

Canada Handbook



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Preface

This is the 48th edition of the *Canada Handbook*. It presents a view of life in this country and a summary of recent social, cultural and economic developments, including articles on the physical environment, the people and their heritage, the economy, and governments and their services. Textual and statistical material has been provided by various divisions of Statistics Canada, by other government departments and by special contributors. Illustrations have been selected from a wide range of government, commercial, press and private sources.

Canada is now in the process of converting to the si (Système internationale) metric system. In support of this movement all relevant amounts in the text of the *Canada Handbook* are expressed in si. A table giving conversion of selected metric figures into the traditional Canadian units is printed on page 333.

The budgetary pressures arising from rising prices and recent federal government initiatives to reduce expenditures have resulted in a conclusion by Statistics Canada that it can produce the *Canada Handbook* only once every two years rather than each year. With the co-operation of our contributors, it will continue to provide an accurate picture of how Canadians live; the next edition is due for release in 1981.

The *Canada Handbook* was planned and produced by Margaret Smith, Acting Editor, with the assistance of the staff of the Publishing Section, Information Division.



Peter G. Kirkham
Chief Statistician of Canada

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The Environment

1. The environment is a complex system of interacting components.

2. The environment is a dynamic system that changes over time.

3. The environment is a system that is influenced by human activities.

4. The environment is a system that is affected by natural processes.

5. The environment is a system that is shaped by social and cultural factors.

6. The environment is a system that is influenced by economic activities.

7. The environment is a system that is affected by technological advancements.

8. The environment is a system that is shaped by political and legal frameworks.

9. The environment is a system that is influenced by global climate change.

10. The environment is a system that is affected by biodiversity loss.

11. The environment is a system that is shaped by resource management.

12. The environment is a system that is influenced by urbanization.

13. The environment is a system that is affected by deforestation.

14. The environment is a system that is shaped by land use changes.

15. The environment is a system that is influenced by water pollution.

16. The environment is a system that is affected by air pollution.

17. The environment is a system that is shaped by soil degradation.

18. The environment is a system that is influenced by marine pollution.

19. The environment is a system that is affected by climate change.

20. The environment is a system that is shaped by human development.

21. The environment is a system that is influenced by natural disasters.

22. The environment is a system that is affected by resource scarcity.

23. The environment is a system that is shaped by environmental policy.

24. The environment is a system that is influenced by environmental education.

25. The environment is a system that is affected by environmental justice.

26. The environment is a system that is shaped by environmental law.

27. The environment is a system that is influenced by environmental science.

28. The environment is a system that is affected by environmental impact assessment.

29. The environment is a system that is shaped by environmental management.

30. The environment is a system that is influenced by environmental monitoring.

Canada is the second largest country in the world, with its area of almost 10 million square kilometres. With this in mind, both Canadians and people abroad tend to assume that Canada's population can continue to increase and that we can still export large quantities of food. Unfortunately, relatively little of Canada's area is easily habitable for those living average southern Canadian lifestyles and only about 7 per cent of the land is economically viable for farming at present. Recent years have seen increased concern about how we use or abuse this environment and how we can better adapt to our demanding climate while making much more efficient use of finite resources.

Canada's rapid population growth has been concentrated mainly in cities. Growing cities increasingly threaten surrounding agricultural lands with demands for more land — a trend especially obvious in the Windsor-Quebec City corridor and the lower BC mainland. At the same time intra-city transportation systems, especially highways, use up even more land than the cities. Since Canadian cities tend to develop where climate and landscape are gentlest, the land they and their spreading suburbs use tends also to be the most productive farmland; at the same time population growth, both locally and worldwide, demands increasing food production. In the light of this demand the loss of any good agricultural land

becomes a very high price to pay for continuing urbanization and industrialization.

As population has grown, so has dependency on the goods and services provided by more and more large-scale technology. Non-renewable resources are consumed at an accelerated rate, both as raw materials and as energy to keep the machinery of transport and production going. While concern about continued supply of these resources rises, growing quantities of solid wastes accumulate and pollution threatens the air, land and water that support all life. One result of such overuse and abuse of the environment is a growing scarcity of resources and the resulting higher costs for food, energy, housing and other human needs. Another is the fear that the quality of life must deteriorate under such pressures.

In the past the availability of unexploited agricultural land, of readily accessible renewable and non-renewable resources and of cheap and abundant energy has allowed Canadians to avoid the problem of finite resources. When the resource on which a community's economy was based was used up, there seemed to be plenty of unexploited resources elsewhere to move on to. At a time when populations were relatively small and population densities were low, most of the pollution generated could be tolerated by the natural environment. Some communities did suffer severely from changes in the resource base: trappers, the native peoples, farmers, miners, fishermen and lumberjacks all faced drastic changes when the resources on which they had built their lives were depleted. But the country as a whole still seemed to offer unlimited new resources.

The Canadian economy and society were founded upon cheap, abundant resources and limitless horizons. However, the realities that must now govern policies, lifestyles and designs are finite and increasingly expensive resources and social and environmental conditions that can no longer tolerate abuses.

The Canadian climate has to be given much more consideration by policy makers, resource managers, planners and designers. Our long non-growing season, the distribution of water resources and such specific problems as permafrost in the North all limit food production and mean that renewable resources take longer to renew, wastes take longer to decay and flora and fauna are under greater stresses than in milder climates. Extremes of heat and cold and of summer daylight and winter darkness, along with both seasonal and long-term fluctuations in availability of moisture, pose difficulties for design and resource management. Common building materials like steel and plastics don't stand up well. Existing Canadian buildings were constructed on the basis of cheap energy or mild-climate designs; they need renovation to conserve energy and save on heating and cooling costs, while efforts continue to develop designs for new structures and arrangements of buildings that will suit the climatic extremes prevailing in most of the country. People too are stressed both physically and emotionally by extreme temperatures, especially by the combination of cold and increasing periods of darkness in winter.

The use of Canada's 10 million square kilometres is also limited by physiography and the general environment. Permafrost, ice, muskeg, slope and unstable soils produce particular problems for constructing and maintaining buildings and transportation systems. Lack of suitable soils, or soils that require expensive drainage and fertilization, limits agriculture and forestry. Shortages of rock (gravel) in other areas make construction difficult and expensive. Much of British Columbia is just too high and/or too steep for development.



Eroded banks of the Bow River near Calgary, Alta.

The very large distances between settlements throughout most of Canada introduce problems of heavy energy consumption for transportation, high costs of transportation systems as a result of both distances and difficulties of construction and the cultural and psychological effects of isolation. The costs associated with these problems are borne by all Canadians, as government and industry subsidize development so that it might some day become profitable.

Biting insects in the North are both a source of food in one part of the ecological web and a check on mammal populations on the other because their large numbers can fatally weaken the sick, infirm and very young; if man were to use insecticides to make areas comfortably habitable for him and his livestock the insecticides and the absence of the insects would both have serious repercussions.

The alternative to stumbling into a future dominated by forces beyond our control, such as climate, resource-base changes or the changing policies of other nations that now fill the gaps in Canadian production, is to consciously and conscientiously redesign our physical systems and social institutions and adapt our lifestyles to the physical realities. Canadians can develop a society that strikes a better balance between what we demand of our resources and environment and what nature is able to provide over the long term, and we can do it without drastic changes in our way of life.

The following descriptions of Canada's climate and physiography provide an introduction to the necessary self-knowledge.

The Land

Canada's borders encompass approximately 10 million square kilometres, but the country's overall pattern of relief is simple. The interior is a plain-like surface bounded on the east, west and north by a highland rim but open to our American neighbours to the south. This low-relief area is 3 000 km (kilometres) wide at its widest in the south and narrows to about 1 500 km in the north. On the western side the Cordilleran region is an almost unbroken mountain chain extending from the American border to the Beaufort Sea. On the eastern side, the Appalachian Mountain system forms the Atlantic provinces. On the northern side, the Torngat Mountains of Quebec and the Baffin, Axel Heiberg and Ellesmere Island mountains form a more broken barrier.

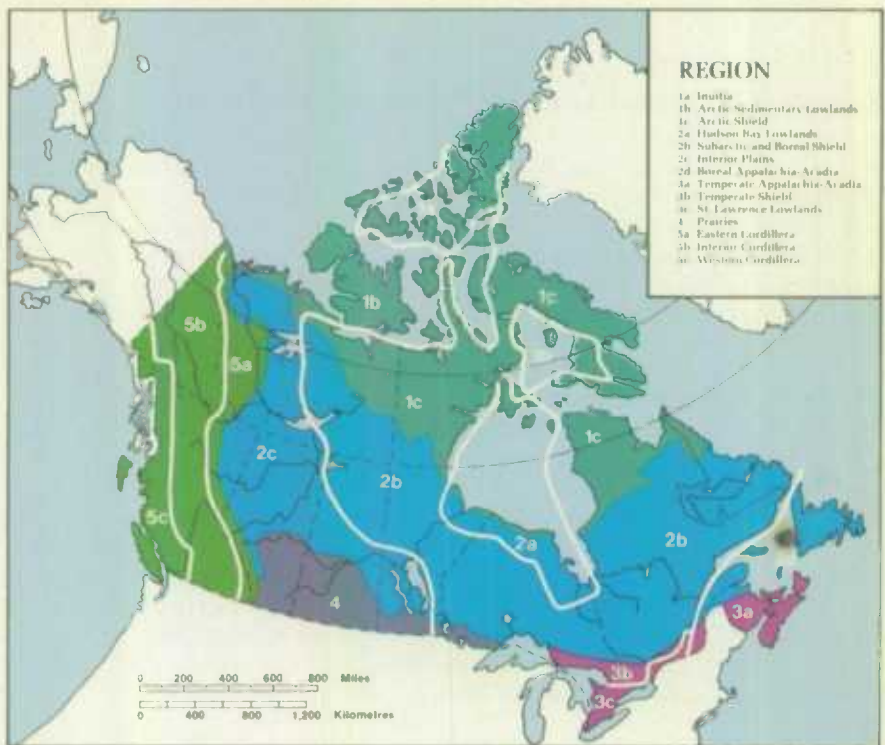
In any analysis of Canada's physical geography the fact that up to 97 per cent of its surface has been repeatedly covered by glacier ice within the last million years is of fundamental importance, in that the surface features of both mountains and plains have been extensively modified; only the central part of the Yukon Territory and minor parts of the Northwest Territories escaped glaciation. About 2 per cent of Canada is still covered by glacier ice, but its distribution is so restricted that probably two-thirds of the Inuit (Eskimo) population, for example, have never seen a glacier. About 155 000 km² of ice remain in the Arctic islands and 52 000 km² remain on the mainland.

Four major vegetation zones and five major landform regions of Canada are used as a basis for the discussion that follows. In general, the vegetation zones provide a convenient basis for regional description; only in the case of the Cordilleran region are landforms considered more useful for this purpose. Accordingly, the regions are described under the five major headings of: 1. The Arctic Tundra; 2. The Subarctic Parkland and Boreal Forest; 3. The Eastern Temperate Forest; 4. The Prairies; and 5. The Cordillera. An attempt has also been made to identify the distinctive natural hazards associated with each of these regions, where natural hazard is defined as "an interaction of people and nature governed by the co-existent state of adjustment in the human use system and the state of nature in the natural events system. Extreme events which exceed the normal capacity of the human system to reflect, absorb or buffer them are inherent in hazard".¹

1. The Arctic Tundra Region

The Arctic Tundra corresponds closely to the region that lies north of the southern limit of continuous permafrost. Permafrost is the thermal condition in earth materials that remain below 0°C for two years or more. Approximately 26 per cent of the world's land surface is underlain by permafrost, and distinctive landforms and engineering problems are associated with its occurrence. The tundra vegetation that is characteristic of this region shows considerable variety, and is discussed under each sub-region.

¹G.F. White, *Natural Hazards* (Oxford University Press, 1974), p 4.



This region has generally been regarded as comparatively free from natural hazards. Nevertheless a number of environmental problems have become important recently, associated with building and highway construction, sewage disposal, water supply and hot-oil pipelines. In each case the problem results from a disturbance of surface conditions, whereby there is an increase in summer thawing and a consequent thickening of the active layer. Insulation of the ground surface needs to be maintained by not removing the vegetation mat or by adding coarse gravel fill.

(a) Inuitian Sub-region (378 000 km²)

This is the northernmost part of Canada, north of Parry Channel (74°N). Included are Ellesmere, Axel Heiberg, Parry and Queen Elizabeth islands. One-third of Ellesmere and Axel Heiberg are covered with ice (about 96 000 km²) and this includes 12 ice caps, each with an area of more than 2 500 km². Local relief up to 1 200 m (metres), with the highest summits around 2 500 m, provides the setting for some of the harshest environments on earth. In this high Arctic polar desert, vegetation may be completely absent except for crustacean lichens. "In its variety, its aridity and its glaciers, and above all its potential for petroleum development, it is perhaps the most fascinating of all the regions of northern Canada."²

²J.B. Bird in W.C. Wonders. *The North* (Toronto, 1972), p 24.

(b) Arctic Sedimentary Lowlands Sub-region (409 000 km²)

Included in this category are: most of the Arctic islands south of Parry Channel, such as Banks, Victoria, Prince of Wales, Somerset and Southampton islands; low-lying parts of Devon, Ellesmere and Baffin islands; and the Arctic Coastal Plain, including the Mackenzie River Delta. They form low coastal plains and plateaus underlain by horizontally bedded sedimentary strata covered by a variable depth of drift sediments or, in the Mackenzie Delta, of fluvial sediments. Although underlain by continuous permafrost, the land surface shows a markedly richer tundra vegetation than the Inuitian sub-region. Lichen moss tundra, including reindeer moss in the drier sites and wet tundra with grasses and sedges, provides an almost continuous vegetation cover. The Mackenzie Delta has exceptionally rich vegetation, including stands of white and black spruce on the higher parts of stable river island bars. Rock deserts and peat-covered tundra plains are especially well developed on Southampton, Coats and Mansel islands in Hudson Bay.

Of particular interest in this sub-region are the distinctive landforms that have developed under the influence of periglacial processes. Spectacular conical hills called pingos develop in drained lake bottoms along the Arctic Coastal Plain; polygon-patterned ground is common; mounds, hollows and mud circles are widespread; and solifluction terraces — resulting from the saturation of the soils and frost action — are here classically developed. All this occurs over a depth of permafrost that reaches 400 m in the delta and 490 m on the islands.

(c) Arctic Shield Sub-region (1 412 000 km²)

Included in this part of the Arctic Tundra are 20 per cent of the Mackenzie District, 80 per cent of the Keewatin District, 35 per cent of the Franklin District (including most of Baffin Island) — all in the Northwest Territories — and 15 per cent of Quebec. At least two rather distinct landscapes are evident. There is the spectacular eastern highland rim, which includes the southeastern corner of Ellesmere Island, the eastern end of Devon Island, Bylot Island, eastern Baffin Island and the Torngat Mountains of Quebec, with local relief in the Baffin fiords as high as 1 830 m; some of the most remarkable glaciated erosional topography of the North American continent is found on Baffin Island's east coast. The remainder of the sub-region is commonly known as Canada's Barren Grounds and is characterized by uplands, hills and rocky lowlands.

The most luxuriant tundra vegetation is known as bush tundra, with willow and alder bushes and dense undergrowth; it occurs locally in the Barren Grounds, especially on the south side of Amundsen and Coronation gulfs. Wet tundra is more common in the eastern part of the sub-region, where the environment is generally more humid; cliffs and talus slopes, gravel outwash plains, coastal sedge and grass marshes, and permanent ice caps give variety to the landscape. While the western shield has weeks of warm, dry, cloudless weather in summer, the eastern rim may have long periods of cold, cloudy, damp weather. In spite of this poor climate the fiord lands of Baffin Island support the widest variety of arctic ecosystems.



Miles Canyon, near Whitehorse, Yukon.

2. The Subarctic Parkland and Boreal Forest Region

This is a region underlain by discontinuous permafrost in the north and totally free of permafrost in the south. It cuts a swath through Mackenzie District, western Keewatin District, northeastern British Columbia, northern Alberta and Saskatchewan, and almost the whole of Manitoba, Ontario, Quebec and Newfoundland. The distinctive zones of vegetation that give character to this region are discussed under the Shield sub-region.

Here, as in the Arctic Tundra Region, natural hazards have not been generally recognized or adequately investigated. Perhaps the most severe hazard, besides those associated with permafrost, is the muskeg that is characteristic of the surface cover. "Movement by foot in summer is exhausting and often impossible, as one sinks into the saturated moss and peat."³

(a) Hudson Bay Lowland Sub-region (303 000 km²)

Although continuous permafrost is present in the narrow strip along the Hudson Bay coast where the mean annual air temperature is less than -4°C , some areas of this sub-region do not have permafrost. In the southernmost part of the lowland there is no permafrost at all; at the southern fringe of the discontinuous permafrost zone ($53\frac{1}{4}^{\circ}\text{N}$ is the southernmost occurrence of permafrost in Canada outside the

³J.B. Bird, *The Natural Landscapes of Canada*. (John Wiley, 1972). p 165.

Cordillera), permafrost islands vary from less than 15 m² to several hectares in extent and a few centimetres to 60 cm (centimetres) in depth. At Churchill the permafrost is continuous and 60 m deep.

Physiographic uniformity derives from horizontally bedded sedimentary strata covered by a varying depth of drift, but this sub-region contrasts with the surrounding Shield sub-region most markedly in the nearly universal presence of organic terrain and the absence of bedrock outcrops.

Tamarack and scattered-to-dense spruce stands, ranging in height from less than one metre to more than 12 m, are dominant. Alder and willow form the undergrowth. Sphagnum, feather and other mosses, Labrador tea, grass and marsh sedge form the ground vegetation.

Microrelief of hummocks, peat plateaus and palsas up to 6 m in height is characteristic. Peat is accumulating at an estimated rate of 2.5 cm every 20 years.

(b) Subarctic and Boreal Shield Sub-region (3 354 000 km²)

This is the largest single sub-region described; it covers 40 per cent of Mackenzie, 10 per cent of Keewatin, 35 per cent of Saskatchewan, 60 per cent of Manitoba, 80 per cent of Quebec and 55 per cent of Ontario. The Precambrian bedrock of the Shield gives subdued relief, and extensive drift areas are preserved. Fluvioglacial deposits in the form of eskers are particularly well expressed in the Keewatin and eastern Mackenzie districts. Another noteworthy feature is the recentness of the massive post-glacial uplift of land; for example, on the east side of Hudson Bay post-glacial marine features are found as high as 270 m above the present sea level.

Three major vegetation associations occur in this sub-region: the forest tundra, the northern woodland and the closed boreal forest (or Canadian forest). The major part of the sub-region is underlain by discontinuous permafrost.

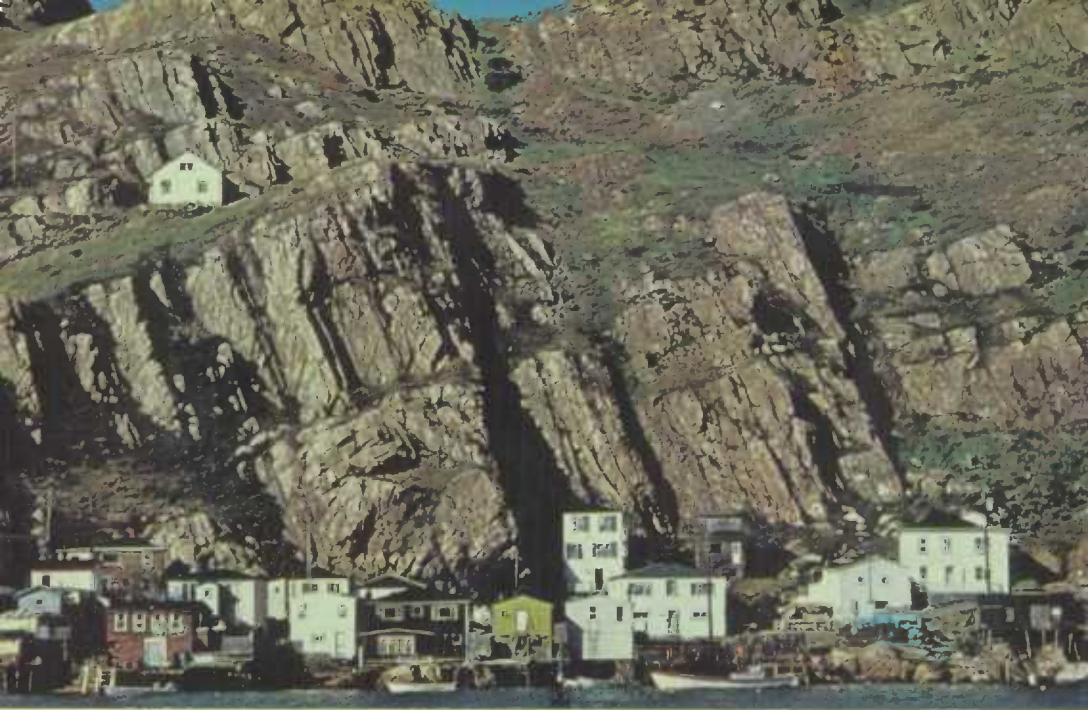
The forest tundra zone varies from 50 km wide in Mackenzie District to 160 km wide in Keewatin District and Quebec. Islands or strips of white or black spruce or (in Quebec) larch are restricted to sheltered areas but become progressively more dominant southwards.

The northern woodland zone has the appearance of an open parkland and is best developed in Quebec, where widely separated candelabra spruce stand on a deep lichen floor. Along the banks of the major rivers and in sheltered areas, full boreal forest is developed.

The boreal forest of spruce, fir, larch, hemlock and pine extends across the whole of Canada from Newfoundland to British Columbia. The eastern half of this zone has a smaller number of species than the western half, but there is remarkable similarity in overall structure.

The clay belts of the Shield (especially the great clay belt of Ontario) stand out because of the general absence of rock outcrop and because agricultural development is leading to extensive modification of the boreal forest.





Houses of Newfoundland cling to the sheer rocky cliffs.

(c) Interior Plains Sub-region (1 479 000 km²)

This sub-region covers 25 per cent of Mackenzie, 10 per cent of British Columbia, 80 per cent of Alberta, 30 per cent of Saskatchewan and 30 per cent of Manitoba. With the same three major vegetation associations as the Shield immediately to the east, it differs from the Shield mainly in its physiography. Major hills, plateaus and escarpments are formed by outcrops of gently dipping sedimentary rocks (limestone, sandstone and shale), which contrast with the Precambrian rocks of the Shield. On the other hand the details of the landscape are a product of glaciation, and particularly extensive areas are occupied by meltwater channels from proglacial lakes and by extensive lake-bed materials. The sub-region is about 1 000 km wide in the south. It narrows to 320 km wide east of the Franklin Mountains and widens to 800 km again in western Mackenzie District. The scenery consists of wide vistas of undulating plains, the occasional valley cut deep below the general surface and the distant lines of hills and escarpment.

There are no mountain barriers to provide protection from cold air moving south from the Arctic or from warm air from the Gulf of Mexico. Consequently the widest variation of temperature between summer and winter tends to occur here, and day-to-day changes are frequent. Those areas within 150 km or so of the Rocky Mountain foothills experience Chinook winds that can raise temperatures from -30° to $+2^{\circ}\text{C}$ in a few hours.

(d) Boreal Appalachian-Acadian Sub-region (155 000 km²)

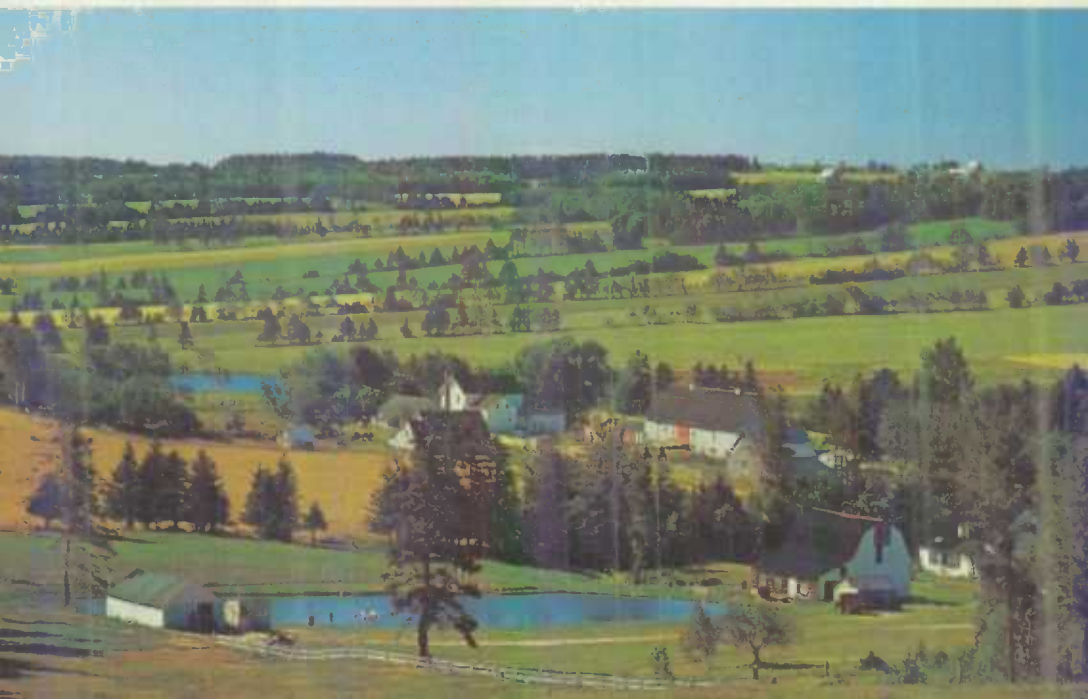
This area includes Newfoundland and the Gaspé Peninsula of Quebec. It is moderately rugged country reaching its highest elevation of over 1 200 m in the Shickshock Mountains of the Gaspé. Newfoundland has an extremely varied physiography and as a result there are considerable limitations to agriculture. About 50 per cent of the province is classified as bedrock outcrop, some thinly mantled with stony till; 25 per cent is classified as ground moraine; 10 per cent is end moraine; 10 per cent is organic terrain or sphagnum peat in morainic depressions; the remaining 5 per cent is glaciofluvial, marine sediment and recent alluvium, which has some agricultural potential.

3. The Eastern Temperate Forest Region

The eastern temperate forest includes a deciduous forest zone in southwestern Ontario, a Great Lakes-St. Lawrence forest zone north and northeast of the deciduous forest, and an Acadian forest zone characteristic of the Maritime provinces. Although there are conifers in this region, deciduous trees are progressively more important toward the southwest.

The most widely recognized natural hazard in this region is that of earthflows associated with a marine clay that was deposited in the post-glacial Champlain Sea. In the St. Lawrence and Saguenay Lowlands of Quebec this clay is found in a

The green and gold mosaic of Prince Edward Island.



relatively densely settled agricultural area; on May 4, 1971, 40 houses were destroyed and 31 people killed by an earthflow at St. Jean Vianney, Quebec. Over 700 earthflow locations have been mapped in this region.

There is also an area of major earthquake activity in the St. Lawrence Valley, but because historically there have been few damaging events there is a low level of public awareness of the hazard. In September 1944, at Cornwall, Ontario, an estimated million dollars' worth of damage occurred from earthquake activity, but there was no loss of life.

(a) Temperate Appalachian-Acadian Sub-region (210 000 km²)

This area includes New Brunswick, Nova Scotia, Prince Edward Island and the Eastern Townships of Quebec. The uplands are arranged in two linear belts — one across southern New Brunswick and northern Nova Scotia and the other over peninsular Nova Scotia and Cape Breton Island. Further west, the Eastern Townships are located on the Eastern Quebec uplands, a southwesterly extension of the Notre Dame Mountains. The Acadian forest zone is most typical here; red spruce, balsam fir, yellow birch, sugar maple and beech are common. Also present is the Great Lakes-St. Lawrence forest, with red and white pine, eastern hemlock, yellow birch, sugar maple, red oak, basswood and white elm.

The silent majesty of winter in Ontario.





Farmland dots the lush greenery of the Saint John River Valley in New Brunswick.

(b) Temperate Shield Sub-region (161 000 km²)

Fifteen per cent of Ontario, between Sault Ste Marie and Ottawa and including Sudbury, North Bay and Algonquin Park, is dominated by sugar maple, aspen, yellow birch, hemlock and red and white pine (Great Lakes-St. Lawrence forest). This Shield area, with its protruding rock knobs and intervening pockets of sand, silt and clay, is primarily a forested area. With its varying combination of trees, lakes, rivers, hills and animal life, located conveniently close to the major urban centres of Canada and the northeastern United States, it is a favourite recreational area.

(c) St. Lawrence Lowlands Sub-region (181 000 km²)

Ten per cent of Ontario and 5 per cent of Quebec are included in this small sub-region. It contains Canada's two largest cities, Toronto and Montreal, and its St. Lawrence Seaway connects the heart of Canada to the Atlantic Ocean. Located between the Appalachians and the Shield, these lowlands are formed of very gently dipping Palaeozoic sedimentary rocks. West of the Thousand Islands they are 240 km wide; to the east they are never more than 125 km wide. Most of the land is undulating and less than 150 m above sea level, but in the Bruce Peninsula above the



Winding patterns of blue and green, near Wakefield, Que.

Niagara Escarpment the plain reaches 550 m. In detail, the lowland has a varied terrain that has been investigated more comprehensively than any other landform region of Canada. Glacial depositional features predominate. Till plains are extensive and there are recurring end moraines, drumlins, clay plains and sand plains. Beech-maple forest is the dominant vegetation, with admixtures of white oak, hickory, walnut, basswood and black cherry. In terms of heat and sunshine or growing days per year the southwestern corner is by far the most favourable area for agriculture in Canada; the presence of deciduous forest is evidence of that preferred environment. The influence of the Great Lakes reduces the range in temperature from winter to summer by as much as 9°C, compared with parts of Minnesota in equivalent latitudes.

4. The Prairie Region (337 000 km²)

Ten per cent of Alberta, 35 per cent of Saskatchewan and 5 per cent of Manitoba form a southern extension of the Interior Lowlands discussed earlier. The distinctiveness of this region lies in the absence of forest vegetation in the so-called Canadian Grassland and the associated aspen parkland immediately to the north. Most of the primeval grassland (needlegrass, gramagrass, wheat grass, dropseed and fescue) has been ploughed.

Tall, short and mixed grass prairie form the core of the region. The tall grass prairie, typical of the Lake Agassiz plain west of Red River, Manitoba, is the result of an abundant supply of moisture. The short grass prairie (notably blue grama, June, wheat and spear grasses) has a moisture deficit of from 200 mm to 300 mm (millimetres), but there are many complex associations relating to particular drainage, soil and topographic conditions. The mixed grass prairie has a denser,

taller and more diverse cover; it is transitional between both long and short grass prairie and parkland.

The parkland areas are a mixture of grassland and woodland cover. Aspen poplar predominates in most parkland groves, but bur oak and other Great Lakes Forest species are present in Manitoba and various mountain and subalpine species occur in the Rocky Mountain foothills.

Hummocky moraine, end moraine, ground moraine and lake beds are the major landform features. Some semi-arid areas occur in southern Alberta and southwestern Saskatchewan. A number of badland areas have developed in Alberta where spectacular surface erosion has occurred.

The major natural hazards in this region are climatically induced floods and droughts. The Red River flood of 1950 and many subsequent lesser floods have been well documented, as have the droughts of the 1930s and 1950s. A feature of these natural hazards is that, although loss of life tends to be small, economic costs are continuing to increase in spite of extensive flood protection works.

5. The Cordilleran Region

The Cordilleran region is part of one of the major mountain systems of the world. In it, five of the eight major forest zones of Canada — the boreal, subalpine, montane, coast and Columbia forest zones — and the Alpine tundra zone are represented. The boreal forest zone has already been described and is well developed in the Cordillera in northern British Columbia, southern Yukon Territory and southern Mackenzie District. The subalpine forest is a coniferous forest found on the higher slopes of the mountains east of the Coast Mountains; typical species are Engelmann spruce, alpine fir and lodgepole pine. The montane forest, with Ponderosa pine, Douglas fir, lodgepole pine, aspen (in the north) and sagebrush (in

Dinosaur Provincial Park in Alberta.



the southern valleys), is extensive in the interior plateau of British Columbia and a small area on the east side of the Rockies. The Columbia forest is characteristic of the southeastern part of the interior system of British Columbia, with western red cedar and western hemlock the typical trees. Finally, the coast forest on the west-facing slopes of the Coast Mountains and the western islands is the finest forest in Canada; towering stands of western red cedar, western hemlock, Douglas fir (south) and Sitka spruce (north) are extensively exploited commercially.

The Cordillera experiences the greatest variety of natural hazards of any region in Canada. Snow avalanche hazard is high in such areas as the Rogers Pass area in the Selkirk Mountains of British Columbia; earth slide hazard is illustrated by the 1903 Frank Slide in Alberta, where 70 people were killed; earthquake hazard is important, as the Yukon Territory and coastal British Columbia are in a major earthquake activity zone; tsunami (or tidal wave) hazard is high on the west coast of Vancouver Island; and flood hazard in the Lower Fraser Valley has been well documented. Even drought hazard in the Interior Sub-region of the Cordillera should be considered. Nevertheless, the level of awareness of natural hazards, even in the heavily populated Fraser Valley, is remarkably low.⁴

(a) Eastern Sub-region (458 000 km²)

This area is 60 per cent rugged mountains (Mackenzie, Richardson and Rocky mountains), 30 per cent plateaus and foothills (Porcupine and Liard plateaus and Rocky Mountain foothills) and 10 per cent plains (Old Crow, Eagle and Mackenzie plains). The highest peak is Mt. Robson, at 3 954 m. One of the most characteristic features of this landscape is impressive cliffs carved by glaciation from near-horizontally bedded sedimentary strata. The Rockies are seldom more than 100 km wide, but together with the Mackenzie and Richardson mountains they form an almost continuous series of ranges from the 49th parallel to the Arctic.

A complex succession of vegetation zones occurs with elevation. Above the boreal forest is a subalpine parkland and above this is a dense scrub where stunted spruces and pines are common. Beyond this timberline, alpine tundra, moss campion, saxifrage, sandworts, sedges and bilberries are common. Summer days are warmer, soils are deeper and vegetation is lusher than in the Arctic.

(b) Interior Sub-region (821 000 km²)

Approximately 55 per cent of this sub-region is plateaus (Interior, Stikine, Hyland and Yukon), 40 per cent true mountains (British, Ogilvie, Selwyn, Cassiar, Omineca, Skeena, Hazelton and Columbia) and 5 per cent lowlands (Rocky Mountain, Tintina and Shakhwak trenches). This extremely complex region is characterized by lesser local relief and a drier climate than the surrounding mountains. A considerable number of the peaks of the Columbia Mountains exceed 3 000 m. The interior plateau ranges from 600 m to 1 500 m in elevation, with local relief from 90 m to 150 m and deeply entrenched valleys to 900 m deep. The plateau is narrowest and

⁴W.D.F. Sewell, *Water Management and Floods in the Fraser River Basin* (University of Chicago, Department of Geography, Research Paper 100, 1964).



Devil's Pass mountain peak of the Coast Mountains in British Columbia.

highest in the south, where it narrows to less than 50 km between the Cascade and Monashee mountains. It broadens to 320 km in the Nechako-Prince George area; here the plateau is lower, the valleys are less deeply incised and low hills form the scenery. There is also a change in vegetation from the mixed forests in the north to the mountain woodland, grassland and arid sagebrush country to the south.

(c) Western Sub-region (313 000 km²)

The Western system is formed of massive plutonic rock bodies or, less commonly, by volcanic and folded sedimentary strata intruded by scattered plutons, all of which have produced high-relief, high-altitude terrain. Plutons are masses of coarse-grained igneous rock, such as granite.

Longitudinally, the system is divided into three: the Coast Mountains of the mainland; the outer mountains forming the Queen Charlotte and Vancouver islands and the St. Elias Mountains; and, between the three, a series of lowlands. The Coast Mountains and the St. Elias Mountains contain the bulk of the 52 000 km² of glacier ice on the Canadian mainland. Mt. Waddington, over 3 900 m high, is the highest peak in the Coast Mountains and Mt. Logan, at 6 050 m, is the highest in the St. Elias Mountains. Along the coast for nearly 2 400 km between Vancouver and Alaska there are major fiords.

The treeline declines from 1 800 m on Vancouver Island to 900 m in the northern Coast Mountains. Over the same distance the level of glacier snouts declines from 2 400 m to sea level. This means that in the northern Coast Mountains, glaciers and forests are juxtaposed. The heavy snow accumulation is perhaps the most distinctive hydrologic feature of this sub-region.

The Climate

Canadians have tended to accept their climate fatalistically. However, the desire to remain both a consumer society and a custodian of ecological values poses a need for skill, efficiency and prudence in using and living with climate. Sustained economic development is essential to providing an increasing population with desired consumer goods and this demands greater efficiencies and effectiveness in the use of our limited resources. On the other hand, the desire for a sustained high environmental quality demands that commerce, industry and social practices be within the restraints imposed by our climatically controlled ecosystem. Failure to do so now for the sake of short-term benefits may require very costly corrective measures in the future, or create irremediable problems.

Climate and the Economy

Climate is both a resource and a liability. As a resource, it provides the heat and moisture that are essential for life; it is a basis for agriculture, it provides warm lakes for swimmers and snow for skiing and it drives ocean currents. Drought, floods and hurricanes are among its hazards; these destroy life, damage property and inconvenience people, often stopping all normal economic activity within a community. Climatic change can drastically alter a regional economy by altering the ecosystems that are fundamental to its way of life.

Economic activity serves social goals and must usually be considered in the light of social desires and needs. Conversely, the need and desire to maintain unique landscapes, to reduce travel time between functional areas or to reduce the cost of public services are basically social, but they have great economic implications. Accordingly, many environmental and social issues are referred to in this article because, like climate, they too shape the Canadian economy and must be considered in the evaluation and use of climatic resources.

Climate as a Resource

It has been pointed out that "in general the centre of active progress in civilization has migrated from relatively unstimulating warm regions with few storms, where the winter is the most comfortable season, to stimulating regions with many storms, where the summer is the most comfortable period".¹ This has been made possible by the development of housing and buildings that provide a suitable indoor climate and of transportation systems that withstand the rigours of temperate-zone winters. That our climate is economically stimulating is attested to by our gross national product compared to those of low-energy-consumption countries of the tropics.

But our weather is much more than stimulating; our heat, cold, rain, snow and wind are exploitable resources. Definition of the nature of climatic resources has been a major occupation over the past century — in the planning of land use (particularly for agriculture), in the development of water supplies and in the

¹Ellsworth Huntington, *Mainsprings of Civilization* (John Wiley and Sons, Inc., New York, 1945).



Canada, like most countries in temperate and polar regions, has a fluctuating climate.

development of drainage and irrigation systems, etc. The trend to optimal productivity through fuller exploitation of climatic energy, light and moisture sources is increasing as natural resource supplies become more stringent.

Renewable resources are the basis of much of Canada's industry; they provide the necessities of life — food, drink and shelter — and earn about one-half of our export dollars. These resources depend primarily on climate. Resource management and use must therefore be based on climatological knowledge and the use of weather forecasts for optimal productivity.

The extraction and use of other resources are also highly climate-dependent. A major use of oil and gas, for example, is to offset cold, snow and heat. Climate-dependent ice fields and weather control the economics of arctic development. Much of our industrial energy is generated from climate-dependent water resources and water is used extensively in processing — for example, up to 22 m³ (cubic metres) to refine one cubic metre of petroleum and 3 000 m³ to make one tonne (metric tonne) of synthetic rubber.

On the other hand, the impact of industry, cities and people on the atmospheric environment places an upper limit to certain types of economic endeavour. Economic activity must therefore be tailored in the light of an understanding of the environment, man's influence thereon and the capacity of the atmosphere to safely disperse industrial effluents. The interactions of weather, ecology and economy demand understanding.

Climate as a Liability

Climatic hazards stand out in our memory because of their great impact on society and their resulting newsworthiness. Canada, like most countries in temperate and

polar regions, has a fluctuating climate that has caused crises from the times of early settlement.

Direct economic losses caused by some of the more notable weather events in Canada are noted in Table 1. Included in the list are events that are recognized historically as major disasters, but for which there was no available estimate of the direct economic effect.

Table 1. Selected weather events, and some losses directly caused by them, 1868-1973

Year	Event	Estimated losses	
		Life	\$'000,000
1868	Drought at the Red River Settlement		
1860s	Storms on the Great Lakes		
1885-96	Drought on the Prairies		
1912	Tornado at Regina, Sask.	30	4
1917-21	Drought on the Prairies		
1930-36	Drought on the Prairies		
1935	Snow-storm at Vancouver, BC		
1944	Tornado at Kamsack, Sask.	(2,000 homeless)	2
1945	Low temperatures in Nova Scotia		4
1949	Drought in Ontario		100
1950	Red River flood		100
1953	Tornado at Sarnia, Ont.		5
1954	Hurricane Hazel, Ontario	100	252
1954	Wheat rust on the Prairies		33
1955	Drought in Ontario		85
1957	Hail storm in Saskatchewan		17
1959	Wet weather in Saskatchewan (harvest lost)		12.5
1959	Snow-storm in Ontario		
1967	Snow-storm in Alberta		10
1969	Glaze storm near Quebec City, Que.		30
1967-68	Forest fires — all of Canada		100
1973	Drought in British Columbia		
1973	Glaze storm at Sept-Îles, Que.		10

Losses due to storms are rarely easy to express. The dollar value of cattle lost in a snowstorm may be easy to define within certain limits, but it is difficult to place a dollar value on the weakened state of the remaining herd. The \$2.2 million loss in the Quebec City ice storm of 1973 does not disclose the fact that 250,000 people were deprived of electricity, heat and drinking water, that quantities of food were spoilt as freezers stopped operating, or that fire protection facilities were impotent during a period when fire hazard was greatly increased by the use of camp stoves and other makeshift equipment.

Defending Against Loss. People have five, not necessarily mutually exclusive, ways of facing up to weather, namely: "1. passive acceptance; 2. avoidance of areas and actions unfavourable to effective use of resource conditions; 3. current



An approaching storm at Bragg Creek, Alta.

operational and defensive actions based on assessment of meteorological information; 4. modification and direct control of the weather/climate; and 5. structural and mechanical defenses — i.e. capitalizing on climatological knowledge."² We do not need to take our losses passively; there are alternatives, one of which is insurance.

Typical of our defensive actions are salting programs for highways, switching from carbon to steel trolleys by transit systems, operation of frost protection devices and evacuation of areas likely to be flooded. These actions are frequently based on weather forecasts, and their basis is climatology. For example, the design of a dam and the operational program for a reservoir are based on long-term climatological and related information that assures the operator that the stored waters will serve all reasonable demands during the lifetime of the reservoir, including periods of drought, and will also withstand floods and minimize their effects downstream. Weather forecasts are necessary in the operational phase to ensure that the system functions safely and in the best interests of the public.

The Atmospheric Environment Service of Fisheries and Environment Canada has responded with foresight to changing and increasing societal demand. Its service horizon has been broadened and adapted to meet special needs, both national and regional. New technology has been exploited to improve services and achieve greater efficiency. This has enabled meteorologists to apply their science in the resolution of important socio-economic issues in which weather is a factor.

²J.R. Hibbs, "Evaluation of weather and climate by socio-economic sensitivity indices," *Human Dimensions of Weather Modification* (University of Chicago, Department of Geography, Research Paper No. 105, 1966).



The Applications of Climatology

Agriculture and Forestry

Agriculture and forestry are among those activities that are highly exposed and sensitive to weather. Weather forecasts and planning information are therefore essential in combatting the recognized major hazards, such as drought, frost, hail, excessive rainfall, flood, wind, snow and winterkill, as well as climatically influenced diseases, epidemics and insect infestations. Forest fire losses, per annum, average about \$23 million and have been as high as \$83 million. Recent major crop losses, based on federal assistance payments, are identified in Table 2: they provide an indication of the potential economic benefits of accurate forecasts.

Table 2. Crop losses as identified by assistance payments

Year	Cause	Location	Estimated loss \$'000,000
1945	Low temperatures	Nova Scotia	4.0
1954	Wheat rust	Prairies	33.0
1959	Wet harvest	Prairies	12.5
1964-65	Wet weather	Quebec	1.5
1965	Drought	Eastern Canada	5.5

The production of rapeseed, a \$100 million business in 1971, illustrates again the importance of climate in the agricultural economy. Rapeseed crops thrive in the prairie climate of hot, sunny days and cool nights, and production is intensive in this area. To the south, the percentage of oil contained in the seed drops off so that growing it becomes uneconomic as far north as Minneapolis. Delineation of the area where the climate is suitable for such crops has obvious economic value.

The weather must be suitable not only for growing, but also for seeding, cultivating, spraying and harvesting operations. Both weather forecasts and climatological statistics have been used extensively by farmers in overcoming problems of unfavourable weather (during haying, for example) or in assessing chances of favourable drying weather as harvest season advances toward winter.

Water Resources

Precipitation is the primary source of surface water supplies and evaporation is the major consumer. Planning, public and political conviction and economic decisions as to the viability of a hydrologic system are therefore frequently dependent on climatology. The magnitude and reliability of supplies is dictated by

Mount Rundle in Alberta towers over the still waters of Banff, Canada's oldest National Park



rainfall and snowfall characteristics. Design flood, irrigation need, urban demand, storm-sewer capacity and culvert size are all functions of climate and the operation of water control systems for flood control and conservation of water in times of drought is often highly dependent on forecasts.

Annual expenditures on water control and conveyance structures, designed in whole or in part on the basis of rainfall, snow melt and evaporation data or analysis, are probably about \$1 billion. Benefit-cost data for hydrometeorological studies in Canada are not readily obtainable, but it has been estimated, for example, that a one-per-cent improvement in the spring flow forecast to the Portage Mountain Reservoir will yield \$1 million a year in reduced operational costs.³

Use of water resources by towns, cities, industry and agriculture, as well as natural losses through evaporation, must be understood in terms of probability and seasonality to enable the design of supply systems that will serve all the reasonable requirements of a community. They are predictable, using meteorological forecasts and information directly and in relation to industrial, social and biological activities.

Resource Development

Development of Canada's resources in hinterland and frontier areas poses major environmental problems in which climatology must play a dominant role. For example, sulphur dioxide releases from refineries in the tar sands of Alberta could destroy vegetation over vast areas of land if improperly controlled; the capacity of the atmosphere to disperse this contaminant is therefore a major concern. Should coal come back into prominence, then the dispersal of sulphur dioxide and particulates could be a major problem. Gasification and cooling towers may release great amounts of thermal energy and moisture into the atmosphere. Safety and security from natural hazards are major factors to be considered in offshore drilling, pipelining (river crossings, for example), the transmission of electrical energy and the operation of nuclear generating stations.

Topoclimatology and air quality studies must play a significant role in the placement of refineries, conversion systems, infrastructures, etc. Marine climatology and weather forecasts are heavily involved in problems of offshore drilling, shipping in ice-congested waters, oil storage at sea to allow for interruptions of shipments from drilling sites by fog, and the placement of facilities for deep-sea harbours.

Environmental concerns should force greater use of renewable energy resources, which in turn would require much improved interpretation and understanding of the space and time variations of solar energy and wind and of their byproducts, such as waves, currents and thermal gradients.

Land-Use Planning

Resource development, industrialization, the trend to urbanization, growing population, limited resources and moral responsibilities make necessary a rational approach to land use in Canada.

³J.P. Bruce, personal communication.



Cape Breton Island, NS.

Intensified resource use and exploration are linked with affluence and a desire for urban life. Not only are Canadians leaving the farms for the towns, but they are abandoning the towns to concentrate in a few large industrialized urban centres. It is estimated that, by the year 2000, 20 million Canadians (60 per cent of our population) may live in 15 centres with populations over 300,000, 17 million of these in centres of 1,000,000 or more population.

These trends are of major socio-economic importance, and among the problems created are formidable and complex land-use problems. The potential roles climatology will play in dealing with them are equally numerous and complex. For example, about one-half of Canada's Class I agricultural lands are in Ontario, where urbanization pressures are great. There, the climatic zoning of lands can aid the planner in the conservation of prime areas. Elsewhere, it can provide the farmer with a basis for greater security whenever and wherever the climate is marginal.

Construction

Construction is Canada's largest industry. Highly exposed and weather-sensitive, it qualifies as a prime area for meteorological support. The use of meteorology in the engineering of structures has included the problems of snow loads, wind loads, ice accretion, drainage, rain penetration and weathering of materials. At the same time, the prediction of construction weather — weather for setting concrete, for earthwork and for the operation of cranes — is of major importance to the industry.

Transportation

Aviation has grown exponentially. Airport capacities have in some cases been exceeded soon after their construction, and the noise created by modern aircraft is

of increasing concern. To alleviate these growing problems, new airports have been developed in areas removed from the large cities. This has required the determination of locations that have the most favourable take-off and landing weather and whose runway orientations would not cause conflict with established traffic patterns.

Topography-climate relationships are the basis of arctic site selection and are therefore an important factor in northern resource development. Pipelines, ships and tractor trains are an important part of the arctic transportation scene. Their supporting infrastructure requires compressor stations, harbours and towns. In the past, shoreline and inland installations have been blown away or badly damaged by arctic winds; shelter is all-important. On the other hand, unventilated areas pose the hazard of air pollution and ice fog under conditions of persistent cold and airmass inversion. The study of air drainage and wind is, therefore, most important in the collocation of facilities and residential areas.

Tourism and Recreation

For most Canadians recreation is an outdoor activity, and weather dictates whether or not the outdoor experience is enjoyable. Recreation is highly oriented to renewable natural resources and the state of the resources is climate-dependent. In some cases climate is the resource.

Because tourist spending is of great significance to national, provincial and local economies, governments have immediate interests in the development of parks, lodges and other recreation areas. A rational approach to development requires climatological inputs; even the Niagara Falls are unimpressive when they are enshrouded by fog. Methods of getting optimal recreational value on the basis of climate have been developed and climatic studies of national parks have been undertaken to provide a basis for the placing of facilities and roads and for the development of operational programs.

Environmental Impact Assessment

Environmental impact assessments are an essential defence against undesirable environmental effects of man's activities, both deliberate and inadvertant. In undertaking an assessment planners are forced to consider the side-effects of their proposals over the short, medium and long ranges, and also of possible alternatives, one of which is not to proceed. A decision is ultimately reached to stop the program or approve the most acceptable alternative in actual or modified form. A surveillance program is also established to ensure desired conditions are met.

The quality of the air and the ability of the atmosphere to carry pollutants to areas where they can damage the environment or buildings, or be injurious to human health, are major concerns of an industrialized society. However, the climatological aspects of assessment do not reside only in air quality. They may start with the evaluation of the engineer's design — will a tower fail under ice and wind loads, for example? Changes in land use such as extending agricultural area, installing pipelines and creating new lakes may also alter climate. Such alterations are usually small in scale, but there is concern that the aggregated sum of a large number of



Sunrise over the Grass River of Manitoba.

inconsequential projects might be critical. Small changes in temperature, precipitation or fog might not significantly influence a region's climate, but perhaps these conditions could create new extremes that would place an intolerable stress on certain species; or perhaps they are involved in a non-obvious feedback mechanism that would have significant consequences. Broad, positive understanding of interdisciplinary relationships is extremely important in these matters.

There is a need to distinguish between what should be done and what can be done. The potential for applying meteorology in economic decisions is virtually infinite. Some applications have a high payoff, others a low payoff, while in still other cases the payoff may not be clearly definable because it is indirect. The high-return activities will usually have precedence, but not always: an application may be part of a greater integrated or comprehensive plan of which it is an essential component. The social issues that merit our response cannot be evaluated in economic terms, but they will presumably be self-evident, such as those now posed by famine in many areas of the world and by dwindling global food reserves.

GORDON MCKAY





5.



1. Lady's slipper (PEI)
2. African marigold (Butchart Gardens, Victoria, BC)

3. Saxifrage (NWT)
4. Woolly lousewort (NWT)
5. Knapweed (Ont.)

The People and Their Heritage

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History

Canada developed from colony to nation in the first half of the 20th century, achieving a position as a fully independent state within the British Commonwealth. But at the same time, Canada's dependency on the United States became more critical and the difficult task of maintaining independence from a powerful neighbour more acute. Throughout our history, the twin themes of accommodation and co-operation among the racial elements making up the Canadian population and of defining Canada externally in a manner satisfactory to Canadians have affected every aspect of national life.

The territory that is now known as Canada began as a field of settlement in the 17th century. The French were first on the ground, reaching out for the interior of the continent through the St. Lawrence River system. By the 1670s, the English were established on Hudson Bay and the struggle for control of the hinterland had begun. The French pressed north and west, the English south from Hudson Bay and west from their settlements along the Hudson River and in what is now New England. Aided by their Indian allies and abetted by the hostility between Britain and France

in Europe, the competitors were fighting to control the resources of the continent, a struggle that Britain would finally win. Before that victory occurred, however, New France had established itself tenaciously along the St. Lawrence and in Acadia.

For its first 50 years of struggle, the French colony was tiny. Settlement proceeded slowly, the missionaries found few converts among the heathen and trade was scanty. By 1663 there were fewer than 2,500 habitants. Their major achievement was that they had survived.

Nonetheless out of that act of survival grew the myths that have shaped French Canada's strong consciousness of its past and of its distinctiveness. There were the heroes, such as Dollard des Ormeaux and his tiny band of compatriots who died defending the colony against the Indians in 1660, and martyrs, such as the Jesuit priests who succumbed to torture while attempting to bring Christianity to the natives. The past was epic.

By the 1740s, worldwide French-English rivalry had brought on the war that would spell the end of New France. The colony had advanced since the mid-17th century, royal government having brought new settlers, trained civil servants and regiments to defend the settlements and their outposts. Nevertheless, against British seapower and the numerically superior forces that could be brought against it, New France was doomed. Quebec City, the major settlement, fell in 1759 to General Wolfe's army and the Treaty of Paris ceded France's major North American possessions to Britain in 1763. North America was now under British control.

Within 20 years, however, the 13 colonies to the south of New France had fought and won their War of Independence, creating the United States of America. Since their seizure of New France, the British had been concerned that the French-speaking habitants might follow where the Americans led. The result was the abandonment of attempts at assimilation and recognition in the Quebec Act of 1774 of the major institutions of the inhabitants — the civil law, the seigneurial system and the Roman Catholic religion. With these assured, Canada resisted blandishments and invasion by the 13 colonies and remained a British possession.

The American Revolution also brought thousands of Loyalists, fleeing the republican institutions of the rebels, into British North America. Settling in Nova Scotia, in what would soon be New Brunswick and the Eastern Townships and in the unsettled regions of Canada north of Lake Ontario, the Loyalists were the country's first substantial group of English-speaking settlers.

Their arrival demanded new political arrangements. Nova Scotia had had a representative assembly since 1758 and this was now to be extended to the Canadas. The Constitutional Act of 1791 divided the old province of Quebec into two colonies, Upper and Lower Canada, each with its own assembly. The colonies began to grow, if not to flourish, and soon a struggle for self-government or, as it was usually known in the Canadas, responsible government, was under way. That was achieved in 1849, but only after rebellions in both Canadas had been crushed with severity in 1837 and the two colonies reunited in 1841; the latter step, suggested by Lord Durham in his famous report, was an attempt to foster the assimilation of the French Canadians.

That failed, as did the political unification of the Canadas. By the mid-19th century the colonies faced mounting costs combined with slowly growing revenues,



Belongings of the past, on display at the historic Sherbrooke Village, NS.

hardly enough to build the railways and canals necessary for the infrastructure of a modern society. Markets were shrinking, particularly after Britain ended preferential tariffs and embarked on a course of free trade. The political picture was marked by bitter sectional conflict and political deadlock, exacerbated by the growing numerical preponderance of the English over the French. Finally, in the 1860s there was a threat from an increasingly hostile United States, just emerging from its Civil War and, many in British North America feared, not averse to reuniting North and South in a victorious war against the scattered British North American colonies. These events, as well as the encouragement provided by a British government that was eager to cut its commitments in North America, resulted in a Canadian decision in 1865 to move toward a federation of all the British colonies — the Canadas, New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland.

That goal was only partially achieved on July 1, 1867, when the Canadas, Nova Scotia and New Brunswick were joined in Confederation by virtue of the British North America Act. The Act, the constitution of the new Dominion of Canada, was the creation of a vigorous group of politicians, including John A. Macdonald, the first Prime Minister of Canada, Georges-Étienne Cartier, George Brown, Leonard Tilley and Charles Tupper. The constitution provided for a centralized federal

system, with the national government at Ottawa the dominant force, but leaving to the provinces matters of local concern. French and English were recognized as the official languages within the federal Parliament and courts and in the province of Quebec. The new nation was a parliamentary monarchy, with Parliament comprising the Governor General as the representative of the monarch, a House of Commons and an appointive Senate.

The Dominion was incomplete: Prince Edward Island and Newfoundland had declined to join, the great prairies to the west belonged to the Hudson's Bay Company, and British Columbia, beyond the Rocky Mountains on the Pacific Coast, was impossibly remote in a vast land with no efficient transcontinental transportation route. The first step to having the new Dominion live up to its motto (*A Mari Usque ad Mare*, or *From Sea to Sea*) was acquisition of the western prairies: a new province of Manitoba was created in 1870 after a brief rebellion led by the able and charismatic Louis Riel was put down. The next year the province of British Columbia was created, with the promise of a railway as a condition, and in 1873 Prince Edward Island joined. The Northwest Territories were formed in 1874, their area encompassing all the lands between Manitoba and British Columbia; in 1885 they were the locale for the second Riel Rebellion, a revolt that failed because the Dominion militia reached the scene with some speed via the Canadian Pacific Railway, whose cross-country line had been completed that year. Twenty years

A furniture-maker turning a chair leg on a pedal-operated wood lathe in restored Old Fort William in Ontario.





Grant's Mill, a historic attraction in Winnipeg, Man.

later, the provinces of Alberta and Saskatchewan were organized out of the Northwest Territories, bringing the number of provinces to nine. Finally, in 1949 Newfoundland became the last province to join the union.

But Canada was and had to be more than territory. Policies were needed, national policies. The Conservative government of Sir John A. Macdonald, in power for most of the quarter-century after Confederation, proceeded to create and implement a National Policy. The railway was a major part of it, an essential linking element to tie the scattered inhabitants together. Encouragement of immigration was a second plank, but one that proceeded very slowly until the boom years of the early 20th century started the flood. A third measure, one involving high tariff protection, was believed necessary to encourage the growth of manufacturing in Canada. Only if Canadian industry could be made strong, only if the West could be populated and only if communications could be made swift and sure would Canada stand much chance of resisting the strong attraction of the United States.

Macdonald had laid the foundation of Canadian development, but his policies came to full fruition only under the Liberal Prime Minister, Sir Wilfrid Laurier, the first national leader of French heritage, who governed from 1896 to 1911. Laurier's years were the golden ones, a period when the Prime Minister could say in all seriousness that while the 19th century had belonged to the United States the 20th would be Canada's.

Despite the prosperity and expansion, the Laurier years saw the continuation and, indeed, the worsening of the cultural and class conflicts that had existed since 1867. The execution of Riel in 1885 strained English-French relations, as did attacks on French and Catholic schools in the West in the 1890s. New conflicts, those between imperialist English Canadians and their more nationalist and isolationist French-speaking compatriots, were fostered by the Boer War and the continuing debate over Canada's place in the British Empire. When Laurier presented Parliament with a reciprocity treaty with the United States in 1911, the ensuing election campaign raised all these issues with a vengeance. The Liberals were defeated roundly and Robert Borden's Conservatives took power.

It fell to Borden to lead Canada through the Great War of 1914-18, a terrible time for Canada. More than 60,000 Canadians died overseas, while the unity of the country was strained by the conscription issue of 1917. Many Canadians who were not of British background resisted compulsory service and the election of 1917 was fought and won by Borden on this issue. His government, by this time a coalition of English-speaking Conservatives and Liberals, enforced conscription.

Military service also weighed heavily on farmers in Ontario and the West. The war had brought high prices and prosperity after years of tight money, but now the government was taking away the farmer's son. This grievance, added to long-standing complaints about the tariff that favoured the manufacturers, led to the creation of the Progressive Party and to its rise to prominence in the election of 1921.

Organized labour also made gains during the war, but this progress was largely lost after a general strike at Winnipeg in 1919 was broken by the massive intervention of the federal government. Labour was weak for years after, not again reaching for a major role until the Depression and World War II.

The nation as a whole found new opportunities in the changes in the Dominion's status that the Great War had brought. Canada had entered the war as a colony of Britain, but it emerged a near equal, a status that was formalized by the Statute of Westminster in 1931.

For most of the years between the wars, however, Canada took little part in world affairs. The Prime Minister was W.L. Mackenzie King, Laurier's heir and a cautious man. King concentrated on lowering taxes and tariffs. Canada progressed slowly and received a serious setback with the onset of the Depression in 1929.

The Conservatives under R.B. Bennett, who took power in the general election of 1930, faced continuing huge unemployment rolls and declines in trade and gross national product. Canada was in trouble and the people sought for solutions in new political parties. Social Credit won power in the province of Alberta, the Co-operative Commonwealth Federation (CCF) attempted to link labour and farm groups in Ontario and the West, and the Union Nationale led conservative nationalists to victory in Quebec. The Depression also demonstrated that the federal government lacked the constitutional power to deal with a peacetime national emergency and the King government, re-elected in 1935, launched a great inquest into constitutional powers. The Royal Commission on Dominion-Provincial Relations reported in 1940, recommending sweeping changes, but by then Canada was at war and Ottawa already had the power to act expeditiously in wartime.



A historic sawmill at Kings Landing, NB.

The war years from 1939 to 1945 were extraordinary ones. The transition to total war under the King government turned Canada into a major military, industrial and financial power. There were a million men in the armed forces, billions of dollars for mutual aid to Canada's allies and full employment in booming munitions plants. There was difficulty over conscription in 1942 and 1944, but this issue left fewer scars than it had in 1917. The government showed similar skill in arranging the transition from war to peace and the economic boom continued unabated through the 1950s.

Mackenzie King stepped down in 1948, to be succeeded by Louis St. Laurent, a Quebec lawyer. The St. Laurent government led Canada into closer military and economic relations with the United States, taking Canada into the North Atlantic Treaty Organization (NATO) and negotiating entry to the North American Air Defence Command.

However, the continuing Canadian economic boom was financed by American money invested in Canada or borrowed in New York, and there was enough concern over these and other trends to lead to a victory by the Conservatives under John Diefenbaker in 1957. Diefenbaker's government was in power from 1957 to 1963, a stormy period both domestically and internationally. By the late 1950s economic growth was slowing, unemployment was rising and relations with the US were worsening, in part because of Diefenbaker's reluctance to arm the Canadian Forces with American nuclear weapons. At the same time, Quebec was growing more

restive with Confederation, seeking greater provincial autonomy and greater recognition for the French language throughout the country.

Lester Pearson's Liberal government, elected with a minority of the seats in the House of Commons in 1963, set up a Royal Commission on Bilingualism and Biculturalism to examine the whole field of French-English relations. Over the course of the following five years, a period marked by political scandals and social reforms, the Pearson government devoted increasing amounts of time to the question of Quebec.

His strong federalist views were perhaps the major reason for the choice of Pierre Elliott Trudeau as Pearson's successor in 1968, and Trudeau led his party to victory in the general election that year. Two years later, the government imposed the War Measures Act and moved some 10,000 troops into Quebec in response to the kidnapping of a British trade commissioner and the kidnapping and murder of a Quebec Cabinet minister by the Front de Libération du Québec. That strong federal response seemed at the time to end talk of separatism in Quebec and for the next six years other issues dominated the stage.

In its first term the Trudeau government made some changes in Canadian foreign policy, reducing the military commitment to NATO and stressing the need to protect and enhance Canadian sovereignty. Economic issues, in particular high unemployment and rising inflation, received much attention and probably were the major reasons behind the losses Trudeau's party suffered in the 1972 election, which left it governing in a minority position. For the next two years it attempted to deal with the economy, with growing problems of energy supply and with the American influence on the economy and Canadian culture. In 1974 the government was returned to office with a comfortable majority.

In the next two years two of the opposition parties changed their leaders. The New Democratic Party, the heir to the CCF, selected Ed Broadbent, an Ontario university professor and the Member of Parliament for Oshawa, Ontario. Early in 1976, the Conservatives chose Joe Clark, a young Alberta MP. Both Clark and Broadbent repeatedly and pointedly stressed economic issues, focusing attention on the wage and price controls introduced by the Liberals in 1975 and the continuing problems of inflation and high unemployment. Controls were beginning to be lifted in 1978, but interest rates, inflation and the cost of living continued to rise, and about one million people were unemployed.

Nevertheless, the economy was often overshadowed as the major national issue by the problem of Quebec. Under the leadership of the able and popular René Lévesque, the Parti Québécois (PQ) had won a safe majority in the National Assembly in the provincial election of November 15, 1976. Pledged to turn Quebec into an independent nation, the PQ proposes to hold a referendum on the question, but after 18 months in power neither the wording of the question nor the date had been specified by the PQ government. The Liberal government in Ottawa is pledged to support the continuation of a bilingual and federal Canada. The next few years will see great efforts made to resolve the conflict; their outcome is still unclear.

Population

Canada's total population as of June 1, 1977, was estimated to be 23,291,000, an increase of 16.4 per cent over the count of 20,014,880 (Table 1), reported in the 1966 Census. In actual fact, however, declining growth rates have characterized the country's population over the past decade or so, the average annual increase having fallen from 1.6 per cent for the period 1966-71 to 1.3 per cent for the period 1971-77.

As a result of the different population growth rates for each province, over 80 per cent of Canada's total population is now concentrated in Quebec, Ontario, Alberta and British Columbia. Table 1 shows that Alberta, British Columbia and Ontario were the only provinces whose mean annual increases, of 2.8 per cent, 2.4 per cent and 1.4 per cent respectively, exceeded the national mean of 1.3 per cent for the most recent period reviewed, 1961-76. The Yukon Territory and the Northwest Territories, which have relatively small population totals compared to the provinces, have also experienced high growth rates over this period, the population of the Northwest Territories having increased by 3.8 per cent and that of the Yukon Territory by 2.8 per cent.

Birth, death, immigration and emigration are the components of population change. The high mean annual birth rate (28.0 per thousand in 1951-56) and mean annual rate of natural increase (19.6 per thousand) are representative of the rapid growth that occurred in the early postwar period, which peaked to record highs in the mid-1950s (Table 2). Lower rates of growth in succeeding years resulted mainly from falling birth rates beginning in the early 1960s and continuing on to 1976. Death rates, though declining slightly, have remained relatively stable compared to other components of growth. Net international migration (total emigration subtracted from total immigration) during the early and mid-1950s (7.9 per thousand in the period 1951-56 and 5.6 per thousand in 1956-61) has also had a strong influence on Canada's population growth.

Canada had a mean population density of 2.3 persons per square kilometre in 1971; according to estimates this figure had risen to 2.5 in 1975, still one of the lowest population densities in the world. However, this figure takes into account the whole land area of the country and it should be kept in mind that variations exist. For example, some of the larger urban areas have as many as 7,800 persons per square kilometre. Prince Edward Island, Nova Scotia and New Brunswick are the three smallest provinces in terms of land area, but have population densities well above those of other parts of Canada.

Over the years Canada's population has changed from predominantly rural to predominantly urban. According to the census carried out in 1901, 2,005,080 (only 37.5 per cent of the total population) lived in urban communities; by 1976, 17,366,970 Canadians (75.5 per cent of the total population) were located in urban areas. Of the 5,625,635 persons making up Canada's rural population in 1976, 1,034,560 (18.4 per cent) lived on farms, while 4,591,070 (81.4 per cent) lived in dwellings not situated on farms.

In 1976 over half of Canada's total population resided in 23 census metropolitan areas (CMAs), as shown in Table 3. According to the census definition, each of these

Table 1. Population distribution and land area, Canada and provinces, 1966, 1971, 1976 and 1977¹

	Population in thousands				Mean annual percentage change		Land area Square kilometres	Population density ²
	1966	1971	1976	1977	1966-71	1971-77	'000s	1977
Canada.....	20,015	21,568	22,993	23,291	1.6	1.3	9 205	2.5
Newfoundland.....	493	522	558	564	1.2	1.2	372	1.5
Prince Edward Island.....	109	112	118	120	0.6	1.2	6	20.2
Nova Scotia.....	756	789	829	835	0.9	1.0	53	15.8
New Brunswick.....	617	635	677	686	0.6	1.3	72	9.5
Quebec.....	5,781	6,028	6,234	6,283	0.9	0.7	1 358	4.6
Ontario.....	6,961	7,703	8,264	8,374	2.1	1.4	917	9.1
Manitoba.....	963	988	1,022	1,031	0.5	0.7	548	1.9
Saskatchewan.....	955	926	921	936	-0.6	0.2	570	1.6
Alberta.....	1,463	1,628	1,838	1,900	2.3	2.8	638	3.0
British Columbia.....	1,874	2,185	2,467	2,498	3.3	2.4	893	2.8
Yukon Territory.....	14	18	22	21	5.7	2.8	532	0.04
Northwest Territories.....	29	35	43	43	4.1	3.8	3 246	0.01

¹ Based on census data for 1966, 1971, 1976 and estimates for 1977. ² Persons per square kilometre.

Table 2. Components of population change, 1951-56, 1956-61, 1961-66, 1966-71 and 1971-76

Date	Births	Deaths	Natural increase	Immigration	Emigration	Net international migration	Total change
	Rate per thousand ¹						%
1951-56.....	28.0	8.4	19.6	10.4	2.5	7.9	27.5
1956-61.....	27.5	8.0	19.5	8.8	3.2	5.6	25.1
1961-66.....	23.5	7.6	15.9	5.6	2.9	2.7	18.6
1966-71.....	17.8	7.4	10.5	8.6	4.1	4.5	14.9
1971-76.....	15.8	7.4	8.4	7.6	3.1	4.5	12.8

¹ Mean rate per one thousand people, for each time interval indicated.

Table 3. Population of census metropolitan areas (CMAs) 1971 and 1976

Population in thousands	1971 ¹	1976	Percentage change
Canada	21,568	22,993	6.6
Total CMAs	12,604	13,492	7.1
Percentage of total population	58.4	58.7	0.3
Percentage of urban population	76.0 ²	..	..
Toronto	2,602	2,803	7.7
Montreal	2,729	2,802	2.7
Vancouver	1,082	1,166	7.8
Ottawa-Hull	620	693	11.8
Ontario portion	474	521	9.9
Quebec portion	146	172	18.0
Winnipeg	550	578	5.2
Edmonton	496	554	11.7
Quebec City	501	542	8.1
Hamilton	503	529	5.2
Calgary	403	470	16.5
St. Catharines-Niagara	286	302	5.6
Kitchener	239	272	14.1
London	253	270	6.9
Halifax	251	268	6.9
Windsor	249	248	-0.5
Victoria	196	218	11.5
Sudbury	158	157	-0.4
Regina	141	151	7.4
St. John's	132	143	8.8
Oshawa ³	120	135	12.4
Saskatoon	126	134	5.8
Chicoutimi-Jonquière	126	129	1.6
Thunder Bay	115	119	4.0
Saint John	107	113	5.8

¹ Based on 1976 area.² Based on 1976 definition.³ Not a Census Metropolitan Area in 1971.

.. Not available.

major urban agglomerations contains the main labour-force market for a continuous built-up area having a population of 100,000 or more.

Population figures for 1976 show that Montreal and Toronto were Canada's largest metropolitan areas, each having over 2.8 million inhabitants, while Vancouver had grown to 1.2 million. In terms of proportionate growth, however, Calgary and Edmonton have developed most rapidly in recent years, Calgary having increased its total population by 16.5 per cent in the period 1971-76 and Edmonton by 11.7 per cent. In contrast, the population of Sudbury actually declined slightly over this time interval, while the populations of Halifax, Montreal and Chicoutimi-Jonquière experienced relatively small increases.

The age structure of a population is of vital interest to all levels of government involved in designing social and economic programs for their constituents. Educational planners, for example, have noted a sharp drop in school enrolment rates at the elementary and secondary school levels as a result of the declining

proportions of the population in the younger age groups. Table 4 shows that the proportion of Canada's population under 15 years of age declined by 3.2 per cent in the five-year period 1966-71 and by 8.9 per cent in the six-year period 1971-77. This was the result mainly of the declining birth rates in previous years, a fact clearly indicated by the decrease of 17.3 per cent in the number of children 0-4 years of age in the period 1966-71.

Table 4. Population by age groups, 1966, 1971, 1976 and 1977¹

Age group	Population in thousands				Percentage distribution			
	1966	1971	1976	1977	1966	1971	1976	1977
Total	20,015	21,568	22,993	23,291	100.0	100.0	100.0	100.0
Under 15	6,592	6,381	4,337	5,811	32.9	29.6	25.6	24.9
0-4	2,197	1,816	1,732	1,745	11.0	8.4	7.5	7.5
5-9	2,301	2,254	1,888	1,856	11.5	10.5	8.2	8.0
10-14	2,093	2,311	2,276	2,209	10.5	10.7	9.9	9.5
15-64	11,884	13,443	17,096	15,410	59.4	62.3	74.4	66.2
15-19	1,838	2,114	2,345	2,369	9.2	9.8	10.2	10.2
20-24	1,461	1,889	2,134	2,198	7.3	8.8	9.3	9.4
25-34	2,483	2,889	3,620	3,749	12.4	13.4	15.7	16.1
35-44	2,543	2,526	2,597	2,639	12.7	11.7	11.3	11.3
45-54	2,078	2,291	2,473	2,476	10.4	10.6	10.8	10.6
55-64	1,480	1,732	1,925	1,979	7.4	8.0	8.4	8.5
65 +	1,540	1,744	2,002	2,069	7.7	8.1	8.7	8.9

¹ Based on census data for 1966, 1971, 1976 and estimates for 1977.

As the population "bulge" resulting from high birth rates in the 1950s has moved into early adulthood the working age group (15-64 years of age) has increased rapidly. The proportion of the total population between the ages of 15 and 64 years increased by 13.1 per cent during the period 1966-71 and by 14.6 per cent in 1971-77. Immigration has a strong influence on the growth of this broad working age group, especially at the younger age levels. In the period from January 1969 to May 1971, for example, 47.8 per cent of the population arriving from foreign lands were 20-34 years of age and 57.8 per cent were aged 20-44.

The changing proportion of the population in the group aged 65 years and over is of particular interest to those planning facilities for the care of the elderly and determining future pension needs. This segment of the population has been characterized by rapid growth in recent years, increasing by 13.3 per cent in the period 1966-71 and by 18.6 per cent in 1971-77; the total population increased by 7.8 per cent and 8.0 per cent respectively during the same periods. Declining birth rates and an increased life expectancy are the two major factors in the growth in the proportion of the population aged 65 years and over.

Of the 17,096,420 persons 15 years of age and over in Canada in 1976, 4,776,420 (27.9 per cent) were single (never married); this represented an increase of 487,750 (11.3 per cent) over the five-year period 1971-76. The figures in Table 5 also show

Table 5. Numerical and percentage distribution of population 15 years of age and over, by marital status, 1971 and 1976

Marital status	Population in thousands					
	1971			1976		
	Total	Male	Female	Total	Male	Female
Total	15,187	7,532	7,656	17,097	8,430	8,668
Single	4,291	2,378	1,913	4,776	2,647	2,130
Married ¹	9,778	4,889	4,889	10,974	5,474	5,500
Widowed	944	191	753	1,044	190	854
Divorced	175	74	101	303	119	184

Marital status	Percentage distribution						Percentage change, 1971-76		
	1971			1976					
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	100.0	100.0	100.0	100.0	100.0	100.0	12.6	11.9	13.3
Single	28.2	31.6	25.0	27.9	31.4	24.6	11.3	11.3	11.3
Married ¹	64.4	64.9	63.9	64.2	64.9	63.5	12.2	12.0	12.5
Widowed	6.2	2.5	9.8	6.1	2.3	9.9	10.6	-0.5	13.4
Divorced	1.1	1.0	1.3	1.8	1.4	2.1	73.1	60.6	82.2

¹ Includes separated persons not having obtained a divorce.

Figures may not add to totals owing to rounding.

that, in 1976, 31.4 per cent of the adult male population and 24.6 per cent of the adult female population were single; this differential is caused mainly by the fact that men tend to remain single longer than women. In the 1976 Census, for example, 67.3 per cent of the male population 20-24 years of age were reported as single, compared to 43.5 per cent of the female population in that age group.

In 1976, 10,973,905 people (64.2 per cent of the total population 15 years of age and over) were married, the number of married persons having increased by 1,196,300, or 12.2 per cent, over the period 1971-76. However, the married portion of the population fell slightly during the same period, from 64.4 per cent in 1971 to 64.2 per cent in 1976; this may be attributed to demographic factors such as the changing age structure and nuptiality patterns.

In 1971 there were 175,115 divorced persons in Canada; by 1976 this figure had risen to 302,535, an increase of 73.1 per cent. While the general trend over the years has been toward higher divorce rates and toward a drop in the age of persons obtaining divorces, the marked increase between 1971 and 1977 may be attributed in part to the adoption of new divorce legislation.

One of the most striking features of marital status statistics is the larger proportion of widows over widowers. In 1976, 189,665 men (2.3 per cent of the adult

Table 6. Percentage distribution of population 15 years of age and over, not attending school full-time, showing highest degrees, certificates and diplomas, Canada and provinces, 1976 Census

	Total	Highest degree, certificate or diploma							
		No degree, certificate or diploma	Secondary school graduation certificate	Non-university certificate or diploma	University certificate or diploma	Bachelor degree(s)	Degree in medicine, dentistry or veterinary medicine	Master's degree(s)	Earned doctorate
Canada	15,402,030	62.3	18.8	11.1	1.6	4.6	0.4	1.0	0.3
Newfoundland	338,640	71.5	13.9	9.5	1.6	2.7	0.2	0.5	0.1
Prince Edward Island ..	76,520	70.5	11.4	11.7	1.5	3.7	0.3	0.7	0.2
Nova Scotia	547,595	67.9	12.8	12.3	1.3	4.1	0.3	0.9	0.3
New Brunswick	440,820	69.4	13.8	11.1	1.1	3.5	0.2	0.6	0.2
Quebec	4,191,160	58.8	24.2	10.1	1.6	3.7	0.3	1.0	0.3
Ontario	5,550,345	62.3	18.0	11.2	1.5	5.2	0.4	1.2	0.3
Manitoba	692,180	69.4	12.2	11.0	1.4	4.6	0.3	0.8	0.3
Saskatchewan	618,380	71.4	11.8	10.4	1.9	3.5	0.3	0.5	0.2
Alberta	1,199,855	61.2	16.7	13.2	1.6	5.6	0.3	1.0	0.3
British Columbia	1,708,300	60.0	19.4	12.2	1.8	5.0	0.4	1.0	0.3
Yukon Territory	14,060	57.8	18.4	15.6	1.8	5.2	0.5	0.7	—
Northwest Territories ..	24,175	67.6	11.3	13.3	1.6	4.9	0.3	0.8	0.1

— Nil or zero.



Charlottetown, P.E.I.

male population) were widowed, in contrast to 853,900 women (9.9 per cent of the adult female population). This wide difference is attributed to higher death rates of males and to higher probability of remarriage of widowers.

The progress of Canadians in obtaining educational qualifications is shown in Table 6. According to the classification of degrees, certificates and diplomas shown in the table, 9,595,465 (62.3 per cent) of the total population 15 years of age and over who no longer attended school had attained elementary or secondary education in 1976, while the remaining 5,806,565 (37.7 per cent) had advanced to educational qualifications at the university or post-secondary non-university levels.

Among the provinces, British Columbia, Alberta and Ontario reported the largest proportions with educational credentials, with 40.0 per cent, 38.8 per cent and 37.7 per cent respectively. These provinces also had the largest percentages with qualifications at the university level; for example, 5.6 per cent of Alberta's population, 5.2 per cent of Ontario's and 5.0 per cent of British Columbia's held bachelor's degrees, whereas the national figure was 4.6 per cent.

The 1976 Census of Canada showed that 10,310,395, or 48.5 per cent, of the population five years of age and over had changed dwelling places in the period 1971-76. While about one-half of this group had moved to other dwellings in the same municipality, the remainder, or about five million persons, had made moves across boundaries into different municipalities.



Table 7 shows that five provinces made net migration gains in the five-year period 1971-76, while the remainder have experienced losses. The Maritime provinces, which have traditionally been the losers in net migration, recorded gains during this period. Ontario, which usually gained in the past, recorded a substantial loss, while Alberta and British Columbia experienced relatively large gains in net migration, as in earlier periods.

This table also shows that about half of the new Canadians arriving from abroad settled in Ontario. British Columbia received the next largest group of immigrants (15.9 per cent of the total), while Quebec and Alberta followed with 15.0 per cent and 8.6 per cent respectively.

Table 7. Internal migration and international immigration by province, in the period 1971-76

	Internal migration			Immigration	
	In-migration	Out-migration	Net-migration	Total	Percentage distribution
Canada	—	—	—	719,675	100.0
Newfoundland	19,965	26,845	-6,880	4,180	0.6
Prince Edward Island ..	11,560	9,175	2,385	1,695	0.2
Nova Scotia	46,880	37,570	9,310	13,220	1.9
New Brunswick	55,775	50,380	5,395	12,535	1.8
Quebec	79,680	139,480	-59,800	108,200	15.0
Ontario	203,895	256,400	-52,505	363,615	50.5
Manitoba	57,165	83,765	-26,600	28,265	3.9
Saskatchewan	52,555	82,700	-30,145	9,885	1.4
Alberta	175,045	113,185	61,860	61,895	8.6
British Columbia	197,365	101,480	95,885	114,670	15.9
Yukon Territory	6,310	5,905	405	685	0.1
Northwest Territories ..	8,925	8,215	710	835	0.1

The Native Peoples

Indians

As of December 31, 1976, there were 288,938 people registered as Indians under the provisions of the Indian Act of Canada. There were 573 separate Indian bands, for whom 2,230 reserves have been set aside. As of March 31, 1977, the total reserve area was about 403,945 ha (hectares). Approximately half of the registered Indians, mainly those living in Ontario and the three Prairie provinces, are entitled to receive treaty payments as a result of treaties between their ancestors and the Crown.

The number of persons of Indian ancestry who are not entitled to be registered under the provisions of the Indian Act is unknown. Included among these people are Indians who have given up their Indian status and band membership through the legal process of enfranchisement, Indian women who have married non-Indians, the Métis and the descendants of persons who received land or money-scrip.

There are 54 different Indian languages or dialects in Canada, belonging to 10 major linguistic groups: Algonkian, Iroquoian, Siouan, Athapaskan, Kootenayan, Salishan, Wakashan, Tsimshian, Haida and Tlingit.

Education. The provision of education services to Indians living on reserves is the responsibility of the federal government, which funds a complete range of education services ranging from four-year-old kindergarten to university, professional or technological education and trade training through the Department of

Indian boys fishing for trout in streams near Alton, BC



Indian and Northern Affairs. More than half the Indian student population attend schools operated by provincial boards; the remaining students attend schools on reserves operated by either the department or the Indian bands.

Since the acceptance of the National Indian Brotherhood paper "Indian Control of Indian Education" in 1973, increasing numbers of Indian bands are assuming control of their schools and other educational programs: out of a total of 573 Indian bands, 80 now manage their own schools. A major aim of government involvement in Indian education has been to facilitate the transfer of education programs to Indian bands and to develop appropriate curricula in consultation with them. Almost all of the 267 federal schools operated by the department now offer culturally enriched programs and many provincial schools attended by Indian or Inuit children include language courses or native studies units as part of regular school programs.

Several provinces and universities have designed and conducted special teacher-training courses to encourage natives to enter the teaching profession; paraprofessional courses are also conducted to train Indian teacher aides and social counsellors for federal, provincial and band-operated schools. Vocational training, vocational counselling and employment placement programs have been supported by the Department of Indian and Northern Affairs in co-operation with the Department of Employment and Immigration. The department has also assumed responsibility for training of elected and appointed officials of Indian bands and Inuit settlement councils that is specifically related to their official duties.

Local Government. A policy encouraging the development of band self-government on Indian reserves began to evolve in 1965 in response to the expressed wishes of the Indian people to assume greater responsibility for the administration of their own affairs. At that time some 26 Indian bands across Canada assumed responsibility for the administration of specific departmental programs whose budgets totalled \$66,000. Increased interest since then is reflected by the fact that during the fiscal year 1975-76 Indian and Inuit councils administered the expenditure of approximately \$120 million in public funds and more than \$20 million in band funds on a variety of local government projects such as housing, education, community facilities, social services and recreation. Depending on a band's desire to become involved and its management capability, it can assume total program responsibility, manage only a segment or share responsibility with the Department of Indian and Northern Affairs.

Economic Development. The department has undertaken jointly with the Indian people a number of studies and task forces on economic planning and socio-economic development. In addition, an information system is being designed to enable the department to work more effectively with Indian people in implementing new operating activities and socio-economic strategies.

The operational aspects of economic development have been reviewed, an Advisory Board for the Indian Economic Development Fund has been formed in Ottawa and the objectives of the fund have been reassessed. Sectoral development corporations owned and controlled by Indian people are gaining wider acceptance. As this approach to economic development is relatively new, thorough evaluations during the next few years will be important. The value of Indians maintaining



Calgary Cobble Alberta Crafts, a non-profit operation, was created as an outlet for original crafts in the province.

traditional ties with, and economic control over, their lands is a major factor in the development of new policies.

Recognizing the positive values of the Indian culture, the government continues to develop systems and processes that better meet the needs of Indian people and to adopt specific economic development tools geared to their special needs. In this way Indian people will be able to develop their own way of managing their own resources, in their own time.

Inuit

There are about 100,000 Inuit in the world, living throughout the northern circumpolar regions. They inhabit Northern Alaska, the eastern tip of the USSR, Greenland and Northern Canada. (Eskimos are increasingly referred to as Inuit, the plural form of Inuk, meaning person; the Eskimo language is Inuktitut.)

Canada's Inuit number around 23,000. They live in small communities on the Mackenzie Delta, the Arctic islands and the mainland coast of the Northwest Territories, on the Quebec shores of Hudson and Ungava bays, and in Labrador. The communities are situated for the most part on bays, river mouths, inlets or fiords.



A shed and house at Tuktoyaktuk, N.W.T.

reflecting a past life that was tied largely to marine harvesting — fishing, gathering and hunting.

Today, while the hunter's life and the special relationship it implies with the land remains central to Inuit identity and self-perception, traditional hunting pursuits are not as important economically as they were in the past. The southern world has invaded northern communities with all its comforts and complications; electricity, oil-fired furnaces and stoves, snowmobiles and trucks, schools, hospitals, films and television have all combined to change northern life. As the social environment changes, so do the people. The problems of southern society move north, often to be amplified in the conducive atmosphere of rapid social change.

The question of Inuit origins has been a subject of considerable speculation among archaeologists for many years. The piecing together of all archaeological evidence points to a beginning somewhere in Northeast Asia near the Bering Sea — probably between 15,000 and 10,000 B.C. — and a succession of ancient arctic cultures extending from eastern Siberia across Alaska and Northern Canada to Greenland has been identified and described by students of Eskimo prehistory. While there is not always consensus on the dating of these cultures and their inter-relationships, there is agreement that a number of distinct arctic cultural phases can be identified; the best known of these are the Dorset and Thule cultures.

The Dorset people lived in the Canadian central Arctic from about 700 B.C. to about 1300 A.D., with an economy based largely on walrus and seal, for which they had developed highly specialized hunting techniques. The Thule culture, which overtook and perhaps assimilated the Dorset people, had a relatively short duration, from about 1200 A.D. to the time of the first European contacts.

Life was hard, the climate brutal, and the hunt was the key to survival. When the game disappeared the people starved, or froze to death as animal oil for the lamp (usually the only source of heat) ran out. The hunt was all-important; the sea provided whales, walrus and seal, while the land supplied caribou and musk oxen. Hunting skills were passed down from father to son.

Early accounts and archaeological research show the Canadian Inuit once ranged farther south than they do now, particularly on the Atlantic seaboard. Traditionally,

they were mainly a coastal people and fish and sea mammals were their sources of food, fuel and clothing. Centuries ago, however, one group 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, 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, with the arrival of the whaling ships and the fur traders early in the 19th century changes began to take place. Through their dealings with whalers and traders the Inuit began to move into a position of some dependence upon the white man's goods and supplies. The traditional nomadic life was becoming less attractive to them.

By 1923 trading posts had been built along both shores of Hudson Strait, down the east coast of Hudson Bay to Port Harrison and up the west coast of Hudson Bay to Repulse Bay; similar development took place in the western Arctic. Today the Hudson's Bay Company has some 30 posts in arctic regions.

With World War II came a rapid development in air travel, and the building of defence installations and of meteorological and radio stations. During the past two decades the reduction of the Inuit's isolation has proceeded apace.

Many of these people have made a difficult and dramatic transition from nomadic hunters to modern urbanized residents. By such means as the Anik communications satellite, telephone, radio and television transmissions are now beamed into Inuit households. The sled dogs, long-time companions and a necessity to the Inuit, have gone; the motorized toboggan has replaced them. For longer journeys the airplane is the Arctic taxi, and few communities are without airstrips. Modern technology in the form of STOL (short take-off and landing) and jet aircraft have considerably shrunk the vast spaces of the Inuit domain.

The general health of the Inuit has improved remarkably in recent years and life expectancy is far greater than it was only a decade ago. The Inuit, susceptible to

The hunt was the key to survival for the early Inuit. The sea provided whales, walrus and seal, while the land supplied caribou and musk oxen.



European diseases for which they had no tolerance, contracted influenza, tuberculosis and measles which raged through groups and sometimes wiped out entire communities; in recent years these diseases have been contained. Medical help is now available throughout the North, in nursing stations in the communities and in hospitals situated at strategic points. Charter aircraft serve as an air ambulance system for isolated communities.

Various government programs in areas such as education, social affairs, local government and economic development have also contributed to the dramatic change in the Inuit way of life. For example, co-operatives now do a total volume of business of over \$20 million annually and to a large extent control the marketing of all Inuit art. Schools have been built in every viable Inuit community, and provide education services up to Grades VIII and IX in most locations. Students attend pre-vocational and senior secondary schools either elsewhere in the Arctic or at locations in Southern Canada. A generous post-secondary financial assistance plan is available from the Northwest Territories government to those students attending university and Vocational/Technical Institutes elsewhere.

Many communities have evolved from having a resident government administrator to becoming incorporated hamlets or villages, managing their own affairs through elected councils. The Council of the Northwest Territories, a provincial-style body, has six Inuit elected members.

The formation and growth of native organizations has been a direct result of an increasing desire on the part of the Inuit to conduct and govern their own affairs. The Inuit Tapirisat of Canada (The Eskimo Brotherhood) is a national organization formed in 1971 that seeks to encourage these objectives and foster growth and development in the Inuit culture. Inuit Tapirisat's Board of Directors is elected at the annual general assembly attended by delegates from all Inuit communities in Canada and, in addition to the national organization, there are six regional Inuit associations that speak for their own specific areas (COPE, the Committee for Original People's Entitlement in the western Arctic; NQIA, the Northern Quebec Inuit Association; LIA, the Labrador Inuit Association; BRIA, the Baffin Region Inuit Association; the Keewatin Inuit Association; and the Kitikmeot Inuit Association in the central Arctic).

These associations speak for Inuit interests in discussions and negotiations with industry and with provincial, territorial and federal governments and, with their special agencies, are increasingly concerned with land claims negotiations and the preservation of the Inuit lifestyle in the face of resource development. These associations are also involved in diverse projects that seek to maintain and preserve Inuit culture and promote social improvements for the Inuit. Such projects have included: formation of the Inuit Cultural Institute; the establishment of legal service centres; the development of a comprehensive Inuit communications system through community radio; an Inuit low-cost housing project; non-renewable resources research programs, the publication of *Inuit Today*, a bi-monthly magazine with Canada-wide distribution; and the establishment of boards and commissions in education, language, law and game management.

The federal government has supported all these endeavours and has provided financial assistance in the form of grants, contributions and interest-free loans from both the departments of Indian and Northern Affairs and the Secretary of State.



In the home of a Repulse Bay Inuit hunter, a wolf skin is tacked to a drying board.

With the increased demand, and thus intensified exploration, for oil, gas and minerals in the Arctic, the Department of Indian and Northern Affairs and the Government of the Northwest Territories are involved in creating and making available opportunities for employment of Inuit in the non-renewable resource industries and related support industries. The Inuit Tapirisat of Canada and the various regional associations have been involved in representing Inuit concerns about the impact of development on the northern environment and the Inuit way of life. While the Inuit are not opposed to development, they are uneasy that industrial development will harm the land and the animals on which they depend. The federal and territorial governments are sensitive to these concerns, and land-use regulations have been modified to ensure sound northern development practices.

The development of northern society is perhaps the most controversial and difficult subject area to come to grips with and the hardest to deal with in brief form. The problems that develop in this rapidly evolving society are complex and have no easy answers. More and more it is the Inuit themselves who must analyze the problems and suggest solutions that will build a society compatible with their aims and aspirations.

Housing in Inuvik, N.W.T. at midnight





2. 3.



activities in the Northwest Territories

Carving soapstone

Grocery check-out

Official Languages

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

In 1963 it appointed a Royal Commission on Bilingualism and Biculturalism to inquire into a wide range of questions relating to language and culture in Canada. Following the publication of the first book of the commission's final report, the federal government proposed an Official Languages Bill, which Parliament adopted in July 1969 and which, accordingly, came into force in September of the same year.

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

The Act states that in the National Capital Region and in other areas where there is sufficient demand federal government services shall be available in both official languages and that a Commissioner of Official Languages reporting directly to Parliament shall ensure compliance with the Act. It should be noted that the Act and indeed federal official languages policy as a whole aims not to make all Canadians "bilingual", but on the contrary to ensure that, wherever they are reasonably concentrated, those who speak English and those who speak French may deal with the federal government in their own languages.

The main responsibility for official languages policies and programs is shared by Treasury Board, the Department of the Secretary of State, the Public Service Commission and the National Capital Commission. In addition, the Commissioner of Official Languages is responsible for ensuring that the official languages are recognized in practice and that the institutions of the Parliament and Government of Canada conduct their business in compliance with the spirit and intent of the Act.

Treasury Board

The Treasury Board has responsibility for producing general guidelines, for providing overall direction to federal departments, institutions and agencies, including Crown corporations, and for reviewing their implementation of official languages programs. It is also responsible for monitoring the overall progress of the public service toward achievement of official languages objectives and reporting to the government and to Parliament on the status of implementation of official languages policies and programs within the public service.

Official Languages Branch. This branch develops and communicates government policies and programs for the application of the Official Languages Act within departments and agencies of the Government of Canada and in judicial, quasi-judicial or administrative bodies or Crown corporations, and monitors, audits and evaluates their implementation and effectiveness. The branch comprises the Secretariat, the Operations Analysis Division, the Policy Division and the Evaluation and Audit Division.

The Secretariat provides controls, co-ordination and support services to organizational elements of the branch in the areas of manpower and financial resources, supplementary allocations to departments and agencies, processing of departmental submissions, development and publication of branch operations manuals and monitoring service-wide costs of official languages programs. It includes a documentation and reference centre that provides quick, up-to-date information and reference service on matters relating to the Official Languages Act, government policies and programs, and acts as a distribution and dissemination centre for government policies, circulars and directives.

The Operations Analysis Division is responsible for advising departments on the implementation of official languages programs, including the preparation of annual plans and progress reports. It is also required to analyze plans and other submissions to Treasury Board from departments and, based on its analysis, recommend acceptance, modification or rejection of the submissions. It serves as the Official Languages Branch's principal contact point with departments and agencies, and as such provides a means of communication both to and from departments. It participates in policy analysis and interpretation, particularly from the perspective of program operations in departments.

The Policy Division is responsible for the systematic interpretation of the Treasury Board's official languages policies, the analysis of major issues arising in the application of these policies in departments, the formulation of proposed amendments or revisions to the policies as required and the preparation of major reviews and assessments of the impact of policies. These functions include participation in the analysis of annual departmental plans to determine their consistency with current official languages policies.

The division also maintains extensive liaison with other branches of the Treasury Board Secretariat and other central agencies in order to ensure co-ordination between official languages policies and other related personnel or language policies.

The Evaluation and Audit Division is responsible for defining appropriate indicators of program performance, analyzing data collected through the information system and the observations of other reporting media, analysts and audit teams, conducting special studies and determining trends and program effectiveness. The division is also responsible for planning and establishing the systems and procedures required to give effect to the government's policies and to evaluate the effectiveness of their implementation.

Department of the Secretary of State

The Department of the Secretary of State has a general responsibility for encouraging and assisting the development of the official languages in education and in provincial and municipal administrations in the private sector, and a special responsibility, through its Translation Bureau, for meeting the translation, interpretation and terminology requirements of the Government of Canada. The department also has a program of support for minority official language groups.

which comes under the direction of the Cultural Affairs Branch; this program is concerned with the linguistic and cultural development of official language communities in areas where they are established as minorities.

Language Programs Branch. A series of programs devoted to the development of the official languages is administered by the Language Programs Branch. Its federal-provincial program for bilingualism in education is intended to increase the opportunity for Canadians of the majority official language group in each province to acquire a knowledge of the other official language, and to increase the opportunity for Canadians of the minority official language group in each province to be educated in their own language. Financial aid is offered to the provinces on the basis of student enrolment, time spent in language instruction and costs per student. Provision is also made for various individual bursaries and awards, for contributions to language-training institutions and teachers' colleges and for special projects funded on a cost-shared basis. Assistance is given to provincial governments and municipalities, in agreement with provincial authorities, so they can offer services to the public in both official languages. Limited assistance is made available for activities designed to promote the compilation and dissemination of information on second official language teaching and learning and minority language education.

In the private sector various programs have been developed to encourage the adoption of improved methods for acquiring and using both official languages. These include technical advice to business and industry, assistance to voluntary associations for interpretation and translation, and the dissemination of research results, documents and information on official languages. In collaboration with other appropriate departments, the Department of the Secretary of State co-operates with other countries and international organizations on problems relating to institutional and individual bilingualism.

Official Language Minority Groups Directorate. This directorate was set up to assist the official language groups to make use of their language in ways that enable them to contribute their full potential to Canadian society in areas where they constitute minorities, promote their socio-cultural development and facilitate the harmonious co-operation of the two official language communities in furthering the national goals of the bilingualism development program.

The official language minority communities have various organizations in each province that relate to some facet or other of social, educational, cultural and economic life. The official language minority groups programs are designed to meet the needs of these organizations and their members by fostering projects that fall within the mandate of the directorate.

The Translation Bureau. The Translation Bureau provides translation, interpretation and terminology services in all languages as required for the proper functioning of Parliament and of the government and its agencies, especially those services required for implementation of the official languages policy. In co-operation with Parliament and with the government and its agencies, it determines their translation, interpretation and terminology requirements, and makes whatever arrangements are necessary for meeting them; it also provides simultaneous interpretation of the proceedings of the House of Commons, the Senate and parliamentary committees, and when government departments and agencies require

them interpreters are sent to national and international conferences. The Translation Bureau also has the mandate to verify and standardize terminologies in both official languages in the public service. To this end, it organizes and encourages terminological projects in co-operation with specialized institutions in Canada and abroad, in order to establish a bank of equivalent terms, to keep abreast of current vocabulary in all disciplines and all relevant languages and to increase the efficiency of translation in the two official languages.

The Public Service Commission

The Public Service Commission is responsible for the determination of the level of second-language knowledge required of and possessed by candidates for bilingual positions in the federal public service, provision of language training for public servants, hearing of appeals against the results of language testing and language qualifications required in competitions, review of the language knowledge of employees to ensure retention of language skills and for providing assistance to departments in the efficient implementation of its official languages programs.

The commission modified its language training system in 1973 by placing a greatly increased emphasis on continuous language training, in which the public servants concerned can spend up to 52 weeks at language school without interruption. This change of technique was brought about to increase the effectiveness of language training and also to ensure compatibility with the language requirements of positions. While its main training facilities are in Ottawa and Hull, the Public Service Commission also conducts regional language training operations in language schools in Halifax, Quebec City, Montreal, Winnipeg, Vancouver and Edmonton and makes language training available to federal public servants through contract arrangements in Saint John, Moncton, Fredericton, Toronto, Sudbury, North Bay, Regina and Banff. The commission also conducts various specialized courses to meet particular needs.

In 1977 the commission again modified its language training system; it now attempts to teach the specific language terminology needed in any given job, as opposed to teaching simply a general knowledge of the language. Also, the teaching program schedules provide for more flexible timetables to meet the new requirements established with the revision of official languages policies.

National Capital Commission

Federal departments and agencies in the National Capital Region are required to serve the public in both official languages. Moreover, in a constitutional conference in 1969 the first ministers of Canada and all 10 provinces agreed that "steps must be taken to assure that the two official languages . . . are recognized in these two cities (Ottawa-Hull) and in the National Capital Region in general, so that Canadians may have a feeling of pride and participation in and attachment to their Capital".

With the object of making the National Capital Region a true reflection of the country as a whole, a special program has been established under the aegis of the National Capital Commission (NCC) to encourage a balanced use of the official

languages outside the federal public service. This program encourages and supports provincial and local government initiatives and the efforts of private bodies and individuals in the region.

Thus, the NCC seeks to develop shared-cost arrangements with the provinces of Ontario and Quebec with a view to ensuring that the linguistic and cultural values of the Anglophone and Francophone communities are adequately reflected in the region. It collaborates with regional and municipal governments and other local public authorities such as school boards, as well as with private business organizations, voluntary associations and individuals, to encourage the use of both official languages in various services and activities.

Aside from assistance to organizations to permit them to offer services in both official languages, the NCC has been interested in youth programs, particularly home-to-home exchanges and immersion experiences that allow young people to acquire the linguistic skills and cultural insights that will make them better Canadians. The NCC also extends support to the Alliance for Bilingualism in the National Capital Area, an association that seeks to inform public opinion and stimulate discussion on such broad questions as education in both official languages, use of the official languages in provincial courts and social services to each community in its respective official language.

Commissioner of Official Languages

It is the duty of the Commissioner of Official Languages "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 of the Official Languages Act).

The commissioner exercises two functions, those of language ombudsman and linguistic auditor general in matters under federal jurisdiction, and reports each year directly to Parliament.

Within practical limits, the Official Languages Act permits everyone to address, in writing or orally, any department or agency of the federal government in English or French and to receive a response in the same language. Documents or publications printed by these departments or agencies for their publics must also appear in both languages. Parliament has provided the Commissioner of Official Languages as an ombudsman to back up these rights. Appointed by the House of Commons and the Senate for a seven-year term, the commissioner must investigate all complaints.

Multiculturalism

According to the 1971 Census, 44.6 per cent of Canada's population were of British origin, 28.7 per cent were French and the remaining 26.7 per cent were of other language origins. The government's multiculturalism policy, announced in October 1971, is a response to recommendations of the report of the Royal Commission on



Italian folk dancers.

Bilingualism and Biculturalism, which described the status of all the various cultures in Canada. The policy promised support to programs aimed at retaining, developing and sharing these cultures on a larger scale.

In November 1972 the position of Minister Responsible for Multiculturalism was created to administer the policy, and in May 1973 the Canadian Consultative Council on Multiculturalism (CCCM) was established to provide a focus for consultation by the minister on matters relating to implementation of multiculturalism policy. Regional, national and executive meetings have since been held regularly in order to review policy and evaluate multiculturalism programs. Extensive consultations took place in 1977 and 1978 between the CCCM and many local cultural community and youth groups in all regions of the country.

Multiculturalism Programs

Implementation of the government's multiculturalism policy is carried out by the Multiculturalism Directorate of the Department of the Secretary of State and by several federal cultural agencies. It implements a number of programs, which include the following.

The Ethnic Studies Program supports scholarly research and academic courses of study in the field of the humanities and social sciences relating to important aspects of cultural pluralism in Canada. Universities are assisted in obtaining visiting



Members of the Ottawa Chinese Association Dance Group.

professors and lecturers. The Canadian Ethnic Studies Advisory Committee advises the Ethnic Studies Program on these matters.

The Cultural Resources Development Section encourages the development of resources and the exchange of information about the multicultural nature of Canadian society. The purpose is to display the cultural diversity of the country to different segments of the main stream, particularly through the education systems, media relations activities, the Ethnic History Project and support for the performing arts and for the writing and translation of works of creative literature.

The Multiculturalism Directorate also provides assistance to a wide range of activities initiated by voluntary groups, to enable them not only to maintain and develop their cultural heritage but also to share it with others. Support is provided for the operation of supplementary cultural-linguistic courses, for the training of instructors and for the development of teaching aids for use in ancestral-language schools, intercultural communications, group development, cultural integration of

Dancers from the India-Canada Association.



immigrants, etc. By liaising through its national, regional and local offices with groups and organizations representing Canada's ethno-cultural groups, the department continues to assist them to achieve full participation in society.

In addition, amongst the programs of the cultural agencies, the National Film Board is producing a new series of films and multi-media materials on the history, culture and lifestyles of ethno-cultural groups in Canada and on the intercultural relationship of various groups. The NFB also prepares and distributes ancestral-language versions of films the board originally produced in English and French.

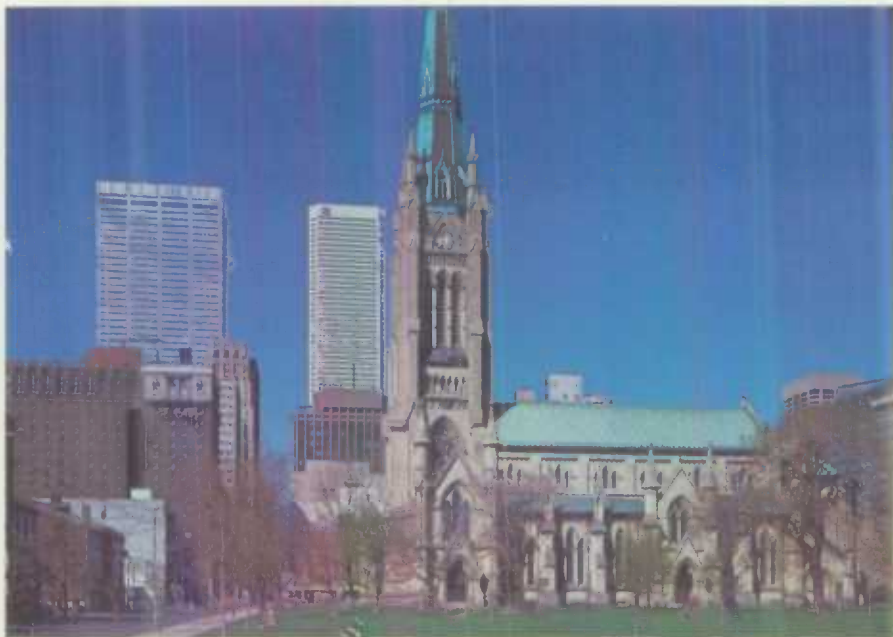
The National Museum of Man is actively involved in research, collection, preservation, interpretation and public presentation of various aspects of Canada's cultural heritage. It has accumulated a vast number of artifacts, tape recordings, videotapes and films reflecting elements of Canadian ethno-cultural traditions. The museum also administers a related program of displays, travelling exhibits, educational kits and publications.

The National Ethnic Archives, a component of the Public Archives of Canada, collects, catalogues and preserves materials of historical significance relating to Canada's cultural minorities. It seeks to create a greater awareness among the many cultural communities of the importance of and need for documenting their heritage and preserving all types of archival materials in order to ensure that the many facets of Canadian history be fully recorded.

The Multilingual Biblioservice of the National Library administers a program to acquire and circulate books in languages other than English and French through the public library system.

Musical pipe bands at the annual Glengarry Highland Games in Maxwellville, Ont.





St. James Anglican Cathedral in Toronto, Ont.

Religion

Religion has been an important influence in Canada's history since the days of discovery. Not just the search for riches or the lure of exploration, but a sense of mission, to Christianize the Indians, drew Frenchmen to the New World. Later settlers looked to their churches as centres of social stability, of community as well as religious activities, and of consolations in the face of adversities and sufferings. Most Canadians would agree that the Judaeo-Christian values carried from Europe influence their national life.

French Protestants were active in the early fur trade, but religious and economic rivalries led to the banning of all but French Roman Catholics from New France in 1627. Before settlers arrived in any numbers, however, the Roman Catholic Church was operating schools and hospitals as part of its mission to convert the Indians. One of Canada's most heroic stories is that of the 17th century Jesuit mission to the Hurons on Georgian Bay, where seven missionaries were killed; they have now been recognized as martyr saints. From similar missionary enterprise grew the city of Montreal.

When Britain acquired Acadia in 1713 and New France in 1763, Roman Catholics were guaranteed freedom of religion. A policy encouraging a "Canadian" Catholic Church was confirmed by the Quebec Act of 1774, which officially recognized that

church. The arrival of Protestant Loyalists, however, made Canada religiously pluralistic. This diversity and democracy doomed plans to make Anglicanism the official religion of the colonies, and by Confederation separation of church and state had become the practice in Canada.

Canadians have come literally from a hundred nations, and the larger churches have established "ethnic" parishes where use of their mother tongue eases the immigrants' entrance into Canadian culture. While most Canadians are Christian by heritage, other faiths are also part of our religious mosaic. European Jews have brought both major Judaic religious traditions with them and are organized here in orthodox, conservative and liberal synagogues; Judaism in Canada has remained essentially an urban phenomenon, with 77 per cent of its followers living in Montreal and Toronto. From Asia other immigrants have introduced Islam, Hinduism, Buddhism and Sikhism.

Soon after Confederation Protestant nationalists began to voice their dream of reuniting all Christians in a single Canadian church. In 1875 all Presbyterians in Canada joined in a single church, and nine years later all Methodists were similarly reunited. These denominational unions led to discussion of an interdenominational union, but not until 1925, after bitter controversy had divided the Presbyterian Church, was a union of Methodists, Presbyterians and Congregationalists achieved. From 1944 to 1975 the United Church of Canada discussed a union with the Anglicans, which would have contained nearly 30 per cent of Canada's population.

According to the 1971 Census, Roman Catholics make up 46 per cent of the population and the three next largest denominations — Presbyterians, Lutherans and Baptists — claim another 12 per cent. Nearly nine of every 10 Canadians belong to just six churches and the remainder are divided among more than 30 other denominations. Members of Canada's larger churches are found in every province, but the smaller denominations often reflect a regional concentration. The continuing Presbyterian Church in Canada became predominantly an urban and Ontario institution after the union of 1925, and Canada's 667,000 Baptists are mainly in the Maritimes. The tradition of religious freedom has attracted many small and

Girls from the Hutterite Colony preparing vegetables for the weekly market-garden sale in nearby Calgary. AP/Wide World





Notre Dame Cathedral in Montreal, Que.

persecuted religious bodies to Canada from other lands; they often settled here in close communities to preserve their religions and lifestyles.

During the 19th century ministering to widely dispersed settlements absorbed so much of the resources of the churches that it was left to the state to develop social services. At the same time, despite this growth of the welfare state and its separation from the churches, Canadians always believed that religion and secular life must be related. The organized churches have acted as the conscience of the state, lobbying on such issues as temperance, Sunday observance, birth control, abortion, working and living conditions, capital punishment and criminal law reform. They have also encouraged Canada's aid to under-developed countries and our non-recognition of certain foreign governments.

Since the early 1960s the influence of the older churches on national life has declined, while radical sects and cults have attracted a sizable following among a restless younger generation. Nevertheless, the more traditional forms of religion may yet regain some of their effectiveness through the revival of religious conservatism in reaction to the uncertainties, confusion and challenges of the previous decade.

JOHN S. MOIR

Arts and Culture

The Arts: Boom-times and Austerity

Public spending on the arts has increased dramatically in the last decade and artistic activities generate money for individuals and for communities. Yet, paradoxically, everyone in the arts has money problems; some are merely hard-pressed, while others are well below the poverty line. More money has meant more and better arts for more people in more places, but at the same time very few have been spared by recent budget cuts, and more arts people are worrying about where the next dollar is coming from.

As the arts have grown in size their reputation has spread and improved. The 68 biggest arts groups in Canada attracted a full third of our population to spend money and time on attendance. Millions more are attracted to other arts events, or read Canadian books, or look at works of art. Press coverage has expanded to the point where one sees long stories in the newspapers about conferences whose sole aim is to discuss what is wrong about arts reporting in the newspapers.

At the same time, more artists feel that they are not known and not appreciated. Canadian playwrights, composers, painters, sculptors and authors all have good reason to feel that they are neglected by the press and public. Even superstars such as Michel Tremblay, Margaret Atwood, Jean Duceppe and Gordon Lightfoot draw a tiny fraction of the printer's ink that is given freely to various Hollywood celebrities.

Enjoying music on a summer afternoon in Prince Edward Island.





Dress rehearsal for the provincial Opera Association's production of Macbeth. The witches are played by (left to right) Patricia Riehl, Paul Phillips and Roseanne Keyes.

Other artists, good ones, feel as though the work they produce just disappears into a vacuum, that there is no public reaction at all.

Everybody's Doing It. One consolation for artists is that the arts are literally everywhere. If there were no "serious" visual art there would be no commercial art and, as pop artists and many others have shown, the line between the two can be very thin and at times visible. Music piped into a factory or office is art and so is all the music on radio and TV. Without dramatic art and fiction there could be no TV adventure serials or soap operas, nor even "True Confession" magazines. Schoolbooks and visual aids that were not informed by skills learned from literature and the visual arts would communicate little.

People who say they have never been artists are almost always wrong. What children do with finger paints is art and so is the shaking of tambourines or the banging of triangles. On a more elevated level are amateur groups of all kinds: what one sees or hears in a church basement or school hall is as surely art as a performance at one of Canada's great arts centres. Every newspaper editor in Canada knows that to ignore the hundreds of amateur arts events in the area is to miss some good performances, as well as to lose goodwill and circulation.

It is impossible even to make an absolute distinction between artists and the people who appreciate their work. Artists are appreciators as well as creators. Any

critic may be wrong about who influenced what artist, but certainly Marion Engel read and liked novels before she started writing them and Gilles Vigneault listened to songs before putting his own into words and music. Appreciating a work of art is a creative act approximating that of the artist who created it.

Excellence in the arts still counts for a great deal. Some artists are better than others and a few are much, much better; the problem is that in some fields one cannot be sure for many years after the event and, even then, not that sure. We know who is good at playing the cello, for example, and the grimace on the face of anyone with what musicians call an "ear" will indicate who is bad, but 20 years from now we may have different ideas about who is great. Fashions change even in such things as musical performance, and when it comes to composers, writers and other creative artists history will have a lot of easy laughs at today's judgments.

Still, quality counts for a lot. These days, thousands of Canadians are involved full-time in the practice of the arts at a very high level. In general these are the people and groups who qualify for Canada Council grants, but there are also many who fall outside the net of the council. They provide new insights that affect every Canadian in one way or another. Their successes are our successes and their problems concern all of us.

Doug McGrath and James B. Douglas in the Theatre Calgary production of That Championship Season.





André Duchapelle and Louise Scofield in the recent production of *La Baby Sister* at the summer theatre of Théâtre de Quat'sous.

Life completely cut off from the arts would be unliveable. What is more, it would be almost impossible to bring about, even in the deliberately repressive confines of a concentration camp: inmates often spin tales and sing songs and dream of pleasing shapes and colours. Rather than repress art, our society has deliberately encouraged it in all its forms — which brings up the question of money.

Good Times for Artists. In a speech in the spring of 1977, André Fortier, Under-Secretary of State and former Director of the Canada Council, gave figures that made visions of sugar plums dance before the eyes of artists in the audience. One figure divulged — \$150 million — is the amount of federal government support to the arts, not counting the Canadian Broadcasting Corporation (CBC).

There are other governments in Canada that help the arts. Provinces and municipalities contribute still another \$150 million.

A lot can be done with that kind of money. If it were simply divided among the 1,000 best artists in the country each individual would get \$300,000 per year, with small annual increases. Listeners to Mr. Fortier's speech may have had visions of wild opulence. They may have thought of the film, *The Producers*, in which Zero Mostel did a lyrical dance number on the genial theme not of love, but of money.

Even that is not the whole story. There are private contributions as well. Individuals buy more books and more tickets for concerts and plays, see more movies and make more donations to the arts in Canada than ever before.

In November 1976 a conference at the Royal York Hotel in Toronto showed how business is getting down to the business of helping the arts. What brought 100 key executives together on this occasion was not maximizing profits, but "Corporate

Donations to the Arts". It was organized by *The Financial Post* and The Council for Business and the Arts in Canada, which already has 100 corporate subscribers and is still growing. Xerox rubbed shoulders with IBM and Olivetti, banks with insurance companies, Maclean-Hunter with Air Canada.

No doubt more corporations will join the ranks of hero-workers in the arts. Rothman's has its own Council for the Performing Arts; Toronto-Dominion Bank concentrates on Inuit art; Noranda Mining has a fine art collection; and Seagrams sends art exhibitions around the country. In Edmonton, small and large businesses alike dipped deep into their pockets to pay the entire cost of the Citadel Theatre's new building.

Even a business person who has no interest in "Art" cannot help thinking about the arts these days. The arts are competing with Dun and Bradstreet and grain futures for space in the business pages of the dailies and the financial weeklies. Even the most determined miser has more than a passing interest in articles about millions being made by the movie and book industries; a conglomerate takes over a multinational publisher or the author of a best-seller becomes a corporate conglomerate herself and, whatever he feels about esthetics, the miser wants in.

Even the visual artists, the traditional hard-to-handle kids on the block, have their own bank, if not the usual kind of bank. The Canada Council's Art Bank has put purchase money into the pockets of more than 600 artists and some of their dealers by buying works of art to loan to government departments for their offices and public spaces.

Nicholas Pennell and Rod Beattie in the recent Stratford production *The Devils*.





*Terence Kelly and Margaret Robertson in
The Vancouver Playhouse production
Oedipus.*

Artists have some of the other trappings of big business and big labour. They have a number of lobbying groups, including the Canadian Conference of the Arts, which holds meetings between artists and government people in an attempt to get a better deal for the arts. Among the lobby groups for specific segments of the arts community, the Association of Canadian Orchestras has been particularly active in encouraging write-in campaigns to Members of Parliament; it is generally one of the most vigorous and effective arts associations in Canada.

Strong unions are well established in the performing arts and new unions of visual artists and writers have helped give them collective voices. The AFM (American Federation of Musicians), ACTRA (Association of Canadian Television and Radio Artists) and the Union des artistes, among other unions and professional associations, have helped give artists in these fields a strong say in their own affairs. Joining them in recent years have been the Writer's Union of Canada, the Union des écrivains québécois and, on behalf of the visual artists, Canadian Artists Representation. The Writers' Branch of ACTRA has come to play an increasingly important role in its own affairs, an important move for novelists, poets and playwrights who count on broadcasting and film for good portions of their incomes.

Bad Times for Artists. Money problems in the arts are not always like other money problems. "Poverty amidst plenty" is a phrase that usually suggests such

classic situations as tar-paper shacks huddling amidst the mansions of the rich, but in the arts the loudest cries of distress are coming from the mansions.

Every large theatre, opera or dance company, symphony orchestra and performing arts festival has grave money worries, and inflation has meant serious cutbacks in operations by many organizations.

It is a situation that could happen only in the arts. The large companies and orchestras are packing in more paying attendance than ever before; they are turning out a better product, making better use of Canadian talent and moving more effectively out into the communities they serve. In other businesses, such success would be a signal for expansion.

However, the performing arts at the highest level have rarely been able to survive without patronage of one kind or another. It used to be the great noble houses of Europe, and then the great financiers, and now it is government that pays a large part of the bill. There are some exceptions, but the places where purely commercial theatre at a high level works are few and far between. Concerts by small groups of musicians can make a profit — most notably in rock or folk music, but also in the cases of great soloists such as Maureen Forrester or Jon Vickers. But the expenses of bringing together large numbers of artists in good productions are simply more than the limited seating capacity of theatres or concert houses can support.

The money worries of individual artists in all fields are not very different than those faced by most Canadians at one time or another. Most artists do not earn enough from their work and often have to enter into makeshift arrangements to make ends meet. For them it is usually a question of keeping the wolf away from the

Doug Junor and Brian Balmchaud in the film *Who Has Seen The Wind* which won the Golden Reel Award in 1976.





Members of a sketch club in Windermere, BC.

door, rather than "keeping up with the Joneses"; the Joneses can be expected to have well over average incomes and artists in all fields usually earn less than the average.

It would be difficult to imagine a less financially rewarding profession than the performing arts. A study commissioned by the Canada Council showed that in 1971 professional musicians did best among performing artists, with average yearly earnings of \$7,500, and dance professionals the worst, at \$4,500. The average income in all performing arts was \$6,500, \$400 a year less than that of the labour force as a whole and grossly less than the income of other professionals. The artists surveyed were professionals who had undergone not only many hard years of basic training, but also an average of two or three years of "apprenticeship" in their fields; their average age was 34. At all times competition was very hard, and the professionals were the pick of what began as a very large crop. Each field has its own hazards. Dancers in particular last only about as long as professional athletes and risk career-ending injuries at every stage.

Things are much worse for poets, playwrights, novelists, composers, painters and sculptors. In most cases they have no large institutions to pay them salaries and bring their work before the public. Grants from the Canada Council and other arts councils have been a great help for many of them, but still do not save them from either living at levels below the poverty line or taking time-consuming outside jobs. Artists in these fields live in perpetual uncertainty. Even the most respected of novelists, for example, are only as good as their next works. A composer can go through a productive creative life of many years without hearing one of his or her works properly performed. Here again the competition is intense, the apprenticeship painful and the financial rewards usually meagre.

For all the problems, the arts are springing up everywhere. Creative artists are producing more than ever before and small performing arts groups across the country are finding new ways of illuminating the dark corners of our collective life. Energetic solutions to problems are being put forward in all art forms and the reaction to difficulties is not despair but the kind of irritation that leads to getting things done.

Most important, the artists, governments and public now see the arts in Canada as something delightful and absolutely essential to the good life.

How to Find Out More

There are many sources of information on current developments in the arts. The arts pages of the newspapers continue to get bigger and better; in the larger towns and cities they can be counted on to give informed opinions on what is happening locally and, to some degree, nationally. Annual reports of the Canada Council and the arts funding agencies of some of the provinces and cities can often be found in the reference section of the local library.

Among the many Canadian arts periodicals are:

Performing Arts: *Canadian Theatre Review*; *Coda*; *Dance in Canada*; *Opera Canada*; *Performing Arts in Canada*; and *That's Show Business*.

Writing and Publishing: *Books in Canada*; *Livres et Auteurs Québécois*; and *Quill and Quire*.

Film: *Cinema Canada*; *Cinema Quebec*; *Motion*; *Sequences*; and *Take One*.

Visual Arts: *Art Magazine*; *artscanada*; *Impressions*; *File*; *Ove Photo*; *Parachute*; and *Vie des Arts*.

Wooden figures at a postal terminal in Saint John, N.B.





Snow in October by Tam Thomson.

Museums and Galleries

Over the past decade, Canada has witnessed a dramatic increase in museum activity. There are now about 1,500 museums and art galleries in operation across the country, and approximately 50 major institutions have a combined annual attendance of nearly 10 million visitors. The number of museum workers has also increased enormously and training programs in museology have expanded. Since 1972 extensive financial support has flowed from all levels of government, indicating strong public interest in the preservation of Canada's natural, historic and artistic heritage.

An important member of the museum community is the Canadian Museums Association, with its head office in Ottawa. Through its publications, seminars, conferences and museological resource centre, the association promotes professional practices among museum employees across the country.

The National Museums of Canada

In 1968 the National Museums Act incorporated the four national museums under one administration as the National Museums of Canada. The four national museums are the National Gallery of Canada, the National Museum of Man (including the Canadian War Museum), the National Museum of Natural Sciences and the National Museum of Science and Technology (including the National Aeronautical Collection).

As a result of federal government deliberations a new national museum policy was announced in March 1972 and the National Museums of Canada was given the responsibility of implementing it. Basic to this new policy were the concepts of democratization and decentralization of Canada's cultural heritage. Key features included the establishment of a nationwide network of 25 associate museums, including the four national museums in Ottawa. As well, a network of exhibition centres was set up to meet the needs of communities not served by major museums. Museumobiles were developed to bring specially designed exhibits to smaller and more remote communities.

Other national programs include the Canadian Conservation Institute, which provides research, advice and skilled care to protect national treasures; a computerized national inventory of museum objects; an international exchange program; and technical and financial assistance to hundreds of qualifying institutions. The National Museums' Discovery Train, a half-mile of dramatic exhibits of our natural and human history, was developed to reach approximately three million Canadians each year. Publications, audio-visual productions and educational kits serve a wide audience from coast to coast.

The National Gallery of Canada. The function of this gallery since its incorporation in 1913 has been to foster public awareness of the visual arts and to promote the interests of art throughout the country. Under this mandate, the gallery has increased its collections and developed into an art institution worthy of international recognition.

There are more than 18,000 works of art in the National Gallery. The collections have been built up along international lines to give Canadians an indication of the origins of their traditions. The collection of Canadian art, the most extensive and important in existence, is continually being augmented; over 60 per cent of all new acquisitions since 1966 have been Canadian. There are many Old Masters, as well as a growing collection of contemporary art, prints and drawings, and diploma works of the Royal Canadian Academy.

Visitors to the gallery are offered an active program of exhibitions, lectures, films and guided tours. The reference library, which contains more than 60,000 volumes and periodicals on the history of art and related subjects, is open to the public.

The interests of the country as a whole are served by circulating exhibitions, lecture tours, publications, reproductions and films. At the same time, the gallery promotes interest in Canadian art abroad by participating in international exhibitions and by preparing major exhibitions of Canadian art for showing in other countries; it also brings important exhibitions from abroad to be shown in



Reproduction of a Victorian portrait of the National Museum of Man.

Canada. During 1977-78 the gallery's national program organized and circulated 25 exhibitions, which were seen by over 245,000 people in 30 cities across Canada.

The National Museum of Man. This museum collects, preserves, researches, interprets, displays and issues publications on artifacts and data of the cultural and historical heritage of Canada's varied population.

The museum has nine permanent exhibit halls in the Victoria Memorial Museum Building. They include: "Trail of Mankind", an orientation gallery; "Canada Before Cartier", the story of prehistoric Canada; "The Inuit", a study of the people of the North; "People of the Longhouse", a portrait of the Iroquois; "The Buffalo Hunters", a study of the Plains Indians; and "Children of the Raven", on the life of the Northwest Coast Indians. The museum's newest permanent exhibits — "A Few Acres of Snow" and "Everyman's Heritage: The Canadian Odyssey" — deal with the history of settlement and social development in Canada and the rich mosaic of cultures brought by settlers.

The museum's work is carried out by seven divisions. The Archaeological Survey of Canada conducts research and archaeological rescue excavations on sites about to be destroyed or damaged by development. The Canadian Centre for Folk Culture Studies has the country's largest archive of folk culture materials. The Canadian Ethnology Service conducts comprehensive research on Canadian native and Métis cultures. The Canadian War Museum is involved in research, exhibits and publications on military history, and houses an extensive collection of memorabilia ranging from war art to tanks. The History Division carries out studies of Canadian

society and material culture since the beginning of European colonization. The National Programmes Division circulates travelling exhibits nationally and internationally. The Education and Cultural Affairs Division produces educational resources, including the "Canada's Visual History" series, films and multi-media "Museum Kits", and provides local program for schools and the public.

The National Museum of Natural Sciences. The National Museum of Natural Sciences is organized into divisions dealing with botany, invertebrate zoology, vertebrate zoology, mineral sciences, palaeobiology and interpretation and extension. It also maintains the Canadian Aquatic Identification Centre and the Zooarchaeological Identification Centre, which identifies animal remnants from archaeological digs.

The museum is engaged in 70 major research projects undertaken by its staff members or associated scientists from universities and other outside organizations. More than four million scientific specimens are maintained in the museum's collections and are available to scientists from all parts of the world. The museum also publishes scientific papers on subjects related to its collections.

A major renovation of the Victoria Memorial Museum Building, which is shared by the National Museum of Natural Sciences and the National Museum of Man, is gradually being completed. Audio-visual presentations, visitor-operated displays, drawings, models and thousands of specimens from the museum's collections are used in five permanent exhibit halls entitled "The Earth", "Life Through the Ages", "Birds of Canada", "Mammals in Canada" and "Animal Life". A special hall displays

The Dinosaur Hall at the National Museum of Natural Sciences.





Vintage cars at the National Museum of Science and Technology.

temporary exhibits from the museum and other sources. Exhibit halls of plant life and animals in nature are in preparation.

Public lectures, film presentations and special interpretive programs offered by the museum have become increasingly popular with school classes and the general public. Popular publications, a school loans service of educational resource materials and a program of travelling exhibits make our national heritage more accessible to Canadians across the country.

The National Museum of Science and Technology. This museum challenges over half a million visitors each year to climb, push, pull or just view the lively exhibitions built around its collections. An additional 200,000 people annually visit the National Aeronautical Collection at Rockcliffe Airport.

The museum's exhibit halls feature displays of ship models, clocks, communications equipment, a chick hatchery, old and new agriculture machinery, printing presses and artifacts of Canada's aviation history. There are numerous examples of milestones in the history of ground transportation, from sleighs and carriages to giant steam locomotives and "horseless carriages". The Physics Hall, with its skill-testing experiments and "seeing puzzles", delights young and old alike. The museum's observatory houses Canada's largest refracting telescope, which is used for star-gazing in evening educational programs.

Educational programs on general or topic oriented subjects for all age groups are conducted by a staff of tour guides. During the summer months a steam train makes a return trip from Ottawa to Wakefield, Quebec, giving its passengers a taste of the sights and sounds of a bygone era.

The museum's work also includes the designing and building of exhibits that are occasionally sent on tour throughout Canada. Artifacts are exchanged with museums in Canada and abroad.

In the National Aeronautical Collection nearly 100 aircraft illustrate the progress of aviation from its early days to present times and the importance of the flying machine in the discovery and development of Canada.

Libraries and Archives

Libraries

Libraries have existed in Canada since the early 18th century. Legal, theological, university and society libraries were in existence before 1850; after 1850 business and industrial libraries appeared, along with tax-supported public libraries. The greatest growth for all types of libraries has been in the years since World War II.

Because Canada is a federal state and libraries fall under provincial jurisdiction, there is no unified national system of libraries. The public library systems of the provinces, though varying in detail, are alike in being supported by local and provincial funds (except for the Yukon Territory and the Northwest Territories, which are federally funded) and co-ordinated by a central library agency.

Canadian public libraries are sources of print and non-print materials for the pleasure, information or education of their users. Some are deeply involved in providing information on community services and facilities. Even more are finding ways to take public library services to those who cannot or do not come to libraries — senior citizens, shut-ins, prisoners and the physically and economically handicapped. People whose mother tongue is neither English nor French find that libraries frequently provide foreign-language materials, often with the assistance of the Multilingual Biblioservice of the National Library, which assembles collections of books in selected languages and lends them to library agencies in the provinces for circulation in their areas.

There are perhaps 10,000 school libraries in Canada, as distinct from unorganized classroom collections. The emphasis in this type of library has shifted from the use of printed materials alone to use of a wider range of information sources, such as films, recordings, tapes, slides and kits. As a result, school libraries are becoming multi-media "resource centres".

College and university libraries went through a period of very rapid expansion in the 1960s and early 1970s, but growth is now slowing down. These libraries have been very active in applying automated techniques to library procedures in order to be able to handle their rapidly increasing work-loads efficiently. They have also sought ways to co-operate in automation, collection rationalization and sharing resources, with the result that computerized networks are developing or under study in all regions of the country. In these efforts they have had support from the National Library, which has conducted or sponsored a number of studies relevant to these concerns (e.g., on law, government document and music library collections, and inter-library loans).

Special libraries — those serving companies, associations, institutions such as museums and hospitals, and government departments and agencies — number over 1,000. Among them, the government libraries tend to be the largest, especially the provincial legislative libraries. Some federal government libraries are de facto resource libraries in their subject fields for the whole of the country, but in general special libraries serve only authorized users from their sponsoring organizations.

At the national level, the scientific resource library for Canada is the Canada Institute for Scientific and Technical Information (CISTI), which was formerly the



The National Library of Canada celebrated its 25th anniversary in 1976.

National Science Library. CISTI's services to the scientific research and industrial communities include, in addition to its back-up serials and monograph collection, a computer-based selective dissemination of information (SDI) service, a companion on-line search service (CAN/OLE) and publication of a union list of scientific serials held in Canada.

The National Library of Canada celebrated its twenty-fifth anniversary in 1976 and marked the occasion by an intensive study of its future role. The library continues to build its collections in the social sciences and humanities and in Canadiana of all kinds, as well as to discharge many national responsibilities. In accordance with the National Library Act of 1969, it administers the legal deposit regulations, publishes the national bibliography, *Canadiana*, and maintains union catalogues from which libraries and researchers can find out where in Canada specific works are held. It also assigns International Standard Book Numbers (ISBN) for English-language publications and International Standard Serial Numbers (ISSN) for all Canadian serials. It provides the SDI service for the humanities and social sciences and makes on-line searches of a number of data bases available for a minimal fee to libraries and individuals. It has taken a leading part in promoting national bibliographic networks.

In Canada librarians are trained at the universities. Seven postgraduate schools offer master's degrees in library science and two, at the universities of Toronto and Western Ontario, also offer doctoral programs. In addition post-secondary courses for the training of library technicians are available in community colleges in many parts of the country.



Mobile libraries in Calgary, Alta. offer their service to those unable to use conventional library facilities.

Archives

The mandate of the Public Archives of Canada is to acquire, preserve and make available to the public all documents that reflect the various aspects of Canadian life and the development of the country.

At one time, manuscripts were virtually the only objects of interest to researchers. Today, equal importance is given to documents of every kind as authentic sources of information. The Public Archives now includes separate divisions for manuscripts, maps and plans, pictures, prints and drawings, photographs, films and sound recordings, and machine-readable archives.

The department has equally important responsibilities in the management of government records. The Records Management Branch aids federal government departments and agencies in establishing and administering effective programs for the management and disposal of records. Microfilms and computer records have important roles in both records and archives, the Central Microfilm Unit of the Administration and Technical Services Branch provides microfilming services to most government departments at cost.

Laurier House, the former Ottawa residence of prime ministers Sir Wilfrid Laurier and William Lyon Mackenzie King, is administered by the Public Archives. Collections of pictures, china and silver enhance the dignified charm of the house, and are viewed every year by more than 25,000 visitors from every part of the country and from abroad.

The Public Archives has also initiated a comprehensive exhibitions program to make the many services of the department better known. To this end, the Records Management Branch and the Public Records Division are planning a national conference and exhibition for November 1979. The conference, which will deal with public records and their management and preservation as historical documents, will coincide with International Archives Week.

Governments and Cultural Policy

Private and Public Responsibilities

All Canadians live their cultures, but very few of them discuss the subject very much. When they do, they usually regard culture primarily as a personal affair. While certain kinds of government support are welcome, any attempt by any government to determine the substance of cultural life would be inconsistent with Canadian values.

Nevertheless, members of the public demand certain kinds of cultural services from their governments. There seems to be increasing public interest in cultural expressions that illuminate the reality of Canada and Canadians. The problems are complicated by the cultural diversity of the population, the decentralization of public authority and the openness of Canada to cultural currents from Europe, the United States and other parts of the world. The resources available from the market and from private patronage, while important, are inadequate to the task; it is recognized that public authorities must also play a part.

Thus cultural policies in Canada are characterized by a search for acceptable ways in which governments may support cultural development and the production and enjoyment of the arts, without imposing official values, control or censorship.

Veronica Tennant, David Cornik and four fairies in the National Ballet production The Dream.



Governments as Proprietors

By historical accident or considered decision, governments own a great deal of property of cultural importance to Canadians. Holdings range from national monuments like the Parliament Buildings to the most representative collections of Canadian painting or the records of obscure 19th century parish priests. From this role as proprietor have emerged important institutions like the provincial and federal archives, historic sites and monuments services, and important art galleries and museums operated at all three levels of government. In short, governments are the predominant collectors and exhibitors in the country.

The responsibilities of proprietorship have been recognized in a number of ways. Collections have been steadily expanded and diversified. Facilities are being improved and interpretation services strengthened so that public holdings may be more readily available and meaningful to the public.

In building construction, governments at all three levels have been prepared to give some weight to aesthetic as well as functional considerations. This extends beyond architectural design to include the use of works of art both in exterior landscaping and in furnishing. Recently there has been a new interest in renovating heritage buildings either for their historic purposes, as was the Kingston City Hall, or for new uses such as government office space.

As proprietors, governments have also been prepared to construct and operate physical facilities for exhibition and performance. Over the past 15 years, there has been quite remarkable progress in building theatres and concert halls. Virtually all the major urban areas, and many smaller centres as well, are now reasonably adequately equipped.

It is striking that investment in cultural goods and facilities for the enjoyment of the public is not limited to any single level of government. One finds libraries, concert halls, art collections and heritage buildings owned and made available by municipalities and by provincial and federal authorities. Numerous co-operative arrangements have developed between governments to strengthen the services offered and to assist with financing, especially of capital costs. Federal grants to provincial governments and municipalities have been important, especially in building facilities for exhibition and the performing arts; provincial grants to municipalities are essential for the construction and operation of public libraries, cultural centres and many programs offered at the local level. In some provinces, very substantial lottery revenues are allocated to municipal capital expenditure on cultural and recreational facilities.

Underwriting Creativity

Apart from purchasing some of their work for collections or other public purposes, governments took it for granted until the middle of this century that creative people would make it on their own. No substantial expenditures were regularly devoted to the support of people rather than the purchase of product.

The report of the Massey-Lévesque Commission in 1949 was the turning point at which it became apparent that a flourishing cultural life in Canada simply could not be sustained by market revenues, private benevolence and artists living in poverty.



Performers of a Christmas concert at a school in Toronto, Ont.

Since that time governments have recognized, albeit hesitantly, that it is appropriate for some public funds to underwrite painters, dancers, musicians and other artists, and the institutions within which some of them work. Even now, very few professional artists approach income levels regarded as normal in other professions, but the current level of creative expression in Canada is in some measure a reflection of government support.

Several techniques are used to channel public funds to artists in a rational way, without constraining or attempting to control the direction of their work. A number of arts councils have been established separate from the normal government structure. The Canada Council, which is the chosen instrument of the federal government, is a statutory foundation, or public trust, that is expected and required to make its own decisions without direction from any authority apart from its legislation. Several provincial governments use this pattern, with modifications to meet regional requirements.

The arts councils in turn are guided by the judgments of the creative community itself and typically rely on recognized practising professionals in a given discipline to advise on the best distribution of the available funds. There are seldom enough funds to meet the need and very hard choices must be made, so the system is designed to identify excellence as objectively as possible.

Governments as Educators

In a broad sense, all education policy is cultural policy. The schools are the most important cultural institutions of Canadian society. Education is a provincial responsibility administered largely at the municipal level; the subject is accordingly

diverse, complex and locally oriented, and the paragraphs that follow can suggest only a few general characteristics.

School programs in Canada have always recognized the importance of the arts as an element in general education. Schools have been teaching literature for as long as there have been schools, and in many jurisdictions the current tendency is to increase the stress on contemporary works, particularly Canadian writing. Music is also well established in almost all jurisdictions and many schools offer programs in the visual arts.

Recently there appears to have been increasing concern, reflected both in policy and in student interest, with theatre arts, television and films. Television has appeared both as a teaching aid and as a subject of study and there have been many interesting and rewarding innovations in the use of video technology by students as an additional medium of cultural expression.

In co-operation with school boards, and often with the financial support of other levels of government, many performing arts companies mount presentations to school audiences and associate student companies with their principal endeavours. In addition, many professional companies and community groups offer theatre for young audiences out of school.

Governments as Regulators

Following public opinion, governments have generally avoided any conscious interference with the arts and the cultural life of the community, treating artists and cultural organizations like ordinary private or corporate citizens. Nevertheless, significant regulatory policies have been established in a few defined areas. Space permits only two or three examples.

Governments provide the legal context for artistic production (through legislation respecting copyright and other property rights, for example) and tax policy is designed to favour the arts and other cultural activities by providing tax exemptions for private donations to arts organizations. Sometimes they have also been prepared to intervene to compensate for the economic disadvantage Canadian producers suffer beside foreign competition that can achieve very low unit costs through access to large international markets.

Many provincial and municipal governments have recently shown active interest in legislation designed to protect privately owned heritage buildings and neighbourhoods from demolition or intensive modification. Here again, regulatory policies are often coupled with incentives to encourage the restoration and re-animation of the cultural legacy received from earlier generations.

Governments as Producers

Apart from a few special cases like the National Arts Centre Orchestra, governments have preferred not to assume managerial responsibility, even indirectly, for artistic performance or the production of cultural works: the work or creation of the artist or company, although often intended for the public, is in the private sector. Where government presence exists it is intended to be unobtrusive, supportive and neutral.



1981. Gascon and Monique Marcure in The Father, the Theatre Company production at the National Arts Centre in Ottawa.

One striking exception to the foregoing is radio and television broadcasting, where the limitations of the technology, the economics of the industry and the character and scale of the country have dictated a mixed public and private system. However, even in the public sector governments have chosen to operate through statutory corporations in order to preserve official detachment from program content, and both public and private sectors are regulated by a separate commission that has no operational responsibilities.

As cultural institutions, the broadcasting enterprises are second in importance only to the schools; indeed some people would rank them first. One could scarcely over-estimate the cultural significance of the radio and television networks of the government-owned CBC, which now serve almost all of Canada in both English and French. At the same time, an important recent development in public sector broadcasting has been the establishment of some provincial educational television services; these are normally operated through statutory corporations and complement the CBC and private services with programming designed for school use, for pre-school children and for adult learners.

In conclusion, the cultural policies of Canadian governments are probably a rough reflection of the cultural characteristics, aspirations and priorities of the Canadian population. Since the population is diverse, dispersed and pluralistic, the policies are equally diverse and sometimes perhaps even contradictory. Like the country itself, cultural policy is a mosaic rather than a melting-pot.

Education

Constitutional Responsibilities

When the four original provinces of Canada were united in 1867, it was a condition of union that responsibility for education be vested in provincial legislatures rather than the federal government. Canada's constitution, the British North America (BNA) Act, was therefore worded to give the provinces exclusive jurisdiction over education and to protect existing educational systems. As other provinces joined Canada, the provisions of the BNA Act respecting education (Section 93) were reaffirmed.

Officially, the BNA Act does not recognize a federal presence in education. However, the federal government has assumed direct responsibility for the education of those outside provincial jurisdiction — native peoples, armed forces personnel and their dependents in Canada and abroad, and inmates of federal penal institutions. As education in Canada has expanded, indirect federal participation in the form of financial assistance has become extensive — support for the construction of vocational and technical schools, contributions to the funding of higher education and assistance to the provinces to promote bilingualism in education.

Provincial Administration

Because each province and territory is responsible for the organization and administration of education within its jurisdiction, no uniform system exists in Canada. Provincial autonomy has resulted in the establishment of distinctive systems reflecting historical and cultural traditions and socio-economic conditions. Each provincial system is in some ways unique — for example, in local organization, grade structures, funding, curriculum or testing.

Each province has an education department headed by a minister responsible to the legislature. The department is administered by a deputy minister, a public servant and usually also a professional educator, who advises the minister and gives a measure of permanency to the department's policy. Some provinces have separate government departments for post-secondary education and related manpower concerns. Regulation of universities and colleges varies from province to province.

Local Administration

While provincial legislatures and education departments provide the legal framework within which public schools operate, considerable responsibility for the actual operation of schools is delegated to local boards of education composed of elected and/or appointed trustees whose duties are specified in provincial legislation and departmental regulations. Responsibilities of boards vary from province to province, but in general they include school construction, pupil transportation, hiring of teachers and determination of tax rates for local support. In all provinces, school board budgets are reviewed by departments of education.



Young students in a French class in Prince Edward Island.

The structure of local organization for education has changed over the years. Although two provinces have long histories of large school districts (Alberta since 1937 and British Columbia since 1945), the others have traditionally organized in smaller ones; in recent years all have gradually regrouped into larger units. Newfoundland has reduced its districts from around 300 to 35, Prince Edward Island from 300 to five, and New Brunswick from 400 to 33. Quebec created large units of administration for secondary schools in 1961 and since then has reduced the number of boards for elementary schools from over 1,000 to 175. In Ontario more than 3,000 small elementary school boards have been replaced by county boards responsible for both elementary and secondary education; local administration for most Roman Catholic separate schools in Ontario has also been organized into county or multiple-county boards. Reorganization in Manitoba in the 1960s created 60 boards to administer both elementary and secondary education in place of the previous 1,400 district authorities. In Saskatchewan, larger school units exist for rural areas but there are still many city and town boards. The same applies in Nova Scotia, where there are geographically large units for rural schools, while every urban municipality has its own school board; however, in recent years three amalgamated or regional boards have been established to serve both rural and urban schools in their areas.

School Organization

Provincial variations in the organization of elementary-secondary education are such that no common pattern exists.

Newfoundland has an 11-grade system with an optional kindergarten year. Schools are generally organized on the basis of grades I-VI in elementary schools and grades VII-XI in secondary, but there are local variations. A Grade XI graduate requires four years at university to obtain a pass bachelor's degree.

Prince Edward Island, New Brunswick and British Columbia have 12-grade systems, after which four years of university are required for a bachelor's degree. Neither Prince Edward Island nor New Brunswick provides for kindergarten programs in the public schools, but in British Columbia such a program is almost universal. School organization in the two Maritime provinces is generally grades I-VI in elementary schools and grades VII-XII in secondary, in some cases with grades VII-IX as junior secondary; in British Columbia it is usually grades I-VII in elementary schools and grades VIII-XII in secondary, with some grades VIII-X junior secondary schools.



An Inuit girl in kindergarten in Repulse Bay, NWT.

Table 1. Summary statistics of Canadian education, 1976-77

Type of education	Number of institutions	Number of full-time teachers	Full-time enrolment	Expenditures ¹ \$'000
Elementary-secondary	15,227	274,512	5,507,878	10,131,680
Pre-grade I. ....	..	..	390,278	..
Grades I-VIII. ....	..	..	3,402,751	..
Grades IX-XIII. ....	..	..	1,714,849	..
Post-secondary				
Non-university	189	18,674	227,889	1,069,758
University	66	31,675	376,506	3,062,674
Undergraduate .....	..	..	335,866	..
Graduate .....	..	..	40,840	..
Sub-total	15,482	324,861	6,112,273	14,264,112
Trade level.	85	5,433 ²	253,032 ²	973,963
Continuing education				
Registrations. ....	..	..	2,491,832	..
Credit .....	..	..	969,317	..
Non-credit. ....	..	..	1,522,515	..
Enrolment .....	..	..	1,665,753	..
Credit .....	..	..	639,998	..
Non-credit. ....	..	..	1,025,755	..

¹ Preliminary data.² 1975-76 data.

.. Not available.

Nova Scotia, Manitoba, Saskatchewan and Alberta all have 12-grade systems with three university years needed for a pass bachelor's degree. In Nova Scotia kindergarten (known in the province as primary) is universal; it is optional but nearly universal in Manitoba and Saskatchewan, and Alberta has only recently provided it. School organization in all these provinces is generally grades I-VI in elementary schools and grades VII-XII in secondary, with some grades VII-IX junior secondary schools.

Ontario has a 13-grade system for university entrance programs and three years of university study is needed after that for a pass bachelor's degree. It is also possible in Ontario to graduate from high school after Grade XII, but this does not lead directly to university studies. School organization is generally grades I-VIII in elementary schools and grades IX-XIII in secondary. Roman Catholic separate schools, which by law cannot go beyond Grade X, usually operate in conjunction with private schools offering grades XI to XIII.

Quebec has an 11-year system to the end of secondary school, followed by a "collegiate" program of two or three years in a collège d'enseignement général et professionnel (CEGEP). Students who go on to university must complete the two-year CEGEP program, after which a three-year university program is necessary to obtain a pass bachelor's degree.



A log school and playground at Old Crow in northern Yukon.

Schools in the Northwest Territories are organized along the same lines as in the Prairie provinces; the Yukon Territory follows the British Columbia pattern.

Elementary-Secondary Education

Elementary education is general and basic, but in the junior high school years there is some opportunity for students to select courses to suit their individual needs. At the secondary level students usually have a choice of several programs and it is possible to tailor a course of studies by selecting from available programs.

At one time secondary schools were predominantly academic, designed to prepare students for continuing their studies at university; vocational schools were separate institutions, designed primarily for those who would not proceed to post-secondary education. Today, while some technical and commercial high schools still exist, most secondary schools are composite schools providing integrated programs for all types of students.

Independent Schools

In all provinces except Newfoundland and Prince Edward Island a number of independent or private elementary-secondary schools operate outside the public

school system, and may be either church-affiliated or non-sectarian. Private kindergartens and nursery schools also exist for children of pre-elementary age. In most provinces private schools receive some form of public support.

Table 2. Elementary and secondary school enrolment, 1976-77

Province or territory	Public ¹	Private	Federal ²	Total
Canada	5,285,274	185,035	33,187	5,507,878 ⁴
Newfoundland	157,803	293	—	158,096
Prince Edward Island	27,919	—	58	27,977
Nova Scotia	201,759	1,410	646	203,815
New Brunswick	163,317	393	837	164,547
Quebec	1,319,511	86,110 ³	4,694	1,410,515
Ontario	1,974,286	58,228	7,080	2,039,572
Manitoba	225,854	7,642	7,402	240,898
Saskatchewan	219,327	1,573	6,399	227,299
Alberta	441,255	6,070	3,897	451,222
British Columbia	536,481	23,318	1,974	581,773
Yukon Territory	4,866	—	—	4,866
Northwest Territories	12,916	—	—	12,916

¹ Includes provincial schools for blind and deaf and Department of National Defence schools in Canada.

² Schools for native peoples operated by the Department of Indian Affairs and Northern Development.

³ Estimate.

⁴ Includes 4,382 students in Department of National Defence schools in Europe.

— Nil or zero.

Kindergarten students discover new challenges at a school in Toronto, Ont.



Separate Schools

Five provinces make some legal provision for establishment of schools with religious affiliation within the publicly supported school system.

Newfoundland has traditionally based public school organization on church affiliation. However, in the mid-1960s the major Protestant denominations (Anglican, United Church and Salvation Army) amalgamated their schools and school boards. Roman Catholic schools, serving the largest single religious group in the province, still exist throughout Newfoundland and are organized into 12 school districts. Two other denominations (Pentecostal Assemblies and Seventh Day Adventist) also operate schools, with one board for each.

Quebec has a dual education system — one for Roman Catholic students, the other for non-Catholics — although in recent years the distinction between the two systems on the basis of religion has given way to some extent to a distinction based on language of instruction. Both school systems in the province receive equitable public support.

Legislation in Ontario, Saskatchewan and Alberta permits establishment of separate school districts. In all three provinces, Roman Catholic separate school districts operate a large number of schools, while a few Protestant separate school districts also exist. In Saskatchewan and Alberta, Roman Catholic separate schools span the whole range of elementary-secondary education; in Ontario, however, they receive tax support only for education up to Grade X.

Young school children visiting a reconstructed mission near Montreal, Que., originally established by the Jesuits in 1615.





Indian students learning to trap muskrat in British Columbia.

Post-Secondary Education

The 1960s and 1970s have seen extraordinary growth in programs and facilities for continuing education after high school. In past years universities provided almost the only form of post-secondary education. Now every province has a network of public community colleges and institutions of technology.

Degree-Granting Institutions

There are several types of degree-granting institutions in Canada.

Universities usually have degree programs in arts and science at least. Larger institutions offer degrees up to the doctorate level in a variety of fields and disciplines. There were 47 universities in Canada in 1976-77.

Liberal arts colleges are smaller institutions with degree programs in arts only. They usually offer some science courses but do not have degree programs in this area. There were two liberal arts colleges in 1976-77.

Theological colleges grant degrees only in religion and theology. There were 12 independent degree-granting theological colleges in 1976-77 and another 15 affiliated or associated with universities.

Other specialized colleges offer degree programs in a single field such as engineering, art or education. There were five such colleges in 1976-77.

The Department of National Defence finances and operates three tuition-free institutions: Royal Military College in Kingston, Ont., Royal Roads in Victoria, BC, and Collège militaire royal in Saint-Jean, Que., which is affiliated with the Université de Sherbrooke.

Table 3. Full-time enrolment in post-secondary education, 1976-77

	Community colleges and related institutions		Degree-granting institutions and affiliated colleges		Total
	Technical programs	University transfer programs	Undergraduate	Graduate	
Canada	151,371	76,518	335,866	40,640	604,395
Newfoundland	2,024	-	6,200	435	8,659
Prince Edward Island	752	-	1,478	-	2,230
Nova Scotia	2,813	193	16,635	1,579	21,220
New Brunswick	1,454	-	10,549	513	12,516
Quebec	56,698	66,020 ¹	66,660	10,979	200,357
Ontario	58,919	-	145,851	18,134	222,904
Manitoba	3,434	-	16,690	1,606	21,730
Saskatchewan	2,387	-	14,179	785	17,351
Alberta	14,009	2,548	29,339	3,210	49,106
British Columbia	8,881	7,757	28,285	3,399	48,322

¹ Estimate.

- Nil or zero.

Admission to university is usually after high school graduation with specific courses and standing. Most universities, however, provide for the admission of "mature students" who do not possess all the usual admission requirements.

Depending on the province, a pass bachelor's degree in arts or science takes three or four years of study. Professional degrees in law, medicine, dentistry, engineering and similar fields normally require the completion of part or all of the requirements for bachelor's degrees. Most universities offer both pass and honours bachelor's degrees; one more year of study is usually necessary for the latter, but in some cases the requirement is for additional courses in the field of specialization.

Admission to a master's degree program is usually contingent on completion of an honours bachelor's degree or equivalent. Most master's programs entail an additional year or two of study plus a thesis. Entrants to doctoral programs must have a master's degree in the same field.

University tuition fees vary among and within provinces. Ontario and Alberta have differential fees for non-Canadian students.

Post-Secondary Non-University Institutions

As an alternative to university education, all provinces have established systems of public non-university institutions, including regional colleges in British Columbia, institutes of technology and other public colleges in Alberta, institutes of



The agricultural sciences barn on the campus of the University of Saskatchewan.

applied arts and science in Saskatchewan, colleges of applied arts and technology (CAATs) and colleges of agricultural technology (CATs) in Ontario, and collèges d'enseignement général et professionnel (CEGEPs) in Quebec. Other post-secondary colleges for specialized fields such as fisheries, marine technologies and paramedical technologies also exist. Most provinces now provide all nurses' training programs in community colleges rather than in the hospital schools of nursing common in the past.

Criteria for admission to public community colleges tend to be more flexible than those of universities. Secondary school graduation is usually required, but "mature student" status allows otherwise ineligible applicants to enrol. Upgrading programs are also provided by some institutions for applicants whose high school standing does not meet regular admission requirements.

In 1976-77 nearly 200 institutions in Canada offered post-secondary non-university instruction — 30 in the Atlantic provinces, 76 in Quebec, 30 in Ontario, 31 in the Prairie provinces and 22 in British Columbia.

Teacher Education

Teacher training was for many years offered at teachers' colleges that operated outside the university system of the province. All of these institutions except the Nova Scotia Teachers' College have either become education faculties of universities or been constituted as institutions offering programs leading to degrees in education. The Nova Scotia Teachers' College works closely with the province's universities so that graduates may continue their studies toward a degree.

Technical and Trades Training

Technical and trades training varies from province to province and often within a province. In addition to the vocational and technical programs available in secondary schools, students may continue this type of education in other institutions, such as public and private trade and business schools, trade divisions of community colleges and related institutions. Trades training is also available through training-in-industry and apprenticeship programs.

Adult Education

In recent years educational programs for adults have assumed increasing prominence in Canada. School boards, community colleges and universities offer extensive adult education in part-time programs either for personal enrichment or leading to a degree. Other programs are provided by professional associations, community organizations, churches, public libraries, departments of government, business and industry. Correspondence courses are also available.

Statistical Highlights

In 1976-77 education was the primary activity of 6,460,000 Canadians, or about 26 per cent of the total population. There were 6,100,000 full-time students being taught by 325,000 full-time teachers in 15,500 educational institutions. Expenditures on education for 1976-77 reached \$15 billion, or 7.9 per cent of Canada's gross national product (GNP).

Lower birth rates in recent years and lower levels of immigration have produced an enrolment decline in elementary-secondary schools that is expected to persist into the 1980s. Post-secondary institutions will soon feel the effects of this population trend.

Elementary-secondary enrolment in 1976-77 was 5,496,400, a decline of 2 per cent from 1975-76 and of 7 per cent from the all-time high of 5,900,000 recorded in 1970-71. Small annual reductions in elementary enrolment are expected for the rest of the decade — a drop of 22 per cent from the 1968 high of 3,844,000 to a projected low in 1981 of 3,011,000. After that, enrolment should stabilize for several years and then rise until the mid-1990s. Secondary enrolment patterns resemble those of the elementary level, but they are delayed seven or eight years. Between 1966-67 and 1974-75 secondary enrolment rose 32 per cent, from 1,366,200 to 1,808,600. By 1976-77 it had fallen to 1,704,900. A continuing decline to about 1,400,000 in the early 1990s is expected, while the next high point is forecast to be 1,700,000 by the year 2000.

Full-time post-secondary enrolment in 1976-77 was 603,500, a 2 per cent increase over 1975-76. University enrolment made up 62 per cent of the total, but this rate of increase over the past decade was lower than that of the non-university sector, where full-time enrolment almost tripled from 80,200 in 1966-67 to 227,000 in 1976-77. At the same time, full-time university enrolment went from 230,300 to 376,560, an increase of 60 per cent.

A reduction in the traditional post-secondary-age population in the mid-1980s is now expected. A high of about 673,000 full-time students in post-secondary

education should occur in the early 1980s and a low of 527,000 in the mid-1990s. By the year 2000 enrolment should again be rising.

More than 250,000 students graduated from secondary schools in 1975-76, a 4 per cent increase over the previous year. About 60 per cent of high school graduates normally enter a post-secondary institution.

In 1976 universities conferred 83,300 bachelor's and first professional degrees, 11,560 master's degrees and 1,690 earned doctorates. In addition, 53,000 diplomas were given by universities to students not in degree programs.

Expenditures for education from kindergarten through graduate studies reached \$15 billion in 1976-77 and preliminary estimates place the 1977-78 figure at around \$16.5 billion. Elementary-secondary education consumed about \$10 billion of the 1976-77 total, universities \$4.1 billion, non-university institutions \$1.0 billion and vocational training \$883 million.

The University of Toronto



Education spending per capita of population soared from \$208 in 1966 to \$656 in 1976; the increase per capita of labour force was from \$560 to \$1,462. Nevertheless, other indicators point to a decline in education spending as enrolment declines. In 1970, when full-time enrolment was at record levels, expenditures on education were equivalent to 9 per cent of GNP and absorbed 22 per cent of government spending, more than any other major area. By 1976 education's share had decreased to 7.9 per cent of GNP and social welfare had become the largest consumer of government resources.

Table 4. Expenditures on education, by level and source of funds, Canada, 1971-72 and 1976-77

Level of education	Federal ¹	Provincial ¹	Municipal	Fees and other	Total
	\$'000				
1971-72					
Elementary-secondary					
Public ²	203.1	3,201.2	1,694.8	141.4	5,240.5
Private	0.1	27.2	13.8	107.7	148.8
Sub-total	203.2	3,228.4	1,708.6	249.1	5,389.3
Post-secondary					
Non-university	51.3	427.0	3.8	47.9	530.0
University	244.9	1,204.2	1.1	414.3	1,864.5
Sub-total	296.2	1,631.2	4.9	462.2	2,394.5
Vocational training	424.7	107.1	0.1	34.0	565.9
Total	924.1	4,966.7	1,713.6	745.3	8,349.7
Percentage distribution	11.1	59.5	20.5	8.9	100.0
1976-77³					
Elementary-secondary					
Public ²	259.7	6,609.0	2,767.5	178.3	9,814.5
Private	—	94.1	28.2	194.9	317.2
Sub-total	259.7	6,703.1	2,795.7	373.2	10,131.7
Post-secondary					
Non-university	50.9	871.2	31.3	116.4	1,069.8
University	440.3	2,143.6	0.7	478.1	3,062.7
Sub-total	491.2	3,014.8	32.0	594.5	4,132.5
Vocational training	693.6	223.4	—	56.9	973.9
Total	1,444.5	9,941.3	2,827.7	1,024.6	15,238.1
Percentage distribution	9.5	65.2	18.6	6.7	100.0

¹ Federal transfers to provincial governments (\$985.1 million in 1971-72 and \$1,891.2 million in 1976-77) are included in the provincial contributions.

² Includes federal schools.

³ Preliminary figures.

— Nil or zero.

Science and Technology

In common with the United States, France and the United Kingdom, Canada has experienced a marked levelling off in the financial support of science and technology in recent years. Growth rates in annual expenditures on research and development have declined from about 18 per cent in the mid-1960s to half that value in the mid-1970s.

Canada's gross expenditures on research and development (GERD) in 1977 approximated \$1.9 billion. Expressed as a proportion of the gross national product (GNP), Canada's GERD was 0.92 per cent, less than that of any other major country belonging to the Organization for Economic Co-operation and Development (OECD). In June 1978 research and development (R&D) in Canada was declared a new national priority and a target of a GERD/GNP ratio of 1.5 per cent by 1983 was announced. Considerable increases in scientific expenditures and expansion of scientific manpower will be required to meet this goal, and industry will be the main performer in this expansion.

Over 21,000 scientists and engineers were employed in research and development in the government, business and university sectors in 1977, with an approximately equal distribution of manpower among the three sectors.

Science Policy

A nation needs a comprehensive and consistent policy for the support and advancement of science, because there are more opportunities to advance science and technology than there are resources available to exploit them all. Government authorities who are subjected to continuing requests for support from industry,

A small rolling mill is used by metals specialists to test formability of new alloys being considered for automobile bodies.



universities, scientific institutions, individual scientists, graduate students and international scientific organizations, as well as from consumers of science within various departments and agencies of government itself, need guidance on how to allocate their funds and their trained manpower. The purpose of a national policy for science is to provide such guidance." (OECD, 1963.)

The Ministry of State for Science and Technology

The Ministry of State for Science and Technology, created in 1971, encourages the development and use of science and technology in support of national goals through the formulation and development of appropriate policies.

Canada needs policies for science to ensure that scientific tools will be available. The provision of grants in aid of research through the Natural Sciences and Engineering Research Council, the Medical Research Council and the Social Sciences and Humanities Research Council are an expression of a policy for science that is aimed at generating and maintaining national research capability.

Policies are also needed for the use of science to help Canada achieve non-scientific aims using scientific tools. The maintenance of research laboratories by science-based government departments (such as Energy, Mines and Resources, National Health and Welfare, Agriculture, and Fisheries and Environment) and the contracting-out policy are expressions of this aspect of science policy.

The integration of science into public policy formulation is a relatively new development and is the third element of science policy. In order to bring science into policy the Government of Canada is recruiting both natural and social scientists into the federal public service at the policy-making level and using consultative mechanisms to capture the advice of the natural scientific community.

The Science Council of Canada

The Science Council of Canada, a quasi-independent body that advises the government on science policy by the publication of reports on subjects of current importance, published its 12th Annual Report in June 1978. In August 1977 it published a report entitled *Northward Looking: A Strategy and a Science Policy for Northern Development*; in September it presented a report entitled *Canada as a Conserver Society: Resource Uncertainties and the Need for New Technologies*; and in October, it released a report entitled *Policies and Poisons: The Containment of Long-Term Hazards to Human Health in the Environment and in the Workplace*. Since that time the following four background studies have also been released: *Canadian Law and the Control of Exposure to Hazards*; *Government Regulation of the Occupational and General Environments in the UK, USA and Sweden*; *Regulatory Processes and Jurisdictional Issues in the Regulation of Hazardous Products in Canada*; and *The Strathcona Sound Mining Project: A Case Study of Decision Making*. *Conserver Society Notes*, four overviews on the hazards of mercury, vinyl chloride, asbestos and oxides of nitrogen, and a report by the industrial policies committee entitled *Uncertain Prospects: Canadian Manufacturing Industry 1971-1977* were also published during the past year.



The anechoic chamber, an acoustically-insulated room designed to minimize sound reflection.

Science and Technology in Government

Total federal expenditures in the natural and human sciences were \$1.7 billion in 1977, an increase of 8 per cent over the preceding year. One-quarter of the government's expenditures went to the human sciences and the other three-quarters to the natural sciences. The major spender was the Department of Fisheries and Environment, with 17 per cent of the total government science budget, followed by the National Research Council (NRC) with 10 per cent and Statistics Canada with 8 per cent. Priority areas for expansion of scientific activities were energy, the oceans, space and transportation.

About 35 per cent of government expenditures were spent extramurally, with \$269 million going to industry and \$266 million to universities. Government contracts with industry cost \$131 million, an increase of 24 per cent over 1976, reflecting increased efforts by government to contract out science activities.

Science and Technology in Canadian Industry

While there has been some increase in Canadian industry's share of total research and development (R&D) expenditures (from 32.4 per cent in 1971 to 34.9 per cent in 1977) and in its share of R&D performed in Canada (from 41.4 per cent in 1971 to 44.2 per cent in 1977), this country still ranks lower than the other major industrial

nations in overall R&D effort. In most major industrial countries the business sector accounts for 40 to 50 per cent of R&D monies and performs 50 to 65 per cent of all R&D; the proportion of scientists and engineers employed in industries is also much higher than in Canada.

It is agreed by the federal and provincial governments that, if Canadian industry is to make its proper contribution to economic growth and to exploit the opportunities in the many new fields opened by science, its capacity to innovate through research and development must be expanded and reinforced. In recognition of this necessity, they have committed themselves to a much closer collaboration on scientific and technological policies, with particular emphasis on the fostering of industrial R&D capability to respond to regional and national objectives.

In June 1978, as a contribution to this commitment, the federal government announced adoption of the goal of making R&D expenditures equivalent to 1.5 per cent of gross domestic product by 1983. Attainment of this goal would make the Canadian R&D effort comparable to that of other leading industrialized nations.

Among the measures introduced to move toward this goal are: increased expenditures of some \$28.7 million; a commitment to use federal procurement to stimulate industrial R&D; 50 per cent tax write-off for increased R&D expenditures over a three-year period; the establishment of up to five industrial research and innovation centres at universities; additional funding for the Scientific and Technological Employment Program (STEP); federal assistance in the development

TRIUMF, one of the world's most powerful and versatile cyclotrons is located on the campus of the University of British Columbia; it is supported by the National Research Council.



of regional centres of excellence based on the natural and human resources of each area; use of Canadian Patents and Development Ltd. as a clearing house to transfer technology to industry; expansion of the National Research Council's Program of Industry/Laboratory Projects (PILP), which is designed to facilitate technology transfer from NRC laboratories to industry and to extend this program to other departments; expansion of the NRC Technical Information Service; and increased funding of university research into areas of national concern.

University Research

Total federal support of scientific activities in Canadian universities amounted to \$226 million in the fiscal year ended March 31, 1978. Of this total, science-related activities amounted to \$32 million and the support of direct costs of research and development in Canadian universities to \$194 million, an increase of 14.5 per cent over 1977. A total of \$169 million went to research and development in the natural sciences and \$25 million to the human sciences. Federal support to universities for related scientific activities was \$14 million for natural sciences and \$18 million for human sciences.

The three granting councils responsible for the support of university research — National Research Council, Medical Research Council and Canada Council — distributed 82.2 per cent of the federal grants for university research. The balance, \$47 million, was distributed by other federal departments and agencies.

Bill C-26, an act respecting the organization of certain scientific activities of the Government of Canada, received royal assent in June 1977. It provides for the reorganization of the granting councils, with the establishment of two new agencies, the Natural Sciences and Engineering Research Council and the Social Sciences and Humanities Research Council, together with an enlarged mandate for the third, the Medical Research Council.

Scientific Activities

Agricultural Research

Over 50 per cent of agricultural research in Canada is conducted by Agriculture Canada, which employs over 900 scientists at about 50 establishments located from coast to coast. Agriculture faculties at universities comprise the second major research group. Private industry and provincial departments have been minor contributors in the past, but are becoming more significant. At all establishments there are probably 2,000 scientists involved, although many of them devote only a portion of their time to agricultural research.

The broad traditional areas of crop production, animal production and soils still receive the bulk of the research effort, but in recent years there has been increasing emphasis on food processing. In addition, agricultural scientists are now becoming involved in research directed at protection of the environment, an activity

frequently conducted in collaboration with other agencies at the provincial, federal and international levels.

In crops research, plant breeding is a major activity that annually contributes new varieties offering such traits as higher yield, better product quality, increased resistance to disease and insects and earlier maturity. In 1977 new varieties included: Norstar, a hard red winter wheat; Coulter, a durum wheat; Sentinel, a high-yielding oat; Harcot, an apricot; and the strawberry variety Micmac. Plant breeders have also made dramatic progress in altering the chemical composition of rapeseed, which is our major oilseed crop; erucic acid, once a major component of rapeseed oil, has been virtually eliminated from new varieties, as have glucosinolates, which interfered with the utilization of the meal. Reflecting the progress in this area was the licensing in 1977 of the Candle variety of rapeseed, which is low in erucic acid, glucosinolates and hull.

The other major activity in crops research is the development of better means of protection against insects, diseases and weeds. Chemical pesticides are one of the major means of plant protection, but scientists have reduced the number of sprays required by timing them so that they are applied when they are most effective. Biological methods of control have also been developed; such methods include use of insects to control other insects and weeds and of pheromones and sterile male techniques to disrupt insect reproduction. The integration of chemical and biological controls reduces both costs and the risks of environmental pollution. In addition, engineers have developed spray equipment to reduce drift and achieve more effective application.

The Food Research Institute of Agriculture Canada has developed new procedures for recovering protein from whey, and studies carried out in





Harvesting cucumbers in Ontario.

collaboration with the University of Guelph have led to the manufacture on a commercial scale of high-protein pasta, using whey powder as a protein source. The institute has also assessed at the pilot plant level the economic and commercial feasibility of processes for the production of protein concentrates from rapeseed and mustard; the biological value of rapeseed protein is under evaluation in collaboration with the Department of National Health and Welfare.

At Winnipeg, the Grain Research Laboratory of the Canadian Grain Commission monitors and assesses the quality of cereal grains and oilseeds grown and marketed in Canada and carries out research on grain quality.

In animal production, breeding projects are under way with sheep, swine, poultry and cattle, conducted mainly by Agriculture Canada. The department has one of the largest research projects on dairy cattle breeding in the world, a project designed to test the feasibility of exploiting hybrid vigour in dairy cattle. At the present time the dairy cattle industry relies heavily on a single breed, the Holstein.

Three British breeds, Hereford, Angus and Shorthorn, have long been the basis of Canada's beef production. In the last decade, ranchers have imported various other European breeds for crossbreeding purposes. Agriculture Canada has a large breeding project to test and assess the value of these imported breeds when crossed with the traditional British ones.

Research on reproductive physiology is also being used to improve livestock productivity: an Agriculture Canada program is having excellent success in developing potential areas for major breakthroughs in animal reproduction.

Research on animal diseases is conducted by the Health of Animals Branch of Agriculture Canada and by staff members of three veterinary colleges. Continuing studies are aimed at improving present techniques or developing new methods to diagnose animal diseases rapidly and accurately. Among the research work under way currently are studies of respiratory disease of cattle, more specific tests for the diagnosis of bovine leukosis and brucellosis, methods for rapid diagnosis of swine vesicular disease and an evaluation of procedures for isolating the virus that causes bluetongue disease in cattle, sheep and goats. Attention is also being focused on procedures for the accurate identification of poultry infected with the virus of lymphoid leukosis and the progressive spread (progression) of rabies virus in the animal body.

Soils research is concerned with basic work on soil reactions, on a soil survey to provide information on the soil resources of Canada and on fertilizer practices for various crops. Land capability studies are becoming important because of urban encroachment on prime agricultural land and the looming world food shortage.

Concern for environmental quality is a new thrust in agricultural research. Scientists are monitoring rivers, streams and lakes for contamination by soil nutrients, animal wastes and pesticide chemicals. Food products are carefully checked for freedom from chemical residues. Analytical methodology to permit this monitoring is continually under development.

Solutions to economic problems in agriculture also require research. Research in the area of economics is carried out by the Policy and Economics Directorate of Agriculture Canada's Policy, Planning and Evaluation Branch. The work is aimed at identifying the economic problems of the industry and helping formulate programs and policies to solve them. The branch carries out studies of farm management, resource use, farm income, market structure and agricultural productivity and assesses the effect on agriculture and the economy of such changing conditions as prices, trade and technical developments. Economic models have been established to evaluate specific programs and policies for grains, oilseeds, cattle, hogs and dairy products. In addition, farm management planning models have been developed for all regions and types of farms in Canada.

Environmental Research

The **Environmental Management Service (EMS)** conducts programs on the management and conservation of renewable resources and the preservation of environmental quality. The service is composed of four staff directorates (Forestry, Inland Waters, Wildlife and Lands) concerned primarily with national environmen-



A modern Saskatchewan farm.

tal matters, and five regional units. The regional units are composed of decentralized elements of the above staff directorates, integrated to provide environmental management services tailored to the specific needs of each of the diverse regions. In addition, a Policy and Program Development Directorate at headquarters provides overall guidance on policy related matters for the service as a whole. EMS conducts research on the quantity and quality of resources and uses resulting data to develop environmental requirements in support of the Environmental Contaminants Act and the Federal Environmental Assessment and Review Process. EMS also plans and manages conservation and use of renewable resources in areas of federal responsibility such as boundary waters and migratory birds.

The Canadian Forestry Service (CFS) is currently involved in efforts to control the spruce budworm, which is destroying large areas of Canada's forests. As part of a program to accelerate the development of safe and economical controls the Forest Pest Management Institute has been formed and is conducting research into all methods of pest control. At the same time the Canada-US Spruce Budworm Agreement, a co-operative research and development program, is now in operation and is effectively doubling efforts toward controlling the budworm. Other Canadian

Forestry Service work involves programs with the Department of Employment and Immigration, the Department of Regional Economic Expansion and provincial agencies in the establishment of practices for intensive forest management. The Research Inventory Management System developed at the Pacific Forest Research Centre is an example of co-operative efforts between the CFS, the provinces and industry.

The impact of forest practices and economic developments on the environment has been studied, with specific interest in steep-slope harvesting, forest road construction on both coasts and continued efforts in developing a program on long-range transport of air pollutants. Sulphur dioxide impact studies in the Athabasca tar sands and fluoride pollution studies in Newfoundland are giving an insight into the effects of pollutants on forest species.

The *Canadian Wildlife Service* (CWS) is continuing its efforts to protect rare and endangered species such as the whooping crane, the peregrine falcon and the wood bison. Attempts are being made to establish a new whooping crane population in Idaho and New Mexico using eggs from cranes breeding in Wood Buffalo National Park, located in northern Alberta and the Northwest Territories; the results of three years' work indicate that the technique is successful, but the final outcome will not be known for a few more years. CWS is attempting to increase falcon numbers by raising birds in captivity and releasing them into the wild across Canada; a number of such releases have already been effected and appear to be successful. Wood bison transplants to the wild and to zoological gardens for safeguarding are in progress.

Research in the Northwest Territories has included population studies on the Peary caribou, the barren-ground grizzly bear and polar bears, species regarded as being especially sensitive to the disturbances associated with oil and gas exploration in that area.

CWS is continuing an intensive shorebird banding study in James Bay in conjunction with a research program to determine feeding ecology, distribution and habitat use. Similar studies in the Bay of Fundy will contribute to the preparation of an environmental impact statement for tidal power developments proposed for this area. An international arctic banding program for snow geese and seabird studies to determine numbers and reproductive success of their fragile populations are also under way.

The *Inland Waters Directorate's* (IWD) research program is carried out mainly at the National Water Research Institute at Burlington, Ont., and in the Hydrology Research and Glaciology divisions in the National Capital Region. There are also small research groups in Winnipeg, Calgary and Vancouver.

Water quality research provides a basis for setting water quality objectives and is directed toward measures for the management of Canada's aquatic environment. Specific projects include the pathways by which toxic contaminants move, changes in ecology wrought by human activity and the understanding of the mechanisms leading to these changes, and the role of sediments in regulating water quality.

Water quantity research is based on the needs of water management to solve practical problems that require understanding and quantification of processes in the fields of surface water hydrology, sediment transport, snow and ice hydrology and hydrogeology.



Canadian Wildlife Service personnel weighing fulmar chicks on Prince Leopold Island in the Northwest Territories.

IWD has developed flow prediction models that can be manipulated to receive and test new insights into hydrological processes such as evapotranspiration, snowmelt and glacier melt, soil moisture, and the mechanics of groundwater movement. Research is under way on the hydrology of northern environments and the effects upon it of human activities such as: pipeline and highway construction; the role of glaciers as a natural and variable water storage system; and hydrogeological processes controlling the movement of subsurface contaminants from sources such as landfill, road salts and radioactive wastes.

The Lands Directorate is conducting major research activities in land classification and analysis of the causes and policy implications of land-use change. Land classification research is directed toward establishing better methods of surveying and classifying land according to ecological characteristics, use capabilities and present use. Such techniques are used in major resources investigations to determine land development potential and environmental management requirements. There is emphasis on satellite imagery and high-altitude aerial photography for land resource surveys and land-use monitoring systems. Land-use potential, impact of federal programs on land, use of innovative planning techniques, analysis of change around urban centres and mapping of critical land areas are important aspects under current investigation.

The Lands Directorate is also responsible for the development of a federal policy on land use and represents Environment Canada on the Treasury Board Advisory Committee on Federal Land Management. Planning services of the directorate include advice to provincial and federal agencies regarding native land claims, northern land-use information and land-resources planning. The directorate also advises and assists other countries on land-use policies and studies.

The Atmospheric Environment Service (AES) is concerned primarily with meteorology, the science of the atmosphere. It provides national weather and climatological services for the public and special users. Since 1958 it has been responsible for ice services supporting navigation in Canadian waterways, coastal waters and the Arctic Archipelago. It is also involved in meteorological research, research on effects of pollutants on earth's atmosphere and instrument design.

Research focuses on pollutants such as freons and supersonic transport exhausts, which affect the stratosphere, especially the ozone layer, and lead to potentially harmful effects on human, animal and plant life. Important stratospheric constituents are being measured by AES to establish the current unperturbed stratospheric photochemical balance and to verify photochemical reaction rates needed for input to models of stratospheric behaviour. These models indicate that the effects of pollution are not negligible.

Climatic trends and variability that may seriously affect agricultural production energy and other environmental factors bearing on human welfare are analyzed to determine the basic physical processes in order to make long-range predictions of weather and climate. A comprehensive system for environmental prediction is being further developed to support many activities going on in the Arctic, especially oil drilling in the Beaufort Sea. New techniques of data assimilation and numerical prediction are applied and more are under development at the Canadian Meteorological Centre. Advanced computer methods for processing satellite data are yielding very high-quality photographs of weather systems for use at Canada's main weather centres.

AES is continuously looking at the environmental impact of major industrial developments such as the Alberta oil sands project and the Nanticoke, Ont. complex. A major departmental program is under way to establish the causes and impacts of acidic precipitation in Eastern Canada; preliminary studies indicate that fossil fuel burning is likely a major source of the contributing pollutants. Thus, the potential impact on Canada's lake and forest ecosystem is being assessed prior to the development of large new fossil fuel power plants in the Eastern US.

The Environmental Protection Service (EPS) develops national environmental control guidelines, requirements and regulations in consultation with the provinces and industry. The service carries out the assessment, surveillance, negotiations or enforcement necessary to obtain compliance with federal environmental legislation, identifies and solves pollution problems, develops and demonstrates pollution control technology and serves as the focal point for environmental protection matters for federal departments and agencies and the public.

The Waste Water Technology Centre in Burlington, Ont., is charged with the conception, development and implementation of technical development programs related to water pollution control of industrial and municipal waste waters across Canada.

Current projects on the treatment of municipal waste waters include: a survey of specific pollutants in municipal wastes; improved process control of activated sludge systems; development of high-rate fluidized bed treatment processes; evaluation of the deep shaft process; and determination of the mixing requirements for anaerobic digesters. For the treatment of industrial waste waters, current



Preparing for the launch of a high altitude balloon used for ozone layer research.

projects include; study of the leachability of radioactive constituents from uranium mine tailings and the development of physical-chemical methods for their removal; the biological removal of nitrogen from various industrial waste waters; a study of the leachability of arsenic from chemically stabilized residues; the toxicity of effluents from the wood preservation industry and their treatment, and the biological treatment of dairy wastes.

The Environmental Emergency Branch develops contingency plans for dealing with spills of oil and other hazardous materials, operates a regional and national alerting, reporting and response centre, and develops new technology for cleaning up spills of oil and other materials wherever they may occur. The branch handles several hundred environmental emergency reports each year. It has developed contingency plans for such difficult areas as the Beaufort Sea, where offshore drilling takes place, and a major program of the branch is the development of new oil spill countermeasures equipment for use in the Arctic environment; this includes the development of new skimmers, booms, pumps, remote sensing systems, dispersants, absorbents and combustion agents for dealing with spills in environmentally sensitive or high-risk areas.

EPS administers the Environmental Contaminants Act in co-operation with the Department of National Health and Welfare. Under the act, industry may be required to furnish information about contaminants and to conduct tests on hazardous chemicals in order to evaluate their potential hazards; this will include data on the rate and extent of release into the environment, effects on human health

and measures being taken to control release. The government, after consultation with the provinces, will order effective preventive measures, ranging from limitations or controls to outright ban on the use, manufacture or importation of hazardous contaminants.

Energy, Mines and Resources

The Department of Energy, Mines and Resources is the principal component of the federal government responsible for policy formulation and research in the fields of energy and mineral resources. Associated with these activities are surveys and mapping, remote sensing of Canadian lands and waters from aircraft and satellites and efforts to safeguard the environment and the health and safety of Canadians in mining and related work.

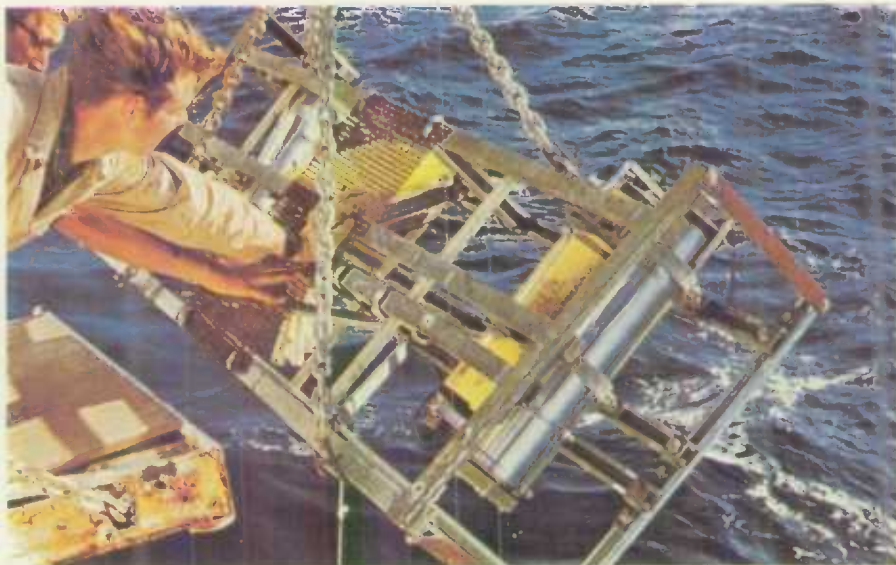
This work is carried out in three sectors: the Energy Policy Sector, the Mineral Policy Sector and the Science and Technology Sector. The first two sectors are concerned mainly with studies, analyses and policy recommendations in their respective fields; the third sector, some of whose branches were established many decades ago, is concerned primarily with scientific and technical research and with surveys and mapping.

Ever since the oil crisis of 1973, the Department of Energy, Mines and Resources has been endeavouring to reduce the effects of rising world oil prices on the Canadian economy and to find ways and means of making Canada less dependent on imported oil, which will not only become more expensive but will probably begin to fall short of demand before 1990.

Various studies were undertaken relating to the present and future role of the mining industry within the Canadian economy and to the working and living conditions in mining communities. Mineral-development agreements continued with the provinces of Newfoundland, Nova Scotia, Quebec, Manitoba and Saskatchewan; such agreements contribute to the discovery and development of mineral deposits and to the creation of employment opportunities.

The Science and Technology Sector of the department comprises the following branches: the Geological Survey of Canada, the Canada Centre for Mineral and Energy Technology (CANMET), the Earth Physics Branch, the Canada Centre for Remote Sensing, the Surveys and Mapping Branch, the Polar Continental Shelf Project, the Canada Centre for Geoscience Data and the Office of Energy Research and Development.

The dominant concern of the Geological Survey has been the assessment of energy and mineral resources; scientific studies have been formulated in the light of that concern. Field work is being carried out in most regions, with emphasis on the north and offshore areas. In addition to studies aimed at a better understanding of the history and composition of the earth's crust underlying Canada, geologists have undertaken assessments of Canada's oil and gas potential in which cost considerations are an integral part. Significant advances have also been made in the Geological Survey's coal program, which included the publication of the first annual report on the coal resources of Canada and the completion of a two-volume



An underwater camera being lowered for sea-floor photography.

geological report and atlas resulting from a joint federal-provincial program to evaluate the lignite resources of southern Saskatchewan; the latter will serve as a model with international applications in quantitative coal-resource evaluation. The Geological Survey has also continued its uranium reconnaissance program, intended to provide a better nationwide basis for the search for uranium deposits.

The laboratory and pilot-plant research of CANMET is carried out in the Ottawa area and in Elliot Lake, Calgary and Edmonton. In recent years the main goal of the branch has been to assure adequate supplies and effective use of Canada's energy and mineral resources. Coal, oil sands and heavy oils — Canada's most abundant fossil fuels — have received most of the attention. Successful experiments have been carried out with the addition of coal to oil, the partial substitution of coal for oil and the conversion of coal to oil and gas.

In order to aid the Canadian mining industry in achieving cost savings and greater safety in open-pit mining, CANMET has carried out a five-year, \$4 million engineering study of pit slopes, which is being published as a comprehensive manual. The health and safety of mine workers have also benefited from CANMET's research to detect and eliminate noxious dust and gases in underground mines.

Ecological considerations have prompted studies on means of removing acidity, heavy metals and radium from the tailings of Elliot Lake uranium mines and cyanide from gold-mill tailings. The goal of reducing gasoline consumption by making automobiles lighter and to extend automobile life is the reason for a CANMET program of testing aluminum alloys for use in car bodies.

The department's earth physicists carry out research into the seismic, geothermal, geomagnetic, gravity and geodynamic characteristics of the Canadian land mass.

New techniques in earthquake detection have been tested off the West Coast of Canada, and studies are being carried out in British Columbia and Alberta to determine the geothermal potential in those areas. Other earth-physics studies concern permafrost distribution and thickness in the Arctic, continental drift, the structure of the ocean floor off Canada, the geophysical development of the Arctic basin and gravity measurements.

The Canada Centre for Remote Sensing operates two satellite-receiving stations, one at Prince Albert, Sask., and the other at Shoe Cove, Nfld. This has enabled the centre to receive satellite imagery directly for all of Canada. A new image-processing facility has been installed at Prince Albert, and in June 1978 most of the image-processing formerly done in Ottawa was transferred to Prince Albert. Other projects of the Canada Centre for Remote Sensing are the detection and tracking of oil spills in ice-infested waters, mapping depth contours in shallow-water coastal areas and the development of a new image-analysis system.

The Surveys and Mapping Branch produces topographical and other types of maps of all of Canada, carries out geodetic and legal surveys, and publishes aeronautical charts for air navigation. The major mapping task of the branch is the coverage of the entire country at a precise scale. Mapping is being made more efficient through the computer storage of data that can be used whenever needed for mapping projects and through automated mapping. Operator training on digital mapping began recently and production started in a small way in the fall of 1978.

Work is progressing toward the 1979 completion of the *Gazetteer Atlas of Canada*. Good progress is also being made on the thematic mapping portion of the *National Atlas*, including research on maps depicting census divisions, energy, distribution of agricultural land, soil capability and population characteristics.

The Polar Continental Shelf Project provides logistic communications and accommodation support to research and surveys in the Northern Arctic. The emphasis in recent years has been on testing the probable response of the arctic environment and ecology to industrial activity, such as oil exploration and pipeline construction.

The primary mission of the Office of Energy Research and Development is to provide co-ordination and to stimulate improved management of all federal energy research and development. Federal funding for this purpose in 1978-79 amounted to \$145 million; an increasing proportion of this funding is being devoted to renewable energy and to energy conservation.

Communications and Space Research

Total government expenditure on space research in 1977-78 has been estimated to be \$65 million. Government departments with a direct interest in space research and activities are Communications, Fisheries and Environment, Transport, National Defence, and Energy, Mines and Resources; the National Research Council is also involved in space research. Domestic satellite communications service is provided by Telesat Canada, a company owned by the federal government and the TransCanada Telephone System. Teleglobe Canada, a Crown corporation, provides overseas communications service.

Canada's newest satellite, called Hermes, was designed and built by the Communications Research Centre of the Department of Communications; this experimental communications technology satellite (CTS) was launched in January 1976 by the United States. It is the world's most powerful telecommunications satellite in orbit.

Hermes may well become the forerunner of a series of new high-powered satellites operating at virtually interference-free frequencies, receiving and transmitting two-way video, audio and data signals. The earth stations used with Hermes have antennas ranging in size from one to three metres, making them the smallest now in service and just a step away from terminals that may be mounted on rooftops. The small earth stations are made possible by Hermes' high power; less powerful satellite systems require much larger dish antennas. A number of groups are using the satellite for experiments in communications ranging from telemedicine and tele-education, whereby medical and teaching services can be provided from a distance, to technological experiments.

The Department of Communications, along with the Ministry of Transport, is participating in an international aeronautical satellite (Aerosat) program designed to develop the use of satellites for international air traffic control. Aerosat is a joint effort by the European Space Agency (ESA), Canada and the United States. Funding, ownership and user participation have been calculated at 47 per cent US, 47 per cent ESA and 6 per cent Canada, rates based approximately on the GNP of each participant.

Canada's first satellite, Alouette, was launched in 1962 and made Canada a pioneer in the use of satellites in scientific research. This satellite and its successors, Alouette II and ISIS I and II, contain experiments to study the properties of the upper atmosphere and of electronic devices such as antennas in that environment. Alouette I went out of service after 10 years of useful life and the Alouette II satellite was placed in a standby "mothball" status on June 3, 1973, after seven and a half years of extensive and valuable data acquisition. ISIS I and II are still in good health and are providing extensive scientific data to scientists from the eight countries that are participating in the analysis of the data.

The National Research Council, whose activities include operation of the Churchill Rocket Range, spent about \$27.5 million in 1977-78 and is the project manager for delivery of a remote manipulator system (RMS) to the United States as part of the National Aeronautics and Space Administration (NASA) space shuttle program. Spar Aerospace Ltd. of Toronto is the prime contractor for the RMS, which is like a long mechanical arm to be used to take satellites out of a space shuttle's cargo area and place them into orbit or pull them out of orbit for repair. The space shuttle, with a payload capacity of 29 500 kg (kilograms), will be launched like a rocket, orbit like a spacecraft and land like a large aircraft.

The Anik system was inaugurated in January 1973 by a telephone call from Ottawa to Resolute Bay via Anik I. Four satellites are now in orbit and are performing satisfactorily, exhibiting only slight anomalies not expected to have any major effect on their longevity or usefulness; they have an estimated useful life of six years. In addition, plans are under way for three more satellites to operate in the higher frequency (12-14 GHz) range.

Teleglobe Canada spent about \$3 million in leasing channels on communications satellites and about \$5 million for improving the ground station network.

Microscopic examination of growing rat muscle cell mutants



The Department of National Defence spent about \$3.5 million on its space activities, the principal one of which is part of its commitment to NORAD. The Department of Industry, Trade and Commerce spends about \$4 million a year in support of the country's aerospace industry.

Medical and Health Research

Biomedical research in Canada is carried out primarily in laboratories located in the universities and their affiliated hospitals. The major part of the financial support for the direct operating costs of this research is provided by the federal government through grants or contributions to investigators whose salaries are, by and large, paid from university funds. Voluntary agencies such as the National Cancer Institute of Canada, the heart foundations, the Arthritis Society and others that derive their monies from public campaigns are providing an increasingly significant share of the support for research in the health sciences. The share provided by provincial governments has also grown in recent years.

In 1977 over 2,200 investigators received research grants from the various funding agencies. Their work ranged from the development of reading machines for the blind, through clinical trials of drugs thought to be useful in the prevention of strokes, to research of the most fundamental kind related to the immunology of transplantation. The two federal bodies with primary responsibility in the field of health research are the Medical Research Council, whose main function is the support of university-based research in the health sciences, and the Research Programs Directorate of the Department of National Health and Welfare, which is concerned particularly with studies relating to the biology of populations, the delivery of health care and the alteration of lifestyles in order to prevent disease.

The Department of National Health and Welfare also carries out research in central laboratories of its own. Research in the department's Health Programs Branch has seen the development of a preparation for the slow release into the body of the anti-tuberculosis drug isoniazid, permitting larger doses to be given to Inuit, among whom the risk of tuberculosis is greater. There has been substantial progress in field trials of rubella vaccines and increased activity in the study of mental and physical rehabilitation problems.



The new British Columbia Telephone Company building, at the eastern boundary of Vancouver, serves virtually all of British Columbia

Communications

The existence of Canada as a political and social entity has always been heavily dependent upon systems of east-west communications. This is the historical reason for development of the routes of the voyageurs, coast-to-coast railways, telegraph and telephone systems, broadcasting services, airlines, microwave networks, the Trans-Canada Highway and a domestic communications satellite system. These systems, counterbalancing the strong north-south pull of continentalism, have been essential for the economic development of Canada, for transmitting and disseminating information and for expressing and sharing social and cultural values.

Telecommunications make possible virtually instantaneous transfer of information in any form between all parts of the country. They help bridge distance — an obstacle to national trade and commerce — and provide prospects for reducing regional disparities and developing the Canadian north.

Television, radio, telephone, telegraph, teletype, facsimile and other means of communications have become part of our daily life. By January 1, 1978, the number of telephones in service in Canada had reached 14,467,347 (more than one phone for every two people). Ninety-eight per cent of households now have radios and 97 per

cent have television sets. Cable television, a medium that may provide a variety of services in the future, including two-way communications, is now wired into more than 3.2 million Canadian households (about one in three). Radio station licences in force in Canada at the end of the fiscal year 1977-78 numbered about 1,254,822, a 40.3 per cent increase over the previous year.

In most countries outside North America, telecommunications services are provided by the state. In Canada, these services are provided by a mixture of investor-owned companies and government agencies. The industry comprises telephone and telegraph companies, broadcasters and cable operators, and manufacturers of telecommunications equipment. Operations of telecommunications carriers are generally licensed and regulated by either federal or provincial authorities.

Broadcasting transmitting and receiving undertakings are federally regulated. Telecommunications carriers under federal jurisdiction include Bell Canada, British Columbia Telephone Company, CNCP Telecommunications, Telesat Canada, Teleglobe Canada and four relatively small telephone or telegraph companies. All other telecommunications common carriers are provincially regulated.

There were about 806 telephone common carriers by the end of 1977, ranging from big corporations serving millions of telephones to small co-operatives, mainly in Saskatchewan. However, the nine member companies of the TransCanada

From the newly established Provincial Service Coordination Centre in St. John's, the entire provincial network of the Newfoundland Telephone Company can be monitored.





Continuity across television in Winnipeg. Much encourages local people to use the studio facilities and become involved in producing television programs.

Telephone System (TCTS) account for more than 90 per cent of total subscribers. Much of the long distance communication in Canada travels by their two nationwide microwave routes.

Other telecommunications services are provided by a variety of carriers. CNCF Telecommunications, specializing in business communications, offers services such as telegraph and telex. Telesat Canada, jointly owned by the Canadian government and the common carriers, operates the domestic satellite communications system consisting of four Anik satellites and an associated ground network. Teleglobe Canada, a Crown corporation, provides Canada with telecommunications to the rest of the world through cables and international telecommunications satellites.

The federal Department of Communications is responsible, both nationally and internationally, for the development and efficiency of communications in Canada and for the long-range planning of Canada's communications. It carries out research in the field of telecommunications and manages the radio-frequency spectrum in Canada. This latter function requires development of regulations, technical standards, radio-frequency plans and assignment criteria. It includes: technical evaluation of applications to use radio frequencies; licensing of radio stations and technical certification of broadcasting undertakings; inspection and monitoring of radio stations to ensure adherence to regulations and standards; and gathering of information for spectrum planning purposes.

A score of groups ranging from provincial governments to native peoples' associations are shaping the satellite communications services of tomorrow in a unique program of social and technical experiments using Hermes, the department's Communications Technology Satellite (CTS), which was launched on January 17, 1976. The aim of the CTS experiments is to test the technology and applications of a new breed of high-powered orbiting transmitters to meet the needs of the 1980s.

There has been a rapid upsurge in the purchase and use of two-way radio in the General Radio Service (GRS), or citizen's band as it is frequently called. This trend shows no sign of slowing and so will lead to a greater congestion of the radio frequency spectrum, a limited resource. The federal government authorized the use of 40 GRS channels as of April 1, 1977.

A \$19 million contract for construction of Canada's fourth commercial satellite for domestic telecommunications which was scheduled for launching in 1978, was announced by Telesat Canada in December 1975. Telesat also announced in 1977 that it would procure three additional satellites that will operate in the higher frequency (GHz) range. The higher frequencies permit the use of earth stations in the centres of metropolitan areas. About 35 900 km (kilometres) above the earth, Telesat's first three satellites in the Anik series have facilities for relaying 10 colour television channels or up to 9,600 simultaneous telephone circuits. All Canada is within their range: distance and isolation are removed as obstacles to communications for government, business, industry, science and technology.

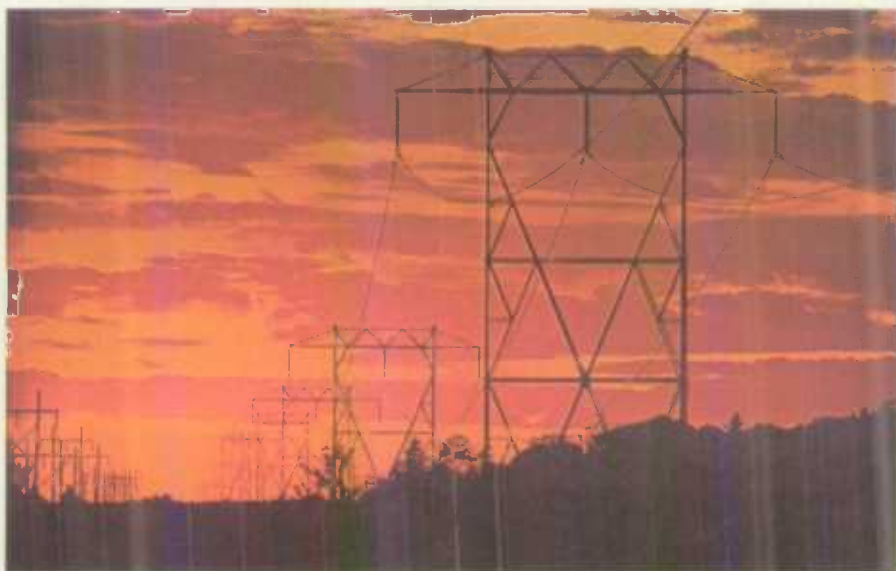
Teleglobe Canada is the Canadian signatory to the International Telecommunication Satellite Organization (Intelsat) and operates earth stations at Mill Village, NS, and Lake Cowichan, BC. In 1976 it expanded its facilities to accommodate the demand for international telephone, telex and telegraph during the Olympic Games held in Montreal in July 1976.

The TransCanada Telephone System inaugurated Direct Dialing Overseas (DDO) in service in Vancouver in September 1976, making Vancouver the first Canadian city to have this service. In the next three years Victoria, Edmonton, Calgary, Toronto, Ottawa, Montreal, Quebec City and Halifax are scheduled for DDO.

The Standard Network Access Protocol (SNAP) is the standard of a new TCTS Datapac network. Datapac was the first to provide packet switching for commercial use in Canada; it allows information to be put in standard-size packets for data transmission and gives the format in which data can be transmitted. Approval of standards for such universal packet-switching data networks by the UN's International Consultative Committee on Telephone and Telegraphs in March 1976 means that various data networks can now be interconnected.

Companies belonging to TCTS have started to plan and construct provincial service co-ordination centres where the networks are monitored. If one circuit is broken in an emergency it is reported instantly, and another route may be found. In this way downtime in telecommunications — with its increasingly intolerable costs — is minimized. Such centres are now in New Brunswick, Quebec and Ontario, and another is planned for Manitoba.

Canada Post and CNCP Telecommunications have extended their Telepost service to the public. Telepost features next-day delivery and gives Canada Post electronic mail for the first time; it is also linked with the US Mailgram network. The Infodat



network, a digital service provided by CNCP, has expanded to 31 servicing locations from St. John's, Nfld., to Vancouver, BC. CNCP plans to introduce a nationwide digital data switching network, Info-Switch, offering both circuit and packet switching.

The first leg of Double DUV (Data-Under-Voice) was put into operation in June 1975. Double DUV is an improved method of sending data communications over the existing microwave network. It is based on a new transmission technique that transmits digital data in a portion of the microwave radio spectrum below the frequencies normally used for voice telecommunications.

One of the federal government's top priorities in telecommunications is extending access to basic communications to all Canadians, particularly those living in isolated or rural parts of the country. In January 1977 the government announced a funding program designed to extend basic telephone service to all communities in the Northwest Territories. At the other extreme — in Canada's urban centres — the demand for access to good communications grows while the radio frequency spectrum becomes more congested. Use of the spectrum can be expanded by going to higher frequencies than those occupied now or by more efficient use of existing frequencies. This places demands on government for research in opening up higher frequency bands and policy on allocation of frequencies. Use of frequencies between 10 and 20 GHz is expected to grow dramatically in the next decade.

There is an evident and growing tendency for many formerly distinct systems of electronic communications to become interconnected. One important symptom of this development is the rapid integration of computers and communications, the economic benefits of which are already being exploited.

Federal policy is that communications should be developed with regard for its impact on Canadian social and cultural values, the economy and the quality of life.

The Canadian Broadcasting Corporation

The CBC is a publicly owned corporation established by the Broadcasting Act to provide the national broadcasting service in Canada. Created in November 1936, it reports to Parliament through the Secretary of State, while responsibility for its policies and programs lies with its own directors and officers. It is financed mainly by public funds voted annually by Parliament; these are supplemented by revenues from commercial advertising — mostly on television, since CBC radio is almost completely non-commercial.

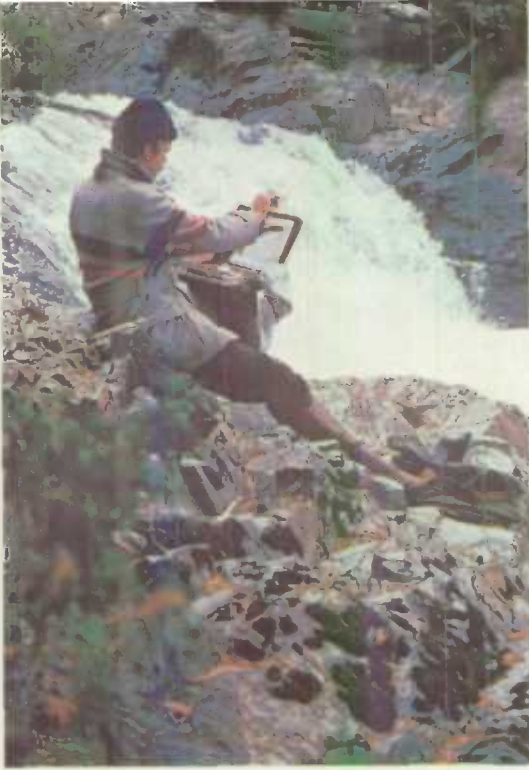
The CBC's head office is in Ottawa. The operational centre for English services is in Toronto, and there are several regional production centres across the country. The operations of the French services are centred in Montreal, with local stations at other points in Quebec and in most other provinces.

The corporation's facilities extend from Atlantic to Pacific and into the Arctic Circle, and include both French and English networks in television and in AM and FM stereo radio. A special northern radio service broadcasts in English, French, several Indian languages and Inuktitut, the language of the Inuit; northern television is also beginning to introduce some programming in Inuktitut.

In both radio and television, CBC networks are made up of some stations owned and operated by the corporation, which carry the full national service, and some privately owned affiliated stations, which carry an agreed amount of CBC programming. In many small or isolated locations there are relay or rebroadcast transmitters that carry the national service but have no staff or studios to produce

Dupressis, a CBC historical drama shown on Nova Scotia.





The Passionate Canadians, a CBC documentary drama, relates the story of the Group of Seven.

local programs. CBC transmission methods include leased channels on the Canadian space satellite Anik.

Radio Canada International, the CBC's overseas shortwave service, broadcasts daily in 11 languages and distributes recorded programs free of charge for use by broadcasters throughout the world. In other international activities, the CBC sells programs to other countries, is a frequent winner of international program awards and belongs to several international broadcasting organizations. The corporation maintains offices in London, Paris, New York and Washington, and news bureaus in the Far East, Moscow and Brussels.

CBC schedules are varied, reflecting the principles set out in the 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 — about 70 per cent in television and usually more in radio — with a selection of programs from other countries.

CBC gives continuing support to Canadian artists and performers through the broadcast of Canadian music, drama and poetry, the commissioning of special works, the sponsorship of talent competitions and the presentation of Canadian films. Selected program material is made available for educational use after broadcast in the form of books, recordings, audiotapes and films.



The National Postal Museum in Ottawa.

The Postal Service

At the end of the 1976-77 fiscal year, 8,455 postal facilities were in operation across the country. Mail delivery by letter carrier was increased by 166,804 points of call, making a total of 5,675,723 points on 12,867 full-time and 506 partial letter-carrier routes; there are now 281 post offices providing letter-carrier service. Improvements continue to be made in the frequency and quality of service to isolated and remote communities where mail transportation is normally by air.

The coding and mechanization program began in 1972 with the goal of achieving more efficient handling of mail. Automated electronic equipment is capable of sorting first class mail at speeds of from 20,000 to 30,000 pieces an hour by use of the postal code. By the end of 1977 machines had been installed in Ottawa, Winnipeg, Regina, Saskatoon, Edmonton, Calgary, Vancouver, Toronto, Hamilton, Saint John, St. John's, London, Montreal-Laval, Burlington, Kingston, Sudbury and Windsor. As of June 1978 all but four of the proposed 30 mechanized plants had been completed.

Other new machinery that has been introduced is capable of sorting flats, or oversize mail, at speeds of up to 6,000 pieces an hour. Since first class parcels and small packets are already being machine-sorted, this means that virtually all classes and kinds of mail can now be sorted mechanically.

The Post Office operates 3,750 motor vehicles for the movement of mail within city boundaries. Mail between centres is moved by a wide variety of contractors using air, rail, highway and waterways as modes of transportation.

The National Postal Museum, located in Ottawa, added a number of unique philatelic and historical postal items to its collection during the past year. The number of museum visitors increased to over 36,000 people, made up mostly of adult groups, tourists and school children. Sales of philatelic items at the museum's pioneer post office have increased in popularity. The museum's research library is being used extensively by philatelists, historians and writers. The museum will be moving to downtown Ottawa to larger quarters with considerably more space that will provide facilities for meetings and lectures.



Local artisans near Fredericton, NB, have established a craft village to sell and promote their crafts.

Leisure

Industrialization and technological progress in Canada have led to high rates of productivity. This in turn has resulted in shorter work weeks, longer paid vacations, earlier retirement and hence more time for leisure and recreation.

Definitions of leisure are numerous and reflect a variety of views. Leisure can be simply defined as those groups of activities undertaken in "non-work" time; it has also been described as that group of activities in which a person may indulge of his own free will — to rest, to amuse himself, to add to his knowledge or skills, to enhance his personal, physical and mental health through sports and cultural activities, or to carry out unpaid community work. However, many definitions of leisure exclude activities such as sleeping, eating, commuting to and from work, household duties and personal care. Formal programs of continuing education may be regarded as personal improvement or maintenance just as much as sleeping or eating and therefore may also be excluded from leisure activity. On the other hand, it can be argued that the allocation of all non-work time is at the discretion of the individual and therefore any part of it is potentially time available for leisure. Nevertheless, most people would agree there is a basic minimum time required for sleeping, eating and personal care that cannot in any sense be regarded as being available for leisure activities.

Despite the fact that there is no precise agreement on what constitutes leisure, there is agreement on a core of activities. These are activities that offer recreation or give pleasure to the participants. Examples would be playing tennis or taking a walk

in the park. There are instances of activities that may be regarded as undesired household tasks in some circumstances, yet pleasurable recreational activities in others; such tasks might include mowing the lawn, cooking, dressmaking or house painting. Thus, recreation and leisure may be regarded as qualitative terms that are valued differently according to personal tastes and inclinations. These may vary not only between persons but in different circumstances for the same person.

There is a reciprocal relationship between work and leisure. Longer working hours mean less time for leisure. Additional work time normally provides additional income, while additional leisure time typically leads to increased expenditures. The distribution of time between work and leisure is theoretically a matter of choice, but in practice most employed persons as individuals have only limited freedom in determining how long they work. This is because working hours and holidays in Canada are normally fixed, either by employers or as a result of collective bargaining, according to current legislation and accepted norms. As a result Canadian workers are typically committed to working a fixed number of hours a day and days a week.

The normal work week in Canada is from 35 to 40 hours spread over five working days. Most employees receive at least 10 paid holidays annually and a two-week annual vacation, which is usually extended to three, four or more weeks after several years of service with the same employer. Allowing for weekends, paid holidays and annual vacations with pay, most employed persons in Canada have at least 124 days free from work each year. The net amount of non-work time available to Canadians depends also on the proportion of the population in the labour force

The Eleventh Commonwealth Games, held in Edmonton, Alta. in August 1978.





Queen Elizabeth receiving flowers from young admirers during her visit for the Commonwealth Games in Edmonton, Alta.

and whether or not they are employed or seeking employment. Those outside the labour force are by definition non-working and therefore have more free time at their disposal. Typical of these are persons who have retired early or are elderly.

Events and Attractions

Every year, in all parts of Canada, annual events and attractions draw large numbers of vacationers and travellers seeking diversion, excitement and relaxation. Events such as the Quebec Winter Carnival and the Calgary Stampede are organized to promote or celebrate historical, social or cultural occasions. On the other hand, attractions can be either natural or man-made physical features of a permanent nature that provide facilities for displaying distinctive architectural or geographic qualities or for recreational or cultural activities. In this category are museums, parks, mountains and city nightlife; specific examples would be a natural phenomenon like the tidal bore on the Petitcodiac River at Moncton, NB, or a man-made attraction such as Lower Fort Garry in Selkirk, Man.

Outstanding events take place in each province and territory. One of the oldest sporting events in North America is Newfoundland's annual regatta, held in St.



Moose Jaw, Sask., celebrated its 75th anniversary in 1978.

John's. Prince Edward Island's capital city, Charlottetown, features Country Days and Old Home Week, with musical entertainment, agricultural and handicraft displays, harness racing and parades. Nova Scotia events include Highland Games in the centres of Cape Breton, while in New Brunswick there are a variety of festivities related to the province's fishing resources, such as the Shediac Lobster Festival and the Campbellton Salmon Festival.

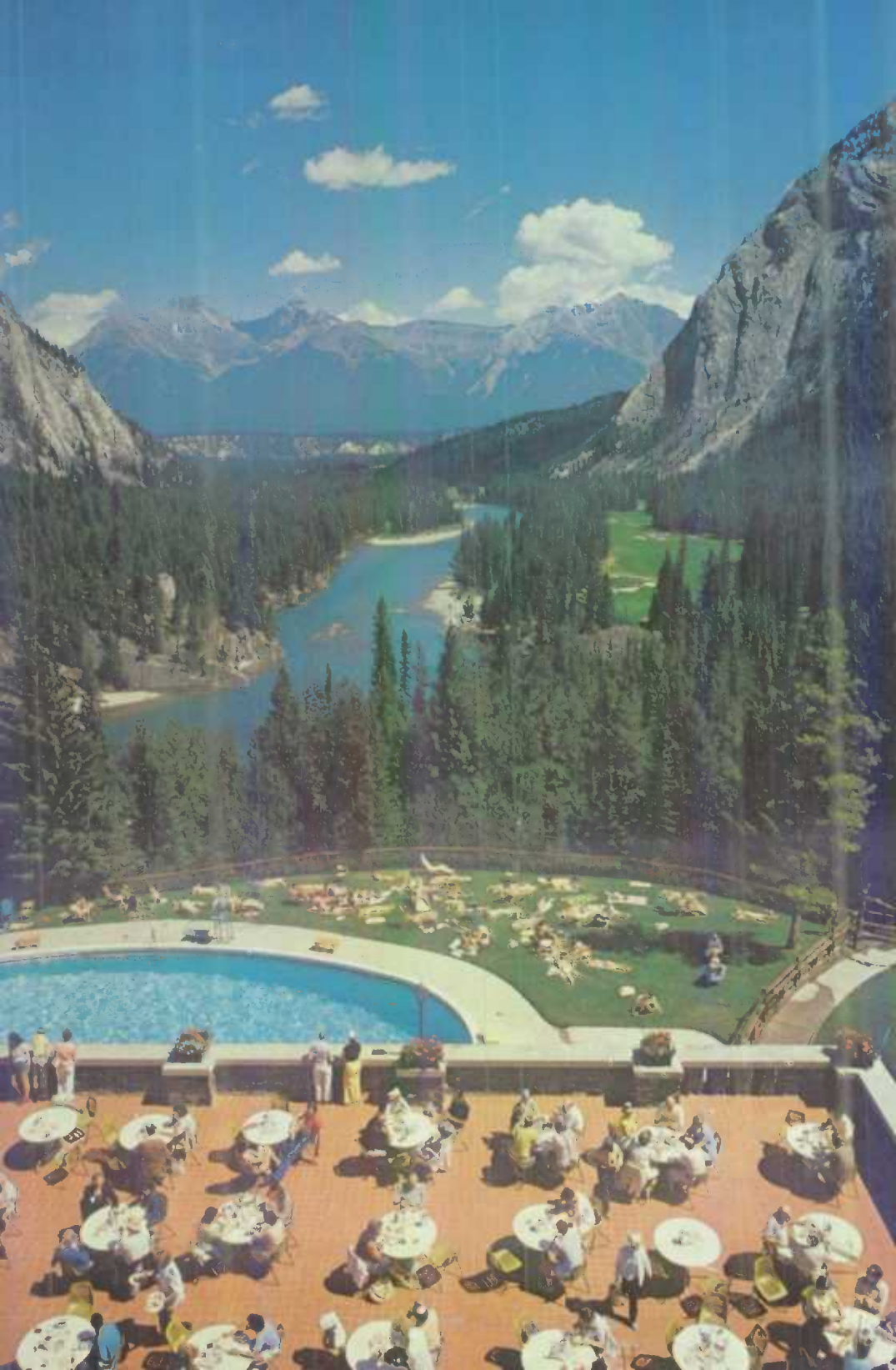
In Quebec attractions include Man and his World, Montreal's permanent cultural and ethnic exhibition, and the Sherbrooke Festival des Cantons, which features "Québécois" shows, horse-pulling, soirées and gourmet cuisine. Drama festivals in Stratford and Niagara-on-the-Lake are examples of happenings in Ontario.

Western Canada's events reflect its cultural diversity and pioneering heritage. Examples include the National Ukrainian Festival in Dauphin, Man., and an Oktoberfest in Vancouver, BC. Pioneer Days are celebrated in Saskatoon, Sask., and Banff, Alta. has its Indian Days.

Special events are held each summer in the North. In Yellowknife, NWT, a Midnight Golf Tournament is held each year late in June. In Dawson City, YT, the discovery of gold in 1896 is celebrated on Discovery Day in August by raft races on the Klondike River and by dances, sports and entertainment relating to the period.

Recreation

The types of leisure activities undertaken vary widely according to the age, sex, income and occupation of the individual. A survey by Statistics Canada in October 1976 of fitness, physical recreation and sport showed that in a series of selected sport





Ice sculpture at the Quebec Carnival.

or physical recreational activities swimming was the most popular of all, followed by ice skating, tennis, golf and ice hockey. In recent years cross-country skiing has become increasingly popular with adults and families in many parts of Canada; 1,336,000 persons 14 years of age and over indicated participation in the 12 months preceding the survey.

Every year more Canadians discover the pleasures of winter sports. Survey results have shown that in the winter months the sports that have the most participants are ice skating, ice hockey and both cross-country and downhill skiing. Curling is also a favourite indoor winter sport in most parts of Canada. Other common leisure-time activities of Canadians include home handicrafts, bowling and attendance at movies, sports events, musical performances, exhibitions, fairs and the theatre.

Government Programs

All levels of government play an active role in enriching the leisure time of Canadians and several federal agencies have major programs related to leisure. Among these is the Fitness and Amateur Sport Branch of the Department of National Health and Welfare, which is mainly responsible for recreation and physical fitness programs and which carries out a number of programs aimed at encouraging citizens of all ages to take part in physical fitness activities; it provides financial and consultative assistance to recreational agencies such as the YMCA, boys' and girls' clubs, Scouts, Guides and youth hostels, and it also assists Canada's native people in increasing their participation in sports and recreation. The Canadian Government Office of Tourism assists in advertising our special events and attractions nationwide and outside Canada. National Museums of Canada promotes interest in and awareness of Canadian heritage and regional variety

through the National Museums, the Associate Museums and the Museums Assistance programs. The responsibilities of Fisheries and Environment Canada include recreational programs such as sport fishing, the conservation of migratory game birds, the provision of interpretive centres on wildlife and the construction and maintenance of wharf facilities for small recreational craft.

For the area in and around Ottawa-Hull, the National Capital Commission plays an important role in conserving and developing space for outdoor recreation. The facilities it provides include Gatineau Park, an area of 357 km² (square kilometres) similar to a national or provincial park, a system of scenic driveways and bicycle paths and a greenbelt of land forming a semi-circle of recreational land to the south of Ottawa; it also maintains the longest outdoor skating rink in the world on the Rideau Canal during the winter and rents out garden plots in the greenbelt during the summer.

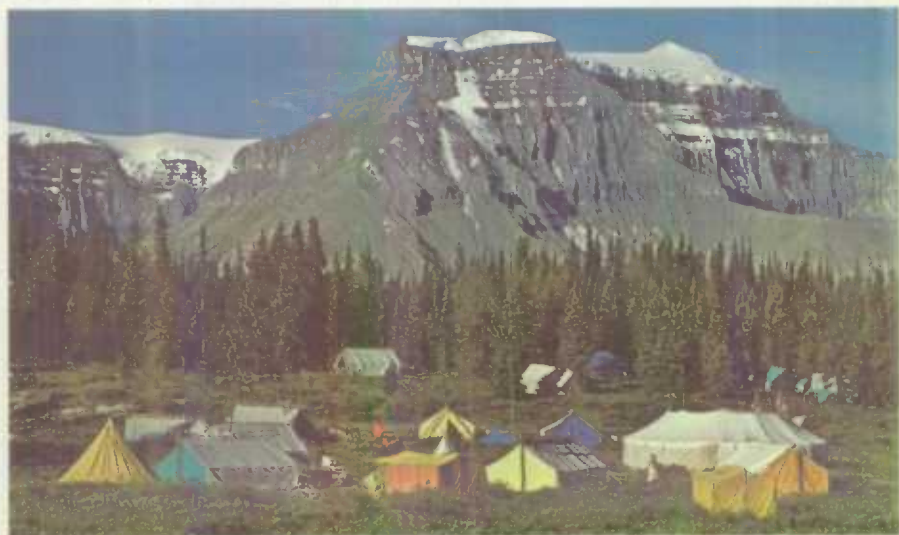
The cultural and artistic aspects of recreation are primarily the responsibility of the Secretary of State. This department supports the visual and performing arts and a variety of cultural activities in which it encourages citizens to participate.

Parks Canada

National Parks

Canada's national parks system began with a 26 km² reservation of land around the mineral hot springs in what is now Banff National Park. From this nucleus the system has grown to include 28 national parks that preserve more than 129 500 km² of Canada's natural areas.

Camping at Banff National Park.



Canada's national parks reflect the amazing diversity of the land. The program now extends from Terra Nova National Park, on the rugged eastern coast of Newfoundland, to Pacific Rim National Park, where breakers pound magnificent Long Beach on the west coast of Vancouver Island, and from Point Pelee, Canada's most southerly mainland point, to Auyuittuq National Park on Baffin Island.

There is at least one national park in each province and territory. The mountain parks of British Columbia and Alberta, among the oldest in the system, are noted for their craggy peaks, alpine lakes and meadows, glaciers and hot springs.

At Waterton Lakes National Park, which together with Glacier National Park of the US forms an international park, the mountains rise dramatically from the prairie without the usual transitional foothills. Aspen and spruce forests contrast with the surrounding flat farmland in Elk Island National Park, Alta. Prince Albert National Park, Sask., displays three vegetation zones — boreal forest, aspen parkland and prairie — and within the park's boundaries are hundreds of lakes, streams, ponds and bogs. In Riding Mountain National Park, situated on the summit of the Manitoba escarpment, northern and eastern forests and western grasslands form a diverse landscape that shelters a broad variety of plant and animal life.

There are four national parks in Ontario — Georgian Bay Islands, Point Pelee, St. Lawrence Islands and Pukaskwa. La Mauricie in the Laurentian Mountains and Forillon on the historic Gaspé peninsula are located in Quebec.

Seven national parks in the Atlantic provinces conserve areas of acadian and boreal forest, harsh sea coast and sandy beaches, and the lake-dotted interior of Nova Scotia.

There are now four parks located partially or completely above the 60th parallel of latitude. Wood Buffalo National Park straddles the Alberta-Northwest Territories border and is home to the largest remaining herd of bison on the continent. Kluane, YT, contains Mount Logan, Canada's highest peak, while in Nahanni National Park, NWT, the spectacular Virginia Falls of the South Nahanni River plunge 90 m (metres) to the valley below. On Baffin Island, Auyuittuq, which in Inuit means "the place that does not melt", is Canada's first national park above the Arctic Circle.

The magnificent scenery and numerous recreational possibilities of the national parks attract visitors year-round, whether to camp, sightsee, hike, mountain-climb, swim, fish, ski or snowshoe. Interpretive programs include guided walks, displays, films and brochures that explain the natural history of the park regions.

National Historic Parks and Sites

To preserve Canada's past the National Historic Parks and Sites Branch of Parks Canada commemorates persons, places and events that played important parts in the development of Canada. Since 1917, when Fort Anne in Nova Scotia became the first national historic park, 50 major parks and sites and over 700 plaques and monuments have been established at significant sites. Some 30 more sites are currently under development.

Sites are selected on the basis of their cultural, social, political, economic, military or architectural importance and include major archaeological discoveries. Two finds in Newfoundland are the ancient Indian burial ground at Port aux Choix and the Norse settlement at L'Anse aux Meadows believed occupied about 1000 A.D.



Women in period costume in the bakery at Old Fort George in Ontario.

Many historic parks and sites recall the early exploration of Canada and struggles for its possession. Cartier-Brébeuf Park in Quebec City marks Jacques Cartier's first wintering spot in the New World and is, in addition, the site of the Jesuit order's first residence in Canada.

The pursuit of furs led to extensive exploration of Canada and construction of many posts and forts to expand and protect the fur trade. Such posts include Port Royal, the earliest French settlement north of Florida, Fort Témiscamingue, a strategic trading post in the upper Ottawa Valley, and Fort Prince of Wales, the most northerly stone fort in North America. Lower Fort Garry, near Winnipeg, has been restored to recreate a 19th century Hudson's Bay Company post; here one can see women baking bread and spinning and weaving fabric at the "Big House", a blacksmith at work in his shop and furs, once the mainstay of Canada's economy, hanging in the loft above the well stocked sales shop — the hub of fort activity.

Military fortifications that have been protected as national historic sites range from the massive Fortress of Louisbourg on Cape Breton Island, built by the French in the 18th century to protect their dwindling colonial possessions, through a series of French and English posts along the Richelieu and St. Lawrence rivers, to Fort Rodd Hill on Vancouver Island, site of three late 19th century British coastal defences.

The fur-trading posts of Rocky Mountain House in Alberta, Fort St. James in northern British Columbia and Fort Langley in British Columbia, where the province's salmon export industry also began, recall the expansion of trade and settlement in the West. The orderly development of Western Canada was due in large part to the North-West Mounted Police, who are commemorated at Fort Walsh, Sask., first headquarters of the force.

and Ottawa; this park, like many of the others in Ontario and the other provinces, features camping, canoeing and sport fishing.

In addition, provincial governments administer a variety of recreational programs, manage natural resources, hunting and fishing and provide recreational facilities, both directly and through municipal programs.

Tourism

Tourism affects the lives of all Canadians. It has an impact on our lifestyle and provides a change of pace from contemporary social pressures. It also contributes to national unity by increasing understanding among people of different regions of the country.

Tourism is a major earner of foreign exchange for Canada. At the same time tourism is a significant generator of domestic spending. It has a considerable impact on consumption, investment and employment and is a source of substantial tax revenue for governments; it also spreads its benefits widely across Canada, playing a prominent role in helping to alleviate regional socio-economic disparities.

According to the World Tourism Organization, global tourism in 1977 involved 245 million international arrivals (up 12 per cent from 1976) and these travellers spent an estimated \$50 billion in their countries of destination (up 15 per cent from 1976). In the world context, Canada ranked ninth in 1977 in terms of international travel receipts, fourth in terms of international travel spending by its residents, and fifth in terms of visitors.

Tourism was a business worth \$10 billion to Canada as a whole in 1977, an amount equivalent to about 5 per cent of the gross national product. The spending of Canadians travelling within Canada amounted to nearly \$8 billion. The balance of \$2 billion was earned from spending in Canada by visitors from abroad — our sixth largest source of foreign exchange after autos and auto parts, lumber, newsprint, wood pulp and natural gas.

In 1977, visitors from the United States numbered 31.8 million, down 1.2 per cent from 1976. Non-resident travellers from countries other than the US numbered 1.4 million, an increase of 10 per cent over 1976. Of this number 944,145 came from Europe and arrivals from the United Kingdom, the largest source of tourists after the US, totalled 372,165. Visitors from other major tourist-producing countries included 157,845 from the Federal Republic of Germany, 97,532 from Japan, 90,512 from France, 71,195 from the Netherlands, 51,348 from Australia and 46,981 from Italy.

The value of tourism spending in Canada should not, however, be measured solely in terms of the \$10 billion direct travel expenditure. Subsequent rounds of spending spread throughout the economy and create additional business.

For example, when a traveller rents a hotel room he contributes in the first instance to the gross margin of the hotel owner. Part of this margin will be paid out to employees in the form of wages. These wages will subsequently be spent to the benefit of the owner of a corner store, for example. The money will then pass to the wholesaler who supplied the goods purchased and then to the manufacturer, who in turn probably purchases his raw materials from another Canadian firm, and so on. Counting this "multiplier" effect, the total contribution of tourism in the GNP could have been as high as \$16 billion in 1977.



Receipts and payments on travel between Canada and other countries, 1972-77
(million dollars)

Country	1972	1973	1974	1975	1976	1977
United States						
Receipts	1,023	1,160	1,328	1,337	1,346	1,525
Payments	919	1,073	1,196	1,587	1,956	2,280
Balance	+104	+87	+132	-250	-610	-755
Other countries						
Receipts	207	286	366	478	584	500
Payments	545	869	782	955	1,165	1,386
Balance	-338	-383	-416	-477	-581	-886
All countries						
Receipts	1,230	1,446	1,694	1,815	1,930	2,025
Payments	1,464	1,742	1,978	2,542	3,121	3,666
Balance	-234	-296	-284	-727	-1,191	-1,641



Stanley Park, Vancouver, BC.

Tourism also generated the equivalent of 900,000 jobs across Canada in 1977 — about 8.5 per cent of the labour force. It involved governments at every level and almost 80,000 individual private enterprises of diverse kinds, such as transportation companies, accommodation operators, restaurateurs, tour wholesalers and operators, travel agents, operators of activities and events, and trade associations.

Another important feature of travel consumption in Canada is the low import content of the products consumed. As travel is predominantly service-oriented, travel spending is on goods and services with a relatively high domestic labour content. Furthermore, the goods purchased by tourists are usually home-produced — food and drink by Canadian farmers and processors and souvenirs by Canadian craftsmen, for example.

The growth of tourism in Canada is no accident. Canada possesses many basic tourism assets. It has an enviable location at the crossroads of the northern hemisphere and adjacent to the world's most affluent travel market. It is endowed with an abundance of open space, for which world demand is sure to intensify. Its northern territories constitute one of the world's few remaining tourist frontiers. It possesses immense supplies of a most precious recreational resource — water — and of a most promising one — snow. The variety, quantity and quality of Canada's wildlife compare favourably with those of any country. Its scenic, cultural and ethnic diversity add to its travel appeal, as do its heritage buildings and the developing attractions of its major cities.

Above all, Canada enjoys a worldwide reputation for friendliness and hospitality. But the growth of tourism also reflects the efforts of 10 provincial tourism departments and two territorial tourism departments, the services and promotion effected by the thousands of businesses catering to Canadian tourism and the work of the Canadian Government Office of Tourism.



A flower show at the Central Experimental Farm in Ottawa.



Montreal Botanical Gardens.

External Relations

Foreign Policy Goals

Canada's foreign relations make possible or facilitate many of the everyday activities of Canadians. The businessman who produces for export, the consumer who relies on imports, the graduate student who enters a foreign university under a scholarship exchange, the artist who performs in other countries, the tourist whose travel abroad is simplified by internationally-accepted passport and civil aviation practices — all take it for granted that Canada's position in the world will not change suddenly in a manner inimical to their interests.

The protection and promotion of Canadians' collective interests abroad involves the activities of more than 20 federal government departments and agencies. The Department of External Affairs has the primary responsibility for the management of Canada's foreign relations and ensures that the government's international programs are consistent with policy goals.

Foreign policy objectives reflect national and international priorities as perceived and pursued by government. They are unlikely to be achieved without the co-operation of other governments, individually or collectively. Some objectives are long-term and involve the welfare of all Canadians, such as the preservation of

Shipping on the Great Lakes.



Canadian security, the maintenance of an orderly world trading system or the reflection abroad of Canada's bilingual and multicultural society. Others are short-term and involve more particular interests, such as co-operation with the United States to improve the quality of water in the Great Lakes.

A review of foreign policy published in 1970 identified six major themes of national policy at home and abroad. These are to foster economic growth, safeguard sovereignty and independence, work for peace and security, promote social justice, enhance the quality of life and ensure a harmonious natural environment. The character of Canadian foreign policy at any time is determined by emphasis given to these policy themes, and by constraints and opportunities that external and internal circumstances may suggest. The conduct of Canada's foreign relations advances national interests and promotes co-operation in the global community.

Canada and the United States

Canada's relationship with the United States is clearly the most important one and is central to a broad range of Canadian interests. It is a varied and complex relationship and differences and frictions can and do occur from time to time, as Canada's interests are not always identical to those of the US. However, the relations between the two peoples and governments are characterized by friendship, mutual understanding and co-operation. Intergovernmental relations are maintained by a process of prior notification, consultation and negotiation when appropriate.

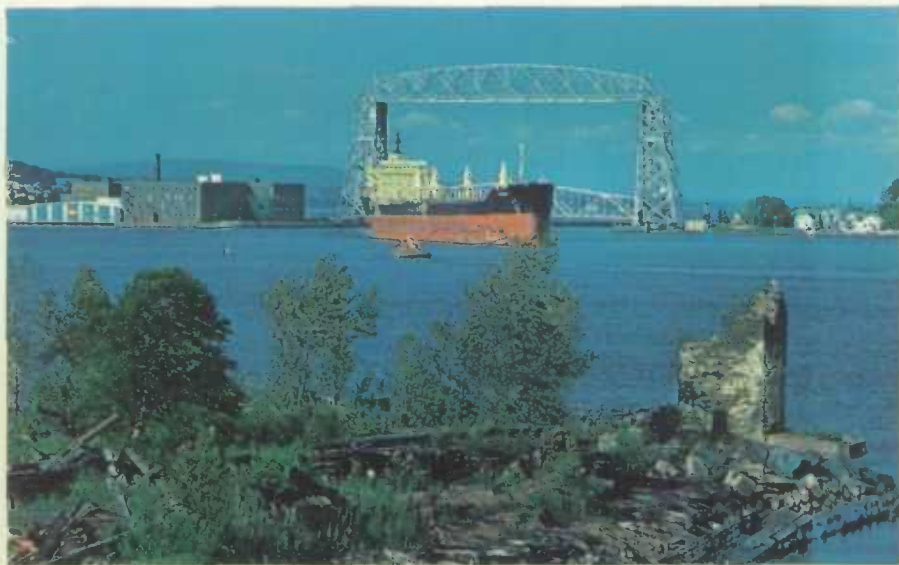
Canada and the United States maintain close co-operation on North American and NATO defence questions. The Permanent Joint Board on Defence, for example, has met regularly since 1940.

The two countries also co-operate closely in resolving transboundary environmental questions. An important instrument of this co-operation is the International Joint Commission. Established in 1909 by the Boundary Waters Treaty, it is composed of six members (three from each country) and undertakes special studies at the request of either government, in addition to fulfilling its regulatory and advisory functions. The commission has a particularly active role with respect to water quality and levels in the Great Lakes.

Energy continues to be an active element in bilateral relations; in 1977 the two governments concluded a transit pipeline treaty and an agreement on principles applicable to a northern gas pipeline. The two countries have also been engaged in the negotiation of a comprehensive settlement of Maritime boundaries and related fisheries and resource issues following the recent extension to 200 miles of the fisheries zones of each country.

Canada and the United States are each other's best customers. The United States provides the market for about two-thirds of Canada's exports, while Canada takes approximately one-fifth of the exports of the US. Interdependence in the financial field is extensive, with large US investments in Canada and substantial Canadian investments in the United States.

There is also close co-operation in a variety of international forums where political, social and economic questions are considered.



A ship from Helsinki, Finland, travelling through the St. Lawrence Seaway.

New Directions

Europe

Canada's relations with Europe are founded on deep-rooted historical, linguistic, ethnic, cultural and social affinities. The vast majority of Canadians are of European extraction and many of the more recent immigrants maintain strong ties with their countries of origin.

The European Communities constitute Canada's second most important trading partner and present obvious opportunities for Canada in our efforts to complement close economic relationship with the US. In July 1976 Canada and the European Communities signed a Framework Agreement for Commercial and Economic Co-operation — sometimes referred to as the "contractual link". The agreement, the first of its kind to be concluded between the European Communities and an industrialized country, provides a framework and a focus for economic co-operation that should lead to increased trade and investment opportunities between the two parties. A central element of the agreement is industrial co-operation, which is to be developed through increased intercorporate links, investment flows, scientific and technological exchanges and two-way trade. The agreement is non-preferential and provides for regular consultations through a Joint Co-operation Committee.

Canada's efforts to develop relations with the European Communities as a distinct entity have been paralleled by efforts to strengthen bilateral relations with the individual members and with non-member European countries.

European stability is vital to the assurance of world peace. Through membership in NATO, Canada contributes to peace and security in Europe by helping to maintain

a deterrent to conventional and nuclear attack. NATO offers Canada an effective forum for consultation and joint action with the 13 European member states in the military and political spheres as well as in economic, social, scientific and environmental matters. Canada also participates in the negotiations aimed at mutual and balanced force reductions in Central Europe that began in Vienna in October 1973 between members of NATO and the Warsaw Pact.

Canada participated in the Belgrade meeting of the Conference on Security and Co-operation in Europe (CSCE), which was held from October 1977 to March 1978. The Belgrade meeting was the first since the signing of the Helsinki Final Act by the 36 CSCE participating states in August 1975. Canada will be represented at the three CSCE meetings of experts that will precede the next main meeting in Madrid in November 1980. Our participation in the CSCE is viewed as important to our ties with all of Europe and as a reaffirmation of our commitment to the policy of détente. Fundamental objectives of Canadian policy are the promotion of human rights and human contacts and the freer movement of information and ideas among participating states.

Asia and the Pacific

With the development of modern transportation and communications, Canadians have become increasingly aware of our position as a Pacific as well as an Atlantic nation. The countries of Asia and the western Pacific include some of the most

Secretary of State for External Affairs Don Jamieson during a recent visit to Tokyo.





Aluminum ingots imported from Canada being unloaded in Osaka, Japan.

highly industrialized and wealthiest countries of the world, such as Japan and Australia, and some of the least developed, such as India and Bangladesh. Canada has important trade and development relations with many countries in this area.

Japan, Canada's second most important trading partner, is very important to the Canadian goal of diversifying external relations. A Framework for Economic Co-operation was concluded in 1976 and efforts continue to increase the manufactured and upgraded content of Canadian exports to Japan. The two countries are also expanding co-operation in political, scientific, technological and other fields. A Cultural Agreement drawn up in 1976 provides the basis for expanding existing programs and exchanges.

The Sino-Canadian relationship reflects Canada's belief that the co-operation and participation of the People's Republic of China in world affairs are essential to peace and stability. Exchanges with China in the fields of industry, science, medicine, culture, education and sports continue to grow and Sino-Canadian trade has expanded.

Canada also has important trade and development ties with the countries of southeast Asia and maintains contact with the Association of South East Asian Nations (ASEAN), which plays a significant role in the development and stability of its member nations, largely through economic co-operation and co-ordination.

Relations with Australia are deeply rooted in similar legislative and judicial experience as well as in shared problems and common action over several generations. Recent mutual interests have included the export of uranium, the question of nuclear safeguards, the exploration and marketing of raw materials and multilateral trade questions. Two-way trade with Australia totalled almost \$750 million in 1977; 85 per cent of Canada's exports to Australia were in the form of manufactured goods.

Relations with the Rest of the World

The 1970 foreign policy review recommended that Canada undertake to strengthen our relationship with Latin America. Since then there has been increasing interest on both sides in developing relations. This was demonstrated when Prime Minister Trudeau visited Mexico, Cuba and Venezuela in 1976. Canada now has a permanent observer mission to the Organization of American States and is a member of most of the inter-American organizations. Trade with the region has increased from \$1,099.3 million in 1970 to \$4,811.3 million in 1977. Latin America as a whole is our fourth largest trading partner and an important recipient of development assistance. In addition, Canadians are frequent visitors to Mexico, Cuba and other Latin American nations and there have been increased exchanges in cultural, technical and academic fields.

Canada's major concerns in the Middle East are the achievement of a just and lasting peace and the development of economic and other relations with all countries in the region. Canada's approach to the Arab-Israeli conflict is based on support for the principles of the United Nations (UN) Security Council Resolution 242 of November 1967 — notably, on the right of all states in the Middle East, including Israel, to live in peace and on the right of the Palestinian people to participate in negotiations affecting their future. As the major single peacekeeping contributor to the area, Canada has a total of 1,100 military personnel in the four peacekeeping forces.

Canada's relations with Africa are characterized by co-operation in technical development, diversified economic and commercial ties and the search for social justice. The establishment of cultural, academic and scientific relations with the African countries is a more recent development. Canada's cultural duality is reflected in bilateral contacts with English-speaking and French-speaking African states, many of whom are members of either the Commonwealth or the Agency for Cultural and Technical Co-operation. In addition, Canada is playing a role in the effort to reach a peaceful solution to the problems of southern Africa so that the aspirations of the African majority in that area can be realized.

Traditionally, Canada's links with the Commonwealth Caribbean have been close, based on common language, parliamentary traditions and membership in the Commonwealth of Nations. Bilateral relations are founded on mutual interest in development assistance (the Commonwealth Caribbean is the largest per capita recipient of Canadian development assistance), immigration (in 1977 immigrants from the region accounted for approximately 10 per cent of the total immigration to Canada) and economic trading interests (a Trade and Economic Co-operation Agreement was recently negotiated between Canada and the Caribbean Common Market). The Caribbean also remains a popular holiday destination for Canadians, with over 100,000 visiting the islands each year.

Multilateral Diplomacy

The preceding paragraphs have dealt mainly with Canada's bilateral relations, or relations with individual countries. The achievement of Canada's national aims also requires multilateral activity — participation in organizations and conferences in

which many other countries are represented and that have as their goal the solution of particular problems.

As a leading trading nation Canada has particular interest in the growth and stability of the world economy. The increased interdependence of national economies has been reflected in a series of "economic summits" of leaders of the seven largest industrialized democracies, including Canada. Identification of particular problems in the international economy and the commitment by leaders to co-operate fully in efforts toward resolving them complement continuing efforts in established international forums. Canada is an active participant in the multilateral trade negotiations in Geneva, the most comprehensive yet undertaken, and has also played an influential role in negotiations on international monetary reform conducted under the sponsorship of the International Monetary Fund. Canada contributes to the World Bank and to regional development banks in extending multilateral development assistance and is a founding member of the International Energy Agency established under the auspices of the Organization for Economic Co-operation and Development. Canada also works through the International Atomic Energy Agency for application of nuclear power to peaceful pursuits and plays an active role in negotiations between industrialized and developing countries, having co-chaired the Paris Conference on International Economic Co-operation.

Three international organizations of diverse kinds are of special interest to Canada — the UN, the Commonwealth and the French-speaking community.

The United Nations

The activities and membership of the UN continue to grow and touch on almost every aspect of Canadian foreign policy aims.

As the developing countries make up almost three-quarters of the UN membership, debates tend to focus on the question of a new international economic order more favourable to their interests. Negotiations take place in specialized UN forums such as the General Agreement on Tariffs and Trade (GATT) and the UN Conference on Trade and Development (UNCTAD) on issues ranging from trade tariffs to the transfer of technology. As well, UN members discuss global questions such as the world economic situation and the terms and volume of aid transfers. Although there are practical and political restraints to radical change in the short term, Canada's commitment to long-term reform is evidenced by our active participation in discussions on a new international development strategy, debt relief and the liberalization of trade, through giving special terms to products of the developing countries. Further evidence is our high level of annual contributions to programs such as the UN Children's Fund (UNICEF), the UN Development Program (UNDP) and the World Bank, which are aimed at reducing poverty by promoting economic development and the fulfilment of basic human needs.

The protection and promotion of human rights are also major Canadian concerns at the United Nations. Canada has supported the creation of the post of High Commissioner for Human Rights, and is represented on the Human Rights Committee, which monitors the implementation of the Covenant on Civil and Political Rights.

On December 31, 1978, Canada completed a two-year term on the UN Security Council, which was the fourth time we have filled one of these non-permanent seats since the UN's inception. We have also participated in all major UN peacekeeping operations; in mid-1978 military personnel were serving in this capacity in the Middle East and Cyprus.

Canada plays an active role in other forums such as the Conference of the Committee on Disarmament (CCD) in developing effective agreements to prohibit, limit or control the use of armaments, particularly nuclear weapons and other weapons of mass destruction. At the 1978 Special Session on Disarmament, Prime Minister Trudeau delivered Canada's statement.

A number of other conferences organized under UN auspices have dealt with matters of special importance to Canada, such as the environment, human settlements, population, food and water. At the Law of the Sea Conference there have been arduous negotiations to draw up a comprehensive treaty on international marine law.

Canada participates in all of the specialized agencies of the UN, one of which, the International Civil Aviation Organization, is located in Montreal. The Canadian contribution is the ninth largest to the UN's annual budget and has amounted to more than one billion dollars since 1946.

Prime Minister Trudeau attended the tenth special session of the General Assembly on disarmament at the UN.



The Commonwealth

As the colonies within the British Empire achieved self-government and independence, similarities of language, habits and institutional traditions convinced many national leaders that maintaining some form of association would be valuable. The fruit of that belief is the modern Commonwealth. The shared values and traditions of this association facilitate consultation among governments in a confidential and informal atmosphere that is missing in more complex international organizations. The Commonwealth is able to transcend differences of ideology, race, region and economic conditions and bring a global, multiracial perspective to various issues.

The biennial meetings of Commonwealth heads of government and the annual meeting of Commonwealth finance ministers (held in Montreal in September 1978) attract wide public attention. The public is less aware of programs of functional co-operation and the specialized exchanges that take place regularly under Commonwealth auspices among parliamentarians, educators, scientists, journalists, health officials, youth leaders, etc.; of the over 50 conferences held each year, about half are organized by non-governmental Commonwealth organizations. In 1978 Canada was host to the 11th Commonwealth Games in Edmonton, Alta., the 12th Congress of Commonwealth Universities and the second General Conference of the Commonwealth Council for Educational Administration.

The French-speaking Community

As nearly one-third of all Canadians are French-speaking, the federal government fosters the broadening and strengthening of ties with La Francophonie — those countries that are entirely or partially French-speaking. This involves participation in bodies such as the Agency for Cultural and Technical Co-operation, the Conference of Ministers of Education and the Conference of Youth and Sports Ministers of francophone countries.

Federal-Provincial Aspects of International Relations

The provinces have a legitimate interest in the international aspects of matters over which they have internal jurisdiction and in other issues that may affect them; to accommodate such concerns and reflect Canada's federal character the Department of External Affairs maintains liaison with the provinces. Such co-operation has resulted in provincial involvement in bilateral cultural agreements with France, Belgium, the USSR, Japan, Mexico and the Federal Republic of Germany. Also, the Canadian government has negotiated "participating government" status for Quebec and New Brunswick in the Agency for Cultural and Technical Co-operation.

Following the signing of the "contractual link" with the European Communities, a mechanism has been set up to encourage provincial participation on the economic side where appropriate. To take into account provincial interests in GATT, a position of co-ordinator on the Multilateral Trade Negotiations (MTN) has been established; the co-ordinator briefs provincial authorities on the MTN proceedings in Geneva and ensures that the Canadian mission to the MTN is fully aware of provincial concerns.

Provincial interests officers in our embassy in Washington and in our mission to the European Communities in Brussels work closely with the department and transmit relevant documentation to the provinces.

The Canada-Japan Joint Economic Committee, created under the 1976 "Framework for Economic Co-operation", provides for representation of provincial interests regarding Japan. Timing and agenda for committee meetings are arranged in consultation with the provinces and results conveyed to provincial officials.

In the field of immigration, the Cullen-Couture Agreement with the government of Quebec (February 1978) is a practical expression of the provincial role envisaged in the new Immigration Act. The agreement provides for substantive involvement by Quebec in the selection of prospective immigrants to that province: Quebec immigration officials are stationed in Canadian missions abroad as a consequence of this act.

Federal-provincial consultation makes possible provincial participation in international organizations and conferences. This participation consists of representation on Canadian delegations and involvement in policy and program implementation. The federal government also makes arrangements for provincial visits abroad and co-ordinates visits of foreign dignitaries to the provinces. During the negotiation of formal agreements between Canada and other countries, there is federal-provincial consultation if the terms of such agreements touch on provincial or joint federal-provincial fields of jurisdiction.

Projecting Canada's Image Abroad

The Department of External Affairs conducts a public affairs program in liaison with other federal departments and agencies involved in the cultural and information fields, with the provinces, and with interested organizations and individuals. The basic aims of the program outside Canada are to foster in influential circles an awareness of Canada's accomplishments in a variety of fields and of our positions on international issues. Within Canada, the program seeks to increase public awareness of the nature and relevance of foreign policy issues and governmental responses to them. The program seeks to create a favourable climate of opinion for the achievement of foreign policy objectives and to assist the cultural and academic communities to gain international exposure and experience.

Public affairs activity is greatest in the US, the European Communities, Japan and francophone Africa, reflecting the importance of these areas to Canada. Cultural centres have been established as permanent showcases in Brussels, London and Paris. Canada has general cultural or exchange agreements with Belgium, Brazil, France, the Federal Republic of Germany, Italy, Japan, Mexico and the USSR, and specialized reciprocal programs with a number of other countries.

Public affairs activities and projects include publications; films; visits to Canada by foreign journalists and other opinion-formers; exhibits; tours of Canadian speakers abroad; exhibitions of Canadian art; assistance to Canadian performers touring abroad; artistic exchanges; donations of Canadian books; exchanges of scholars and postgraduate students; promotion of Canadian studies; and answering requests for general information.

Canada's Economic Performance, 1977-78

The weak overall economic performance in Canada evident since mid-1976 continued throughout 1977 when total real output in the Canadian economy increased by only 2.7 per cent. The performance of the economy in 1977 was very uneven, with moderate growth recorded in the first and fourth quarters of the year, but with a very sluggish performance in the second and third quarters. Overall real economic growth was well below the economy's long-term potential and, consequently, was accompanied by a steady rise in the unemployment rate throughout the year. This, together with other evidence, suggested that the period of recession which began in 1974 had not completely run its course.

All sectors within the domestic economy exhibited weak spending patterns in 1977, with real final domestic demand increasing by only 2 per cent during the year. The achievement of even the modest overall rate of growth experienced in 1977 was supported by foreign demand and some strengthening in the real balance of trade in goods and services. Following several years of rapid growth consumer spending slowed significantly and increased by less than 3 per cent. Among the major



Toronto, Ont.

components of consumption, relative strength was evident in service expenditures which increased by 4.8 per cent, and in spending on durable goods which grew by 3 per cent. Spending in semi-durable and non-durable goods was exceptionally weak: real expenditures on each of these components increased by less than one per cent.

The decrease in consumer spending resulted from both a decline in the growth of income flows to the household sector and from a continuation of the cautious behaviour of the consumer which has been evident in Canada since 1975. As a result of both slow employment growth and a sharp deceleration in the rate of increase of average compensation, total labour remuneration — the largest component of personal income — increased by less than 11 per cent in 1977 compared to an average of over 16 per cent per year during the 1974-76 period. Real personal disposable income increased by only 2.7 per cent in 1977, down from 6.1 per cent in 1976 and 6.4 per cent in 1975. Personal savings, however, continued at a high rate during 1977 despite the squeeze on incomes. Overall, the personal savings rate remained essentially unchanged from 1976 at 10.6 per cent while over the final three-quarters of the year personal savings averaged in excess of 11 per cent of personal disposable income.

The very slow growth in investment spending which took place in 1977 was not unusual in the light of the recent cyclical performance of the economy as a whole. Capacity utilization rates remained low throughout 1977 and in a number of sectors capacity utilization fell even further during the year.

Residential construction expenditures fell by almost 5 per cent in 1977, following a 17.5 per cent increase the previous year, as a result of a sharp fall in the level of housing starts from 1976. The major correction in housing market activity took place early in 1977 followed by increasing levels of housing starts throughout most of the year, generally at lower levels than in 1976. Actual residential construction expenditures, however, were weak throughout 1977 with declines in expenditures recorded in all but the second quarter.

While domestic spending was sluggish in 1977, the weakness was cushioned to a considerable degree by support from the foreign sector. Real exports of goods and services increased by almost 7.5 per cent while imports grew by only 2.5 per cent. In current dollar terms merchandise exports grew by 17 per cent while imports increased by just over 7 per cent, and this resulted in an improvement in the merchandise trade balance of over \$1.5 billion to a surplus of about \$2.9 billion. Despite this improvement in merchandise trade, however, the current account of the balance of international payments deteriorated by about \$350 million to a level of \$4.2 billion as a result of a sharp increase in the deficit on service transactions and, in particular, a substantial rise in net interest and dividend payments abroad and in the deficit in travel and tourism. Relative to overall economic activity in Canada, however, the current account deficit was in the same range in 1977 as in 1976 and was considerably lower than in 1975.

Victoria, BC.



Long-term borrowing abroad, which was unusually strong in 1976, slowed considerably in 1977 as a result of a decline in the financing requirements of provincial and local governments and a narrowing of the interest rate differential between Canada and the United States. Net long-term capital inflows fell from almost \$8 billion in 1976 to just over \$4 billion in 1977. In 1976 the long-term capital account balance exceeded by a wide margin the current account deficit, and therefore helped to maintain the Canadian dollar above par for most of the year. In 1977 long-term capital inflows barely offset the current deficit. Combined with sizable short-term capital inflows this situation resulted in strong downward pressure on the exchange rate, and the external value of the dollar fell steadily throughout the year from about \$97 US in the first quarter to \$91 US in the fourth quarter of the year.

Inflationary trends continued to moderate throughout 1977. The most comprehensive measure of price change available, the implicit deflator for Gross National Expenditures, increased by 7 per cent during the year, down from an increase of almost 10 per cent in 1976 and a 10.7 per cent increase in 1975. Similarly, wage settlements and average labour compensation continued to decelerate in 1977 following a pattern evident since late 1975, and this resulted in lower rates of increase in unit labour costs than during the preceding years. However, while the underlying inflationary environment in Canada has quite clearly moderated, this has not been fully reflected in improvements in the Consumer Price Index (CPI). The CPI increased by 8 per cent in 1977, up from 7.5 per cent in 1976, and the quarterly rates of increase of this index were consistently higher throughout 1977 than they were in 1976. Essentially, this development reflected the impact of the depreciation of the dollar on consumer prices together with considerable upward pressure on food prices. Real average weekly wages showed little growth in 1977 and, in fact, declined after the first quarter of the year, and this situation continued into 1978.

In 1978 the Canadian economy experienced some acceleration in the pace of overall economic activity compared to 1977; real growth, however, is likely to continue to lag behind the economy's long-term potential with an increase in real Gross National Expenditure in the 4 to 4.5 per cent range the most likely outcome. This outlook implies no improvement in the average rate of capacity utilization in the economy in the near future and also points to further increases in the unemployment rate. In the spring of 1978 the unemployment rate had risen to 8.6 per cent of the labour force.

In summary, the overall performance of the Canadian economy in 1977 continued to be disappointing with sluggish real output growth and falling rates of utilization of capital and labour resources. Some progress continued to be made in reducing inflation but at a considerable price in terms of foregone output. There appears to be little prospect of a strong recovery. Growth will not be sufficient to raise the rate of utilization of productive resources in the economy and a further increase in the unemployment rate may be expected. There is considerable likelihood of renewed strong upward pressure on wages which may affect the outlook for inflation.



Tomato harvest in Ontario.

Natural Wealth

Agriculture

Farming is carried on in all provinces of Canada and in a limited way in a few areas of the Yukon Territory and the Northwest Territories. Although there are exceptions, especially in the Peace River area of Alberta and British Columbia, farms are for the most part scattered within a 320 km (kilometre) strip along Canada's southern boundary. There are currently 300,118 farms in Canada, according to a revised census definition of what constitutes a farm.

Average farm size has increased from 216 ha (hectares) in 1971 to over 224 ha in 1976. Originally settlement in Eastern Canada was planned on the basis of 40 ha per farm and farms in Western Canada were laid out in 65 ha parcels; today there is a considerable range in size in all farming regions. As the number of farms has decreased most of the land has been added to the farms that remain, with the consequence that current farm areas are usually multiples of 40 or 65 ha.

In 1976, there were 67 000 000 ha of land in agriculture in Canada, of which some 44 000 000 ha were improved and used for intensive production; the unimproved land is generally unsuited for cultivation and used mainly for grazing purposes, although in some regions much of this type of land is covered with bush and forest. The amount of land used in agriculture has slightly decreased in recent years, but the amount of improved land has remained relatively constant. Because of climatic restrictions and present economic circumstances, very little additional land is likely to be brought into agricultural production in the near future.

Approximately 5 per cent of Canada's labour force is employed in farming. Although there was a slight increase in 1974 and 1975, the steady decline in the agricultural work force that took place before 1974 is now continuing. The disappearance of farm labour as rural populations migrated to developing urban centres resulted in an extensive mechanization of agriculture. As a consequence of this and of the relatively rapid acceptance of new technology by farmers, productivity per worker increased in agriculture at a more rapid rate than in non-agricultural industries. From 1960 to 1975 the output per worker in agriculture increased by 54 per cent, compared with a 44 per cent increase in other industries. The average current output of one farm worker provides food for over 50 people.

Farming in the North Battleford area of Saskatchewan.





A ranch near Fort MacLeod, Alta.

Farms that are owned and operated by farm families dominate the agricultural picture in all parts of Canada. Only about 2.1 per cent of farms are incorporated and approximately 1.9 per cent are family farm corporations. About 5.6 per cent of farms are operated as partnerships, many of which include individuals who are closely related. In the 1976 Census 63 per cent of farm operators owned the land they operated, 31 per cent partly owned and partly rented their farmland and 6 per cent operated only rented land.

Although farming takes place in every province, 79 per cent of Canada's farmland is in the Prairies; this is reflected in farm income figures. In 1976 total net farm income was approximately \$4,113 million, distributed as follows: British Columbia, \$201 million; the Prairie provinces, \$2,513 million; Ontario, \$891 million; Quebec, \$386 million; and the Maritime provinces, \$122 million. The total capital value of farm real estate, livestock and machinery in 1976 was \$54,789 million.

There are many types of farms in Canada, but most may be roughly classified as one of the following: grain, dairy, livestock (excluding dairy), combination grain and livestock, and specialty crops. Specialty crops include fruits, tobacco, potatoes and vegetables.

Grain and oilseeds constituted 67 per cent of the value of agricultural exports in 1976. Although Canadian agricultural products are exported to many parts of the world, the countries of the European Economic Community are Canada's most important agricultural export market. Agricultural exports in 1976 accounted for about 11 per cent of the total value of all Canadian exports.



Although farming takes place in every province, 79 per cent of Canada's farmland is in the Prairies.

Besides providing an abundance of food, agriculture benefits the country in many ways. Transportation charges resulting from the movement of agricultural products provide revenue to Canada's railway companies, shipping companies and port facilities. The processing of farm products and the manufacture of farm machinery, equipment, fertilizers and other supplies sold to farmers contribute to industrial employment. Farm operators are also an important market for building materials, petroleum products, electric power, veterinary services and other necessities. At the rural retail level many people depend on farmers' purchases of goods and services for their livelihoods.

Field Crops

Spring wheat was grown on more than 9 789 000 ha of the Prairies in 1977. Historically, wheat has contributed significantly to the Prairie economy in particular and to the Canadian economy as a whole. However, wheat is not the only grain grown in Canada; oats and barley (particularly in the Prairies) and corn (in Ontario) are essential to the Canadian livestock industry. In 1977 Prairie farmers grew 14 446 100 t of oats and barley and total Canadian production of these grains amounted to 15 818 400 t.

The oilseeds — rapeseed, flaxseed, soybeans and sunflower seeds — make up the third major type of field crop. These crops are processed to produce vegetable oils for human consumption or industrial use and high-protein meal for livestock feed. Production of rapeseed, flaxseed and sunflower seed is centred in the Prairie provinces, that of soybeans in Ontario. In 1977 there were 1 316 000 ha planted to rapeseed, 576 000 ha to flaxseed, 202 000 ha to soybeans and 67 000 ha to sunflower seeds. Production amounted to 1 744 000 t of rapeseed, 609 700 t of flaxseed, 517 100 t of soybeans and 79 400 t of sunflower seeds.

Outside the Prairies, field crop production is more diversified. The degree of emphasis placed on livestock production influences the kinds of field crops grown

and the proportion of land devoted to forage crops, pasture and feed grains. In Ontario, grain corn is an important crop for livestock feed as well as for industrial uses; in 1977 production amounted to 3 916 900 t. Grain corn is also becoming increasingly important in Quebec. Besides grain corn, Ontario also produced 10 673 000 t of fodder corn in 1977.

Although it is raised in relatively small areas, tobacco has a high cash value. Most of Canada's tobacco production is centred in Ontario, but some takes place in Quebec and a smaller amount in the Maritimes. Winter wheat and vegetables are other important sources of income for Ontario farmers.

Horticultural Crops

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. There are over 30 fruit and vegetable crops grown commercially in Canada. The annual farm value of these crops in 1976 amounted to \$570 million.

The Maritimes account for nearly 43 per cent of the potatoes produced in Canada.



By far the most important fruit crop grown in Canada is the apple, which accounts for over 43 per cent of the value of commercial Canadian fruits. Commercial apple orchards are found in Nova Scotia, New Brunswick, southern Quebec, Ontario and the interior of British Columbia, particularly in the Okanagan Valley. Tender tree fruits — pears, peaches, cherries and plums — are also grown in Ontario, with the most important concentration in the Niagara region. These 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. On land near urban areas many such operations are being rapidly converted from the traditional farm harvesting to "pick your own" harvesting. British Columbia fruit growers also produce loganberries commercially in the lower mainland and on Vancouver Island. Grapes are grown in the Niagara District of Ontario and in the Okanagan Valley of British Columbia; grape production has increased considerably in recent years, reflecting the increasing acceptance of Canadian wines. The native blueberry is found wild over large areas in Canada and is harvested in commercial quantities in the Atlantic provinces and Quebec; 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 outside of greenhouses, supplies of most fresh vegetables are imported from the US. During the growing season varying percentages of domestic requirements are met by Canadian crops. Some vegetables are exported from Canada, particularly to a few US metropolitan areas close to the border.

Most of Canada's tobacco production is centred in Ontario.





Tulips on a commercial flower farm near Victoria, BC.

Potatoes are the most important of the vegetables produced in Canada. All the provinces except Newfoundland produce potatoes commercially, with the Maritimes accounting for nearly 43 per cent of Canadian production. Soil and weather conditions combine to make regions within the Maritime provinces ideal potato-growing areas.

In 1976 the amount of fruit and vegetables consumed by Canadians increased an average of 12 kg (kilograms) per person from the previous year reflecting Canadians' increasing health consciousness. Most of the increase was attributed to consumption of fresh fruits and vegetables. Import of fresh and canned produce increased in 1976 to meet the greater demand.

Heavy imports of canned mushrooms in 1976 caused more producers to grow mushrooms for the fresh rather than the processing market. As a result, canned mushroom disappearance decreased and offset the slight increase in fresh disappearance.

Greenhouses are operated commercially in all provinces, however, Ontario consistently has the largest provincial sales with about 65 per cent of the Canadian market. In 1976 sales per firm increased about 6 per cent from 1975, however, this increase was somewhat offset by average fuel cost increases of 11 per cent. Tropical foliage and green plants had the largest sales increases.

In 1976 there were approximately 519 nursery operators in Canada with a total of 20 000 ha of land. Total sales by nurseries amounted to \$55 million. Approximately 58 per cent of the sales were in Ontario, the largest producing province.

Maple syrup is produced commercially in Nova Scotia, New Brunswick, Quebec and Ontario. In 1977 Canada produced 8 405 kL (kilolitres) of maple syrup, 189 t of maple sugar and 235 t of maple taffy. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous in both Canada and the US as the centre of the maple products industry.

Honey production was 9 per cent greater in 1977 than in 1976. Honey is produced commercially in all provinces except Newfoundland and honey bees are kept in some districts for the added purpose of pollinating certain fruit and seed crops. Yields naturally vary to some extent from year to year. Alberta, consistently the largest producer, supplied 35 per cent of Canada's honey crop in 1977.

Livestock

Total farm cash receipts in 1977 were \$10,172 million, up 1.3 per cent from 1976. Of this total \$5,246 million or 51.6 per cent, came from livestock and animal products. In 1976 receipts from livestock and animal products were \$4,996 million, or 49.8 per cent of total farm cash receipts.

On July 1, 1977, total cattle and calf numbers in Canada were estimated at 14,628,000, down 3 per cent from 15,154,500 on July 1, 1976. This reduction is a continuation of the downward part of the cattle cycle which commenced in 1975. As

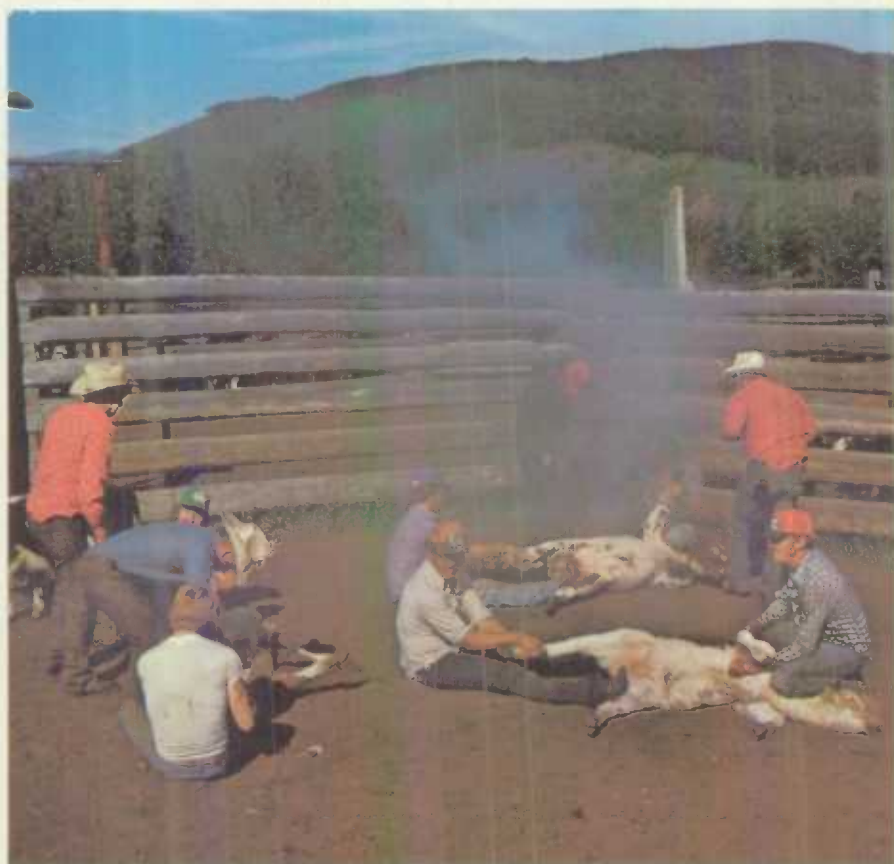
On July 1, 1977, there were 6,261,200 pigs in Canada.

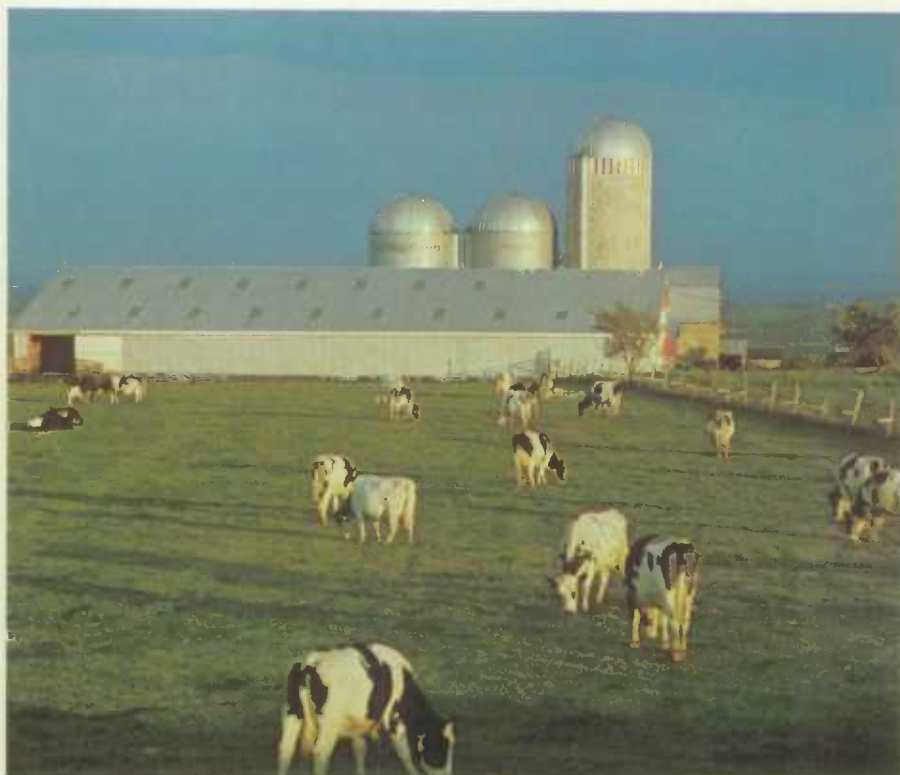


producers reduced the sizes of their herds, inspected slaughter of cattle in 1977 rose to 3,761,419 head, up 2 per cent from 1976, while calf slaughter was 645,591 in 1977, down 2 per cent. The average warm weight per carcass of the inspected slaughter in 1977 was 225.3 kg, down from 253.9 kg in 1976. The weighted average price per 100 kg of A1 and A2 steers weighing 453.6 kg and over at Toronto was \$98.10 in 1977, compared to \$92.35 in 1976. Cattle exports to the US for slaughter in 1977 were 327,240 head, up 7 per cent from 1976. However, imports dropped dramatically to only 9,847 head from 133,171 head in 1976.

On July 1, 1977, there were 6,261,200 pigs in Canada, up 7 per cent from July 1, 1976. Federally inspected slaughter of pigs in 1977 was 8,007,313 head, up 7 per cent from the 1976 slaughter of 7,493,245. Average warm weight per carcass in 1977 was 74.6 kg, unchanged from 1976. The increased slaughter caused the average weighted price at Toronto for Index 100 pigs to drop from \$141.31 per 100 kg in 1976 to \$134.41 in

Branding in Alberta.





Farming near Moncton, NB.

Table 1. Estimated meat production and disappearance, 1976 and 1977

Animal	Year	Animals slaughtered No.	Meat exports t	Production t	Domestic disappearance t	Per capita disappearance kg
Beef	1976	4,376,100	58 547	1 087 019	1 159 056	50.1
	1977	4,386,600	51 037	1 095 102	1 142 748	49.0
Veal	1976	973,600	...	52 055	51 422	2.2
	1977	984,500	...	47 807	48 620	2.1
Pork	1976	8,617,200	39 165	511 918	556 991	24.1
	1977	9,076,600	48 006	538 932	586 816	25.2
Mutton and lamb	1976	409,900	125	7 900	24 681	1.1
	1977	285,900	52	5 407	18 964	0.8
Offal	1976	...	27 149	62 817	38 172	1.6
	1977	...	28 589	63 660	38 198	1.6

... Not applicable.

Table 2. Per capita disappearance of meats on a cold dressed carcass weight basis
(kilograms)

Year	Beef	Veal	Mutton and lamb	Pork	Offal	Canned meat	Total
1940	24.7	4.9	2.0	20.3	2.5	0.6	55.0
1945	29.7	5.6	2.0	23.9	2.5	1.5	65.2
1950	23.0	4.3	1.0	24.9	2.2	2.3	57.8
1955	31.3	3.6	1.2	22.3	2.4	1.9	63.0
1960	31.6	3.1	1.3	23.9	2.2	2.9	65.1
1966 ¹	38.1	3.1	1.8	21.3	1.6	1.9	67.9
1967 ¹	37.7	3.2	1.9	24.7	1.8	2.1	71.4
1968 ¹	38.6	3.1	2.2	24.3	1.7	2.1	72.0
1969 ¹	38.6	2.3	2.3	23.3	1.7	2.1	70.5
1970 ¹	38.3	2.1	2.1	26.6	1.5	2.1	72.6
1971 ¹	40.5	2.1	1.5	31.0	2.0	..	77.1
1972	42.0	1.6	2.1	27.7	1.9	..	75.2
1973	41.6	1.4	1.7	26.1	1.6	..	72.5
1974	43.0	1.6	1.1	27.2	1.7	..	74.5
1975	46.4	2.4	1.3	23.1	1.5	..	74.7
1976	50.1	2.2	1.1	24.1	1.6	..	79.1
1977	49.0	2.1	0.8	25.2	1.6	..	78.7

¹ Intercensal revision.

.. Not available.

1977. Imports of pork in 1977 were 93 146 000 kg, up 4 per cent from 1976, while exports were 46 006 000 kg, up 21 per cent from 1976.

Sheep numbers continued their decline in 1977, and were estimated to be 532,500 head on July 1, down 5 per cent from 1976. Federally inspected slaughter of sheep and lambs in 1977 was 132,585 head, down 29 per cent from 1976. This caused the price at Toronto for lambs weighing 36.3 kg and over to increase to \$137.05 per 100 kg in 1977, compared to \$117.77 in 1976. Imports of sheep and lambs in 1977 were 38,000 head, down 38 per cent from 1976, and imports of mutton and lamb were 12 889 500 kg in 1977, down 22 per cent from the previous year.

Dairying

Estimates for July 1, 1977, placed the number of milk cows in Canada at 1,975,000. During 1977 they produced 7 742 784 000 kg of milk, with Ontario and Quebec together accounting for 74.6 per cent of the total. Manufactured products accounted for 61.1 per cent of total milk production, fluid use accounted for 31.7 per cent and milk used in farm homes and fed to livestock accounted for the remaining 7.2 per cent. Farm value of milk production, including supplementary payments, was \$1,693 million, 6.3 per cent greater than in 1976. The number of farms reporting dairy cows in the 1976 Census was 96,900, compared with 145,300 in 1971. Of these farms 91,300 had incomes of over \$1,200 in 1976, compared with 129,800 farms in 1971.

Table 3. Milk production and utilization, by regions, 1976 and 1977
(tonnes)

Region	Year	Total milk production	Milk used in manufacturing	Milk used for fluid purposes	Milk used on farms
Maritimes	1976	361 216	159 292	179 004	22 920
	1977	360 654	157 837	182 733	20 084
Quebec and Ontario	1976	5 728 048	3 738 047	1 553 647	436 354
	1977	5 774 255	3 835 426	1 571 380	367 449
Prairies	1976	1 144 864	590 621	397 881	156 362
	1977	1 146 244	592 114	421 727	132 403
British Columbia	1976	451 120	142 715	269 425	38 980
	1977	461 631	146 187	276 774	38 670
Totals, Canada	1976	7 685 248	4 630 675	2 399 957	654 616
	1977	7 742 764	4 731 564	2 452 614	558 606



Poultry and Eggs

A high degree of specialization and concentration has been developing recently in the production of poultry and eggs, particularly in the egg, broiler chicken and turkey industries. The producers of eggs, turkeys and broiler chickens operate within the constraints of supply-management programs directed by provincial producer marketing boards. The activities of egg producers and turkey producers at the provincial level are co-ordinated by national agencies (the Canadian Egg Marketing Agency and the Canadian Turkey Marketing Agency, respectively), which operate under federal government charters.

Table 4. Summary of supply and disposition of poultry meat¹ and eggs, 1976 and 1977

	Fowl and chicken ('000 kg)		Turkey ('000 kg)		Eggs ('000 doz)	
	1976	1977	1976	1977	1976	1977
Stocks at January 1	9 685	18 511	12 109	15 625	4,291	2,944
Production	348 798	358 740	93 171	96 499	454,466	458,678
Imports	24 961	22 095	8 664	2 495	12,238	9,713
Total	383 444	399 346	111 944	114 619	470,995	471,335
Exports	698	1 063	341	278	2,682	8,257
Stocks at December 31	18 511	14 682	15 625	17 063	2,944	4,823
Eggs used for hatching . . . .	...	...	...	...	24,445	25,487
Domestic disappearance . .	364 235	383 601	95 976	97 278	440,924	432,968
	(kg)		(kg)		(doz)	
	1976	1977	1976	1977	1976	1977
Per capita consumption	15.7	16.4	4.1	4.2	19.1	18.6

¹ Eviscerated weight.

... Not applicable.

Furs

Fur statistics have been collected and published annually since 1920. The value of wildlife pelts in 1976-77 was \$47,505,072, or 66 per cent of total pelts; the value of fur farm pelts increased from \$19,739,019 to \$24,316,500 for the 1976-77 season.

Table 5. Number and value of pelts produced, by kind, 1975-76 and 1976-77

Kind	1975-76			1976-77		
	Number	Value \$	Average value \$	Number	Value \$	Average value \$
Wildlife						
Badger	5,124	156,441	30.53	6,834	261,713	38.30
Bear:						
Black or brown	3,531	154,523	43.76	3,402	149,444	43.93
Grizzly	8	1,520	190.00	6	1,350	225.00
White	406	192,700	474.63	530	310,165	585.22
Beaver	334,924	6,723,401	20.07	404,625	9,836,998	24.31
Cougar	58	9,570	165.00	—	—	—
Coyote or prairie wolf	61,779	3,150,383	50.99	65,819	3,933,303	59.76
Ermine (weasel)	76,199	68,113	0.89	102,998	106,210	1.03
Fisher	8,698	702,997	80.82	9,664	921,795	95.38
Fox:						
Blue	116	6,599	56.89	467	18,253	39.09
Cross and red	55,064	2,555,659	46.41	52,914	3,049,971	57.64
Silver	583	26,738	45.86	868	46,176	53.20
White	26,797	724,678	27.04	36,375	1,299,359	35.72
Not specified	10,125	559,508	55.26	11,674	604,130	51.75
Lynx	13,162	2,845,416	218.18	15,132	3,317,503	219.24
Marten	53,108	910,787	17.15	102,632	2,044,210	19.92
Mink	69,901	1,106,189	15.82	116,537	2,292,318	19.67
Muskra ¹	2,102,016	7,412,311	3.53	2,554,879	10,719,316	4.20
Otter	18,005	1,156,879	72.27	19,932	1,376,188	69.04
Rabbit	865	131	0.15	1,547	356	0.23
Raccoon	79,253	1,513,928	19.10	99,339	2,212,625	22.27
Seal:						
Fur seal — North Pacific ¹ ..	8,609	232,067	35.11	5,181	330,185	63.73
Hair seal ^{2,3}	181,082	2,907,054	16.05	170,625	3,148,221	18.45
Skunk	747	1,102	1.48	1,256	2,794	2.22
Squirrel	445,507	320,128	0.72	823,621	644,809	0.78
Wildcat	3,103	295,069	95.09	3,459	320,216	92.57
Wolf	4,879	300,667	61.62	6,150	388,569	83.18
Wolverine	871	133,497	153.27	925	168,897	182.59
Sub-total - Wildlife	3,540,520	34,167,853	...	4,617,391	47,505,072	...
Ranch-raised⁴:						
Fox	1,962	358,594	181.75	2,130	497,291	233.47
Mink	955,754	19,382,425	20.28	911,330	23,819,209	26.14
Sub-total - Ranch-raised	957,716	19,739,019	...	913,460	24,316,500	...
Total	4,498,236	53,906,872	...	5,530,851	71,821,572	...

¹ Commonly known as Alaska Fur seal. The value figures are on the net returns to the Canadian government for pelts sold.

² Includes data for the Maritime provinces.

³ Hair seal data are based on calendar years 1976 and 1977, except for the Northwest Territories, which are on a fur year ending June 30.

⁴ Ranch-raised data are based on calendar years 1975 and 1976.

... Not applicable.

— Nil or zero.



A lumber mill at Port Alberni, BC.

Forestry

Canada's forests are among our greatest renewable resources. Stretching across the continent in an unbroken belt 500 to 2 100 km 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, shelter and sustain wildlife and offer unmatched opportunities for human recreation and enjoyment.

Forest land — that available for producing usable timber — covers more than 1 635 000 km² (square kilometres). The total volume of wood on these lands is estimated at 17 230 million m³ (cubic metres), of which four-fifths is coniferous and one-fifth deciduous.

Seventy-five per cent of Canada's productive forest area is known as the boreal forest; it stretches 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, eastern white cedar and fir; the main deciduous trees are yellow birch, maple, oak and basswood.

Entirely different in character is the coastal region of British Columbia. Here the forests are coniferous and, because of a mild, humid climate and heavy rainfall, very large trees are common — 60 m (metres) tall and more than 2 m in diameter. This region contains less than 2 per cent of the country's forest area, but supplies almost one-quarter of the wood cut. Species are western red 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

Ninety 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 5 per cent of the country's productive forest land, the forests are administered by the federal government.

Forest industry in Newfoundland.





A sawmill at Okanagan Falls, BC.

For many years the policy of both 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 64 per cent 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

The forest industries group includes logging, the primary wood and paper manufacturing industries, which use roundwood as their chief raw material, and the secondary wood and paper industries, which use lumber, wood pulp and basic paper as raw materials to be converted into numerous wood and paper products. This group of industries accounted for approximately 18.1 per cent of all Canadian exports in 1976, up from 15.6 per cent in 1975 mainly because of large increases in the quantity and value of wood and paper products exported to the United States.

Logging. Production consisting of sawlogs, veneer logs, pulpwood, poles and other roundwood products increased from 115 263 000 m³ in 1975 to 140 274 000 m³ in 1976. Sawlog production increased substantially, from 73 543 000 m³ in 1975 to 98 278 000 m³ in 1976, during this same period there was a small decrease in pulpwood

production east of the Rockies from 37 063 000 m³ to 36 836 000 m³. British Columbia showed the largest increase in overall production, up from 50 077 000 m³ in 1975 to 69 528 000 m³ in 1976.

The value of exports of roundwood increased about 8 per cent, from \$46 million in 1975 to \$50 million in 1976. Exports of sawlogs, logs and bolts were up by 36 per cent in quantity and 11 per cent in value in 1976.

The value of shipments by the logging industry in 1976 was \$3,213 million, up from \$2,474 million in the previous year as a result of both increased unit values and increased quantities shipped.

In 1976, 42,185 people were employed in logging, a decrease of about 9 per cent from 1975; wages in 1976 were \$639 million, compared to \$588 million in 1975.

Sawmills and Planing Mills. This industry is particularly dependent upon the general economic condition of the country and the state of foreign markets, particularly the market in the US. Because of substantial increases in residential construction starts in Canada and particularly in the US, the lumber market grew steadily throughout most of 1976. Lumber production in Canada increased about 34.2 per cent to an estimated 36 647 thousand m³ in 1976 from the 27 305 thousand m³ recorded in 1975. Exports of Canadian lumber rose 47.6 per cent from 15 456 thousand m³ in 1975 to 22 817 thousand m³ in 1976. The long-term trend toward increased size of individual sawmills and 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.

Canada is by far the largest producer of newsprint in the world. This newsprint machine is located at Grand'Mère, Que.





Logs in transit by waterway on Kenogami Lake, Que.

Pulp and Paper. The manufacture of pulp and paper has been Canada's leading industry for many years. Although it is not growing as quickly as some other manufacturing industries in Canada, it still ranks first in employment, in salaries and wages paid and in value added by manufacture. The manufacturing value added by this one industry in 1976 accounted for 1.5 per cent of Canada's total GNP and it contributed 12 per cent to the total value of domestic exports in 1976 (11.9 per cent in 1975). Canada is the second largest producer of wood pulp in the world (19 800 000 t in 1976), after the US (43 743 541 t), and the largest exporter. It is by far the largest producer of newsprint (8 900 000 t in 1976, which is close to 40 per cent of the world total).

Although the pulp and paper industry is engaged primarily in the manufacture of wood pulps and basic papers and paperboard, it also produces converted papers and paperboards and even chemicals, alcohol and other byproducts. More than 68 per cent of the wood pulp manufactured in 1976 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 33 per cent of the total value of production in 1976. It is followed by British Columbia, with 29 per cent, and Ontario, with 17 per cent.

Paper-converting Industries. These include asphalt roofing manufacturers, paper box and bag manufacturers and other paper converters. In 1976 this group had 514 establishments (518 in 1975), employed 42,912 persons (43,296 in 1975) and paid \$522,000,000 in salaries and wages (\$461,404,000 in 1975); the value of factory shipments set a new record of \$2,235,972,000 (\$2,009,522,000 in 1975). In contrast to the basic pulp and paper industry the paper-converting industries are dependent primarily on the domestic market.

Table 6. Principal statistics of the pulp and paper industry, 1973-76

Item		1973	1974	1975	1976
Establishments.....	No.	146	147	147	147
Employees.....	No.	80,085	86,203	84,046	86,995
Salaries and wages.....	\$'000	884,242	1,097,108	1,091,675	1,415,843
Value of shipments of goods of own manufacture.....	\$'000	3,790,939	5,703,192	5,122,093	5,992,723
Value added—manufacturing activity.....	\$'000	1,803,889	3,033,697	2,569,650	2,845,278
Pulp shipped.....	'000 t	7 199	7 603	5 649	6 768
	\$'000	1,301,486	2,205,290	1,982,617	2,254,714
Paper and paperboard shipped.....	'000 t	12 213	12 853	9 891	11 341
	\$'000	2,252,280	3,225,962	2,861,471	3,383,315
Newsprint exported.....	'000 t	7 617	7 846	6 348	6 997
	\$'000	1,285,928	1,721,768	1,741,990	1,997,371

Other Wood Industries. This group includes the shingle mills, veneer and plywood mills and particleboard plants that, like the sawmills and pulp and paper mills, are primary wood industries. It also includes the secondary wood industries that further manufacture lumber, plywood and particleboard into flooring, doors, sashes, laminated structures, prefabricated buildings, boxes, barrels, caskets and woodenware. In 1976 the veneer and plywood industry, the single most important of this group, accounted for \$583,836,000 in shipments of goods of own manufacture and paid their manufacturing employees \$146,722,000 in salaries and wages.

*Very large trees are common
in British Columbia.*





Nets and fishing boats near Prince Rupert, BC.

Fisheries

After several years of steadily declining catches, Canada's fish harvest in 1977 showed positive evidence of increased catches, together with the promise of a resurgence of the nation's oldest primary industry.

Total landings in Canada in 1977 amounted to 1 254 900 t, compared to 1 101 500 t in 1976. Landed value of the catch totalled \$485 million, up \$95 million from the previous year.

The value of Canadian exports of fishery products continued to rise, with the 1977 total valued at \$816 million, up by \$115 million over 1976. Following the trend of previous years, some 76 per cent of Canadian exports went to the US and to European countries.

Canada continued to play a major role at the United Nations (UN) Law of the Sea negotiations, seeking support of changes in international sea law. On January 1, 1977, the government officially extended Canadian fishing jurisdiction to 200 miles off both east and west coasts. Landings on the Atlantic Coast in 1977 totalled 1 003 100 t, up 112 200 t from the previous year. The 1977 landed value of the



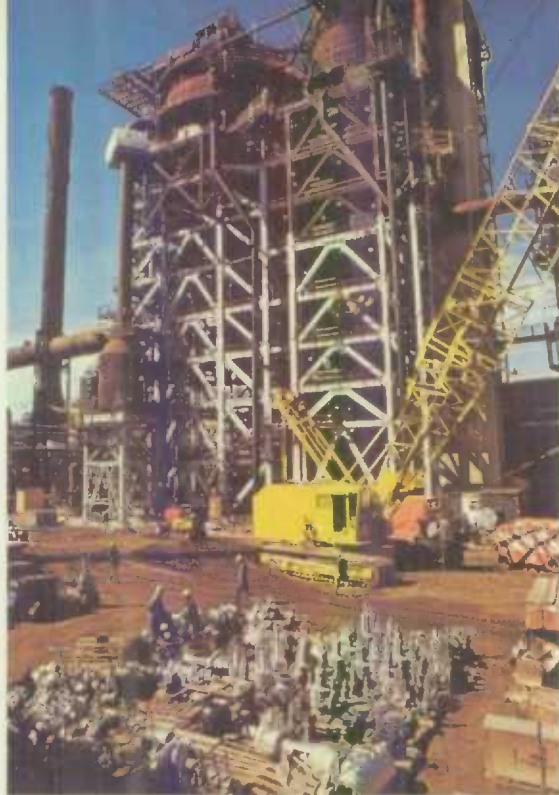
*The mending of nets near
Caraquet, NB.*

Atlantic catch was \$263.6 million up \$39.3 million over 1976 values. An increase in salmon catches was a contributing factor in an overall increase in Pacific Coast landings. The 1977 total of 204 800 t, up 23 900 t from the previous year, meant a \$26 million increase in landed value for Pacific Coast fishermen. The market value of all Canadian fisheries products in 1977 was an estimated \$1,230 million, an increase of approximately \$279 million over 1976.

The number of commercial fishermen in Canada was approximately 64,000, of which some 65 per cent were located on the Atlantic Coast and 21 per cent on the Pacific Coast; the remainder were engaged in the inland fisheries. The size of the fishing fleet operating in the sea fisheries was approximately 36,000 vessels.

Alert Bay, BC.





A fluid coker under construction. Coking starts the process of bitumen upgrading.

Minerals and Energy

Minerals

The value of production of Canadian minerals increased to \$18,144 million in 1977, from \$15,448 million in 1976 and \$13,347 million in 1975. Metallic minerals accounted for 31 per cent of the value of Canadian mineral production in 1977. In order of importance, the principal metallic minerals produced in Canada were iron ore, nickel, copper, zinc, gold, silver and lead. Headed by crude oil and natural gas, mineral fuels accounted for 55 per cent of the total value of production. Non-metallic minerals and structural materials accounted for 14 per cent. The main structural materials were cement, sand and gravel, and stone; the non-metallic minerals group was dominated by asbestos, followed by potash and salt. The leading mineral commodity in 1977 was crude oil, with a production value of \$4,917 million, up from \$4,054 million in 1976 and \$423 million in 1960.

Nickel production in Canada in 1977 amounted to 235 362 t valued at \$1,197 million, a decrease from 240 825 t valued at \$1,146 million in 1976. Most of Canada's nickel was mined in the Sudbury, Ont., region by INCO Limited and Falconbridge Nickel Mines Limited.

Copper production in 1977 amounted to 780 633 t, valued at \$1,196 million; the figures for 1976 were 730 930 t and \$1,101 million. Canada ranks fourth in the production of copper in the western world. The major producing provinces were British Columbia (291 757 t), Ontario (279 567 t) and Quebec (107 686 t).

Table 7. Mineral production, by class, 1966-77
(million dollars)

Year	Metals	Non-metals	Fossil fuels	Structural materials	Total
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	507	5,963
1972	2,956	513	2,368	571	6,408
1973 [†]	3,850	615	3,227	678	8,370
1974 [†]	4,821	896	5,202	835	11,753
1975 [†]	4,795	939	6,653	959	13,347
1976 [†]	5,073	1,162	8,109	1,103	15,448
1977	5,601	1,367	10,012	1,164	18,144

[†] Revised figures.

Figures may not add to totals owing to rounding.

Table 8. Mineral production, by province, 1975-77

Province or territory	1975 [†]		1976 [†]		1977 ¹	
	Value \$'000	%	Value \$'000	%	Value \$'000	%
Newfoundland	550,958	4.1	745,029	4.8	845,531	4.7
Prince Edward Island	1,787	--	1,684	--	1,800	--
Nova Scotia	101,826	0.8	125,124	0.8	151,923	0.8
New Brunswick	231,656	1.7	236,001	1.5	267,827	1.5
Quebec	1,232,110	9.2	1,493,050	9.7	1,631,618	9.0
Ontario	2,353,908	17.6	2,526,459	16.4	2,712,839	14.9
Manitoba	530,237	4.0	511,852	3.3	532,833	2.9
Saskatchewan	862,161	6.5	918,901	5.9	1,120,512	6.2
Alberta	5,749,818	43.1	6,934,948	44.9	8,525,712	47.0
British Columbia	1,296,234	9.7	1,605,200	10.4	1,893,008	10.4
Yukon Territory	230,150	1.7	124,792	0.8	210,252	1.2
Northwest Territories	206,349	1.6	224,614	1.5	250,358	1.4
Total	13,346,994	100.0	15,447,855	100.0	18,144,213	100.0

[†] Revised figures.

¹ Preliminary estimates.

-- Figures too small to be expressed.

Figures may not add to totals owing to rounding.



This motor control centre controls an automatic system of conveyors, crushers and screens for processing rock salt at a salt mine near Goderich, Ont. The room is cut out of a salt deposit 510 metres below the surface of Lake Huron.

Iron ore production in 1977 amounted to 51 754 000 t worth \$1,360 million; in 1976 it was 55 416 346 t worth \$1,223 million. Zinc production was 1 054 528 t, valued at \$814 million in 1977; in 1976, 982 057 t worth \$815 million were mined.

Asbestos production in 1977 was 1 543 000 t, valued at about \$564 million. Eighty-two per cent of the asbestos produced in Canada came from the province of Quebec; the rest came from British Columbia, the Yukon Territory, Newfoundland and Ontario. Canada produces over 40 per cent of the world's total supply of asbestos and is the world's leading producer.

Cement was the most important structural material produced in Canada, with about two-thirds of the production coming from Ontario and Quebec.

Among the minerals of previously lesser importance whose production has increased significantly in the past few years are potash, molybdenum and coal.

The value of Canadian potash production increased from less than \$1 million in 1960 to \$421 million in 1977, as a number of mines were opened in Saskatchewan between 1962 and 1970. About 95 per cent of the world's potash is used as fertilizer.

Canada is second only to the US among the producers of molybdenum. The value of production increased from \$1 million in 1960 to \$147 million in 1977, with over 90 per cent of the Canadian production coming from British Columbia.

Elemental sulphur production increased from 4 029 427 t in 1976 to 4 910 000 t in 1977 and its value increased to \$73 million from \$70 million. 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.

Although gold production increased slightly to 53 404 kg in 1977 from 52 621 kg in the previous year, its value increased to \$268 million from \$208 million in 1976 because of increases in world prices.

Petroleum and Natural Gas

Awareness of the energy sector as a key determinant of economic well-being has increased in the last five years. Of the industrialized countries, Canada is uniquely endowed with significant reserves of most forms of energy. Canada's proven reserves of hydrocarbon energy represent the equivalent of 12 years production for oil and 25 years for gas.

Installing pipe near Portage la Prairie, Man. to complete TransCanada's fourth line across Western Canada.



Table 9. Mineral production, by kind, 1976 and 1977

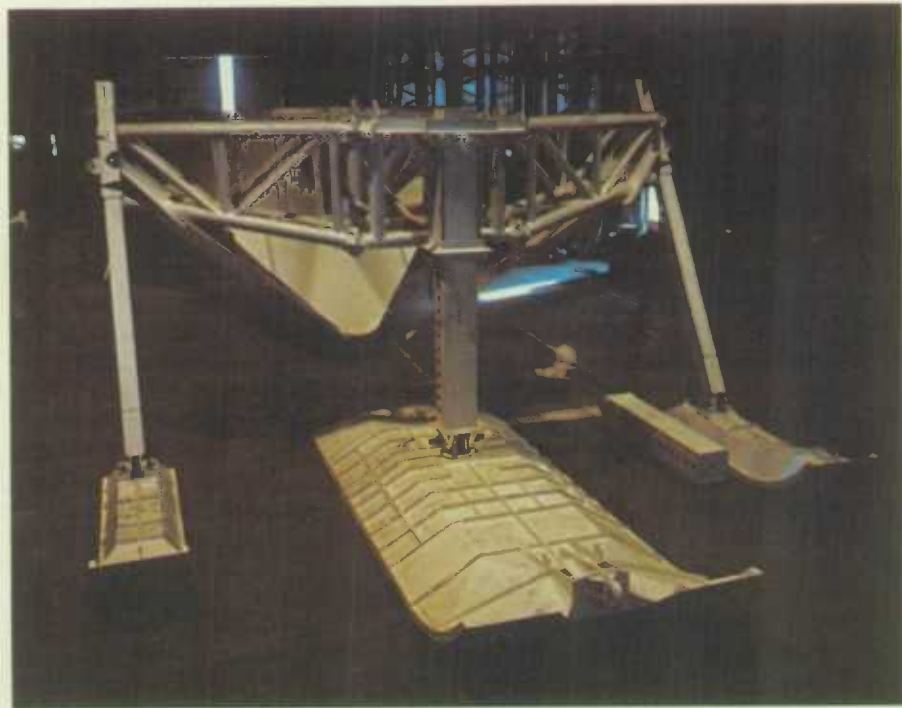
Mineral	Unit	1976	1977 ¹
		'000	'000
Metallics			
Antimony	kg	..	..
Bismuth	kg	130	140
Cadmium	kg	1 314	1 199
Calcium	kg	514	568
Cobalt	kg	1 356	1 508
Columbium (Cb ₂ O ₅)	kg	1 499	2 540
Copper	kg	730 930	780 633
Gold	kg	53	53
Indium	kg	6	..
Iron ore	t	55 416	51 745
Iron, remelt.	t	..	..
Lead	kg	256 324	284 119
Magnesium	kg	6 092	7 580
Molybdenum	kg	14 619	16 431
Nickel	kg	240 825	235 362
Platinum group	kg	13	15
Selenium	kg	110	207
Silver	kg	1 281	1 330
Tantalum (Ta ₂ O ₅)	kg	..	..
Tellurium	kg	49	36
Tin	kg	274	317
Tungsten (WO ₃)	kg	2 168	..
Uranium (U ₃ O ₈)	kg	6 635	7 020
Zinc	kg	982 057	1 054 528
Non-metallics			
Asbestos	t	1 536	1 543
Barite	t	..	..
Fluorspar	t	..	..
Gemstones	kg	..	..
Gypsum	t	6 002	7 040
Magnesitic dolomite and brucite	t	..	..
Nepheline syenite	t	540	580
Nitrogen	m ³	..	..
Peat	t	394	394
Potash (K ₂ O)	t	5 215	5 910
Pyrite, pyrrhotite	t	31	19
Quartz	t	2 396	2 362
Salt	t	5 994	5 933
Soapstone, talc, pyrophyllite	t	69	73
Sodium sulphate	t	460	416
Sulphur in smelter gas	t	705	766
Sulphur, elemental	t	4 029	4 910
Titanium dioxide, etc.	t	..	..
Mineral fuels			
Coal	t	25 476	28 394
Natural gas	m ³	87 649 797	69 530 846
Natural gas by-products	m ³	16 841	17 006
Petroleum, crude	m ³	76 438	77 179

Table 9. Mineral production, by kind, 1976 and 1977 (concluded)

Mineral	Unit	1976	1977 ¹
		'000	'000
Structural materials			
Clay products (bricks, tile, etc.) .....		..	..
Cement	t	9 624	9 605
Lime	t	1 850	1 759
Sand and gravel	t	249 159	243 850
Stone	t	87 876	89 267

¹ Preliminary estimates.
.. Not available.

This gigantic underwater plow was designed to plow a trench in the Arctic sea floor where pipe will be buried and be protected from ice damage.





The largest bucket-wheel excavator of this type, ever operating in North America, was recently commissioned for service at Great Canadian Oil Sands in Fort McMurray, Alta. This self-propelled giant stands about ten stories high.

In 1977 the petroleum industry extracted about \$9,342 million worth of hydrocarbon products, an increase of 16.9 per cent over 1976. The increase in value is primarily the result of price increases as the volume of crude production increased only 0.2 per cent to 77 143 000 m³ (cubic metres) while natural gas production increased 2.1 per cent to 89 531 000 000 m³. Natural gas liquids production increased 2.1 per cent to 16 989 000 m³.

Domestic sales of refined petroleum products were 96 468 000 m³ in 1977 including 35 779 000 m³ of motor gasoline, 30 889 000 m³ of middle distillates, 16 513 000 m³ of heavy fuel oils and 13 287 000 m³ of other products.

To develop new reserves as production depletes present supplies, \$3,081.1 million was spent in 1977. Eighty-one per cent of this expenditure was in Alberta, 5 per cent in British Columbia, 6 per cent in Saskatchewan and 5 per cent in the Northwest Territories. In production Alberta accounted for 85 per cent, British Columbia 11 per cent, Saskatchewan 3 per cent and all other areas one per cent. In addition to conventional reserves Canada possesses significant volumes of bituminous tar sands. According to an appraisal of the Alberta Energy Resources Conservation Board the ultimate recoverable reserves of synthetic crude oil from all Alberta's bituminous deposits amounts to 39 700 000 000 m³ of which 4 200 000 000 m³ is considered recoverable by methods similar to those now in use at the two plants operating near Fort McMurray. Other techniques will be needed to recover the remainder of the resource.



Installing a gas main in Gander, Ont.

Coal

Production of coal in Canada increased from 25 476 000 t in 1976 to 28 520 000 t in 1977. The preliminary value of coal production in 1977 increased to \$670 million from \$607 million in 1976. Japanese steel producers, Canada's main export customers, accounted for approximately 95 per cent of all coal exports.

Table 10. Production of coal, by province, 1976 and 1977

Province	Type of coal	1976	1977 ¹
		Tonnes '000	
Nova Scotia	Bituminous	2 000	2 165
New Brunswick	Bituminous	296	277
Saskatchewan	Lignite	4 678	5 479
Alberta	Sub-bituminous	6 410	7 725
	Bituminous	4 583	4 289
	Total Alberta	10 993	12 014
British Columbia	Bituminous	7 509	8 585
Total		25 476	28 520

¹ Preliminary estimates.

Electricity

Canada's total generating capacity increased from a modest 133 MW (megawatts) in 1900 to approximately 66 396 MW in 1976.

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 hydroelectric 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 hydroelectric 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 an undesirable factor.

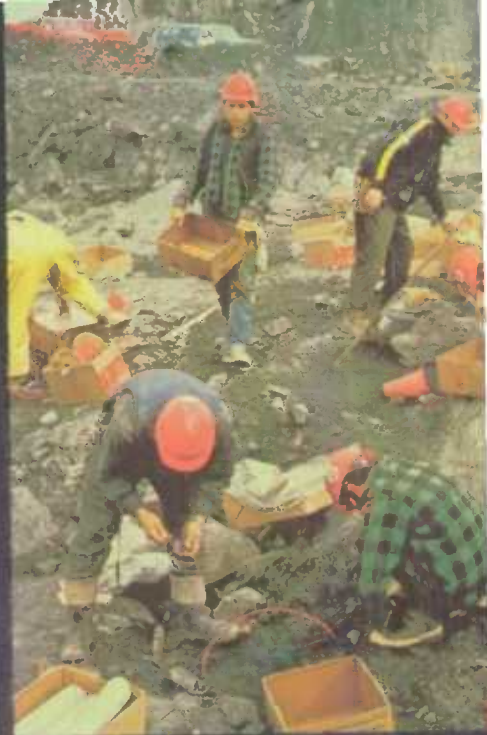
The marked trend toward the development of thermal stations that became apparent in the 1950s can be explained to some extent by the fact that, in many parts of Canada, most of the hydroelectric sites within economic transmission distance of load centres have been developed and planners have had to turn to other sources of electrical energy. Although recent advances in extra-high voltage transmission techniques have given impetus to the development of hydroelectric sites previously considered too remote, thermal stations will probably be the more important of the two sources in the long run.

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 hydroelectric plant at Churchill Falls in Labrador, with its 5 225 MW capacity, is the largest single generating plant of any type in the world. Quebec, however, 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 will double as plans for the development of a number of rivers flowing into James Bay become a reality; this development could result ultimately in an additional 10 000 MW.

Conventional Thermal Power. Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Saskatchewan, Alberta and the Northwest Territories depend on thermal stations for most of their power requirements. Quebec's wealth of water power has so far limited the application of thermal power in that province to local use and the James Bay project will maintain hydro pre-eminence. Manitoba and British Columbia both have substantial amounts of thermal capacity, but current development is still of hydroelectricity.

Nuclear Thermal Power. Development of commercial electric power generation in thermal plants using the heat generated by nuclear reactors is one of Canada's major contributions 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 MW. 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 MW. The second project is a four-unit 2 160 MW capacity plant built at Pickering, east of Toronto; its four units came on line from 1971 to 1973. Both the Douglas Point and the Pickering plants use heavy water as a coolant. The third nuclear plant is a 250 MW unit situated at Gentilly, Que.; it uses boiling light water as a coolant. The fourth plant is the 3 200 MW Bruce Station in Ontario, scheduled for completion by 1978.

Power Generation and Utilization. In 1976 Canada's generating facilities produced 294 043 430 MWh (megawatt hours) of electric energy, 73 per cent in hydroelectric stations. Energy exported to the US exceeded by 9 214 008 MWh the energy imported, bringing the total available to Canadian users to 284 829 422 MWh. Average domestic and farm consumption continues to rise year by year. In 1976 it was 9 802 kWh (kilowatt hours), ranging from a low of 6 187 kWh in Prince Edward Island to a high of 12 342 kWh in the Yukon Territory. The average annual bill for domestic and farm customers was \$214.16.

A large generating station, south of the Battle River near Forestburg, Alta. Capacity of the plant is currently 366 megawatts.





Employment

The Labour Force

In 1977 the Canadian labour force averaged 10,616,000 persons, or 61.5 per cent of the total population 15 years of age and over (excluding inmates of institutions, full-time members of the Canadian Armed Forces, residents of the Yukon Territory and the Northwest Territories and residents of Indian reserves); it was composed of

Table 1. Labour force characteristics, annual averages, 1971-77

Year	Population ¹ '000	Labour force '000	Employed '000	Unemployed '000	Participation rate %	Unemployment rate %
1971	14,878	8,643	8,107	536	58.1	6.2
1972	15,227	8,918	8,363	555	58.6	6.2
1973	15,608	9,321	8,802	519	59.7	5.6
1974	16,039	9,704	9,185	519	60.5	5.3
1975	16,470	10,060	9,363	697	61.1	6.9
1976	16,873	10,308	9,572	736	61.1	7.1
1977	17,250	10,616	9,754	862	61.5	8.1

¹ Persons 15 years of age and over, excluding inmates of institutions, full-time members of the Canadian Armed Forces, residents of the Yukon Territory and the Northwest Territories and residents of Indian reserves.



Processing potatoes in Prince Edward island.

9,754,000 employed and 862,000 unemployed persons. Table 1 shows the growth in this labour force during the 1971-77 period. From 1971 to 1975 this growth was generated by increases in both the size of the population aged 15 and over and the participation rate. In 1976 the overall participation rate levelled off, but increased slightly in 1977. The main source of growth in the participation rate continued to be the rate for women of all ages.

Table 2 shows an employment increase of 182,000 between 1976 and 1977, with women accounting for 59 per cent of this growth and men making up the balance of 41 per cent. Between 1976 and 1977 persons aged 15 to 24 years accounted for 20,000 or 11 per cent of total employment growth, which is in marked contrast with their 34 per cent share of the growth between 1971 and 1975. The growth from 1976 to 1977 for those aged 25 years and over was 162,000, or 89 per cent.

Table 2. Employment by age and sex, annual averages, 1971-77
(thousands)

Age and sex	1971	1972	1973	1974	1975	1976	1977
Total employed	8,107	8,363	8,802	9,185	9,363	9,572	9,754
Men	5,332	5,476	5,711	5,919	5,966	6,038	6,113
Women	2,775	2,887	3,091	3,266	3,397	3,534	3,642
Employed aged 15-24	1,984	2,078	2,250	2,401	2,410	2,429	2,449
Men	1,084	1,142	1,243	1,330	1,325	1,328	1,342
Women	899	936	1,006	1,071	1,086	1,102	1,108
Employed aged 25+	6,123	6,285	6,552	6,784	6,952	7,143	7,305
Men	4,247	4,334	4,467	4,588	4,641	4,711	4,771
Women	1,876	1,951	2,085	2,195	2,311	2,432	2,534

Table 3 shows the distribution of unemployment by principal age and sex groups for 1971 and 1977 and the shift in the proportions of total unemployment from adult men to adult women and persons aged 15 to 24 years. Specifically, men aged 25 years and over represented 35 per cent of the unemployed in 1971 but only 26 per cent in 1977, while women in the same age group increased from 18 per cent to 23 per cent and persons aged 15 to 24 years moved from 46 per cent to 48 per cent. Table 3 also shows that the range in provincial unemployment rates increased between 1971 and 1977.

Table 3. Unemployment by age and sex and by province, annual averages, 1971 and 1977

Age and sex	No. unemployed		Province	Unemployment rate	
	1971 '000	1977 '000		1971 %	1977 %
Total unemployed	536	862	Nfld.	8.8	15.9
Men	339	481	PEI	-	10.0
Women	197	380	NS	6.9	10.7
Unemployed aged 15-24	247	414	Que.	7.3	10.3
Men	149	236	Ont.	5.4	7.0
Women	98	178	Man.	5.7	5.9
Unemployed aged 25+	289	447	Alta.	5.7	4.4
Men	190	246	BC	7.2	8.5
Women	99	202			

- Based on too small a sample for publication.

Earnings and Hours of Work

Statistics Canada obtains information on average weekly earnings, average weekly hours and average hourly earnings from its monthly survey of Employment, Payrolls and Manhours. The survey covers larger companies that have 20 or more employees in any month of the year; these companies account for almost 75 per cent of the total commercial non-agricultural employment in Canada.

Average Weekly Earnings. Average weekly earnings of all employees in all of the industries surveyed were \$249.95 in 1977; this was a 9.6 per cent rise from the 1976 level. The industrial gains ranged from 6.7 per cent in service to 11.7 per cent in construction. Among the provinces, gains ranging from 9.1 per cent in Ontario to 10.6 per cent in Alberta were recorded.

Table 4. Average weekly earnings for all employees, selected industries and industrial composite¹, annual averages, 1961, 1976 and 1977

Industry and province	Average weekly earnings (dollars)			Percentage increase	
	1961	1976 ²	1977 ²	1961 to 1977 ²	1976 ² to 1977 ²
Industry					
Forestry.....	79.02	287.36	312.81	295.9	8.9
Mining, incl. milling.....	95.57	317.13	348.12	264.3	9.8
Manufacturing.....	81.55	241.19	266.04	226.2	10.3
Durables.....	88.22	257.46	284.66	222.7	10.6
Non-durables.....	76.17	225.60	248.39	228.1	10.1
Construction.....	86.93	331.02	369.88	325.5	11.7
Transportation, communications and other utilities.....	82.47	262.02	291.14	253.0	11.1
Trade.....	64.54	176.59	190.96	195.9	8.1
Finance, insurance and real estate.....	72.82	213.71	229.57	215.3	7.4
Service.....	57.87	160.49	171.28	196.0	6.7
Industrial composite ¹	78.24	228.03	249.95	219.5	9.6
Industrial composite by province					
Newfoundland.....	71.06	221.63	242.43	241.2	9.4
Prince Edward Island.....	54.91	170.88	187.73	241.9	9.9
Nova Scotia.....	63.72	193.21	212.09	232.9	9.8
New Brunswick.....	63.62	202.56	223.34	251.1	10.3
Quebec.....	75.67	222.41	244.77	232.5	10.1
Ontario.....	81.30	228.72	249.46	206.8	9.1
Manitoba.....	73.66	208.55	227.95	209.5	9.3
Saskatchewan.....	74.38	214.87	235.61	216.8	9.7
Alberta.....	60.29	236.89	261.96	226.3	10.6
British Columbia.....	84.99	259.52	284.13	234.3	9.5

¹ "Industrial composite" is the sum of all industries except 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.

² Data for 1978 and 1977 are preliminary.

Table 5. Average hourly earnings and average weekly hours for hourly-rated wage-earners, annual averages, 1961, 1976 and 1977

Industry and province	Average hourly earnings (AHE)			Average weekly hours (AWH)			Increases in AHE		Changes in AWH	
							1961 to 1977 ¹	1976 ¹ to 1977 ¹	1961 to 1977 ¹	1976 ¹ to 1977 ¹
	1961 \$	1976 ¹ \$	1977 ¹ \$	1961 No.	1976 ¹ No.	1977 ¹ No.	%	%	%	%
Industry										
Mining, incl. milling	2.13	7.40	8.11	41.8	40.3	40.6	280.8	9.6	-2.9	+0.7
Manufacturing	1.83	5.76	6.38	40.6	38.7	38.7	246.6	10.8	-4.7	-
Durables	2.00	6.13	6.80	40.9	39.5	39.5	240.0	10.9	-3.4	-
Non-durables	1.69	5.36	5.94	40.3	37.9	37.8	251.5	10.8	-6.0	-0.3
Construction	2.06	8.67	9.77	40.9	38.9	38.7	374.3	12.6	-5.4	-0.5
Building	2.16	8.73	9.71	38.9	37.4	37.1	349.5	11.2	-4.6	-0.8
Engineering	1.90	8.59	9.90	44.8	41.6	41.6	421.1	15.1	-7.1	-
Manufacturing by province²										
Newfoundland	1.69	5.54	6.12	40.5	37.1	36.8	262.1	10.3	-9.1	-0.3
Nova Scotia	1.58	5.07	5.67	40.3	37.9	37.9	258.9	11.8	-6.0	-
New Brunswick	1.55	5.28	5.90	40.9	38.6	38.4	280.6	11.7	-6.1	-0.3
Quebec	1.65	5.17	5.77	41.5	38.9	38.9	249.7	11.8	-6.3	-
Ontario	1.94	5.87	6.47	40.5	39.3	39.3	233.5	10.2	-3.0	-
Manitoba	1.67	5.17	5.69	39.7	37.2	36.8	240.7	10.1	-7.3	-1.1
Saskatchewan	1.98	6.14	6.89	39.0	36.9	37.0	248.0	12.4	-5.1	+0.3
Alberta	1.96	6.25	6.97	39.7	37.5	37.6	255.6	11.5	-5.3	+0.3
British Columbia	2.23	7.54	8.29	37.7	36.5	36.2	271.7	9.8	-4.0	-0.8

¹ Data for 1976 and 1977 are preliminary.

² Data for Prince Edward Island are not available.

- Nil or zero.

Average Hourly Earnings.¹ In 1977 average hourly earnings rose 9.6 per cent in mining, 10.8 per cent in manufacturing and 12.6 per cent in construction. By province, average hourly earnings in manufacturing registered gains ranging from 9.8 per cent in British Columbia to 12.4 per cent in Saskatchewan.

Average Weekly Hours.¹ From 1976 to 1977 average weekly hours decreased in all industries. Average weekly hours in manufacturing declined in all provinces.

Labour Organizations

Membership in labour organizations active in Canada totalled 3,277,968 in 1978. About 67.2 per cent of the members were in unions affiliated with the Canadian Labour Congress (CLC); 5.4 per cent were affiliates of the Confederation of National Trade Unions (CNTU); 1.2 per cent were affiliated with the Centrale des syndicats démocratiques (CSD); 0.8 per cent were affiliates of the Confederation of Canadian

¹ Data on average hourly earnings and average weekly hours pertain only to those wage-earners from whom data on hours were available.

Unions (CCU); the remaining 25.1 per cent were members of unaffiliated national and international unions and independent local organizations.

Of the total union members, 47.4 per cent belonged to international unions, chiefly AFL-CIO-CLC unions. National unions accounted for 50 per cent of union membership in Canada.

Twenty-eight unions reported memberships of 30,000 or more in 1978. The five largest unions were the Canadian Union of Public Employees (231,000); the United Steelworkers of America (199,000); the Public Service Alliance of Canada (154,432); the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (130,000); and the National Union of Provincial Government Employees (128,061).

Unemployment Insurance

The Unemployment Insurance Act was passed in 1940. Since that time the basic structure of the Act has remained unaltered, although 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 (now the Canada Employment and Immigration Commission) was instructed to carry out a full-scale investigation of the program and 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 1977 benefit payments under the Act amounted to \$3.885 million.

Under the Unemployment Insurance Act of 1971 coverage was extended, effective January 1972, 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. Coverage, contributions and benefit entitlement cease at age 65. The number of insured persons was estimated at 9.5 million in December 1977.

Employers and employees pay for the cost of initial benefits and administration; the employer's rate is 1.4 times the employee's rate. In 1978 the maximum weekly contribution by an employee was \$3.60. The government's share is confined to the cost of extended benefits and the extra cost of initial benefits due to a national unemployment rate greater than the most recent eight-year average. There is no fund, and employer and employee contributions are adjusted yearly. The Taxation Branch of Revenue Canada started to collect contributions at the beginning of 1972.

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 50 weeks, depending on his or her employment history and the prevailing economic conditions, provided that (1) he or she has had at least 10 weeks of contributions in



Demolition in Montreal, Que.

the last 52 and (2) he or she has been available, capable of 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 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 or she 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 a major labour force attachment who have suffered an interruption of earnings due to illness, injury or quarantine (excluding cases covered by Workmen's Compensation). Maternity benefits are available for a maximum of 15 weeks to women who have had a major labour force attachment; they must also have been part of the labour force for at least 10 of the 20 weeks prior to the 30th week before the expected date of confinement.

Thickly insulated flowlines at a heavy oil project near Cold Lake, Alta. carry steam and air to strata deep underground and bring oil and water back to the processing plant.



Retirement benefit is available for three weeks. It is paid in a lump sum to major attachment claimants who are 65 years of age. In the case of those over 65 the application must be made within 32 weeks of the 65th 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 is two-thirds of a person's average insured earnings in the qualifying period, to a maximum in 1978 of \$160 a week. The maximum insurable earnings and the maximum benefit are subject to annual adjustment based on an index calculated from earnings of Canadian employees. In 1978 maximum weekly insurable earnings were \$240.

Income from employment in excess of 25 per cent of the benefit rate is deducted from the benefits payable. In the case of sickness or 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.



Industry

Industrial Growth and Change

In Canada the long expansionary phase of domestic output that was such a remarkable characteristic of the 1960s faltered in the early 1970s and ended in 1974. From 1974 to 1975 there was virtually no growth in output. In the second half of 1975 a modest recovery started, and it continued into 1976. From mid-1976 on, the recovery lost impetus and was followed by slower growth through 1977 and into 1978.

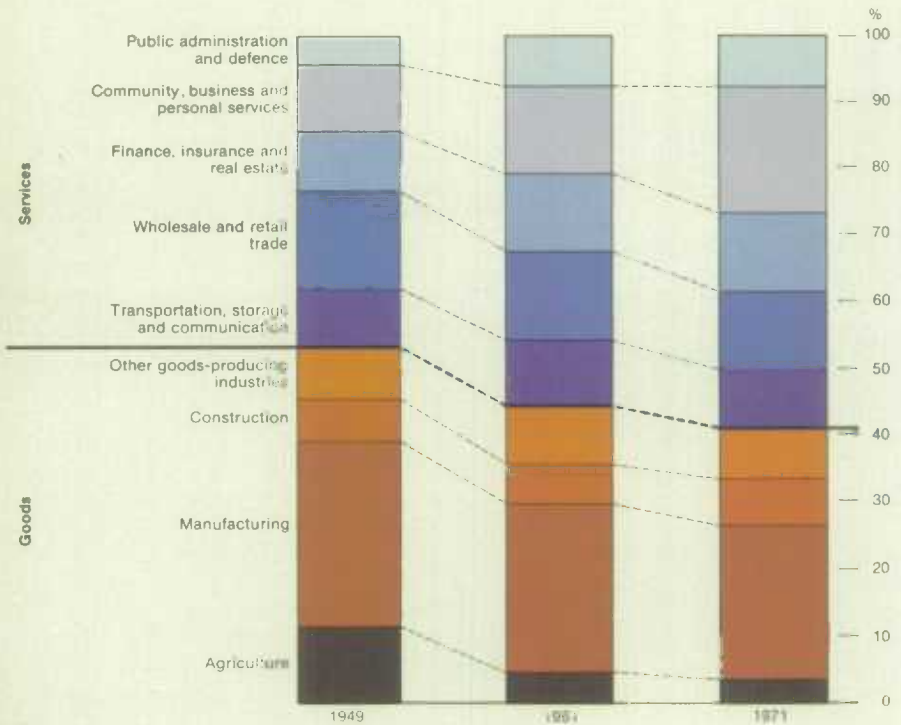
The 1961-71 Period

The expansion of the 1960s was evident throughout most of the major divisions of the economy. While real domestic product grew by 75.4 per cent between 1961 and 1971, the resource-based industries (excluding mines), construction, retail trade,



local government and federal government failed to equal this rate of growth. The 83.1 per cent growth of mines, quarries and oil wells from 1961 to 1971 reflected strong increases over the decade in iron mines, crude petroleum and natural gas. Gains in the manufacturing industries brought the aggregate growth for manufacturing to 83.3 per cent above 1961, the largest gains being recorded in the transportation equipment industries (particularly motor vehicle manufacturers), chemical industries, metal fabricating industries and machinery industries. A wide range of service industries recorded 1961-71 output growth rates that exceeded the aggregate for real domestic product. Air transport and rail transport, at 253.2 per cent and 82.9 per cent respectively, and education, at 132.5 per cent, were service industries showing the largest rates of growth. Two large aggregations of industries — community business and personal services, and finance, insurance and real estate, which together contribute over one-quarter of domestic output — showed 1961-71 growth rates of 87.6 per cent and 76.9 per cent respectively.

Changes in the industrial structure of the Canadian economy





An oil refinery in Montreal, Que.

Industrial growth and change from 1961 to 1971 should be viewed as part of a pattern of overall change in the domestic economy. Some of the changes are very long term and enduring; others are short term and temporary.

Probably the most fundamental change, one that Canada has in common with many developed economies, is the transition from a predominantly goods-producing economy to a predominantly services-producing economy. This particular process of change started before there were statistics to measure it. In 1949, for example, 53 per cent of domestic production occurred in the goods-producing industries; in 1971 it was 40 per cent.

Much of the change occurred as the resource-based industries, particularly agriculture, declined in their relative contributions to total domestic output. The relative contribution of resource-based industries — agriculture, forestry, fishing, trapping, mines, quarries and oil wells — approximately halved, from 16.6 per cent of total output in 1949 to 8.1 per cent in 1971. Manufacturing also declined in relative importance in the same period, from 28 per cent to 23 per cent of total domestic output. Within manufacturing, considerable decline was evident in the relative contribution of the non-durable goods-producing industries, whereas durable goods-producing industries showed an increase that in part reflected increases in contributions of motor vehicle parts and accessories manufacturers and electrical products manufacturers.



Synthetic plant near Fort McMurray, Alta.

The relative growth of education and related services industries produced the most dramatic of the shifts in industrial structure. These more than quadrupled their contributions to total domestic output, from 1.6 per cent in 1949 to 6.5 per cent in 1971, which reflected the increase in post-secondary school education in particular.

Another large change was in the health and welfare services industries, which grew from a 2.3 per cent share of total domestic output in 1949 to one of 5.3 per cent in 1971. The large aggregation of industries identified as the finance, insurance and real estate industries increased their share of output from 9.1 per cent in 1949 to 12.0 per cent in 1971 and growth in computer-related services also added to service-industry growth.

The 1971-77 Period

This period was ushered in with a record level of output for agriculture and very high levels of output in the transportation equipment industries, especially in motor vehicle manufacturers. However, agriculture declined substantially in 1972 and failed to rally much in 1973, a year in which most divisions of the economy were achieving high levels of output.

The marked slowdown in activity that began in 1974, while reflecting a slowing of the growth of the services-producing industries, was mainly the result of sharp declines in the goods-producing industries. For the one-year period from the first quarter of 1974 to the first quarter of 1975 services-producing industries slowed from the 1971-74 average growth rate of 5.9 per cent to 2.5 per cent; goods-producing

industries reversed from the 1971-74 growth rate of 4.9 per cent to a decline in that one-year period of 5.3 per cent.

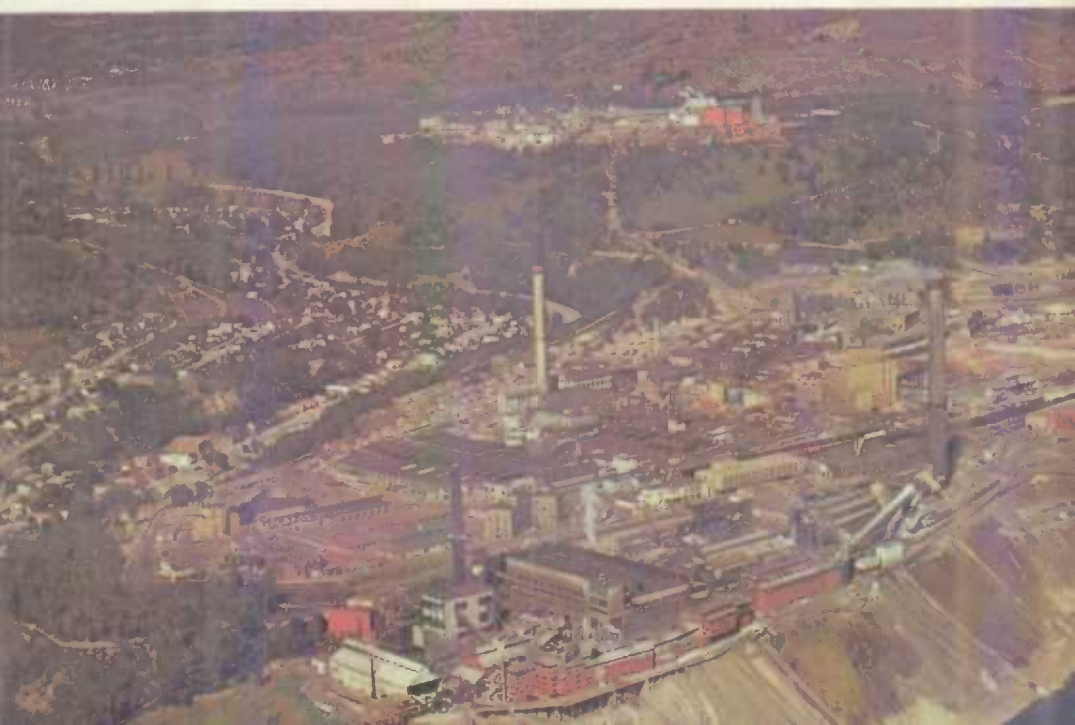
There was little clear indication of recovery until the last quarter of 1975; then a strong resurgence in the goods-producing industries fuelled the recovery until May 1976. The change from October 1975 to May 1976 for the goods-producing industries, services-producing industries and total domestic product were 8.7 per cent, 2.6 per cent and 4.9 per cent respectively.

The slower rate of growth in output from May 1976 to the end of the year was most clearly due to a decline in non-residential construction, although there were a number of other industries that also declined during this period and thus contributed to the slower growth rate, including pulp and paper, smelting and refining, residential construction, and the transportation equipment industries.

On the other hand, the services-producing industries showed generally strong growth in this period. Retail trade, the industries in the finance, insurance and real estate group and those in the community, business and personal services group, all of which contribute nearly 40 per cent of aggregate domestic output, showed strong growth between May and December 1976.

Neither the goods industries nor the services industries showed much strength in 1977. There were declines from 1976 levels in agriculture, fishing and construction. Unusual weakness in both trade and public administration offset moderate strength in the finance industries, manufacturing, electric power and other industries.

Smelter in foreground at Trail, BC.



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 invested in new mines, factories, stores, power generating installations, communications and transportation equipment, hospitals, schools, roads, parks and all other forms of capital expenditure that 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

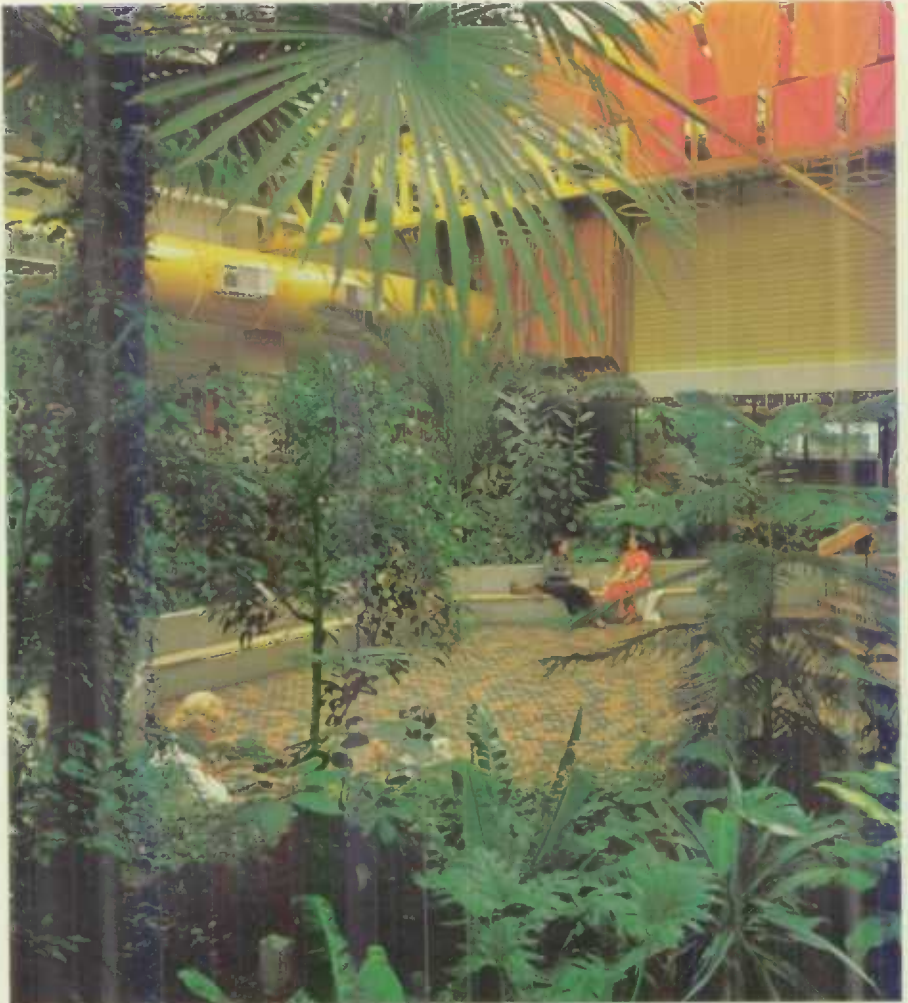
Table 1. Summary of capital and repair expenditures, by sectors, 1977¹ and 1978²
(million dollars)

Sector		Capital expenditures			Capital and repair expenditures		
		Construc- tion	Machinery and equipment	Sub- total	Construc- tion	Machinery and equipment	Total
Agriculture and fishing	1977	606.9	2,304.1	2,913.7	855.4	2,747.9	3,603.3
	1978	678.9	2,568.2	3,247.1	944.2	3,047.9	3,992.1
Forestry	1977	108.8	110.9	219.7	161.2	273.8	435.0
	1978	111.6	118.6	230.2	167.8	293.9	461.7
Mining, quarrying and oil wells	1977	2,872.3	1,163.0	4,035.3	3,248.3	2,049.4	5,297.7
	1978	2,971.3	851.1	3,822.4	3,379.9	1,774.2	5,154.1
Construction industry ..	1977	131.0	689.3	820.3	149.1	1,215.7	1,364.8
	1978	137.6	722.5	860.1	156.7	1,274.1	1,430.8
Manufacturing	1977	1,676.8	4,329.9	6,006.7	2,154.9	6,764.9	8,919.8
	1978	1,707.3	4,795.3	6,502.6	2,226.8	7,436.7	9,663.5
Utilities	1977	5,340.2	4,024.0	9,364.2	6,232.0	5,958.2	12,190.2
	1978	6,319.2	4,668.2	10,987.4	7,328.9	6,886.9	14,215.8
Trade	1977	366.7	706.9	1,073.6	480.6	873.1	1,353.7
	1978	383.4	765.6	1,149.0	501.7	937.0	1,438.7
Finance, insurance and real estate	1977	1,679.9	236.1	1,916.0	1,803.6	274.4	2,078.0
	1978	1,828.7	278.3	2,107.0	1,966.0	319.1	2,285.1
Commercial services ..	1977	322.7	1,683.7	2,006.4	362.2	1,932.2	2,294.4
	1978	337.0	2,022.9	2,359.9	378.0	2,292.2	2,670.2
Institutions	1977	1,173.7	316.0	1,489.7	1,389.2	385.0	1,774.2
	1978	1,265.5	310.4	1,575.9	1,493.8	381.2	1,875.0
Government departments	1977	5,056.6	656.8	5,713.4	5,965.3	828.1	6,793.4
	1978	5,485.5	680.1	6,165.6	6,394.7	847.7	7,242.4
Housing	1977	10,931.8	—	10,931.8	12,950.5	—	12,950.5
	1978	10,943.3	—	10,943.3	13,183.8	—	13,183.8
Total	1977	30,270.1	16,220.7	46,490.8	35,752.3	23,302.7	59,055.0
	1978	32,169.3	17,781.2	49,950.5	38,122.3	25,490.9	63,613.2

¹ Preliminary actual expenditures.

² Revised intentions.

— Nil or zero.



The conservatory centre in Calgary, Alta.

economy. Approximately 24,000 establishments are surveyed for their investment intentions. In order to approximate full coverage, adjustments are made for non-surveyed and for non-reporting firms. In a few areas, including agriculture, fishing and housing, expenditure estimates are arrived at independently on the basis of current trends and expert opinion in these fields.

Information on capital spending intentions provides a useful indication of market conditions both in the economy at large and in particular industries. Since such expenditures account for a large and relatively variable proportion of gross national expenditures, the size and content of the investment program provides significant information about demands to be placed upon the productive capacities of the

economy during the period covered by the survey. In addition, information on the relative size of the capital expenditures program planned, both in total and for individual industries, gives an indication of the views managements hold on prospective market demands in relation to present productive capacity. Non-capitalized repair expenditures on structures and on machinery and equipment are also given, but these are shown separately. By including these outlays, a more complete picture is provided of all demands likely to be made on labour and materials in accomplishing the program.

Table 2. Summary of capital and repair expenditures, by province, 1977¹ and 1978²
(million dollars)

Province or territory		Capital expenditures			Capital and repair expenditures		
		Construc- tion	Machinery and equipment ¹	Sub- total	Construc- tion	Machinery and equipment	Total
Atlantic region:							
Newfoundland.....	1977	213.6	53.3	266.9	247.6	73.4	321.0
	1978	268.4	58.8	327.2	306.5	81.3	387.8
Prince Edward Island	1977	42.5	7.9	50.4	54.2	9.9	64.1
	1978	45.7	9.8	55.5	58.1	12.1	70.2
Nova Scotia.....	1977	333.4	92.5	425.9	435.2	155.8	591.0
	1978	391.2	144.8	536.0	501.2	212.8	714.0
New Brunswick.....	1977	405.8	133.9	539.7	460.9	165.9	626.8
	1978	424.5	215.3	639.8	484.6	251.5	736.1
Total, Atlantic region	1977	995.3	287.6	1,282.9	1,197.9	405.0	1,602.9
	1978	1,129.8	428.7	1,558.5	1,350.4	557.7	1,908.1
Quebec.....	1977	3,503.8	1,121.0	4,624.8	3,911.5	1,291.9	5,203.4
	1978	4,017.6	1,098.8	5,117.4	4,427.6	1,290.7	5,718.3
Ontario.....	1977	2,516.0	1,256.9	3,772.9	2,968.3	1,626.3	4,594.6
	1978	2,794.5	1,197.0	3,991.5	3,277.5	1,634.4	4,911.9
Prairie region:							
Manitoba.....	1977	498.0	303.0	801.0	590.7	382.2	972.9
	1978	475.5	220.7	696.2	580.0	305.4	885.4
Saskatchewan.....	1977	502.1	275.0	777.1	580.3	380.7	961.0
	1978	614.5	264.3	878.8	708.9	389.5	1,098.4
Alberta.....	1977	971.9	346.5	1,318.4	1,109.0	492.4	1,601.4
	1978	1,222.3	398.9	1,621.2	1,372.3	572.6	1,944.9
Total, Prairie region..	1977	1,972.0	924.5	2,896.5	2,280.0	1,255.3	3,535.3
	1978	2,312.3	883.9	3,196.2	2,661.2	1,267.5	3,928.7
British Columbia.....	1977	1,294.9	422.8	1,717.7	1,518.5	569.0	2,087.5
	1978	1,479.8	406.7	1,886.5	1,719.8	573.5	2,293.3
Yukon Territory and Northwest Territories							
	1977	127.5	19.4	146.9	147.3	26.9	174.2
	1978	135.4	23.3	158.7	150.6	30.9	181.5
Total, Canada.....	1977	10,409.5	4,032.2	14,441.7	12,023.5	5,174.4	17,197.9
	1978	11,869.4	4,039.4	15,908.8	13,587.1	5,354.7	18,941.8

¹ Preliminary actual expenditures.

² Revised intentions.

³ Capital expenditures on machinery and equipment include an estimate for "capital items charged to operating expenses", in the manufacturing, utilities and trade totals.



IBM tower in Vancouver, BC.

Provincial Expenditures

The expenditures shown for each province or territory represent the value of construction and of machinery and equipment acquired for use within the province or territory. Such expenditures represent gross additions to the capital stock of the province or territory and are a reflection of economic activity in that area. However, the actual production of these assets may generate its major employment and income-giving effects in other regions. For example, the spending of millions of dollars on plants and equipment in Western Canada may generate considerable activity in machinery industries in Ontario and Quebec as well as construction activity in the western provinces.

It should be appreciated that there are statistical difficulties in making a precise geographic allocation of past or anticipated investment, since many business firms operating in several provinces neither record nor plan their capital expenditures geographically. As a result, it has been necessary to use approximate breakdowns in many cases. Such is the case for investment in railway rolling stock, ships, aircraft and certain other items.



The Ark in Prison Edward Island is designed to harness wind and solar energy to provide the structure with heat, lighting, air circulation and water pumping.



Relocatable camp units under construction in Alberta.

Housing

Central Mortgage and Housing Corporation (CMHC) is the agent of the federal government in pursuing the objective of ensuring that all Canadians have access to good housing at prices that they can afford and within a satisfactory community environment. To accomplish this it administers the National Housing Act (NHA) which provides financial assistance: to encourage the production of new housing and the development of the required land and services; to enable lower-income people to attain housing which they could not otherwise afford; and to assist in the improvement of dwellings and neighbourhoods, where required.

The provision of this financial assistance under the National Housing Act involves CMHC in a number of different functions: it acts as a lender of public funds



Aerial view of a trailer camp at Fort McMurray, Alta.



Bogotáville, Cmc.

to private home-owners, rental entrepreneurs, non-profit corporations, co-operatives and provincial and municipal governments; it insures mortgage loans made by private mortgage lenders; and it engages jointly, with provincial governments, in housing investment and land development projects. In these functions CMHC operates similarly to other financial institutions although within legislative and regulatory constraints established by Parliament and government. In addition, however, it acts as the agent of the federal government in a very direct way in administering the subsidy, grant, and contribution provisions of the NHA. The NHA provides for this type of assistance linked, for the most part, to the lending, insuring, and investing activities of CMHC in its financial institution role.



A development of new townhouses in Regina, Sask.



Experimental research, particularly for northern housing, is currently underway at the University of Manitoba. These early Canadian experimental models are built with log billets imbedded in mortar.

CMHC's 1977 capital budget provided for the commitment of \$1,819 million in loans and investments. The largest component of this, \$1,240 million, was for housing; \$408 million was allocated to finance land assembly and the provision of water and sewage facilities. A further \$134 million was for community revitalization including residential rehabilitation. The remaining \$37 million was for a variety of purposes, including the acquisition of land by CMHC and improvements to the real estate owned by CMHC.



Lunenburg, NS celebrated its 225th anniversary in June 1978.

Total commitments for loans and investments in 1977, at \$1,355 million, were \$464 million below the amount approved in the capital budget for the year. A factor of particular concern in this shortfall in commitments was the reduction in the construction of social housing, either public housing, non-profit, or co-operative housing. Another major factor was the decision by CMHC to ensure that loan commitments were made only for projects ready to proceed and for which necessary documentation was provided by November 30, 1977, to permit proper processing in the calendar year.

In contrast to the preceding year, with the introduction of the Federal Housing Action Program and marked changes in earlier trends in the volume of activity and the rate of house price increases, 1977 was a period of consolidation of those achievements. Although housing starts declined from the 1976 record level of 273,203 units to 245,724 units, housing completions increased to 251,789 units from 236,249 units the previous year.

Of the 245,724 dwellings started in 1977, 120,281 units benefited from some form of assistance under the NHA including loan insurance. Of this total, 15,616 units were social housing, which included public housing and units being constructed by non-profit and co-operative groups, all for low- and moderate-income people. The remaining 104,665 units started with some form of assistance were directed at the same income groups, but largely financed by the private sector.



Manufacture of fencing in Moncton, N.B.

Manufacturing

Manufacturing is the largest of Canada's goods-producing industries. Because of its importance to the growth of national productivity, its high demand for capital goods and its contribution to exports, it plays an important role in the economy.

A monthly sample survey of households produced an estimate that an average number of 1,891,000 persons were being paid salaries or wages by the manufacturing industries in 1977, out of a total for all industries of 8,776,000. This household survey yields a somewhat higher estimate of employees in manufacturing than a monthly survey of employees, which showed an average employment of 1,745,400 for 1977. (The difference in figures is believed accounted for by employees of manufacturing companies not working in units classified to manufacturing by the employer survey.)

Preliminary data from another monthly survey show that Canadian manufacturers shipped \$109.8 billion of their own products in 1977, an increase of 11.9 per cent over 1976. (By comparison, the annual average index of selling prices of manufacturing industries increased 7.6 per cent over the same period and the annual average index of industrial production increased 3.4 per cent.)

An exact measure of exports of manufacturers is not routinely compiled, but if exports of fabricated materials and end products are accepted as roughly equivalent to manufactured products, Canadian manufacturers did some processing on about seven dollars out of every 10 of exports of Canadian products in 1977. Domestic exports of fabricated materials amounted to \$14.9 billion, compared with \$14.9 billion for end products. This equal status indicates the importance of industrial materials produced for export.

A plastic tube factory in Granby, Que.



However, the end products — roughly equivalent to highly manufactured goods, though including very small values of non-manufactured goods — have increased in value 21.2 times since 1961, when they amounted to only \$706 million, while those of fabricated materials have more than quintupled from a 1961 figure of \$2.916 million. This is a striking reflection of the growth of those sectors of Canadian manufacturing producing more highly fabricated goods. For various reasons, these values are not strictly comparable with the value of overall shipments of

Table 3. Manufacturing statistics, selected years, 1920 to 1977

Year	Establishments	Employees	Salaries and wages	Value added by manufacture	Value of shipments of goods of own manufacture ¹
	No.	No.	\$'000	\$'000	\$'000
1920	22,532	598,893	717,494	1,621,273	3,706,545
1929	22,216	666,531	777,291	1,755,387	3,883,446
1933	23,780	468,658	436,248	919,671	1,954,076
1939	24,805	658,114	737,811	1,531,052	3,474,784
1944	28,483	1,222,882	2,029,621	4,015,776	9,073,693
1949	35,792	1,171,207	2,591,891	5,330,566	12,479,593
1953	38,107	1,327,451	3,957,018	7,993,069	17,785,417
1954	38,028	1,267,966	3,896,688	7,902,124	17,554,528
1955	38,182	1,298,461	4,142,410	8,753,450	19,513,934
1956	37,428	1,353,020	4,570,692	9,605,425	21,636,749
1957	33,551	1,340,948	4,778,040	..	21,452,343
1958	32,446	1,272,686	4,758,614	9,454,954	21,434,815
1959	32,075	1,287,809	5,030,128	10,154,277	22,830,827
1960	32,852	1,275,476	5,150,503	10,371,284	23,279,804
1961	33,357	1,352,605	5,701,651	10,434,832	23,438,956
1962	33,414	1,389,516	6,096,174	11,429,644	25,790,087
1963	33,119	1,425,440	6,495,289	12,272,734	28,014,888
1964	33,630	1,491,257	7,080,939	13,535,991	30,856,099
1965	33,310	1,570,299	7,822,925	14,927,764	33,889,425
1966	33,377	1,646,024	8,695,890	16,351,740	37,303,455
1967	33,267	1,652,827	9,254,190	17,005,696	38,955,389
1968	32,643	1,642,352	9,905,504	18,332,204	42,061,555
1969	32,669	1,675,332	10,848,341	20,133,593	45,930,438
1970	31,928	1,637,001	11,363,712	20,047,801	46,380,935
1971	31,908	1,628,404	12,129,897	21,737,514	50,275,917
1972	31,553	1,676,130	13,414,609	24,314,751	56,234,663
1973	31,145	1,751,066	15,220,033	28,825,008	66,779,710
1974	31,535	1,785,977	17,556,982	35,084,752	82,455,109
1975	30,100	1,741,545	19,160,174	36,139,301	88,460,358
1976 ²	29,052	1,741,800	21,794,329	39,865,797	98,083,595
1977	..	1,775,400 ³	24,140,000 ³	44,630,000 ⁴	109,804,000 ⁴

¹ Before 1952, data represent gross value of production.

² Preliminary figures.

³ Based on monthly surveys of employment and earnings.

⁴ Estimate.

⁵ Based on monthly survey of shipments of manufacturers.

.. Not available.

Note: Revised SIC and new establishment concept applied to data as of 1957. Employment includes total activity of manufacturing industries as of 1961.



The forming and welding station of a large diameter spiral pipe mill at Edmonton, Alta.

manufactures by Canadian factories, but they give an impression of the approximate intensity of export activity as measured by shipments. The importance of production for export would be appreciably higher if it were feasible to use a measure of the Canadian value added that is exported, as the overall manufacturing shipments of Canadian manufacturers necessarily contain double counting of output from manufacturers supplying each other with inputs.

Most manufacturing activity in Canada is highly mechanized and Canadian factories thus constitute a large market for equipment. This is partly because many types of natural resources processing are inherently capital-intensive; that is, they employ a great deal of machinery, equipment and buildings in proportion to employees. Industries producing highly manufactured goods — like machinery and automobiles — are becoming increasingly important. In addition high living standards, reflected in high wages, bring about economy in the use of workers and this often leads to increased mechanization.

In 1978, according to a survey of investment intentions, it was anticipated that the manufacturing industries would be accounting for 27 per cent of all capital expenditures by business and government for new machinery and equipment. These expenditures represent, of course, not only the expansion of productive capacity but also some "deepening" of capital (an increase in capital per employee or per unit of product).

Increasing capital intensity of production has probably been a prime cause of the rise in productivity of each employee in the manufacturing industries. Physical output in the manufacturing industries, by man-hour worked, increased at an average rate of 3.9 per cent over the 1961-77 period.

The leading manufacturing industry in Canada in 1977, measured by the value of shipments of its own products, was motor vehicle manufacturers. With a total value of \$8.4 billion, this industry's shipments were approximately \$1.3 billion greater than in 1976, prices and production having both increased by 8 per cent during the year. Canadian exports of automotive products to the US have been steadily increasing with the growing share of trade in this industry.

The second-ranking industry in 1977 was petroleum refining at \$8.2 billion, with an increase of \$1.4 billion in shipments from the previous year. There have been substantial price increases in this industry in recent years in attempts to reach world market prices. Pulp and paper mills had the third largest value of shipments at \$6.7 billion, an increase of approximately \$700 million from 1976. The industry's real domestic product rose 5 per cent over 1976, a small increase in view of the industry-wide strikes of 1975 carried over the first few months of 1976 artificially deflating the production for those two years.

Seven industries, in descending order of magnitude, had shipments in the \$2 billion to over \$4 billion range in 1977: slaughtering and meat processing, \$4.3 billion; sawmills and planing mills, \$3.9 billion; iron and steel mills, \$3.8 billion; motor vehicle parts and accessories, \$3.8 billion; dairy products industry, \$3.1 billion; miscellaneous machinery and equipment manufacturers, \$2.6 billion and miscellaneous food processors, \$2.1 billion. Ten industries had shipments of between \$1 billion and \$2 billion: smelting and refining, \$1.8 billion; metal stamping and pressing, \$1.7 billion; commercial printing, \$1.6 billion; feed industry, \$1.5 billion; manufacturers of industrial chemicals (organic), \$1.4 billion; communications equipment manufacturers, \$1.3 billion; plastics fabricating industry, \$1.2 billion; publishing and printing, \$1.2 billion; manufacturers of electrical industrial equipment, \$1.1 billion and men's clothing factories, \$1.1 billion. These preliminary estimates for 1977 were based on a monthly survey of shipments, inventories and orders in the manufacturing industries and are subject to revision by the results of the annual census of manufacturers.

A new quarterly survey on business conditions recently developed by Statistics Canada helps overcome some problems involved in projecting changes in the manufacturing sector by asking executives for their qualitative assessments. A recent survey disclosed that in April 1978 respondents representing 87 per cent of manufacturing shipments expected the volume of production in the following three months to be higher than or about the same as in the previous quarter. This was an increase in expectations of 9 percentage points from the survey conducted in January of the same year. Shortage of skilled labour remained a major source of production difficulty for 9 per cent of the respondents, compared to 6 per cent in the previous quarter.

The largest four enterprises or groupings of companies had 148 manufacturing establishments in 1974 and accounted for 7.8 per cent of all manufacturers' shipments, 7.2 per cent of manufacturing value added and 5.5 per cent of total employees. The largest 16 enterprises accounted for approximately 22 per cent of manufacturing shipments. (While these data are not issued annually, figures on the size of manufacturing establishments are compiled each year.) The average size of a manufacturing establishment in 1976 was \$3.4 million worth of shipments of goods



Rolls of foil ready for shipment from a plant in Toronto, Ont.

of own manufacture — or about 60 persons, measured by the number of persons employed. These averages are, however, greatly affected by the large number of small establishments operated by local or regional entrepreneurs in manufacturing industries throughout Canada. Actually, 50.5 per cent of the total work force in the manufacturing industries was in establishments employing 200 or more persons and there were 153 manufacturing establishments with more than 1,000 persons employed in 1975.

The proximity of the US, the interest of foreign firms in fabricated materials for use in foreign industry and the generally profitable character of Canadian manufacturing over many years have led to widespread investment in Canadian manufacturing by companies outside Canada. However, a special analysis of the census of manufactures for 1974 showed that Canadian-controlled firms nonetheless accounted for 57.1 per cent of all employment in the manufacturing industries; the proportion of manufacturing value added was somewhat lower, 50.7 per cent.

The 1977 profits of incorporated companies classified as manufacturing industries amounted to 6.1 per cent of total revenue, before taxes and certain extraordinary items. Average weekly wages and salaries in Canadian manufacturing in a preliminary February 1978 figure amounted to \$274.44.

Trade

Domestic Trade

The means by which goods and services are transferred from producers to end users are usually referred to as the channels of distribution. In Canada these encompass three distinct sectors of the domestic economy — retail trade, wholesale trade and community, business and personal services. Businesses generally operate within one or another of these sectors, although some are active in two or all three sectors (manufacturers' sales branches and co-operatives, for example, may be engaged in either wholesaling or retailing activities or both).

The channels of distribution are characterized by continuous change. In retailing and services, the volume of business transacted by franchised (or voluntary group) operations is increasing rapidly. Although the rate of growth is slower than in the past, planned shopping centres continue to proliferate in the suburbs of cities, while in the central business districts merchants are locating their stores in newly-constructed shopping malls and multi-store, multi-level building developments. The commodity mix and services offered by retailers are expanding in a variety of directions and the spread of businesses into new areas and types of operation (for example, home improvement centres and catalogue showroom operations) continues unabated.

In the midst of such change has come a significant increase in the kinds of business that compete for the consumer dollar and in the types of specialized agencies — some of which did not even exist 10 years ago — that serve the varied needs of modern businesses. Although all sectors of the economy have shared in these developments, it is in the service trades that the greatest impact has been felt. Increases in income and leisure time have contributed to the substantial sales growth in services and goods of a recreational nature and rising expertise in the marketing function has spurred the growing use of data processing services, market research houses, public relations firms, mailing-list agencies and other marketing and management consulting businesses.

Retail Trade

In 1977 sales in retail locations reached an estimated \$61.651 million, an increase of 7.8 per cent over 1976. During the period 1972-77 for which comparable data are available, total retail sales rose 80.8 per cent. The largest sales increases during this period occurred in Alberta (117.2 per cent), in the Yukon Territory and the Northwest Territories (114.6 per cent) and Saskatchewan (88.4 per cent), while Ontario and Manitoba experienced the lowest rates of growth (73.9 per cent and 68.0 per cent respectively). Although Ontario and Quebec continued to account for nearly two-thirds of all retail sales in Canada, their share of the retail market has been declining for many years, reaching a low of 62.1 per cent in 1977.

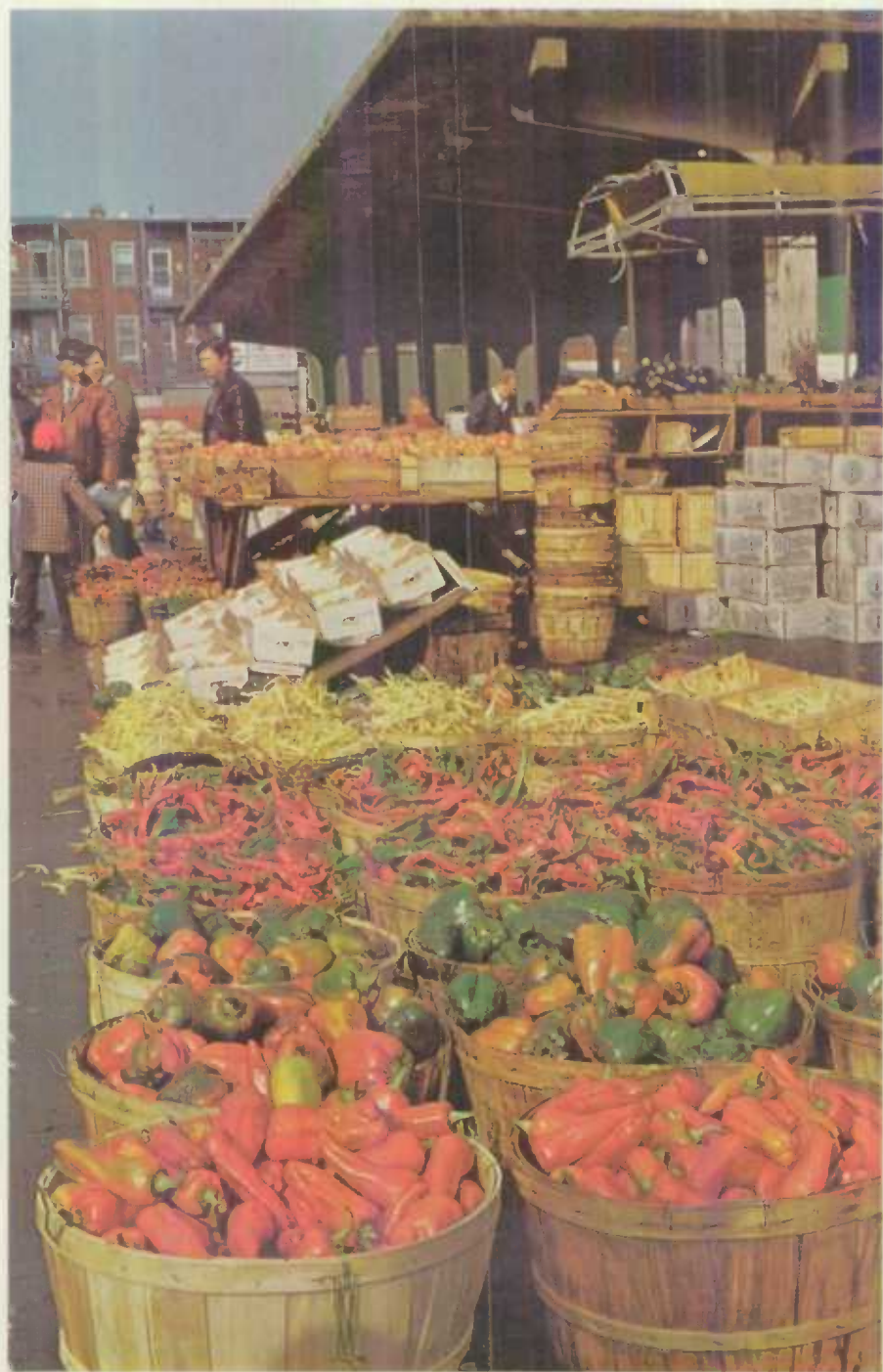


Table 1. Summary statistics on retail trade, 1972 and 1977
(million dollars)

Kind of business	1972			1977		
	Chain stores	Independent stores	All stores	Chain stores	Independent stores	All stores
Combination stores						
(groceries and meat)	4,166	2,035	6,201	8,193	3,250	11,443
Grocery, confectionery and sundries stores	244	1,276	1,520	446	2,482	2,928
All other food stores	60	660	720	99	942	1,041
Department stores	3,714	—	3,714	6,941	—	6,941
General merchandise stores	887	236	1,123	1,269	384	1,653
General stores	123	550	673	343	863	1,206
Variety stores	518	155	673	681	211	892
Motor vehicle dealers	95	6,145	6,240	145	11,805	11,750
Used car dealers	—	119	119	—	211	211
Service stations	297	1,945	2,242	864	3,393	4,257
Garages	—	445	445	—	815	815
Automotive parts and accessories stores	145	590	735	166	1,025	1,191
Men's clothing stores	104	412	516	259	507	766
Women's clothing stores	294	345	639	585	511	1,096
Family clothing stores	148	320	468	397	461	858
Specialty shoe stores	30	25	55	27	34	61
Family shoe stores	163	149	312	320	219	539
Hardware stores	87	346	433	109	559	668
Household furniture stores	87	363	450	146	785	931
Household appliance stores	35	120	155	42	194	236
Furniture, TV, radio and appliance stores	102	247	349	134	369	503
Pharmacies, patent medicine and cosmetic stores	187	840	1,027	422	1,445	1,867
Book and stationery stores	33	94	127	120	162	282
Florists	7	120	127	11	217	228
Jewellery stores	101	160	261	229	305	534
Sporting goods and accessories stores	8	331	339	80	650	730
Personal accessories stores	88	431	519	232	657	889
All other stores	2,068	1,857	3,925	3,757	3,377	7,134
Total, all stores	13,791	20,316	34,107	26,017	35,634	61,651
Province						
Newfoundland	219	419	638	440	696	1,136
Prince Edward Island	51	105	156	100	186	286
Nova Scotia	438	664	1,102	846	1,091	1,937
New Brunswick	365	527	892	657	908	1,565
Quebec	2,704	5,908	8,612	5,176	10,380	15,558
Ontario	5,880	7,178	13,058	10,791	11,920	22,711
Manitoba	653	843	1,496	1,167	1,346	2,513
Saskatchewan	449	914	1,363	895	1,674	2,569
Alberta	1,215	1,513	2,728	2,628	3,299	5,927
British Columbia	1,777	2,210	3,987	3,234	4,054	7,288
Yukon Territory and Northwest Territories	40	35	75	81	80	161

— Nil or zero.

Figures may not add to totals owing to rounding.



Yonge St. in Toronto, Ont.

By kinds of business, the most substantial increase in sales for the period 1972-77 was recorded by book and stationery stores (121.8 per cent), followed closely by sporting goods stores (115.2 per cent), household furniture stores (106.8 per cent), jewellery stores (104.5 per cent), grocery, confectionery and sundries stores (92.7 per cent) and service stations (89.9 per cent). No specific kind of business lost ground between 1972 and 1977, however, several kinds of business recorded increases that were well below average, for example, specialty shoe stores, variety stores, furniture, television, radio and appliance stores, general merchandise stores, men's clothing stores and household appliance stores.

The largest shares of the retail market were held during 1977 by motor vehicle dealers (19.1 per cent of total sales) and combination stores selling groceries and meats (18.6 per cent). If the sales of other food stores, used car dealers, service stations, garages and automotive accessories stores were also included, well over half (54.6 per cent) of every dollar spent by household or personal consumers in 1977 was used to purchase food, cars or automotive services. The inclusion of stores selling mainly clothing and footwear — other "basic necessities" of life — would only increase this total by 9.9 per cent. The only other kind of business with a significant volume of sales was department stores; they captured 11.3 per cent of the retail market, a slight increase over the 10.9 per cent held in 1972.

Within the framework of retail trade, chain store organizations (those that operate four or more stores in the same kind of business under the same legal ownership) compete with independent retailers for a share of the consumer dollar. The market position of the chains, which has been improving slowly but steadily over the years,

showed further gains during the 1972-77 period. In 1972 chain stores accounted for 40.4 per cent of total retail sales; by 1973 this figure had risen to 40.8 per cent; the following year it rose to 42.2 per cent; and in 1977 it remained at 42.2 per cent. Some of this increase was due to the relatively strong growth in sales of department stores, all of which are classified as chains. If such stores were excluded from both chain and total retail sales, the market share of chain organizations would have been 33.2 per cent in 1972 and 34.9 per cent in 1977.

Between 1972 and 1977 the share of the market held by chains increased in 14 of the 28 kinds of business with data available (including all other stores), and declined in 11. Chain store organizations accounted for at least half of the total sales of department stores, in which all firms are classified as chains (100 per cent), general merchandise stores (76.8 per cent), variety stores (76.3 per cent), combination stores selling groceries and meat (71.6 per cent), family shoe stores (59.3 per cent), women's clothing stores (53.4 per cent) and all other stores (52.7 per cent).

Independent retailers had an increase of 75.4 per cent in sales for the period from 1972 to 1977. Kinds of business in which independent retailers increased their market share, even if only slightly, included general merchandise stores, variety stores, motor vehicle dealers, automotive parts and accessories stores, specialty shoe stores, hardware stores, household furniture stores, household appliance stores, furniture, television, radio and appliance stores, and florists.

Direct Selling

Retail stores account for only a part (although the largest part) of the total volume of purchases made by household or personal consumers. Other channels of





A hobby shop in Vancouver, BC.

distribution that completely bypass the traditional retail outlet are direct selling agencies, coin-operated vending machines and campus book stores, which reported total sales of \$1,944.8 million during 1976. Of this total, the direct selling activities of manufacturers, importers, wholesalers, mail-order agencies, book, newspaper and magazine publishers and other specialized agencies accounted for \$1,593.4 million, or 4.1 per cent of sales registered by comparable kinds of business in retail stores. In addition, vending machine operators reported total sales in 1976 of \$269.4 million and campus book stores contributed an additional \$82.0 million during the 1976-77 academic year.

The 1976 survey of direct selling in Canada showed that the largest proportion of such "non-store retailing" continues to be made by means of door-to-door canvassing. Sales of commodities such as cosmetics and costume jewellery, dairy products, newspapers and household electrical appliances, made on a door-to-door basis, accounted for 59.1 per cent of total direct selling. Sales of furniture re-upholstering and repairs, furniture, frozen foods and household electrical appliances in the showrooms and other premises of manufacturers provided an additional 18.8 per cent. Mail-order sales of such goods as books, phonograph records, magazines and newspapers represented 16.1 per cent while sales through other channels accounted for the remaining 6.0 per cent of total direct selling.

Consumer Credit

Consumer credit arises through an advance of cash, merchandise or services to an individual or household for personal (non-commercial) consumption purposes, through authorized use of credit cards, promissory notes or conditional sales agreements, in exchange for a promise to repay the lender at a later date, generally

by instalments. Statistics on consumer indebtedness do not include fully-secured loans, home improvement loans and residential mortgages, nor do they include interpersonal loans, bills owed to doctors, dentists, lawyers and other professional practitioners, or credit extended by clubs and personal service establishments.

As can be observed from Table 2 there has been a significant shift since 1960 in the nature of consumer credit and in the relative market share of the various institutions and organizations — financial and merchandising — which serve consumers' needs for credit. In 1960 the need for vendor credit holdings of outstandings tied directly to acquisitions of goods and services amounted to \$1,889 million or 47 per cent, of the total balances outstanding of \$4,021 million. By 1977 vendor credit balances increased to \$4,530 million but this amount now accounts for only 14.5 per cent of the total balances outstanding of \$31,292 million. Consumers' preference for cash credit has swollen this category of credit to \$26,762 million — the remaining 85.5 per cent of balances outstanding.

The largest share of total consumer credit outstanding at the present time, almost 60 per cent is held by the chartered banks, whose balances increased 19.2 per cent during 1977 to reach \$18,731 million by year end. The balances of cash loans and sales financing held by sales finance and consumer loan companies declined by 3.7 per cent over the year to \$2,763 million by year-end 1977.

Table 2. Consumer credit in Canada—balances outstanding, selected holders, selected year ends
(million dollars)

Credit holders/types of credit	1960	1965	1970 ^a	1975 ^a	1976	1977	Percent- age change 1976-77
Sales finance and consumer loan companies:							
Instalment financing.....	886	1,198	1,136	1,156	1,134	1,096	-3.4
Cash loans under \$1,500.....	392	628	525	252	235	208	-11.5
Cash loans over \$1,500.....	100	348	1,190	1,504	1,500	1,459	-2.7
Chartered banks' personal loans.....	857	2,241	4,663	13,175	16,177	18,731	+15.8
Quebec savings banks' personal loans...	6	16	22	58	72	87	+20.8
Life insurance companies' policy loans...	344	411	759	1,149	1,232	1,282	+4.1
Credit unions and caisses populaires...	433	813	1,493	3,243	3,884	4,627	+19.1
Department stores and other retail dealers.....	960	1,313	1,551	2,418	2,519	2,628	+4.3
Other credit-card issuers.....	43	72	186	338	317	352	+11.0
Public utility companies.....	—	99	155	295	381	454	+19.2
Trust and mortgage loan companies....	—	—	—	199	287	368	+28.2
Total.....	4,021	7,140	11,680	23,787	27,738	31,292	+12.8

— Nil or zero.

^a Revised.

Table 3. Estimated sales of wholesale merchants, 1976 and 1977

Trade group	Sales		Percentage change 1976-77
	1976	1977	
	\$'000,000	\$'000,000	
Total, all trades	49,987,473	55,575,608	+11.3
Consumer goods trades	23,374,042	25,549,802	+9.3
Automotive parts and accessories	3,197,059	3,328,360	+4.1
Motor vehicles	941,491	1,218,245	+29.4
Drugs and drug sundries	1,023,810	1,088,028	+6.3
Clothing and furnishings	473,925	505,423	+6.7
Footwear	100,309	113,726	+13.4
Other textiles and clothing accessories	991,444	988,218	-0.3
Household electrical appliances	1,057,745	1,072,800	+1.4
Tobacco, confectionery and soft drinks	2,198,175	2,769,455	+26.0
Fresh fruits and vegetables	825,823	933,163	+13.0
Meat and dairy products	1,119,946	1,195,732	+6.8
Floor coverings	443,609	464,829	+4.8
Groceries and food specialties	7,394,438	8,000,582	+8.2
Hardware	1,080,145	1,141,038	+5.6
Consumer goods residual	2,526,123	2,730,202	+8.1
Industrial goods trades	26,613,431	30,025,805	+12.8
Coal and coke	69,931	77,564	+10.9
Grain	4,440,101	6,104,713	+37.5
Electrical wiring supplies, construction materials, apparatus and equipment	863,605	934,689	+8.2
Other construction materials and supplies, including lumber	6,548,967	6,926,086	+5.8
Farm machinery	2,300,052	2,193,354	-4.6
Industrial and transportation equipment and supplies	4,753,658	5,310,960	+11.7
Commercial, institutional and service equipment and supplies	1,063,502	1,135,881	+6.8
Newsprint, paper and paper products	791,549	908,459	+14.8
Scientific and professional equipment and supplies	572,914	633,744	+10.6
Iron and steel	1,764,964	1,994,692	+13.0
Junk and scrap	671,457	675,154	+0.6
Industrial goods residual	2,772,731	3,130,530	+12.9

Wholesale Trade

Wholesalers are primarily engaged in buying merchandise for resale to retailers, to farmers for use in farm production, to industrial, commercial, institutional or professional users or to other wholesalers. Also forming part of wholesale trade are those who act as agents, or brokers, in such transactions and who derive commissions from the purchase and/or sale of goods on behalf of others. In 1971, the most recent year for which data on total wholesale trade are available, Canadian wholesale establishments registered sales of \$37,420.1 million according to final census tabulations, an increase of 20.0 per cent over the comparable total in 1966.

For statistical purposes wholesalers may be grouped into three categories, the largest and most important of these being wholesale merchants. (The others are

agents and brokers and manufacturers' sales branches.) The wholesale merchant category includes import and/or export merchants, voluntary group wholesalers, cash-and-carry wholesalers, drop shippers or desk jobbers, mail-order wholesalers, truck distributors and rack jobbers, all of whom buy and/or sell merchandise mainly on their own account. Estimated sales of wholesale merchants during 1976-77, as measured by a sample of reporting firms, are shown in Table 3.

The increase of 11.2 per cent experienced by wholesale merchants between 1976 and 1977, was attributable mainly to a general increase in sales by industrial goods dealers who recorded a total increase during 1977 of 12.8 per cent. In this sector significantly rising sales were reported by dealers in newsprint, paper and paper products, in iron and steel, in industrial and transportation equipment and supplies and in coal and coke.

In the consumer goods sector, which rose 9.3 per cent during the year, the best results were registered by dealers in motor vehicles, in tobacco, confectionery and soft drinks, in footwear and in fresh fruits and vegetables.

Service Trades

Changes within the service trades can be measured best through the analysis of census data, since intercensal surveys provide only partial coverage of this large and diverse sector. In 1971 the service trades falling within the scope of the census reported total receipts of \$8,900.5 million. This figure included receipts of \$1,400.6 million reported by businesses in the services to business management group

Burlap wrapped freighter canoes at Hay River, NWT ready for shipment by barge down the Mackenzie River to northern trading posts.





Cardes of a German restaurant in Ontario.

(lawyers and notaries, architects and consulting engineering services) and in other groups that had not previously been surveyed in the census. In comparable terms (that is, excluding the latter kinds of business) service trade receipts rose 63.5 per cent between 1966 and 1971.

The distribution of 1971 service trade receipts by kind-of-business group was as follows: amusement and recreation services, 7.8 per cent; services to business management, 26.8 per cent; personal services, 9.0 per cent; accommodation and food services, 44.4 per cent; and miscellaneous services, 12.0 per cent. If the kinds of business not previously surveyed were omitted, the revised 1971 distribution would be as follows, with the comparable 1966 proportions shown in parentheses: amusement and recreation services, 9.0 per cent (9.6 per cent); services to business management, 13.5 per cent (11.0 per cent); personal services, 10.7 per cent (13.0 per cent); accommodation and food services, 52.6 per cent (52.3 per cent); and miscellaneous services, 14.2 per cent (14.1 per cent).

Intercensal surveys show that: accommodation receipts reached \$2,571.0 million in 1975, of which hotel receipts amounted to \$2,097.1 million, a 66.1 per cent increase over 1971; power laundries and dry cleaners had combined receipts of \$373.7 million in 1975, an increase of 69.6 per cent over 1971. Restaurant, catering and tavern receipts totalled \$5,131.3 million in 1976, an increase of 113 per cent for those combined operations. Receipts of motion picture theatres and drive-ins rose to \$294.9 million (including taxes) in 1976, an increase of 90.4 per cent. Other intercensal surveys carried out for the year 1976 in the service trade sector produced the following results: computer service industry, \$1,048.2 million; funeral directors, \$192.0 million; automobile and truck rentals, \$374.5 million; machinery and equipment rentals, \$279.1 million; advertising agencies, \$891.0 million; motion picture production, \$79.1 million; and motion picture distribution (film exchanges), \$127.1 million.

Victoria, BC.





Cutting table at a packing house in St. Paul, Minn.

The Consumer Price Index

Measured in terms of annual averages, the all-items consumer price index (CPI) advanced 8.0 per cent in 1977, compared to an increase of 7.5 per cent in 1976. The acceleration of price increases in 1977 was due, in part, to significantly higher food prices which rose 8.4 per cent in the year, compared to a moderate rise of 2.7 per cent the year before. In contrast, the all-items excluding food index decelerated to 7.8 per cent in 1977 after advancing by 9.4 per cent in 1976. Between December 1976 and December 1977 the CPI rose 9.5 per cent with higher food prices accounting for over two-fifths of this change while higher housing charges were responsible for about one-third of the overall increase.

Reclassified in terms of goods and services, the goods component of the CPI, advanced 7.4 per cent, based on annual averages, while the service component increased by 9.1 per cent.

The consumer price indexes for regional cities measure consumer price changes within the specified cities. Between 1976 and 1977 the CPI increased in all regional cities, ranging from 7.2 per cent in Vancouver to 9.8 per cent in Regina.

The purchasing power of the 1971 consumer dollar, which stood on average at 67 cents in 1976, declined to 62 cents in 1977.

Table 4. The consumer price index¹ and its major components for Canada, percentage change between annual average indexes

	1972 1971	1973 1972	1974 1973	1975 1974	1976 1975	1977 1976
All items	4.8	7.5	10.9	10.8	7.5	8.0
Food	7.6	14.6	16.3	12.9	2.7	8.4
All items excluding food	3.7	5.0	8.9	10.0	9.4	7.8
Housing	4.7	6.4	8.7	10.0	11.1	9.4
Clothing	2.6	5.0	9.6	6.0	5.5	6.8
Transportation	2.6	2.6	10.0	11.7	10.7	7.0
Health and personal care	4.8	4.8	8.7	11.4	8.5	7.4
Recreation, education and reading ..	2.8	4.2	8.7	10.4	6.0	4.8
Tobacco and alcohol	2.7	3.2	5.5	12.1	7.2	7.1

¹ Indexes prior to May 1973 incorporate 1957 expenditure weights; those from May 1973 forward are based on 1967 expenditures, except for items within the food component, which are based on 1969 detailed spending patterns.

Table 5. Consumer price indexes and major components for regional cities, percentage change between 1976 and 1977 (based on annual averages)

City	All items	Food	Housing	Clothing	Transportation	Health and personal care	Recreation, education and reading	Tobacco and alcohol
St. John's, Nfld.	7.5	8.1	8.9	7.0	7.0	5.4	2.9	4.4
Halifax, NS.	7.7	7.2	9.8	6.0	6.6	7.1	4.0	6.9
Saint John, NB.	7.6	7.7	9.6	5.4	6.3	6.2	4.7	5.7
Quebec, Que.	8.7	10.5	9.0	6.8	7.9	8.5	5.3	7.3
Montreal, Que.	8.4	9.1	9.0	9.0	7.1	8.7	5.5	7.6
Ottawa, Ont.	8.1	8.1	10.0	8.0	6.2	7.4	3.6	7.8
Toronto, Ont.	7.7	6.2	8.9	5.6	6.8	8.0	4.1	7.3
Thunder Bay, Ont.	7.7	7.3	8.9	5.8	8.1	9.1	4.9	7.7
Winnipeg, Man.	8.1	7.9	11.1	6.6	6.6	5.9	5.2	6.1
Saskatoon, Sask.	8.6	7.9	9.2	7.4	9.3	7.7	6.7	11.1
Regina, Sask.	9.8	9.4	11.0	6.8	10.8	9.2	6.9	11.0
Edmonton, Alta.	9.0	9.8	11.3	6.1	7.9	7.4	6.8	5.4
Calgary, Alta.	8.4	7.6	10.9	6.4	7.0	7.9	6.9	6.7
Vancouver, BC.	7.2	6.1	9.9	5.4	5.7	6.8	4.6	5.7



Bulk goods from Canada being packaged at Yokohama, Japan.

International Trade

Canada's merchandise exports and imports reached record levels in 1977 of \$44.375 million and \$42.156 million, gains of 15.5 per cent and 12.5 per cent respectively. After adjustment of these customs totals to meet the concepts and definitions used in the system of national accounts, the relative advances changed to nearly 17 per cent for exports and 13.5 per cent for imports. Refinements include timing adjustments to certain exports figures, incorporation of progress payments on capital equipment, deduction of transportation charges included in some customs documents and reduction of some customs values to reflect transaction prices.

On a balance-of-payments basis, there was a further improvement in the trade balance in 1977, with a surplus of \$2.916 million — more than twice the surplus of 1976. In 1975, there was a deficit of \$451 million, which had been the first negative balance since 1960.

Exports (Customs Basis)

The United States remained Canada's most important customer in 1977, taking \$31,027 million, or 70 per cent of total exports. Other leading export destinations were Japan, the United Kingdom and the Federal Republic of Germany, followed by Venezuela and the Benelux countries (Belgium-Netherlands-Luxembourg). Italy, Australia, France, the People's Republic of China and the USSR have also been important export destinations. These 10 leading customers together accounted for 88 per cent of total exports in 1977.

Table 6. Exports, by commodities, 1975-77
(million dollars)

Commodity	1975 ^r	1976 ^r	1977
Wheat.....	2,023	1,720	1,827
Animals and other edible products.....	2,124	2,555	2,719
Metal ores and concentrates.....	2,241	2,501	2,730
Crude petroleum.....	3,052	2,287	1,751
Natural gas.....	1,092	1,616	2,028
Other crude materials.....	1,582	1,870	2,341
Lumber and softwood.....	949	1,611	2,338
Pulp.....	1,834	2,181	2,156
Newsprint.....	1,746	2,001	2,381
Fabricated metals.....	2,706	3,213	3,831
Other fabricated materials.....	2,648	3,183	4,218
Motor vehicles and parts (partial).....	6,432	8,224	10,339
Other machinery and equipment.....	3,399	3,668	3,946
Other domestic exports.....	720	946	900
Re-exports.....	780	821	870
Total exports.....	33,328	38,397	44,375

^r Revised.

Table 7. Exports, by leading countries, 1975-77
(million dollars)

Country	1975 ^r	1976 ^r	1977
United States.....	21,697	25,894	31,027
Japan.....	2,135	2,397	2,518
United Kingdom.....	1,618	1,878	1,946
Federal Republic of Germany.....	619	711	778
Venezuela.....	351	376	571
Belgium and Luxembourg.....	383	485	520
Netherlands.....	489	456	519
Italy.....	492	555	502
Australia.....	254	373	414
France.....	352	424	370

^r Revised.



Lumber ready for shipment from Quebec.

The traditional commodities in Canada's foreign trade generally retained their standings in 1977. At over 23 per cent, motor vehicles and parts accounted for an increasing share of total exports. Crude oil and natural gas constituted about 8.5 per cent of aggregate exports, down from 12.5 per cent in 1975, as the increase in the value of natural gas delivery to the US only partially offset the drop in petroleum shipments. Exports of ores, refined metals and forestry products continued to expand in 1977 in response to renewed economic activity in principal markets abroad. Large wheat shipments in 1977, notably to China, contributed to a partial recovery from the fall in 1976. By stage of fabrication, the proportion of manufactured goods rose slightly to over 36.5 per cent of total exports in 1977, but was still below higher ratios recorded earlier in the 1970s. Crude materials' share fell three percentage points to about 28 per cent, while the proportion for fabricated materials rose to 35.5 per cent.

Imports (Customs Basis)

Some \$29,630 million (or 70.3 per cent) of imports entered Canada from the US in 1977, up from the share of 68.8 per cent in the previous year. Ranking next in order of importance both in 1976 and 1977 were Japan, Venezuela, the United Kingdom and the Federal Republic of Germany. Saudi Arabia, Iran, France, Italy and Australia were the other countries found among the first 10 sources of Canadian imports. These 10 countries accounted for 89 per cent of total imports in 1977. South Korea and Taiwan gained in importance as exporters to Canada in the last two years.

Automotive products and other equipment and machinery continued to represent approximately half of the imports in 1977. The share for motor vehicles and parts

Table 8. Imports, by commodities, 1975-77
(million dollars)

Commodity	1975 ^r	1976 ^r	1977
Meat and fish	338	546	534
Fruits and vegetables	774	861	1,039
Animals and other edible products	1,571	1,464	1,735
Coal	576	544	618
Crude petroleum	3,302	3,280	3,209
Other crude materials	1,207	1,267	1,479
Textiles	740	841	890
Chemical products	1,476	1,682	1,998
Fabricated metals	1,992	1,850	2,136
Other fabricated materials	1,736	1,838	1,975
Motor vehicles and parts (partial)	8,237	9,400	11,396
Other machinery and equipment	9,295	9,632	10,587
Other imports	3,472	4,239	4,560
Total imports	34,716	37,444	42,156

^r Revised.

Table 9. Imports, by leading countries, 1975-77
(million dollars)

Country	1975	1976	1977
United States	23,641	25,752	29,630
Japan	1,205	1,524	1,603
Venezuela	1,107	1,299	1,360
United Kingdom	1,222	1,150	1,281
Federal Republic of Germany	795	781	964
Saudi Arabia	746	482	712
Iran	756	695	537
France	487	437	522
Italy	380	365	399
Australia	345	339	353

rose from 25 per cent to about 27 per cent, while other equipment and machinery declined one-half percentage point to 25 per cent. The value of crude oil landings declined slightly again in 1977, but this was offset by increased imports of coal from the United States. Imports of fruits and vegetables continued to grow, but those of meat and fish were a bit lower in 1977. Manufactured goods accounted for some 65 per cent of all imports in 1977, after expanding for three successive years; but the proportion was lower than the proportion recorded earlier in the 1970s. The share for processed materials, at about 18 per cent, was unchanged from 1976, but the share for crude materials dropped one percentage point to about 16.5 per cent in 1977.



Wheat is poured into the hold of a grain ship and is transported through the Great Lakes.

Price and Volume Changes

Rates of advance in the average prices of both exports and imports have decreased over the past few years. Average export prices, however, increased about 6 per cent in 1977, as compared with an advance of some 11.5 per cent in average import prices. After improving slightly in 1976, Canada's terms of trade (the ratio of export to import prices) thus dropped fairly sharply in 1977 to about the level in 1973. Due to differing rates of growth in the average prices, the volume of exports rose 9 per cent in 1977, as compared with a fractional increase in real imports.

Finance

Public Finance

Powers and Responsibilities of the Various Levels of Government

The British North America (BNA) Act of 1867, which forms Canada's written constitution, specifies the distribution of taxing power and responsibilities between the federal Parliament and the provincial legislatures. Under Section 91 the federal Parliament is given unlimited taxing powers, while under Section 92 the provincial legislatures are granted the power of direct taxation within their provinces in order to raise revenue for provincial purposes. In addition, the BNA Act empowers the provinces to establish municipal institutions within their own territories; thus, the latter derive their powers and their fiscal and financial responsibilities from the provincial legislatures that created them.

Most major levies in Canada are direct taxes. A direct tax is generally recognized as one that is levied on the very person who should pay it; examples are personal and corporation income taxes, succession duties, social security contributions and a wide variety of provincial consumption taxes. The field of indirect taxation, which is occupied by the federal government, includes customs duties, excise levies, export

Calgary, Alberta



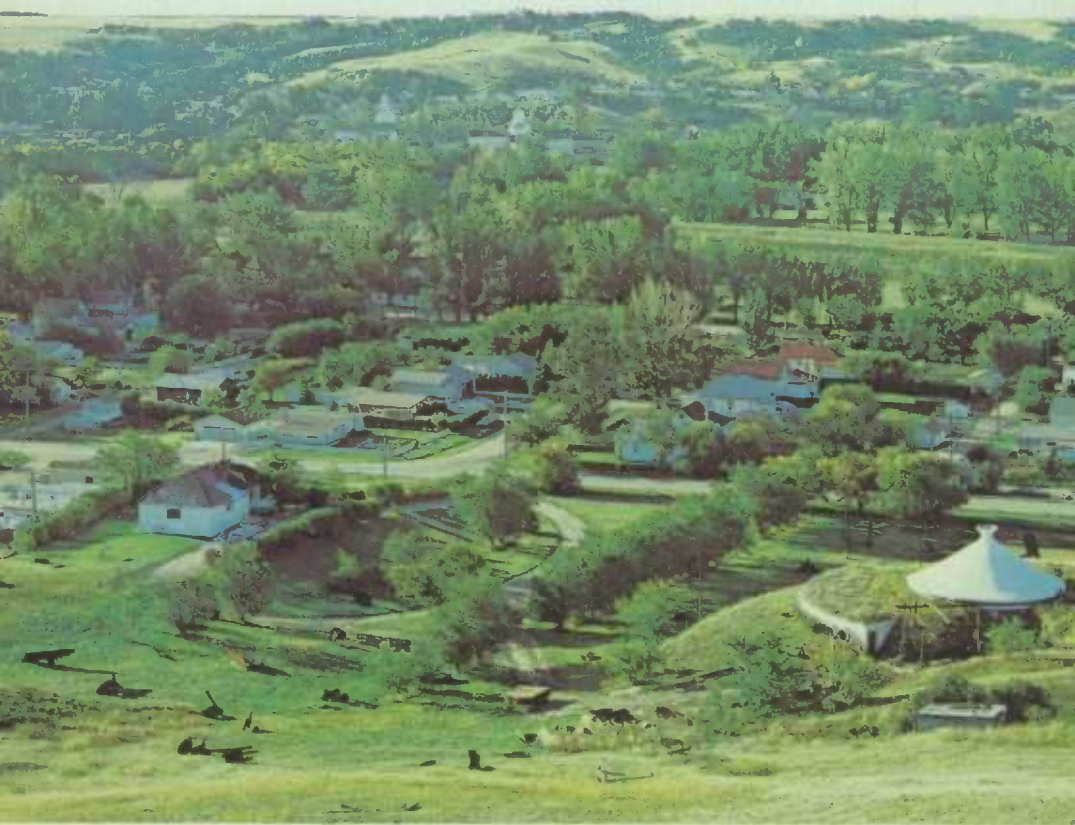


Thunder Bay, Ont.

charges on certain products and sales taxes levied on manufacturers. The federal government imposes both indirect taxes and direct taxes on income of individuals and corporations. The provincial governments levy only direct taxes, such as income taxes and numerous consumption taxes on sales of goods and services at the retail levels. Municipalities levy real property taxes and other imposts on places of business and specific municipal services.

Organization of Government

The organization 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 raise problems if one seeks to compare public finance from one government to another. However, by consolidating the transactions of all levels of government to form only one governmental universe, a measure of the collective impact of government financial activities upon the general public can be obtained, as is illustrated in the first columns of Tables 1 and 2.



Lumsden, Sask.

Intergovernment Fiscal Arrangements

Fiscal arrangements between the federal, provincial and territorial governments take various forms and are governed either by an Act of Parliament or by formal agreements between levels of government. Intergovernment transfer payments resulting from these arrangements are summarized in the following.

Statutory subsidies established by the BNA Act provide fixed annual grants in support of provincial legislatures and annual allowances up to amounts based upon provincial populations. For example, under the Public Utilities Income Tax Transfer Act, the federal government remits to the provinces 95 per cent of the income tax it collects from non-government-owned companies that generate or distribute electrical energy, gas and steam.

Federal-provincial fiscal, economic and financial relations are now governed by the Federal-Provincial Fiscal Arrangements and Established Programs Financing Act of 1977; this Act is renegotiated every five years. By virtue of the 1977 Act, the

federal government pays to a province, where applicable, fiscal equalization and stabilization payments, enters with the provinces into tax collection agreements and reciprocity agreements concerning provincial taxes and fees, makes guarantee payments in relation to provincial personal income tax revenue, transfers to the provinces 20 per cent of the tax on 1971 undistributed income on hand, and contributes to the financing of established programs. Equalization payments are the most important cash transfers made under this Act, and are based on the philosophy that all Canadian citizens are entitled to a standard of public services that is fairly comparable in all the regions of the country; thus, from its revenue collected in all provinces, the federal government makes part of the nation's wealth available to provinces with incomes lower than the national average income.

In accordance with the BNA Act a government does not levy taxes on another government; for example, where a government property would normally be subject to a levy, a grant is made to the municipality, province or other local taxing authorities in lieu of the property taxes the community must forgo because of the

A typical Prince Edward Island village.



exempt status of the property. However, due to the growing complexities of the economic and commercial transactions of governments, these constitutional provisions have become increasingly difficult to observe. To remove, or at least minimize the uncertainties and difficulties surrounding the paying of consumption taxes among governments, the federal government has entered into reciprocity agreements with the provinces concerning provincial taxes and fees. These agreements are spelled out in Part VIII of the Federal-Provincial Fiscal Arrangements and Established Programs Financing Act, 1977.

Another new feature of the 1977 Act concerns the financing of established programs such as post-secondary education, hospital insurance, medical care and extended health care services. Provisions for that financing are set out in Part VI of the Act and replace the cost-sharing provisions of the Hospital Insurance and Diagnostic Services Act and the Medical Care Act; they also deal with the arrangements pertaining to "contracting-out". Under the new financing system, the federal contributions take the form of a transfer of a share of its field of income taxes and cash payments. Federal cash payments to the provinces in 1977-78, exclusive of the value of the fiscal transfers, were as follows: hospital insurance, \$1,620 million; medical care insurance, \$574 million; post-secondary education, \$1,050 million; and extended health care services, \$466 million.

Most provincial government transfer payments take the form of specific purpose transfers to local entities. Among such transfers, the largest are contributions to elementary and secondary education, which constitute a major source of funds for financing local school boards' expenditures.

Children in a school class at Inuvialuk Bay, N.W.T.





Vancouver, BC.

Financial Transactions of the Various Levels of Government in the Fiscal Year Ended Closest to December 31, 1975

Tables 1 to 4 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, 1975. The fiscal years concerned were April 1, 1975, to March 31, 1976, for the federal and provincial governments and January 1, 1975, to December 31, 1975, for most local governments.

The data are derived from the financial statements of the various governments and their agencies. Since these statements generally reflect the idiosyncratic organization of each government and hence are mutually incompatible, the data have been recast in accordance with the financial management statistical framework which identifies revenues by source and expenditures by function so that the resulting statistics are compatible among governments and levels of governments.

Table 1. Revenue of federal, provincial and local governments

(fiscal year ended closest to December 31, 1975)

Source of revenue	All governments consolidated	Federal government		Provincial governments		Local governments	
		Amount	Share of total revenue	Amount	Share of total revenue	Amount	Share of total revenue
	\$'000	\$'000	%	\$'000	%	\$'000	%
Taxes:							
Personal income taxes	19,137,882	12,709,172	36.6	6,428,710	19.7	...	...
Corporation income taxes	7,839,399	5,748,176	16.6	2,091,223	6.4	...	...
General sales taxes	7,183,131	3,514,806	10.1	3,663,810	11.2	4,515	--
Real property taxes	5,051,767	...	...	84,937	0.3	4,966,830	33.7
Customs duties	1,887,212	1,887,212	5.4	...	...	...	...
Motive fuel taxes	1,943,500	425,084	1.2	1,518,416	4.7	...	...
Health insurance premiums	731,061	...	...	731,061	2.2	...	...
Social insurance levies	2,813,141	1,948,762	5.6	864,379	2.7	...	...
Universal pension plan levies	1,982,727	1,456,898	4.2	525,829	1.6	...	...
Other taxes	4,615,652	2,835,722	8.2	1,261,429	3.9	518,501	3.5
Sub-total - taxes	53,185,472	30,525,832	87.9	17,169,794	52.7	5,489,846	37.2
Natural resources	2,631,589	28,361	0.1	2,603,228	8.0	...	...
Privileges, licences and permits	1,109,936	49,544	0.2	852,564	2.6	207,828	1.4
Other revenue from own sources	9,364,018	4,099,342	11.8	4,058,226	12.5	1,553,915	10.6
Transfers from other levels of government:							
For general purposes .....	...	...	...	2,704,079	8.3	1,068,730	7.3
For specific purposes .....	...	...	...	5,177,357	15.9	6,402,122	43.5
Sub-total - transfers .....	...	...	...	7,881,436	24.2	7,470,852	50.8
Total revenue	66,291,015	34,703,079	100.0	32,565,248	100.0	14,722,441	100.0

... Not applicable.

-- Amounts too small to be expressed.

Source: Statistics Canada, Catalogue Nos. 68-202, 68-204, 68-207, 68-209 and 68-211.

Table 2. Expenditure of federal, provincial and local governments
(fiscal year ended closest to December 31, 1975)

Functions of expenditure	All governments consolidated	Federal government		Provincial governments		Local governments	
		Amount	Share of total expenditure	Amount	Share of total expenditure	Amount	Share of total expenditure
	\$'000	\$'000	%	\$'000	%	\$'000	%
General government	4,447,243	1,867,675	5.1	1,865,007	5.4	714,561	4.5
Protection of persons and property ¹	5,717,335	3,301,020	9.0	1,194,736	3.5	1,221,579	7.6
Transportation and communications	6,783,612	2,392,381	6.5	2,471,599	7.2	1,919,632	12.0
Health	8,961,018	218,855	0.6	8,532,499	24.9	209,664	1.3
Social welfare	16,155,805	11,153,194	30.3	4,510,955	13.2	419,656	3.1
Education	10,653,571	512,090	1.4	3,388,850	9.9	6,752,631	42.3
Environment	1,911,917	236,344	0.6	321,924	0.9	1,353,649	8.5
Other expenditure	17,179,981	9,322,476	25.3	5,106,898	14.9	2,750,605	17.2
Intergovernment sales of goods and services .....	...	80,886	0.2	266,579	0.8	...	...
Transfers to other levels of government:							
For general purposes .....	...	2,594,049	7.0	893,012	2.6	...	...
For specific purposes:							
Transportation and communications .....	...	86,598	0.2	456,940	1.3	6,285	- -
Health .....	...	2,562,676	6.9	75,773	0.2	525,070	3.3
Social welfare .....	...	1,346,862	3.7	216,199	0.6	29,163	0.2
Education .....	...	665,796	1.8	4,332,728	12.6	...	...
Other purposes .....	...	503,974	1.4	683,970	2.0	7,694	- -
Sub-total-specific purpose transfers .....	...	5,165,906	14.0	5,765,610	16.7	568,212	3.5
Sub-total-transfers .....	...	7,759,955	21.0	6,658,622	19.3	568,212	3.5
Total expenditure	71,810,482	36,844,878	100.0	34,317,669	100.0	15,910,189	100.0

¹ Includes national defence.

... Not applicable.

- - Amounts too small to be expressed.

Source: Statistics Canada, Catalogue Nos. 68-202, 68-204, 68-207, 68-209 and 68-211.

Table 3. Financial assets of federal, provincial and local governments

(fiscal year ended closest to December 31, 1975)

Financial assets	Federal government		Provincial governments		Local governments	
	Amount \$'000	Share of total %	Amount \$'000	Share of total %	Amount \$'000	Share of total %
Cash on hand or on deposit	1,818,638	3.4	3,128,961	10.9	896,640	11.5
Receivables	555,037	1.0	1,601,998	5.6	1,922,026	31.8
Loans and advances	27,119,305	50.7	4,065,082	14.2	604,839	9.9
Investments:						
Canadian securities	21,097,719	39.5	15,578,431	54.4	1,898,661	31.2
Foreign securities	1,079,045	2.0	...	...	...	...
Sub-total—investments	22,176,764	41.5	15,578,431	54.4	1,898,661	31.2
Other financial assets	1,808,534	3.4	4,283,743	14.9	960,263	15.8
Total financial assets	53,478,278	100.0	28,658,215	100.0	6,082,429	100.0

... Not applicable. Source: Statistics Canada. Catalogue Nos. 68-202, 68-204, 68-207, 68-209 and 68-211.

Table 4. Liabilities of federal, provincial and local governments

(fiscal year ended closest to December 31, 1975)

Financial liabilities	Federal government		Provincial governments		Local governments	
	Amount \$'000	Share of total %	Amount \$'000	Share of total %	Amount \$'000	Share of total %
Borrowings from financial institutions .....	...	...	489,991	1.5	1,987,896	11.8
Payables	11,383,496	20.1	2,478,619	8.0	1,383,790	8.1
Loans and advances .....	...	...	1,851,706	8.0	...	...
Bonds and debentures:						
Canadian market	37,521,630	66.2	19,163,809	61.9	11,483,705	68.2
Foreign market	175,367	0.3	5,821,999	18.8	1,511,078	9.0
Sub-total—bonds and debentures	37,696,997	66.5	24,985,808	80.7	12,994,783	77.2
Other liabilities	7,606,107	13.4	1,177,650	3.8	492,258	2.9
Total liabilities	56,686,600	100.0	30,983,774	100.0	18,838,527	100.0

... Not applicable. Source: Statistics Canada. Catalogue Nos. 68-202, 68-204, 68-207, 68-209 and 68-211.



The highway climbs steep valley walls near Osoyoos, BC.

Federal Government Transactions. In the period under review the federal government derived a revenue of \$34,703,079,000 and incurred an expenditure of \$36,844,878,000. Of the federal revenue 36.6 per cent was obtained from personal income tax, 16.6 per cent from corporation income tax and 10.1 per cent from general sales taxes; these three sources accounted for 63.3 per cent of the total. Social welfare, transfers to other levels of government (mostly provincial) and protection of persons and property (mainly national defence) accounted for 30.3, 21.0 and 9.0 per cent respectively (60.3 per cent collectively) of the total federal expenditure.

The financial assets of the federal government amounted to \$53,478,278,000 and its liabilities to \$56,686,600,000 on March 31, 1976. Of its financial assets 50.7 per cent were in the form of loans and advances and 41.5 per cent pertained to investments in securities; 66.5 per cent of its liabilities related to bonds and debentures and 20.1 per cent to payables.

Provincial Government Transactions. In the fiscal year 1975-76 the total revenue of provincial governments amounted to \$32,565,248,000 and total expenditure was \$34,317,669,000. Health insurance premiums and the levies on personal income, general sales, motive fuel and corporation income provided 2.2, 19.7, 11.2, 4.7 and 6.4 per cent respectively (44.2 per cent collectively) of total revenue. Provincial governments also received 24.2 per cent of their revenue in the form of



Railway bridge at Sudbore, NB.

transfers from other governments (mainly from the federal government). Health, transfers to other levels of government, education and social welfare accounted for 24.9, 19.3, 9.9 and 13.2 per cent respectively (67.3 per cent collectively) of total expenditure.

On March 31, 1976, the total financial assets of provincial governments stood at \$28,658,215,000 and their total liabilities at \$30,963,774,000. Of their financial assets 54.4 per cent were in the form of investments in securities and 14.2 per cent related to loans and advances, while 80.7 per cent of their liabilities were covered by bonds and debentures.

Snowplow at work in Selkirk, Man.



Local Government Transactions. During the fiscal year ended closest to December 31, 1975, local governments had total revenue of \$14,722,441,000 and total expenditure of \$15,982,189,000. Real property taxes and transfers from other levels of government (mainly from provincial governments) produced 33.7 and 50.8 per cent respectively of total revenue. Education, transportation and communications, protection of persons and property, and environment accounted for 42.3, 12.0, 7.6 and 8.5 per cent respectively (70.4 per cent collectively) of total expenditure.

At the end of the fiscal year the total financial assets of local governments amounted to \$6,082,429,000 and total liabilities to \$16,838,527,000. Most of these financial assets were in the form of receivables and investments in securities (31.6 and 31.2 per cent respectively), while their liabilities related mostly to bonds and debentures (77.2 per cent of the total).



Graphic studio at Sheridan College of Applied Arts and Technology in Oakville, Ont.

Balance of International Payments

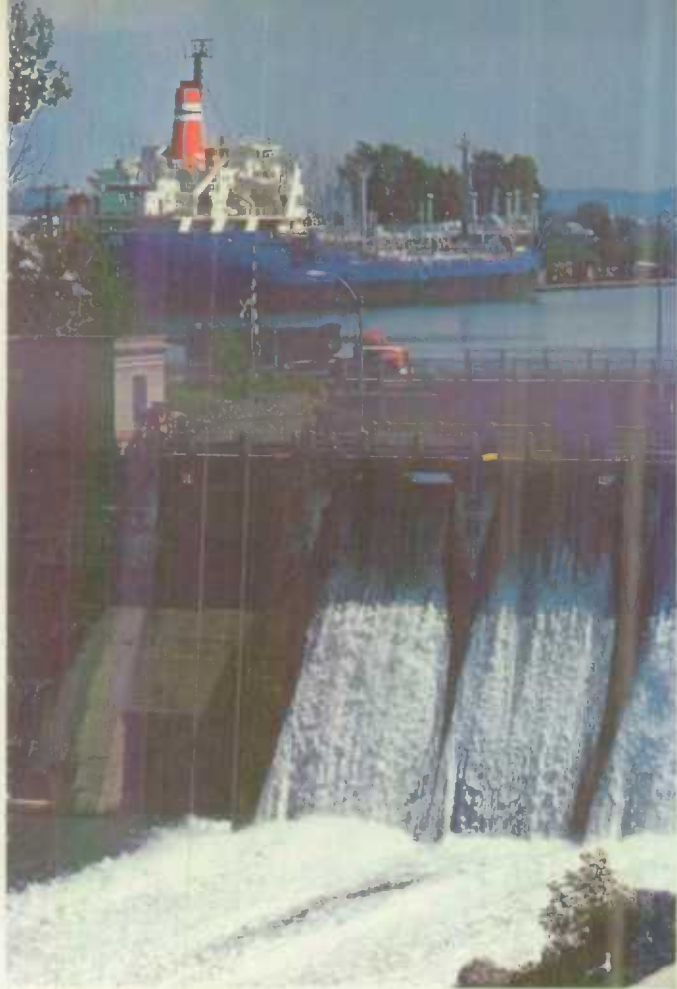
The Canadian balance of international payments summarizes transactions between residents of Canada and those of the rest of the world. International transactions in goods, services, transfers and capital have an important effect on the Canadian economy and monetary system, so the balance of payments accounts form an integral part of the system of national accounts. Transactions in goods and services are also an important constituent and determinant of the gross national product (GNP), 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. A considerable amount of the information used originates from annual, quarterly and monthly surveys carried out by the Balance of Payments Division of Statistics Canada. Other divisions of Statistics Canada, other government departments and the Bank of Canada all provide information concerning transactions between residents of Canada and non-residents.

There was a small increase in the current account deficit in 1977 to \$4.150 million. While the merchandise trade surplus nearly tripled to \$2.916 million, this movement was more than offset by a rise of almost \$1.900 million in the deficit on non-merchandise transactions to \$7.066 million. The strength in the merchandise trade

Calgary's new international airport.





The Welland Canal system.

account arose from faster growth in exports than imports. A large part of the expansion occurred in shipments to the United States where economic activity was relatively strong, particularly in the first half of 1977. The deterioration in the non-merchandise account was largely accounted for by sharp increases of approximately \$1 billion and \$450 million in net payments of interest and dividends and on travel account, respectively.

Capital movements during 1977 produced a net inflow of \$5,170 million, down \$2,750 million from 1976. The net inflow in long-term forms was over \$4.3 billion, down \$3.5 billion from the previous year. Almost all of this change arose from a \$3.3 billion decline to \$5.75 billion in Canadian new security issues sold abroad from the record 1976 level. Other major movements which contributed to the smaller net inflow were: a \$270 million decline in the inflow from net sales of outstanding bonds to non-residents; a doubling in the net outflow for official export credits to \$532 million; an increase of \$235 million in the outflow for Canadian direct

investment abroad; a \$200 million reduction in the net inflow from "other long-term capital transactions", principally borrowing from foreign banks; and an increase of about \$150 million in Government of Canada loans and advances to foreign governments and international financial agencies. Partly offsetting these movements was a swing of \$700 million to an inflow of \$410 million for foreign direct investment in Canada.

Capital movements in short-term forms led to a net inflow of \$824 million, up from \$46 million in 1976. The main factor in this change was a \$2,300 million turnaround in foreign currency banking flows to an inflow of \$1,384 million as the chartered banks reduced their net foreign currency position with non-residents. Movements in the opposite direction were a reduction of almost \$800 million to \$422 million in the net inflow for the acquisition by non-residents of Canadian money market instruments and a doubling of the net outflow by non-bank residents to increase their holdings of short-term funds abroad.

Net errors and omissions were equivalent to an outflow of \$2,441 million down over \$1,200 million from the previous year. The overall balance of payments deficit as measured by net official monetary movements was \$1,421 million in the year, a turnaround of almost \$2 billion from a surplus of over \$500 million in 1976. There was a loss of reserves in each quarter of the year although the loss was minimal in the second quarter after a sharp fall in the first three months of the year. The loss in the year brought the level of official international reserves to US\$4,607 million, the lowest since 1970.

In the year the Canadian dollar depreciated significantly against the US dollar, dropping about 8 per cent. With even sharper falls against overseas currencies, the effective decline of the Canadian currency was almost 9.5 per cent.

Balance of International Indebtedness

Preliminary estimates of Canada's international investment position at the end of 1977 indicate that Canada's net indebtedness to other countries reached a book value of over \$53.5 billion. Canadian long-term investment abroad increased by some \$3 billion to \$27 billion. The major elements in this increase were outflows of long-term direct investment capital, reinvested earnings accruing to Canadians from their investments abroad and export credits. With the inclusion of short-term claims on non-residents, the total of Canada's external assets amounted to over \$52.5 billion. Decreases in Canada's net official monetary assets and other short-term holdings of foreign exchange were more than offset by an increase in other short-term receivables.

Long-term foreign investment in Canada at \$89 billion had increased by about \$9 billion reflecting predominantly an inflow of long-term portfolio capital and an increase in earnings accruing to non-residents. Net sales of government bonds were sizeable though not as large as the record level registered in 1976. Other long-term liabilities including non-resident equity in Canada's assets abroad brought the total of long-term liabilities to about \$94 billion. With the addition of various short-term claims Canada's external liabilities to non-residents exceeded \$100 billion for the first time, totalling some \$106 billion at 1977 year-end.



Calgary, Alta.

Currency and Banking

Canada has a decimal currency with 100 cents to the dollar. The Bank of Canada has the sole right to issue notes for circulation in Canada and these notes, together with the coinage produced by the Royal Canadian Mint, make up the currency in circulation and are the means of payment in cash transactions.

While cash transactions still play an important role in the payments system, the widespread use of cheques and, in more recent years, of credit cards has meant that the role of currency has become less important. By far the largest proportion of the public's holdings of money is held in deposit balances at financial institutions, principally the chartered banks, where it may be drawn on for making payments. Three types of chequing accounts are offered by the chartered banks — current and personal chequing accounts, on which no interest is paid, and chequable savings accounts, on which interest is paid. There are also non-chequable savings accounts, on which the banks pay a higher rate of interest, and various types of term deposits.

Other deposit-taking institutions, such as credit unions, caisses populaires and trust and mortgage loan companies, also offer various types of savings and term deposits, including chequable savings accounts.

Bank of Canada

The Bank of Canada is Canada's central bank and the agency directly responsible for monetary policy. The ability of the Bank of Canada to exercise a broad controlling influence over the growth of money and the level of interest rates in Canada, and thereby to affect levels of spending and economic activity, stems primarily from the control it has over the amount of cash reserves available to the banking system.

Under the Bank Act, which regulates the operations of Canada's chartered banks, each chartered bank is required to maintain cash reserves in the form of deposits with or notes of the Bank of Canada equal to a stipulated percentage of its Canadian dollar deposit liabilities. The amount of cash reserves supplied to the banking system relative to the required level influences the willingness of the chartered banks to purchase securities or make loans and to bid for new deposits. If the supply of cash reserves is low relative to the required amount, banks will be forced to sell securities, restrict lending and bid for new deposits in order to acquire more cash reserves. These actions by the banks will tend to push up interest rates and encourage the general public to reduce its holdings of non-interest bearing demand deposits and currency. An increase in the supply of cash reserves has the opposite effect placing downward pressure on interest rates and encouraging the public to hold more money. Various techniques are used by the Bank of Canada to alter cash reserves, but the principal means involve changes to its holdings of Government of Canada securities.

The aim of the Bank of Canada's cash reserve management of the chartered banking system is to influence interest rates in a manner such that the money supply (defined as currency and privately-held demand deposits at chartered banks) will grow at a rate consistent with the monetary targets set by the bank. As of October 1977, the target range for the money supply has been a trend rate of increase of 7 per cent to 11 per cent measured from the average level for the month of June 1977. Since 1975 the targets for monetary expansion have been lowered on two occasions in line with the Bank of Canada's long-run objective of gradually reducing money growth to a rate which would accommodate the maximum growth of output in the economy that is consistent with stable prices.

Although management of the cash reserves of the banking system is the primary policy instrument used by the Bank of Canada, various supplementary tools are also available. The bank also has the power to require the chartered banks to hold secondary reserves consisting of excess cash reserves, treasury bills and day-to-day loans to money market dealers. It is authorized to make short-term advances to chartered banks and can change the bank rate, the minimum rate at which it is prepared to make advances. Changes in the bank rate not only influence the current level of interest rates but also serve as an indication of the bank's stance on monetary policy.



Inspection during the minting process at the Royal Canadian Mint in Winnipeg, Man.



In addition to its responsibility for monetary policy the Bank of Canada acts as fiscal agent for the Government of Canada. In this role it undertakes the management of the public debt for the government, operates a deposit account through which flow virtually all of the government's receipts and expenditures, handles foreign exchange transactions for the government and generally acts as an adviser on economic and financial matters.

Chartered Banks

The chartered banks are the largest deposit-taking institutions in Canada and a major source of short- to medium-term financing. They are major participants in the Canadian short-term money market and it is primarily through their response to the Bank of Canada's cash management that the influence of the central bank is transmitted to the money market and to credit markets generally. They also operate the country's cheque-clearing system. In addition to their domestic activities the chartered banks have an extensive foreign currency business and maintain offices and branches in major financial centres around the world.

At present there are 11 chartered banks operating in Canada; five of them have very extensive country-wide branch systems, while two operate principally in Quebec. The other more recently established banks operate largely in one region or specialize in wholesale banking. All banks operate under charters granted by Parliament under the terms of the Bank Act and are subject to inspection.

The chartered banks have a very wide range of dealings with all parts of the community. Bank loans are a major source of financing for businesses, farmers, governments and consumers, and banks account for a major share of the consumer credit extended. Most loans are relatively short-term, but the banks also provide term loans to businesses and farmers and invest in residential mortgages. They also offer their customers a variety of other services, including credit cards and facilities for obtaining foreign exchange and for the safekeeping of valuables.

Other Financial Institutions

In addition to the chartered banks, a wide range of other financial institutions serves the diverse needs of the community. The growth and development of such institutions has been particularly rapid during the past two or three decades, in large part reflecting the expansion of the Canadian economy and the increasing complexity of financial markets. While there is a degree of specialization in the different types of institutions, there is also considerable competition. Among the more important non-bank deposit-taking institutions are the trust and mortgage loan companies, the credit unions, or caisses populaires as they are called in Quebec, and the Quebec savings banks. Other major institutions include the sales finance and consumer loan companies, the life insurance companies and various types of investment companies. Stockbrokers and investment dealers also play an important role in financial markets. A number of institutions, including government agencies, specialize in medium- to longer-term financing for small businesses, farmers and exporters or in particular types of lending such as leasing.

The trust and mortgage loan companies have experienced rapid growth in recent years. There are about 100 such companies in Canada, most of which have branch networks. They compete with the chartered banks for deposits, mainly through the sale of fixed-term debentures and investment certificates, and are the largest lenders in the mortgage market, holding a major share of their assets in the form of mortgages. Trust companies also 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



Extended banking services in Toronto, Ont.

companies are licensed and supervised either by the federal Department of Insurance or by provincial authorities.

Credit unions and caisses populaires have grown rapidly in recent years and have become an important part of the financial system. Most of them are formed on the basis of a common bond, such as employment, or organized on community lines; they differ from other financial institutions in their co-operative nature and local character. Shares are sold to members, but most of the funds come from deposits and their assets are held largely in the form of mortgages and personal loans to members. Credit unions operate under provincial legislation; nearly all belong to central credit unions operating within their respective provinces.

Insurance

At the end of 1976, Canadians owned over \$262,000 million worth of life insurance, with an average of \$36,400 in force per household. Canadians are well insured compared to people in other countries. The Canadian life insurance business consists of about 250 companies and fraternal benefit societies, over half of which are federally registered companies. The latter group of companies writes more than 92 per cent of the total business of the industry and holds assets in Canada of over \$25,000 million.

In addition to life insurance, most of the companies sell policies that cover expenses resulting from illness and compensate policyholders for wages not received during illness; such insurance may be purchased from a licensed insurance salesman or through a "group" plan operated by an employer, a professional association, or a union. About 300 companies sell property, automobile, liability and other casualty lines. The federally registered companies selling such insurance have assets in Canada of over \$6,000 million.



Vancouver, BC waterfront

Transportation

Transportation has shaped the history of Canada and helps mould the lives of its people today. Over the years, the form of transportation has shifted from the explorer's canoe and the settler's train to the automobile and aircraft. Dramatic changes in for-hire carriage of goods have occurred in the span of two generations. In 1930, railways earned an estimated 85 per cent of Canada's freight revenue; by 1960, their share had dropped to less than 50 per cent. For-hire trucks accounted for 2 per cent of total freight revenue in 1930 and 30 per cent in 1960. By 1976, motor vehicle freight revenues had surpassed those for railway freight.

Air Transport

Transport Canada both regulates and serves civil aviation — providing registration and licensing of aircraft and licensing of personnel. From January 1968 to December 1977, the number of civil aircraft in Canada more than doubled, from 9,162 to 20,976. Licences in force for pilots, flight navigators, air traffic controllers and flight and maintenance engineers totalled an estimated 57,100 on December 31, 1977. The department operates airports and provides air traffic control and other navigation facilities. In 1977, the 59 airports with Transport Canada air traffic control towers handled an estimated 6.7 million landings and take-offs, up 3.1 per cent over 1976 and 53 per cent over 1970. Both itinerant and local movements showed substantial increases over the period.

Table 1. Distribution of itinerant movements¹ at Transport Canada tower-controlled airports, by type of power plant, 1974-77

	1974		1975		1976		1977	
	No.	%	No.	%	No.	%	No.	%
Piston.....	1,465,022	57.7	1,833,301	61.1	1,850,500	60.9	2,004,785	62.1
Turbo-prop.....	234,495	9.2	246,825	8.3	249,911	8.2	287,841	8.9
Jet.....	734,675	28.9	781,390	26.1	786,097	25.9	771,114	23.9
Helicopter.....	100,837	4.0	127,471	4.3	148,530	4.9	158,704	4.9
Glider.....	4,512	0.2	4,412	0.2	3,233	0.1	5,203	0.2
Total.....	2,539,541	100.0	2,993,399	100.0	3,038,271	100.0	3,227,647	100.0

¹ A landing or take-off of an aircraft that is arriving from one airport or departing to another.

The Canadian Transport Commission licenses and regulates commercial air carriers. The scheduled international routes of four Canadian air carriers — Air Canada, CP Air, Pacific Western Airlines and Nordair — form a vast network connecting Canada to every major continent. Canadian airlines also fly charters to destinations around the world. In addition to providing air transport, Canadian air carriers perform many varied services including crop dusting, forest fire patrol, pipeline inspection and aerial surveying.

Table 2. Scheduled air passenger origin and destination journeys, top 10¹ city pairs, 1971-77
(thousands of passengers)

City pair	1971	1972	1973	1974	1975	1976	1977
Montreal, Que.- Toronto, Ont.....	685.8	758.6	915.6	965.7	962.8	948.4	924.1
Ottawa, Ont.- Toronto, Ont.....	326.6	347.6	432.5	493.8	495.9	479.8	487.0
Calgary, Alta.- Edmonton, Alta.....	254.8	275.3	332.2	372.4	412.5	429.4	478.8
Toronto, Ont.- Vancouver, BC.....	182.8	206.0	271.4	302.0	301.8	287.2	288.7
Calgary, Alta.- Vancouver, BC.....	179.4	201.9	247.6	275.1	291.3	291.9	278.8
Edmonton, Alta.- Vancouver, BC.....	144.7	170.1	217.3	246.7	253.8	265.7	247.7
Toronto, Ont.- Winnipeg, Man.....	163.1	179.2	210.5	234.2	238.3	233.5	231.4
Calgary, Alta.- Toronto, Ont.....	86.7	104.3	128.7	156.7	174.2	184.9	193.2
Halifax, NS- Toronto, Ont.....	103.1	113.5	147.3	158.6	168.4	168.6	156.6
Edmonton, Alta.- Toronto, Ont.....	72.8	88.7	111.3	124.1	138.7	150.5	153.3

¹ Ranked on 1977 figures.



Supplies transported by helicopter near the Eastmain River in Quebec.

Table 3. Operations, operating revenue and expenses and fuel consumption, commercial air services, 1976 and 1977
(thousands)

	Transcontinental and regional air carriers ¹		All other air carriers		Total all air carriers	
	1976 ^f	1977 ²	1976 ^f	1977 ²	1976 ^f	1977 ²
Operations						
Passengers.....	18,027	18,886	2,967	3,510	20,994	22,396
Passenger-kilometres.....	29 812 028	31 880 835	2 964 315	3 663 893	32 776 343	35 544 728
Goods tonne-kilometres.....	758 432	758 300	21 864	22 848	780 296	781 148
Flight departures.....	393	383	728	799	1,121	1,182
Hours flown.....	568	555	1,824	1,990	2,392	2,545
Operating revenues and expenses						
Total operating revenues (\$).....	1,681,853	1,912,308	375,793	425,773	2,057,646	2,338,081
Total operating expenses (\$).....	1,642,143	1,787,657	360,176	405,198	2,002,319	2,192,855
Fuel consumption						
Turbo fuel (litres).....	3 033 903	2 993 207	258 546	300 606	3 292 449	3 293 813
Gasoline (litres).....	2 700	1 787	77 688	79 011	80 388	80 798

¹ Air Canada, CP Air, Eastern Provincial Airways, Quebecair, Nordair, Transair and Pacific Western Airlines.

² Estimate.

^f Revised.

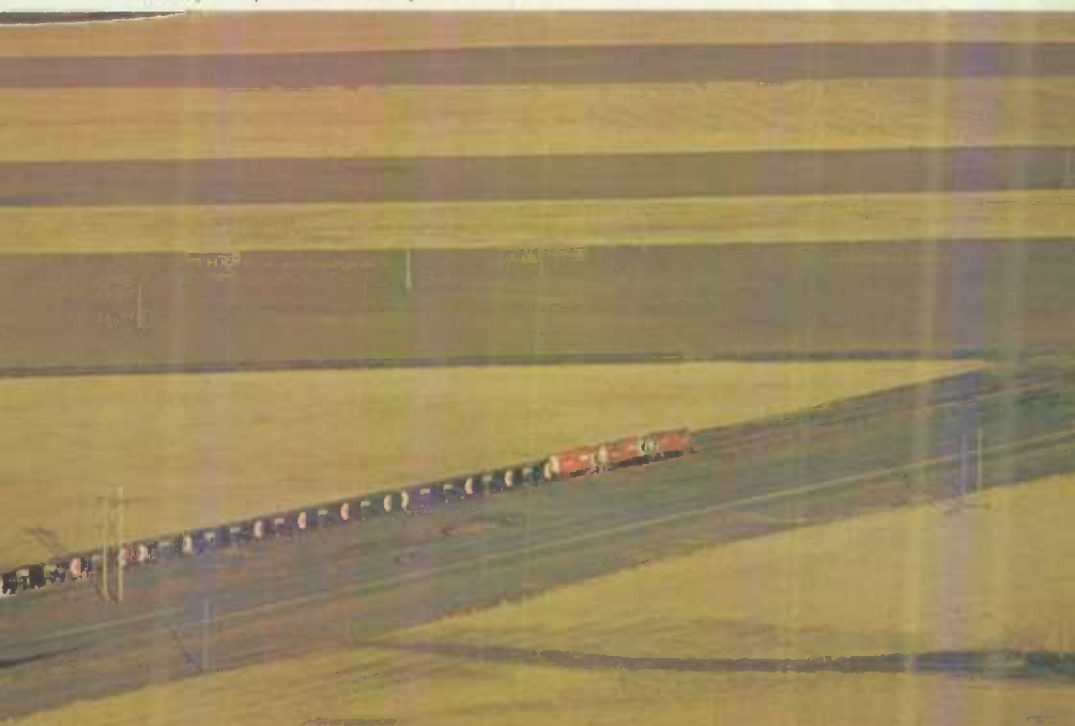
In 1976, the 632 air carriers licensed to operate in Canada reported operating revenues of \$2,058 million; comparable figures for 1977 approached \$2,338 million. Expenditures, shown at \$2,002 million in 1976, were estimated at \$2,193 million for 1977. In 1976, these carriers transported 15.3 million passengers domestically and 5.7 million on international services; in 1977 they carried an estimated 22.4 million, an increase of 6.7 per cent over the 1976 total of 21 million passengers.

Trends in domestic travel are illustrated by scheduled air passenger origin and destination data. Figures for air journey origins and destinations of passengers between Montreal and Toronto showed an increase of 5.2 per cent between 1973 and 1975 while figures between 1975 and 1977 showed a decrease of 4.0 per cent. Ottawa-Toronto passenger totals grew by 14.7 per cent between 1973 and 1975 but decreased by 1.8 per cent between 1975 and 1977.

Railways

Historically, railways have played a central role in the political integration, settlement and economic development of Canada. In 1850 there were 106 km (kilometres) of railway in all of British North America; 80 years later Canada had 91 065 km of track in operation. Since 1930, growth has been slow, with occasional

Railway transportation near Weyburn, Sask.





Sevenshade project delivery trucks near Lytton, BC.

declines; by 1976, 96 319 km of track were in use. Two continent-wide railways, Canadian National and Canadian Pacific, spanned 7 000 km from Atlantic to Pacific over vast stretches of rock and muskeg, flat prairie and mountain ranges to make possible the settlement of Western Canada. Today, these railways offer multi-modal transportation services, with particular emphasis on the long-distance movement of bulk commodities and containers quickly, cheaply and efficiently.

Canadian Pacific is a private company, while Canadian National Railways is operated by the federal government. Provincially operated railways include the British Columbia Railway, British Columbia Hydro's railway, Ontario Northland and GO Transit.

In 1976, revenue freight carried by rail increased 5.7 per cent to 238 800 000 t (tonnes) from the 1975 total of 226 000 000 t. The number of passengers carried in 1976 remained at 23.6 million, almost unchanged from 1975, but 19.2 per cent above the 1973 figure of 19.8 million. In contrast, the number of employees needed to transport these people and goods fell to a record low of 120.872 in 1976, down 5.6 per cent from 127.986 employees in 1975.

Motor Vehicle Transportation

The principal means of passenger transportation remains the motor vehicle, with its associated high levels of fuel usage and its toll in injuries and accidents. Preliminary data for 1976 show that registrations of all motor vehicle types totalled 11.8 million. Of this figure, 76 per cent, or 9.0 million, were passenger automobiles.

Table 4. Motor carrier industry, 1976

	Motor carriers- freight ¹	Household goods movers ¹	Urban transit	Inter-city passenger bus	Other passenger bus service ²
Establishments reporting (No.)	2,467	291	75	58	1,338
Operating revenues (\$ millions)	2,863.8	159.5	669.2	189.5	266.9
Operating expenses (\$ millions)	2,746.9	152.2	649.0	172.9	236.3
Number of employees including working owners (thousands)	82.4	6.8	28.3	5.6	21.6
Revenue equipment operated (thousands)	118.9	4.8	10.7	2.1	18.8

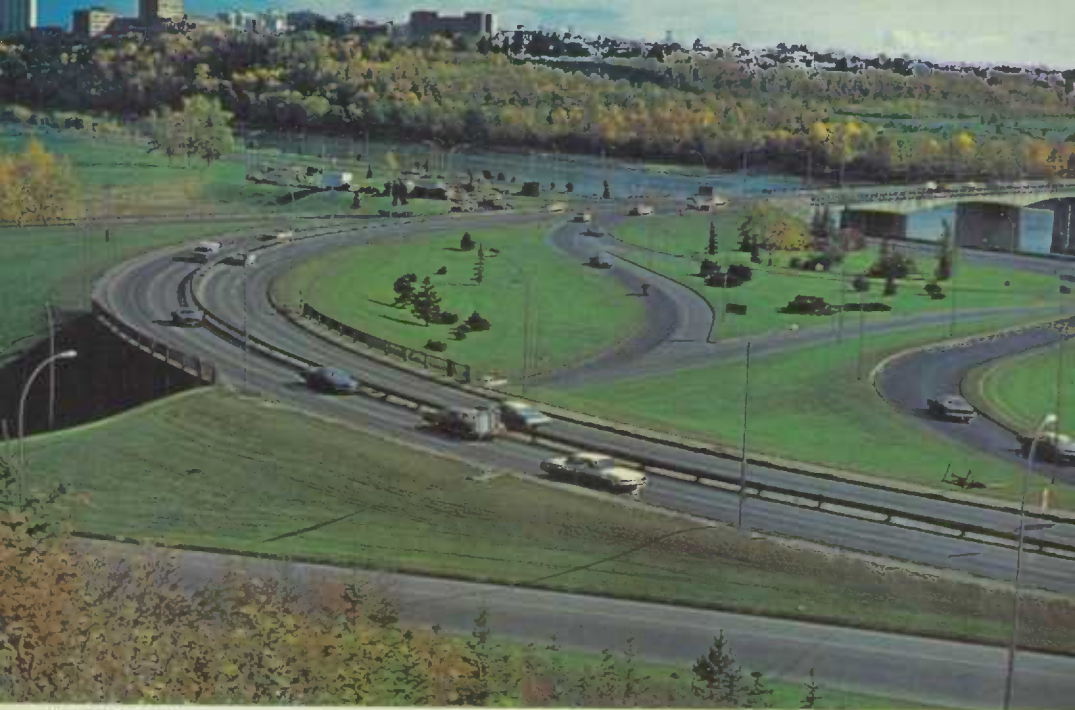
¹Excluding establishments reporting gross annual revenues of less than \$100,000 for 1975.

²Establishments engaged in limousine service to airports or stations, sightseeing, charter, tour and school bus service.

Truck and bus registrations were 2.3 million, or 20 per cent. Net sales of fuel to operate such vehicles amounted to 32 438 000 000 L (litres) of gasoline and 4 400 000 000 L of diesel fuel. The number of injuries attributed to motor vehicle accidents, according to preliminary data, was 194,460 in 1976, down 12.0 per cent from the previous year. The 5,224 fatalities in 1976 occurred in 4,396 separate accidents; equivalent figures for 1975 were 6,061 and 5,109 respectively.

Kamloops, BC.





Edmonton, Alta.

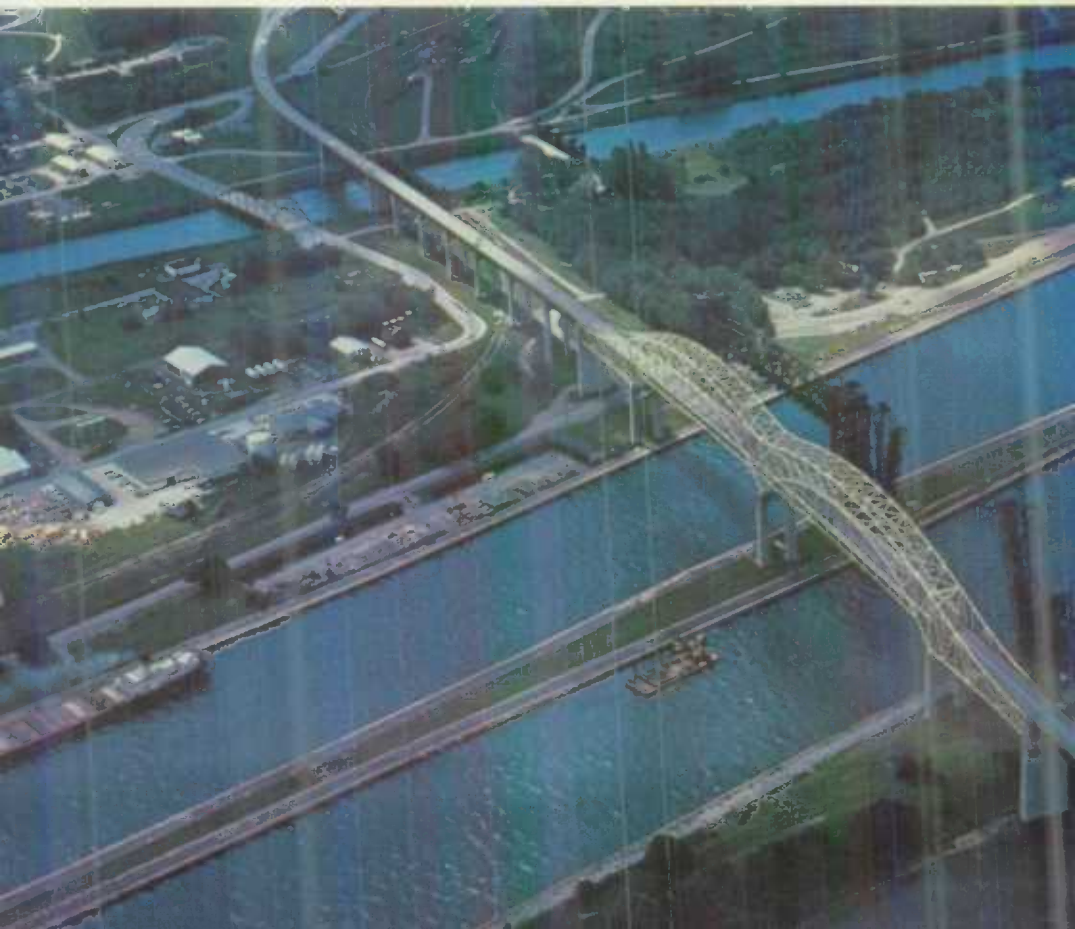


The Magnum Four was specifically designed to carry approximately 60 tonne loads in off-highway conditions.

Results from the 1976 survey of motor carriers (freight) are available for reported operating revenues of \$100,000 or more in 1975. The 2,758 carriers, including 291 household goods movers, showed operating revenues of over \$3 billion for 1976.

Motor carriers providing passenger services are classified into three basic divisions according to principal service, although a variety of services may be offered by a single operator. Of the 1,471 surveyed in 1976, 75 or 5 per cent were mainly engaged in the urban transit section, and reported \$669.2 million or 59 per cent of total operating revenues of \$1,125.5 million. The 58 operators of the intercity passenger bus services section represented 4 per cent of the carriers and accounted for 17 per cent of the revenue. The third section, providing such services as school bus, charter, tour and sightseeing, as well as limousine services to airports and stations, were surveyed for the first time in 1976. The 1,338 members of this classification accounted for 91 per cent of the carriers and 24 per cent of the operating revenue.

The St. Lawrence Seaway system at Sault Ste Marie, Ont.

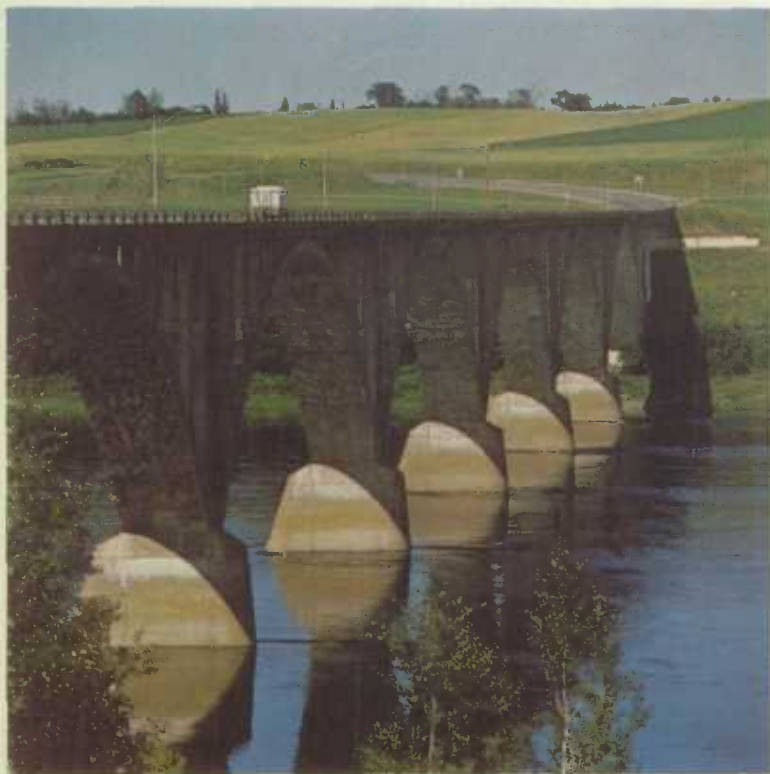


Water Transport

In 1975, the 560 Canadian commercial carriers and charters generated gross transportation revenues totalling \$1.2 billion, with \$1.1 billion grossed by 485 carriers. In addition, 50 private carriers and 25 sightseeing concerns grossed \$101 million and \$3 million respectively. The 78 carriers reporting annual operating revenue of \$1 million or more from water transport accounted for \$1 billion — 84 per cent of the total gross transportation revenue. The 560 carriers represented a total crew of 20,082 men earning a total of \$278 million in wages and benefits or 23 per cent of gross revenue from water transport.

Of the \$1,231 billion gross revenue reported from water transport, \$525 million (43 per cent) was derived from domestic transport. Movements between Canada and the United States accounted for \$141 million (11 per cent). Revenue of Canadian based companies having operations with foreign ports represented \$403 million (33 per cent). The remainder originated from revenue with no specific operating area.

The Saint John River, near Hartland, NB.





Locks at Montreal, Que.

During the 1976 shipping season, international freight handled at Canadian ports reached 171 300 000 t, a 3 per cent rise compared to 166 200 000 t in 1975. The number of vessels with international cargoes in Canadian ports increased to 43,926 from 40,522 in 1975.

In 1976, coastal trade decreased to 107 764 332 t, a slight drop of 0.9 per cent compared to 1975. The volume of freight handled declined in all provinces except New Brunswick, Manitoba and British Columbia, where gains of 3.7 per cent, 56.5 per cent and 14.8 per cent respectively were recorded.

Governments and Their Services

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Government

Canada is a federal state, established in 1867. In that year, at the request of three separate colonies (Canada, Nova Scotia and New Brunswick), the British Parliament passed the British North America (BNA) 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 that 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, while Nova Scotia and New Brunswick retained their former limits. In 1870 the Parliament of Canada created Manitoba; British Columbia entered the union in 1871 and Prince Edward Island in 1873. In 1905 the Parliament of Canada created Saskatchewan and Alberta and in 1949 Newfoundland joined.

The BNA Act gave Canada complete internal self-government and the country gradually acquired full control over external affairs as well. Canada is now a fully



Regina, Sask., with legislative building in the foreground.

sovereign state, except that a few very important parts of the Constitution can be changed only by Act of the British Parliament. This limitation, however, is purely nominal, as 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 an amending formula.

The BNA Act gives 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". The Act added a list of examples of this general power, which includes: defence; raising money by any kind of taxation; regulation of trade and commerce; navigation and shipping; fisheries; currency 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 amendment of 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 requirements 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 federal law prevailing over the provincial in case of conflict. Amendments have since provided for concurrent jurisdiction over pensions, but with provincial law prevailing in case of conflict.

The BNA Act also 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 languages and either language may be used in any pleading or process in courts set up by Parliament; the same provisions were made for the legislature and courts of Quebec. In 1969 Parliament adopted the Official Languages Act, which declares that English and French enjoy equal status and are the official languages of Canada for all purposes of the Parliament and Government of Canada.

Except for limited official bilingualism and certain educational rights for some religious minorities, the British North America Act provides no specific protection for basic rights like freedom of worship, of the press and of assembly. Therefore, the Parliament of Canada adopted a Bill of Rights in 1960 and has now adopted human rights legislation prohibiting discrimination in areas of federal jurisdiction.

Each provincial legislature has exclusive power over: the amendment of the provincial Constitution (except as regards the office of Lieutenant Governor, the

Parliament buildings in Ottawa, Ont.



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; administration of justice (including the establishment of civil and criminal courts and civil procedure); matters of a merely local or private nature; and education, subject to certain safeguards for denominational schools in Newfoundland and Protestant or Roman Catholic schools in the other provinces. Judicial decisions have given "property and civil rights" a very wide scope, including most labour legislation and much of social security.

The Canadian Constitution

The BNA Act and its amendments provide only a skeleton framework of government, which is filled out by judicial interpretation, by various Acts of Parliament and of the legislatures and, most of all, by custom or "convention".

The Sovereign'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 that gradually transformed the British monarchy into a parliamentary democracy. Canada has inherited and elaborated on these conventions to suit our own needs.

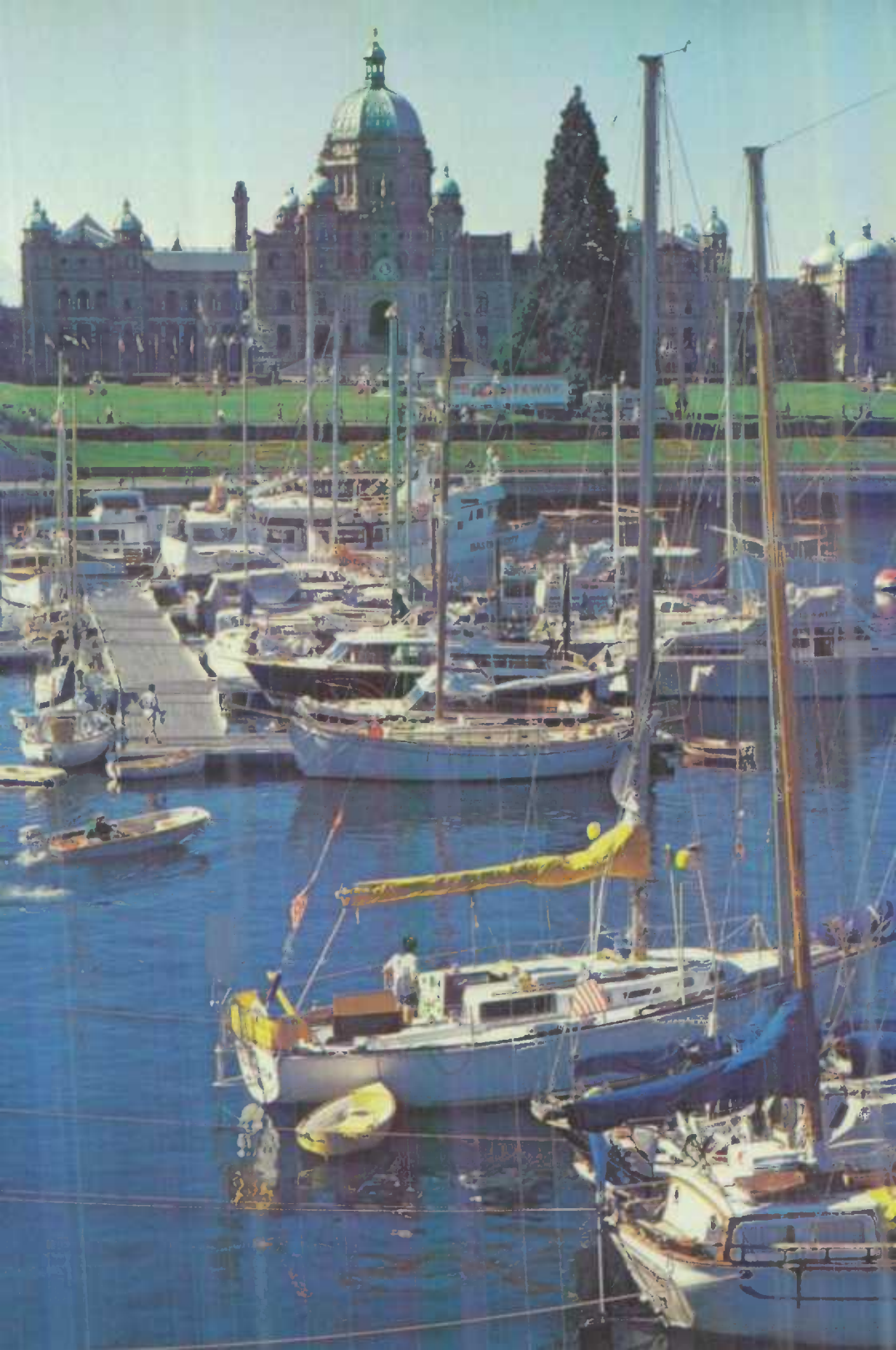
The Government of Canada

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 the powers of the Crown 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. The Crown is represented by the Governor General (now always a Canadian), whom the Queen appoints on the advice of the Prime Minister.

Except in extraordinary circumstances, the Governor General or the Queen must act on the advice of ministers. On the advice of the Prime Minister the Governor General appoints the ministers and the members of the Senate. The Prime Minister decides when Parliament shall meet and normally decides when a new Parliament shall be elected, although there must be a general election at least once every five years. The Governor General appoints judges of the superior, district and county courts, the Lieutenant Governors of the provinces, deputy ministers and other senior appointees on the advice of the ministers.

The Cabinet and the Prime Minister are part of the convention rather than the law of the Constitution. The BNA Act provides only for a "Queen's Privy Council for



Canada" appointed by the Governor General to "aid and advise" him; membership in the Privy Council is for life. It consists of all Cabinet ministers, all former ministers and various distinguished individuals appointed as a mark of honour. It is to some extent an honorific body, its practical importance being that membership in it is an essential requirement for holding ministerial office, and that only Privy Councillors currently holding ministerial office may advise the Governor General through orders-in-council.

The Cabinet is an informal body composed of those Privy Councillors currently holding ministerial office and is presided over by the Prime Minister. In May 1978 the Cabinet had 33 members, including the Prime Minister. By convention all ministers must be members of Parliament and it is the usual, but not invariable, practice that, with the exception of the Leader of the Government in the Senate, all ministers be members of the House of Commons. 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 members of 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 Cabinet as a whole is answerable to the House for government policy and administration generally.

If the government is defeated in the House on a motion of want of confidence, it must either resign office, at which point the Governor General calls on the Leader of the Opposition to form a new government, or seek dissolution of Parliament, which leads to a general election; the latter procedure is generally followed nowadays. Defeat of a major government bill is ordinarily considered a vote of want of confidence, leading to the same consequences, but the government can choose to consider any such defeat not decisive. The House then has the option of voting on a motion of want of confidence.

Only the government 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 government business and nearly all legislation now comes from the government. Ministers have the sole power to move closure, cutting off debate, and if the other parties fail to agree ministers can move to fix a timetable 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 year 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 104 seats with the following distribution: 24 from Ontario, 24 from Quebec, 24 from the Maritime provinces (10 each from Nova Scotia and New Brunswick and 4 from Prince Edward Island), 24 from the western provinces (6 each), 6 from Newfoundland, one from the Yukon Territory and one



Canada's new Governor-General Edward Schreyer and his wife Lily Schreyer, during ceremonial events.

from the Northwest Territories. Senators are appointed by the Governor General on the advice of the Prime Minister. They retire at age 75.

The BNA 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 (such as incorporation of companies) and, like the House of Commons, subjects general legislation to careful scrutiny in committee; it makes particular use of special ad hoc committees to examine questions of major public importance. In April 1978 the Senate had 74 Liberals, 1 Independent Liberal, 17 Progressive Conservatives, 1 Social Credit, 2 Independents and 9 vacancies.

The House of Commons has 264 seats: 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 Territory and the Northwest Territories. Members 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 House of Commons than in the Senate. The total number of members is redistributed after each decennial census. Following the next general election the House of Commons will have 282 seats: 7 from Newfoundland, 11 from Nova Scotia, 10 from New Brunswick, 4 from Prince Edward Island, 75 from Quebec, 95 from Ontario, 14 from Manitoba, 14 from Saskatchewan, 21 from Alberta, 28 from British Columbia, 2 from the Northwest Territories and 1 from the Yukon Territory. Any adult Canadian citizen (with some exceptions, such as people in jail) can vote. In January 1979 the Liberals had 135 members, the Progressive Conservatives 97, the

New Democratic Party 17 and the Social Credit Party of Canada 9; there were 5 Independent members and one seat was vacant.

In each House, all draft bills pass through three stages known as "readings". The first, at which time the bill is tabled, is purely formal. On the second, the House gives the bill consideration in principle and, if satisfied, refers it to a committee, where it is dealt with clause by clause. Supply and budget bills and such others as the House thinks fit are referred to the Committee of the Whole, which is the whole House sitting under special rules facilitating detailed discussion. All other bills are sent to one of the 19 "Standing Committees" (12 to 30 members each), each of which specializes 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 a third reading. If the bill passes this it is sent to the Senate, where it goes through much the same procedure, following which it receives Royal Assent and thereby completes the process by which legislation is enacted by the Crown in Parliament.

The Canadian Constitution would be unworkable without political parties. Yet parties are almost unknown to Canadian law (an exception being the Election Expenses Act), a notable example of the convention of the Constitution. The parties 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 reconcile divergent elements and interests from different parts of the country.

The Liberal Party has its roots in the pre-Confederation Reform parties that struggled for the establishment of parliamentary responsible government in the 1840s. 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 came to be 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 Co-operative Commonwealth Federation (CCF) joined forces to launch a new party; the CCF had been founded in 1932 by a group of farmer and labour parties in the western provinces. The Social Credit Party is based on the monetary theories of Major Clifford Douglas; in 1976 all its members in the House of Commons were from Quebec.

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.

All of Northern Canada west of Hudson Bay and many islands northeast of Hudson Bay constitute two territories, the Yukon Territory and the Northwest Territories, which come directly under the Government and Parliament of Canada but enjoy a growing degree of self-government.



City Hall at Kingston, Ont.

The Yukon Territory is administered by a commissioner, appointed by the Government of Canada, and an elected Council of 12. 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, property and civil rights, solemnization of marriage and matters of a local and private nature.

The Northwest Territories is administered by a commissioner, appointed by the Government of Canada, and an elected Council of 15. The Commissioner in Council has substantially the same powers as in the Yukon Territory.

Municipal Government

Municipal government, being a matter of provincial jurisdiction, varies considerably. All municipalities (cities, towns, villages and rural municipalities) are governed by elected councils. In Ontario and Quebec there are also counties, which group smaller municipal units for certain purposes, 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 revenues mainly from taxes on real estate, fees for permits and licences and grants from the provinces. The total number of municipalities is now about 4,500.

The Legal System

The legal system is an important element in Canadian government. Since the British North America (BNA) Act established Canada as a federal state, the Canadian legal system is somewhat complex.

The Law and Law-making

The law in Canada consists of statutes and judicial decisions. Statutes are enacted by Parliament and the provincial legislatures and are written statements of legal rules in fairly precise and detailed form.

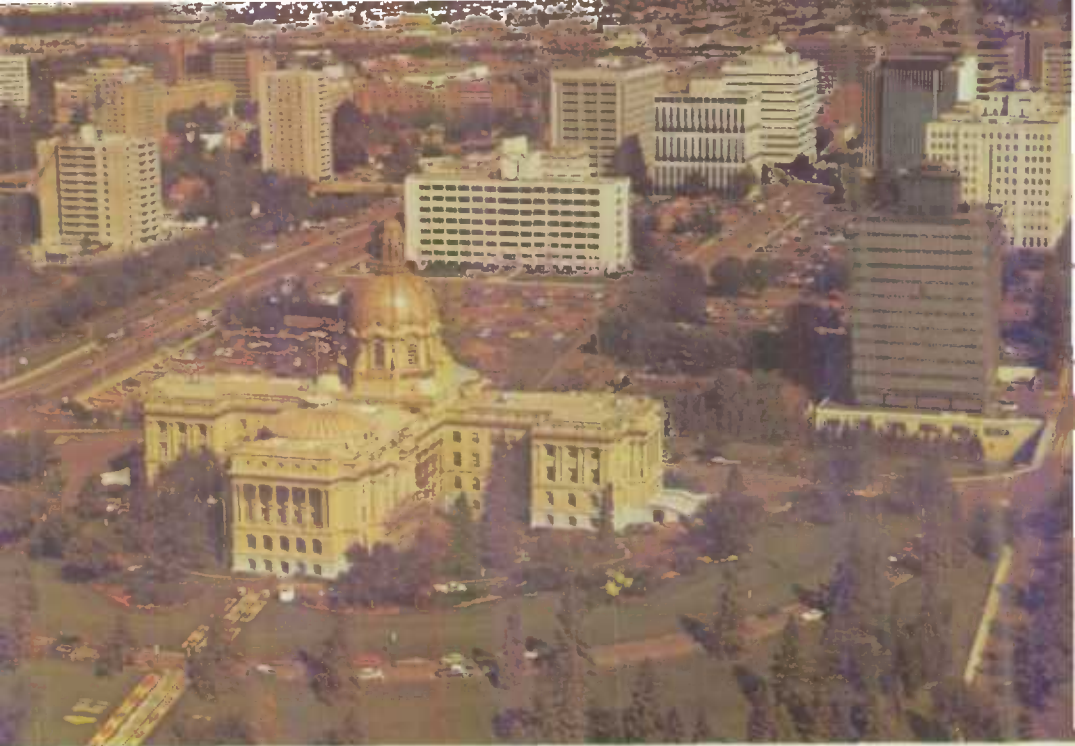
There is also a large body of case law that comes mainly from English common law and consists of legal principles evolved by the decisions of the superior courts over a period of centuries. The English common law came to Canada with the early English settlers and is the basis of much of the federal, provincial and territorial law. The province of Quebec, however, was originally settled by French inhabitants who brought with them civil law derived from French sources. Thus civil law principles govern such matters as personal, family and property relations in Quebec: the province has developed its own Civil Code and Code of Civil Procedure governing these and other matters and has, in effect, adapted the French civil law to meet Quebec's needs.

In addition to the statutes of the federal Parliament and provincial legislatures, there is a vast body of law contained in regulations adopted by appropriate authorities and in bylaws made by municipalities. This subordinate legislation, as it is called, is issued under authority conferred by either Parliament or the provincial legislatures.

Statutes enacted by the federal Parliament apply throughout the country; those enacted by provincial legislatures apply only within the territorial limits of the provinces. Hence, variations may exist from province to province in the legal rules regulating an activity governed by provincial law.

The main body of Canadian criminal law, being federal, is uniform throughout the country. Although Parliament has exclusive authority under the BNA Act to enact criminal law, the provincial legislatures have the power to impose fines or punishments for breaches of provincial laws. This gives rise to provincial offences — for example, the infraction of a provincial statute regulating the speed of automobiles travelling on the highways.

Most Canadian criminal law is contained in the Criminal Code, which is derived almost exclusively from English sources. Criminal offences are classified under the code as indictable offences, which are subject to a severe sentence, or summary conviction offences, to which a less severe sentence applies. However, the totality of statutory federal criminal law is not contained in the Criminal Code of Canada. Other federal statutes provide for the punishment of offences committed thereunder by fine or imprisonment or both. In any event, whether an offence be serious or minor, it is a fundamental principle of Canadian criminal law that no person may be convicted unless it has been proved beyond all reasonable doubt to the satisfaction of either a judge or a jury that he is guilty of the offence.



Legislative and government buildings in Edmonton, Alta.

Law Reform

As society changes, as its needs and even its standards change, the law has to reflect these changes. Therefore, many of the provinces now have law reform commissions that inquire into matters relating to law reform and make recommendations for this purpose. At the federal level, the Law Reform Commission of Canada carries out this activity by studying and reviewing federal law with a view to making recommendations for its reform.

The Courts and the Judiciary

The legal system includes courts, which play a key role in the process of government. Acting through an independent judiciary, the courts declare what the law is and apply it to resolve conflicting claims between individuals, between individuals and the state and between the constituent parts of the Canadian federation.

The Judiciary

Because of the special function performed by judges in Canada the BNA Act guarantees the independence of the judiciary of superior courts. This means that judges are not answerable to Parliament or to the executive branch of the

government for decisions rendered. A federally appointed judge holds office during good behaviour but is removable from office by the Governor-in-Council on the address of the Senate and House of Commons; in any event, he or she ceases to hold office upon attaining the age of 75 years. The tenure of judges appointed by provinces to inferior courts is determined by the applicable provincial laws. No judge, whether federally or provincially appointed, may be subjected to legal proceedings for any acts done or words spoken in a judicial capacity in a court of justice.

The appointment and payment of judges reflect the interlocking of the divided powers found in the Canadian constitutional system. The federal government appoints and pays all judges of the federal, provincial superior and county courts, while judges of provincial inferior courts are appointed and paid by the provincial governments.

The Courts

In Canada, the power to create courts is divided. Some courts are created by Parliament (for example, the Supreme Court of Canada) and others by provincial legislatures (for example, superior courts, county courts and many lesser provincial courts). However, the Supreme Court of Canada and the provincial courts are part of an integrated whole; thus, appeals may be made from the highest courts of the provinces to the Supreme Court. Generally speaking, federal and provincial courts are not necessarily given separate mandates as to the laws that they administer. For instance, although criminal law is made by the Parliament of Canada, it is administered mainly in provincial courts.

Federal Courts. Federal courts in Canada include the Supreme Court of Canada, the Federal Court of Canada and various specialized tribunals such as the Tax Review Board, the Court Martial Appeal Court and the Immigration Appeal Board. These courts and tribunals are created by Parliament.

The Supreme Court, established in 1875, is the highest appeal court of Canada in civil and criminal matters. It consists of nine judges, of whom three at least must come from Quebec, a requirement added because of the special character of Quebec civil law. The conditions under which it hears appeals are determined by the statute law of Parliament. The Supreme Court entertains appeals from the provincial courts of appeal and from the Federal Court. It also gives advisory opinions to the federal government when asked under a special reference procedure. Five judges normally sit together to hear a case, although on important matters it is customary for all judges of the court to sit.

The Federal Court of Canada was created in its present form in 1970; its predecessor, the Exchequer Court of Canada, was originally created in 1875. This court deals with: taxation cases; claims involving the federal government (for instance, claims against the federal government for damage caused by its employees); cases involving trademarks, copyrights and patents; admiralty law cases; and aeronautics cases. It has two divisions, a Trial Division and an Appeal Division; the Appeal Division hears appeals from decisions rendered by the Trial Division and by many federal boards and agencies.



The grand staircase of the Manitoba Provincial Legislature in Winnipeg, Man.

Provincial Courts. Provincial courts are established by provincial legislation and thus their names vary from province to province; nevertheless, their structures are roughly the same.

Provincial courts exist at three levels. Each province has inferior courts, such as family courts, juvenile courts, magistrates' courts and small debts courts; these deal with minor civil and criminal matters and the great majority of cases originate and are decided in them. With the exception of the province of Quebec all provinces also have systems of county or district courts. These courts have intermediate jurisdiction and decide cases involving claims beyond the jurisdiction of the small debts courts, although they do not have unlimited monetary jurisdiction; they also hear criminal cases, except those of the most serious type. In addition to being trial courts, county and district courts have a limited jurisdiction to hear appeals from decisions of magistrates' courts. The highest courts in a province are its superior courts, which hear civil cases involving large sums of money and criminal cases involving serious offences. Superior courts have both trial and appeal levels; the appeal courts, with some exceptions, hear appeals from all the trial courts in the province and may also be called upon to give opinions on matters put to them under a special reference procedure by their respective provincial governments.

The Legal Profession

In common law jurisdictions in Canada, practising lawyers are both called as barristers and admitted as solicitors. In Quebec the legal profession is divided into the separate branches of advocate and notary. In all cases admission to practice is a provincial matter.

Legal Aid

In recent years all provincial governments have established publicly funded legal aid programs to assist persons of limited means in obtaining legal assistance in a number of civil and criminal matters, either at no cost or at a modest cost, depending on the individual's financial circumstances. These programs vary from province to province. Some are set up by legislative enactment, while others exist and operate by way of informal agreements between the provincial government and the provincial law society. Some provide fairly comprehensive coverage in both civil and criminal matters, while others encompass only criminal offences. In some cases federal funds are made available for development or expansion of the programs. The purpose of all such programs is to ensure that everyone gets adequate legal representation regardless of his or her financial circumstances.

The Police

The BNA Act assigns to the provinces the responsibility for judicial administration within their boundaries, but police forces have nevertheless been created by federal, provincial and municipal governments. Where municipal police forces exist it is their responsibility to provide general police services in that area. A municipality that has not created its own police force uses either the federal or the provincial police force.

Ontario and Quebec have created provincial forces that police areas of the province not served by municipal forces. Provincial police duties include providing police and traffic control over provincial highways, assisting municipal police in the investigation of serious crimes and providing a central information service about such matters as stolen and recovered property, fingerprints and criminal records.

The federal government maintains the Royal Canadian Mounted Police (RCMP). This civil force was originally created in 1873 under the name North-West Mounted Police. One of its early duties was to maintain public order in the sparsely settled Northwest Territories, which had previously been known as Rupert's Land; today the RCMP is the sole police force in the Yukon Territory and the Northwest Territories. Eight provinces also employ the RCMP to carry out provincial policing responsibilities within their borders.

The RCMP enforces many federal statutes, with the greatest emphasis on the Criminal Code and the Narcotics Control Act. Force members are responsible for Canada's internal security, including the protection of government property and the safekeeping of visiting dignitaries, and the force also represents Canada in the International Criminal Police Organization (Interpol), which Canada joined in 1949.

The RCMP maintains and operates the National Police Services, which include: seven crime detection laboratories strategically located across Canada; an



RCMP member with public service dog.

identification service ranging from a computerized fingerprint retrieval system in Ottawa to Canada-wide field identification sections; the Canadian Police Information Centre (CPIC), which responds instantaneously to nationwide police-oriented requests; and the Canadian Police College in Ottawa, which provides advanced training courses to members of Canadian police forces and to a limited number of foreign authorities.

The RCMP is under the direction of a commissioner and on May 31, 1978, had an establishment of 19,683.

Ministry of the Solicitor General

The Ministry of the Solicitor General was established by Parliament in 1966 and given responsibility for the Royal Canadian Mounted Police, the Canadian Penitentiary Service and the National Parole Board, agencies that had formerly been

under the Department of Justice. The Correctional Investigator, first appointed in 1973, also reports to the Solicitor General.

A prime aim of the reorganization was the co-ordination of national programs for policing, penitentiaries and parole within the Canadian criminal justice system. The ministry plays a vital role in the maintenance of law, order and the country's internal security and has responsibility for offenders sentenced to two years or more in federal penitentiaries and for all inmates released on national parole.

The development and co-ordination of ministry policy is the responsibility of a Secretariat that reports to the Deputy Solicitor General. The Secretariat has branches responsible for policy planning and program evaluation, police and security planning and analysis, research and systems development, and communication and consultation.

Canadian Penitentiary Service

The Canadian Penitentiary Service operates under the Penitentiary Act and is under the jurisdiction of the Solicitor General of Canada, with headquarters in Ottawa. It is responsible for all federal penitentiaries and for the care and training of persons committed to those institutions. The Commissioner of Penitentiaries, under the direction of the Solicitor General, is responsible for control and management of the service and for related matters.

The National Parole Service, formerly with the National Parole Board, is now integrated with the Canadian Penitentiary Service for operational and administrative purposes.

As of March 31, 1977, the federal penitentiary system controlled 53 institutions: 14 maximum security, 13 medium security and 26 minimum security. Total inmate population was 9,208. New, smaller institutions are being designed to provide more rehabilitation facilities for inmates, with indoor and outdoor recreation, and plans to phase out old institutions are being worked out.

The National Parole Board

Parole granted by the National Parole Board is a conditional release of an inmate serving a sentence in a prison under federal law; the selection is made when the inmate is eligible by law and ready. The conditional release is designed to offer protection to the community and there are specific obligations placed on the parolee. At the same time the release provides an opportunity for the inmate to become reintegrated into society.

The board has 26 members, located at its Ottawa headquarters and in five regions across Canada; the regional offices are located in Moncton, Montreal, Kingston, Saskatoon and Vancouver. Members are appointed by the Governor General in Council for a maximum of 10 years. All may be reappointed. Community representatives may be appointed to participate in any decisions made about releases of inmates serving life for murder, or sentences for an indeterminate period as habitual criminals, dangerous sexual offenders, or dangerous offenders. The board has exclusive jurisdiction and absolute discretion to grant, refuse or revoke parole.



Citizenship

Acquisition of Citizenship

In 1947 Canada became the first country in the Commonwealth to adopt a distinct national citizenship. A new Citizenship Act was proclaimed in Parliament on February 15, 1977, with the intention, among others, of eliminating distinctions among applicants based on age, sex, marital status or country of previous citizenship.

The Citizenship Registration Branch of the Department of the Secretary of State provides facilities for the acquisition and proof of citizenship. To qualify for citizenship an adult alien (18 years of age or older) must have been admitted to Canada for permanent residence and have accumulated three years of residence in Canada within the four years immediately preceding application. Applicants for citizenship must also be able to speak either of the official languages, English or French, have a knowledge of Canada and of the responsibilities and privileges of

citizenship and take the Oath of Citizenship. To become a Canadian citizen a person must apply for citizenship, appear before a Citizenship Judge for a hearing and attend a court ceremony to take the Oath of Citizenship. Requests for detailed information should be made to the nearest Citizenship Court or mailed to the Registrar of Canadian Citizenship, Department of the Secretary of State, Ottawa.

Citizenship Development

The Citizenship Sector administers a variety of programs that support participation in voluntary organizations and increase understanding among groups. Special emphasis is placed on increasing the understanding and enjoyment of fundamental human rights and reducing prejudice and discrimination related to sex, race or ethnic background.

The Women's Program encourages the complete integration of women as participating citizens in Canadian society. Through the provision of grants and other resources to women's groups it supports activities designed to increase the participation of women in all aspects of society. In 1978 one of the priorities of the program was to assist women's groups in promoting positive action by key institutions that have a particular impact on women's issues.

The Native Citizens' Program helps native people define and achieve their place in Canadian society by providing them with the resources to identify their needs and actively pursue their own development as Canadians. The program offers advice and technical and financial assistance to: friendship centres, operated by native groups in many cities across Canada, which help native people from reserves and isolated areas to adjust to city life; communications societies, which support the development and effective use of the media by native people; and native associations at the provincial, territorial and national levels, to undertake initiatives in recognition of basic human rights and improved lifestyles for their people.

The Multiculturalism Program encourages Canada's many different ethnic minority groups to maintain and develop their cultural heritage, to share it with others for greater inter-group understanding, and to achieve full participation in Canadian society as a whole.

The Citizens' Participation Program helps all citizens, through technical and financial assistance to their voluntary organizations, to participate in those decisions that affect the quality of their community life. The program endeavours to increase the understanding and acceptance of fundamental economic, social, cultural, civil and political rights; special emphasis is given to reducing inter-group tensions caused by prejudice and discrimination related to racial or ethnic background. The program also works with voluntary and other private organizations and with all levels of government and assists the human rights efforts of such international bodies as the United Nations.

The Open House Canada Program provides an opportunity for Canadian youths, 14 to 22 years of age, to explore the various regions of their own country, to become aware of interests and opinions of people in other areas of Canada, and to form new friendships. The program funds reciprocal exchanges between young people from all parts of Canada, in groups or individually.



A total of 114,314 people immigrated to Canada in 1977. Of the top 10 source countries, Hong Kong placed third.

Employment and Immigration

The Canada Employment and Immigration Commission/Department is the federal government organization responsible for the development and utilization of manpower resources in Canada, the regulation of immigration and the administration of the Unemployment Insurance Program.

Labour Market Policies and Programs

More than 400 Canada Employment Centres/Canada Manpower Centres across Canada help people find jobs and help employers find workers. To achieve this goal, the commission provides a recruitment service and specialized manpower planning assistance for employers, as well as job referral, occupational training, job creation, mobility assistance, vocational counselling and aptitude testing for workers. Special services are provided to persons who have experienced difficulty in entering the labour market. The commission operates extensive job creation programs, intended to reduce unemployment and assist future growth, and administers the federal government's Employment Tax Credit Program.



A trainee on the Canada Manpower Industrial Training Program demonstrates his skills for Manpower counsellors.

Immigration

Canada's new immigration law, proclaimed on April 10, 1978, regulates the admission of all people seeking to come into Canada. In addition to immigrants this includes foreign students, temporary workers, tourists, business people and other visitors to Canada.

The commission maintains more than 60 immigration offices in 40 countries around the world to assist people who intend to visit or immigrate to Canada. Anyone wishing to immigrate must apply at one of these offices and be selected according to universal standards designed to assess their ability to adapt to Canadian life and settle successfully. There are three classes of admissible immigrants — the family class sponsored by close relatives in Canada, refugees, and independent and other applicants who apply on their own initiative with or without the assistance of relatives. Similarly, visitors who wish to study or work in Canada must obtain authorizations at these offices before they travel to Canada.

In addition to its foreign offices, the commission operates a network of 109 Canada Immigration Centres at Canadian airports, sea or inland ports, and border crossings to provide landing and settlement services as well as immigration information and assistance for immigrants, visitors and residents. Officers at these centres also enforce control measures to exclude or remove individuals whose presence in Canada would threaten public safety or national security.

Under Canada's constitution, immigration is a shared responsibility, and the federal program is carried out in co-operation with provincial governments.

Unemployment Insurance

The purpose of unemployment insurance is to provide temporary financial assistance to workers who are out of work or are unable to work because of illness, injury, quarantine or pregnancy. About 95 per cent of Canadian workers are covered under the plan.

Following is the outline of the unemployment insurance benefit rate, qualifying weeks, insurable earnings, premiums and benefit duration.

Benefit Rate: (1) Two-thirds of average weekly insurable earnings in qualifying weeks; (2) Maximum benefit in 1978 — \$160 a week; (3) Minimum benefit — \$32; and (4) Benefits subject to income tax.

Qualifying Weeks: (1) Regular benefit — 10 to 14 weeks of insurable employment in the qualifying period depending on unemployment rate in area where claimant ordinarily lives; (2) Special benefit — 20 weeks in insurable employment in qualifying period; and (3) Qualifying period — last 52 weeks or since last claim for unemployment insurance started, whichever is shorter.

Insurable Earnings: (1) Maximum insurable earnings in 1978 — \$240 weekly; (2) Minimum insurable earnings in 1978 — \$48 weekly.

Premiums: (1) Basic employee premium in 1978 — \$1.50 per \$100 weekly insurable earnings; (2) Employer premium — 1.4 times employee rate; and (3) Premiums tax deductible.

Benefit Duration: (1) Regular benefit — (a) initial phase — one week for each insurable week up to a maximum of 25 weeks; (b) labour force extended phase — one week for every two insurable weeks to a maximum of 13 weeks benefit; (c) regional extended phase — up to 32 additional weeks depending on rate of unemployment in various regions; and (d) maximum weeks of benefit — 50. (2) Special benefits — (a) illness benefit — up to 15 weeks depending on nature of illness; (b) maternity benefit — up to 15 consecutive weeks within period starting 8 weeks before birth of child to 17 weeks after; and (c) benefit paid at age 65 — one time lump sum benefit equal to 3 weeks benefit.





Harvesting grapes in southern Ontario.

Labour

Labour Canada has an overall objective to promote and protect the rights of parties involved in the world of work; a working environment conducive to physical and social well-being; and a fair return for efforts in the workplace. The department is also charged with ensuring equitable access to employment opportunities. Several major programs and services are aimed at meeting the objectives of Labour Canada.

Under the Canada Labour Code the Minister, in addition to other responsibilities of Labour Canada, is also responsible for granting consent to refer certain complaints of unfair labour practices to the Canada Labour Relations Board and for granting consent to complainants to institute prosecution in the courts.

Labour Canada operates regional offices in major centres across Canada. These offices are guided by regional directors who develop and take major responsibility for implementing the range of departmental policies and programs in the field.

The three major co-ordinating bodies in Labour Canada are — the Policy Co-ordination Group, the Special Co-ordination Group and the International and Provincial Relations Group.

The Policy Co-ordination Group acts as a sensor system, identifying public concerns in economic and social policy and channelling this information to the appropriate group; it examines issues that have broader meaning for the department than do current programs and formulates policy options for consideration by the department's senior management.

The **Special Co-ordination Group** works with regional and headquarters management to ensure adequacy and consistency with respect to implementation of Labour Canada's new programs and the development of appropriate evaluation systems.

The **International and Provincial Relations Group** organizes the department's participation in international and federal-provincial bodies by liaising with provincial governments and international agencies; it also represents the department and Canada in labour affairs at the international level and maintains labour counsellors in Brussels, London and Washington.

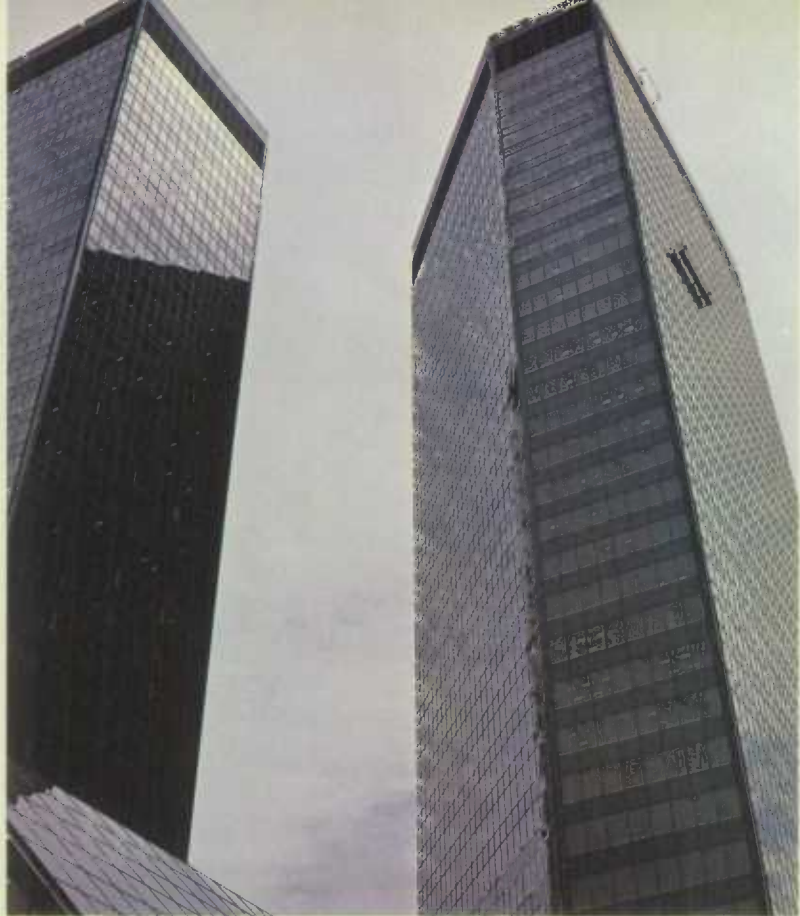
Research and Program Development

Labour Data. The Labour Data Branch collects, processes and distributes research data through the planning, design implementation and evaluation of surveys examining wages and salaries, working conditions, collective agreements, work stoppages and labour organizations.

Central Analytical Services. This branch analyzes labour developments, providing information and reports that contribute to departmental and government policies concerning collective bargaining and labour affairs. It is composed of two directorates, both of which work closely with other branches in the department. The Library and Information Services Directorate provides published and unpublished material for the use of the department, other government departments and the

Coating and wrapping pipe.





Window cleaners in Calgary, Alta.

general public. The library has a collection numbering more than 100,000 volumes covering economic and social aspects of industrial relations and it provides a research service into labour laws and related administrative practices in all jurisdictions in Canada. The Economic Analysis Directorate undertakes a variety of studies dealing generally with wage and non-wage compensation issues and general economic conditions; it also provides analysis for the Collective Bargaining Information Centre.

Conditions of Work. The Conditions of Work Branch develops programs and policies for achieving economic conditions that are fair to both employer and employee. These conditions include wages and salaries, pensions, insurance and hours of work. It also researches the relationship of compensation and working conditions to turnover rates and absenteeism. The Women's Bureau promotes equal opportunities for women in the world of work.

Occupational Safety and Health. This branch develops policies and programs to promote safe and healthy working conditions and practices. It examines such issues as the effects on safety and health of dangerous substances, excessive noise and

materials handling. It is involved in the administration of employment injury benefits for employees under federal jurisdiction and for seamen not covered by other compensatory legislation.

Employment Relations. This branch conducts research, designs programs and evaluates departmental policies relating to labour management services. It also develops policies and programs directed toward the development and growth of constructive labour management relations. Co-determination and industrial democracy come within its scope.

Federal Mediation and Conciliation Services

The Federal Mediation and Conciliation Services group provides services in conciliation, mediation, and arbitration for industries under the Canada Labour Code through research, implementation of conciliation, mediation, arbitration services, and program evaluation. Besides researching for conciliation, mediation and arbitration, it participates in the development and evaluation of departmental policies regarding dispute settlement.

Manufacturing baggage.



Industry, Trade and Commerce

The Department of Industry, Trade and Commerce seeks to promote the growth of the Canadian economy by stimulating the establishment, growth and efficiency of industry, the development of export trade and external trade policies, the expansion of tourism and the travel industry, and the marketing of grains and oilseeds. To carry out its programs and meet its objectives, the department requires the services of a staff of more than 2,500, with offices in Ottawa, 11 regional offices across Canada, and 89 posts in 64 other countries.

Industry Development

Through its many incentive and development programs, the department offers assistance, with expert advice and information, and in many cases financial help, to Canadian businessmen. The objectives of the department's programs are: to develop an efficient manufacturing and secondary processing industry to meet competition at home and abroad; to increase the domestic processing of natural resources; and to provide for a greater domestic control of the Canadian economy and ensure its future development by Canadians. The department also seeks to achieve and maintain maximum employment in Canadian industry, to increase national income and to reduce economic disparities.

The department's incentive programs are wide-ranging and cover all sectors of Canadian industry, trade and commerce.

The Enterprise Development Program enhances growth in the manufacturing and processing sectors of the Canadian economy by providing assistance to selected firms to make them more viable and internationally competitive.

The Defence Industry Productivity Program aids Canadian industrial participation in the development and production of defence equipment and associated components with high technological content, through financial assistance.

The Grains and Oilseeds Marketing Incentives Program helps achieve a sustained expansion of the total effective market for Canadian grains and oilseeds through contributions and risk insurance.

The Agricultural and Food Products Market Development Assistance Program encourages sustained growth for the sale of Canadian agricultural and food products in export and domestic markets through financial assistance.

The Program for Export Market Development assists in bringing about a sustained increase in the export of Canadian products by providing incentives in the form of repayable contributions to approved expenses.

The Promotional Projects Program promotes the export of Canadian products and services through the use of trade fairs, incoming and outgoing trade missions and promotional literature.

The Fashion Design Assistance Program increases the international competitiveness of the Canadian apparel, textile, leather and footwear industries through encouraging design and designers and promoting Canada as a source of creative fashion.



Truck cabs on assembly line in Ontario.

The Machinery Program, through remission of import duty, permits users of machinery to acquire capital equipment at the lowest possible cost and, at the same time, enables machinery producers to derive the maximum incentive and encouragement from the tariff.

The Shipbuilding Industry Assistance provides financial assistance by grants or contributions to improve the competitive positions of the Canadian shipbuilding and repairing industries.

A toll-free number (ZENITH 0-3200) at the Industry, Trade and Commerce Business Centre in Ottawa, offers access to the information resources of the department. Canadian businessmen may use this facility to arrange meetings with officials of any federal government department.

Regional Economic Expansion

While Canada enjoys one of the world's highest standards of living, its history and geography have dictated a wide disparity of economic, social and cultural well-being. Centres of concentrated economic activity and population are offset by large geographic areas where levels of industry and employment, social and commercial services are far lower than national averages.

The creation of the Department of Regional Economic Expansion on April 1, 1969, was the culmination of a process which started in July of the previous year when the Prime Minister announced the government's intention of establishing a department to mount a new and comprehensive federal effort to combat regional economic disparities in Canada.

The Department of Regional Economic Expansion (DREE) works to combat regional disparities by encouraging slow-growth regions to realize their potential for contributing to the economic and social development of Canada. Accordingly, the present program approach is broadly divided into three categories: development opportunity initiatives, industrial incentives, and other programs.

Development Opportunities

Development opportunities are identified through General Development Agreements, signed separately with the provinces, and supported by other federal departments. Activities designed to exploit these development opportunities are undertaken through subsidiary agreements. Current activities in this context cover a wide range of economic sectors, including development of natural resources, manufacturing and processing, transportation and communications, tourism and northlands, and other related endeavours, varying from province to province.

Industrial Incentives

The Regional Development Incentives Act, passed in 1969 and now extended to 1981, is designed to stimulate increased manufacturing investment and employment in slow-growth regions of the country.

The Act makes grants available to encourage manufacturing and processing industries to establish, expand or modernize facilities in broad designated regions. These regions include all four Atlantic provinces, Manitoba, Saskatchewan, the Yukon Territory and Northwest Territories, together with most of the province of Quebec and the northern portions of Ontario, Alberta and British Columbia. In addition, special investment incentives for selected industries in Montreal and its environs have been established under the Department of Regional Economic Expansion Act. The area includes metropolitan Montreal and certain parts of the zone within 100 kilometres.

Other Programs

Particular rural development activities are carried out under the Agricultural and Rural Development Act (ARDA), and activities to improve the economic circum-



Rural development activities of DREE include assistance to people of native ancestry.

tances of people of Indian ancestry are provided under the special ARDA program in some areas. The department is also responsible for the Prairie Farm Rehabilitation Administration which is designed to combat drought and soil drifting in the Prairie provinces.

Present Organization

The department is fully decentralized to enable it to respond rapidly and efficiently to local, provincial and regional needs as they arise. The present organization includes headquarters in Ottawa, regional offices at Moncton, Montreal, Toronto and Saskatoon, a provincial office in each provincial capital and various branch offices.



Candy bar production line at a confectionery plant in Sherbrooke, Que.

Consumer and Corporate Affairs

Consumer and Corporate Affairs Canada was established in December 1967 to bring together in one department many federal laws governing business and consumer transactions in the marketplace. Its legislation and policies are designed to stimulate efficiency and productivity among suppliers of goods and services and to promote fair economic treatment for all concerned in commercial transactions.

Four bureaus and the Field Operations work together to achieve the department's objectives.

The Bureau of Consumer Affairs works to ensure the fair and equitable treatment of consumers in their business transactions. It develops legislative proposals and consumer programs and provides technical guidance to field staff on

consumer protection laws covering packaging, labelling, weights and measures, and hazardous products. The bureau handles complaints and inquiries, carries out consumer information and research programs, supports 16 community-based consumer help offices, and, through grants to voluntary consumer organizations, fosters the development of the consumer movement in Canada. It also provides financial support to consumer advocacy programs.

The Bureau of Corporate Affairs is concerned with the legal framework for the orderly conduct of business. It grants charters of incorporation to new businesses and regulates bankruptcy proceedings for insolvent companies and the licensing of trustees in bankruptcy. The bureau's bankruptcy programs have been extended since 1972 to assist low-income individuals.

Packaging frozen meat at a meat processing plant in St. Boniface, Man.



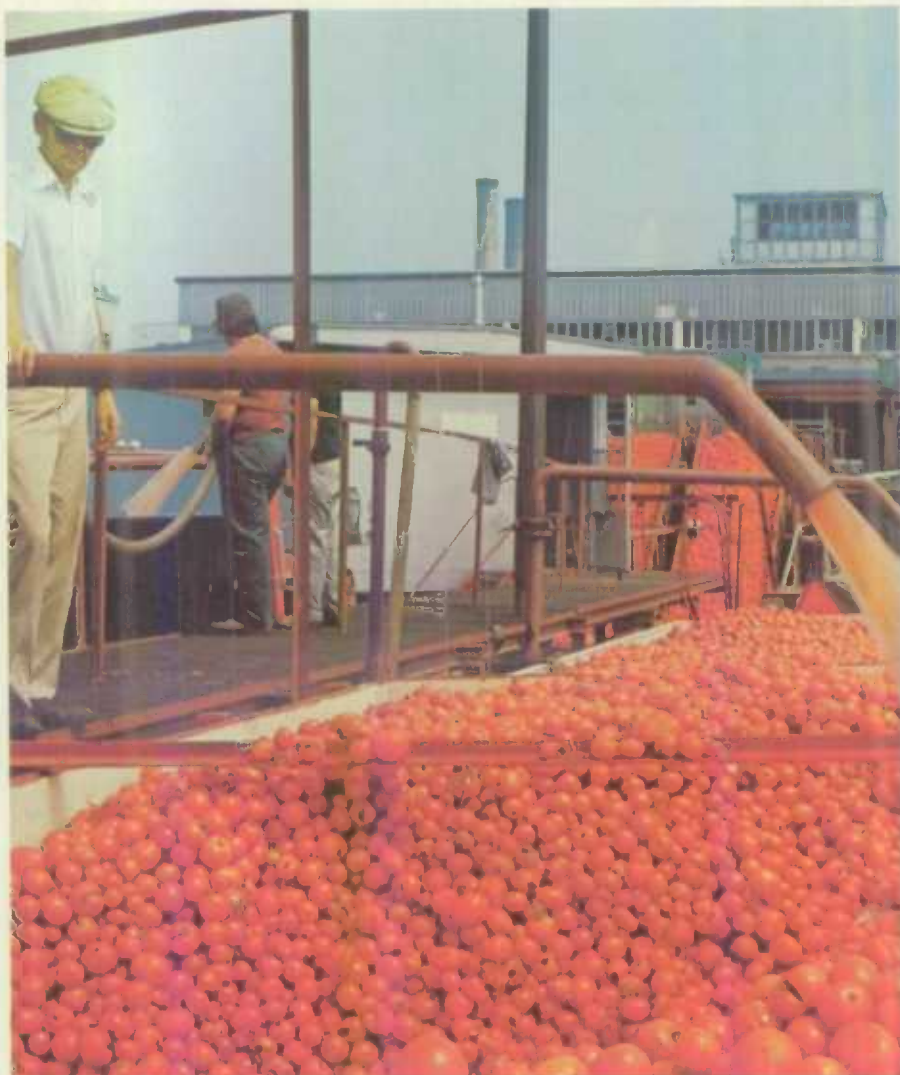


A hockey helmet, one of the many products checked each year by Consumer and Corporate Affairs, undergoes rigorous tests in the product safety laboratories.

The Bureau of Intellectual Property brings together departmental operations pertaining to patents, trademarks, copyright and industrial design. The objective of the bureau, which is to encourage innovation, creativity and the dissemination and use of all forms of knowledge, is achieved through granting exclusive property rights for inventions (patents), trademarks, industrial designs, and copyright of original literary, dramatic, musical and artistic works. Ownership rights are granted so that innovators can control and profit from reproduction of their creative works and be encouraged to make them available to benefit all Canadians.

The Bureau of Competition Policy administers the Combines Investigation Act, the legislation aimed at maintaining a competitive market system. The Act enables the director of investigation and research to conduct inquiries when he has reason to believe that the Act may have been violated with respect to agreements, mergers, monopolies, price discrimination, promotional allowances, misleading representation as to prices, 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 possible legal action; the Attorney General decides whether charges should be laid following the report of the commission. Revisions of the Combines Investigation Act, relating to competition policy issues and concerning the structure and efficiency of industries in the Canadian economy were introduced in Parliament in November 1977.

Field Operations is responsible for the department's regional offices in Vancouver, Winnipeg, Toronto, Montreal and Halifax and its 53 district and area



Preparing tomatoes for the canning process at London, Ont.

offices. It implements all departmental programs and activities carried out in the field and ensures that the department provides immediate, sensitive and relevant service to the Canadian public. Regulations cover a wide range — from food to textiles, from hazardous products to the accuracy of weighing and measuring devices. Other areas include the handling of bankruptcies and false and misleading advertising. A consumer consulting service is provided at regional offices and in more than half of the district offices.

Veterans Affairs

The Veterans Affairs objective is to provide support for the economic, social, mental and physical well-being of veterans, certain civilians, and their dependents. Services, including pensions and war veterans' allowances, medical treatment, counselling, and educational assistance to children of the war dead, are provided by the Department of Veterans Affairs and the four agencies associated with it — the Canadian Pension Commission, the Pension Review Board, the War Veterans Allowance Board, and the Bureau of Pensions Advocates.

Veterans Affairs Program

Veterans Services. The department is responsible for the administration of federal legislation which provides benefits to veterans (and certain civilians), their dependents and survivors. These benefits include: medical and dental services; prosthetic appliances; income support programs; emergency financial assistance; counselling services for veterans, their dependents and survivors; educational assistance for veterans and orphans; housing assistance for veterans and widows; and burial grants for veterans. Where direct assistance is not possible, a referral service to other sources of aid is provided.

Veterans Land Administration. The Veterans' Land Act was an agriculturally oriented post-war rehabilitation measure for veterans of World War II and Korea. More than 140,000 veterans were established under the various provisions of the Act before the final deadline of March 31, 1975. On March 31, 1978 more than 48,000 veterans had subsisting contracts with the director, representing a total principal indebtedness of approximately \$464 million. The Veterans Land Administration also has operational responsibility for the Special Housing Assistance Program which the Department of Veterans Affairs was authorized to extend, in 1975, on behalf of modest-income veterans and to non-profit corporations who obtain National Housing Act (NHA) loans to develop low-rental projects intended primarily, but not necessarily exclusively, for the housing of veterans.

Pensions Program

The **Canadian Pension Commission** administers the Pension Act, the legislation under which pensions are awarded as compensation for disability or death related to military service. This Act also provides for the payment of pensions for surviving dependents. The commission also administers: Parts I-X of the Civilian War Pensions and Allowances Act which provides for similar awards for disability or death attributable to service during World War II in certain organizations or types of employment which were closely associated with the armed forces, such as Merchant Seamen, or Auxiliary Services personnel; the Compensation for Former Prisoners of War Act which provides for the payment of compensation for former prisoners of war, evaders and escapees and their dependents, and the Halifax Relief Commission Pension Continuation Act which authorizes pension payments to certain persons injured in the Halifax explosion of 1917. As well, the commission



Statue at Nanton, Alta.

adjudicates on pension claims under various other measures such as the Royal Canadian Mounted Police Acts and the Flying Accidents Compensation Regulations.

The Pension Review Board serves as a final court of appeal for veterans, ex-servicemen and their dependents in all matters concerning disability pensions and the interpretation of the Pension Act. The board, although essentially an appellate body may also consider new documentary evidence, and all its sittings must be held in the National Capital Region.

Bureau of Pensions Advocates

The bureau provides a legal aid service for persons seeking to establish claims under the Pension Act and allied statutes and orders. The relationship between the bureau and applicant or pensioner is that of solicitor and client. Its service is highly decentralized, with advocates and support staff located in 18 cities across Canada.



A group of World War I Canadian veterans who fought at Vimy Ridge, France, in 1917, leave one of the ridge's wartime military tunnels during a pilgrimage there in April 1977.

War Veterans Allowance Board

The objective of the board is to ensure that qualified veterans, and certain civilians who, by reason of age or infirmity, are unable to make their way in the employment field, and widows and orphans whose entitlement flows from the veteran's service, are assisted to the full extent of the War Veterans Allowance Act and Part XI of the Civilian War Pensions and Allowances Act.

The board has the responsibility to advise the Minister generally on the legislation and specifically on the regulations; to adjudicate pursuant to specific sections of the War Veterans Allowance Act and the Civilian War Pensions and Allowances Act where the board has sole jurisdiction; to act as a court of appeal for aggrieved applicants and recipients; and, on its own motion to review decisions of the district authorities to ensure that adjudication is consistent with the intent and purview of the legislation, and that the legislation is applied uniformly throughout Canada. The board may, at any time, review and alter its own former decisions.



Joggers' marathon at Ottawa in 1978.

Health and Welfare

Health Care

Responsibility for health matters is distributed between the federal and the provincial governments. On the national level, the Department of National Health and Welfare is the principal federal agency in health matters. It is responsible for the overall promotion, preservation, and restoration of the health of Canadians, and for their social security and social welfare. The department acts in conjunction with other federal agencies and with provincial and local services. Provincial governments are directly responsible for actual administration of health services.



Testing hearing aids.

Department of National Health and Welfare

Objectives and Organization. The principal objective of the Department of National Health and Welfare is to maintain and improve the quality of life of the Canadian people — their physical, economic and social well-being. The department aims to reduce the detrimental effects of environmental factors that are beyond an individual's control and to encourage and assist the adoption by Canadians of a way of life that enhances their physical, mental and social well-being. Strategies for the attainment of these objectives include the development of national standards, the expansion of awareness and concern for health, economic and social problems, and the development of new or improved systems of delivery.

The branches of the department with responsibilities primarily for health matters are: Health Protection, Medical Services, Health Services and Promotion, and Fitness and Amateur Sport. Three branches — Policy Research and Strategic Planning, Intergovernmental and International Affairs and Information Systems — provide an integrated approach to health and social services. In addition, the Medical Research Council reports to Parliament through the Minister of National Health and Welfare.

Health Protection Branch. The Health Protection Branch is responsible for developing an integrated program to protect the public from unsafe foods, drugs, cosmetics, medical and radiation-emitting devices, harmful microbial agents and



Care of the elderly and young at Tachisar Day hospital, NWT.

technological and social environments harmful to health, environmental pollutants and contaminants of all kinds, and fraudulent drugs and devices. It is responsible for enforcing the Food and Drugs Act, the Narcotic Control Act, the Proprietary or Patent Medicine Act, and the Radiation-Emitting Devices Act. In addition, under the Hazardous Products Act the branch has joint responsibility with the Department of Consumer and Corporate Affairs for product safety.

Medical Services Branch. The responsibilities of the Medical Services Branch include health care and public health services for Indians and Inuit and all residents of the Yukon Territory and Northwest Territories, as well as quarantine and immigration medical services, public service health, a national prosthetics service, civil aviation medicine, disability assessment and emergency health services.

Fitness and Amateur Sport Branch. The purpose of the Fitness and Amateur Sport Branch is to encourage, promote, and develop fitness and amateur sport through encouraging both the excellence of Canada's athletes and the participation in activities oriented toward fitness and recreation.

Health Services and Promotion Branch. This branch exercises departmental responsibilities for promotion of the health and well-being of Canadians, for the

prevention of illness and disability, and for assisting in the development and maintenance of appropriate health care services for all Canadians. These responsibilities include monitoring provincial compliance with program conditions of the established programs financing arrangements and carrying out short-term policy research and analysis.

Health Insurance Programs

Hospital Insurance. Provincial hospital insurance programs, operating in all provinces and territories since 1961, cover 99 per cent of the population of Canada. Under the Hospital Insurance and Diagnostic Services Act of 1957, the federal government provides financial assistance to the provinces toward the cost of providing hospital services to patients insured by these programs.

Medical Care Insurance. Public medical care is provided under the Medical Care Act which was passed by Parliament in December 1966. Federal contributions to participating provinces became payable from July 1, 1968. By April 1, 1972 all provinces and territories had entered the federal program. The plan must be universally available to all eligible residents on equal terms and conditions and must cover at least 95 per cent of the total eligible provincial population. Comprehensive coverage must be provided for all medically required services rendered by a physician or surgeon.

Financing Arrangements. Until April 1977, federal contributions to the provinces for hospital and medical care services were based on the cost of insured services incurred by the provinces, with the federal government reimbursing the provinces for approximately 50 per cent of their expenditures. The Federal/Provincial Fiscal Arrangements and Established Programs Financing Act of 1977 modified the method of federal financing. Federal contributions now take the form of a transfer of tax and associated equalization to the provinces, in conjunction with equal per capita cash payments. National standards established by previous legislation are preserved. The new financing arrangements also provide additional per capita contributions toward the costs of certain extended health care services.

Provincial Health Programs

The responsibility for regulation of health care, operation of health insurance programs, and direct provision of specialized services rests with the provincial governments. Institutional and ambulatory care for tuberculosis and mental illness is provided by agencies of the departments responsible for health. Provincial programs are giving increasing attention to preventive services. Programs related to health problems such as cancer, alcoholism and drug addiction, venereal diseases, and dental health are being developed by government agencies, often in co-operation with voluntary associations. A number of provincial programs are also being directed to meet the needs of specific population groups, such as mothers and children, the aged, the needy, and those requiring rehabilitation care.

Environmental health responsibilities, involving education, inspection, and enforcement of standards, are frequently shared by provincial health departments and other agencies.



Preparation of food for meals on wheels which will be delivered to the elderly and disabled.

Social Security

Federal, provincial and local governments provide a wide range of publicly funded and administered income security and social services programs, which are complemented by voluntary agencies. These include federal and provincial income insurance schemes and income support measures, as well as social assistance provided by provincial and municipal programs.

Income Insurance

Canada Pension Plan and Quebec Pension Plan. The Canada and Quebec Pension Plans are compulsory, contributory earnings-related programs providing for retirement pensions, disability pensions, benefits for the children of disabled contributors, benefits for surviving spouses and children of deceased contributors and a lump-sum death benefit. Benefits are adjusted annually to reflect full cost-of-living increases.

In 1978 employees paid 1.8 per cent of that portion of their annual earnings between \$1,000 and \$10,400; this contribution was then matched by their employers.



Kirby Centre, in Calgary, Alta. offers a wide variety of social, recreational and educational programs for senior citizens with a marketing outlet for work by the handicraft artisans.

Self-employed persons contributed 3.6 per cent on the same earnings range. The earnings ceiling of the plan (\$10,400 in 1978) will be increased by 12.5 per cent each year until it catches up to the average earnings of Canadian industrial workers as published by Statistics Canada.

Old Age Security, Guaranteed Income Supplement and Spouse's Allowance. An Old Age Security (OAS) pension is payable to anyone who is 65 years of age and over and who has fulfilled the residence requirements.

A pensioner may receive payment indefinitely while living abroad if he or she has resided in Canada for 20 years after age 18; otherwise, payment may continue for only six months following the month of departure from Canada.

Guaranteed Income Supplement (GIS) may be added to the basic OAS pension, depending on the results of an income test. The supplement is payable for only six months outside of Canada.

The spouse of a pensioner may be eligible for a Spouse's Allowance (SA) if the spouse is between 60 and 65 years of age and meets the OAS residence requirements. This allowance, like the GIS, is awarded on the basis of a test of income.

The OAS pension and the maximum SA are adjusted quarterly to reflect increases in the consumer price index. In July 1978 the maximum SA stood at \$259.31; the monthly OAS pension at \$159.79; the maximum monthly GIS for a single pensioner or a married pensioner whose spouse did not receive OAS or SA at \$112.08; and, for a married couple (both pensioners) the maximum monthly GIS was \$99.52 each.

Family Allowances. Family Allowances (FA) are paid monthly on behalf of children under the age of 18 who are resident in Canada and maintained by parents or guardians, at least one of whom must be a Canadian citizen, or a permanent resident of Canada under the Immigration Act. In the case of a person admitted to Canada under the Immigration Act as a visitor or holder of a permit, the period of

admission must be for not less than one year and during that period the income of such a person must be subject to Canadian income tax.

In 1978 the federal rate of Family Allowances was \$25.68 a month. Provinces may vary the rates of FA paid provided certain conditions are met; Quebec and Alberta have chosen this plan. Quebec and Prince Edward Island have programs to supplement those of the federal government.

Social Assistance

All provinces have programs to provide social assistance and welfare services to persons in need. Assistance which is granted on the basis of a need test may include items of special need, non-insured health care services and costs of homes for special care. Services may include supportive services such as homemaker, day-care and community development and preventive services such as counselling and rehabilitation.

Canada Assistance Plan. Under the Canada Assistance Plan (CAP) the federal government pays 50 per cent of the cost of providing assistance and welfare services to persons who qualify in accordance with provincial law. Most provinces have discontinued the categorical programs for the blind and disabled; such persons may now receive assistance on the basis of need through the provincial social assistance programs under CAP.

Child Welfare Services. Statutory services for the protection and care of children who are neglected or who are temporarily or permanently without parental care include protection in their own homes, in foster homes or in an institution, as well as adoption services and services to unmarried parents. These programs are administered by provincial authorities or local children's aid societies.

Day-care centres provide a wide variety of creative and interesting challenges.





Day-care centres are operated by local governments, voluntary associations or charitable organizations, or under commercial auspices. They must be licensed, and meet the standards set by the provincial government.

Services for the Aged. Generally speaking, institutional care is available for older persons unable to care for themselves. Visiting nurse, homemaker, counselling, information and referral, and meals-on-wheels services, as well as friendly visiting and housing registries, have also been established under public and voluntary auspices and have been organized in some areas. Low-rental housing projects have been built in many communities; clubs and centres have been developed to provide recreation.

The federal New Horizons Program provides grants to groups of retired citizens for non-profit projects which include physical fitness, crafts and hobbies, historical, cultural and educational programs, social services, information services and activity centres.

International Health, Welfare and Social Security

Canada actively participates in international health, welfare and social security matters. The Department of National Health and Welfare represents Canada on the UNICEF Executive Board, in the World Health Organization, the Pan American Health Organization, the United Nations Commission on Narcotic Drugs and relevant United Nations seminars and conferences. The department also belongs to several international social policy-related non-governmental organizations. Bilateral health and social security agreements are negotiated where appropriate. Provincial departments and agencies are also involved in these areas.



The beckoning tranquility of Lunenburg County, NS.

Fisheries and Environment

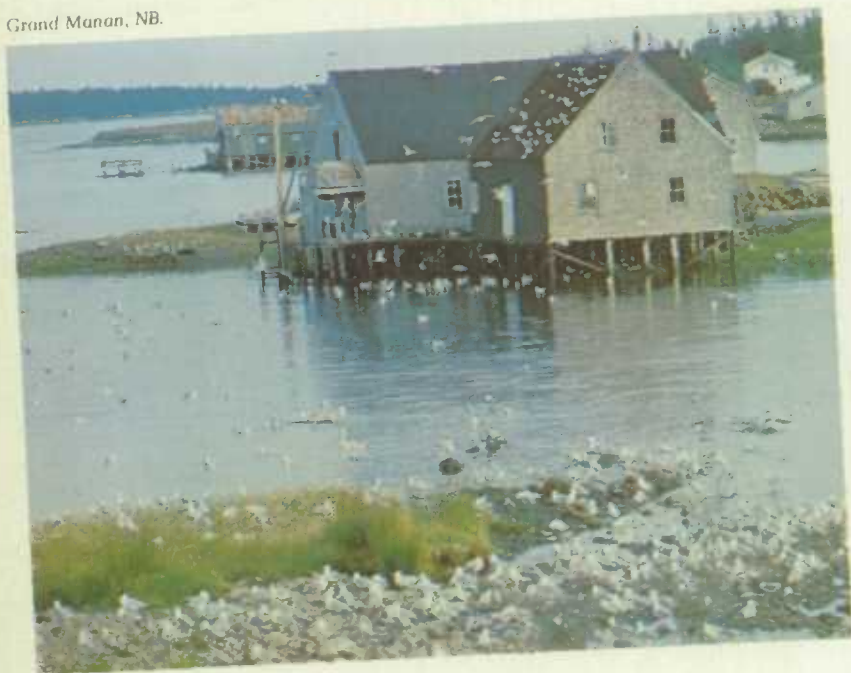
Fisheries and Environment Canada came into being officially in June 1971 to amalgamate major federal responsibilities for the protection, preservation and enhancement of the quality of the environment and its renewable resource components.

The department's role includes managing renewable resource programs and providing related services; providing weather and climatological services and conducting atmospheric research; abating air, water and land pollution and preventing new environmental hazards; assessing and mitigating the environmental impact of major developments on federal lands or involving federal funds; undertaking long-term environmental quality programs; promoting and supporting international environmental and resource-management initiatives; and developing information and educational programs.



Fishermen with a tuna catch at Wedgeport, NS.

Grand Manan, NB.





Preparing gear and nets in Prince Edward Island.

Fisheries and Environment Canada has three principal components: Fisheries and Marine Service and Environmental Services, each headed by a senior assistant deputy minister, and the Planning and Finance Service, headed by an assistant deputy minister.

Planning and Finance Service

The Planning and Finance Service comprises two major elements dedicated to policy support and those providing common support services. The two policy support directorates assist in the development of departmental policy and provide the minister and the deputy minister with an overview that gives coherence to the department's activities. The common service directorates develop guidelines, procedures and systems to support all elements of the department and provide liaison with central agencies such as Treasury Board and the Public Service Commission.



Deer are attracted by food supplied by the National Capital Commission in Gatineau Park, Que.

Federal Environment Assessment and Review Office

The federal environmental assessment and review process was established to ensure that: environmental effects are taken into account as early as possible in federal programs, projects and activities; environmental assessments are carried out before irrevocable decisions are made that could have an adverse effect on the environment; and the results of assessments are used in planning decision-making and implementation. Federal agencies are obliged to screen their activities, and, if it is found that an activity may have significant adverse effects, it must be referred by the agency to the federal environmental assessment review office for a formal review by an independent panel. After an environmental impact statement is prepared, based on the panel's guidelines, the document is subjected to full public review. Then, following a study of all the evidence presented, the panel recommends to the Minister of the environment what action should be taken.



There are 14 species of owls
in Canada

A colony of murres on Prince
Edward Island, NWT

3. Yellow warbler feeding young
4. A plover on Bylot Island, NWT



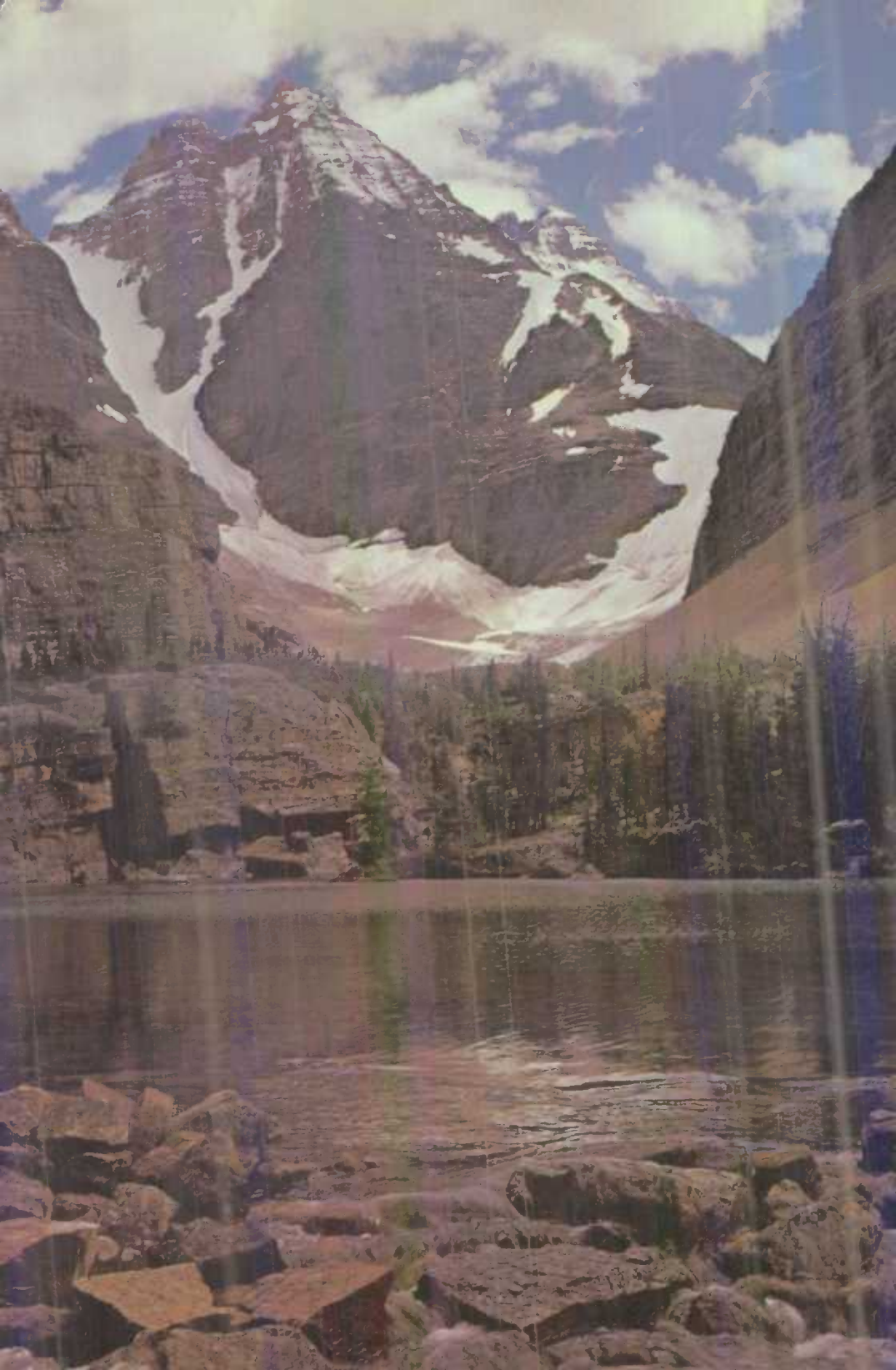
Each spring a day is set aside as clean-up day in Calgary and citizens gather up debris from the banks of the Bow and Elbow rivers.



Scientists dissect a fish at the laboratories in Halifax, N.S.

Advisory Bodies

The Canadian Environmental Advisory Council was set up to provide advice to the Minister in four general areas: the state of the environment and threats to it; the priorities for federal or joint federal-provincial government action; the effectiveness of the department's efforts to restore, preserve or enhance the quality of the environment; and other matters that may be referred to it by the Minister as the need arises.



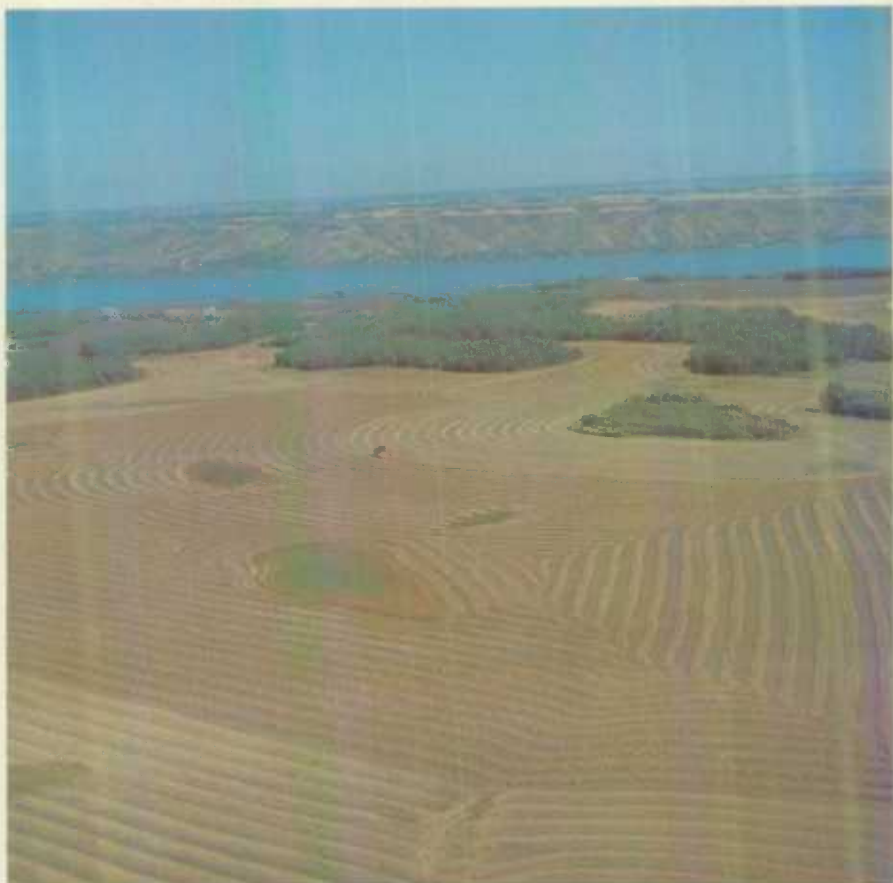


Canning fish at Grand Manan, NB

The Canadian Forestry Advisory Council reports to the Minister and makes recommendations for action in areas of federal responsibility for our renewable forest resources. The Canadian Fisheries Advisory Council provides broad policy advice to the Minister from outside government on areas of responsibility related to our fisheries resources. These advisory bodies review programs, assess their impact and provide links with organizations outside the government. The council's members include prominent Canadians from industry, the universities and the scientific community. The Canadian Forestry Advisory Council includes representatives from provincial natural resources departments and the Canadian Fisheries Advisory Council's membership includes commercial and recreational fishermen.

Aircraft spraying an area of Quebec forest north of Maniwaki in an effort to combat spruce budworm disease.





Grain patterns in the Qu'Appelle valley of Saskatchewan.

Agriculture

The responsibilities of Agriculture Canada extend from the farm to the consumer and thus affect all Canadians. The work of the department and several related agencies is carried out under the authority of 38 Acts of Parliament.

Organization

Six branches form the structure of the department. The Policy, Planning and Evaluation Branch plans and implements departmental policies across the full range of the department's activities, and it provides the economics input in policy and program planning. The Health of Animals Branch is responsible for meat inspection and for animal diseases control, research and diagnosis. The Food Production and Marketing Branch administers legislation concerning food commodities, farm

supplies and the protection of crops from plant diseases and insect pests. The Research Branch, with 47 establishments across Canada, conducts programs designed to solve problems of production, protection and utilization of agricultural crops and animals. Two other branches — Finance and Administration, and Personnel Administration — complete the departmental structure.

Related Agencies. The Minister of Agriculture is responsible to Parliament for the department and the following seven related agencies. The Agricultural Stabilization Board assists farmers by supporting the prices of certain food commodities. The Agricultural Products Board buys, sells or imports agricultural products to maintain a satisfactory balance of food stocks in Canada. The Canadian Dairy Commission supports the market prices of major processed dairy products. The Canadian Grain Commission licenses grain elevator operators, recommends grade specifications for Canadian grain, inspects and weighs grain, and operates a cereals and oilseeds research laboratory and six federal grain elevators in Western Canada. The Canadian Livestock Feed Board insures the availability and price stability of feed grains. The Farm Credit Corporation makes loans to individual farmers and to syndicates of farmers. The National Farm Products Marketing Council oversees the establishment and operation of national farm commodity marketing agencies.

Programs and Policies

The department is playing a leading role in the federal government's efforts to develop a comprehensive national food strategy for Canada. During 1977-78, the department organized a series of meetings between federal Cabinet ministers and

A narrow pen with neck-clamping bars is used to hold steers while they are inspected and treated for injuries or diseases.





Peace is shown in Alberta.

representatives of the food and agricultural industries, consumers, and provincial governments to discuss food strategy proposals. The meetings culminated in a national food strategy conference at Ottawa. A long-range plan for agricultural development is being developed as an essential part of national food strategy.

The campaign to eradicate brucellosis disease from Canadian cattle herds was intensified during 1977-78 with the introduction of new regulations which place tight controls on sales and movement of cattle. Under the new regulations, Canada is divided into three regions, based on the incidence of brucellosis in each. The three regional categories are brucellosis-free, brucellosis low-incidence, and undesignated. The new regulations control the movement of cattle into areas with lower levels of infection than that which exists in their home areas.

The Advance Payment for Crops Act, introduced in 1977, helps farmers to increase their marketing efficiency. Under this Act, the federal government guarantees loans made to producer organizations whose members require a cash advance on their storable crops. The federal government also pays the interest on these loans. The program is aimed at evening out marketings over the storage life of a crop, giving the farmer an opportunity to sell part of his crop later in the season when prices are usually higher than at harvest time.



Spraying a potato field near Birch Hill, P.E.I.

To help the export movement of Canadian grain, an \$11.5 million upgrading of the Prince Rupert, BC grain terminal has been undertaken. The work includes a new dock and high-capacity ship-loading facility, expanded cleaning facilities and a pellet mill.

Prices were supported, either by purchase or deficiency payments, for a variety of commodities in 1977-78. Payments were made for slaughter cattle, corn, greenhouse tomatoes and cucumbers, summer pears, sweet cherries, British Columbia apricots, prune plums, early potatoes and sugar beets. Purchases were made of surplus Ontario freestone peaches and Keiffer pears.

To provide an extra measure of health protection for Canada's livestock, a federally funded task force has been established to contain and eliminate outbreaks of exotic diseases should they appear in Canadian cattle. These are diseases from abroad that are not established in Canada. Known as the emergency disease eradication organization for Canada and headed by a member of the department's Health of Animals Branch, the task force consists of veterinarians, logistics experts, environmentalists and epidemiologists from the federal and provincial governments and from universities. Should an exotic disease, such as foot and mouth, break out, a quarantine would be imposed on the site of the outbreak and the surrounding area. All livestock in the area would be tested and infected animals destroyed.



External Affairs

The Department of External Affairs has three main goals: (1) to provide advice and information to the government on foreign policy issues, manage implementation of the government's foreign policy decisions, advance Canada's interests in other countries and in international organizations through negotiation of international agreements and in other ways; (2) to foster understanding of Canada and its people by other nations; and (3) to provide assistance to Canadians abroad.

The headquarters of the department is in Ottawa. Canadian diplomatic missions, embassies or high commissions are established in 74 countries; some missions are accredited to 71 additional governments. Eighty-seven countries have diplomatic missions in Ottawa and another 45 states have non-resident accreditation.

Services to Canadians

Passports and Consular Services. In 1977, the department issued 739,353 passports and travel documents and, through its posts abroad, assisted several thousand Canadians with financial, family or legal difficulties.

Legal Assistance. The legal divisions of the department assist Canadian citizens and corporations in claims for compensation from foreign governments and with the administration of private international law.

Secretary of State for External Affairs, Joe Clark, in a recent security council meeting of the UN.



Academic Relations. The Academic Relations Division assists in exchanges of scholars, sends senior departmental officers to universities, arranges speaking engagements and promotes Canadian studies abroad.

Historical Research. The Historical Division provides access for scholars to departmental records and also publishes the series *Documents on Canadian External Relations*.

Public Information. The Public Relations Division seeks to increase Canadian awareness of the government's foreign policy as well as the underlying issues.



External Affairs Minister Don Jamieson welcomes Princess Margriet home for her visit to Ottawa, the city of her birth. The 35-year-old Netherlands princess was born in Ottawa during the Nazi occupation of Holland.

Canadian International Development Agency (CIDA)

In 1977-78 the Canadian International Development Agency, the government branch responsible for Canada's program of co-operation with developing countries, engaged in a corporate review exercise in order to better meet the needs of the Third World and to reflect the growing inter-relationships between the industrialized nations like Canada and the developing world.

Canada's Official Development Assistance allocation for the year ended March 31, 1978, was \$972.5 million, which did not include the \$29.5 million cost of administration. In 1977-78 the largest part of these funds, \$636.8 million, went through bilateral government-to-government programs. Asia remained the largest recipient, at \$230 million, while \$100 million went to Commonwealth Africa, \$110 million to Francophone Africa, \$30 million to Latin America and \$30 million to the Caribbean. The remainder of the funds was earmarked for other programs, such as emergency relief.

Bilateral co-operation takes four main forms — project assistance, food aid, commodity aid and lines of credit. Project aid, under which loans and grants are provided for specific development projects, is largest and includes the provision of Canadian advisers (552 in 58 countries as of January 1977); at the same time, residents of countries involved are given training in Canada or elsewhere to enable them to take over projects (nearly 1,100 as of January 1977). Next in value is food aid. Commodity aid is essentially a drawing account for the purchase in Canada of specific raw or semi-processed materials and fertilizer. Line-of-credit loans worth over \$100 million are in effect with several countries, providing a relatively unrestricted form of credit.

Multilateral assistance — \$289.3 million in 1977-78 — was the second largest area of the budget. Of this \$97.5 million went for food aid, mostly to the World Food Programme. The second highest amount went to the International Development Association, a branch of the World Bank; Canada's contribution to the fourth

These young boys have learned farming techniques from a CIDA assisted non-governmental organization called the Philip Boudreau Foundation.





CIDA spent approximately \$230 million on food aid in 1977-78.

replenishment of the bank's funds, covering the years 1975-77, totals \$276 million. Canada is also a member of the Asian, Caribbean and Inter-American development banks and was a moving force behind the establishment of the African Development Fund. Canada has been a major supporter of the United Nations Development Program since its inception in 1965; the 1977-78 contribution was \$34 million. Canada also contributes to other UN programs such as UNICEF.

A growing part of Canada's assistance program involves non-governmental organizations. CIDA subsidizes selected projects up to 50 per cent of the cost, and reached a total of \$41.9 million in 1977-78. CIDA also encourages Canadian business to participate in the industrial development of Third World countries through investment in joint ventures.

Canadian Executive Service Overseas (CESO)

Since CESO was created in December 1967 by a group of prominent businessmen, encouraged and supported by the Canadian International Development Agency, it has had three basic objectives: (1) to increase the efficiency and productivity of developing countries and our own Indian people, thereby improving their economy and standard of living; (2) to provide a challenge and opportunity for hundreds of retired Canadians who still have much to contribute and need an outlet for their energies and skills; and (3) to help maintain Canada's reputation throughout the world as a good neighbour.

The success of this venture is clearly evident in the hundreds of letters from satisfied clients in all parts of the world who have received the benefits of the CESO volunteer program. Over 1,700 projects in more than 70 developing countries have been completed by CESO. And CESO's Canadian Indian program is expanding rapidly.

Canadian University Service Overseas (CUSO)

Since 1961, CUSO has sent over 6,000 volunteers of all ages and from all walks of life to fill temporary manpower requirements in developing countries.

The countries or agencies requesting help pay the volunteer's salary at local rates. CUSO, an independent, non-profit organization, pays travel, medical, orientation and insurance costs. The term of volunteer contracts is generally two years.

CUSO is also involved in funding a number of small, self-help projects overseas and in development education at home. A substantial part of the organization's finances come from the Canadian International Development Agency (CIDA), the balance being contributed by individuals, corporations, foundations, community groups and provincial governments.

A CUSO volunteer teacher in Jamaica with one of her pupils.





IDRC is involved with a modular teaching system designed to provide low-cost mass primary education in developing countries. Here, an older student conducts a reading class for lower grade level students in a small community in the Philippines.

International Development Research Centre (IDRC)

IDRC was created by an Act of Parliament in 1970, when the need was recognized for a donor agency that had more flexibility than a government department to support research into the problems of developing countries. The objective of the centre has been to promote the economic and social development of those regions — particularly the well-being of their rural peoples — by research designed to adapt scientific and technical knowledge to their specific requirements.

This research is initiated, designed, and carried out almost entirely by scientists and technologists from the countries and regions involved, in accordance with their own priorities. The role of the centre is to help refine research proposals, recommend projects for funding, monitor their progress, and disseminate the results as widely as possible.

Research proposals are judged by such factors as: whether they fit into the 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 indigenous researchers.

Within this concern for the advancement of developing countries, there is a focus on research in the following sectors: agriculture, food and nutrition sciences, health sciences, information sciences, publications, and social sciences and human resources.



Like the majority of African women, this girl in Kenya must spend a large part of her day carrying water for cooking, washing and drinking. To make their life easier and improve health and sanitation, the IDRC supports a number of projects aimed at providing rural populations with a reliable source of clean water.

IDRC is financed solely by the Government of Canada; its policies, however, are set by an international Board of Governors. The chairman, vice chairman, and nine others of the 21 governors must be Canadian citizens. It has been the practice to draw the other 10 governors from outside Canada, and especially from developing countries. The centre's headquarters is in Ottawa. Regional offices are located in Africa, Asia, Latin America, and the Middle East.



Members of the first all-woman shift at CFB Trenton air traffic control tower.

National Defence

The aim of Canada's defence policy is to ensure that the country remains secure and independent. To this end, Canadian forces are committed to collective security and defence arrangements with Canada's allies in the North Atlantic Treaty Organization (NATO), with the United States under a North American Air Defence (NORAD) agreement, to the United Nations in various peacekeeping and observer roles and to the maintenance of Canada's ability to function as a sovereign state within its own territory and the contiguous water areas under Canada's jurisdictional authority.

Because the main military threat to Canada lies in the possibility, however remote, of a nuclear exchange involving the United States and the Soviet Union, a major thrust of policy is to deter such an event. This involves two primary theatres, Europe and North America.

Canada's principal contribution in Europe is a contingent of more than 5,000 men with the land and air forces under Allied Command Europe. They include the Canadian Mechanized Brigade Group, some 3,000 men, and the 1st Canadian Air Group, operating three squadrons of CF-104 fighter and ground support planes, plus support personnel.

One of three land combat groups maintained in Canada has the task of supporting NATO deterrent forces in Norway if necessary. The group can be transported either by air or sea. Canada also has committed two squadrons of CF-5 aircraft for a close support role on NATO's northern flank. These aircraft, refuelled in flight, could be deployed quickly to any crisis area. Co-operation with United States forces, under a renewed NORAD agreement signed in 1975 and effective to 1980, is the salient feature of defence in the North American area. Canada's current contribution is three

squadrons of CF-101 interceptor aircraft, 24 surveillance radars, two satellite tracking stations and participation in operation of the Distant Early Warning (DEW) radar line. This involves some 10,500 forces personnel.

Canadian maritime forces also contribute, with US forces, to operations to detect and monitor any potentially hostile maritime operations off the Atlantic and Pacific coasts. Current Canadian maritime forces include 23 destroyers, three submarines, three supply ships, three operational squadrons of long-range anti-submarine patrol aircraft and a number of shorter-range patrol planes and helicopters with anti-submarine capability. All Canada's maritime forces can be assigned to NATO in any emergency.

In support of United Nations efforts to halt hostilities through the peacekeeping and truce observation roles, Canada currently has more than 1,000 military personnel performing in the Middle East and more than 500 in Cyprus. Other personnel are involved in an India-Pakistan military observer group, the military armistice commission in Korea and with the truce supervisory organization operated by the United Nations.

Protection of Canada as a sovereign state imposes two main roles on the Canadian Armed Forces. One concern is the possibility of challenges to Canada's right to exercise jurisdiction over her territory and its adjacent waters. With implementation of a 200-mile offshore fisheries zone, this area under Canadian jurisdiction amounts to almost half the country's land mass and has required an increase in surveillance and inspection of fishing vessels and for other civil purposes, including pollution control. A second concern is the possibility of the forces being called to the aid of the civil power in the event of a serious civil disorder. While no armed forces are maintained for this specific purpose, forces performing other tasks are trained to provide such assistance.

The forces also provide a reservoir of skills and capabilities that can be drawn on for national support and development. Examples are in such fields as search and rescue, disaster relief and assistance, construction and mapping and surveying.

Building an ice runway in Canada's Northwest Territories long enough to accommodate Hercules aircraft was an operational necessity to conduct investigations following the plunge to the earth of Cosmos 954, a nuclear-powered Russian satellite.



Common Conversion Factors from SI Metric to Canadian Imperial Units

Length

1 mm	=	0.03937 in.
1 cm	=	0.3937 in.
1 m	=	3.28084 ft.
1 km	=	0.62137 mi.

Area

1 km ²	=	0.3861 sq. mi.
1 ha	=	2.47105 acres
1 m ²	=	0.000247 acres

Mass (Weight)

1 kg	=	2.204622 lbs.
1 kg	=	0.0011023 tons (short)
1 kg	=	0.000984 tons (long)
1 kg	=	32.1507 troy ounces
1 g	=	0.0321507 troy ounces
1 t	=	1.102311 tons (short)
1 t	=	0.9842065 tons (long)

Volume and Capacity

1 m ³	=	220 gal.
1 m ³	=	35.31466 cu. ft.
1 m ³	=	423.78 board feet
1 dm ³	=	0.423776 board feet
1 m ³	=	6.28982 barrels
1 litre	=	0.219969 gal.
1 dm ³	=	0.027496 bushels
1 m ³	=	27.4962 bushels

Mass in SI Metric to Average Capacity in Canadian Imperial Units for Common Field Crops

Wheat, soybeans, potatoes, peas	1 t = 36.74 bushels
Rye, flax, corn	1 t = 39.37 bushels
Rapeseed, mustard seed	1 t = 44.09 bushels
Barley, buckwheat	1 t = 45.93 bushels
Mixed grains	1 t = 48.99 bushels
Oats	1 t = 64.84 bushels
Sunflower seed	1 t = 91.86 bushels

Temperature

9/5 temperature in °C + 32 = temperature in °F

Acknowledgements

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