increase in sales of crude petroleum, all of it to the United States, counteracted the decrease in shipments of iron and nickel ores and concentrates. Finally, shipments of food, feed, beverages, and tobacco products increased by 5 per cent in volume and 10 per cent in value to \$2,241 million with wheat and fish products leading the way.

Principal Domestic Exports, 1968-72

Commodity	1968	1969	1970	1971	1972	Per cent Change 1971-72
Thousands of dollars						
Motor vehicles and parts.....	2,690,832	3,525,739	3,499,688	4,167,734	4,682,417	12.3
Passenger automobiles and chassis....	1,397,510	1,825,125	1,695,656	2,062,193	2,169,463	5.2
Motor vehicle parts, except engines ..	556,154	722,935	781,889	978,517	1,220,798	24.8
Trucks, truck tractors, and chassis....	401,880	540,341	507,389	524,456	632,434	20.6
Motor vehicle engines and parts.....	246,711	289,265	329,217	441,714	514,733	18.5
Other motor vehicles.....	88,577	148,073	185,537	160,854	144,984	- 9.9
Newsprint paper.....	989,831	1,125,801	1,110,393	1,084,282	1,157,509	6.8
Lumber (softwood).....	623,414	664,759	638,324	798,739	1,128,022	41.2
Crude petroleum.....	446,413	525,780	649,075	786,851	1,007,505	28.0
Wheat.....	684,469	472,703	687,431	832,085	917,650	10.3
Woodpulp (and similar pulp).....	627,874	753,488	785,229	798,334	817,335	2.6
Aircraft and parts.....	369,427	328,410	379,101	332,301	467,838	40.8
Copper and alloys.....	378,216	300,904	474,591	381,469	391,358	2.6
Aluminum including alloys.....	445,128	474,752	458,638	448,480	382,384	-14.7
Nickel in ores, concentrates, and scrap	261,030	225,312	371,593	395,358	375,118	- 5.1
Iron ores and concentrates.....	443,202	333,131	475,743	413,333	352,680	-14.7
Nickel and alloys.....	245,433	226,079	434,214	318,992	313,812	- 1.6
Fish and fish products.....	236,714	256,664	257,349	266,146	309,058	16.1

The Twin Otter, used for passenger service from Okinawa, was the first aircraft delivered to Japan, opening new possibilities for sales in the Orient.



Import Commodity Pattern

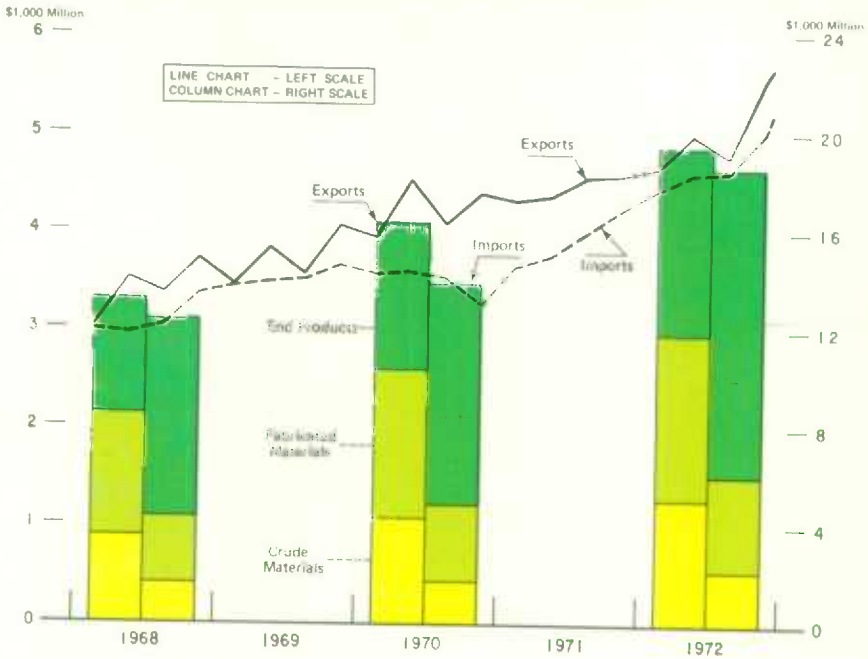
The commodity pattern of imports changed marginally. End-products increased their share by 1.1 per cent over 1971 to 64 per cent of total imports, mainly at the expense of fabricated products whose share dropped to 19.2 per cent from 20.1 per cent one year earlier. The shares of crude materials, at 8.2 per cent, and food, feed, beverages, and tobacco, at 7.3 per cent, showed little change from the previous year. Average annual price increases over 1971 were highest for food and allied commodities, at 8.9 per cent, followed by a rise of 6.2 per cent for crude materials, including a 10-per-cent increase for imported crude petroleum, 2.1 per cent for end-products, and 1.9 per cent for fabricated materials.

The volume of imported end-products grew by about 20 per cent, at almost twice the rate of a year earlier, with a gain of 22 per cent in value to \$11,941 million, of which \$4,940 million represented motor vehicles and parts. Imports of home entertainment products, such as television sets, jumped by 65.6 per cent in value terms, with shipments of trucks, truck tractors and chassis, office equipment, and motor vehicle engine parts all showing gains of 40 per cent or greater over 1971. Shipments of fabricated materials increased by 11.7 per cent in volume and 13.8 per cent in value to \$3,575 million, while those of crude materials showed gains of 9.5 per cent and 16.4 per cent, respectively, for a total of \$1,538 million. Crude petroleum and coal were the leading commodities. Food, feed, beverages, and tobacco imports, which had shown little change in 1971, surged by 11.2 per cent in volume and 21.2 per cent in value to \$1,354 million, with meat and raw sugar recording the largest increases.

Principal Imports, 1968-72

Commodity	1968	1969	1970	1971	1972	Per cent Change 1971-72
Thousands of dollars						
Motor vehicles and parts.....	3,000,856	3,546,056	3,251,535	4,104,413	4,939,174	20.3
Motor vehicle parts except engines ...	1,342,300	1,764,793	1,653,049	1,884,705	2,264,991	20.2
Sedans, new	940,986	908,573	793,077	1,165,458	1,301,131	11.6
Motor vehicle engines.....	244,462	313,491	270,006	303,397	337,603	11.3
Truck, truck tractors and chassis.....	167,501	236,991	233,152	307,594	445,215	44.7
Motor vehicle engine parts.....	109,849	127,078	104,252	155,068	217,127	40.0
Other motor vehicles	72,465	83,485	101,683	147,961	193,548	30.8
Other passenger automobiles and chassis.....	64,443	61,978	68,190	110,308	151,680	37.5
Convertible automobiles, soft top, new	58,850	49,667	28,126	29,922	27,879	- 8.0
Crude petroleum	372,586	393,453	415,161	541,114	681,519	25.9
Tractors and parts.....	196,661	194,401	188,594	264,043	324,522	22.9
Aircraft and parts.....	437,034	400,781	384,430	289,150	293,965	1.7
Office machines and equipment.....	91,446	107,234	138,714	161,857	234,559	44.9
Electronic computers.....	108,606	180,257	176,290	184,161	212,410	15.3
Television and radio sets and phonographs.....	68,168	92,343	90,485	124,039	205,375	65.6
Plate, sheet, and strip steel	103,179	155,519	128,875	176,698	187,403	6.1
Coal.....	160,390	114,803	150,832	151,389	178,792	18.1
Organic chemicals	129,036	138,030	133,543	137,377	167,325	21.8

**Total Exports and Total Imports, 1968-72, by Quarter,
Seasonally Adjusted, and by Stage of Fabrication, 1968, 1970, and 1972**



Area Pattern

The United States is the principal market for Canadian goods. It took 69.4 per cent of all domestic exports in 1972, up from 67.2 per cent in 1971 and 64.5 per cent in 1970. Domestic exports to the United States advanced 15.7 per cent over 1971 as did those to Japan, while shipments to Western Europe remained at 1971 levels. Those to the United Kingdom dropped by 3.9 per cent and those to other Commonwealth countries experienced an even larger decrease of 8 per cent. Domestic exports to Latin America grew at a below-average rate of 8.1 per cent, but efforts to diversify export markets resulted in a gain of 14.8 per cent of sales to the rest of the world, notably countries of the Pacific rim. Of the 30.6 per cent of total domestic exports shipped to countries other than the United States, 6.7 per cent went to the United Kingdom, a drop of 1.2 per cent over 1971; 5.7 per cent to the European Common Market; and 4.9 per cent to Japan.

The area pattern of imports changed marginally, with the United States supplying 69 per cent of all Canadian imports, as against 70.1 per cent in 1971. Imports from Japan grew above the average, to 33.5 per cent; from the European Community, to 22.6 per cent; from the Commonwealth, other than the United Kingdom, to 21 per cent; and from other countries, to 38 per cent. The latter reflects larger purchases from Pacific rim countries and shipments of Middle East crude oil. Below-average growth was recorded for imports from the United Kingdom, to 13.4 per cent, and Latin America, to 8.7 per cent above 1971. The share of imports from

the European Common Market remained unchanged at 6.1 per cent; that of Japan rose to 5.7 per cent from 5.1 per cent a year earlier, and the import share of the United Kingdom dropped to 5.1 per cent from 5.4 per cent in 1971.

Domestic Exports by Leading Countries, 1968-72

Country	1968	1969	1970	1971	1972	Per cent Change 1971-72
Thousands of dollars						
United States.....	8,941,501	10,237,742	10,579,937	11,681,555	13,530,902	15.8
United Kingdom.....	1,209,567	1,091,236	1,465,155	1,366,516	1,312,710	- 3.9
Japan.....	606,787	624,733	810,142	828,789	958,151	15.6
Federal Republic of Germany.....	228,733	277,382	383,681	317,049	310,762	- 2.0
USSR.....	88,569	9,071	101,553	127,638	281,907	120.9
People's Republic of China.....	163,243	122,891	141,995	204,053	258,563	26.7
Netherlands.....	178,850	184,966	277,189	234,043	249,181	6.5
Italy.....	131,210	133,671	183,961	208,191	198,512	- 4.7
Belgium-Luxembourg.....	126,648	116,232	189,943	180,544	196,249	8.7
Australia.....	185,717	163,258	197,750	180,188	153,874	- 14.6
Norway.....	116,559	103,645	178,056	186,105	152,176	- 18.2
France.....	81,516	128,583	154,201	154,292	151,319	- 1.9
Venezuela.....	102,671	92,902	111,391	120,072	145,370	21.1
Mexico.....	54,589	72,873	91,698	78,984	99,060	25.4
India.....	111,255	95,552	129,842	142,809	97,906	- 31.5
Brazil.....	48,200	50,246	87,387	93,255	86,227	- 7.5
Peru.....	22,231	26,234	35,891	61,248	59,603	- 2.7
Cuba.....	44,988	40,739	58,900	58,823	57,613	- 2.1
Argentina.....	48,017	62,315	59,129	50,334	56,982	13.2
Spain.....	41,114	55,908	64,506	64,249	55,139	- 14.2

Imports by Leading Countries, 1968-72

Country	1968	1969	1970	1971	1972	Per cent Change 1971-72
Thousands of dollars						
United States.....	9,048,372	10,243,242	9,917,045	10,945,008	12,869,900	17.6
Japan.....	360,180	495,704	581,715	801,864	1,071,331	33.6
United Kingdom.....	696,093	790,973	738,262	837,258	948,835	13.3
Federal Republic of Germany.....	298,869	354,715	370,931	429,417	512,498	19.3
Venezuela.....	357,862	345,596	339,212	387,664	410,501	5.9
France.....	121,647	151,841	158,486	213,092	250,953	17.8
Italy.....	114,495	141,193	144,973	157,473	204,005	29.5
Australia.....	75,990	96,285	146,148	125,671	193,426	53.9
Sweden.....	78,091	84,506	105,888	114,178	141,008	23.5
Taiwan.....	34,379	42,456	51,936	80,706	126,155	56.3
Hong Kong.....	58,354	72,942	78,486	80,188	104,969	30.9
Switzerland.....	64,326	83,930	80,831	86,180	101,667	18.0
Netherlands.....	69,052	78,678	78,923	76,397	90,808	18.9
Belgium-Luxembourg.....	57,520	60,936	51,695	58,981	89,060	51.0
Norway.....	39,204	44,895	49,132	53,195	77,136	45.0
Iran.....	33,569	30,176	33,880	66,642	71,657	7.5
Brazil.....	38,725	42,128	49,311	50,698	61,698	21.7
Nigeria.....	16,966	22,203	44,558	57,243	60,778	6.2
South Africa.....	39,315	45,944	45,702	54,590	56,942	8.0
Saudi Arabia.....	36,187	26,751	24,075	27,216	54,636	100.7

Balance of International Payments

The balance of international payments is a statement of a country's sources and uses of foreign exchange in a given period. It can also be defined as a systematic record of all the flows of real resources between a country and the rest of the world which at the same time measures changes in a country's foreign assets and liabilities.

International transactions in goods, services, transfers, and capital have an important effect on the Canadian economy and the monetary system of the country. The balance of payments accounts form an integral part of the system of national accounts. Transactions in goods and services are an important constituent and determinant of the Gross National Product while the capital account of the balance of payments forms a sector in the financial flow accounts.

Sources of balance of payments data are as varied as the range of transactions included in each of the accounts. Considerable information originates from annual, quarterly, and monthly surveys carried out by the balance of payments division of Statistics Canada. Because of the deadlines associated with the quarterly reports, quarterly surveys are more restricted and less comprehensive than annual surveys. Other government departments, other divisions of Statistics Canada, and the Bank of Canada all provide information concerned with transactions between residents of Canada and non-residents.

As the following table shows, Canada recorded a current account deficit of \$584 million in 1972, a swing of almost \$1,000 million from the 1971 surplus of about \$400 million. Almost all of the change resulted from a decline of over \$900 million in the merchandise trade surplus to \$1,386 million. The largest quarterly current account deficits in the year, on a seasonally adjusted basis, were recorded in the first and third quarters when the merchandise trade surpluses were at their lowest.

Buoyant economic activity in Canada, particularly in the latter part of the year, encouraged the growth of imports which, over the year as a whole, rose about 60

Grain elevators in Quebec City.





The Vancouver, B.C. container port.

per cent faster than exports. A relatively low rate of growth in exports to overseas countries partly reflected a slower pick-up in economic growth in many of these countries than in Canada, especially in the early part of the year.

The difference in rates of growth of exports and imports was probably influenced by industrial disputes in Canada and in overseas countries. In Canada there were dock strikes in the St. Lawrence and on the West Coast in the second and third quarters respectively. A seamen's strike in Japan in the second quarter and a dock strike in the United Kingdom in the third quarter also interrupted trade flows.

During 1972 Canada's position on current transactions weakened in relation to the United States, the United Kingdom, other OECD countries in Europe, the rest of the sterling area, and all other areas. With merchandise imports registering marked increases and exports growing at a lower rate or decreasing to some overseas markets, the trade balances with all regions declined.

With the United States the current account deficit widened by \$165 million to \$416 million in 1972. The bulk of the increase resulted from non-merchandise

transactions as the commodity surplus narrowed by only \$24 million to \$1,110 million. Merchandise exports and imports rose by 16 per cent and 18 per cent respectively over the previous year. An improved economic climate in the United States stimulated the market for Canadian commodities. Increased activity in the construction industry and a strong durables demand in the United States encouraged shipments of lumber and motor vehicles, engines, and parts. Increases were also recorded for crude petroleum, aircraft assemblies equipment, petroleum and coal products, natural gas, and newsprint.

Capital movements led to a net inflow of \$800 million in 1972, more than double the previous year's total. Inflows of capital in long-term forms rose sharply to \$1,773 million from \$394 million in 1971. The main features of this increase were a greater reliance on foreign financing for their bond issues by the provinces and municipalities, and a swing to net sales of outstanding Canadian pay bonds, particularly government issues. Lower interest rates, especially for issues in the German mark and the Swiss franc, encouraged the placement of new issues abroad. Among factors accounting for the net sales of outstanding Canadian issues to non-residents were the attractive yields in Canada and the fact that the issues in question were exempt from withholding tax. Augmenting the net inflow were a reduction in outflows resulting from the retirement of Canadian securities held by non-residents and an increase in their miscellaneous long-term investment in Canada.

Short-term capital movements in 1972 led to a net capital outflow of \$973 million, up over \$950 million from the 1971 level. Short-term investments are undoubtedly influenced by differing interest rates offered to investors by different countries. Fluctuating exchange rates also affect the cost of protecting the anticipated yield on foreign investments. These were some of the factors that influenced movements of short-term capital between Canada and the United States and between Canada and Europe during 1972. Despite efforts of the strong-currency countries to restore confidence in the relative value of each of their currencies, by way of the Washington Agreement in December 1971, waves of speculation continued in the foreign exchange market during 1972, with the exception of Canada.

In June the pound sterling was floated in response to pressure, while other countries imposed restrictions on the movements of speculative capital affecting the position of their currencies. There was a rise in interest rates on Eurodollars (a term used to describe American dollar balances held outside the United States), as they could be easily converted into currencies which speculators deemed to be under-valued. Such a yield attracted Canadian investors to this area of investment. In addition, in June, bank interest rates in Canada were lowered on various types of deposits following an agreement concurred in by the Minister of Finance. The substantial inflows that occurred during the first half of the year as residents reduced their foreign currency balances were displaced by outflows for the balance of the year.

Canada's net official monetary assets totalled US \$6,050 million at December 31, 1972, an increase of US \$480 million in the year. Of this change, US \$134 million occurred as a result of the revaluation of the stock of Canada's gold-based assets in May. These assets include gold, special drawing rights, and Canada's reserve

position in the International Monetary Fund. Reserves therefore rose in 1972 by US \$346 million (\$333 million expressed in Canadian dollars), apart from the revaluation of existing holdings.

Canadian Balance of International Payments, 1970-72^p

Item	Between Canada and All Countries			Between Canada and U.S.		
	1970	1971	1972	1970	1971	1972
Millions of dollars						
Current account						
Current receipts:						
Merchandise exports.....	16,751	17,830	19,937	10,859	12,004	13,885
Services:						
Gold production available for export	96	90	106	...	...	...
Travel expenditures.....	1,234	1,283	1,226	1,082	1,129	1,012
Interest and dividends.....	528	557	616	336	360	361
Freight and shipping.....	1,126	1,184	1,260	590	660	723
Other service receipts.....	1,376	1,340	1,327	766	705	661
Transfer receipts.....	765 ¹	828 ¹	858 ¹	231	257	251
Total current receipts.....	21,876	23,112	25,330	13,864	15,115	16,903
Current payments:						
Merchandise imports.....	13,845	15,527	18,551	9,818	10,870	12,775
Services:						
Travel expenditures.....	1,460	1,494	1,456	936	944	915
Interest and dividends.....	1,550	1,628	1,553	1,306	1,389	1,298
Freight and shipping.....	1,106	1,176	1,297	587	606	676
Other service payments.....	1,998	2,008	2,140	1,313	1,394	1,489
Withholding tax.....	269	278	285	..	..	..
Transfer payments.....	612	604	632	169	163	166
Total current payments.....	20,840	22,715	25,914	14,129	15,366	17,319
Current account balance.....	+1,036	+397	-584	-265	-251	-416
Capital account						
Direct investment:						
In Canada.....	+835	+885	+680	+575	+605	+562
Abroad.....	-295	-305	-385	-238	-183	-130
Portfolio transactions:						
Canadian securities:						
Outstanding issues.....	-184	-238	+230	-148	-112	-151
New issues.....	+1,227	+1,162	+1,816	+1,026	+862	+1,116
Retirements.....	-552	-804	-542	-395	-613	-406
Foreign securities:						
Outstanding issues.....	+98	+244	+302	+81	+257	+271
New issues.....	-34	-63	-57	-20	-21	-12
Retirements.....	+10	+10	+9	+5	+5	+4
Other long-term capital transactions.....	-363	-497	-280	-72	-72	+61
Net long-term capital transactions.....	+742	+394	+1,773	+814	+728	+1,315
Net short-term capital transactions.....	-248	-14	-973	+37	+780	-1,327
Net capital balance.....	+494	+380	+800	+851	+1,508	-12
Balance settled by exchange transfers.....	-	-	-	+770	-288	..
Allocation of Special Drawing Rights.....	+133	+119	+117	...	...	...
Net official monetary assets.....	+1,663	+896	+333	+1,452	+1,059	..

¹Including withholding tax.

p. Preliminary.

.. Not available.

... Not applicable.

International Travel

Estimates for 1972 reveal that Canadians earned \$1.226 million from international travel, while at the same time spending \$1.456 million abroad. These figures include transportation costs paid to foreign carriers. In 1972, residents of the United States spent an estimated \$1,022 million in Canada and visitors from other countries spent \$204 million. Although interpretation of travel account receipts and payments on a comparative basis for 1971 and 1972 is rendered difficult because of changes in some definitions and new collection techniques, the statistics suggest a reduction in the over-all volume of foreign travel and consequently in spending.

Compared to other major countries Canada ranked sixth in travel earnings from non-resident visitors in 1971. Countries ranking ahead of Canada were, in order, the United States, Spain, Italy, Germany, and France. Austria and the United Kingdom ranked close behind Canada. On the payment side, Canada ranked third in total resident travel expenditures abroad, behind the United States and Germany, but ahead of France and the United Kingdom.

Visitors to Canada. The majority of visitors to Canada are residents of the United States. In 1972, 36.2 million United States residents entered Canada. Of this total, 32.2 million entered by automobile; 1.2 million by plane, 1.4 million by bus and 0.8 million by boat, with the remaining 0.6 million classified as "other methods."

In 1971, the latest year for which details are available, the average length of stay of all visitors from the United States was 2.8 days and their average spending was \$10.40 per day. The majority of travellers came from the Eastern Seaboard states (New Jersey, New York, and Pennsylvania) and the Great Lakes states (Illinois, Indiana, Michigan, Ohio, and Wisconsin). The main destinations reported were Ontario and Quebec and the prime reasons for coming to Canada were for recreation and visits to friends or relatives.

Ski lodge at Banff, Alta. Challenging Canadian ski slopes attract many tourists.





The multitude of lakes in Canada provide a recreational haven for visitors. In an area of 5,294 sq. miles west of Reindeer Lake, Sask., there are 7,500 lakes.

In 1972, travellers from countries other than the United States numbered 902,000. The six leading countries were the United Kingdom (268,000 visitors), the Federal Republic of Germany (89,000), France (68,000), Japan (52,000), the Netherlands (44,000), and Italy (39,000). The average length of stay of these visitors in 1971 was 18.0 nights, down from 19.7 a year earlier. The decrease in average expenditure per trip from \$192 to \$186 was in part a reflection of the decrease in the length of their stay.

Canadian Travel Abroad. Aggregate statistics for 1972 show that 30.5 million Canadian residents returned from visits to the United States. Canadian residents re-entering by automobile numbered 27.1 million, by plane 1.1 million, by bus 1.5 million, by boat 0.2 million, and 0.6 million were classified as "other methods." The average length of stay of all Canadian residents returning from the United States in 1971 was 3.0 days and the average expenditure \$8.70 per day. A holiday was the main purpose of the trip given by 58 per cent of residents returning from the United States, followed by visiting friends and relatives, 25 per cent.

In 1972, Canadian residents returning from countries other than the United States numbered 1,144,000: 90 per cent returned direct and the remaining returned via the United States. The largest number of returning residents re-entered in Ontario and accounted for 44 per cent of the total, followed by Quebec, 37 per cent. In 1971, the average length of stay of Canadian residents in overseas countries was 25 days and the average expenditure on the trip was \$341, excluding fares paid to foreign carriers. The share of disposable income spent on foreign travel, 2.5 per cent, has not significantly changed since 1961. Per capita expenditures on Canadian travel abroad have been steadily increasing from \$35 in 1961 to \$69 in 1971.

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 1971, as in 1970, accounted for 88 per cent of total passenger miles. The rest 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.

The growth of freight transportation has also been dramatic. Railway freight transport totals expanded from 67,630 million ton miles in 1961 to 118,560 ten years later. Water cargo loading at Canadian ports for the coastal trade and export has increased by more than 60 per cent from 100.2 million tons in 1961 to 166.5 million tons in 1971. Notwithstanding the ability of these two modes to carry large volumes of traffic at low cost, their share of the total transportation market has been steadily declining since the beginning of the decade. Natural gas, petroleum, and petroleum products pipelines accounted for 90,991 million ton miles in 1971, a considerable increase over the 30,708 million ton miles reported in 1961.

A pipeline spread at work near 100 Mile House in the central interior of B.C.





Jet landing on flight path at Toronto International Airport.

Air Transport

Since the delivery of the first pure jet 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 transport is by far the most important activity. In 1972 some 525 air carriers licensed in Canada transported an estimated 10.5 million passengers domestically and about 3.8 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 88.1 per cent or 12.6 million passengers.

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, Western Europe, the Middle East, the Soviet Union, Central and South America, the South Seas—Hawaii, Fiji, and Australia—as well as Japan, China, and Hong Kong. While 3.6 million passengers were transported on the international scheduled services of these operators in 1972, a further half-million travellers journeyed throughout the world on charter services flown by the major air carriers of this country.

Statement of Operations of Canadian Carriers, 1971 and 1972¹

Revenues and Expenses	7 major Carriers ²		All other Carriers		Total all Carriers	
	1972 ^p	1971 ^r	1972 ^p	1971 ^r	1972 ^p	1971 ^r
Operating revenues (\$ million).....	875.0	769.2	170.4	149.6	1,045.4	918.8
Passengers (scheduled).....	687.5	600.2	11.3	7.6	698.8	607.8
Goods (scheduled).....	116.6	106.2	5.5	4.2	122.1	110.4
Charter and contract.....	57.3	52.0	105.8	98.4	163.1	150.4
Specialty and non-flying.....	13.6	10.8	47.8	39.4	61.4	50.2
Operating expenses (\$ million).....	800.7	722.5	162.4	138.7	963.1	861.2
Revenue traffic carried:						
Passengers (no. million).....	12.6	11.3	1.8	1.6	14.4	12.9
Goods (lbs. million).....	554.9	512.7	232.6	187.8	787.5	700.5

¹ Estimated.² Air Canada, CP Air, Pacific Western Airlines, Transair, Nordair, Quebecair, and Eastern Provincial Airways.^p Preliminary figures.^r Revised.

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 1972,

A helicopter perching on Observation Point above the Kuskawash Glacier in Kluane National Park, Y.T.





The new No. 2 Terminal at Toronto International Airport with an Air Canada 747 in the foreground.

55 airports with MOT control towers reported 4,945,588 movements, an increase of 84 per cent in just seven years. However if the last two years are considered, growth was slight between 1972 and 1971 when 47 MOT towers reported 4,895,376 movements.

As expected, jet aircraft account for a greater percentage of the total number of aircraft landings and takeoffs each year—in 1972 they accounted for 24.6 per cent of the total, up from 24.1 per cent in the previous year.

Distribution of Itinerant Movements¹ at MOT Tower-Controlled Airports by Type of Power, 1972, 1970, and 1964

	1972		1970		1964	
	Number	Per cent	Number	Per cent	Number	Per cent
Piston.....	1,347,751	60.5	1,119,486	59.2	729,647	65.5
Turbo-prop.....	230,877	10.4	264,913	14.0	255,497	23.0
Jet.....	546,623	24.6	440,533	23.3	105,969	9.5
Helicopter.....	91,800	4.1	63,618	3.4	22,394	2.0
Glider.....	8,834	0.4	1,143	0.1	—	—
Total.....	2,225,885	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.

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 1973 the number of civil aircraft in Canada increased from 7,016 to 13,157; at March 31, 1973, 4,646 more personnel licences were in force than in 1971, bringing the total to 44,125.

In general, these trends seem likely to continue through 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.

Railways

Railways are the backbone of the transportation system. Canada's continent-wide railways span 4,000 miles from the Atlantic, through vast stretches of rock, over barren muskeg, prairie lands, and rugged mountain ranges to the Pacific Ocean. In 1850 there were 66 miles of railway in all the British North American colonies. A hundred years later Canada alone had 57,997 miles of track being operated and by 1971 this had increased to 59,710 miles of track. Today, railways

There were only 66 miles of railways in the British North American colonies in 1850. By 1971, Canada had 59,710 miles of track.



are dynamic, innovative partners in integrated, multi-modal systems capable of moving the nation's production with speed, efficiency, and economy. Improved service, such as future speeds of up to 300 miles per hour which are at present being explored in Germany, will help to make railways increasingly important for inter-city transportation services.

Canadian National and Canadian Pacific continue to dominate the rail transport industry in Canada with their main-line transcontinental routes, feeder-service networks, and outside interests in the airline, trucking, coastal and oceanic shipping, hotel, and communication fields. The Canadian National Railways are federally operated. Through the Canadian National, the federal government also has an interest in such lines as the Northern Alberta Railway, the Shawinigan Falls Terminal Railway, and the Toronto Terminal Railway.

Provincially operated lines include the Ontario Northland, the British Columbia Railway, and the British Columbia Hydro's railway. The government of Ontario set up "GO" Transit to meet the commuting needs into and out of Toronto.

A new passenger service, inaugurated in 1972 by the National Railroad Passenger Corporation (AMTRAK) has several international lines. The "Pacific International" made its initial run July 17 between Seattle, Wash., and Vancouver, B.C. The eastern route, between Washington, D.C. and Montreal Que., via New York City, Springfield, Mass., and resort areas in New Hampshire and Vermont, began September 29.

Tank cars of a unit oil train preparing to discharge their load through hatches between the tracks at the Bruce heavy water plant, Douglas Point, Ont.



The last four years have seen a rapid growth in container traffic. In 1969, 27,718 railway freight cars carried 517,292 tons of containerized freight. By 1972, this mode of transportation had become so popular that the amount of freight carried had increased to 3,258,857 tons on 118,029 cars.

The largest contributors to Canada's 1971 total railway revenue of \$1,806 million were Canadian National (51.1 per cent) and Canadian Pacific (36.5 per cent). The Quebec North Shore and Labrador Railway, built primarily to transport iron ore and concentrates from the Schefferville and Wabush areas of Labrador and Quebec to water transportation facilities on the St. Lawrence River, accounted for 2.9 per cent of the revenues. Other railways contributing 1 per cent or more to the total revenue figure were the British Columbia Railway (2.1 per cent) and the Ontario Northland (1.1 per cent). The remaining 6.3 per cent was earned by 29 of the 34 common-carrier railways operating in Canada. (These include branches of American networks crossing into Canada.)

While the revenue freight carried in 1971 has increased to 236,410,148 unduplicated tons from the 1970 amount of 233,898,271 tons, and the passengers carried have increased from 23,849,112 to 24,118,978, the number of employees needed to transport these people and goods decreased during this same year from 132,838 to 131,092 persons. The average length of haul of revenue freight in Canada, or the distance each ton was carried was 499 miles, an increase from 471 miles a year earlier.

A sceneramic car travelling through the majestic Rockies.





Canada had 518,419 miles of roads and streets in 1971 and motor vehicle registrations numbered 9,022,136. Trucks and road tractors accounted for 1,514,976 of this total.



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 roads and streets are but some of the elements contributing to its importance. Mileage, expenditure, registration, and general activity figures attest to the magnitude of the industry today. At the end of 1971, Canada had 518,419 miles of roads and streets. Preliminary figures indicate that maintenance and construction expenditures totalled \$2,250 million during the 1971-72 fiscal year. Motor vehicle registrations numbered 9,022,136 in 1971, a 6.2 per cent increase over 1970. Of this total, 6,967,247 were for automobiles; 1,514,976, for trucks and road tractors; 41,581, for buses; 198,867 for motorcycles; and 299,465, for other motor vehicles such as farm tractors and snowmobiles in the case of Quebec.

During 1972, Canada's urban transportation systems grossing more than \$100,000 annually numbered 57 (according to preliminary figures) and reported \$248 million in revenues—roughly \$11 million more than the preceding year—with 1,041 million passenger fares and 261 million revenue vehicle miles. The latter figures represent 4.1 and 4.8 per cent increases respectively over 1971.

In 1972, 43 passenger bus firms with more than \$100,000 gross annual operating revenues reported \$95.4 million in revenues. These firms carried 37.9 million revenue passengers a total of 127 million miles. Two firms which previously were included under passenger bus operations have been reclassified as urban transit companies.

Motor carriers of freight with gross annual operating revenues of \$100,000 or more had revenues of \$776 million for the year 1971. This figure is approximately 60 per cent of the total reported annual revenues of for-hire intercity motor carriers of freight in Canada.

Chemical fertilizers in transport from Calgary to western farms.





The Angus Sherwood tug and a three-barge tow in the Beaufort Sea en route from the Mackenzie River Delta to Prudhoe Bay on the Alaskan North Slope.

Water Transport

The geographical configuration of Canada—surrounded by three oceans, with two of the world's largest rivers, and countless lakes—is the reason for the important role that water transportation has always played in the Canadian economy.

Of Canada's ten major ports that handled seven million tons or more of cargo in 1971, Vancouver and Montreal ranked first and second in tonnage; they handled 32.8 and 22 million tons respectively. While Sept Îles and Port Cartier exported more Labrador and Quebec iron ore than other ports—26.7 and 14.4 million tons—Thunder Bay, once again, was the leader in the grain trade, recording a 21 million ton total. Hamilton and Toronto specialized in the import of raw materials and foodstuffs for the densely populated, industrial peninsula of southern Ontario and reached a total of 16.2 million tons by the end of 1971.

In a comparison of port activity between 1970 and 1971, expansions occurred in most sectors. Canadian ports recorded higher totals for cargo handled—foreign tonnage figures increased 1.3 per cent to 166.5 million tons in 1971. Domestic unloadings fell 4 per cent to the 60.7 million ton mark in 1971 or 3 million tons less than the previous year. Approximately 93,053 vessels arrived during 1971. Some of the prime commodities making up the 60.8 million tons of cargo imported in 1971 include bituminous coal which totalled some 17 million tons; soybeans, 1 million; alumina and bauxite, 3.6 million; and limestone, 1.6 million.

Exports remained at 105.7 million tons for 1971. Iron ore exports were recorded as 35.8 million, marking a 6 million ton decrease; wheat expanded to 14.9 million from 12.9 million tons, including re-exports; barley figures dipped to 4.1 million in 1971 from the previous year's 4.5 million; rapeseed showed a 57.6 per cent increase to 1.2 million tons; and finally, bituminous coal exports totalled 6.0 million, a large increase over the 3.7 million tons in 1970.

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 in 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

The freighter *Bole St. Paul* discharging iron ore at Hamilton, Ont.





A container train in the Halifax area.

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 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 railway 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 come into service—for example, automobile, molten sulphur, and cement carriers; oil tankers; heavy-lift ships; and belt conveyor self-unloaders—all are over 100,000 deadweight tons. 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

Telecommunications has become a complex field of activity with an increasing influence on the lives of all Canadians. Ninety-six per cent of households now have television sets. By the end of 1972, the number of telephones in service in Canada reached 10,978,964—about one phone for every two people. And cable television, a medium that promises to provide a variety of services in the future, including two-way communication, is now wired into more than 1.5 million Canadian households.

By 1973 Canada had launched and was operating a domestic satellite communications system, through Telesat Canada. The satellite, Anik, is now providing telephone, colour television and data transmission service to many isolated communities, bringing them closer to the communications mainstream.

Computer communications, a term all but unheard of a few years ago, is also



Several isolated communities are now receiving telephone service, colour television, and data transmission by means of the satellite, Anik.



A recently introduced facsimile terminal service called Faxcom, when coupled to a telephone handset, can send a page of words or pictures over telephone lines.

a growing factor in Canada and will have even greater influence in the years ahead.

Because of the importance and complexity of telecommunications, the federal government in 1973 brought forward proposals for a new national telecommunications policy—one that it felt would more closely meet the future needs of Canadians. These proposals are contained in a "green paper," an important document since it attempts to find solutions to five broad problems:

How can Canadians be assured of a reasonable variety of choice in the communications services available to them, and what must be done to ensure that at least basic communications services are available to all Canadians, wherever they may live, at just and reasonable rates?

How can Canadian telecommunications systems be developed and used, to the greatest possible extent, to foster Canadian social and cultural values, and to provide a sure means of disseminating a Canadian perception of Canada and of the world to all Canadians?

How can the east-west links, which are essential to the social, cultural, and economic development of the country, be maintained and developed in relation to the powerful pull of north-south ties?

What can be done to ensure that Canadian communications systems are and remain effectively in Canadian ownership or under Canadian control?

What are the best means of harmonizing federal and provincial objectives and activities in the field of telecommunications for the benefit of all Canadians?

In the Public Interest

The existence of Canada as a political and social entity has always been heavily dependent upon effective systems of east-west communications. This is the historical reason for the successive development of the routes of the voyageurs, coast-to-coast railways, telegraph and telephone systems, broadcasting services, airlines, the Trans-Canada Highway and, most recently, a domestic satellite-communications system. These systems, counter-balancing the strong north-south pull of continentalism, have been essential for the development of industry and resources, for the transmission and dissemination of information, and for the expression and sharing of social and cultural values.

Today, communications systems are being developed with new levels of diversity and sophistication, which tend to reinforce the economies of a north-south axis. At the same time, more and more Canadians are discovering and giving expression to their relationship to each other and to the diverse cultures and regions of the country. There is a gathering urgency to state and follow a communications policy that is national in scope, that will have the support of all Canadians, and that will offer a shared knowledge of Canada and of the world, which is not a luxury but a necessity. It is an established belief in Canada that the unity of the country can only be based on a recognition of diversity. The Canadian writer, Northrop Frye, has said: "... real unity tolerates dissent and rejoices in variety of outlook and tradition. ..." Thus Canada has two official languages and the government has worked effectively to strengthen the cultural heritage of English-speaking and French-speaking Canadians, and to encourage contributions by the other cultures that help to form the Canadian identity. It is also an historical fact that the federal institutions of communications and culture, while contributing to the unity of the country, have also contributed to cultural and regional diversity in Canada.

The Challenge Today and in the Future

In recent years, technological developments have been adding a new complexity to telecommunications. The vast expansion in the means of instantaneous transfer of information throughout the country not only helps to dispose of distance as an obstacle to national trade and commerce but provides new prospects for reducing regional disparities and developing the North. Multi-channel cable systems will eventually make it possible to offer to the public a vast new range of information, cultural enrichment, and entertainment through remote access from the home to computerized databanks and libraries. Within the foreseeable future, direct home-reception of satellite broadcasts will become feasible, adding a new dimension to the range of choice. At the other end of the scale, the rapid development of simple low-cost video, film-making, and broadcasting equipment offers increasing opportunity for members of the public to take an active part in the communications process. These are not separate isolated developments responding to particular business or consumer needs; they are the integral components of a technological revolution that will have profound and unmeasurable effects on social conditions.

Thus today, more than ever before, it is clear that the technological and



Canada's second overseas telecommunication satellite earth station, with its giant 100-ft-diameter dish-shaped antenna, is located at Lake Cowichan on Vancouver Island. The first station was built in Nova Scotia.

economic aspects of communications are intimately related to their social and cultural implications. Moreover, there is an evident and growing tendency for many formerly distinct systems of electronic communications to become interconnected, more integrated, and more powerful. One very important symptom of this development is the growing interaction of broadcasting with other forms of telecommunication. Another is the rapid integration of the technology of computers and communications, the economic benefits of which are already being vigorously exploited while little has been done to devise defences against the concomitant dangers and disadvantages that may develop. There is also a rapid growth in the consumer market for all kinds of electronic audio and visual equipment for direct use by the general public, who have increasing access to collective communications systems.

The government is therefore concerned to ensure that the future communications environment foreshadowed by this huge range of new techniques and tools should not be allowed to develop without regard for its impact on Canadian social and cultural values and the quality of life in Canada, as well as on the Canadian economy.

Federal and Provincial Authority

The distribution of legislative authority between the Parliament of Canada and the provincial legislatures is established by the British North America Act. The only form of telecommunication known to the Fathers of Confederation in 1867 was the electric telegraph, then still in its infancy, and accordingly the application of the Constitution to other modes of telecommunication has developed from a series of judicial decisions, each of the greatest importance although they are neither comprehensive nor in all respects conclusive.

Radiocommunications, including broadcasting transmitting and receiving undertakings, are federally regulated. The federally regulated telecommunications carriers (which account for more than 75 per cent of all telephone and telegraph services in Canada) include Bell Canada, British Columbia Telephones, Canadian National Telecommunications, Canadian Pacific Telecommunications, Telesat Canada, the Canadian Overseas Telecommunication Corporation, and four relatively small telephone or telegraph companies. All other telecommunications common carriers, numbering 1,490, are provincially regulated.

The result of this divided authority over telecommunications carriers is that the provincial legislatures and, consequently, the governments of the provinces do not all exercise the same rights and authority over the principal telephone companies providing service within the province. In Ontario, Quebec, and British Columbia, the principal telephone company is subject to federal regulation, while in each of the other provinces the principal telephone company is subject to provincial regulation. Thus, since there has been no co-ordinated authority over the several undertakings that together provide telephone service to all parts of Canada, the recognition of a "national dimension" in the network as a whole has been left largely to the discretion of the Trans-Canada Telephone System (TCTS). This is a voluntary association including Bell Canada, operating in Ontario, Quebec,

Labrador, and the eastern part of the Northwest Territories; the Bell subsidiary or affiliate companies in New Brunswick, Nova Scotia, and Newfoundland; the Crown corporations of Manitoba, Saskatchewan, and Alberta; and British Columbia Telephones. TCTS is not incorporated and has not, as a composite undertaking, been subjected to any regulation whatsoever. Although a commendable degree of co-ordination and standardization has been achieved by TCTS since its formation in 1931, there has in the past been little opportunity for expression of the public interest in the orderly development of telephone systems in Canada.

Under the Radio Act, the Minister of Communications exercises a regulatory function and is responsible for "the orderly development and operation of radio-communication in Canada." Under the Department of Communications Act he is empowered to "take such action as may be necessary to secure, by international regulation or otherwise, the rights of Canada in communications matters"; however, he is further required under the Radio Act to "consult the Canadian Radio-Television Commission with respect to all such (international) matters that, in his opinion, affect or concern broadcasting."

To enable the Minister to fulfil these responsibilities, he is empowered to make regulations on a wide range of technical matters, including the use of the radio-frequency spectrum and the planning of broadcasting facilities, and for the effective implementation of international agreements to which Canada is a party. He is also charged with the issuance of radio licences and, for broadcasting undertakings, of technical construction and operating certificates which are a prerequisite for the issuance of broadcasting licences by the Canadian Radio-Television Commission.

Canadian Ownership

The government regards the whole field of communications as a key sector that must be subject to effective Canadian control. All the component industries of the sector will be subject to whatever screening arrangements and other measures Parliament may approve, but there are some further special considerations that must be taken into account.

All but two of the principal telecommunications carrier undertakings in Canada are Canadian-owned. However, while there appears to be no immediate cause for concern, effective Canadian control of telecommunications-carrier systems is essential, and provision will have to be made to ensure that there can be no dilution of the existing degree of Canadian ownership.

No change is envisaged in the principles limiting foreign ownership or participation in broadcasting undertakings in Canada.

More than 50 per cent of the present remote-access data-processing industry in Canada is Canadian-owned. Still in its infancy, the industry is vulnerable to competition from the United States and an increasing proportion of foreign ownership. The government attaches great importance to the development and support of a strong data-processing industry in Canada and will favour measures to maximize Canadian influence and control in key areas of computer communications.

The Postal Service

Canada Post employs some 50,000 persons to serve Canadians from coast to coast and from the country's southern border to the Arctic. The Department is fully decentralized and is divided into four regions: Western, Ontario, Quebec, and Atlantic. In turn these four regions contain a total of 14 districts each of which is organized to provide local customers with a service tailored to different needs.

The Assured Mail Program, launched in 1971, provides next delivery-day service and is now operating in 60 cities. It was expanded in April 1973 with the addition of an early evening deadline for next-day delivery of local mail.

By the end of October 1973, the Postal Code became a part of every Canadian address. The coding machinery that is scheduled for installation in 15 cities is now operating in every part of Canada, except in the Maritimes, where it will commence shortly.

Major processing plants in the larger cities which have been under construction since May 1972 will be equipped with the coding and sorting machinery made necessary by burgeoning volumes of mail. In 1973 the first of these plants opened in Mississauga, Ont., a suburb of Toronto. When fully operative, these plants will help to provide Canadians with postal service that will rank among the speediest and most reliable in the world.

With a market approach to customers' needs, Canada Post has developed several new products. For the businessman there is Postpak, an inexpensive system for shipping several items in a container to a single destination. For the Telex subscriber there is Telepost, a service that combines the field of telecommunications with the postal network. For stamp collectors there are philatelic counters now located in all major cities. And for all Canadians, there are Canada Cards, pre-stamped picture postcards, and Certified Mail, a new service which provides written proof of delivery for the sender.

In the coding room of the post office, a coded letter is read by an operator and the information is fed to a computer which translates the message for reading by a letter-sorting machine.



acknowledgements

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- Africa, relations with 157-58
- Aged, services for 196
- Agriculture 122-23, 226-37
 - Department of 122-23
- Agricultural research 70-71
- Air transport 318-21
- Anik 63, 67, 329
- Appalachian Region 4-6
- Archives 87
- Arctic, the 23, 26
- Arts, the 54-62
- Asia and the Pacific,
 - relations with 160-61
- Balance** of international
 - payments 311-14
- Bank of Canada 282-83
- Banking and savings 280-83
- Bilingualism 46-48
 - Development Program 46-48
- Births 110
- Books 57-58
- British North America
 - Act 34, 113-14, 117, 119
- Broadcasting 104-06
- Cabinet**, federal 117-19
- Caisses populaires* 281-82
- Canada Council 55, 59, 62
 - Pension Plan 192
- Canadian Broadcasting
 - Corporation 104-06
 - constitution 115, 117
 - Executive Service Overseas (CESO) 165-66
 - International Development Agency (CIDA) 162-64
 - landscape 22-29
 - North 23, 26
 - Shield 9-11
 - University Service Overseas (CUSO) 166-67
- Capital expenditures 265-68
- Census of Canada 107-11
- Central Mortgage and Housing Corporation 269-71
- Child welfare 195
- Churches 52
- Citizenship 124-26
- Climate 16-21
- Coal 259-60
- Collective bargaining 183-84
- Colombo Plan 154-55
- Commonwealth relations 153-55
- Communications 67, 329-34
- Community colleges 137-39, 143
- Constitution, Canadian 115, 117
- Consumer and corporate affairs 127-28
 - credit 297-98
 - demand 207-10
 - price index 302-03
- Co-operatives 300-02
- Cordilleran Region 13-15
- Dairying** 235-36
- Deaths 110
- Defence, national 169-70
 - Research Board 169
- Disarmament 161
- Domestic trade 294-303
- Drug control and abuse 173-74
- Economic Council of**
 - Canada 214-19
 - growth 207-213
- Economics 199-206
- Education 129-45
 - administration 130-32
 - adult 136
 - assistance 144-45
 - elementary and secondary 130-35
 - expenditures 144-45
 - school organization 132-34
 - statistics 134-35, 142-43
 - universities 140-41
 - vocational and technical 135-36
- Electric power 261-63
- Embassies and posts abroad 151-52

Employment.....	186, 188
Energy.....	261-64
Environment, Department	
of.....	74, 78, 146-50
—federal programs.....	148, 150
—legislation.....	147-48
—protection of.....	75, 146-50
Eskimos. See Inuit	
Europe, relations with.....	156
Events.....	98-99
Exports.....	211-12, 306-07, 309-10
External Affairs, Department of	151-52
—aid programs.....	154-68
—relations.....	151-70
Family allowances.....	193-95
—Planning Program.....	175
Farm Credit Corporation.....	123
—exports.....	237
—income.....	226-37
—legislation.....	122-23
—production.....	226-37
Federal government.....	113-21
—environment legislation.....	146-50
—finance.....	272-79
—health science research.....	79-80
—northern research.....	68-69
—research.....	63-80
—science policy.....	64-67
Festivals.....	96-97
Field crops.....	228-30
Films, motion picture.....	100-03
Finance.....	265-83
—capital expenditure.....	265-68
—federal government.....	272-79
—federal-provincial.....	272-75, 277-79
—municipal.....	276-79
—non-bank institutions.....	281-82
—provincial government.....	276-79
Fisheries.....	240-42
—Research Board.....	75-77
Foreign policy.....	162
—trade.....	304-14
Forest industries.....	245-48
—ownership and administration.....	244
Forestry.....	243-48
—research.....	77-78

French-speaking community,	
relations with.....	158
Fruits and vegetables.....	231-32
Furs.....	233-30
Gas, natural.....	256-58
Geography.....	1-15
Geological Survey.....	72-73
Glaciation.....	2-4, 8, 11
Government.....	113-21
—federal.....	113-21
—expenditures, education.....	144-45
—municipal.....	121
—provincial.....	115, 121
—territorial.....	121
—welfare programs.....	192-97
Governor-General.....	117-19, 121
Grains, production of.....	228-30
Gross National Product	
(GNP).....	208-09, 212-13
Guaranteed income supplement.....	193
Harbours.....	326
Health.....	171-75
—grants.....	175
—research.....	79-80
—services.....	171-75
History.....	31-38
Hospital insurance.....	171
House of Commons.....	117, 119-20
Housing.....	269-71
Hydro-electric power.....	261-63
Immigration.....	176-77
Imports.....	308-10
Income, national.....	208
—personal.....	208, 212-13
—tax.....	272-75
Indian Affairs and Northern	
Development, Department of ...	39-45
Indians.....	39-42
Industrial growth.....	220-25
—research.....	77-78
Industry, Trade and Commerce,	
Department of.....	178-79
Insurance companies.....	283

- hospital..... 171-72
- unemployment..... 184-86
- Interior Plains..... 11-12
- International Development
 - Research Centre (IDRC)..... 167-68
- payments..... 311-14
- trade..... 304-14
- welfare..... 197
- Inuit (Eskimos)..... 43-45
- Judiciary**..... 121
- Labour**..... 180-86, 284-88
 - collective bargaining..... 183-84
 - earnings..... 285-88
 - force..... 284-86
 - legislation..... 180
 - organizations..... 288
- Land, the..... 1-15
- Landform Regions of Canada (map) 2
- Latin America, relations with..... 158-60
- Legislature, the..... 119-20
- Libraries..... 86-87
- Livestock..... 233-37
- Logging..... 245
- Lumber..... 245-47
- Manpower programs**..... 186-88
- Manufacturing..... 289-93
 - statistics..... 290-93
- Mass media..... 100-06
- Medical care program..... 171
 - insurance..... 171
 - services..... 171-75
- Mental illness..... 175
- Middle East, relations with..... 156-57
- Minerals..... 249-60
 - fuels..... 255, 256-60
 - metallic..... 254
 - non-metallic..... 254-55
 - production of..... 254-56
- Multiculturalism..... 48-49
- Municipal government..... 121
 - finance..... 276-79
- Museums..... 58, 83-85
- National archives**..... 87
 - defence..... 169-70
 - Film Board..... 100-02
 - Gallery of Canada..... 81-82
 - Housing Act..... 269
 - Library..... 86-87
 - parks..... 91-93
 - Research Council..... 63
 - welfare grants..... 196-97
- Native peoples..... 39-45
- Natural resources..... 14-15, 226-64
- Newspapers..... 100
- North Atlantic Treaty Organization (NATO)..... 162
- Nuclear power..... 264
- Nursing, schools of..... 139
- Official Languages Act**..... 47-48
- Oil..... 256-58
- Old age security..... 192
- Ottawa..... 88-90
- Parks**..... 91-93
- Parliament..... 113-21
- Pensions..... 192-93
- Petroleum..... 256-58
- Pipelines, oil and gas..... 257
- Pollution..... 27, 146-50
- Population..... 107-11
 - by age..... 109-10
 - by marital status..... 111
 - by province..... 107-11
 - by sex..... 109-10
 - growth..... 107-09
 - rural and urban..... 108
- Postal services..... 335
- Poultry and eggs..... 236-37
- Press, the..... 100
- Prime Minister..... 117-18
- Privy Council..... 117-18
- Provincial government..... 115, 121
 - finance..... 272-79
 - revenue and expenditure..... 277-79
- Pulp and paper..... 247-48
- Queen, the..... 116-17, 119

Radio	104-06, 334	—international.....	304-14
Railways.....	321-23	—retail.....	294-97
Recreation.....	94-99	—wholesale.....	298-99
Regional Economic Expansion.		Transportation.....	317-28
Department of.....	189	—technology.....	327-28
Rehabilitation.....	174-75	Travel, international.....	98, 315-16
Religion.....	50-53		
Research.....	63-80	Unemployment	284-85
—agricultural.....	70-71	—insurance.....	184-86
—economics.....	71	United Nations.....	152, 161-62
—Energy, Mines and Resources.....	72-75	United States, relations with.....	152-53
—fisheries.....	75-77	Universities and colleges.....	140-41, 143
—forestry.....	77-78	—research.....	77-80
—government.....	64-67		
—health science.....	79-80	Vacations, regulations	180-82
—industrial.....	77	Vegetables.....	231-32
—medical.....	79-80	Veterans Affairs, Department of..	190-91
—scientific.....	63-80	Vital statistics.....	107-11
—university.....	77-80		
Retail trade.....	294-97	Wages	180, 286-88
Roads.....	325	—average.....	286-88
		—minimum rates.....	180-81
Sawmills and planing mills	246-47	Welfare services.....	195
St. Lawrence Lowlands.....	7-9	Wheat production.....	228-30
School administration.....	130-32	Wholesale trade.....	298-99
—enrolment.....	134-35	Wildlife.....	24-25
—organization.....	132-34	Writing.....	57-58, 62
Science Council.....	64-65		
Science and technology		Youth allowances	193-95
for the North.....	58-59		
Scientific research and			
development.....	63-80		
Senate.....	117, 119		
Shipping.....	326		
Social assistance.....	195		
—welfare.....	192-97		
Sport.....	99		
Supreme Court of Canada.....	121		
Taxes	272-75		
Telecommunications.....	329-34		
Television.....	100-04		
Theatre.....	60-61		
Thermal power.....	263-64		
Trade.....	294-314		
—domestic.....	294		



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