

Canada Handbook



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Canada Handbook

The 50th handbook
of present conditions
and recent progress

Prepared in the
Federal and Media
Relations Division
Statistics Canada

*Published under the authority of the
Minister of Supply and Services Canada*

© Minister of Supply and Services Canada 1984

Available in Canada through:

Authorized Bookstore Agents
and other bookstores

or by mail from:

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Canada K1A 0S9.

Catalogue No. CS11-403-1983E

Canada: \$6.30

ISBN 0-660-11452-6

Other countries: \$7.55

Price subject to change without notice.

Contract No. OKP8205384

Typesetting: Southam Communications Ltd., Toronto

Contract No. 45045-3-8204

Kromar Printing Limited, Winnipeg.



Preface

This 50th edition of the *Canada Handbook*, 1982-83, provides a portrait of the country, its people, environment, social and economic situation, culture, government structure and services.

It displays both historical and current information on all aspects of Canadian society, covering a range of topics from the current communications revolution to fisheries and forestry, from arts and culture to economic trends. The text, photographs and statistical tables provide both a broad appreciation of what life is like in Canada and more specific information on various aspects of that life.

Material for the book was provided by many sources, various divisions of Statistics Canada and other federal and provincial government departments. The excellent illustrations were selected from government, commercial, press and private sources.

The book was produced by the Federal and Media Relations Division of Statistics Canada and planned by Margaret Smith, Editor, with the assistance of Patricia Harris and the proofreading staff.

Martin B. Wilk

Martin B. Wilk
Chief Statistician of Canada

December 1983

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The Environment

Regional Geography of Canada

Canada can be divided into smaller units to help comprehend the similarities and differences from place to place across its vast area. The defining of these regions should be based on distinguishing characteristics of selected criteria. Regional geography is not a collection of miscellaneous information about a region. It entails the selection, arrangement and interpretation of facts to present a viewpoint about an area which can be called geographical; emphasis will be on the distributional aspects of phenomena. Just as in history, for example, facts are selected to illustrate events in a period of time, so in geography there should be a selection of facts which characterize areas. Every valley and every village has its own unique geographical character; in theory, a study of each of these small units should lead to understanding of the geographical patterns of larger regions, and finally to Canada as a whole.

Geography describes and explains as much of the totality of a regional landscape as possible. This landscape is made up of both the natural (physical) environment and



Autumn's colour near St-Adolphe-d'Howard, Que.

the distribution patterns of man-made features. Large areas of Canada have similarities in certain elements of their landscapes; by grouping these selected similarities into regional units the "character" of a region may be described and its differences from other regions clarified. Many people have a "regional consciousness" which tells them intuitively that their local area differs in certain aspects from some distinctive characteristics of nearby or far-off regions. As people travel more throughout Canada, they realize the similarities that may be seen from place to place; thus comparing similarities in regions is equally as important as defining differences. The purpose of regional geography is to assist, along with other disciplines, toward understanding as much as possible about Canada in whole and in part.

Canadians need more specific regional and locative terms than the frequently used "eastern", "western" or "northern" which means different things to different people depending on where they are at the time. Kirkland Lake is probably "northern" to most people in Ontario, but it is the same latitude as Vancouver which considers itself to be "southern".

In this article Canada has been divided into six regions. The regions are generally well known to Canadians and, therefore, have the advantages of local familiarity and national recognition. The criteria for defining these regions differ; some are landform areas, whereas others are political units. Following are summaries of the characteristics and definitions of these six regions of Canada.

The Atlantic Provinces are mainly a political region including the Maritime provinces and the island of Newfoundland. The Labrador section of Newfoundland may be considered part of the Canadian Shield region, an area with which it has similar environmental and resource-use characteristics. The Atlantic provinces have been known to Canada statistically for their lower incomes, and their less expanding economy. Fragmentation of the economy and dispersal of population are two of the distinctive geographical characteristics.

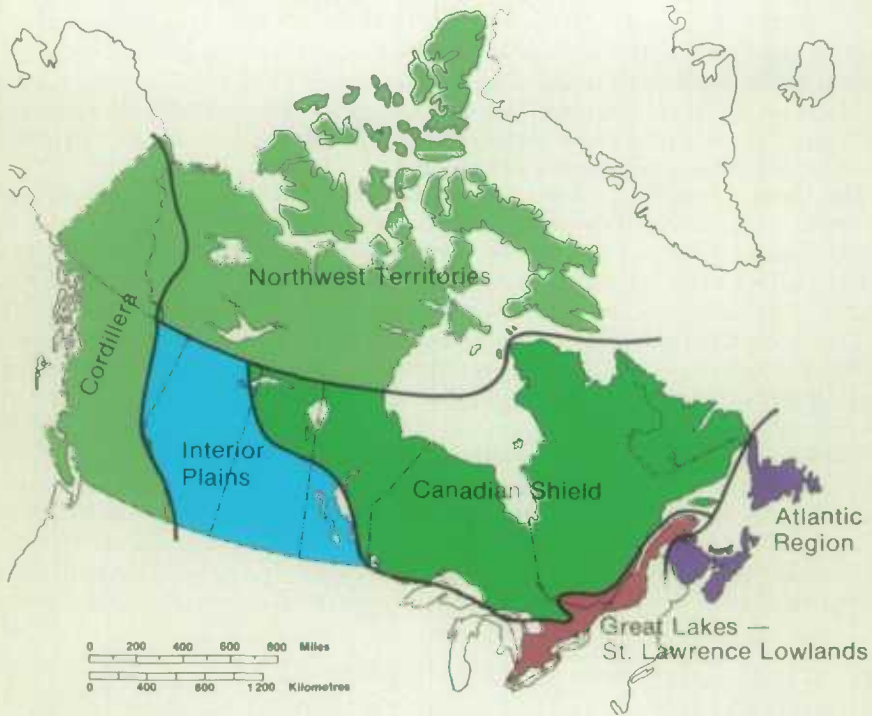
The Great Lakes-St. Lawrence Lowlands are bounded on the north by the geological and landform escarpment of the Canadian Shield which is quite visible in the landscape. This landform feature separates the high intensity agricultural and urban characteristics of the Lowlands from the forested and sparsely populated Shield. The Lowlands have the highest densities of industry, commerce and population in Canada; the region is the "heartland" of the nation. There are cultural differences between parts of the region in relation to the prevalence of either the English or French language, suggesting division into at least two sub-regions based on human criteria.

The Canadian Shield is another landform region, defined on the basis of its exposed ancient Precambrian rock base. Its physical environmental characteristics of bare rocks, forests and lakes are quite distinct from the Lowlands. Because it is a huge area, covering about half of the mainland of Canada, there is environmental diversity within this region, but there are also large areas of similarity. The southern part of the Canadian Shield is known for its vast natural resources which are functionally linked

The rugged beauty of Prince Edward Island's coastline



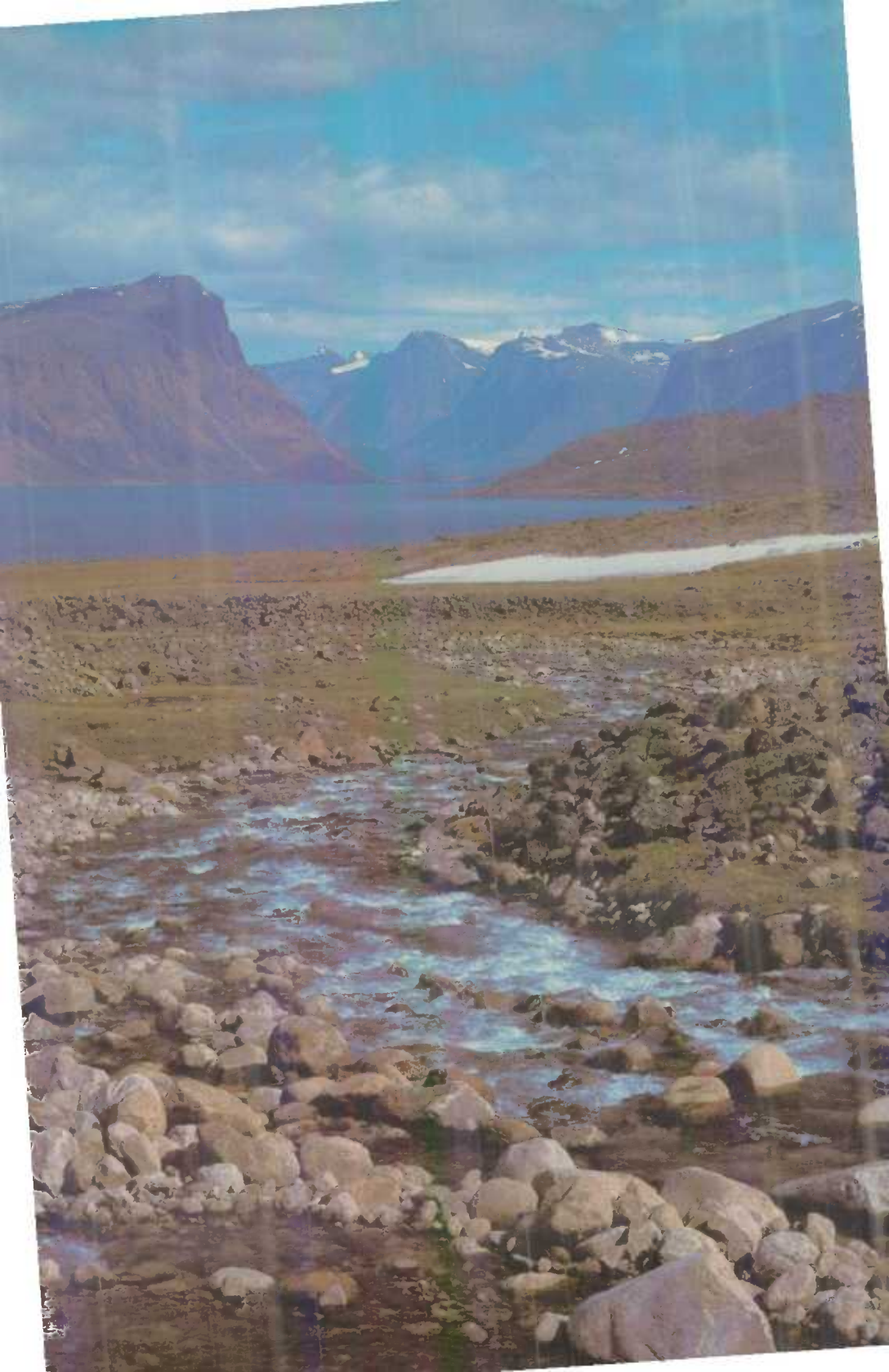
Geographical Regions of Canada



to the heartland region. The northwestern part of the Shield has a different surface environment and different human use and is included as part of the Northwest Territories, a region defined by political criteria.

The Interior Plains are sharply bounded on the west by the high wall of the Rocky Mountains, but on the east the geological and landform edge of the Shield is often hidden beneath former glacial lake deposition or by coniferous forest. The plains are the largest area of nearly level land in Canada; their human use is characterized by the large grain farms in the southern parts. Only a small part of the plains is covered with prairie grassland, despite contrary popular opinion. Although all of the Prairie provinces might be discussed as a political region, the environmental, economic and human characteristics of the Shield sections of northern Manitoba and northern Saskatchewan are very different from the plains.

The Cordillera is a mountainous region which coincides closely, but not entirely with the political limits of British Columbia and Yukon. The level section of northeastern British Columbia is part of the Interior Plains, emphasizing its



differences from the rest of British Columbia. The geography of the Cordillera is characterized by great contrasts within small areas in the physical environment and in population densities. The resource-based economy is similar to that of the Atlantic provinces, but on a different scale. In a regionalization of Canada it is debatable whether the Yukon should be part of the mountainous Cordillera or should be studied for its "northern" characteristics with the Northwest Territories.

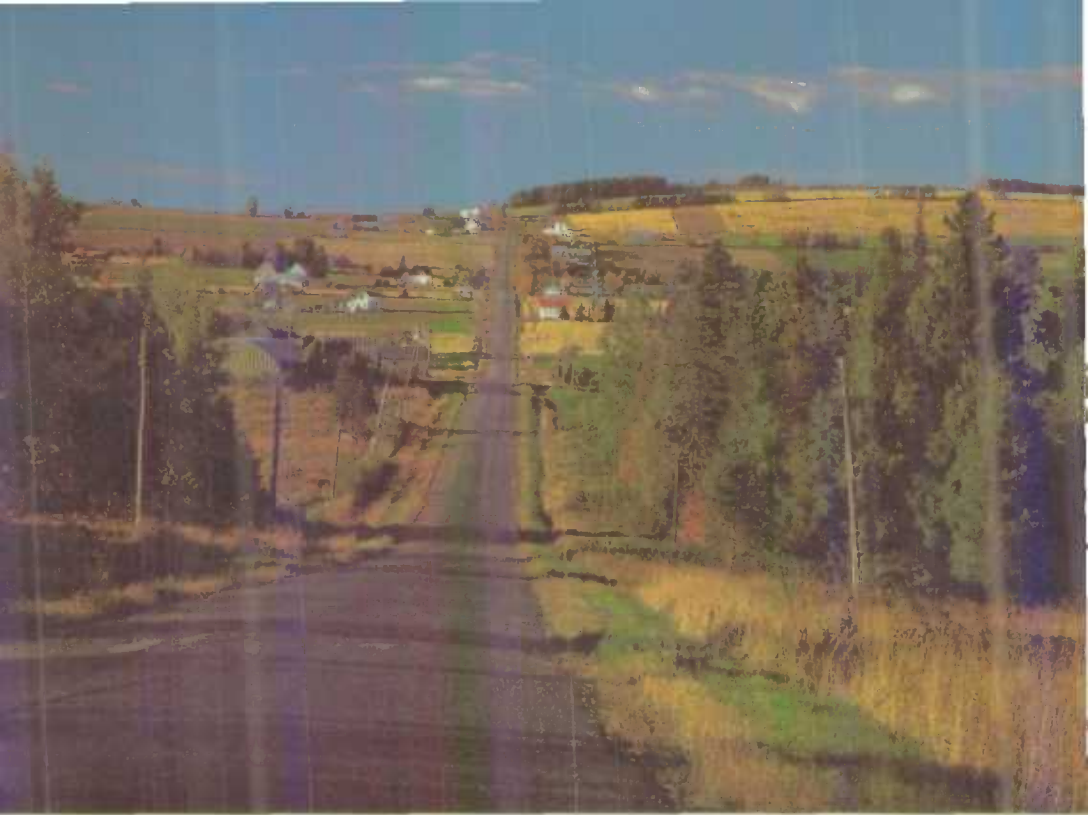
The Northwest Territories are a political region with no landform or other environmental uniformity; the population is small and dispersed. A decision concerning its regional boundaries raises several geographical questions. Will the people and economy of the Mackenzie Valley be better understood by emphasizing their similarities with the northern Interior Plains, or by thinking of the Territories as a political unit separated from Southern Canada by the sparsely populated northern parts of the provinces? Although Keewatin District is part of the Canadian Shield based on geological criteria it is different from the southern Shield geographically because of its treeless environment, arctic climate and its Inuit inhabitants.

The Atlantic Provinces

Fragmentation and dispersal are themes which run through a geographical discussion of the Atlantic provinces. By many economic and statistical measurements

A delicate network of winter's cover at Wilket Creek Park in Toronto, Ont.





Farmland near Glassville, NB.

of Canadian regional development the Atlantic provinces are at the lower rank among the provinces. The internal environmental variety, the separation of economic activities, and the lack of a very large urban centre are geographical characteristics which are lost when the statistics are aggregated into the regional totals for the four provinces.

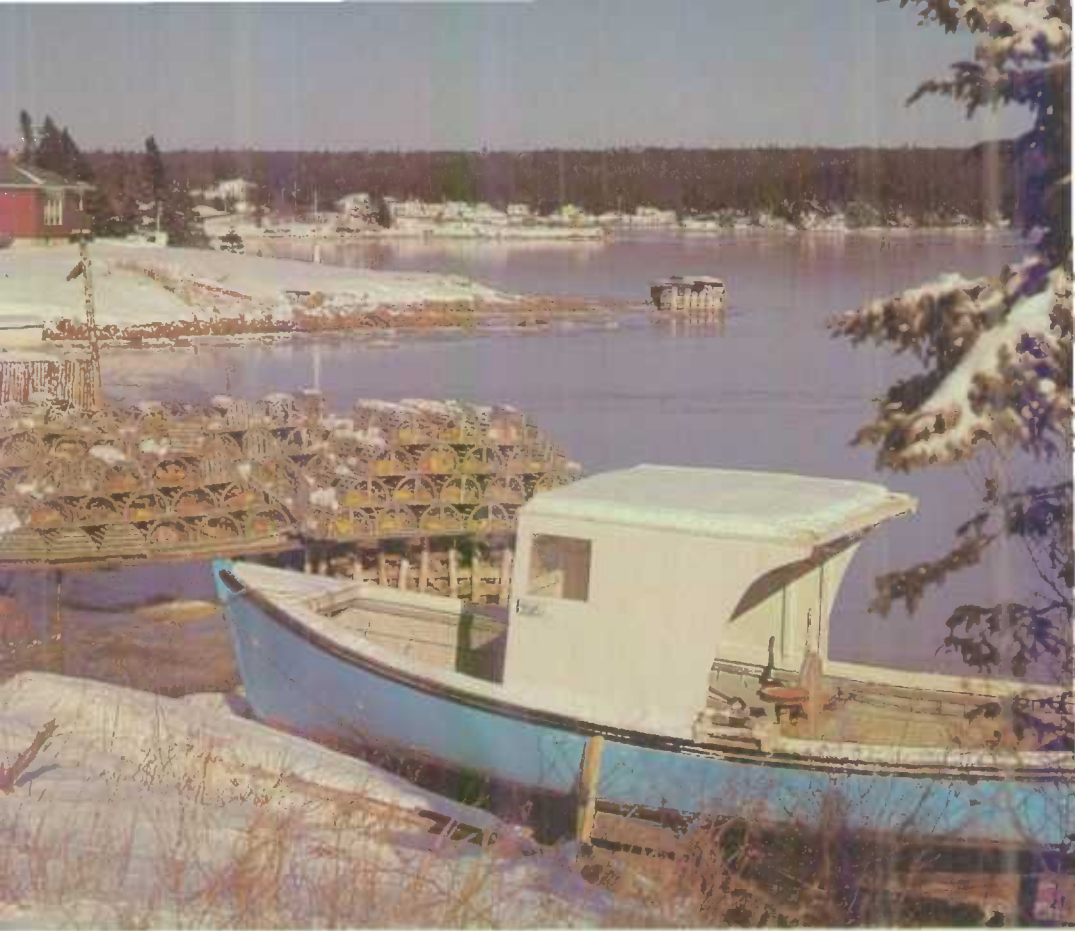
The Atlantic provinces region differs from the rest of the country in several physical characteristics. Its low hills and mountains and rugged, indented coasts are different landform types than those of the St. Lawrence Lowlands. East Coast landforms separated people into small patches of settlement in the past. The maritime climate is not the same as that of the rest of Eastern Canada and it differs from the maritime climate of the West Coast. Although trees are similar to those growing elsewhere in Eastern Canada, the way in which they are areally associated requires classification as a separate vegetation region. Resource-based primary occupations are more important in the Atlantic region than they are in southern Ontario and Quebec, but eastern resource-use activities often result in single-industry towns which are dispersed around the coasts. There are few areas of high concentrations of people. Although the individual farms, villages, towns and cities are often similar in form and function to other settlements in Canada their geographical dispersal into small areas, strips and dispersed centres gives the region a different geography of settlement and human use.

Distribution patterns are not static in any region; they change over time. The geography of agriculture and fishing in the Atlantic provinces illustrates these changing areal patterns. Most of the former part-time and subsistence farms, associated with rural poverty, and located on the poorer soils, steeper slopes and away from main roads have been abandoned; the distribution of commercial farms is now much more closely associated with improved roads and access to the larger cities. The past regional character of agriculture in the Maritimes did not stem from its type of farm or general land use, but was distinguished by the shape of its farmland strips and its areal dispersal.

Fishing activity is also changing from dispersal to concentration. In Newfoundland mainly, and to a lesser extent in Nova Scotia, the small fishing "outports" or villages were dispersed along the coast in sheltered bays, near headlands, or on islands. Because each family wanted space for drying flakes, separate wharves, and adjoining gardens—all with shore location—these fishing villages developed distinct

Petty Harbour, Nfld.





Bayside, NS.

dispersed housing. The visual form of these villages was different from other resource-based settlements in Canada; those which remain constitute one of the elements in the total landscape which gives regional character to the Atlantic provinces. Fishermen are now concentrating into larger towns near the processing or freezing plants where there are more health, educational and social services. Sometimes, however, this geographical trend has changed the fisheries' rural poverty and low incomes to increased urban unemployment.

The Great Lakes—St. Lawrence Lowlands

The small Lowlands region extending across southern Ontario and southern Quebec holds more than half of Canada's population and produces about three-quarters of the value of its manufactured goods. This densely-populated part of Eastern Canada has more large cities of over 100,000 population than any other similar

sized part of the nation. Its excellent agricultural lands help to feed the nation's two largest cities — Montreal and Toronto. The region is the "heartland" of the country, characterized by high densities of urban, industrial and agricultural activities. In the 19th century the Lowlands region had a favourable combination of many elements in the natural environment in an accessible geographical location; it presented an attractive environment for people looking for agricultural land. The region had the largest area of level land with a warm summer climate in Canada, and it was accessible by the St. Lawrence River to settlers entering from the East.

Some of the internal contrasts are the result of cultural differences between French-Canadian and British-origin settlement. The rural landscape of southern Quebec, with its long, narrow farms, often demarked by old rail fences, is distinct within Canada, and contrasts with the rectangular farms and dispersed farmhouses of southern Ontario. The rural villages of Ontario, with their small, compact central business sections and rectangular street patterns contrast with the linear Quebec villages in which residential and commercial uses are often interspersed.

In addition to a prosperous intensive agriculture, a closely-linked urban system has been built. The activities in industry, commerce, transport, service and recreation of more than 12 million people in the Great Lakes—St. Lawrence Lowlands are all closely interrelated areally. A size-hierarchy of hamlets, villages, towns and cities is spaced in geometric patterns across the Lowlands from Quebec City to Windsor. The size and spacing of these urban places is related to the size and population of the hinterland area that each serves. Despite different histories, economies and cultures these cities have many similar internal areal patterns.

Some of the areal relationships between Lowland cities and their nearby rural hinterlands can be illustrated by Montreal. It has had a dominant influence on the areal arrangement of the economy of Quebec. The dairying and market garden agriculture in the surrounding Montreal plain supplies this large urban market. The changes in the rural landscape from the "quaint habitant" farms of the 19th century to the present, well-equipped dairy farms can be attributed directly to the market of Montreal. The city's clothing industry is functionally connected with the many textile and yarn mills in the towns and villages south and east of Montreal. Many of the resource industries of the Canadian Shield are managed from offices rising above Montreal's city centre.

There are similar spatial relationships between cities and hinterlands in southern Ontario. Greater Toronto is the focus of transport lines that serve all of the Ontario Lowlands and bring the natural resources of the southern Canadian Shield and the Interior Plains to the city. The manifestations of these many geographical connections are illustrated by the thousands of management and clerical workers who cluster into the high-rise office buildings of the financial core of Toronto.

The cities around the western end of Lake Ontario are now an urban complex which is not duplicated on the same scale elsewhere in Canada. From Oshawa to Hamilton and spreading east to St. Catharines and Niagara Falls, this part of southern Ontario has unique geographical patterns formed by the coalescing of individual cities. On a smaller scale, the same coalescing of urban activities is taking place in the nearby Grand River Valley from Woodstock to Kitchener and Guelph. The industries of the Grand River sub-region and the Toronto—Hamilton complex are already integrated in many ways; products move from city to city for assembly or further



Killarney Provincial Park in Ontario.

processing or for final consumption. The changing geographical patterns, resulting from changing rural to urban land uses, have given rise to numerous social, economic and local government problems.

The Canadian Shield

The enormous Canadian Shield occupies about half of the mainland of Canada. Although there are significant differences between the northern and southern parts of the region there are also large areas in which there is much similarity. The Shield is defined as the area underlain directly by ancient Precambrian rocks. The physical environment of the Shield contrasts strongly with that of the Lowlands south of it. The Shield is a region of forests, lakes and rocks; it is a region of few people, and they are mainly urban dwellers. The southern Shield, sometimes called the "Middle North" by persons in southern Ontario and Quebec, has a resource-based economy; its products — minerals, wood and waterpower — are exported outside of the region or outside of Canada. Interaction and movement between the Shield and the adjoining Lowlands are common, and the regions are interdependent. Many of the raw materials of the Shield move to the Lowlands for processing or consumption; a reverse flow of people comes into the Shield for recreation or holidays.

The geography of natural resource utilization in the Shield has evolved in specific distribution patterns. From the south-central outer edge of the Shield, man and his resource-exploitive activities have spread outward across the outer sections. This

semicircular pattern of utilization is now penetrating slowly into the Shield, but vast areas still remain unoccupied. The natural environment in the northern Shield is different, however, and the resource potential there is scanty or lacking; the same type or intensity of resource development and allied settlement cannot be expected in the northern Shield.

Although known in Canada as "a storehouse of minerals", not all of the Shield is mineralized. Mining settlements are both clustered and dispersed; they form an interconnected network of communities in the south-central part of the Shield across the Ontario-Quebec border but they are isolated towns along the eastern and northwestern flanks of the Shield. For example, a functional mining region evolved in northeastern Ontario by 1940, linked by rail, road and power transmission lines. The availability of railways made it possible to establish pulp and paper mills amid the untapped forests. The area of agriculture expanded in the Clay Belt near these towns as the urban population increased. Most of the mining communities elsewhere in the Canadian Shield were established after 1945 and are examples of the new resource-based, single-industry towns on the "resources frontier" of Canada. Their curving streets and planned separation of work and residence areas are different from the older cities of Southern Canada.

A similar peripheral distribution pattern of pulp and/or paper mills developed on or near the outer edge of the Shield early in this century. Most of the mills were located in an arcing zone between Quebec City and the Upper Ottawa River. The Shield edge westward in northern Manitoba and Saskatchewan does not have a sufficient natural endowment of trees to support a local pulp and paper industry.

The third major natural resource of the Shield, waterpower, also has a peripheral distribution along its outer edge. Fortunately, the outer "fall-line" of the Shield, where outward-flowing rivers tumble over the southern escarpment, is close to the region of greatest need for power—the Lowlands. The evolution of a spatial pattern of hydro-power development can be illustrated in Quebec. The earliest sites were in the south-central edges of the Shield, such as along the St-Maurice River; later plants were built progressively outward to the east and west along the Shield edge, such as on tributaries of the Ottawa River and in the Saguenay Valley. The eastward-evolving pattern of power development was highlighted by the Bersimis River in the 1950s, the Manicouagan-Outardes rivers in the 1960s, and the Churchill River of Labrador in the 1970s. With no other large, outward-flowing rivers from the Shield available for hydro-power development the Quebec government had to turn to La Grande River whose water drops down to James Bay, therefore beginning the utilization of an "inner fall-line".

One of the major natural resources of the Shield is its landscapes or scenery. The totality of its natural environment, with its varying combinations of trees, lakes, rivers, hills and animal life appeals to urban people of the adjoining Lowlands and nearby United States. Whereas other natural resources are shipped out of the Shield, scenery, a resource which can be used over and over again, brings people into the region. The south-central edge of the Shield, closest to the high densities of people on the Lowlands, has the greatest use with decreasing intensity of use and accessibility outward along the Shield edges and into the northern interior.

Agriculture is a decreasing activity within the Shield region. The largest areas are on the level land of old glacial lake bottoms in the Clay Belt across the



Winding patterns formed by the Assiniboine River near Lavenham, Man.

Ontario–Quebec boundary, and on the Lowlands around Lac St-Jean. Whereas farms are a part of the regional landscapes in most parts of Southern Canada, they are a minor element near Shield settlements and are totally lacking over the major portion of the Shield.

The Interior Plains

The words “flat, prairie, wheat and petroleum” might well characterize the environment and resources of the Interior Plains of Canada. Although these words accurately describe certain outstanding parts of the Plains environment and economy, they do not tell of the variety found within the region. It is true that large areas of the Plains are very flat, but the landform regions include hills, escarpments, entrenched river valleys and even low mountains; although prairie grasslands of varying height once covered the southern plains prior to cultivation, now more than half of the region is forested; although wheat became a staple crop for export after the land was subdivided for settlement, other grains were also grown and several new crops now occupy significant acreages; although petroleum was important in diversifying the Plains economy after 1947, other fuels and minerals have become significant in particular parts. Similar to the Canadian Shield the Interior Plains has

large areas of generally uniform environmental conditions, but the characteristics and combination of these physical elements are different from those of the Shield.

Large areas of the Plains have generally similar climatic conditions but the variations away from the averages and extremes give a distinct regional character to the Plains climate. Variability of precipitation, for example, is more characteristic of the Interior Plains climate than in any other region of Canada. Vegetation patterns are indicative of areal differences in climate. The original grasslands of the southern Plains indicated the areas of lower precipitation and higher summer temperatures. North of the grasslands small deciduous trees were able to survive where the average precipitation was slightly higher and summers were cooler. Coniferous forests cover the northern Plains where winters are continually cold.

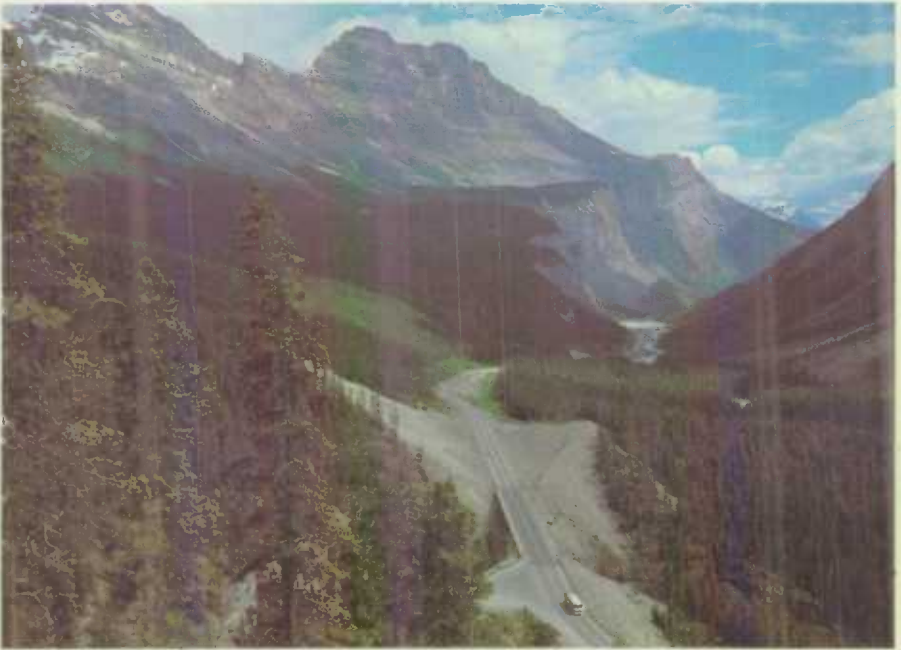
The distribution pattern of types of agriculture coincided fairly closely with the semicircular zones of soils, vegetation and climate until the 1940s. Since then non-environmental factors have had much more influence on the kind of crops grown and their areas of concentration. Crop acreages change from year to year within the region and also within farms as a result of management decisions concerning acreages, changes in foreign markets, consumer preferences and other external factors. An aerial view of the large, rectangular farms with only a few crops, the widely dispersed farmhouses, and the absence of trees except near the farmhouses leaves little doubt that agriculture of the Plains region is different from agriculture elsewhere in Canada.

The internal urban geography of Plains cities is quite similar to that of eastern cities but shades in the urban landscape help to characterize prairie cities. Because they were settled mainly in this century, there are few old buildings compared with eastern cities; narrow streets are rare and wide streets are common; the line between urban and rural land uses is quite sharp and has been more carefully planned and controlled than in eastern cities.

One of the geographical characteristics of the Interior Plains is the geometric spacing of its villages, towns and cities. The size and function of Prairie villages and towns are related to the number of farmers in the surrounding area needing certain urban goods and services. Other specialized items and services, needed less frequently, tend to be located in larger cities where they can serve more people locally and also be available to people from a larger surrounding rural area. In addition, small urban centres show regularity to their spacing which is related to the railway lines and to their function as grain collecting centres. The size gradation of this distribution pattern is breaking down as road transport improves and people are able to travel farther for their services.

The Cordillera

A mountainous region known as the Cordillera extends along western North America; most of British Columbia and all of Yukon are within the Canadian Cordillera. Great contrasts within small areas are characteristic of the natural environment of this mountainous region. It is a land of urban people; agriculture is entirely lacking over large areas or is confined to certain narrow valleys or flood plains. This urban population is concentrated into one small area in the southwestern corner of British Columbia where 75 per cent of the population lives. Settlements



The scenic route through the Rocky Mountains between Jasper and Banff, Alta.

throughout the remainder of the Cordillera are based mainly on the exploitation of a natural resource. This resource-based economy is similar to that in the Canadian Shield and the Atlantic provinces.

The only other parts of Canada with comparable spectacular mountain landforms are Baffin and Ellesmere islands in the northeastern Arctic. Although the Cordilleran mountains seem to be a jumbled mass of peaks when viewed locally, and stretch endlessly to the horizon when seen from the air, they have specific areal patterns and can be classified into smaller sub-regional landform units. The Rocky Mountains, for example, are a specific line of mountain ranges extending from Montana along part of the Alberta-British Columbia border to the broad plain of the Liard River in northeastern British Columbia. The western landform boundary of the Rockies is the Rocky Mountain Trench, one of the world's longest continuous valleys, extending from Montana to the headwaters of the Liard River in the Yukon.

Contrasts in climate within small areas are characteristic of all mountainous regions and the Canadian Cordillera is no exception. The greatest amounts of precipitation recorded in Canada are one of the distinctive features of some of the west-facing slopes of the Insular and Coast Mountains and only 320 to 480 km (kilometres) eastward, in the southern interior valleys of British Columbia and in southern Yukon, are some of the driest weather stations outside of the Arctic.

The geography of forest utilization indicates that the original density of development was in the southwest and the wood-processing industry is still

concentrated there. As forests farther away along the coast were cut, and a log transporting technology developed, the coastal hinterland could be exploited to supply the urban sawmills around Georgia Strait. After 1950, increased world demand, plus improved rail and road transport into the little used forest reserves of the interior, permitted inland expansion of cutting. Areal patterns of dispersal followed by concentration, and corporate integration of processing, were established in the interior forest industry similar to the patterns which developed on the coast prior to 1940.

The West Coast fishery has different areal patterns than that on the Atlantic Coast. The industry has adapted to the natural habits and migrations of the five main species of salmon. Fish canneries were established at or near the mouths of most rivers all along the coast early in this century, but the greatest concentration was near the Fraser and Skeena rivers which had the largest drainage basins and therefore usually had the most fish production. Fishing technology gradually improved so that larger and faster fishing vessels, with better gear, could harvest a larger area away from the river mouths; thus the need for many small dispersed canneries decreased, and the processing industry concentrated into large canneries near the mouths of the two largest rivers. The lack of coastal settlement for fishing contrasts with the type of fishery settlement in Eastern Canada.

Through more than a century of mining the geographical patterns of development have been consistent. At the turn of this century southeastern British Columbia was one of the important mining areas of Canada while the rest of the province was struggling to create a viable economy. This region is still the main mining region of the Cordillera functioning around the large smelter-refinery at Trail to which a variety of ores can be taken for processing. Although mineralization is apparently widely spread throughout Yukon, the few operating mines are dispersed across the southern part. Having only a few internal transportation lines until recently, potential mines in the Yukon face high transport costs to external markets. The characteristics of mining in the Cordillera are similar to those in the Canadian Shield but the density of development is not as high in the former area.

The recreational use of the spectacular and varied environments of the Cordillera has been similar to that in the Canadian Shield. The empty areas of the Cordillera will have increasing value to visitors as population densities increase in the western part of North America.

The Cordillera has two sub-regions: the coast, with its distinctive climate and urban concentration, and the interior, with its growing resource-oriented settlements. Despite the great latitudinal extent from central British Columbia to northern Yukon, there is a great deal of similarity in the interior environments and in the type and sparsity of settlement. Improved transport is breaking down this coast-interior division and a new set of interconnected areal patterns is at present evolving in the Cordillera.

The Northwest Territories

This region is defined by political boundaries and lacks the uniformity of certain physical or economic criteria used to describe other regions of Canada. The Northwest Territories is characterized by diversity of its natural environments, lack of



A fishing party is dwarfed by an immense iceberg in Cumberland Sound near the southern coast of Baffin Island, NWT.

developed resources, scanty population and a different type of government. The relative lack of developed natural resources is related both to the internal poor endowment of the natural environment and to the external problems of both distance and accessibility.

Within the large area of the Territories there can be two sub-regions: the subarctic Mackenzie River Valley in the west and the arctic area of the islands and north-central mainland. These regions are defined by the 10°C July isotherm; northeast of this line the arctic area has no summer. This climate coincides closely with the northern limit of tree growth; it is also a cultural line separating Indians and Inuit.

The agricultural and forestry uses of this enormous area are minor in the subarctic and entirely lacking in the arctic sections. Not only are summers too cool in the arctic part but its landscape is characterized by bare, glacially-scoured rock where soil is lacking. More favourable summer conditions in the subarctic Mackenzie Valley permit the possibility of agriculture; gardens can be productive, but the lack of large local markets discourages agriculture as an occupation.

This is the only region of Canada in which undomesticated animal resources are a significant element in the local economy. Game resources are still significant to some Mackenzie Valley Indians and for many Inuit the sea remains an important source of



Kwadacha Wilderness Provincial Park in British Columbia.

food. For both people, however, animals constitute a decreasing percentage of their food intake. Fur-bearing animals became important to the native economy after the white man entered the region early in this century. The treeless Arctic has only the white fox as a fur resource, in contrast to the variety of fur-bearing animals in the forested Mackenzie Valley, where most of the dispersed settlements were originally fur-trading posts.

Mineral resources are the hope that some parts of the Territories will become significant in the Canadian economy. The Territories are underlain by parts of two geological regions: the Precambrian rocks of the Canadian Shield in the eastern mainland and eastern islands, and the flat-lying young sedimentary rocks of the Interior Plains in the western mainland and northwestern islands. The latter rocks have apparently smaller quantities of petroleum and natural gas than is known in the Interior Plains further south. Development of arctic mineral resources has been hampered by difficulties of water transport which must operate in seas that are ice-covered for nine to 12 months of the year.

As in other regions of sparse population in Canada, the total natural environment, or scenery, may attract short-term visitors. The tundra vegetation of the treeless Arctic is unique in Canada; the mountains of Baffin, Devon and Ellesmere islands are the highest in eastern North America and their ice-caps and glaciers present spectacular alpine scenery; ice floes and icebergs could contribute to a different water-travel experience for most people. The vague "lure of the North", and the chance to see a different environment and a different people — the Inuit — may yet be one of the most valuable elements in the arctic resource base.

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.

The Gouinou River at Goudry, Que.



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 development of drainage and irrigation systems. 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 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 the industrial effluents. The interactions of the weather, ecology and economy demand understanding.

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

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 very 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.

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 spoiled 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 operational and defensive actions based on assessment of meteorological information; 4. modification and direct control of the weather/climate; and 5. structural and

Field crops southwest of Hanna, Alta.



Table 1. Selected weather events, and some losses directly caused by them, 1868-1982

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
1967-68	Forest fires — all of Canada		100
1969	Glaze-storm near Quebec City, Que.		30
1973	Drought in British Columbia		
1973	Glaze-storm at Sept-Iles, Que.		10
1976-77	Drought in Western Canada		130
1978	Floods in Northern BC		10
1979	Floods — Red River, Northern Ontario and New Brunswick		44.5
1979-80	Low snowfalls in Ontario (ski losses)		10
1980	Prairie drought		1,500
1980	Forest fires — Western Canada and Ontario		1,500
1980	Floods on Squamish River, BC		13
1981	Calgary hail-storm	2	100
1982	Atlantic storm sinks Ocean Ranger oilrig	84	55

mechanical defences — i.e. capitalizing on climatological knowledge.¹² We do not need to take our losses passively; there are a number of 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

¹²J.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).



Wheat contributes more than 85 per cent of Saskatchewan's farm cash receipts.

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 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.

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 combating 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 costs, per annum, average about \$23 million and have been as high as \$184 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.

The production of rapeseed, a \$224 million business in 1976, 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.

Table 2. Crop losses as identified by federal 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
1965	Drought	Eastern Canada	14.5
1966	Drought	Quebec and Prince Edward Island	0.2
1967	Drought	Alberta and Saskatchewan	0.15
1972	Wet weather	Eastern Ontario and Quebec	14.5
1972	Snow at harvest	Alberta and British Columbia - Peace River	1.4
1973	Winter kill and drought	British Columbia	0.5
1973	Wet weather	Quebec and Saskatchewan	1.5
1973	Drought	Alberta	0.5
1974	Wet weather	Manitoba	1.6
1977	Drought	Alberta, Saskatchewan and Northwestern Ontario	1.0
1980	Drought (forage crops)	Prairies and Northwestern Ontario	51.4



The Bow River area at Calgary, Alta. veiled in winter white.

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 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.

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. The marine climatology and weather forecasts are heavily involved in the 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 for 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.

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 million 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



Tuna fishing near Prince Edward Island.

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 Niagara Falls is unimpressive when 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 the 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 inconsequential projects might be critical. Small changes in temperature, precipita-



A meteorological station on Sable Island, NS.

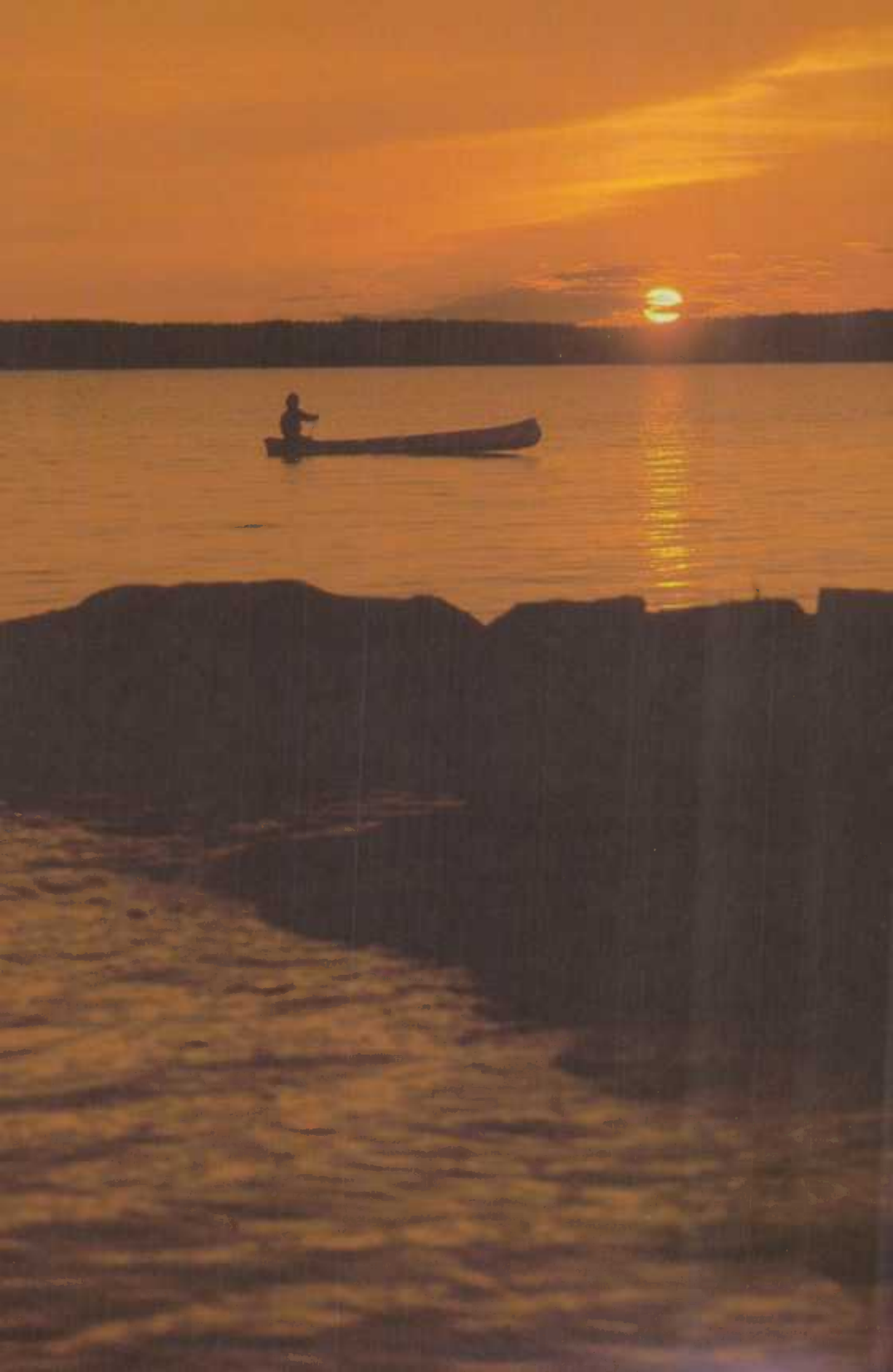
tion or fog might not significantly influence a region's climate, but perhaps these conditions could create new extremes that would place an intolerable stress on certain species; or perhaps they are involved in a non-obvious feedback mechanism that would have significant consequences. Broad, positive 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 infinite.

Environmental Assessment and Review Process

In addition to undertaking actual environmental assessments, participation in the federal government's Environmental Assessment and Review Process (EARP) is an important aspect of the climatological work of the Atmospheric Environment Service. Participation involves reviewing the climatic portions of environmental impact statements prepared by private industry and federal government departments and agencies for projects subject to EARP regulation. During the review, attention must be paid both to the statement's assessment of existing climatic conditions and to its consideration of possible climatic change during the proposed project's lifetime.

GORDON MCKAY



The People and Their Heritage

History

Canada's history has been shaped by two factors: the perennial debate about the proper relationship between anglophones and francophones and the evolution of Canada's links with both Great Britain and the United States. Since the late 18th century there has been conflict about the degree of recognition which institutions should provide to francophones. As the country has developed out of a group of wholly dependent British colonies into a separate nation-state, much attention has focused upon the growing ties which have been forged with the vastly more powerful United States. At times of crisis in the Canadian past, such as the 1830s, the era of Confederation and World War I, these problems have become intertwined with one another as changes in the international situation have affected the relations between the two great linguistic groups.

Europeans came first to Canada in search of natural products, fish and later furs. That led French traders to establish the first permanent settlement at Quebec in 1608 in order to secure the pelts brought from the western interior by the Indians. The fur

trade expanded steadily and by the 1670s French explorers had penetrated as far west as the Mississippi River.

Rivalry for dominance over Canadian territory had begun as the English penetrated Hudson Bay, chartering the trading company which bore its name in 1670. Thus commenced decades of struggle as the French sought to expand to the west and north while the English endeavoured to monopolize trade in the vast watershed of the Bay. Pressure upon New France came also from English settlements in the Hudson River Valley and New England to the south and east. Acadia, on the Atlantic Coast, became a zone of contention where the two empires collided with one another. As a result New France was drawn into an almost continuous series of wars with the English in the 17th and 18th centuries; the Indians allying with one or another of them.

In this contest New France seemed out-matched. The private traders who controlled the colony found it unprofitable, and it was taken over from them by the French Crown in 1663. No more than 10,000 immigrants altogether came to settle there throughout the entire history of New France. Yet the population had grown to about 60,000 by 1760, and there is evidence that the habitants farming the seigneuries along the St. Lawrence and the city-dwellers of Quebec, Trois-Rivières and Montreal enjoyed a higher standard of living than their contemporaries enjoyed in France.

The loss of New France to the British was due to seapower. The British navy cut the tenuous links between the colony and the mother country. In 1759 the major fortress of Quebec fell at the Battle of the Plains of Abraham, and the remaining French forces capitulated at Montreal a year later. The new imperial rulers found themselves facing a difficult problem. How were they to rule a population of Europeans who differed not only in language, but more importantly in religion? In Britain Catholics lacked certain civil rights, and if this were to be extended to Canada the colony would be ruled exclusively by imperial officials and a small number of immigrants from the British Isles. Eventually Governor Sir Guy Carleton concluded that civil and religious rights must be conceded to the francophones, whose numbers were rapidly rising through natural increase, doubling in size each generation. The Quebec Act of 1774 granted legal status to the Roman Catholic church, to the seigneurial system of landholding and to French civil law.

When the 13 colonies in North America exploded into revolution against Britain in the mid-1770s, Quebec was expected to join the uprising. Despite an American invasion the people of Quebec neither joined the uprising nor rallied to the British cause as their clerical and seigneurial leaders wished. When peace was restored in 1783 Canada remained in British hands, but the American Revolution had a dramatic effect. Thousands of Loyalists moved northward. More than 30,000 people entered the Atlantic colonies which then contained only a few thousand people engaged in fishing and farming. As a result of the influx a new colony, named New Brunswick, was hived off from Nova Scotia for the Loyalists in 1784. Another 7,000 refugees moved northward to Montreal and were settled along the north shore of the St. Lawrence and Lake Ontario.

These Americans had been used to representative institutions. While Nova Scotia had been granted an elected assembly in 1758, Quebec still had none. The Loyalists also chafed under the seigneurial tenure and the French civil law, and in 1791 Britain decided to create two colonies, Upper and Lower Canada. Both were to have assemblies, but the institutions retained from the French regime survived only in the



Fort Henry at Kingston, Ont.

lower province. In addition, for fear of the spread of revolution the British governors were to retain sweeping powers to rule their colonies.

After years of friction, war between Britain and the United States broke out in 1812. The loss of the Canadas to superior forces seemed almost inevitable but a small force of British regulars aided by the Indians was able to hold off the Americans until peace was restored in 1814. Before the war the British colonies had been growing only slowly. A small flow of Irish migration to Newfoundland had begun, and a stream of refugees from the Scottish Highlands followed those who had first arrived in Nova Scotia in the *Hector* in 1773. When peace returned the imperial government determined to strengthen the colonies and undertook steps to assist immigrants to come to British America. Many others went of their own accord, and between 1815 and 1855 one million Britons landed at Halifax, Saint John and Quebec. Though a substantial number of these moved on to the United States, those who remained permanently altered the ethnic composition and rendered the francophones a minority of the whole colonial population.

In Lower Canada, of course, francophones remained a majority, and in the early 19th century they faced difficulties caused by rapid population increase combined



Port of Louisbourg, on the southeast coast of Cape Breton Island, 1875.

with a shortage of available land and declining agricultural productivity. The resulting discontent was translated by the Parti Patriote into an agitation for wider self-government. Serious uprisings occurred in the colony in 1837 and 1838 (with fainter echoes in Upper Canada). The Patriotes denounced anglophone domination and British imperialism and sought to move toward a more democratic society on American lines. Militarily suppressed, the Rebellion of 1837 brought to the colonies Lord Durham, who recommended that the ethnic conflict in Lower Canada be dealt with by assimilation of the francophones. To this end the Canadas were joined into a single United Province where an anglophone majority might rule. This tactic failed. French Canadian nationalism, born in the turmoil of rebellion, survived and even prospered under the new regime.

The 1840s and 1850s were an era of rapid change for British North America, whose economy had come to rest upon the export of colonial products such as timber, wheat and fish to a protected British market. In the mid-1840s Britain adopted free trade, and at the same time granted the colonies self-government in local matters. The colonials turned toward the United States and an agreement on reciprocal free trade in natural products was worked out in 1854. Closer ties to the continental economy were also forged by the construction of a network of railways during the 1850s. By 1860 British North America was moving perceptibly out of the imperial orbit toward closer relations with the United States.

The outbreak of the American Civil War in 1861, however, presented serious problems. Britain's decision to remain neutral offended the North, and when it became clear that the South would be defeated many British North Americans were apprehensive that the victorious armies would be unleashed upon them to annex them to the United States. Colonial politicians began, therefore, to consider closer inter-colonial ties, though previously the Canadas had little to do with Newfoundland, Nova Scotia, New Brunswick and Prince Edward Island. A wider union attracted politicians from the United Province of Canada where government had become immobilized by ethnic and religious hostilities. In 1864 George Brown, John A. Macdonald and George-Étienne Cartier formed an unexpected coalition to seek a federal union of all the colonies, and at the Charlottetown and Quebec conferences that autumn hammered out an agreement with representatives from the Atlantic colonies. Ultimately popular antagonism to the new arrangement led Newfoundland and Prince Edward Island to remain aloof (although the latter relented in 1873 owing to financial hardship). In Nova Scotia and New Brunswick there was also widespread opposition but the political skills of Charles Tupper and Leonard Tilley, backed by unswerving pressure from Britain, brought those colonies into the federation with Quebec and Ontario. The British North America Act was passed in London and became law on July 1, 1867.

The union opened the way for the acquisition of the vast western territories still controlled by the Hudson Bay Company. In 1869 the Dominion of Canada bought out the company, acquiring an area four times its size. Resistance to this takeover came from the Métis of Manitoba, a people created by the intermingling of French and

Mill of Kintail at Almonte, Ont.



Indians in the fur trade, who feared that their rights might be ignored. Led by Louis Riel the Métis forced the federal government to grant provincial status to Manitoba in 1870. The Métis hoped that this would guarantee their semi-nomadic way of life based upon the buffalo hunt as well as their French and Catholic heritage against any influx of anglophone Protestants from Ontario.

Sir John A. Macdonald, the first Prime Minister, then turned to extending Canadian territory all the way to the Pacific by securing the entry of the colony of British Columbia. This was achieved in 1871 by promising that a railway would be constructed to the Pacific within ten years. The deadline was not met, but by 1885 the Canadian Pacific Railway was almost complete through a combination of private enterprise and public subsidies. At that moment a second Métis rising broke out on the banks of the Saskatchewan River, again led by Louis Riel. The railway was used to rush a large force of soldiers to the scene who quickly suppressed the revolt.

Confederation had been intended to reduce ethnic and religious conflict, but it could not eliminate them. Many Quebecois saw the execution of Louis Riel for his part in the 1885 rising as the symbol of a campaign to restrict French and Catholic rights outside Quebec. This conviction was reinforced by restrictive legislation in Manitoba in 1890. National politics largely focused upon these issues for the next few years, and the election of Liberal Wilfrid Laurier as the first francophone Prime Minister in 1896 came about because he convinced the voters he could achieve a compromise on this issue. Yet the question of educational rights for Catholics and francophones outside Quebec continued to plague Laurier throughout his term of office, particularly when the new provinces of Alberta and Saskatchewan were created in 1905.

Laurier had the good fortune, however, to hold power in an era of rapid growth. Beginning in 1897 Canada attracted large numbers of immigrants from Europe and from the US, who filled up the cities and cultivated millions of acres of new land on the western prairies. Favourable world circumstances created excellent markets for Canadian resources such as wheat, forest products and minerals. Nonetheless, there remained discontent with some of Laurier's policies. Not only did some francophones think him too weak in defending their rights outside Quebec, but serious disagreements arose between anglophones and francophones over Canada's proper relationship to the British Empire. The Boer War in 1899 inspired many English Canadians with the desire to commit Canada fully to the British cause, but most francophones viewed this as an effort by imperialists to involve the country where it had no real interests. When Laurier's government negotiated an agreement with the United States to permit reciprocal free trade in natural products in 1911, he was ousted from office by English Canadian voters who believed the undertaking would prove to be a stage en route away from close ties with Britain toward annexation by the Americans, while French Canadians were displeased that he had failed to stand up more strongly against the imperialists.

The greatest challenge which faced Laurier's Conservative successor, Robert Borden, was to manage Canada's participation in World War I. In 1914 there was little disagreement, even in French Canada, about the need to join in the fight against Germany. What came to divide Canadians more deeply than at any time in their history were their differing views about the nature of Canadian participation. As casualties mounted so did pressure to reinforce the army by conscription if enough volunteers were not available. In 1917 Borden bowed to this and introduced



A log cabin cook shack for lumberjacks during early settlement, on display at a museum near Boiestown, NB.

compulsory service, despite the opposition of Laurier and most other French Canadian leaders. Borden persuaded those English Canadian Liberals who supported his policies to join him in a coalition. Many farmers, immigrant groups and trade unionists were also unhappy with the government's management of the war effort, which helps to explain the gradual disintegration of Borden's coalition and the return to power of the Liberals in 1921.

The new Prime Minister, Mackenzie King, was to occupy the centre of the political stage for most of the next quarter-century, but his first task was to deal with the 65 MPs of the Progressive Party, elected by disgruntled farmers. He did this by a combination of guile and skill, and with the return of good times in the mid-1920s the Progressives gradually disappeared as a significant force. Although prosperity was unevenly distributed between the regions, the late 1920s were a time of increasing Canadian wealth as new resources such as lead and zinc and new products such as the automobile and the radio found expanding markets at home and abroad.

Continuing a trend begun even before the war, investment dollars flowed into Canada from the US to capitalize upon these opportunities. Branch plants of American firms (encouraged to locate in Canada by the protective tariff which had originated with Macdonald's National Policy in 1879) were more and more familiar as another stage was reached in the integration of the country into a continental economic system dominated by its southern neighbour.

The collapse of the Canadian economy during the 1930s was as dramatic as the previous growth. Governments at all levels had no idea how to cope with such a crisis beyond the traditional remedies of retrenchment and restraint. By 1933, with one-fifth of the labour force unemployed, however, the federal government was forced to spend large sums of money on relief. The depression convinced many Canadians that their constitution needed an overhaul, for problems like unemployment were provincial responsibilities while only the national government had the means to deal with them. Efforts to find an amending formula for the constitution began in 1935, but had no success even after a Royal Commission on Dominion-Provincial Relations recommended in 1940 a major reallocation of revenues and responsibilities without delay. By that time, however, war-induced prosperity had begun to cure the country's problems and constitutional change lost its priority.

The government of Mackenzie King concentrated upon mobilizing the economy for war and avoiding the deep divisions between anglophones and francophones over conscription which had developed during World War I. King succeeded in the latter by resisting the imposition of conscription for overseas service until late 1944 when his military advisers insisted it was essential to finish the task of defeating Hitler's Germany. The Prime Minister's efforts to avoid compulsory service overseas did not

Log barn near William Lake, BC





Kings Landing Historical Settlement, west of Fredericton, NB

go unnoticed in Quebec which remained loyal to the Liberal party in the 1945 election, while the actions of the Conservatives in 1917 continued to deny them any real success in that province. Wartime growth made Canada, if only temporarily, one of the world's leading military and industrial powers, and King made efforts to ensure that individual workers benefited from this by adopting new fiscal policies designed to maximize employment.

The 20 years after 1945 were marked by a gradual extension of welfare state policies in Canada to meet the needs of its highly urbanized and industrialized society, although fishing, farming and natural resource production obviously retained a vital significance in certain regions of the country. Despite the fact that the provinces were responsible for such areas of jurisdiction, federal funds were spent on programs of pensions, hospital and medical insurance and aid to the unemployed and handicapped. In 1949 Newfoundlanders were persuaded to abandon their proud independence and become citizens of Canada's tenth province, in part because they would benefit from such programs as a result. Only the province of Quebec and to a lesser extent Ontario expressed reservations about the centralization of authority over such matters. The "have-not" provinces also were favoured by the introduction of formal equalization payments in the late 1950s, which were intended to reduce regional disparities.

The landslide victory of the Conservatives under John Diefenbaker in 1958 (in which the party even won 50 seats in Quebec) appeared to mark the opening of a new era in Canadian politics. In fact, Diefenbaker did not utilize his opportunity and was defeated in 1963, opening the way for the Liberals to return to power, power which they have held ever since except for the brief Conservative span in 1979-80. The transformation of the Co-operative Commonwealth Federation into the New Democratic Party (NDP) in 1961 has not led it to the major party status, although its core of support has guaranteed it about a score of MPs at subsequent elections. What has marked Canadian politics since the 1960s has been a noticeable regionalization of party support: the NDP has no firm backing east of Ontario while the Liberals have gradually been excluded from Western Canada, making them more dependent upon Quebec where the Conservatives have made no inroads.

Like every Canadian Prime Minister before or since, Diefenbaker found himself confronted with knotty problems in dealing with the US. The Cold War made Ottawa almost totally dependent upon Washington for defence, but Diefenbaker was reluctant to arm our forces with American nuclear weapons — a provocation which paved the way for his defeat. During his prime ministership widespread expressions of concern were first expressed over the level of American investment in Canada and its effect upon our sovereign independence. How to cope with this problem or whether to ignore it altogether have become important political issues in the succeeding two decades.

At the time of the centennial of Confederation in 1967 attention began to be focused upon the long-dormant issue of constitutional change. The province of Quebec, where a revival of Quebecois nationalism had occurred during the 1960s, was chafing at the restrictions imposed by the existing federal system, despite the efforts of Lester Pearson's government to reach accommodations. Discussions of constitutional reform including the "patriation" of the British North America Act into a Canadian not British statute and the addition of an amending formula and a charter of rights occupied a great deal of time for federal and provincial first ministers. The selection of Pierre Trudeau as Prime Minister in 1968 came about largely because of his reputation as a constitutional expert and as a Quebecker who favoured a strong central government. Quebec's failure to agree to the Victoria Charter in 1971, however, temporarily ended the negotiations.

For much of the 1970s economic issues were the central concern of Canadian politics. Rapidly rising petroleum prices slowed growth and added to inflationary pressures, while the flow of income to the oil and gas producing provinces in the west altered the equilibrium of Confederation by reducing the traditional preponderance of central Canada. The national energy program, designed to secure energy self-sufficiency for Canada and encourage Canadian ownership of the oil and gas industry, has spawned intense criticism among those who oppose its goals or its methods. Inflation has been a problem throughout the past decade, unchecked even by the imposition of wage and price controls from 1975 to 1978. Meanwhile, the rate of unemployment had reached 1930s levels by 1982 and the Gross National Product was shrinking in real terms.

The rise of aggressive Quebecois nationalism in the 1960s seemed to have been checked by the October Crisis of 1970 when the government imposed the War Measures Act and sent 10,000 troops into the province in response to the terrorist



Quebec City, Qu.

activities of the Front de Libération du Québec. The vast majority of Canadians approved of this response though doubts later surfaced about the veracity of the "real or apprehended insurrection" which provoked it. Yet the election of Parti Québécois in 1976 demonstrated that dissatisfaction with the existing situation among francophones remained significant. Although the government of René Lévesque failed to win a mandate to negotiate Quebec's "sovereignty-association" with the rest of Canada in the provincial referendum of May 1980, his victory in the subsequent general election indicated separatism had not lost its appeal for many Quebecois.

The election of this government in Quebec helped to revive the lagging constitutional negotiations. In the referendum campaign the anti-separatist forces under Pierre Trudeau promised the people of Quebec a "renewed federalism", and when the provincial premiers failed to reach any agreement on changes the Prime Minister announced his intention to proceed unilaterally to patriate the constitution and include an amending formula and a charter of rights. Momentarily checked by the decision of the Supreme Court that such a course of action would be unconstitutional without substantial provincial consent, the Prime Minister nonetheless persevered. The outcome was the surprising agreement on constitutional changes that was reached on November 5, 1981 with only Quebec's Lévesque registering a vigorous protest. On April 17, 1982 the Canada Act formally came into effect with a ceremonial proclamation by the Queen on Parliament Hill in Ottawa.

Population

Canada's total population as of June 3, 1981, was 24,343,181, an increase of 21.6 per cent over the count of 20,014,880, reported in the 1966 Census. In fact, however, Canada has experienced a declining rate of population growth during this period, the annual increase actually having fallen from 1.5 per cent in the period 1966-71 to 1.1 per cent in 1976-81. Exceptions to this general pattern were Alberta and Saskatchewan. Alberta's growth rate increased from 2.2 per cent in the period 1966-71 to 4.0 per cent in 1976-81; Saskatchewan, which experienced a decline of 0.6 per cent in the period 1966-71, showed an increase of 1.0 per cent in 1976-81.

Canada's provinces and territories differ markedly with regard to area, population size and population density. Over 80 per cent of the total population is concentrated in Quebec, Ontario, Alberta and British Columbia which have larger land areas than other provinces. Prince Edward Island, Nova Scotia and New Brunswick are the smallest provinces in terms of land area, but have population densities (21.7, 16.0 and 9.7 persons per square kilometre, respectively) well above the national average of 2.6 persons per square kilometre, whereas the Yukon and the Northwest Territories, with vast land areas have markedly low densities of 0.04 and 0.01 persons per square kilometre, respectively.

At the national level, births, deaths, immigration and emigration are the components of population change. The high birth rate (an average of 28.0 per thousand in 1951-56) and the high rate of natural increase (an average of 19.6 per thousand in 1951-56) are representative of the rapid growth that occurred in the early post-war period, which peaked to record highs in the mid-1950s (Table 2). Lower rates of growth in succeeding years resulted mainly from the continuous decline of birth rates since the early 1960s. Death rates, though declining slightly, have remained relatively stable compared to other components of growth. Net international migration (the difference between immigration and emigration) 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. In recent years this influence has been declining in its significance, contributing about one-third to the total population growth during 1971-76, but only about one-fifth during 1976-81.

In recent years, internal migration has been the most important single factor influencing the geographic distribution of the Canadian population (Table 3). In 1967-69, Ontario and British Columbia were the major provinces to attract most migrants from the other parts of the country. Since the early 1970s, the patterns have changed dramatically. Gains remained consistent in British Columbia while Quebec, Newfoundland and Manitoba experienced consistent losses. The traditional loser, Saskatchewan, recorded a gain, whereas Ontario, a traditionally large gainer, recorded loss during this period. Both the Yukon and the Northwest Territories also experienced losses. Alberta, which had been attracting migrants since the mid-1960s, recorded the largest gains in the 1970s.

In 1981 over half of Canada's total population resided in 24 census metropolitan areas (CMAs), as shown in Table 4. Each of these major urban agglomerations contains the main labour-force market for a continuous built-up area that has a population of 100,000 or more.

Table 1. Population distribution and land area, Canada and provinces, 1966, 1971, 1976 and 1981

	Population in thousands				Annual rate of growth ¹ %			Land area Square kilometres '000s	Population density ² 1981
	1966	1971	1976	1981	1966-71	1971-76	1976-81		
	20,015	21,568	22,993	24,343	1.5	1.3	1.1	9 205	2.6
Canada	20,015	21,568	22,993	24,343					
Newfoundland,	493	522	558	568	1.1	1.3	0.4	372	1.5
Prince Edward Island	109	112	118	123	0.6	1.2	0.7	6	21.7
Nova Scotia,	756	789	829	847	0.9	1.0	0.5	53	16.0
New Brunswick,	617	635	677	696	0.6	1.3	0.6	72	9.7
Quebec	5,781	6,028	6,234	6,438	0.8	0.7	0.6	1 358	4.7
Ontario	6,961	7,703	8,264	8,625	2.0	1.4	0.9	917	9.7
Manitoba	963	988	1,022	1,026	0.5	0.7	0.1	548	1.9
Saskatchewan	955	926	921	968	-0.6	-0.1	1.0	570	1.7
Alberta	1,463	1,628	1,838	2,238	2.2	2.5	4.0	638	3.5
British Columbia	1,874	2,185	2,467	2,744	3.1	2.5	2.2	893	2.9
Yukon	14	18	22	23	5.0	3.5	1.2	532	0.04
Northwest Territories	29	35	43	46	3.9	4.1	1.4	3 248	0.01

¹Geometric rate. ²Persons per square kilometre.

Table 2. Components of population change, 1951-56, 1956-61, 1961-66, 1966-71, 1971-76 and 1976-81

Date	Births	Deaths	Natural increase	Immigration	Emigration	Net inter- national 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
1976-81 ²	15.4	7.2	8.2	5.0	3.1	1.9	10.1

¹Mean rate per one thousand people for each time interval indicated.²Preliminary estimates for post-censal years.

Table 3. Internal migration by province for selected periods (annual averages)¹
(hundreds of migrants)

	1967-69			1972-74			1979-81		
	In-	Out- migration	Net-	In-	Out- migration	Net-	In-	Out- migration	Net-
Canada.....	3,794	3,794	—	4,102	4,102	—	4,273	4,273	—
Newfoundland.....	86	117	-32	122	133	-11	114	134	-20
Prince Edward Island	36	43	-7	47	38	9	41	43	-2
Nova Scotia.....	234	255	-22	254	232	22	222	233	-11
New Brunswick.....	186	228	-41	213	186	24	184	194	-10
Quebec.....	389	596	-207	384	539	-155	270	530	-260
Ontario.....	1,064	835	229	969	1,033	-64	921	1,150	-229
Manitoba.....	277	348	-71	300	351	-51	254	367	-113
Saskatchewan.....	231	386	-137	246	364	-118	279	274	5
Alberta.....	563	490	73	688	608	80	1,104	754	349
British Columbia.....	678	471	206	812	552	260	821	522	299
Yukon.....	49	41	8	67	64	3	25	26	-1
Northwest Territories }							38	46	-8

¹ Calendar years.

— Nil or zero.

According to the 1981 Census, Toronto was Canada's largest metropolitan area with a population of about 3.0 million, while Montreal was close at 2.8 million; Vancouver had grown to 1.3 million. During the period 1976-81, Calgary showed the greatest population growth rate, 25.7 per cent. Edmonton was second at 18.1 per cent followed by Saskatoon (15.3 per cent) and Oshawa (14.1 per cent). In contrast, the populations of Sudbury and Windsor actually declined slightly over this time interval, while the populations of Montreal, Saint John and St. Catharines-Niagara 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 population in the younger age groups. Table 5 shows that the proportion of Canada's population under 15 years of age declined from 32.9 per cent in 1966 to 23.0 per cent in 1980, a decline of 10 percentage points. This was the result mainly of the declining birth rates in previous years, a fact clearly indicated by the decrease of approximately 20 per cent in the number of children 0-4 years of age in the period 1966-80.

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



Toronto, Ont.

from 59.4 per cent in 1966 to 67.5 per cent in 1980. Immigration has a strong influence on the growth of this broad working age group, especially at the younger adult ages. In 1976, for example, about 47 per cent of the population arriving from foreign lands were 20-39 years of age.

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. The proportion of the total population 65 years and over increased from 7.7 per cent in 1966 to 9.5 per cent in 1980. Declining birth rates and an increased life expectancy at older ages are the two major factors in the growth in the proportion of the aged population.

Of the 18.4 million persons 15 years of age and over in Canada in 1980, 29 per cent were single (never married). This category increased by 1,071,000 (25 per cent) during the period 1971-80. The figures in Table 6 also show that, in 1980, 33 per cent of the adult male population and 26 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. According to the 1980 estimates, for example, 76 per cent of the male population 20-24 years of age were single, compared to 55 per cent of the female population in that age group.

In 1980, 62 per cent of the total population 15 years of age and over were married, the number of married persons having increased by about 17 per cent over the period 1971-80. However, the married portion of the population fell slightly during the same period, from 64.4 per cent in 1971 to 61.8 per cent in 1980; 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 1980 this figure had risen to 541,900, an increase of 209 per cent. While the general trend over the years has been

Table 4. Population of census metropolitan areas (CMAs) 1976 and 1981¹

	Population in thousands		Percentage change
	1976	1981	1976-81
Canada	22,993	24,343	5.9
Total CMAs	12,910	13,659	5.8
Percentage of total population	56.2	56.1	...
Toronto	2,803	2,999	7.0
Montreal	2,803	2,828	0.9
Vancouver	1,166	1,268	8.7
Ottawa-Hull	693	718	3.6
Ontario portion	521	547	5.0
Quebec portion	172	171	-0.6
Edmonton	556	657	18.1
Calgary	471	593	25.7
Winnipeg	578	585	1.2
Quebec City	542	576	6.3
Hamilton	529	542	2.4
St Catharines-Niagara	302	304	0.8
Kitchener	272	288	5.8
London	270	284	4.9
Halifax	268	277	3.6
Windsor	248	246	-0.6
Victoria	218	233	7.0
Regina	151	164	8.7
St. John's	145	155	6.5
Oshawa	135	154	14.1
Saskatoon	134	154	15.3
Sudbury	157	150	-4.5
Chicoutimi-Jonquière	129	135	5.1
Thunder Bay	119	121	1.8
Saint John	113	114	1.0
Trois Rivières ²	106	111	5.1

¹Based on 1981 area.

²Not a Census Metropolitan Area in 1976.

... Not applicable.



Calgary, Alta.

toward higher divorce rates and toward a drop in the age of persons obtaining divorces, the marked increase between 1971 and 1980 may be attributed in part to the adoption of the new, and comparatively more liberalized, divorce legislation.

One of the most striking features of marital status statistics is the larger proportion of widows over widowers. In 1980, 933,300 women (10.0 per cent of the adult female population) were widowed, in contrast to 200,200 men (2.2 per cent of the adult male population). This wide difference is attributed to the lower levels of mortality among females and to the lower remarriage rates among widows.

Table 5. Population by age groups, 1966, 1971, 1976 and 1980¹

Age group	Population in thousands				Percentage distribution			
	1966	1971	1976	1980	1966	1971	1976	1980
Total	20,015	21,568	22,993	23,936	100.0	100.0	100.0	100.0
Under 15	6,592	6,381	5,986	5,500	32.9	29.6	25.6	23.0
0-4	2,197	1,816	1,732	1,784	11.0	8.4	7.5	7.5
5-9	2,301	2,254	1,888	1,776	11.5	10.5	8.2	7.4
10-14	2,093	2,311	2,276	1,941	10.5	10.7	9.9	8.1
15-64	11,884	13,443	15,094	16,154	59.4	62.3	65.7	67.5
15-19	1,838	2,114	2,345	2,360	9.2	9.8	10.2	9.9
20-24	1,461	1,889	2,134	2,332	7.3	8.8	9.3	9.7
25-34	2,483	2,889	3,621	4,055	12.4	13.4	15.7	16.9
35-44	2,543	2,526	2,597	2,837	12.7	11.7	11.3	11.9
45-54	2,078	2,291	2,473	2,471	10.4	10.6	10.6	10.3
55-64	1,480	1,732	1,924	2,099	7.4	8.0	8.4	8.8
65 +	1,540	1,744	2,002	2,282	7.7	8.1	8.7	9.5

¹ Based on census data for 1966, 1971, 1976 and preliminary estimates for 1980.**Table 6. Numerical and percentage distribution of population 15 years of age and over, by marital status, 1971 and 1980¹**

Marital status	Population in thousands					
	1971			1980		
	Total	Male	Female	Total	Male	Female
Total	15,187	7,532	7,656	18,436	9,068	9,368
Single	4,291	2,378	1,913	5,362	2,955	2,407
Married ²	9,778	4,889	4,889	11,399	5,682	5,717
Widowed	944	191	753	1,133	200	933
Divorced	175	74	101	542	230	312

Marital status	Percentage distribution					
	1971			1980		
	Total	Male	Female	Total	Male	Female
Total	100.0	100.0	100.0	100.0	100.0	100.0
Single	28.2	31.6	25.0	29.1	32.6	25.7
Married ²	64.4	64.9	63.9	61.8	62.7	61.0
Widowed	6.2	2.5	9.8	6.2	2.2	10.0
Divorced	1.1	1.0	1.3	2.9	2.5	3.3

¹Based on census data for 1971 and preliminary estimates for 1980.

(Figures may not add to totals owing to rounding.)

²Includes separated persons not having obtained a divorce.



Trapper setting a beaver trap on the Serpent River Reserve in Ontario.

The Native Peoples

Indians

As of December 31, 1979, there were 309,590 people registered as Indians under the provisions of the Indian Act of Canada. There were 576 separate Indian bands, as of December 31, 1981, for whom 2,250 reserves had been set aside; the total reserve area was about 2 636 900 ha (hectares). Nearly 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 the 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 58 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 from four-year-old kindergarten to university, professional or technological education and trade training through the Department of Indian Affairs and Northern Development. 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 by the federal government of the principles contained in the National Indian Brotherhood paper "Indian Control of Indian Education" in 1973, more Indian bands have been assuming control of their schools and other educational programs: out of a total of 392 federal and band schools, 155 are managed by Indian educational authorities. A major aim of government involvement in Indian education has been to facilitate the transfer of educational programs to Indian bands when requested by the bands and to develop appropriate curricula in consultation with them. The majority of the 237 federal schools operated by the department offer culturally enriched programs. Many provincial schools attended by Indian or Inuit children include language courses or native studies units as part of the regular school programs.

Several provinces and universities have designed and conducted special teacher-training courses to encourage Indian people 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 Affairs and Northern Development 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 hamlet 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

After a successful hunt, Indians smoke-dry moose meat in Manitoba.





Indian dancing in Mission, BC.

affairs. At that time 26 Indian bands across Canada assumed responsibility for administration of specific departmental programs whose budgets totalled \$66,000.

Increased interest since then is reflected by the fact that during the fiscal year 1979-80, 519 Indian bands administered a broad range of local programs and services with a total budget of \$253.3 million.

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.

Since bands are assuming increased program responsibility, the development of effective band management processes has proved necessary. Band training is conducted to develop band leadership and management expertise; it provides chiefs, councils, band staff and recognized band committees with the opportunity to acquire the skills and knowledge needed to administer their own affairs.

Economic Development. The federal government has projected substantial new funding to be applied to Indian socio-economic development. Special emphasis will be placed on encouraging comprehensive community-based planning and development. Indian communities will have the opportunity to participate to a greater degree in any major resource developments which directly affect their lands and lifestyles. Moreover, Indian-managed institutions will receive the support they require to achieve success and expand.

During the past five years there has been a marked devolution of program responsibility from the department to the Indian people themselves. This policy enables Indian bands to develop management systems and processes which fulfil culturally unique needs.

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. Their language in Canada is called Inuktitut.

Canada's Inuit number around 24,000. 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, reflecting a past life that was, and to a considerable extent still is, 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 the 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. Generally, they were a coastal people and fish and sea mammals were their sources of food, fuel and clothing. Some groups, however, settled in the interior, where 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 little continuous contact with them; development in Arctic Canada came at a much later date than in other arctic lands. However, with the arrival



Soapstone carving in the Belcher islands, NWT.

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. Traditional Inuit life began to change as a result of an economy that now tended to emphasize fur trapping over hunting and fishing.

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. Through Canada's communications satellites, telephone, radio and television programs (some in Inuktitut) are now beamed into Inuit households. The kayak and sled dogs, once essential to the Inuit hunting and trapping lifestyle, have largely been replaced by the motorized toboggan and canoe. 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

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 \$30 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 nine Inuit elected members. An Inuk also represents the Eastern Northwest Territories in the House of Commons and an Inuk sits in the Senate.

Inuit from Cape Dorset and Lake Harbour camp at Aberdeen Bay, NWT to mine the nearly jade-green soapstone of this area.





Inuit children digging clams at low tide.

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). Inuit economic interests are dealt with by such groups as the Inuit Development Corporation (IDC) and the Hunters and Trappers Associations (HTA) in most of the communities.

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 that has led to the creation in 1981 of the Inuit Broadcasting Corporation (IBC); an Inuit low-cost housing project; non-renewable resources research programs, publication of *Inuit Today*, a bi-monthly magazine with Canada-wide distribution; and establishment of boards and commissions in education, language, law and game management.



Inuit woman scraping sealskin at Lake Harbour, Baffin Island, NWT.

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.

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.

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 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 the Treasury Board Secretariat, 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 Secretariat

The Treasury Board Secretariat 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 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 and the following divisions: Operations, Policy, and Evaluation and Audit.

The *Secretariat* provides controls, co-ordination and support services to organizational elements of the branch in the areas of manpower and financial resources, 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 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 the various 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 which are 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, in provincial and municipal administrations and in the public and private sector; and a responsibility through its Translation Bureau, for translation, interpretation and terminology. The department also has a program of support for minority official language groups; this program is concerned with the linguistic and cultural development of official language communities in the 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 official languages in education is intended to increase the

opportunities for Canadians to be educated in the minority official language in each province or territory and to acquire a knowledge of their second official language. Financial aid, offered to the provinces under the terms of a federal-provincial agreement, is based on 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. Limited assistance is made available to institutions and organizations to promote the compilation and dissemination of information on the second official language teaching and learning and on the minority language education.

Financial assistance to increase the opportunities for adult immigrants to acquire a knowledge of citizenship and of one of the official languages is also provided to provinces and territories under the terms of federal-provincial agreements. Such support is based on the teaching costs of providing instruction and on the costs of the text books.

In the private and the non-federal public sectors various programs have been developed to encourage the adoption of improved methods for acquiring and using both official languages in dealing with issues and problems related to the provision of services in both English and French. These include technical advice to business and industry, provincial and municipal administrations, educational institutions, medical establishments and social service organizations, and financial assistance to voluntary associations for interpretation and translation.

Official Language Minority Groups Directorate. This directorate was set up to promote the social and cultural life of the francophone and anglophone communities in their own language in the provinces where they are in a minority and thus to favour their successful development.

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 programs are designed to meet the needs of these organizations and to meet the needs of their members by fostering projects that fall within the mandate of the directorate.

The Translation Bureau. The Translation Bureau has been assigned the task of helping the Canadian government and the federal administration communicate effectively in all languages both within the public service and in their cultural, scientific, economic and diplomatic relations at home and abroad. It provides the language services required for the effective operation of Parliament, the government and its agencies, mainly with regard to official languages policy. With their co-operation, the Translation Bureau determines their various needs and takes action to meet them. In addition to providing translation services to federal departments and agencies, it ensures interpretation and translation of the proceedings of the House of Commons, the Senate and their committees, as well as at national and international conferences in which the government participates. The Translation Bureau is responsible for supplying and updating the Canadian government's terminology bank and for promoting the standardization, in both official languages, of the vocabulary used in the various administrative sectors of the government; it is also involved in specialized projects for Canadian and foreign language institutions, particularly in Canada's official languages.

Commissioner of Official Languages

The Commissioner of Official Languages is appointed by Parliament to oversee the application of the Official Languages Act, which declares that "The English and French languages are the official languages of Canada for all purposes of the Parliament and Government of Canada . . .". It is the duty of the commissioner to take all actions within his authority to ensure "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 . . .". The commissioner conducts investigations either on his own initiative or pursuant to any complaint made to him and makes recommendations to the departments or agencies concerned as provided for in the Act. He also reports each year directly to Parliament.

The commissioner is appointed for a seven-year term and exercises three main functions: language ombudsman for individuals or groups; linguistic auditor general vis-à-vis the federal administration; and the advocate of language reform throughout the country.

The Official Languages Act requires all federal institutions to communicate with and provide services to both English-speaking and French-speaking members of the public in the official language of their choice except where demand for service in both languages is so irregular that bilingual services are not warranted. Wherever possible federal public servants should also have the opportunity to work in their preferred official language and this is understood to involve fair participation of both major language groups in the federal public service.

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

Egyptian dancing in Ottawa, Ont.





Chinese New Year celebration in Vancouver, BC.

language origins. The government's multiculturalism policy, announced in October 1971, was a response to recommendations of the report of the Royal Commission on Bilingualism and Biculturalism. The policy promised support to programs aimed at retaining, developing and sharing these cultures on a larger scale and programs which encourage mutual appreciation and understanding among all Canadians.

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. Provincial, national and executive meetings have since been held regularly in order to review policy and evaluate multiculturalism programs. Extensive consultations have taken place 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

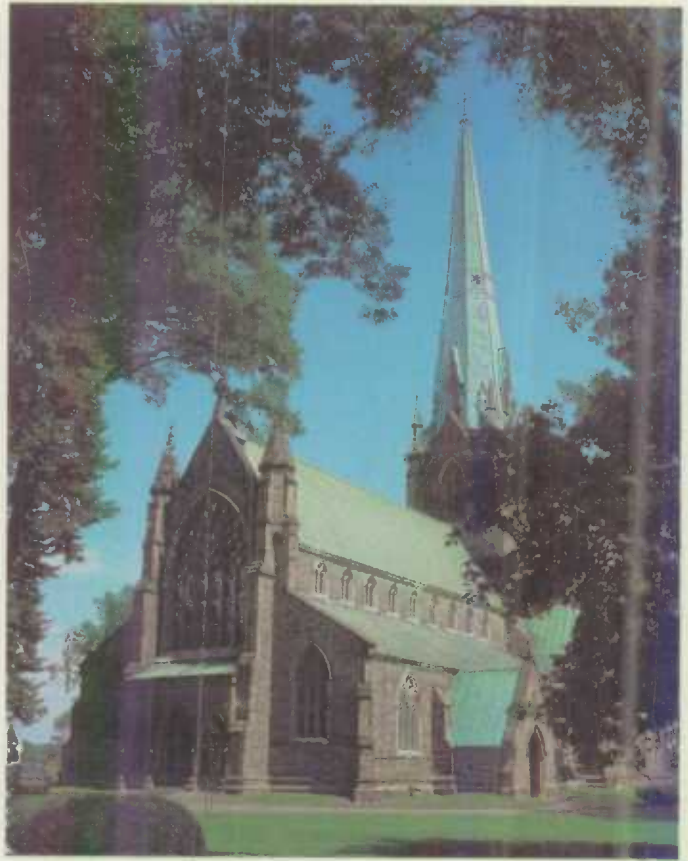
cultural pluralism in Canada. Universities are assisted in obtaining visiting professors and lecturers. The Canadian Ethnic Studies Advisory Committee advises the Ethnic Studies Program on these matters.

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 all Canadians, 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 to maintain and develop their cultural heritage and 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 heritage-language schools, intercultural communications, group development, cultural integration of immigrants, racial relations, etc. By liaising through its national, regional and local offices with groups, individuals and organizations representing Canada's ethno-cultural groups, the department continues to assist them to achieve full participation in society.

Cambodian dancing during July 1st activities.





Christ Church Cathedral in Fredericton, NB.

Religion

Religion has played an important role in the development of society and the nation. Its present contribution to these aims may not be as significant as it once was, but to understand the place of religion in Canada today it must be seen in its early historical setting.

Before the arrival of Christianity to the new world, native religions flourished among Canada's Indian population. From the 17th century on, these indigenous religious expressions declined in the face of French and British missionary and cultural pressures. From the time that Champlain established the first French outpost at Nova Scotia's Port Royal in 1604, through to the 19th century, the established churches of Europe were dominant.

Unlike the United States, Canada was not initially a melting pot of cultures, but a facsimile of its European parents. This applied to its religious temperament as well. In



Mary Queen of the World Cathedral in Montreal, Que.

the mid-19th century, however, the addition of new French Roman Catholic orders in Quebec and non-conformist Protestant denominations in Anglophone Canada precluded a unified church-state relationship. However, all Christian denominations continued to seek the fulfilment of their own social and national visions in some kind of political dimension. In Quebec, the Roman Catholic Church dominated most aspects of politics and society until recent times; elsewhere Protestantism pressed hard to develop what is considered to be an appropriate definition of Canadian identity.

This may have sustained traditional religious and ethical values, but it also led the churches away from innovations that would make their role more suitable to Canada's changing needs. Between 1880-1945, a once predominantly rural and conservative Canadian society was massively challenged by industrialization, urbanization, improved communications and, above all, immigration. Many newcomers were from eastern or southern Europe. Among them were such diverse groups as Mennonites, Hutterites and Doukhobors. They did not share the religious world-view of the old French and British churches. Attempts to assimilate these fragments into a monocultural French or English hegemony failed, and by 1945 Canada had truly entered into an age of religious pluralism.



Mass being celebrated in a log church on the Mississagi River Indian Reserve in northern Ontario.

Today, three-quarters of Canada's population is classified as belonging to three dominant Christian denominations, the Roman Catholic, United Church of Canada and Anglican. Another one-fifth of the population belongs to medium-sized denominations, including Presbyterians, Lutherans, and Baptists. A further one-twentieth of the population belongs to yet smaller Christian denominations, notably the Adventists, Jehova's Witnesses, Mennonites, Mormons, Pentecostals, Christian Reformed, Orthodox, Ukrainian Catholic and Salvation Army. Good work continues to be done by all these churches, sometimes ecumenically, as in the Canadian Bible Society. Their combined outreach to Canada's north and to needy parts of the world is also widely recognized. Theological studies and opportunities for ministry remain sturdy in most denominations. Furthermore, many churches in Canada are not timid in expressing their concern about perceived inequitable national and international situations and conditions. In this way, they exert a responsible social and political influence.

The Salvation Army celebrated its centennial in Canada in 1982.





St. Paul's Presbyterian church in Banff, Alta.

Apart from Christianity, however, many other religions flourish in contemporary Canada. The Canadian Indian religions appear to be making a modest recovery to recognition. Their reality was never totally lost sight of, but because many of their tenets have been absorbed into native Christian practice, it is difficult to declare their precise number of adherents.

Elsewhere, especially in the larger cities, Canada has long had a distinguished Jewish population, with substantial communities in Quebec, Ontario and Manitoba. To the old established Japanese Buddhist presence in the West has been added a recent influx of Southeast Asian (Theravada) Buddhists, particularly in the city of Toronto. Hindus of various schools, as well as Sikhs and Zoroastrians, are also now much in evidence in the larger metropolitan areas. These add greatly to the richness and diversity of Canada's religious mosaic.

There are, finally, a number of contemporary para-religious movements whose presence is noteworthy. Groups such as Dharmadatu, ISKCON (Hare Krishna), Transcendental Meditation and Sri Chinmoy Followers, to name a few, continue to attract adherents. Most of these movements do not have organized religious rites, clergy or definitive moral codes. Consequently, many devotees remain in some sense practitioners of other mainstream religions. These groups primarily seek individual awareness, and have little organized cultural outreach or social philosophy. But although only nominally a part of the Canadian religious fabric, they add their own colour and meaning to an increasingly complex and cosmopolitan society.



Dance is... This... And This performed by the Anna Wyman Dance Theatre.

Arts and Culture

Examples of the magnificent works produced by native peoples long before Europeans arrived to "discover" the land now called Canada, are on display in museums throughout the world. Research has shown that native life in Canada was rich in performing arts and oral traditions. Today, the descendants of these original inhabitants have been joined by immigrants from all parts of the globe and each new group has added threads to the tapestry, known collectively as Canadian culture.

With more leisure time than ever before, Canadians are displaying an ever increasing demand for culture. As an example, using data from a 1972 survey and adjusting for changes in the make-up of the population, analysts attempted to predict participation rates in various activities for 1978. In the performing arts the actual increase in the number of persons who attended at least one performance was more than five times the anticipated increase. Reading and radio listening showed increases of more than twice the projected number.

For many years much of this appetite for culture was satisfied by imports from other countries but, increasingly, both federal and provincial governments are acknowl-

edging the importance of indigenous culture to the well-being of the nation. Considerable government expenditure has been channelled into the promotion, development and support of cultural activities. In their legislation and policy statements governments have backed the objective of increasing the quality and quantity of Canadian creative work in all branches of cultural endeavour.

It has long been recognized that many forms of art cannot support themselves without help. For centuries, portions of the wealth of certain individuals and grants have been used to patronize the arts. Today, both the public and private sector continue their financial assistance but with the downturn in the world economy the increases in this funding are, in many cases, less than the rate of inflation.

The cultural sector is striving to at least maintain a semblance of the status quo but some internal adjustments are being made. Book publishers are reducing their inventory while at the same time tightening their financial controls. In other areas, theatre companies are producing shows with smaller casts, libraries are shortening their hours of service and several major newspapers have been closed. The recent introduction of pay television will also have an effect on the other disciplines but it is still too soon to evaluate the results.

In order to better serve the cultural needs of its citizens, the federal government created a Federal Cultural Policy Review Committee, in 1980, to undertake the first comprehensive review of Canadian cultural institutions and cultural policy since the Royal Commission on Arts, Letters, and Sciences in 1949-51. Much of today's cultural

Sharon Bakker and Michael Fahey in A Very Modest Orgy by the 25th Street Theatre of Saskatoon, Sask.





Jean-Claude D'Amboise and Donat Lacroix in a scene from the Théâtre populaire d'Acadie production Gapé.

infrastructure and cultural activities came into being as a result of this Royal Commission; if the more recent study has similar effects, the lives of Canadians and people of other countries will be further enriched through the development of Canada's abundant cultural resources.

The Canada Council

The Canada Council makes grants available to professional artists and organizations involved in areas such as the visual arts (including photography, film and video), writing, publishing, translation, music, theatre and dance. Currently, the Council supports the following programs with grants:

Individual Artists. Grants are available to professional artists for activities in the fields of arts-related architecture, arts administration, arts criticism and curatorial work, creative writing, dance, film, multi-disciplinary work and performance art, music, photography, theatre, video, painting and sculpture. Individual grants range from \$19,000 (available only to senior artists) to smaller sums for living expenses, project costs and related travel. In 1980-81 professional artists such as Marie-Claire Blais, Raffi Armenian, Margaret Laurence and Mark Prent received grants. Grants for international representation and foreign exchanges, as well as the awarding of the use of three artists' studios in Paris, France, are also administered by the arts award service of the Council.



Les Grands Ballets Canadiens production: Scherzo Capriccioso with Jullien Dand and members of the company.

Dance. Grants are available to professional companies, schools and service organizations in the form of operating or project support. In 1981-82, 28 organizations received grants including the Royal Winnipeg Ballet (\$747,000), Anna Wyman Dance Theatre (\$210,000), Danny Grossman Dance Company (\$180,000), Margie Gillis Dance Foundation (\$15,000) and the National Ballet School (\$1,121,000).

Visual Arts. Grants are available to public galleries and museums, artist-run centres, creative film and video projects, and print workshops. Partial assistance is offered toward non-recurring special projects in all areas of visual arts such as symposia and publications. A visiting artists program enables local communities of professional artists to invite Canadian professional artists from other regions to discuss their work and exchange ideas. Artist-in-residence studios are available in Paris and in New York City, and assistance may be provided to Canadian artists to facilitate their participation in important exhibitions abroad.

Theatre. Grants are available to professional theatre companies, festivals, schools and associations in Canada. Operating grants usually are awarded to well-established companies, while grants for special projects and workshop productions are awarded to a limited number of other companies. Over 160 companies are awarded support each year. In 1980-81, for example, the following institutions were funded: Le Théâtre du Nouveau Monde (\$475,000), Stratford Festival (\$625,000), National Theatre School (\$1,250,000) and Chinook Touring Theatre (\$8,000).

Music. The Canada Council awards the major portion of its budget in this area to professional orchestras, the commissioning of Canadian composers program, chamber music groups, professional choral groups, opera companies, music organizations and schools. In 1980-81, the commissioning of Canadian composers program awarded \$416,500 for the creation of new Canadian music. Other funding in

1980-81 included the Orchestre symphonique de Montréal (\$896,000), New Music Concerts in Toronto (\$90,000), the Southern Alberta Opera Association (\$80,000), the Vancouver Chamber Choir (\$53,000) and the New Brunswick String Quartet (\$27,500). In addition, the Council has a modest program of assistance to amateur choirs, community music groups and to the publishing and recording of Canadian music.

Writing and Publishing. The Council supports culturally significant writing in Canada (poetry, drama, fiction, children's literature and serious non-fiction) through programs directed at writers, publishers and readers. Writers are aided through such programs as public readings and support for the appointment of writers-in-residence. Publishers may apply for block and project grants to offset publication deficits on books which make an original contribution to Canadian literature. The reading of Canadian books is promoted especially through the National Book Festival and the book donation program. The Council also helps administer the Governor General's Awards, several international prizes, international writers' exchanges, and national and international translation grants.

Cultural Tours. The Canada Council's touring office aims to ensure access by the widest possible audience to Canadian performers and to develop Canadian expertise in the promotion and management of tours by performing artists. Thus, grants are offered to Canadian artists and organizations to develop and strengthen regional touring circuits. For example, the resource centre for the arts of St. John's toured two

Inook and the Sun, The Citadel Theatre production at the Edmonton International Children's Festival, left to right, Amanda O'Leary, Kent Staines, Martin J. Williams, Dawn Stables and Steven Hilton





Edward Atienza in a scene from When I Was by the National Arts Centre Theatre Company.

plays to British Columbia, Saskatchewan and Ontario in 1982. Some support also is given to foreign companies touring in Canada as part of a cultural exchange. An apprenticeship program enables individuals to work with people experienced in the management of artists and the management of tours. Through the Concerts Canada program, the touring office provides incentive grants and communications grants to managers of Canadian performing artists. Career development grants are available to artists and ensembles who have the capacity for a professional performing career on an international level. The touring office also publishes practical directories for performing artists and sponsors.

Explorations Program. This program provides grants to individuals, groups and organizations (which may not be professional), for innovative projects which seek to address new needs or investigate new directions within or outside existing arts disciplines. Examples of projects funded are new performing arts projects; exhibitions of photographs, slides and other art forms; popular writing; recordings; films; video and audio experiments; community-based cultural animation projects; and crafts experimentation. In recent years, the explorations program has helped to finance a computer culture exhibition, a multi-disciplinary festival of solo performances by women artists, and a new gallery of experimental music.

The National Arts Centre

The National Arts Centre (NAC), located in Ottawa, has three main halls. The Opera, with 2,300 seats, was designed primarily for opera and ballet, with a full-size orchestra pit and the most advanced sound, lighting and other technical equipment available. Its stage is one of the largest in the world, measuring 58 by 34 metres, and the Opera's facilities can handle the most complicated changes required by the largest touring companies. The 950-seat Theatre is ideal for Greek, Elizabethan or contemporary plays, and its stage can easily be adjusted from the conventional rectangular style to the thrust stage style used for Shakespearean drama. Like the Opera, it is fully equipped for television, simultaneous translation and film projection, and its technical facilities are among the best available. The Studio is a hexagonal room which can seat up to 350 persons in a variety of seating plans. This hexagonal room is used for theatre productions, conferences and cabarets.

The 46-member National Arts Centre Orchestra performs some 40 concerts a year in the centre and many more each year on tours in Canada and abroad. Music programming includes about 70 concerts a year, featuring distinguished soloists and guest orchestras from Canada and around the world.

There are more than 400 performances of live theatre a year at the centre. Some of the plays are produced by the theatre department and others represent Canada's regional theatre or come from outside the country. The theatre department tours Canada with productions from the subscription series and also forms small companies which perform in high schools and elsewhere, offering professional

The converted David, played by Nick Mancuso, sells flowers 16 hours a day for his new messiah in Ticket to Heaven, a Ronald Cohen/Vivienne Zimbosh production.





A scene from the Royal Winnipeg Ballet production of Romeo and Juliet.

theatre in English and French to communities which would not otherwise have the opportunity to enjoy it. Workshops for students and teachers are among the other services offered.

The dance and variety department brings in some 100 different shows a year, including ballet, musical shows and comedy. A number of Canadian dance companies appear on a regular basis at the NAC; dance and variety programming offers a showcase for performers from every part of the country. Altogether, there are about 900 performances annually in the NAC, entertaining almost 800,000 people.

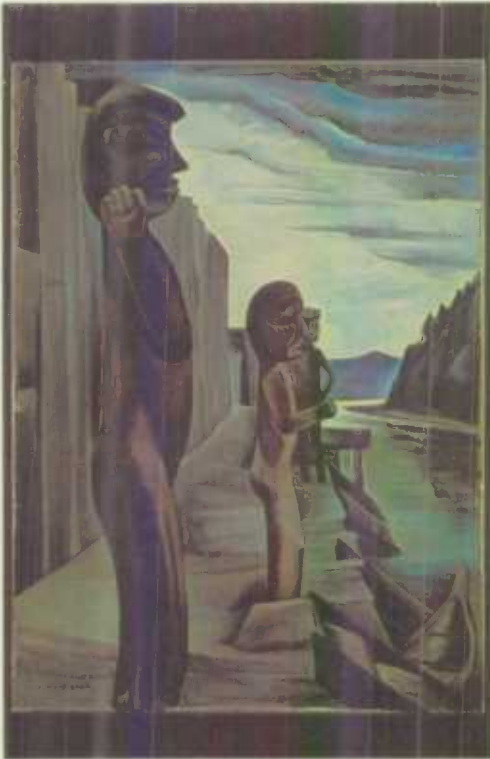
Films

In 1966, there were only three feature length theatrical releases produced in Canada. In the decade that followed the creation of the Canadian Film Development Corporation (CFDC) in 1967, the industry began to grow, with the CFDC investing nearly \$26 million in some 220 films with budgets totalling \$60 million. It was an important and significant time when the seeds were sown for the creation of a strong and competitive industry.

The CFDC's priorities for the 1980s are beginning to produce results. Canadian themes and stories are appearing on-screen, written and directed by Canadians with growing international reputations and starring many of our best actors and actresses. The cultural needs of the country are beginning to find common ground with the commercial realities of the marketplace.

While the actual number of films produced in 1980 declined from the previous year, individual budgets were higher and the total value of production rose by 10 per cent. Some 50 features were produced in 1980 with total budgets estimated at \$165 million, compared to 70 films with budgets totalling \$150 million in 1979.

Fewer productions at higher cost reflected two factors. More money was spent on development and on better production values, resulting in many more films of a quality able to compete internationally. Secondly, the general state of the economy had a noticeable effect on production due to rising labour and services costs and higher interest rates.



Blindfold Harbours by Emily Carr, National Gallery of Canada.

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 of these approximately 60 major institutions have a combined annual attendance of over 11 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 the existence of 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. Based on the concepts of democratization and decentralization of Canada's cultural heritage, the national museum policy emphasized access by all Canadians to their national heritage and its preservation. To meet these objectives the following have been established:

The *Canadian conservation institute* provides specialized conservation services, conservation research, advanced training through internships to museum workers, a mobile conservation laboratory service to small institutions, and publications and information services on its conservation research projects and a number of other related technical areas.

The *national inventory program* assists museums in the development of automated and manual systems, for the preservation of information about their collections and provides a computerized mechanism for the sharing of that information.

The *international program* encourages interest in international museum activities and facilitates international exchanges of exhibitions originating within and outside of Canada.

The *mobile exhibits program* operates three museumobiles, each consisting of three 14-metre trailers, exhibiting artifacts and related materials in small communities not otherwise served by museums or galleries.

Entrance to the Plant Life hall at the National Museum of Natural Sciences.





Restoration work at the Canadian conservation institute.

The museum assistance programs provide financial assistance to museums, galleries and other non-profit institutions and technical assistance, information and co-ordination to ensure effective use of the resources available.

Other key features of the policy included the establishment of a nationwide network of 25 associate museums, including the four national museums in Ottawa, supplemented by a network of exhibition centres, set up in communities not served by major museums.

The National Gallery of Canada. The function of this gallery since its foundation in 1880 has been to foster public awareness of the visual arts and to promote an interest in art throughout the country. Under this mandate, the gallery has increased its collections and it has developed into an art institution which is worthy of international recognition.

There are more than 36,000 works of art in the National Gallery including paintings, sculptures, prints, drawings, photographs, decorative arts, video and film. The historical collections have been built along national and international lines to give Canadians an understanding of the origins and development of their cultural history as expressed through the visual arts. The collection of Canadian art is the most extensive and important collection in existence and is continually being augmented. In addition, there are many Old Masters from the principal European schools from the 14th to the 20th century and growing collections of Asian and modern art.

Visitors to the gallery are offered an active program of exhibitions, lectures, films and guided tours. The reference library, which contains more than 70,000 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 Canada. During 1980-81 the gallery's national program organized and circulated exhibitions that were seen by nearly 250,000 people in 18 communities 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 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 "Indian and Inuit Treasures", a selection of prints, sculpture and other works of art from the collections of the National Museum of Man. "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, the National Museum of Man's second public building, 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 across Canada and internationally. The Education and Cultural Affairs Division produces educational resources, including the "Canada's Visual History" series and multi-media "Museum Kits", and provides local programs for schools and the public.

The National Museum of Natural Sciences. The National Museum of Natural Sciences consists of the divisions of botany, invertebrate zoology, vertebrate zoology, mineral sciences, paleobiology and interpretation and extension. A special unit, the Zooarchaeological Identification Centre, identifies and interprets animal remains found in archaeological investigations.

The museum is engaged in many major research projects undertaken by its staff members or associated scientists from universities and other outside organizations. More than five 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.

Audio-visual presentations, visitor-operated displays, drawings, models and thousands of specimens from the museum's collections are used in seven permanent exhibit galleries entitled "The Earth", "Life Through the Ages", "Birds in Canada", "Mammals in Canada", "Animal Life", "Animals in Nature", and "Plant Life". Temporary exhibits produced by the museum or on loan from other museums and institutions are exhibited in a special gallery.



The Corsecan, from the National Museum of Man's folk art collection, created by Stanley Williamson from Gananoque, Ont.

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 computer exhibit, 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 and university libraries existed before 1850; after 1850 business and industrial libraries appeared; in 1882 Ontario's Free Libraries Act signalled the arrival of tax-supported public libraries. The greatest growth among all types of libraries occurred after 1950 and now the majority of Canadians have access to library service.

In general, the two main purposes of libraries are to transmit and to preserve our intellectual heritage; purpose emphasized varies with needs of a library's users.

The 10,000 or more school libraries in Canada are mainly concerned with transmitting knowledge and making materials for learning available to students. Emphasis 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 have become multi-media "resource centres".

College libraries are also mainly concerned with materials for learning. Audio-visual materials are often integrated into their collections and innovative measures are taken to serve a clientele ranging in age from the high school graduate to the senior citizen, and ranging in interests from automotive technology to horsemanship. In addition to providing students and faculty with the materials for learning and research, university libraries also have a major responsibility for helping to preserve our heritage of manuscript and print, therefore they tend to have the largest holdings and specialized collections, such as literary manuscripts or rare Canadiana. Lack of space to house collections and lack of funds to meet rising prices and to maintain staff are frequent problems. Solutions have included use of microforms for space saving and preservation; automation of library procedures, especially cataloguing, to cope with workloads; development of networks to exchange bibliographic data; and co-operation in resource sharing.

Special libraries, such as those serving companies, government and associations number about 1,500; they provide their own specialized subject materials, data banks or experts. Special libraries are usually small except for the provincial legislative libraries, which often hold important collections of government documents.

Academic and special libraries generally limit their full range of services to members of the specific institutions which they serve. Canadian public libraries, however, are sources of print and non-print materials for the pleasure, information or education of members of the whole community and frequently preserve local history materials that would otherwise be lost. They offer a wide range of programs and services in addition to lending and reference services; many provide community information. A growing number are finding ways to take public library services to those who cannot or do not come to libraries: senior citizens, shut-ins, the physically and economically handicapped and prisoners. A number of libraries also provide foreign-language materials for those whose mother tongue is neither English nor French and provide special books for the blind.

Because libraries fall under provincial jurisdiction Canada does not have a unified national system of libraries. Special libraries are maintained by the organizations



Library of Parliament in Ottawa, Ont.

they serve; academic libraries by a combination of local, provincial and, to some extent, federal or endowment funds. Public library systems, except in the territories, are supported by local and provincial funds and they are co-ordinated by provincial library agencies.

At the national level two federally supported libraries have a mandate to serve the whole country. Scientific, technical and medical information for research and industry is the responsibility of the Canada Institute for Scientific and Technical Information (CISTI). Computer-based services offered include on-line access to worldwide scientific and technical literature (CAN/OLE), to critically evaluated data (CAN/SND) and a personalized information system (CAN/SDI). These are backed up by a lending and photocopying service from CISTI's excellent collection.

The National Library of Canada, established in 1953, is a resource library for the social sciences and humanities and especially for recent Canadian publications of all kinds. It administers the legal deposit regulations, publishes the national bibliography, *Canadiana*, and maintains union catalogues which enable libraries and researchers to discover where in Canada specific titles are held. It promotes national bibliographic networks to facilitate the sharing of library resources and is developing a federal government libraries network. It also co-operates in international programs which promote the interchange between countries of national publications and information, through traditional means or new technology.

In Canada, librarians are trained at the universities. Seven postgraduate schools offer master's degrees in library science and two also offer doctoral programs. Library technicians receive training through postsecondary courses at community colleges in many parts of the country.



Library of the University of British Columbia.

Archives

The role 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. In addition to its own library, the Public Archives now includes separate divisions for manuscripts, maps and plans, pictures, prints and drawings, photographs, films, television 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 Departmental Administration Branch provides microfilming services to 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 collections and services of the department better known. To this end, the Archives Branch will present a series of exhibitions and publications on the history of Canada. The first exhibition, opened in December 1981, features historical documents prior to 1700.

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 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.

Following the federal government's decision to undertake a broad review of federal cultural policy, the Minister of Communications announced the establishment of the

City Hall, Kingston, Ont.



federal cultural policy review committee in August 1980, with a mandate to examine current federal cultural policies and programs, to study the needs and opportunities that lie ahead and to recommend future directions.

In December 1980, the committee, headed by Louis Applebaum and Jacques Hébert, issued a discussion guide, *Speaking of Our Culture*, which suggested policy concerns, called for briefs and indicated a schedule of public hearings. The committee subsequently received over 1,300 briefs representing the views of many concerned individuals, arts and culture organizations, government departments and federal cultural agencies. Hearings were held in 18 cities and in all provinces and the territories, from April 1981 to July 1981.

In January 1982, the committee presented to the Minister of Communications and published the *Summary of Briefs and Hearings* which provides a synthesis, without conclusions or recommendations on the part of the committee, of issues raised in the representations that it received or heard. The committee has recently prepared a final report with its recommendations.

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. New permanent accommodation for both the National Gallery and National Museum of Man is being built in the national capital region, and the important collections of both institutions will be exhibited to the advantage of all Canadians.

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, performance and collection. 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, museum and art collections, and heritage buildings owned and made available



Library time at school in Fanning Point, NWT.

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 and acquisition costs. Since 1980, the federal government, through the special program of cultural initiatives of the Department of Communications, has administered a program of grants to Canadian cultural institutions using funds available from a federal provincial agreement on lotteries; much of this is spent on capital projects assisted jointly with the provincial government. Federal grants to provincial governments and municipalities have been important, especially in building facilities for collection, 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. 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, nevertheless, the current level of creative expression in Canada is in some measure a reflection of increased government support.

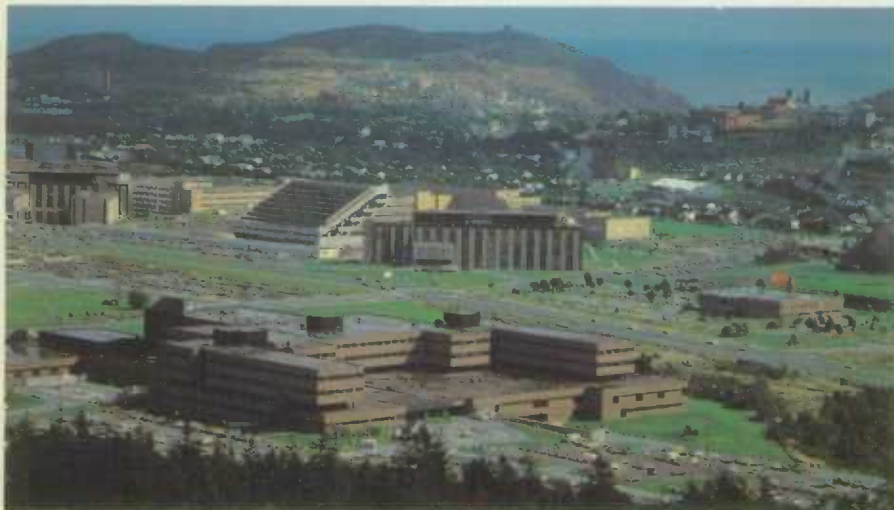
Several techniques are used to channel public funds to artists without constraining or attempting to control the direction of their work. A number of arts councils have been established separate from the government structure. The Canada Council, which is the chosen instrument of the federal government, is a statutory foundation, or public trust. The Minister of Communications provides the Canada Council with general guidance on the policies, priorities and fiscal framework of the federal government but does not intervene in decisions regarding artistic excellence.

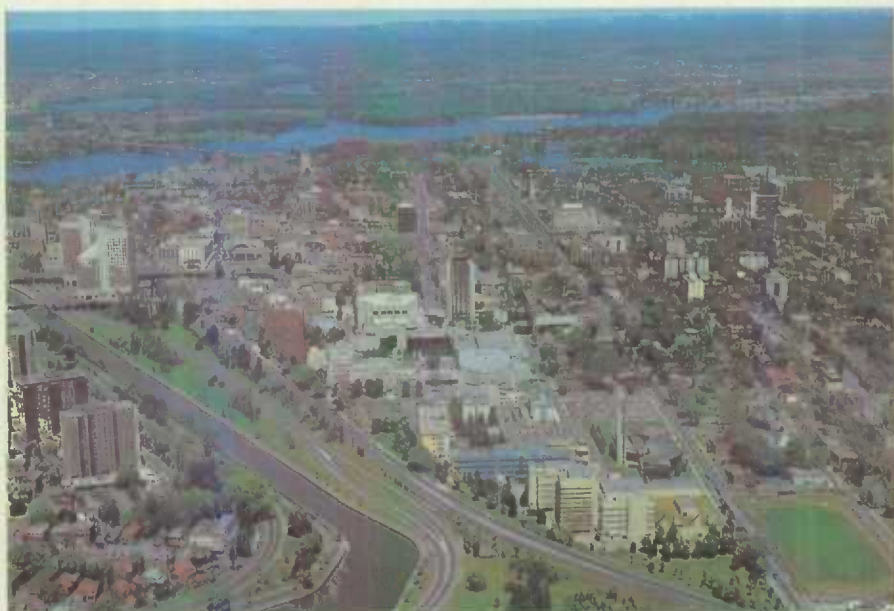
The Canada Council relies on recognized practising professionals in a given artistic discipline to advise on the best distribution of the available funds. There are seldom enough funds to meet the need and very hard choices must be made, so the system is designed to identify artistic excellence as objectively as possible. Several provincial governments follow this general model with modifications to meet regional priorities and requirements.

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.

Memorial University at St. John's, Nfld.





University of Ottawa, aerial view.

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 most 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 the creation and exploitation of cultural products and artistic works (through legislation respecting copyright and other property rights, for example). Copyright legislation is being revised with a view to implementing new legislation in 1983-84. 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 achieve very low unit costs through access to large international markets.

The federal government and many provincial and municipal governments have recently shown active interest in legislation designed to protect publicly and 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 does exist it is intended to be unobtrusive, supportive and neutral.

One striking exception to the foregoing is radio and television broadcasting, where the rapid evolution of technology, the economics of the industry and the character and scale of the country have resulted in the creation by Parliament of 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, licensed and supervised by an independent administrative tribunal 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 overestimate 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.



Saskatoon, Sask., with the University of Saskatchewan campus in foreground.

Education

Constitutional Responsibilities

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

Officially, the 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. More significantly, as education has expanded, indirect federal participation in the form of financial assistance has become extensive — support for constructing 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. 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 managed by a deputy minister, who advises the minister and gives a measure of permanence to policy. Some provinces have separate departments for postsecondary 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, most of the actual operation of public 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 but they generally include school construction, pupil transportation, hiring of teachers and determination of tax rates for local support. In every province school board budgets are reviewed by the department of education.

The local structure of 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 smaller ones; in recent years the trend has been toward amalgamation into larger units.

School Organization

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

The elementary-secondary system in all provinces except Ontario and Quebec extends over 12 grades. Newfoundland recently changed from an 11-grade system to a 12-grade system, with the additional year introduced for students who entered Grade X in September 1981.

Dividing lines between elementary and secondary are, to some extent, arbitrary. The elementary years may cover grades I-VI or grades I-VIII. When the former is the case, grades VII-VIII or VII-IX may be considered as a separate unit — intermediate, junior secondary or junior high. Secondary may consist of grades IX-XII, or there may be senior secondary (grades X-XII) to complement junior secondary.

Ontario has a 13-grade system for students who wish to enter university. It is also possible to graduate from high school after Grade XII but this does not lead directly to university studies.

Quebec has an 11-year system to the end of secondary school, followed by a program of two or three years in a *collège d'enseignement général et professionnel* (CEGEP). The students who plan to go to university must complete the two-year CEGEP program.



Inuit children in school at Repulse Bay, NWT.

Neither Prince Edward Island nor New Brunswick provides kindergarten programs in the public schools. In Nova Scotia, kindergarten is compulsory; it is optional but nearly universal in the other provinces.

Schools in the Northwest Territories and Yukon are organized along the 12-grade system. Kindergarten programs continue to grow in communities where the student population and local interest warrant them.

Elementary-Secondary Education

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

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

Independent Schools

In every province 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.



Releasing young Canada geese that have been moved to a new marsh in Alberta, during filming of the motion picture Greenwing.

Separate Schools

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

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

Quebec has a dual education system — one for Roman Catholic students, the other for non-Catholics. During the 1970s the distinction on the basis of religion gave way, to some extent, to a distinction based on language of instruction. Both school systems receive public support.

Legislation in Ontario, Saskatchewan and Alberta permits establishment of separate schools. 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, Roman Catholic schools, which receive no tax support for education after Grade X, usually operate in conjunction with private schools offering grades XI-XIII.

Table 1. Elementary and secondary school enrolment, 1980-81¹

Province or territory	Public ²	Private	Federal ³	Total
Canada	4,859,575	206,213	34,457	5,103,761 ⁴
Newfoundland	148,648	274	—	148,922
Prince Edward Island	26,866	52	32	26,950
Nova Scotia	186,154	1,455	832	188,441
New Brunswick	152,803	1,035	837	154,675
Quebec	1,133,394	85,572	3,196	1,222,162
Ontario	1,836,595	74,292	7,189	1,918,076
Manitoba	204,552	8,446	9,059	222,057
Saskatchewan	205,085	2,286	6,461	213,832
Alberta	438,011	6,487	4,095	448,593
British Columbia	509,970	28,314	2,756	539,040
Yukon	4,925	—	—	4,925
Northwest Territories	12,572	—	—	12,572

¹Preliminary data.²Includes provincial schools for blind and deaf and Department of National Defence schools in Canada.³Schools for native peoples operated by the Department of Indian Affairs and Northern Development.⁴Includes 3,516 students in Department of National Defence schools in Europe.

— Nil or zero.

Young people's production of *The Nutcracker* at the Queen Elizabeth Theatre in Vancouver, BC.



Table 2. Full-time enrolment in postsecondary education, 1980-81¹

	Community colleges and related institutions		Degree-granting institutions and affiliated colleges		Total
	Technical programs	University transfer programs	Undergraduate	Graduate	
Canada	182,438	78,389	339,726	42,828	643,381
Newfoundland	2,225	—	6,338	403	8,966
Prince Edward Island . .	820	—	1,321	—	2,141
Nova Scotia	2,742	177	16,553	1,649	21,121
New Brunswick	1,888	—	10,744	508	13,140
Quebec	67,089	68,316	77,598	13,334	226,337
Ontario	75,846	—	142,591	17,565	236,002
Manitoba	3,459	—	14,968	1,594	20,021
Saskatchewan	2,412	—	13,807	777	16,996
Alberta	15,476	2,424	27,997	3,223	49,120
British Columbia	10,481	7,472	27,809	3,775	49,537

¹Preliminary data.

— Nil or zero.

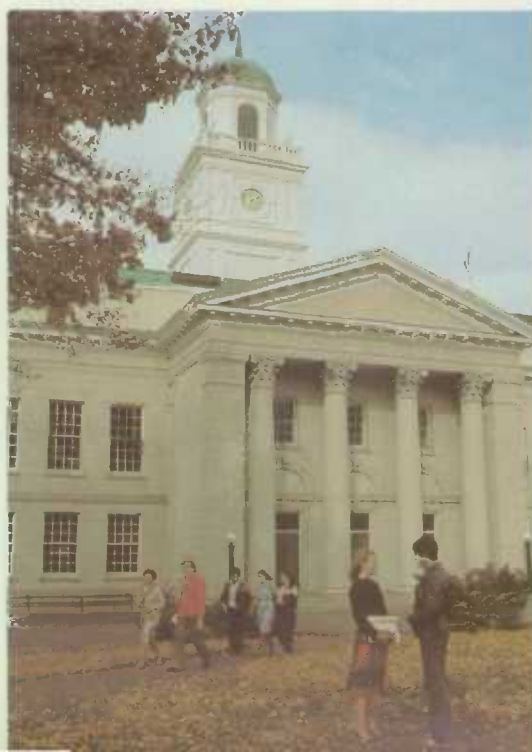
Acadia University in Wolfville, NS.

Table 3. Expenditures on education, by level and source of funds, Canada, 1972-73 and 1980-81
(million dollars)

Level of education	Federal ¹	Provincial ¹	Municipal	Fees and other	Total
1972-73					
Elementary-secondary					
Public ²	153.8	3,445.1	1,756.3	97.2	5,452.4
Private	—	33.6	16.0	123.0	172.6
Sub-total	153.8	3,478.7	1,772.3	220.2	5,625.0
Postsecondary					
Non-university	53.1	454.6	12.5	64.2	584.4
University	267.5	1,233.4	0.6	366.3	1,867.8
Sub-total	320.6	1,688.0	13.1	430.5	2,452.2
Vocational training	469.7	85.0	—	43.7	598.4
Total	944.1	5,251.7	1,785.4	694.4	8,675.6
Percentage distribution	10.9	60.5	20.6	8.0	100.0
1980-81³					
Elementary-secondary					
Public ²	422.2	10,014.4	4,096.6	277.7	14,810.8
Private	2.9	178.8	16.3	319.9	517.9
Sub-total	425.1	10,193.2	4,112.9	597.6	15,328.7
Postsecondary					
Non-university	58.3	1,538.2	—	224.6	1,821.1
University	493.2	3,109.8	0.7	838.4	4,442.0
Sub-total	551.5	4,648.0	0.7	1,063.0	6,263.1
Vocational training	920.0	295.6	—	72.3	1,287.9
Total	1,896.6	15,136.8	4,113.6	1,732.8	22,879.7
Percentage distribution	8.3	66.1	18.0	7.6	100.0

¹Federal transfers to provincial governments (\$1,101.7 million in 1972-73 and \$3,214.8 million in 1980-81) are included in the provincial contributions.

²Includes federal schools.

³Estimate.

— Nil or zero.

Postsecondary Education

The 1960s and 1970s were marked by extraordinary growth in programs and facilities for education beyond high school. In past years universities offered almost the only form of postsecondary education. Now every province has public community colleges and institutions of technology.

Degree-Granting Institutions

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

Most universities have degree programs in arts and science. Larger institutions offer degrees up to the doctorate level in a variety of fields and disciplines. There were 46 universities in Canada in 1980-81.

Liberal arts colleges are smaller institutions with degree programs only in arts. There were three liberal arts colleges in 1980-81.

Theological colleges grant degrees only in religion and theology. There were 12 independent degree-granting theological colleges in 1980-81. In addition, seven colleges, affiliated with universities, granted their own theology degrees.

Other specialized colleges offer degree programs in a single field such as engineering, art or education. There were four such colleges in 1980-81.

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.

Admission to university usually requires 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 prerequisites.

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 and similar fields normally require completion of part or all of the requirements for bachelor's degrees. Most universities offer both pass and honours bachelor's degrees; an extra year of study is necessary for the latter, usually with additional courses in the field of specialization.

Admission to a master's degree program is normally contingent upon 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. Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario and Alberta have differential fees for non-Canadian students.

Community Colleges

As an alternative to university education, all provinces have established public community colleges — regional colleges in British Columbia, institutes of technology and other public colleges in Alberta, institutes of 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 institutions also exist for specialized fields such as fisheries, marine technologies and para-medical technologies. Most provinces now provide nurses' training programs in community colleges rather than in the hospital schools of nursing which were common in the past.

Admission to public community colleges usually requires secondary school graduation but "mature student" status allows otherwise ineligible applicants to enrol. Upgrading programs are also provided by some institutions for applicants



McGill University in Montreal, Que.

whose high school standing does not meet regular admission standards.

In 1980-81, 195 community colleges offered instruction—31 in the Atlantic provinces, 84 in Quebec, 30 in Ontario, 29 in the Prairie provinces and 21 community colleges in British Columbia.

Teacher Education

For many years teacher training was conducted at teachers' colleges that operated outside each province's university system. 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 provided 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

Educational programs for adults are assuming greater prominence. School boards, community colleges and universities offer extensive part-time programs either for

personal enrichment or for credits toward a degree. Other programs are provided by professional associations, community organizations, churches, public libraries, government departments, business and industry. In addition, correspondence courses are also available.

Statistical Highlights

In 1980-81 education was the primary activity of 6,084,000 Canadians, or about 25 per cent of the total population. There were 5,750,000 full-time students being taught by 334,000 full-time teachers in 15,900 educational institutions. Expenditures on education for 1980-81 reached \$22.7 billion, or 7.8 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 in the 1980s. Postsecondary institutions will soon feel the effects of this trend.

Elementary-secondary enrolment in 1980-81 was 5,100,000, a decline of 2 per cent from 1979-80 and of 14 per cent from the all-time high of 5,900,000 recorded in 1970-71. Elementary enrolment dropped 19 per cent from the 1968 high of 3,844,000 to 3,100,000 in 1980. It is expected to continue to decline until the mid-1980s and then stabilize for several years. Secondary enrolment patterns resemble those of the elementary level, but they are delayed seven or eight years. The secondary decline is expected to last until the early 1990s.

Full-time postsecondary enrolment in 1980-81 was 643,400, a 3 per cent increase from 1979-80. University enrolment made up 59 per cent of the total, but the rate of increase over the past decade was lower than that of the community college sector, where full-time enrolment increased by 57 per cent, from 166,100 in 1970-71 to 260,800 in 1980-81. Meanwhile, full-time university enrolment went from 309,500 to 382,600, an increase of 24 per cent.

In 1980, 293,000 students graduated from secondary schools, a 1 per cent increase over the previous year. About 55 per cent of high school graduates normally enter a postsecondary institution.

Universities conferred 86,200 bachelor's and first professional degrees, 12,400 master's degrees and 1,700 earned doctorates in 1980. Community colleges awarded 64,500 diplomas.

Expenditures for education from kindergarten through graduate studies reached \$22.9 billion in 1980-81 and preliminary estimates place the 1981-82 figure at around \$25.9 billion. Elementary-secondary education consumed about \$15.3 billion of the 1980-81 total, universities \$4.4 billion, community colleges \$1.8 billion and vocational training \$1.3 billion.

Education spending per capita of population soared from \$315 in 1969 to \$953 in 1980; the increase per capita of labour force was from \$808 to \$1,981. Nevertheless, other indicators point to a relative decline in education spending. In 1970, when full-time enrolment reached record levels, expenditures on education were equivalent to 9.0 per cent of GNP and absorbed 22 per cent of government spending, more than any other major area. However, by 1980 education's share had decreased to 7.8 per cent of GNP and social welfare had become the largest consumer of government resources.



Canadarm, the remote manipulator arm for the space shuttle Columbia, designed by the National Research Council, passed its first flight test in November 1981.

Science and Technology

In common with the United States, France and Japan, Canada has placed increasing priority on the financial support of science and technology in recent years. Since 1979 expenditures on research and development in Canada have grown by an average of about 19 per cent per year, higher than any time since the mid-1960s.

Canada's gross expenditures on research and development (GERD) in 1981 approximated \$3.7 billion. Expressed as a proportion of the gross national product (GNP), Canada's GERD was 1.13 per cent. While this is a significant improvement over recent years, it is still low compared to expenditures of other countries belonging to the Organization for Economic Co-operation and Development (OECD). Increased research and development (R&D) in Canada continues to be a national priority and recent progress toward the target of a GERD/GNP ratio of 1.5 per cent has been very positive. Continued increases in scientific expenditures and expansion of scientific manpower will still be required, however, to meet this goal, and industry will continue to be the main performer in this expansion.

About 22,000 scientists and engineers were employed in research and development in the government, business and university sectors in 1979, with approximately one-half of the manpower employed by the business sector and the rest divided fairly equally between the government and university 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, 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. 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 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 is a science policy research institute established to advise the federal government and the Canadian public on problems and opportunities in Canadian science and technology. The published results of research in key areas of national science and technology policy are directed throughout Canada to government, industry, academic policy makers and increasingly to the public through the mass media. Council consists of up to 30 eminent individuals — mostly industrialists or academics — appointed by order-in-council who meet four times yearly to plan, evaluate and approve the major outputs from Council's research program, which is carried out by a staff located in Ottawa. Publications by the Science Council to date comprise 33 policy reports, including recent Council positions on the impact of microtechnology on society and Canada's potential scientific and technological contribution to the food supply of developing countries. Background studies now number 47, including recent papers on Canadian involvement in both



An electronics plant in Waterloo, Ont.

international science and world food aid; and on the requirements of Canada's manufacturing sector. Upcoming major reports will focus on Canada's transportation systems, and the interface between science and the legal process. Industrial policies, biotechnology and science education are the major projects currently under way. A catalogue is available from the publications office of the Council, located at 100 Metcalfe Street, Ottawa K1P 5M1.

Science and Technology in Government

Total federal expenditures in the natural and human sciences were expected to be \$2.9 billion in 1982-83, an increase of 13 per cent over the preceding year. Nearly 20 per cent of the government's expenditures were relevant to the human sciences and the other 80 per cent to the natural sciences. The major spenders were the National Research Council (NRC) and the Natural Sciences and Engineering Research Council which together were allotted 20 per cent of the total government science budget; followed by Energy, Mines and Resources, and Environment with approximately 9 per cent each.

In 1982-83, about 39 per cent of government expenditures were to be spent extramurally, with \$483 million going to industry and \$441 million to universities. These expenditures represent increases of 15.8 per cent and 13.0 per cent respectively over expenditures in the 1981-82 period.

Science and Technology in Canadian Industry

Canadian industry has experienced a significant increase in research and development (R&D) expenditures. From 1979 to 1981 the expenditure level grew at an average annual rate of 24 per cent. Industry's share of total R&D funding has also increased (from 32.4 per cent in 1971 to 41.6 per cent in 1981) as has its share of R&D performed in Canada (from 41.4 per cent in 1971 to 51.1 per cent in 1981). Despite this improvement, however, Canada's industrial R&D efforts, at present, do not match those of the other major industrial nations. In most major industrial countries the business sector accounts for 40 to 50 per cent of R&D funding and performs 50 to 65 per cent of all R&D.

Federal and provincial governments have agreed 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.

Response to the tax incentives introduced by the government in 1978 has been very favourable. Further to the 100 per cent write-off allowed for all current and capital R&D expenses, corporations may deduct 50 per cent of their increased R&D expenditures over a three-year period. They are also entitled to receive an investment tax credit for R&D expenditures which varies from 10 per cent to 20 per cent depending on regional location. The value of these tax incentives in terms of foregone revenue is estimated to be worth \$100 million. The federal government, while not introducing new incentive programs, has enriched those that are in place and has channelled special support into selected areas such as microelectronics and space research.

University Research

Total federal support of scientific activities in Canadian universities was expected to reach \$441 million in the fiscal year ended March 31, 1983. Of this total, science-related activities amounted to \$48 million and the support of direct costs of research and development in Canadian universities to \$394 million, an increase of 13 per cent over 1981-82. A total of \$351 million went to research and development in the natural sciences and \$42 million to the human sciences. Federal support to universities for related scientific activities was \$28 million for natural sciences and \$19 million for human sciences.

In 1982-83, the three granting councils responsible for the support of university research — Natural Sciences and Engineering Research Council, Medical Research Council, and the Social Sciences and Humanities Research Council — planned to distribute almost 89 per cent of the budgeted federal grants for university research; with the balance, \$40 million, to be distributed by other federal departments and agencies. In response to the government's intention to increase funding of university research, the three granting councils prepared five-year plans and the government has, over the past three years, sought substantial increases for their budgets in the main estimates submitted to Parliament. The 1982-83 budget for the Natural Sciences and Engineering Research Council was \$277 million; for the Medical Research



A research laboratory in Arvida, Que.

Council, \$113 million; and for the Social Sciences and Humanities Research Council, \$58 million. In the total amounts this represents a three-year increase of 74.8 per cent over 1979-80.

The National Research Council

The National Research Council (NRC) is an independent research agency established by Parliament to promote scientific and engineering research in furthering Canadian development. Its activities include: basic and exploratory research in the natural sciences; research on long-term problems of national concern such as energy, food, transportation, building and construction; research in direct support of industrial innovation and development; research to provide technological support of social objectives; the development and management of major national facilities; and research and services related to standards. These activities are carried out through in-house research programs, both internally generated and in response to requests from industry; through contracts with industry and universities; through financial contributions to industrial research laboratories; and through a technical information service for Canadian industry. The Canada Institute for Scientific and Technical Information plays a key role in facilitating the use of scientific and technical information by the government and people of Canada.

In the area of energy, the Council has responsibility for co-ordinating all federal R&D activities concerning renewable energy—solar, wind, biomass, hydraulic and geothermal. In addition, NRC is responsible for research programs on energy conservation in buildings, energy conversion and storage, the development of energy-conserving heat pumps, fundamental studies of nuclear fusion, as well as a number of smaller sub-programs.

A milestone in NRC's space program has been successfully completed—the first flight of Canadarm on board the National Aeronautics and Space Administration (NASA) orbiter Columbia. Canadarm is Canada's \$100 million contribution to the United States space shuttle program. In return, Canada will receive special consideration on future shuttle payloads; and NASA has signed a contract with Spar Aerospace Limited, Canadarm's manufacturer, for three more manipulator arms.

Scientific Activities

Agricultural and Food Research

Over 50 per cent of agricultural and food research in Canada is still conducted by Agriculture Canada, which employs approximately 900 scientists at about 50 establishments located from coast to coast. Agriculture faculties at universities comprise the second major group. Private industry is increasingly contributing to research through federal incentive programs and contracts, and provincial departments are gradually funding a larger proportion of research or developing their own capacity for research.

Broad traditional areas of crop and animal production and protection, and soils receive a large proportion of the research effort, but in recent years there has been increasing emphasis on food processing and energy use. In addition, agricultural scientists are 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.

Computerized grain elevator in Lyalta, Alta., opened in September 1982.





Harvesting south of Regina, Sask.

In crop research, plant breeding is a major activity that annually contributes new varieties offering such traits as higher yield, better quality, increased resistance to disease and insects, and earlier maturity. Three hard red spring wheat varieties were released in 1980-81. Katepwa, adapted to the eastern portion of the Prairies, has resistance to stem and leaf rusts superior to that of Neepawa as well as improved threshability. Leader provides the producer with a cultivar which combines for the first time resistance to the wheat stem saw-fly and resistance to wet-weather damage at harvest time. Leader is also more acceptable to foreign markets. Columbus has good resistance to sprouting and weathering under adverse climatic conditions at harvest. Gordon, a new winter wheat variety, outyields present standard cultivars by about 7 per cent.

Rapeseed is the major Canadian oilseed crop and the Canola varieties are the most widespread varieties. A new yellow seeded variety of Canola, Tobin, was licensed in 1980-81. Tobin is similar to Candle but with 7 per cent higher yield and 1 per cent higher oil content. Ochre, the first public cultivar of yellow mustard, which can be used in the seed or the condiment trade, was also licensed. A new late-maturing flax cultivar, McGregor, is well adapted to the black soils of Manitoba and Saskatchewan and to the black and grey soils of Alberta. Short-season soybean breeding reached an

Genetic research and breeding work, by Agriculture Canada, to produce superior sheep has been under way in Quebec since 1965. Romanov sheep, a prolific breed, were imported recently from France. Males are capable of mating at 3 to 4 months. Romanov lambs are born black in colour.



important milestone with the release of the cultivar Maple Amber, which is adapted to areas of Manitoba, Central Canada and the Maritimes. The superior quality of Maple Amber is reflected by an exceptionally high protein content.

In forage crops, breeding and evaluation of grasses and legumes for suitability to Canadian environments and higher yield continued at 12 establishments. Heinrichs, a new alfalfa cultivar licensed in 1981, is winter hardy, drought tolerant, and yields 10 per cent more forage than Rambler.

The other major activity in crop 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 risk of environmental pollution. Engineers have developed spray equipment to reduce drift and achieve more effective application.

Research in 1980-81 to improve processing technology for the food industry involved cereal, dairy, meat, fruit and vegetable products. A method of fractionating oat grain was developed; improved products were obtained from restructured meat products; and a process was developed to prevent the rupture of starch granules during dehydration of potatoes, to meet the specifications of export markets.

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. Feeding and management studies are also conducted to improve the efficiency of conversion of feed into meat, milk or eggs and increase the economic returns to producers.

Interrelationships between nutrition and quality of animal products are receiving research attention. Flavour, lean-to-fat ratio in meats, egg shell strength, shelf-life of packaged products, and effects of processing are taken into account in current research resulting in enhanced consumer acceptability of animal products.

Research on reproductive physiology is also being used to improve livestock productivity; potential areas for development have been identified and progress has been made toward controlling the physiological and environmental factors influencing reproductive efficiency in livestock.

Within Agriculture Canada, research on animal diseases is conducted by the Animal Pathology Division of the Food Production and Inspection Branch, with support from scientists at Canada's three veterinary colleges. The research is aimed at improving present techniques or developing new ones for the accurate and rapid diagnosis of animal diseases, both foreign and indigenous, and for determining the safety and quality of meat and meat products. For example, the following studies are under way: more specific tests for the diagnosis of brucellosis and paratuberculosis in

A high degree of specialization has developed recently in production of poultry and eggs, particularly in the egg, broiler chicken and turkey industries.



cattle, and bluetongue in cattle and sheep; the determination of heavy metals in beef, pork and poultry tissues; and methods for reducing salmonella infection in poultry and contamination of poultry carcasses.

Soil research is concerned with basic work on the physical characterization of soils and the methods to control land degradation. Land suitability studies are becoming important because of urban encroachment on prime agricultural land and the looming world food shortage. Methods of land evaluation have been developed which utilize computer-assisted techniques to determine the relative value of different land areas to meet alternative national production goals.

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

Research in the area of economics in agriculture is aimed at identifying the economic problems of the industry and helping formulate programs and policies to solve them. Studies of farm management resource use, farm income, market structure and agricultural productivity are carried out to assess 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. Farm management planning models have been developed for all regions and types of farms in Canada.

Potatoes in Prince Edward Island. The Maritime provinces are the major potato growing region in the country.





Experimental work with various types of grass cover, for reclamation at British Columbia's open-pit coal mines.

Environmental Research

The Environmental Conservation Service (ECS) is concerned with the wise and careful use of the country's wildlife, water and lands and with promoting the economic potential of renewable resource management and development. The organization consists of three regionalized directorates (Inland Waters, Canadian Wildlife and Lands) responsible for ECS efforts in each resource area. A fourth directorate, Policy and Program Development, is responsible for service-wide planning and policy development and for several national programs which involve input from more than one of the three resource areas. ECS makes major contributions to research and monitoring of toxic substances, developing coastal zone management plans with the provinces and providing baseline information related to major energy developments and to the effects of acid rain on aquatic and terrestrial environments and wildlife.

The Canadian Forestry Service (CFS) conducts programs on the management and conservation of the forestry resource and acts as the lead federal agency in forestry. In addition to headquarters, which has emphasis on policy and economics work, the service has two national institutes and six forest research centres responding to regional opportunities as well as national goals. Current research priorities of the CFS comprise forest regeneration, including tree breeding; national forestry data compilation and analysis; combating the spruce budworm; studying techniques to obtain energy from the forest; toxic substances research, particularly chemical

insecticides; research in long-range transport of air-borne pollutants; and the development of biological control of forest pests. Application of research is stressed, as is the environmental impact of forestry practices. Other CFS work involves programs with the Department of Employment and Immigration, the regional expansion department and provincial agencies in the establishment of practices for intensive forest management.

The *Canadian Wildlife Service* (CWS) conducts programs to manage and protect migratory birds and their habitats in Canada and internationally. Increasing economic development activities which threaten habitat, and growing public interest in wildlife, together provide challenges in carrying out federal responsibilities for migratory birds. CWS surveys and regulates waterfowl hunting in Canada and works to conserve "non-game" bird populations such as seabirds, shorebirds and songbirds. Recent projects include: expanded research efforts on seabirds on the Atlantic and Pacific coasts; joint studies of shorebirds with Latin American countries; inventories and research on the great blue heron and double-crested cormorant in Quebec; studies on the impact of acid precipitation on wildlife in Eastern Canada; and development of a waterfowl management plan for Canada. To protect migratory bird habitat, over 39 national wildlife areas and 82 migratory bird sanctuaries have been established across Canada and more are being considered.

CWS also conducts research on other wildlife of national interest; conserves critical wildlife habitat; and assists the provinces and territories with their wildlife conservation efforts. Areas of interest are: identification and protection of rare and endangered species; international trade of endangered species; wildlife on federal lands (national parks); and the health of wildlife, with a focus on the impact of toxic substances. Some recent projects are: the reintroduction of the peregrine falcon in Eastern Canada; effects of forest management practices on wildlife; studies on wolf/bison interactions in national parks in Western Canada; rehabilitation of the whooping crane population; and co-operative research on the caribou herds in the North with negotiation toward agreements for management of caribou.

CWS operates five wildlife interpretation centres located across Canada where visitors can get a closer look at their natural environment.

The *Inland Waters Directorate's* (IWD) research program is carried out mainly at the National Water Research Institute at Burlington, Ont., and at the National Hydrology Research Institute 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 (for example, acid rain) 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, snow and ice hydrology, sediment transport and hydrogeology.

IWD has developed flow prediction models that can be manipulated to receive and test new insights into hydrological processes such as evapotranspiration, snowmelt



Dawson, Yukon and the Yukon River.

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* has a lead role in providing advice to the federal government on land-use policy in Canada. Studies of land problems and issues are being conducted by the directorate. The influence of federal programs on land use and the impact of policies, land-planning programs and regulations are also being analyzed. The directorate represents Environment Canada on Treasury Board's advisory committee on federal land management.

Ecological characteristics, resource potential, and the actual use of land in Canada are researched. Projects include: the Canada land inventory; the Canada land use monitoring program; and the northern land use information mapping project.

The directorate conducts research into major national and regional land problems to inform the public and decision makers of their causes, solutions and importance to the nation. Programs to analyze the loss of agricultural land, the preservation of special resource lands and the federal role in land-use problems and solutions are undertaken. This directorate also provides land-planning assistance to the

environmental assessment and review process and to specific jurisdictions in solving land problems.

A computerized land data bank, the Canada land data system, is maintained by the directorate. It stores, processes and retrieves social, economic and environmental land data at national, provincial, regional and municipal levels.

The Atmospheric Environment Service (AES) is concerned primarily with meteorology, the science of the atmosphere. It provides national weather and climatological services for governments, the public and special users, and it is responsible for ice services supporting navigation in Canadian waterways, coastal waters and the Arctic Archipelago. It is also involved in meteorological and climate research, research on effects of atmospheric pollutants and instrument design. AES maintains 68 weather offices and many smaller service outlets across Canada.

Climatic variability and trends may seriously affect production of food and energy and the availability of water and other environmental factors of importance to Canadians. A Canadian climate program is being developed to hasten the production of climate predictions and to provide information about the consequences of increasing carbon dioxide in the atmosphere. Improved methods of providing climate data and information to users and of applying climate data to the needs of agriculture, industry and transportation are being developed.

Research focuses on atmospheric pollutants which lead to potentially harmful effects on human, animal and plant life. The dispersive and chemical properties of toxic substances in the atmosphere near the ground are studied, as well as others, such as freons, which affect the stratosphere, especially the ozone layer. Important stratospheric constituents are monitored by AES and stratospheric behaviour models are developed. These models are indicating that the eventual effects of pollution are not negligible.

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 and coastal areas. 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.

A major departmental program is under way to establish the causes and impacts of acidic precipitation in Eastern Canada; studies indicate that fossil fuel burning is a major source of the contributing pollutants. The potential impact on Canada's lake and forest ecosystem is being assessed. Negotiations are under way with the US to decrease the acid rain problem.

The Environmental Protection Service (EPS) deals with air and water pollution control; toxic chemicals management; environmental protection functions related to environmental contaminants, environmental emergencies and waste management; and policy, planning and assessment initiatives. It also acts as a focal point on environmental protection matters with industry, corresponding provincial agencies and the public.

The Water Pollution Control Directorate promotes and undertakes programs to achieve a level of water quality suitable for the protection of human health; suitable for the protection of fish; and capable of supporting a maximum diversity of water



Large quantities of ocean perch, also called redfish, are landed in Newfoundland.

uses. The strategy is to limit the discharge of pollutants at their source. The directorate is emphasizing the identification, characterization and assessment of waste water effluents to control toxic chemicals.

Specific activities include: Ocean Dumping Control Act administration; phosphorus control in detergents, through regulations under the Canada Water Act; a joint program with the water pollution control federation on sewage plant operator training; pollution control under the authority of the Fisheries Act for the protection of fish in coastal areas; and technology development, demonstration and transfer in support of directorate activities as well as maintaining a focal point for waste water treatment and sludge disposal.

Under the Fisheries Act, the emphasis is placed on developing site specific controls to suit local needs. The waste water technology centre in Burlington, Ont., plays a key role in the design of new or improved waste water treatment processes, in the development of new Canadian technology and equipment, and in the adaptation of proven foreign technological developments in order to solve Canadian pollution control problems.

The Air Pollution Control Directorate operates a national program designed to contain pollutants at their source, through application of control technology

combined with the management of air as a resource. The program addresses four major issues: long-range transport of air pollution (acid rain), toxic chemicals in the atmosphere, oxidants, and energy and the environment. Major activities are: implementation of regulations under the Clean Air Act; the national air pollution surveillance network, which collects air quality data from more than 150 centres for trend analysis, problem identification and program evaluation; development of industry sector guidelines recommending emission limits for air contaminants from various stationary sources and from in-use vehicles; and testing of new cars for compliance with emission standards, as well as testing of lead-free and leaded gasoline for compliance with lead limits.

The *Environmental Impact Control Directorate* guides national programs in contaminants control, environmental emergencies and waste management. It also ensures that environmental protection measures are carried out for all activities initiated by, funded by, or under the jurisdiction of, the federal government.

A contaminants control program evaluates chemicals — those already in use and those not yet introduced — to determine whether their use will harm human health or the environment. Specific uses of these chemicals may be restricted or banned under the Environmental Contaminants Act. The program is also responsible for review of pest control programs and pesticides to be registered under the Department of Agriculture's Pest Control Products Act, and for advising the Department of Transport on development of codes for safe transportation of dangerous goods.

The environmental emergencies program proposes measures to prevent spills of oil and other hazardous substances and develops contingency plans and technology for clean-up. It maintains the national alerting and reporting network to ensure fast response to environmental emergencies.

The waste management program is developing a national program for transportation and disposal of hazardous and non-hazardous wastes in co-operation with the provinces, industry and the public. Emphasis is placed on an energy and resource recovery program from waste.

The toxic chemicals management program is concerned with preventing or limiting the environmental and health risks associated with the release of toxic chemicals. A toxic chemicals management centre was established in June 1980, to set priorities in the areas of environmental measurements, inventory, research and assessment of chemicals; and to develop plans of action for remedial measures.

The *Policy, Planning and Assessment Directorate* is responsible for socio-economic analyses, federal activities assessment, and program and policy planning. Socio-economic impact analyses are required for major federal regulations. The directorate must ensure that any EPS regulation is of net benefit to Canadian society, after all social and economic factors are weighed. The federal activities assessment program promotes and co-ordinates the development and implementation of environmental protection measures in such areas as federal facilities, offshore oil and gas exploration and development, marine transportation, pipelines, linear facilities (highways, transmission lines and railways), mines, ports and harbours, and facilities located in coastal zones. The program's nuclear division is involved in issues concerning radioactive waste disposal, preparation of inputs to inquiries and royal commissions, provision of scientific and technical advice, and co-ordination of activities related to radiation protection.



A broad range of transportation fuels and petrochemicals are manufactured at the Sarnia, Ont. refinery.

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 four sectors: Energy Policy, Mineral Policy, Research and Technology, and Earth Science. The first two sectors are concerned mainly with studies, analyses and policy recommendations in their respective fields; the other two sectors, with some of their branches established many decades ago, are concerned primarily with scientific and technical research and with surveys and mapping.

Since the international oil crisis of 1973-74, energy policy programs of the Department of Energy, Mines and Resources have been directed toward the national objective of security of energy supply. The National Energy Program (NEP) announced in October 1980, introduced initiatives to support this objective and two related goals: increased Canadian ownership and participation in the petroleum industry, and fairness in pricing and sharing of revenues among governments and industry. Implementation of the program began immediately.

Energy agreements with the producing provinces, signed during the fall of 1981, established pricing and taxation schedules through 1986. The agreements provide for a gradual rise in the price of petroleum and its products under a blended price system that will keep Canadian consumer prices below international levels; generous prices — near, but not exceeding, international prices — are provided for oil obtained from new discoveries in conventional areas, synthetic sources, Canada Lands, and

through enhanced recovery techniques. Wholesale natural gas prices will be kept well below oil prices to encourage substitution away from oil. Under the NEP initiatives have been introduced to: promote conservation programs in the transportation, residential, commercial, and industrial markets; encourage consumers to switch from oil to natural gas or electricity; extend the pipeline system to supply natural gas to eastern Quebec and the Maritime provinces; and encourage the development of energy R&D and alternative energy programs. The Canada Oil and Gas Act, passed in 1981, provides for increased participation by Petro-Canada and other Canadian companies exploring on federal lands and establishes more demanding regulations for exploration and development of promising frontier areas. The NEP also includes incentive payments on a sliding scale to encourage exploration and development, particularly by Canadian-controlled companies and other Canadian investors. The petroleum monitoring agency monitors and reports on petroleum companies' ownership and control, costs, profits, research and development activities. Planning for supply emergencies is carried out by the emergency supplies allocation board.

The Mineral Policy Sector, through policy development and co-ordination, works with provincial governments and industry to assist Canadian mineral producers and processors in adjusting to changing world economic conditions. The sector's analysis of policy covers such areas as international markets; the domestic investment climate; the status of particular groups within the industry, such as junior mining companies; employment; and the quality of working life. It must also be conscious of such factors as mineral research, taxation, environmental controls, the security of Canadian mineral supplies and the needs of those processing minerals beyond the crude state. Of particular interest is the economic linkage to resource development that can foster such spin-off benefits as mine machinery manufacturing. The sector continually seeks policies that will contribute to the discovery and development of mineral deposits and to job creation. This sector carried out a review of Canadian mineral policy to define opportunities and constraints for the mineral industry in the next few years. It was released for public discussion early in 1982.

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

CANMET's studies in mineral and energy technology are carried out at a number of laboratories in the Ottawa area and at Elliot Lake, Calgary, Edmonton and Sydney. This work, which includes basic and applied research, development, demonstration and transfer of proved technology to industry, is aimed at safer, cleaner and more efficient extraction, processing and use of the country's mineral resources. In recent years, coal, oil sands and heavy oils have received special attention. A patented CANMET process for upgrading heavy oil is expected to be in commercial use by 1984, and progress has been made in studies on the fluidized-bed combustion of coal, and on coal gasification and liquefaction. Current emphasis in mining health and safety includes a number of projects aimed at reducing hazards to mine workers from dust, radiation, diesel exhaust fumes, noise and vibration. The Centre is also developing new methods of determining ground stress conditions and mine stability. In its

processing and utilization research, CANMET works to develop new and improved methods of extracting minerals from ores, and to improve the physical properties of metals and other materials derived from these minerals.

The Canada Centre for Remote Sensing is responsible for developing and demonstrating systems, methods and instruments for acquiring, analyzing and disseminating remote sensing data obtained by aircraft and satellite, contributing to the development of effective resource management and information systems relating to Canada's terrain and oceans. Applications include agriculture, forestry, geology, oceanography, engineering, water resource management and ice reconnaissance. Under the guidance of the federal government's Inter-Agency Committee on Remote Sensing (IACRS), the Centre serves federal and provincial government departments and agencies, regional organizations, industry, universities and the general public. In addition, through the Canadian Advisory Committee on Remote Sensing, the Centre co-ordinates remote sensing activities on a national scale. Another function of the Canada Centre for Remote Sensing is to foster international co-operation in the peaceful use of space technology.

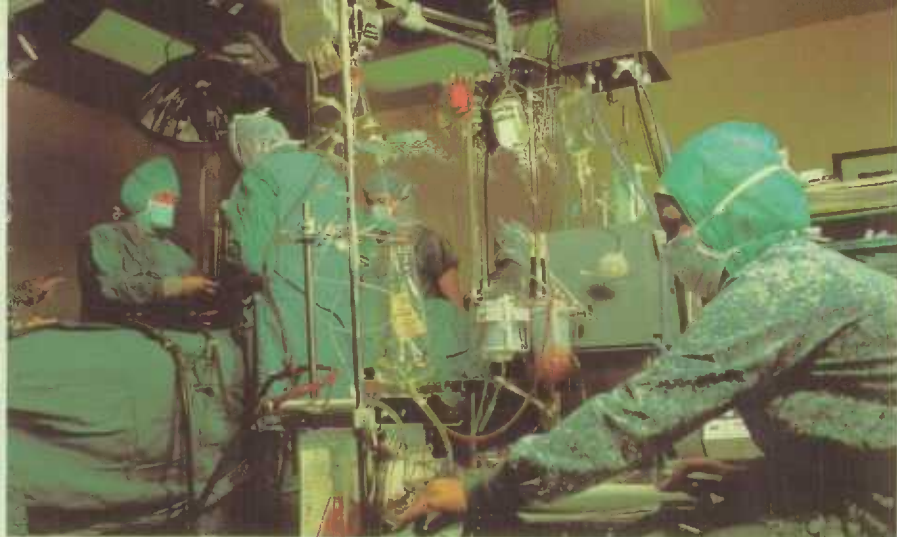
In the interests of public safety, the Explosives Branch controls the authorization, manufacture, importation, sale, purchase, possession and storage of explosives in Canada, and the transportation of explosives on land by other than public railway.

The primary objective 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.

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. Rocks of late Precambrian age are important in the search for metallic minerals and a major report has been released describing these rocks in Canada. Mineral assessments have been made of large areas of Northern Canada, particularly those proposed for national parks, and the work of the branch has been used in preparing the latest estimates of Canada's conventional oil and gas reserves and resources. The future of the earth sciences depends on new recruits; the results of a study made by the Canadian geoscience council on the teaching of geology and geophysics have been published.

The scientists of the Earth Physics Branch carry out research into the seismic, geothermal, geomagnetic, gravity and geodynamic characteristics of the Canadian land mass and offshore areas. Monitoring of earthquake activity and of longer term tectonic motions is continuously carried out, as is the monitoring of the geomagnetic field. A seismic risk map of Canada is published as required, a revised gravity map of Canada is produced at 10-year intervals and a chart showing the declination and rate of change of the magnetic field is produced at 5-year intervals.

The characteristics, distribution and depth of permafrost in the Arctic are studied, as are related hazards in transportation and drilling. Multidisciplinary surveys and studies of the structure of the deep earth are carried out both on and offshore to



Open heart surgery at the Civic Hospital in Ottawa, Ont.

enhance the understanding of the evolution, configuration and composition of the earth. Studies are being carried out in British Columbia, Alberta, Saskatchewan and the Maritimes to determine the geothermal energy potential in these areas.

The Surveys and Mapping Branch compiles, prints and distributes topographical maps, aeronautical charts, specialized maps such as electoral and boundary maps and general maps. It establishes and maintains the basic geodetic control survey networks, manages and regulates the boundary and property surveys of Canada Lands and collaborates with the United States in the maintenance of the international boundary. It produces gazetteers and the National Atlas.

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

Medical and Health Research

Biomedical research in Canada is carried out primarily in laboratories located in the universities and their affiliated hospitals. The federal government provides a major part of the financial support for the direct operating costs of this research through a variety of support systems for investigators. The Medical Research Council of Canada, which provides support for research projects in the basic, applied, and clinical health sciences, as well as clinical trials for the assessment and validation of diagnostic and treatment procedures, has the following programs available to assist research: grants-in-aid, major equipment grants, special program grants, development grants, subject research development grants, program grants, groups, fellowships and centennial fellowships, investigators' salary support, studentships, summer scholars, visiting professors, visiting scientists, career investigator awards, scholarships, training grants, research professorships, symposia, travel grants and president's fund.

Other investigators in the health sciences are either supported by the other major federal government agency, the national health research and development program,

of the Department of National Health and Welfare, or by the voluntary agencies, such as the National Cancer Institute of Canada, the heart foundations, the Arthritis Society and others, as well as by the growing involvement by the provincial governments in health research and health care delivery. The private sector is also involved, especially in the area of pharmaceuticals.

Northern Research

Canada has long recognized the contribution research makes to the socio-economic development of the North. Moreover, the Canadian North has some unique characteristics that are of particular interest to the scientific community.

Because of this, the Department of Indian and Northern Affairs has designed certain long-term measures to encourage and support northern research. The training of graduate students is assisted by special grants administered by the department. In addition, under its Northern Science Resource Centres program the department operates the Western Arctic Science Resource Centre at Inuvik and the Eastern Arctic Science Resource Centre at Igloolik to accommodate scientists from government, universities and industry. Plans are being made to establish a Science Institute in the North which would respond more fully to the needs of northerners.

These measures do not, however, meet the need for research to support development programs or to obtain specific information required to support the regulatory and administrative responsibilities of the department. For these purposes substantial programs of applied problem-oriented research have been organized, such as: the Arctic Land Use Research program; the environmental-social program; the Eastern Arctic Marine Environmental Studies (EAMES); the northern pipelines program; the Beaufort Sea project; oil-spill studies; waste disposal studies; and regional socio-economic studies. The Department of Indian and Northern Affairs is also participating in interdepartmental programs such as the Baffin Island Oil Spill (BIOS) and a series of mining studies.

Beaufort Sea supply base at Tuktoyaktuk, N.W.T.



Communications

The Information Revolution

The rapid converging of computer and communications technologies has produced a veritable "information revolution". Innovations in the way we gather, process and transmit information are profoundly changing the way we work and live.

Canada, as a world leader in telecommunications, is well-positioned to take advantage of this revolution. All parts of the country are connected by a vast telecommunications network of underground, underwater and surface cables, microwave towers, and a number of satellites in space. These facilities link Canadians to virtually every telephone within our borders and throughout the world, and provide easy access to a host of radio, television and computer facilities. Almost every Canadian household has at least one telephone, radio and television.

Through its national policies and programs, and through the research it undertakes and sponsors, the federal Department of Communications (DOC) is working to strengthen Canada's position of leadership in the development, manufacture and application of new communications technologies and in encouraging the development of programming and content.

In 1978, DOC introduced Telidon, the Canadian videotex system, which is an excellent example of combined computer and communications technologies. This easy-to-use, two-way visual communications system was invented at the communications research centre near Ottawa. Through an adaptor attached to, or incorporated in, a television set, Telidon enables users to draw on a variety of information services from a network of computer banks, and uses the TV set as a display screen for text and graphics. It is considered technically superior to other videotex systems because of its high-resolution graphics capabilities. Compatible with almost any signal-transmission means, such as telephone, cable, broadcast, fibre optics or satellite, Telidon is rapidly becoming the accepted videotex standard in many parts of the world.

Late in 1981, Canada's first electronic newspaper was launched: using Telidon technology and the editorial services of the Montreal daily newspaper, *La Presse*, a cable-TV channel provides news and information 24 hours a day. It is the largest French-language service of its kind in the world.

The Telidon industry investment stimulation program, a government/industry cost-sharing project, was inaugurated early in 1982 with 52 projects. It will provide financing for a network of Telidon systems and databases that will play an important role in the lives of Canadians. The program should greatly reduce the cost of Telidon equipment while creating new job opportunities. The federal government's task force on service to the public uses Telidon as part of a nationwide program to provide the public with improved access to government information and services.

In early 1982, Canada also introduced a sophisticated computerized music-information system, with a fully searchable database: a user can punch in a keyword and obtain information on any record. The Telidon-based, bilingual Canadian record catalogue contains 10,000 entries on 80 fields of information on Canadian records. Initially used by retailers, broadcasters and record stores, the "phonologue" service



Telidon, the Canadian videotex system, offers various types of information in the living room or office at the touch of a button and is becoming the accepted standard for videotex in many parts of the world.

will eventually enable a consumer to receive digital delivery of music in his or her own living room.

Technological advances in microcomputers, fibre optics and telecommunications satellites may soon provide as many as 200 television channels, electronic mail delivery, video-telephones and a wide variety of other home entertainment and business services.

The new generation of small, inexpensive computers now enable voice, visual and data communications formerly transmitted in analog form to be transmitted in digital form, which is cheaper, faster and more accurate.

The information revolution directly affects the offices in which half the Canadian labour force is employed. Field trials of integrated office systems were scheduled recently under the Office Communications Systems (ocs) program of DOC, which is working with Canadian companies to develop, manufacture and test new integrated systems and products for the office of the future.

Fibre optics will allow telecommunications carriers to multiply their information-transmission capacity and possibly operate at significantly lower cost. Fibre-optics transmission uses high-frequency light pulses sent down hair-thin strands of glass fibre; each fibre can carry thousands of times more information than regular copper telephone lines.

The first Canadian optical-fibre field tests began in 1977-78 in Montreal and Toronto. In 1981, a federal government/industry field trial pioneered the world's first use of fibre-optics technology to deliver a full range of communications services in two rural communities, Elie and St. Eustache, Manitoba. Single-party telephone, cable-TV, stereo-FM radio and Telidon services are received by 150 households.

In January 1982, Saskatchewan Telecommunications started using a fibre-optics link between Regina and Yorkton, 200 km (kilometres) apart. It is the first step in a plan to link 52 communities in a 3 200 km network, the longest optical-fibre system in the world; expected to cost more than \$60 million when completed in 1985.

Satellites are becoming increasingly important as a means of transmission. Acting like microwave towers suspended above the earth, satellites are our link to the rest of the world and are used for long-distance voice, data and video communications. Canada is the world's largest per capita user of space communications and has been a leader in satellite technology since 1962, when Alouette I was launched to study the ionosphere.

The ionosphere-survey satellites Alouette and Isis were followed by commercial communications satellites, called the Anik A series. Hermes was launched in 1976. It was the forerunner of the direct-broadcast satellites. Designed and built in Canada and launched by the United States, it was used on alternate days by each country for many social and technical experiments.

Telesat Canada's Anik B, launched in 1978, was the world's first dual-band satellite. It has channels in the 14/12 Gigahertz (GHz) and 6/4 GHz bands, and performs both commercial and scientific functions. It leased the 14/12 GHz channels for a wide range of pilot projects. One of these is an experimental direct-broadcast satellite (DBS) service being provided to homes and small communities in remote areas. TV Ontario signals are transmitted to about 50 small earth stations in Ontario, and the CBC and BCTV signals are transmitted to another 50 "dishes" in British Columbia, the Yukon and the Northwest Territories.

Government and industry are testing the use of higher radio frequencies for applications such as health care, education, business communications, native communications and DBS. The world's first commercial service using these higher frequencies started in Canada in 1980, when a group of cable companies began to beam French TV programming to about 40 earth stations in Quebec.

In 1981, the David Florida Laboratory at the communications research centre, Ottawa, was expanded to handle the assembly and testing of large communications satellites. These world-class facilities enable Canadian industry to compete for sales of satellite and aerospace systems, both at home and abroad.

Two new series of satellites, Anik C and Anik D, are being launched between 1982 and 1985 and will continue to expand the services of the earlier Aniks.

Federal Regulations and Services

The Department of Communications, established in 1969, is responsible for ensuring that all Canadians have the best possible access, at reasonable cost, to a broad range of communications services. The Department of Communications Act states that the Minister shall "assist Canadian communications systems and facilities to adjust to changing domestic and international conditions". This responsibility includes the introduction, development and monitoring of the new information technologies, particularly in regard to their impact on Canada's economy, social and cultural values, and the quality of Canadian life.

In recognition of the increasingly close relationship between the production of cultural content and its means of communication, the mandate of the department was



Anik D is prepared for tests in the large anechoic chamber at the David Florida Laboratory, part of the Communications Research Centre near Ottawa. This chamber is free from echoes and reverberations.

expanded in July 1980 to incorporate the Canadian government's cultural programs. The arts and culture sector of the Department of the Secretary of State was transferred to DOC, and the Minister of Communications now has responsibility for the formulation of cultural policy and the administration of cultural programs.

In addition to its financial management services, the department has five sectors: policy, space, research, arts and culture, and spectrum management and government telecommunications.

The Policy Sector

The policy sector focuses on the far-reaching implications of the information revolution. It has responsibility for the formulation of policies, regulations and strategies for the development, promotion and monitoring of broadcasting and telecommunications services and facilities; for economic, social, cultural and technical studies related to the public need for communications and the ability to meet those needs; and for Canada's federal-provincial and international communications needs.

Current and recently examined policy issues include earth-station ownership and microwave licensing; Canada/US satellite services; a review of broadcasting policies; extension of services to underserved areas and the disabled; the introduction of

pay-television; strengthening of the Canadian independent program-production industry; the effect of new technologies on Canadian industry and the workplace; and the structure and roles of telecommunications carriers, cable companies, broadcasters and other components of the telecommunications system.

The sector also protects Canada's interests in international affairs, in negotiations with agencies such as the International Telecommunication Union (ITU), a United Nations agency, and other multilateral agencies. Some key issues are transborder satellite services and data flows, and support for offshore marketing initiatives. Another area of interest is the submission of proposals for the world and regional administrative radio conferences.

The Space Sector

The space sector operates Canadian scientific satellites; carries out satellite programs such as those with the successful Hermes and Anik B communications satellites; performs research and development; sponsors technology transfer to industry; and provides technical support to the international marketing activities of the Canadian space industry. It also provides for the integration, testing and reliability assessment of space components, subsystems and complete spacecraft, through the facilities of the David Florida Laboratory located near Ottawa.

The sector is conducting studies on satellite systems that would provide mobile radio and television and radio broadcasting services. It contributes to an international program to develop and evaluate a satellite-aided search and rescue system (SARSAT); participates in the European Space Agency's general studies program and the development of its large satellite (L-SAT); and is studying the feasibility of a mobile satellite (M-SAT) to provide nationwide mobile-communications services.

The Research Sector

The research sector conducts a broad range of communications research, both in-house and through university contracts. The sector aids in the development of new communications systems and provides scientific advice to the department. Its principal facility is the communications research centre near Ottawa, the birthplace of Telidon, Canada's sophisticated two-way TV system. During the past few years, the sector has conducted research projects in transmission and delivery systems; radar systems; use of the radio-frequency spectrum; optical communications; space, rural and remote communications; northern communications; and new home and business services. During 1980-81, the sector initiated studies on open-systems interconnection, in order that Canadian computer users will be able to operate through all the various national and international networks. The sector also carries out various research projects for the Department of National Defence, and provides advisory services to other departments.

The Arts and Culture Sector

The arts and culture sector advises the Minister on national policy in culture and the arts, including advice on a cultural strategy to the end of the century. It also acts to

promote co-operation among the various federal cultural agencies, enabling them to search for common cultural objectives and co-ordinate programs for the private and public sectors. The inter-relationship between technology and culture creates new opportunities and challenges for both. Culture is not only a matter of artistic creation and appreciation, it is an economic activity that has become a multi-billion dollar a year industry.

Recent policy concerns have included book and periodical publishing, the film industry, program production, copyright, the sound recording industry and the protection of cultural property.

Spectrum Management and Government Telecommunications Sector

Although innumerable radio signals fill the airwaves, the number of frequencies available for communication is limited. To deal with increasing congestion of the radio-frequency spectrum, DOC, under the Radio Act, must manage the spectrum efficiently. A new Canadian table of frequency allocations was published in 1980.

The telecommunications regulatory service plans and implements the regulation of the radio-frequency spectrum; issues radio station licences (other than for broadcasting stations); sets and conducts examinations for radio operators and regulates the use of radio frequencies; and develops standards to control interference with radio and television reception. It also tests and approves telecommunications equipment for use in Canada and issues technical and operating certificates for broadcasting stations. Five regional DOC offices across Canada provide many of these services to the public.

The government telecommunications agency is responsible for the overall co-ordination and planning of the shared telecommunications services used by the federal government and its agencies.

International Services

Teleglobe Canada, a federal Crown corporation, provides Canadians with a complete range of external communications services: telephone, telegraph, telex, radio and television, leased circuits and computer communications. The corporation uses a worldwide network of telecommunications facilities, including trans-oceanic submarine cables and communications satellite circuits. Teleglobe co-ordinates Canada's external telecommunications services with those of other countries.

Regulation of Broadcasting and Telecommunications

The Canadian Radio-television and Telecommunications Commission (CRTC), under the terms of the Broadcasting Act, regulates and supervises the Canadian broadcasting system—radio, television and cable-TV. The Commission issues broadcasting licences and holds public hearings to consider applications relating to broadcasting undertakings, policy and regulatory matters. At these hearings, members of the public may comment or intervene on specific applications or issues. The CRTC also has regulatory powers over Canadian federally regulated telecommunications carriers.

Statistics on Communications

Telecommunications Carriers

Canada's telecommunications carriers operate a vast telecommunications network. With \$19.5 billion invested in plant and equipment in 1980, the industry is expanding at a rate of more than \$2 billion a year.

A significant increase in direct-dialing facilities should enable 80 per cent of Canadian subscribers to dial overseas direct by 1984. By then, close to 90 per cent of outgoing international telephone calls will be customer-dialed.

By the end of 1981, the federal Northern Communications Assistance Program initiated in 1977 was well on the way to achieving its aim of providing every community in the Northwest Territories with basic local and long-distance service by 1982. In 1981, 59 communities were provided with such services. Bell Canada serves the eastern half of the Northwest Territories up to the Arctic Circle, as well as Northern Quebec. In February 1980, Bell put an all-electronic digital switching system into service in Broughton Island, a small village near the Arctic Circle. In the western Arctic, 99.9 per cent of the subscribers of NorthwestTel (a subsidiary of Canadian National) can dial long-distance directly. By the end of 1981, NorthwestTel provided 52 telephone exchanges in the Yukon and Northwest Territories west of longitude 102 degrees (however this included three nursing stations east of 102 degrees), and in northern British Columbia, including one digital exchange and 42,000 telephones.

General Statistics

Telephones. The number of telephones in service rose from 15.8 million in 1979 to 16.5 million in 1980, with 68.6 telephones for every 100 Canadians. Of these phones, more than 11.5 million were residential and about 5.0 million for business. On a per capita basis, Alberta had the most telephones (80.9 for every 100 people), followed by Ontario with 71.9 and British Columbia with 71.1. Canadians averaged 1,114 calls per person in 1980. Telephone company revenues more than doubled between 1975 and 1980, growing from approximately \$3.0 billion to \$6.2 billion. Their net telephone plant grew from \$8.5 billion to \$14.1 billion. The number of full-time employees grew from 82,866 to 101,000 during this period. There were 183 telephone companies in 1980. Almost 100 per cent of all telephones in Canada had originating direct customer dialing; about 50 per cent of the phones were capable of direct dialing overseas.

Telecommunications. Annual operating revenues from the non-telephone telecommunications activities of carriers CN, CP, Teleglobe, Telesat and others rose from \$230 million in 1974 to \$412 million in 1979. The annual telegram volume declined from almost 3.8 million messages in 1974 to 2.1 million in 1979. Offsetting this trend, the number of cablegrams, including wireless and transatlantic telex messages, grew from 7.3 million in 1974 to 10.1 million in 1979. During 1980-81, more than 5.7 million telex and Teletypewriter Exchange Service (twx) messages were switched to overseas points by Teleglobe Canada's facilities. Telex, the first North American dial-and-type printer service, was introduced to Canada by CNCP Telecommunications in 1956. By 1982, it interconnected with some 50,000 telex units in Canada and about 1.3 million units around the world. Owned and operated by the TransCanada



Fibre optics is a new technology in communication. Optical fibres are providing a way to span vast distances and deliver multiple communications services.

Telephone system, TWX has some 5,000 subscribers capable of connecting with 121,300 TWX and telex users in the US.

Radiocommunications. Licensing of radio stations, other than those that are part of a broadcasting undertaking, and all technical matters dealing with radio, including television, are regulated under the Radio Act. The Radio Act also provides for the technical certification of radio stations that are part of a broadcasting undertaking, but such broadcasting stations (AM radio, TV and FM) and cable-TV systems are licensed by the Canadian Radio-television and Telecommunications Commission (CRTC) under the Broadcasting Act.

The Canada Shipping Act and the Aeronautics Act authorize the Minister of Transport to make radio regulations concerned with safety of ships and aircraft.

At the end of March 1981, 1,157,256 radio station licences were in effect, an 11 per cent decline from the previous year. The decrease stemmed mainly from a reduction in General Radio Service (GRS) or citizen's band (CB) radio licences, down 22 per cent from the previous year, and elimination of some classes of certificate of registration for US travellers bringing radio equipment into Canada. In other licence categories, there was an overall 11.8 per cent increase. Mobile stations, excluding aircraft, showed considerable growth with 376,693 stations in March 1981, up from 334,617 in 1980. Most new mobile stations are located in Montreal, Toronto, Vancouver and in the petroleum-producing areas. Radio licences are issued for stations operated by federal, provincial and municipal agencies, stations on ships and aircraft registered in Canada, stations in land vehicles operated for public and private use, and GRS stations. The number of licensed earth stations doubled from the previous year, with 232 at the end of March 1981.



Technician checks the *cross-island microwave radio system* at a Newfoundland Telephone exchange in St. John's.

Broadcasting. Canadians are heavy users of radio and television. An estimated 98.7 per cent of Canadians had a radio in their homes in May 1981, while 89 per cent had an FM radio set. Almost 98 per cent have at least one television set in their homes; 53 per cent have more than one set; 86 per cent have colour TV; and 39.3 per cent have more than one colour TV set in their homes. More than 80 per cent of Canadians watch TV at least once every day. In one week, the average Canadian watches 24 hours of TV and listens to 19 hours of radio broadcasting. Eighty-nine per cent of Canadians have car radios and 31 per cent have FM in their cars. As of March 1981, Canadians listened to 740 licensed AM radio stations, 568 FM radio stations, 1,191 television stations (including rebroadcasters), 562 cable television systems, and 32 radio and television networks of various types.

The CBC operates coast-to-coast AM radio networks in both French and English, as well as FM radio networks in both languages that approach national distribution. There are no full-time AM or FM national networks operated by private commercial interests, although 84 private stations are affiliated with the English or French networks of the CBC (including one multilingual station). Many part-time regional networks of privately owned stations operate to present such specific program services as play-by-play accounts of major sporting events.

Networking in television is more pervasive. The CBC operates two nationwide television networks, one in English and one in French. There are two major commercially operated networks: the CTV network provides an English-language program service from coast to coast, and the Réseau de télévision TVA offers French-language programming across Quebec. The privately owned Global Communications Ltd. station serves southern Ontario. The provincial governments of Ontario, Quebec and Alberta operate their own educational TV networks.

In 1977, about 73 per cent of Canadians had access to one or more US television channels and a similar situation still exists. Despite CRTC regulation of cable-TV and Canadian content regulations, accessibility of US TV channels has meant that Canadians watch a great many US programs. About 70 per cent of all the programming viewed by Canadian audiences on English-language stations was of foreign origin in 1981. For entertainment and sports programming, the figure was 86.5 per cent. About 40 per cent of the viewing on French-language TV was non-Canadian programming.

Cable television has expanded dramatically since 1970. Cable was available to 45.1 per cent of Canadian homes in 1970 and only 21.9 per cent of Canadian households actually subscribed to the service. By 1979 an estimated 78.3 per cent of Canadian homes had access to cable and 55.6 per cent of Canadian households received the service. In January 1980, an estimated 58 per cent of Canadians were hooked into a cable-TV system, making Canada one of the most heavily cabled countries in the world. In January 1981, 19 per cent of homes had a TV converter.

Radio Canada International (RCI), the CBC's overseas shortwave service with headquarters in Montreal, broadcasts daily in 11 languages and distributes recorded Canadian programs free to broadcasters throughout the world. RCI gives factual coverage of Canadian and international news and reflects the variety of Canadian opinion on matters of domestic and international concern. In 1974-75, 74,646 discs or tapes were shipped to stations around the world; in 1980-81, the figure was 142,623. The CBC estimates that the RCI shortwave service reaches more than 10 million listeners a week in the USSR, the US, Africa, Europe and Latin America.

Québec-Téléphone's new tower at Sept-Îles provides various localities of Northern Gaspé with access to the second French television network programming.



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, the CBC is responsible to Parliament to whom it reports each year on its operations through the Minister of Communications. Responsibility for its policies and programs lies with CBC's own directors and officers. It is financed mainly by public funds voted annually by Parliament; these public funds are supplemented by revenues from commercial advertising on CBC television, since CBC radio is virtually free of commercial advertising.

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

A production of Le Temps d'une Paix on the CBC French television show Les Beaux Dimanches.





Scene from *Home Fires*, a dramatic series on CBC's English television network.

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

Radio Canada International, the CBC's 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. CBC maintains offices in London, Paris, New York and Washington, and maintains 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: approximately 70 per cent in television and more than 80 per cent in radio.

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 Postal Service

Canada Post Corporation has the task of collecting, sorting, transporting and delivering an average of 25 million pieces of mail each working day of the year. To provide this service the Post Office has 53,400 full-time employees and approximately 8,200 postal outlets from coast to coast. Deliveries are made to 7.9 million points in Canada and to 159 countries around the world.

The Corporation's facilities range from hundreds of one-person operations in smaller communities across the land to huge, highly mechanized mail-processing plants in major centres.

Transportation is the backbone of any postal service; therefore Canada Post distributes the mail by whichever method meets the Corporation's operating standards of reliability best. In practical terms, this means that mail may be sent by scheduled airlines, charter airways, trains, ships or buses. In addition to these outside agencies mentioned, the Post Office operates one of the largest government-owned fleets of trucks.

The Corporation provides a wide spectrum of services ranging from the delivery of letters, magazines and parcels to such special services as registered mail, certified mail, money packets, priority post and electronic mail. Priority post is a scheduled national delivery service covering every major industrial and business centre in Canada, with international connections as well. In the electronic mail category are telepost and intelpost. Telepost combines the speed of electronic transmission with priority mail delivery. Intelpost is facsimile mail sent by satellite between Canada and a number of other countries and via microwave network in Canada available from coast to coast.

Canada Post's philatelic service provides a variety of stamps for collectors which are available at face value at philatelic counters in selected post offices or through the philatelic service itself.

A postal museum, which is visited by thousands of people each year, is also operated by the Post Office. The research library of the postal museum is used by philatelists, historians and writers.

Operators read handwritten postal codes to prepare letters for the letter sorting machines.





Quebec City's Winter Carnival.

Leisure

Industrialization and technological progress in Canada have led to shorter work weeks, longer paid vacations, earlier retirement and hence has provided 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 that offer recreation or give pleasure to the participants. Examples would be playing tennis or listening to records. There are activities that may be regarded as undesired household tasks in some circumstances, yet pleasurable recreational activities in others, such as 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 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, 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 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 Niagara Falls or a man-made attraction like 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. 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.



An organized swimming class at Dalhousie, NB.

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.

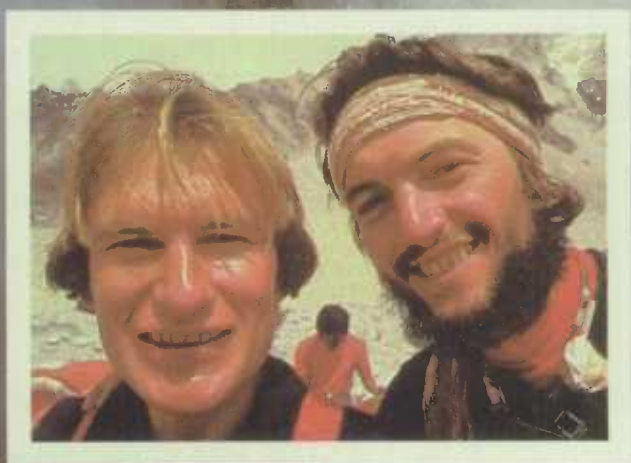
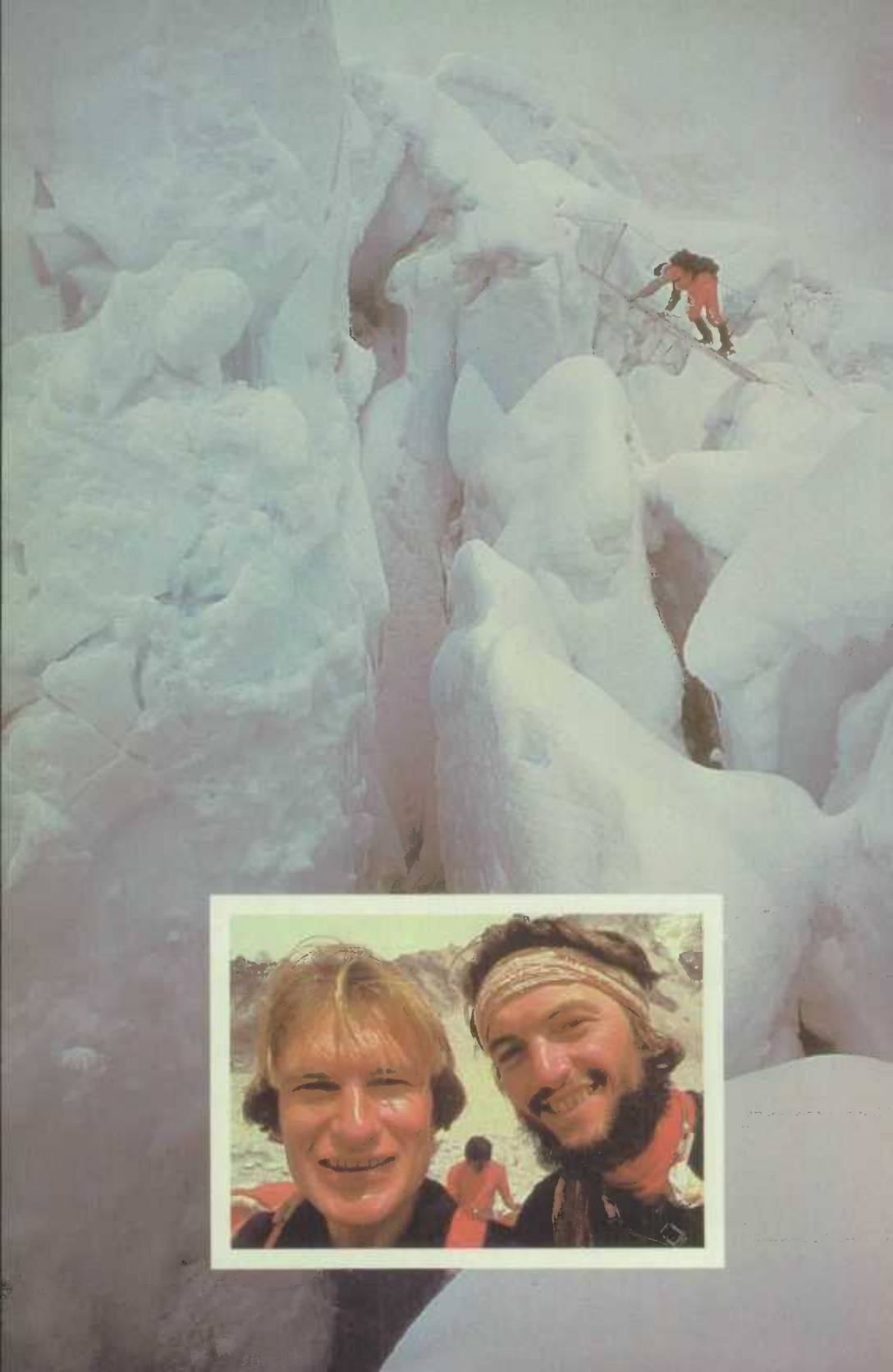
Western Canada's events reflect its cultural diversity and pioneering heritage. Examples include the National Ukrainian Festival in Dauphin, Man., Oktoberfest in Vancouver, BC, the Stampede in Calgary, Alta. and Pioneer Days festivities in Saskatoon, Sask.

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, Yukon, 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. Popular sports or physical recreational activities include swimming, 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.

Popular activities in Canada include watching television, listening to radio, reading newspapers, listening to records or tapes and reading magazines. Visits to bookstores, movies, sports events and public libraries are also popular.





◁ Climber crossing a crevasse in the Khumbu Icefall. (full page photo)

First Canadians to reach the summit of Mount Everest — Laurie Skreslet (left) and Patrick Morrow.

1. Steve Podborski (centre) celebrating World Cup win.

2. Rick Hansen won his second gold medal for Canada in the 400 metre finals at the VII Pan American Wheelchair Games in Halifax, N.S.

3. Gerry Sorensen in Grindelwald, Switzerland after winning her second World Cup downhill race in 24 hours.

4. Wayne Gretzky of the Edmonton Oilers broke the NHL record for goals in a single season, 1981-82, scoring his 77th, 78th and 79th against Buffalo Sabres.



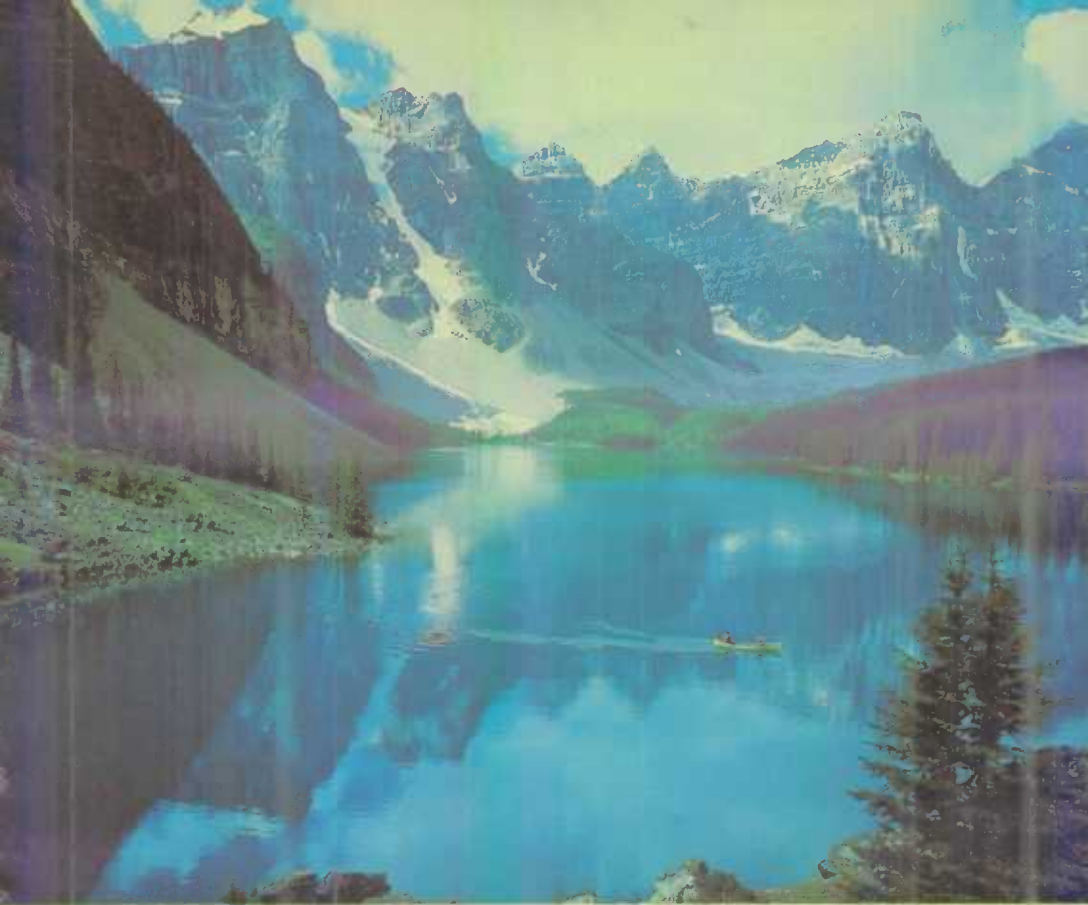


Ice sculptures at Winterlude in Ottawa.

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 Oceans Canada 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 a number of garden plots in the greenbelt during the summer.



Reflections of beauty in Banff National Park, Alta.

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.

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 scenic 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 National Park, Yukon, 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, 55 major parks and sites and over 700 plaques and monuments have been established at significant sites. At present, some 30 additional sites are 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 au Choix and the Norse settlement at L'Anse aux Meadows believed occupied about 1000 A.D. L'Anse aux Meadows National Heritage Park was proclaimed a World Heritage Site in 1980.

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



The 150th anniversary of the opening of the Rideau Canal was celebrated in 1993.

earliest French settlement north of Florida, Fort Témiscamingue, a strategic trading post in the upper Ottawa Valley, and Prince of Wales Fort, 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.

The major route to the Klondike Gold Rush is being marked and protected by the Klondike Gold Rush International Historic Park. In Dawson City, the boom town of 1898, the Palace Grand Theatre, the Robert Service Cabin and the paddlewheeler S.S. Keno have been restored, while other historic buildings are in the process of restoration or stabilization.

Province House in Charlottetown, PEI, is a national historic site and at the same time continues to serve as the legislative chambers of the province. The childhood homes of two of Canada's prime ministers, Sir Wilfrid Laurier and William Lyon Mackenzie King, have also been protected. Bellevue House National Historic Park in Kingston, a superb example of the "Tuscan Villa" style of architecture, was once occupied by Sir John A. Macdonald.

Agreements for Recreation and Conservation

Agreements for Recreation and Conservation (ARC) was introduced by Parks Canada in 1972 to satisfy increasing demands for heritage conservation and the provision of outdoor recreational opportunities. ARC is based on the concept of federal and provincial co-operation in the planning, development, operation and management of areas containing important heritage resources.

ARC is comprised of three program activities: heritage canals, co-operative heritage areas, and the proposed system of heritage rivers.

Heritage Canals. The canals of Canada were initially constructed as defence or commercial trading routes to serve a new country. At Confederation, canals came under the jurisdiction of the federal government because of their importance to the nation's transportation system.

Certain of these canals, with roles as commercial routes diminished, are now the responsibility of Parks Canada. The canals are operated and maintained as significant examples of early engineering technology in Canada. They also serve as examples of land and its water courses adapted by man to suit his needs for transportation and communication. In addition, the canals provide outstanding opportunities for recreational use and public enjoyment of significant heritage features which are being preserved, protected and presented for present and future generations.

The Rideau Canal, now a scenic waterway, was built 150 years ago, in 1832, completing a connecting waterway from Ottawa to Kingston. Several places of interest are located along this waterway, such as the blockhouse at Kingston Mills, the blacksmith shop at Jones Falls and the foundry building at Merrickville.

Co-operative Heritage Areas. An area that contains natural or cultural resources which are of Canadian significance because of their quality or quantity is a heritage area. When the resources are owned, operated and maintained collectively by separate agencies under the Agreement for Recreation and Conservation, it is a co-operative heritage area. The co-operative approach produces opportunities for comprehensive programs in the field of heritage protection, heritage presentation and recreational activities that would not be possible for individual agencies through unilateral action. Acting in conjunction with provincial governments and others, resources and expertise can be combined to develop programs that are broader in scope and more effective as a complete presentation of an area.

Co-operative heritage areas may be of several types. In some cases there may be a variety of distinctive natural and cultural resources concentrated in an area which, in combination, are of Canadian significance. In other cases there may be an example of one particular type of heritage resource which is considered to be of national significance, (e.g. historic land and water routes or rural cultural landscapes) and whose preservation requires co-operative action. At present "co-operative heritage



A wild life exhibit at the Mactaquac Craft Festival in New Brunswick.

areas" is an umbrella term for areas where joint action is required to protect and present significant resources.

Heritage Rivers. There is a proposal to establish a system of heritage rivers across Canada. Our country has an abundance of free flowing rivers which are an important part of the natural and the cultural heritage. Some of the best examples of this heritage should be protected. The ARC branch is now in the process of consulting with the provinces and the territories to establish a mechanism whereby Parks Canada can undertake a joint program to initiate and establish such a system. The nature of the system which has been under discussion is a co-operative one in which nomination and management of designated waterways would remain entirely with the level of government which is constitutionally responsible for the resource (e.g. the provinces on provincial waterways; the federal government in national parks; and the federal government in co-operation with the Yukon and Northwest territorial governments on territorial waterways).

Provincial Parks

Most provinces have set aside vast areas of land for the conservation of the natural environment and the enjoyment of residents and visitors. The areas of provincial parks total about 298 600 km², which when added to the area of the national parks brings the total federal and provincial parkland available to more than 1.6 ha (hectares) for each resident of Canada.

Some of the oldest parks in Canada were created by the provinces. In 1895 the Quebec government's concern for the conservation of the caribou led to the establishment of Laurentide Park, one boundary of which is only 48 km north of Quebec City. In Ontario the first park was Algonquin, created in 1897, which covers an area of 7 540 km² and extends to within 240 km of the city limits of both Toronto 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

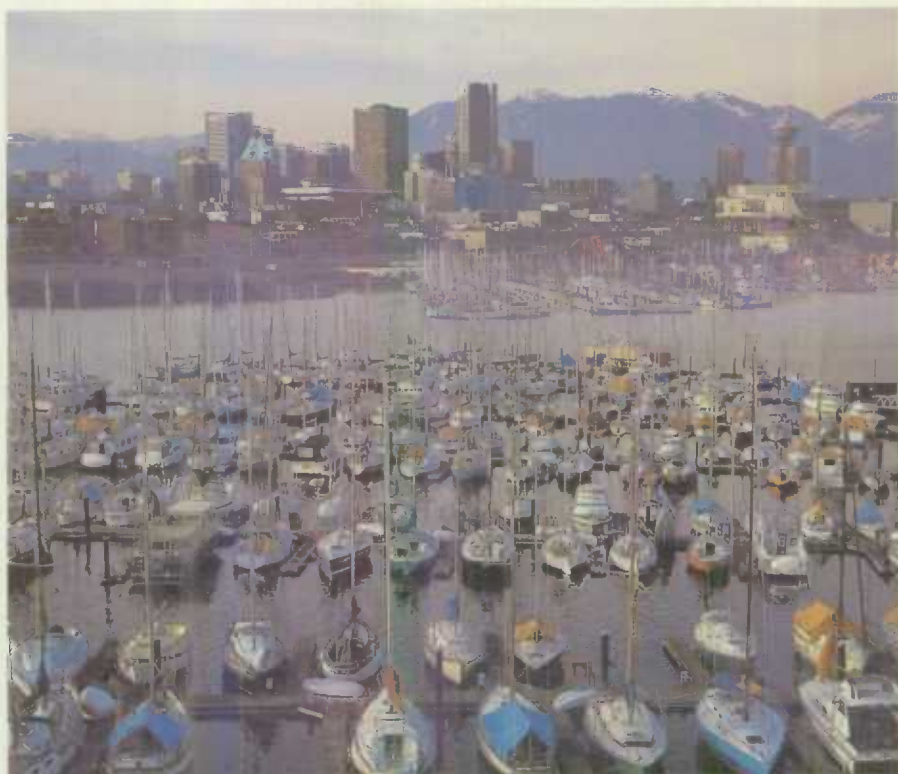
Tourism affects the lives of all Canadians. It has an impact on our lifestyle and provides a change of pace from contemporary social pressures. It also contributes to national unity by increasing understanding among people of the different regions which form the country.

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, with monetary figures in US dollars, global tourism in 1981 involved 290.0 million international arrivals (up 4.3 per cent from 1980) and these travellers spent an estimated \$106.1 billion in their countries of destination (up 11.3 per cent from 1980). In the world context, Canada ranked ninth in 1980 in terms of international travel receipts and ninth in terms of international travel spending by its residents. Tourism was a business worth \$16.5 billion to Canada as a whole in 1981, an amount equivalent to more than 5 per cent of the gross national product. The spending of Canadians travelling within Canada amounted to nearly \$12.8 billion. The balance of \$3.7 billion was earned from spending in Canada by visitors from other countries—our seventh largest source of foreign exchange following autos and auto parts, lumber, newsprint, wood pulp, natural gas and crude petroleum.

Exploring the Yukon.





Marina in False Creek and Vancouver, BC skyline.

Receipts and payments on travel between Canada and other countries, 1976-81
(million dollars)

Country	1976	1977	1978	1979	1980	1981
United States						
Receipts.....	1,346	1,525	1,650	1,881	2,121	2,491
Payments.....	1,956	2,280	2,553	2,457	2,920	3,208
Balance.....	-610	-755	-903	-576	-799	-717
Other countries						
Receipts.....	584	500	728	1,006	1,228	1,252
Payments.....	1,165	1,386	1,531	1,498	1,657	1,676
Balance.....	-581	-886	-803	-492	-429	-424
All countries						
Receipts.....	1,930	2,025	2,378	2,887	3,349	3,731
Payments.....	3,121	3,666	4,084	3,955	4,577	4,889
Balance.....	-1,191	-1,641	-1,706	-1,068	-1,228	-1,158

In 1981, visitors from the United States numbered 39.8 million, up 3.3 per cent from 1980. Non-resident travellers from countries other than the US numbered 2.1 million, a decrease of 0.8 per cent from 1980. Of this number 1,350,651 came from Europe and arrivals from the United Kingdom, the largest source of tourists after the US, totalled 540,588. Visitors from other major tourist-producing countries included 241,024 from the Federal Republic of Germany, 146,461 from Japan, 136,871 from France, 87,910 from the Netherlands, 64,651 from Australia and 65,783 from Italy.

The value of tourism spending in Canada should not, however, be measured solely in terms of the \$16.5 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 \$16.5 billion generated in 1981 could have amounted to approximately \$28.2 billion.

Tourism also generated the equivalent of 1.1 million jobs across Canada in 1981 — or about 9.7 per cent of the labour force. It involved governments at every level and more than 100,000 individual private enterprises of diverse kinds, such as transportation companies, accommodation operators, restaurateurs, tour wholesalers and tour operators, travel agents, operators of activities and events, and trade associations.

A ski resort in the Purcell Mountains in British Columbia.





The midway at the Canadian National Exhibition in Toronto, Ont.

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. 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. Canada's 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.



The Economy

Canada's Economic Performance, 1981-82

The Canadian economy entered 1981 on a relatively strong note, following a cyclical downturn in the first half of 1980. The expansion proved to be short-lived, however, and during the next half of 1981 the economy fell into its second recession in as many years. For 1981 as a whole, real Gross National Product (GNP) increased 3.0 per cent, according to preliminary Statistics Canada estimates. However, all of this growth took place during the first half of the year; in the last six months of 1981 real economic activity declined almost 1.5 per cent.

Taking the year as a whole, there was considerable strength evident in business capital spending on plant and equipment. Government spending on goods and services grew more moderately, and consumer spending even less. The international trade sector was a negative influence on Canadian economic activity for the year as a whole, with import growth exceeding export growth and the deficit on Canada's trade in goods and services (measured in 1971 constant dollars) widening significantly.

The impact of record-high interest began to bite in the third quarter, and economic activity fell off dramatically. Between the second and the fourth quarter real

consumer spending on goods and services declined almost 1 per cent and business fixed capital formation was off by almost 3.0 per cent. Exports fell off too, but imports declined even more so, resulting in some narrowing in the trade deficit in the second half of the year compared to the first.

Turning now to each of the sectors of the economy, consumer spending increased a modest 1.7 per cent in real terms in 1981, following virtually no growth the previous year. All of this modest growth took place during the first half. A recovery in consumer spending following the 1980 downturn never really developed, as spending was curtailed by modest real income growth, rising inflation during most of the year, and very high interest rates. Interest-sensitive sectors fared least well, with consumer spending on durable goods increasing only 0.5 per cent as a result of a 1 per cent decline in spending on automobiles. Growth in spending on non-durable goods was also below average as consumers adjusted to higher energy and food costs, while spending on semi-durables and services both grew at rates above 2 per cent.

Housing market activity also reflected the impact of low income growth and high interest rates. For the year 1981 as a whole, dwelling starts totalled 182,000 units, up over 14 per cent from 1980 and well below the underlying demographic requirements. Again the pattern was uneven throughout the year, with relatively strong activity during the first half and a sharp fall during the second half as the recession began to bite. In fact, dwelling starts declined by more than 20 per cent in the third quarter of

Edmonton, Alta.





Toronto, Ont.

the year, the period during which mortgage rates exceeded 20 per cent. Dwelling starts dropped a further 23 per cent in the final three months of the year.

The year 1981 appeared to have marked the end of the boom in business capital spending that began in late 1978. Overall business capital spending far outperformed the rest of the economy in 1981, with spending on non-residential construction advancing 8.4 per cent and purchases of new machinery and new equipment growing 5.6 per cent.

The strength in business capital formation from 1979-81 was the result of two separate developments. First, an upturn in corporate sector profitability beginning in 1978, together with an improvement in operating rates, gave rise to a burst of plant expansions. By mid-1981 this cycle had largely run its course. Profits have weakened, capacity utilization has fallen as a result of the recession, and high interest rates have deterred additional investment. Second, coincident with this general upturn in business capital spending has been considerable strength in energy investment. However, many of the projects that contributed to this strength are either well under way or are nearly at completion. Changes in world energy conditions and other factors, including the policy environment, have made the viability of the next round of energy projects uncertain for the time being, and thus energy investment is likely to wind down considerably.

Canada's export performance is determined largely by developments in the US economy, which have generally not been favourable since 1979. In 1981 merchandise

exports grew 3.2 per cent in real terms, with considerable weakness evident in some components such as forest products, that have been adversely affected by low US demand for lumber. Merchandise imports grew 2.3 per cent, resulting in an improvement in the real merchandise trade balance.

This was offset, however, by two adverse developments. First, the terms of trade moved against Canada, resulting in a decline in the current dollar surplus on merchandise trade. Second, there was a sharp increase in Canada's deficit on trade in services to almost \$15 billion. This was due primarily to an 18 per cent increase in interest and dividend payments abroad, in turn a reflection of both large short-term foreign borrowing and a sharp increase in the cost of servicing that debt. Together these developments resulted in a widening of Canada's balance of payments deficit on current account to over \$6.5 billion, compared to an average in the \$4 billion to \$5 billion range throughout the latter half of the 1970s.

Finally, government spending on goods and services grew 2.0 per cent in real terms in 1981. This continued the pattern evident since the mid-1970s — a relatively modest growth in government final spending, although the increase was somewhat greater in 1981 than had been the case in the previous few years. Overall, the government sector remained in deficit, with a collective surplus at the provincial and local levels of approximately \$2 billion, partially offsetting the federal deficit of \$7.5 billion on a national accounts basis.

1981 also marked the peak of Canada's most recent inflation cycle. Consumer prices accelerated steadily from 1977 through 1981, when they increased 12.5 per cent from the previous year as measured by the Consumer Price Index (CPI). The sharp rise in

Regina, Sask.





Montreal, Que.

consumer prices in 1981 was heavily influenced by domestic energy prices — which increased about 30 per cent — but by other measures, inflation was not as high. Moreover, as the year progressed there was some evidence that prices were beginning to ease. In fact, by year end monthly changes in the CPI were running at annual rates of under 10 per cent. This slowing of inflation continued into early months of 1982.

Offsetting the beginnings of a trend to more moderate inflation was a significant deterioration in labour market conditions as the impact of the recession began to work its way through the economy. During the first part of 1981 the unemployment rate averaged under 7.5 per cent. In September, however, the unemployment rate jumped to over 8 per cent, and has subsequently climbed to just over 10 per cent. Between the summer of 1981 and the spring of 1982 more than 300,000 jobs were lost, and the unemployment rate would now be even higher were it not for a fall-off in the labour force participation rate as discouraged potential workers left the labour force. Thus, events since last fall have dramatically reversed the rapid employment growth that took place between 1979 and mid-1981.

As 1982 began there was little evidence of an early end to the recession. Current monthly indicators pointed to a further decline in economic activity in the first quarter. Although interest rates had eased somewhat from their mid-1981 peaks, they remained very high both in the United States and Canada. By spring, however, there were some signs of an upturn in the United States. No commentator expected a sharp recovery and, moreover, all acknowledged that the North American economies remained fragile and vulnerable as a result of the continuation of very high interest rates. Nevertheless, the prospect of a recovery in the US, however modest, increased significantly the possibility of an end to the recession in Canada.



St. John's, Nfld.

Although a recovery in the US would clearly help, it would by no means solve all of Canada's current economic difficulties. A recovery in Canada, when it comes, will be slower and more hesitant than in the US for several reasons. First, while inflation has come down in Canada it has moderated noticeably less than in the US. The higher rates of price and cost inflation in this country than in the US have resulted in a noticeable deterioration in the international competitiveness of Canadian industry. Second, the prospects for a recovery in consumer spending in Canada will be dampened by the recent rise in the personal savings rate to a new record level. Consumers in Canada have become very bearish in the face of the economic uncertainty they are facing, and have adopted a very cautious attitude in their spending decisions. Finally, while if US interest rates were to come down they would lead to some easing of rates in Canada, the costs of borrowing in this country are likely to remain relatively high due to the weakness in our balance of payments and, consequently, in the Canadian dollar.

On balance, the evidence available in the spring of 1982 pointed to a very modest recovery in the Canadian economy later in the year. The recovery will be very gradual, however, with no significant improvement in the economy expected before 1983. For 1982 as a whole, economic activity was expected to be flat, with the slight upturn later in the year only offsetting the weakness evident since the summer of 1981.

For 1983 the prospects may be better, but even that outlook is uncertain. Overall, the economy remains fragile, and if we are subject to new shocks — such as another run-up in US interest rates — we could face a further decline in 1983.

CHARLES A. BARRETT

Natural Wealth

Agriculture

Farm Income, Expenses and Investment

Although farming takes place in every province, 80 per cent of Canada's farmland is in the Prairies and in 1981, 63 per cent of total net farm income was earned in the Prairie provinces. In 1981, total net farm income was approximately \$4,855 million, or on a regional basis, \$127 million in British Columbia, \$3,035 million in the Prairie provinces, \$843 million in Ontario, \$646 million in Quebec and \$203 million in the Maritime provinces.

Farmland near Regina, Sask. Grains, forages and oilseeds are the main field crops grown in Canada, covering about 75 per cent of total cropland.



Cash receipts from the sale of crops reached \$8.6 billion in 1981 and represented about 47 per cent of total farm cash receipts. Wheat continues to be the crop with the most economic value in Canada as cash returns from wheat and Wheat Board payments reached an estimated \$4.2 billion in 1981.

On the expense side, depreciation charges continued to be the largest single farm expense, closely followed by interest expenses and feed expenses with fertilizer, petroleum products, machinery repairs and parts, and wages to hired farm labour representing the other more significant farm expenses.

While the number of farms is slowly decreasing, increasing average farm size and mechanization have raised capital investment in farming from \$24 billion in 1971 to more than \$99 billion in 1980. The average total capital value per farm in 1980 was \$301,287 of which \$226,200 was invested in land and buildings, \$45,152 in machinery and equipment and \$29,935 in livestock and poultry.

Field Crops

Grains, forages and oilseeds are the main field crops grown in Canada, covering about 75 per cent of total cropland. They make a significant contribution to the national economy as millions of tonnes are annually processed in the domestic food

Swan Lake, Man.





Foothills ranch in southern Alberta.

manufacturing industries, consumed as livestock feed or exported. Grains and oilseeds usually represent about three-quarters of the value of all agricultural exports and are an important source of foreign exchange.

In terms of seeded area as well as volume and value of commodity and product exports, wheat is the dominant field crop. Spring wheat is produced throughout the agricultural area of the Prairie provinces, especially in Saskatchewan where wheat contributes more than 65 per cent of the province's farm cash receipts. Winter wheat, accounting for about 5 per cent of total wheat production, is grown mainly in southwestern Ontario; Alberta is the only other major producing province. In 1981, a record 24 419 400 t (tonnes) of wheat were harvested; 2 560 271 t were processed in the Canadian flour milling industry and 12 600 000 t were exported.

The production of feed grains, particularly oats and barley on the prairies and grain corn in Ontario, is essential to the Canadian livestock industry. In the crop year ending July 31, 1981, more than 13 million tonnes of oats, barley and grain corn were fed to livestock. Prairie farmers produce more than 85 per cent of the national oats and barley crop while Ontario farmers harvest about 80 per cent of the total corn crop. Quebec and Manitoba are the other grain corn producing provinces. Production of grain corn has increased appreciably over the last few years and it is supplying a larger proportion of the eastern field grain market and becoming competitive in offshore markets.

The principal oilseeds — rapeseed/canola, flaxseed, soybeans and sunflower seed — are a major commodity group. Production of rapeseed/canola, flaxseed and sunflower seed is concentrated on the prairies while soybean production is located in southwestern Ontario. Oilseeds have a broad input on the economy. Approximately 30 per cent of the rapeseed/canola crop and 50 per cent of the flaxseed crop are usually destined for foreign markets. Oilseeds and their products in 1981 accounted for \$827,786,000 in export earnings. Domestically, the crops are processed to produce vegetable oils for human and industrial use, and to produce high protein meal for livestock feed. In recent years canola, a new variety of rapeseed, has been developed that has excellent properties both for human and animal consumption; it currently represents a large proportion of rapeseed crop. Overall demand for rapeseed has increased appreciably over the last five years, with more than a million tonnes crushed in Canada during 1981.

The emphasis placed on livestock production in the non-prairie regions results in a larger proportion of cropland being devoted to forages. The principal forages are fodder corn and tame hay. Annual output of Ontario and Quebec fodder corn amounts to about 9 million tonnes and 3.5 million tonnes respectively. These two provinces also produce a large proportion of tame hay.

Although its acreage is relatively small, tobacco has a high cash value. Cash farm receipts for 1981 were \$380,540,000. Most of Canada's tobacco production is centred in Ontario but some is grown in Quebec and a smaller amount in the Maritimes.

Table 1. Area and production of the major Canadian field crops, 1979 and 1980

Item	Area		Production	
	1979	1980	1979	1980
	'000 hectares	'000 hectares	'000 tonnes	'000 tonnes
Winter wheat	299.0	275.0	864.9	888.4
Spring wheat	9 056.9	9 567.7	14 520.7	16 326.8
Durum wheat	1 133.0	1 255.0	1 798.9	1 943.2
All wheat	10 488.9	11 097.7	17 184.5	19 158.4
Oats for grain	1 541.1	1 514.7	2 977.9	3 027.6
Barley for grain	3 724.3	4 634.3	8 460.1	11 258.6
All rye	330.0	309.9	524.7	448.1
Flaxseed	931.0	575.0	815.4	464.8
Rapeseed	3 406.0	2 080.0	3 411.1	2 483.4
Corn for grain	892.6	958.2	4 983.0	5 433.9
Soybeans	283.0	283.0	670.9	713.2
Mustard seed	64.0	93.0	49.9	90.7
Sunflower seed	161.3	136.3	217.8	166.1
Tame hay	5 522.0	5 477.0	26 506.1	23 749.2
Fodder corn	485.0	487.3	14 612.7	14 286.9



Farming near High River, Alta.

Horticultural Crops

Fruit and vegetable production comprises a major part of Canadian agriculture. There are over 30 fruit and vegetable crops grown commercially in Canada which together accounted for an annual farm value in excess of \$441 million in 1979 and \$464 million in 1980. The apple continues to be the most important fruit grown in Canada. Two popular varieties are the McIntosh and the Delicious, representing 42 per cent and 28 per cent respectively of the total 1980 production. Apple orchards are located throughout Eastern Canada and British Columbia. The production of peaches, cherries and grapes is limited to the Niagara region of southern Ontario and the Okanagan Valley in British Columbia. In recent years the cultivation of berry crops — strawberries, blueberries and raspberries — has gradually increased. Commercial plantings of berry fruits are found in the Maritimes, Quebec, Ontario and British Columbia.

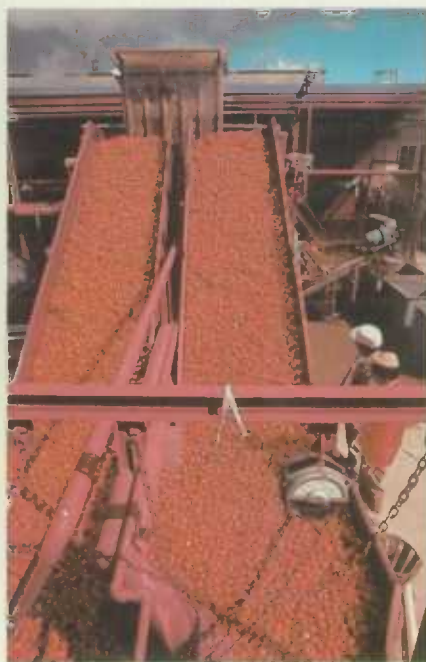
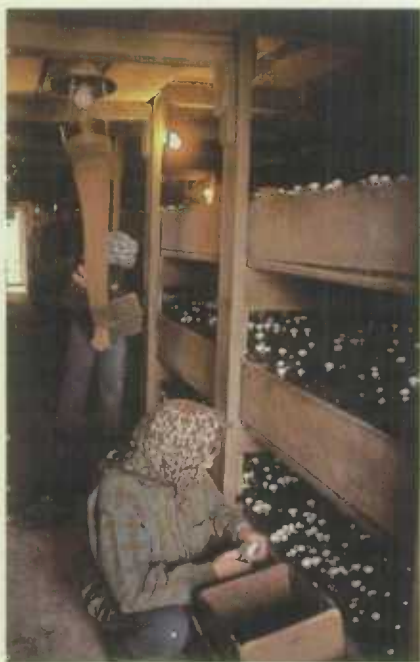
Potatoes are the most important vegetable grown in Canada, with a farm value of \$167 million for the 1979 crop, representing 38 per cent of the value of all vegetables. The Maritime provinces are the major growing region in the country. In 1980, potato production was 2 477 507 t with a farm value of \$357 million.

The Canadian mushroom industry is expanding. Domestic production was 24.8 million kilograms in 1979 and 29.1 million kilograms in 1980. Production is expected to continue to increase for the next few years.

The food processing industry in Canada requires considerable quantities of fruits and vegetables mainly for canning and freezing. Peas, corn, beans and tomatoes are the main vegetables processed while apples, grapes and berry crops are the main fruits. Many of the processed commodities are grown under contract to processors; however, the proportion of items grown under this system is decreasing.

In 1979 there were 1,617 greenhouses across Canada producing floricultural products and vegetables. Despite increasing input costs and continued high levels of imported products, greenhouse sales reached a record \$200.7 million. Roses, chrysanthemums and carnations continued to be the cut flowers most demanded by Canadians. Sales by the 599 Canadian nurseries reached a record high of \$176.6 million in 1979. Nurserymen in Ontario, consistently the largest producing province, operated 56.5 per cent of the country's 23 539 ha of land which was used for nursery purposes.

Approximately 70 per cent of the world's maple syrup is produced in the four Canadian provinces of Quebec, Ontario, Nova Scotia and New Brunswick. Quebec, especially the Eastern Townships and the Beauce region, has the best maple forests in the world as the climate is advantageous for tree development. In recent years plastic tubing and vacuum pumps have replaced the traditional bucket system of sap collection on about 25 per cent of all the tappings made in Canada. Although the new system requires a large initial equipment investment it is more efficient, more



Harvesting mushrooms and tomatoes in Ontario.

hygienic and requires less costly manpower than the bucket system and increases yields without affecting tree growth. The maple sap collected is used to make a variety of products including syrup, sugar, taffy and butter. Canada exports large volumes of these products, especially to the United States.

Canada, with 29 235 t of honey in 1979, ranks among the world's top 10 honey-producing nations. Honey is produced commercially in all provinces except Newfoundland although the bulk of the crop comes from the three Prairie provinces. The number of beekeepers continues to increase to meet domestic as well as export market demand.

Livestock

On January 1, 1982, total cattle and calves on farms in Canada, (excluding Newfoundland which had 6,600 cattle and calves at July 1, 1981) were estimated at 12,520,000, compared to 12,468,000 on January 1, 1981. Inspected slaughter of cattle in 1981 was 3,196,887 head, up 4 per cent from 1980, while calf slaughter was 365,760 in 1981, up 8 per cent. The average warm weight per carcass of cattle slaughtered was 271.1 kg in 1981, down from 272.4 kg in 1980. The weighted average price per 100 kg of A1 and A2 steers weighing 453.6 kg and over at Toronto was \$176.37 in 1981 compared to \$178.00 in 1980. Cattle exports to United States for slaughter in 1981 were 120,952 head, down 36 per cent from 190,051 head in 1980. A different trend occurred in imports from United States which were 152,998 head in 1981, a significant increase from the 1980 figure of 51,769.

On January 1, 1982, there were 9,261,000 pigs in Canada (excluding Newfoundland which had 18,000 pigs at July 1, 1981) a decrease of 3 per cent from January 1, 1981. Federally inspected slaughter of pigs in 1981 was 12,844,300 head, about the same as the 1980 slaughter of 12,927,452. Average warm weight per carcass in 1981 was 77.2 kg slightly higher than 1980, which was 76.9 kg. The average weighted price at Toronto

Table 2. Estimated meat production and disappearance, 1980 and 1981

Animal	Year	Animals slaughtered No.	Production t	Imports t	Exports t	Domestic disappearance t
Beef,	1980	3,528,500	939 536	77 946	65 004	952 047
	1981	3,697,800	979 872	78 304	79 232	990 458
Veal	1980	522,300	31 385	2 507	443	33 574
	1981	562,500	35 564	1 876	21	37 770
Pork	1980	14,311,400	876 786	17 514	117 940	773 805
	1981	14,152,100	869 255	19 756	128 998	762 465
Mutton & Lamb,	1980	240,500	4 526	13 954	93	18 955
	1981	333,100	5 969	10 043	396	16 701

for Index 100 pigs rose from \$130.25 per 100 kg in 1980 to \$154.35 in 1981. Imports of pork in 1981 were 19 823 000 kg up 13 per cent from 1980, while exports were 128 998 000 kg, up 9 per cent from 1980.

Sheep numbers showed slight increase from an estimated 488,100 head on January 1, 1981 to a January 1, 1982 estimate of 499,300, an increase of 2 per cent. Newfoundland which was not included at January 1, 1982 had 8,200 sheep and lambs at July 1, 1981. Federally inspected slaughter of sheep and lambs in 1981 was 175,868, up 53 per cent from 1980. This caused the price at Toronto for lambs weighing 36.3 kg and over to decrease to \$164.82 per 100 kg in 1981, compared to \$179.77 in 1980. Imports of sheep and lambs in 1981 were 34,557 head, up 58 per cent from 1980, and imports of mutton and lamb were 10 043 000 kg in 1981, down 28 per cent from the previous year.

Dairying

During 1981, 7 361 984 kL (kilolitres) of milk were sold off farms, with Ontario and Quebec accounting for 74 per cent of the total. Thirty-five per cent of this milk was used for fluid purposes with the remaining 65 per cent used for manufacturing purposes. Farm value of milk sold off farms in 1981, including supplementary payments, was \$2,655 million, 14 per cent greater than in 1980. The number of farms reporting dairy cows in the 1976 Census was 96,900, compared with 145,300 in 1971. Of these farms reporting dairy cows, 91,300 had incomes of over \$1,200 in 1976, compared with 129,800 farms in 1971.

Farming near Alcove, Que.





Autumn near Johnville, NB.

**Table 3. Inventory of selected classes of livestock on farms in Canada,
Jan. 1, 1976-82¹**
(thousands)

Year	Total cattle	Milk cows and heifers ²	Beef cows and heifers ²	Total pigs	Total sheep
1976	14,048.0	2,541.4	5,576.7	5,692.1	458.3
1977	13,709.5	2,455.1	5,467.0	6,154.5	410.1
1978	12,869.5	2,410.3	5,019.3	6,652.8	388.9
1979	12,328.0	2,334.4	4,827.7	8,074.0 ³	430.0
1980	12,403.0	2,350.2	4,849.6	9,888.0 ³	480.8
1981	12,468.0	2,346.7	4,865.6	9,553.8	488.1
1982	12,520.0	2,398.2	4,858.1	9,261.0	499.3

¹ Excluding Newfoundland.

² One year of age and older.

³ Revised.

Table 4. Milk and cream sold off farms, by region, 1980 and 1981
(kilolitres)

Region	Year	Farm sales of milk and cream			
		Fluid purposes	Sold for industrial purposes		Total farm sales
			Delivered as milk	Delivered ¹ as cream	
Maritimes	1980	195 297	164 199	24 631	384 127
	1981	192 072	185 727	21 318	399 117
Quebec and Ontario . . .	1980	1 619 740	3 609 421	89 663	5 318 824
	1981	1 629 831	3 707 474	90 997	5 428 302
Prairies	1980	462 243	428 371	125 202	1 015 816
	1981	472 709	477 202	109 921	1 059 832
British Columbia	1980	305 378	153 388	1 155	459 921
	1981	314 103	159 515	1 115	474 733
Total, Canada	1980	2 582 658	4 355 379	240 651	7 178 688
	1981	2 608 715	4 529 918	223 351	7 361 984

¹ Farm separated cream expressed as milk equivalent.

Poultry and Eggs

A high degree of specialization and concentration has developed 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, chicken and turkey producers at the provincial level are co-ordinated by national agencies (the Canadian Egg Marketing Agency, the Canadian Chicken Marketing Agency and the Canadian Turkey Marketing Agency), which operate under federal government charters.

Furs

Fur statistics have been collected and published annually since 1920. The value of wildlife pelts in 1980-81 was \$72,011,315 or 60 per cent of total pelts; the value of fur farm pelts decreased from \$48,039,708 to \$47,379,066 for the 1980-81 season. Wildlife fur production was valued at \$89,946,151 in 1979-80.

Per Capita Food Consumption

Total apparent Canadian consumption of fruit continued to increase in 1979 and 1980, reaching 100.3 kg and 101.6 kg per person respectively. The largest increase occurred in fresh disappearance which increased by 1.1 kg from 1979 to 1980. Consumption of canned fruits decreased by 0.7 kg over the same period.



Grape vines on irrigated land near Oliver, BC.

Apparent vegetable consumption per person in Canada reached 67.8 kg in 1980, a slight increase over the previous year. Consumption of frozen vegetables showed the largest increase, 0.4 kg per person, from 1979 to 1980. A reduction in white potato production, about 10 per cent from 1979 to 1980, resulted in a drop in consumption from 78.7 kg to 71.1 kg per person per year.

Consumers substituted poultry and pork for beef in 1978 as Canada moved on the down side of the beef cycle and less cattle were slaughtered. Beef disappearance at 45.6 kg was at its lowest level since 1974. The continued expansion of the hog industry helped to maintain pork supplies.

The increase of 1.2 L in fluid partly skimmed milk disappearance in 1980 was offset slightly by a decrease in the apparent consumption of whole milk. Disappearance of fluid skim milk and chocolate drink was virtually unchanged. Fluid partly skimmed milk exhibited the largest apparent consumption.

Cheese disappearance increased again in 1980. The increase was attributed to increased demand for cheddar, process and specialty cheeses. Apparent consumption of cheddar cheese increased to 1.49 kg, compared to 1.47 kg in 1979.

Disappearance of coffee increased slightly from 1979 to 1980. Tea disappearance decreased slightly in 1979 but increased again in 1980 to its 1978 level at about 2.3 kg per person. Cocoa disappearance had the largest increase from 1979 to 1980, 2.71 kg and 3.18 kg, respectively.

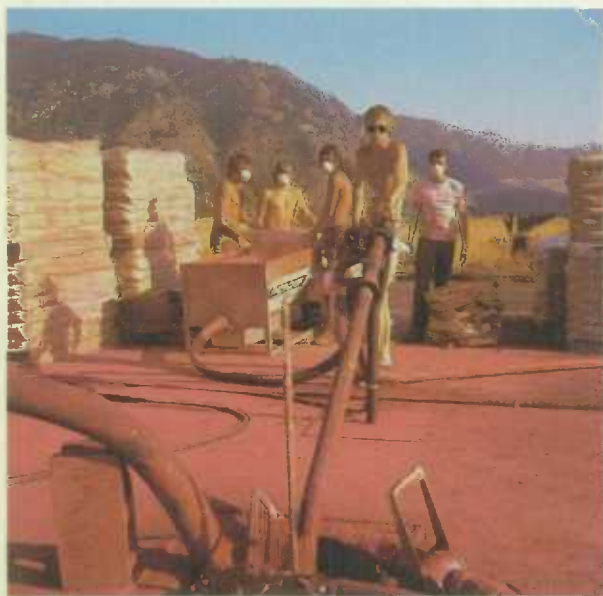
Forestry

Canada's forests are our greatest renewable resource. 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. One in 10 jobs in Canada depends on this resource, which also accounted for over \$10,448 million in the 1979 balance of trade for wood, wood products and paper. 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—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. Canada is divided into the following eight forest regions: boreal, Great Lakes—St. Lawrence, subalpine, Acadian, coast, montane, Columbia and 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.

Fire-fighting crews mix a fire retardant slurry for water bombers in the British Columbia interior near Castlegar.





Log boom in the Restigouche River near Dolhouse, NB.

The Great Lakes–St. Lawrence and Acadian forest regions are south of the boreal region. Here the forests are mixed and many species are represented. The main conifers are eastern white pine, 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 montane, subalpine and Columbia forest regions of the British Columbia interior and Alberta 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, now renamed the Constitution Act, 1867, 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



Control panel for paper machine rewinder at Grand-Mère, Que.

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.

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 16.9 per cent of all Canadian exports in 1980, down from 18.1 per cent in 1979 mainly because of large decreases in the quantity and value of lumber exported to the United States. Value of exports of wood pulp and paper products increased substantially in 1980.

Logging. Production consisting of sawlogs, veneer logs, pulpwood, poles and other roundwood products decreased from 161 757 000 m³ in 1979 to 156 167 000 m³ in 1980. Sawlog and veneer log production decreased from 114 433 000 m³ in 1979 to 109 957 000 m³ in 1980, during this same period there was a decrease in pulpwood production east of the Rockies from 41 029 000 m³ to 39 570 000 m³. British Columbia showed a slight decrease in overall production, down from 76 195 000 m³ in 1979 to 74 654 000 m³ in 1980.

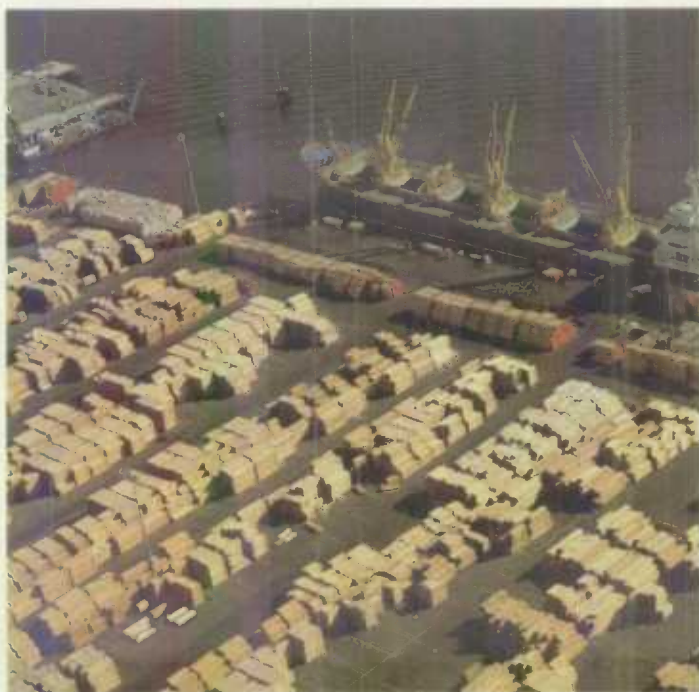
The value of exports of roundwood increased about 24 per cent, from \$92 million in 1979 to \$114 million in 1980. Exports of sawlogs, logs and bolts were up by 37 per cent in quantity and 16 per cent in value in 1980.

The value of shipments by the logging industry in 1980 was \$4,559 million, up from \$4,222 million in the previous year as a result of an increase in unit values; quantities shipped in 1980 decreased to 107 727 000 m³ compared to 108 980 000 m³ in 1979.

In 1980, 45,826 people were employed in logging, a decrease of about 5 per cent from 1979; wages in 1980 were \$964 million, compared to \$927 million in 1979.

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 strength in residential

Shipping lumber at Vancouver Harbour, BC.



construction in Canada and particularly in the US, the lumber market grew steadily throughout 1977, 1978 and 1979. Lumber production increased 22 per cent from 36 821 843 m³ in 1977 to 46 700 026 m³ in 1979. Exports of Canadian lumber increased 10 per cent from 29 058 766 m³ in 1977 to 31 919 466 m³ in 1979. However, a decline in residential housing construction in 1980 and 1981 resulted in a decrease in lumber production. Lumber production in 1981 was estimated at 39 670 435 m³ or a decrease of 15 per cent from 1979. Exports of Canadian lumber were 27 509 207 m³ in 1981.

In 1980 there were 55,902 production workers employed in the sawmill industry and they were paid \$1,132 million in salaries and wages.

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.

Pulp and Paper. The manufacture of pulp and paper is the leading industry in Canada in terms of value of shipments, and it ranks first in employment, in salaries and wages paid and in value added by manufacture. The manufacturing value added by this one industry in 1980 accounted for almost 2.0 per cent of Canada's total GNP at market prices (\$290 billion) and it contributed 8.3 per cent to the total value of domestic exports in 1980 (11.1 per cent in 1979). Canada is the second largest producer of wood pulp in the world (20 687 000 t in 1980), after the US, and the largest exporter. It is by far the largest producer of newsprint (8 368 166 t in 1980, which is close to 33 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

Table 5. Principal statistics of the pulp and paper industry, 1977-80

Item		1977	1978	1979	1980
Establishments	No.	145	144	146	144
Employees	No.	84,533	85,601	87,055	86,872
Salaries and wages	\$'000	1,541,355	1,696,769	1,847,179	2,049,743
Value of shipments of goods of own manufacture	\$'000	6,636,533	7,648,960	9,282,403	10,920,200
Value added — manufacturing activity	\$'000	3,056,481	3,503,545	4,539,127	5,362,325
Pulp shipped	'000 t	7 066	8 021	8 089	8 165
	\$'000	2,270,938	2,461,919	3,287,581	4,140,647
Paper and paperboard shipped	'000 t	11 880	13 167	13 333	13 140
	\$'000	3,964,571	4,729,638	5,490,606	6,205,489
Newsprint exported	'000 t	7 266	7 868	7 778	7 707
	\$'000	2,381,265	2,886,214	3,221,678	3,676,468



Computerized sorting conveyor at a lumber mill near Arnprior, Ont.

paperboards and even chemicals, alcohol and other byproducts. Approximately 60 per cent of the wood pulp manufactured in 1980 was converted in Canada to other products, particularly newsprint. Ninety per cent of the rest was exported.

Quebec had the largest share of Canada's pulp and paper industry and accounted for 31 per cent of the total value of production in 1980. It was followed by British Columbia, with 28 per cent, and Ontario, with 21 per cent.

Paper-converting Industries. These include asphalt roofing manufacturers, paper box and bag manufacturers and other paper converters. In 1980 this group had 644 establishments (586 in 1979), employed 43,437 persons (41,863 in 1979) and paid \$734 million in salaries and wages (\$644 million in 1979); the value of factory shipments set a new record of \$3,595 million (\$3,004 million in 1979). In contrast to the basic pulp and paper industry the paper-converting industries are dependent primarily on the domestic market.

Other Wood Industries. This group includes the shingle mills, veneer and plywood mills, particleboard and waferboard 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, particleboard and waferboard into flooring, doors, sashes, laminated structures, kitchen cabinets, prefabricated buildings, boxes, barrels, roof trusses, caskets and woodenware. In 1980 there were 42,937 production workers employed in the group and they were paid \$665,733 thousand in salaries and wages. The total value of shipments of manufactured products amounted to \$3,119 million.



Packing salmon at Blacks Harbour, NB.

Fisheries

Canada's fish harvest in 1981 continued at approximately the same level as the previous year. However, the industry experienced marketing difficulties, particularly for Atlantic groundfish, necessitating some federal government support programs.

Total landings in Canada in 1981 amounted to an estimated 1 355 500 t, compared to 1 340 314 t in 1980. Landed value of the catch totalled \$805 million, up \$67 million from the previous year.

The value of Canadian exports of fishery products continued to rise, with the 1981 total estimated at \$1.53 billion, up by \$250 million over 1980. Following the trend of previous years, some 52 per cent of Canadian exports went to the US and 32 per cent to European countries.

Herring seiner near British Columbia.





1

Villages of Newfoundland

1. Port De Grave
2. Hibbs Cove
3. Dildo



2

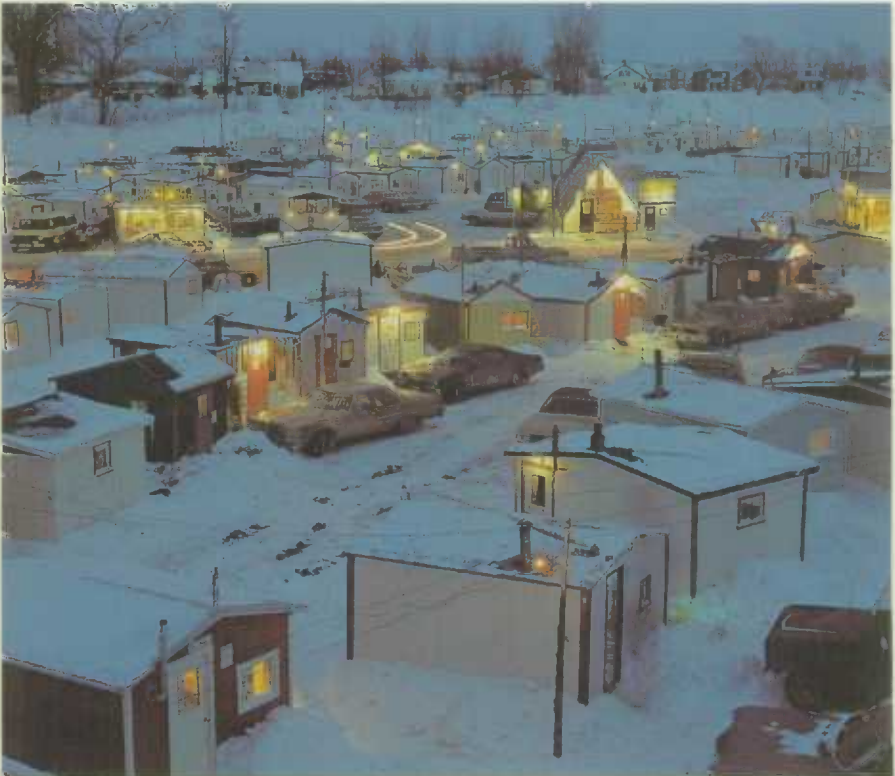


3

Canada continued to play an active role at the United Nations (UN) Law of the Sea negotiations, seeking support of conservation principles and changes in international sea law. Landings on the Atlantic Coast in 1981 totalled 1 157 300 t, up slightly from the previous year. The 1981 landed value of the Atlantic catch was \$541.2 million, up \$31 million over 1980 values. On the Pacific Coast, the salmon catch increased substantially over the previous year, although the groundfish catch declined. The 1981 harvest of Pacific Coast species was 148 200 t, up 18 274 t from the previous year, a \$25 million increase in landed value for Pacific Coast fishermen, for a total of \$217.8 million. The market value of all Canadian fisheries products in 1981 was an estimated \$1,885 million, an increase of approximately \$280 million over 1980.

The number of commercial fishermen in Canada was approximately 81,000 of which some 67 per cent were located on the Atlantic Coast and 25 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 41,000 vessels.

Ice fishing cabins on the frozen Rivière Ste-Anne near La Pêrade, Que.





Gas plant near Morley, Alta.

Minerals and Energy

Minerals

The value of production of Canadian minerals increased to \$31.8 billion in 1980, from \$26.1 billion in 1979. Metallic minerals accounted for 30.5 per cent of the value of Canadian mineral production in 1980. In order of importance, the principal metallic minerals produced in Canada were copper, iron ore, nickel, gold, zinc, silver and uranium. Headed by crude oil and natural gas, mineral fuels accounted for 56.4 per cent of the total value of production. Non-metallic minerals and structural materials accounted for 13.1 per cent. The main structural materials were cement, sand and gravel, and stone; the non-metallic minerals group was dominated by potash, followed by asbestos. The leading mineral commodity in 1980 was crude oil, with a production value of \$9.0 billion, up from a production value of \$7.1 billion in 1979 and \$423 million in 1960.

Nickel production in Canada in 1980 amounted to 184 802 t valued at \$1,497 million, an increase from 126 482 t valued at \$829 million in 1979. Most of Canada's nickel was mined in the Sudbury region of Ontario by INCO Limited and Falconbridge Nickel Mines Limited.

Copper production in 1980 amounted to 716 363 t, valued at \$1,860 million; the figures for 1979 were 636 383 t and \$1,511 million. The major producing provinces

Table 6. Mineral production, by class, 1971-80
(million dollars)

Year	Metals	Non-metals	Fossil fuels	Structural materials	Total
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	5,315	1,162	8,109	1,107	15,693
1977	5,988	1,362	9,873	1,249	18,473
1978	5,698	1,478	11,578	1,508	20,261
1979 [*]	7,951	1,868	14,617	1,648	26,081
1980	9,697	2,532	17,944	1,669	31,842

^{*} Revised figures.

Figures may not add to totals owing to rounding.

Pouring gold at a gold mine near Yellowknife, N.W.T.





Tar sands near Fort McMurray, Alta.

were British Columbia (264 675 t), Ontario (259 349 t) and Quebec (97 728 t).

Iron ore production in 1980 amounted to 49 068 000 t worth \$1,701 million; in 1979 it was 59 617 000 t worth \$1,807 million. Zinc production was 883 697 t, valued at \$858 million in 1980; in 1979, 1 100 000 t worth \$1,060 million were produced.

Asbestos production in 1980 was 1 323 000 t, valued at about \$618 million. Eighty-seven per cent of the asbestos produced in Canada came from the province of Quebec; the rest came from British Columbia and Newfoundland. Canada produces approximately 30 per cent of the world's total supply of asbestos and is the world's second leading producer.

Cement was the most important structural material produced in Canada, with about 60 per cent 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 \$1,021 million in 1980, as a number of mines were opened in Saskatchewan between 1962 and 1970. Approximately 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 \$299 million in 1980, with over 90 per cent of the Canadian production coming from British Columbia.

Elemental sulphur production increased from 6 314 000 t in 1979 to 7 656 000 t in 1980 and its value increased to \$444 million from \$160 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. One-half of this sulphuric acid is used in the manufacture of fertilizers.

Although gold production decreased to 50 620 kg in 1980 from 51 142 kg in the previous year, its value increased to \$1,165 million from \$591 million in 1979 because of increases in world prices.

Petroleum and Natural Gas

Awareness of the energy sector as a key determinant of economic well-being has obviously increased with the constantly rising prices of energy products. Of the industrialized countries, Canada is fortunately endowed with significant reserves of most forms of energy, although the proven reserves of hydrocarbon energy now represent relatively few years of oil and gas production.

In 1980 the petroleum industry extracted about \$16,603 million worth of hydrocarbon products, an increase of 24.0 per cent over 1979. The increase in value is primarily the result of price increases as the volume of crude production decreased 3.9 per cent to 83 428 800 m³ (cubic metres) while natural gas production decreased 7.3 per cent to 69 834 600 000 m³. Natural gas liquids production decreased 2.4 per cent to 19 172 200 m³ during this period.

Table 7. Mineral production, by province, 1978-80

Province or territory	1978		1979 [†]		1980 [‡]	
	Value \$'000	%	Value \$'000	%	Value \$'000	%
Newfoundland	675,028	3.3	1,124,520	4.3	1,035,653	3.3
Prince Edward Island	2,068	--	1,994	--	2,340	--
Nova Scotia	210,659	1.0	209,607	0.8	246,738	0.8
New Brunswick	339,610	1.7	479,627	1.8	372,522	1.2
Quebec	1,796,050	8.9	2,164,546	8.3	2,466,795	7.7
Ontario	2,697,852	13.3	3,264,533	12.5	4,640,453	14.6
Manitoba	459,636	2.3	652,730	2.5	802,575	2.5
Saskatchewan	1,581,850	7.8	1,873,772	7.2	2,314,616	7.3
Alberta	10,087,206	49.8	12,899,068	49.5	16,378,970	51.4
British Columbia	1,882,652	9.3	2,720,552	10.5	2,795,338	8.8
Yukon	218,804	1.1	299,244	1.1	361,257	1.1
Northwest Territories	309,639	1.5	391,163	1.5	424,501	1.3
Total	20,261,053	100.0	26,081,356	100.0	31,841,758	100.0

[†] Revised figures.

[‡] Preliminary estimates.

-- Figures too small to be expressed.

Figures may not add to totals owing to rounding.



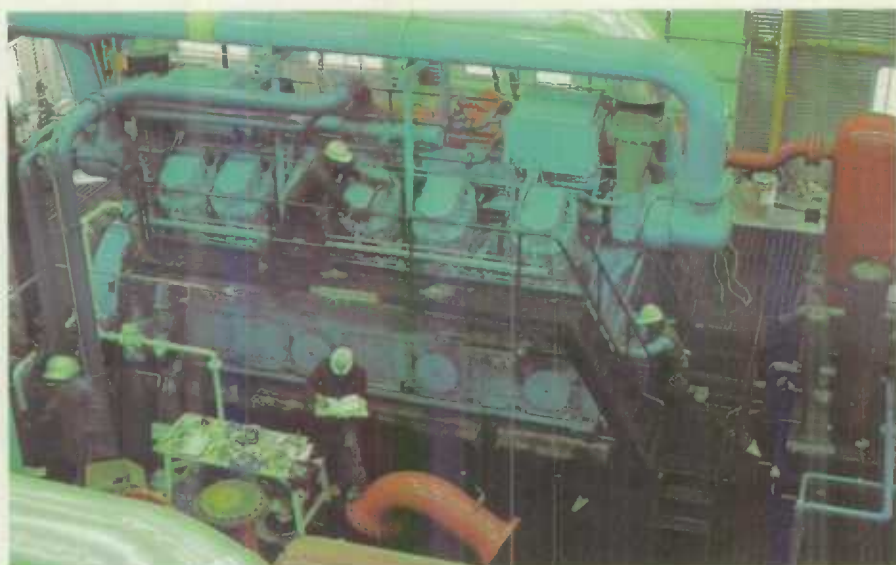
A drill ship in the Beaufort Sea

Domestic sales of refined petroleum products were 100 611 733 m³ in 1980 including 38 474 789 m³ of motor gasoline, 30 338 977 m³ of middle distillates, 15 117 567 m³ of heavy fuel oils and 16 680 400 m³ of other products.

To develop new reserves as production depletes present supplies, \$7,019 million of capital expenditures were undertaken in 1980. Seventy-two per cent of this expenditure was in Alberta, a reflection of industry's increasing activity in frontier areas. Alberta accounted for 90 per cent of the value of crude oil, natural gas and natural gas byproducts produced. In addition to conventional reserves Canada possesses significant volumes of bituminous tar sands. According to one estimate the ultimate recoverable reserves of synthetic crude oil from all Alberta's bituminous deposits amounts to 50 billion cubic metres of which approximately 5 billion cubic metres 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.

Table 8. Mineral production, by kind, 1978-80

Mineral	Unit	1978	1979 ²	1980 ¹
		'000	'000	'000
Metallics				
Antimony	kg	²	²	²
Bismuth	kg	145	137	149
Cadmium	kg	1 151	1 209	1 033
Calcium	kg	575	456	531
Cobalt	kg	1 234	1 640	2 118
Columbium (Cb ₂ O ₅)	kg	2 473	2 513	2 463
Copper	kg	659 380	636 383	716 363
Gold	kg	54	51	51
Indium	kg	4	²	²
Iron ore	t	42 931	59 617	49 068
Iron, remelt	t	..	..	..
Lead	kg	319 809	310 745	251 627
Magnesium	kg	8 309	9 015	9 252
Molybdenum	kg	13 943	11 175	11 889
Nickel	kg	128 310	126 482	184 802
Platinum group	kg	11	6	13
Selenium	kg	122	218	279
Silver	kg	1 267	1 147	1 070
Tantalum (Ta ₂ O ₅)	kg	²	159	115
Tellurium	kg	31	42	15
Tin	kg	360	337	243
Tungsten (WO ₃)	kg	2 886	3 254	4 007
Uranium (U ₃ O ₈)	kg	8 211	6 530	6 739
Zinc	kg	1 066 902	1 099 926	883 697
Non-metallics				
Asbestos	t	1 422	1 493	1 323
Barite	t	²	²	²
Gemstones	kg	..	..	..
Gypsum	t	8 074	8 098	7 336
Magnesitic dolomite and brucite	t	..	..	..
Nepheline syenite	t	599	606	600
Nitrogen	m ³	..	..	..
Peal	t	435	480	466
Potash (K ₂ O)	t	6 344	7 074	7 201
Pyrite, pyrrhotite	t	9	31	32
Quartz	t	2 165	2 368	2 252
Salt	t	6 452	6 861	7 423
Soapstone, talc, pyrophyllite	t	62	90	92
Sodium sulphate	t	377	443	481
Sulphur in smelter gas	t	676	667	895
Sulphur, elemental	t	5 752	6 314	7 656
Titanium dioxide, etc.	t	..	²	²
Mineral fuels				
Coal	t	30 477	33 200	36 688
Natural gas	m ³	88 610 000	94 426 000	87 108 000
Natural gas by-products	m ³	16 313	19 664	19 147
Petroleum, crude	m ³	76 348	86 910	83 477



A 2,600-horsepower compressor unit, *Donnan Engineering, Ltd.*, used to move natural gas from the field to consumers.

Table 8. Mineral production, by kind, 1978-80 (concluded)

Mineral	Unit	1978	1979 ^c	1980 ¹
		'000	'000	'000
Structural materials				
Clay products (bricks, tile, etc.) . . . . .		...	...	...
Cement	t	10 558	11 765	10 274
Lime	t	2 034	1 859	2 554
Sand and gravel	t	272 092	285 221	276 452
Stone	t	122 144	109 708	103 366

^c Revised figures.

¹ Preliminary estimates.

² Confidential.

.. Not available.

Coal

Production of coal in Canada increased from 33.2 million tonnes in 1979 to 36.7 million tonnes in 1980. The value of coal production in 1980 increased to \$932 million from \$860 million in 1979. Exports — to 18 countries — amounted to 15 279 658 t. Japan (73 per cent), South Korea (8 per cent), Brazil (4 per cent) and Federal Republic of Germany (4 per cent) were the principal customers.



Open-pit coal mining in the interior of southern British Columbia.

Table 9. Production of coal, by province, 1978-80

Province	Type of coal	1978	1979	1980
			Tonnes '000	
Nova Scotia	Bituminous	2 650	2 157	2 726
New Brunswick	Bituminous	315	310	439
Saskatchewan	Lignite	5 058	5 013	5 971
Alberta	Sub-bituminous	8 278	9 575	10 544
	Bituminous	5 115	5 529	6 852
	Total Alberta	13 393	15 104	17 396
British Columbia	Bituminous	9 061	10 616	10 156
Total		30 477	33 200	36 688

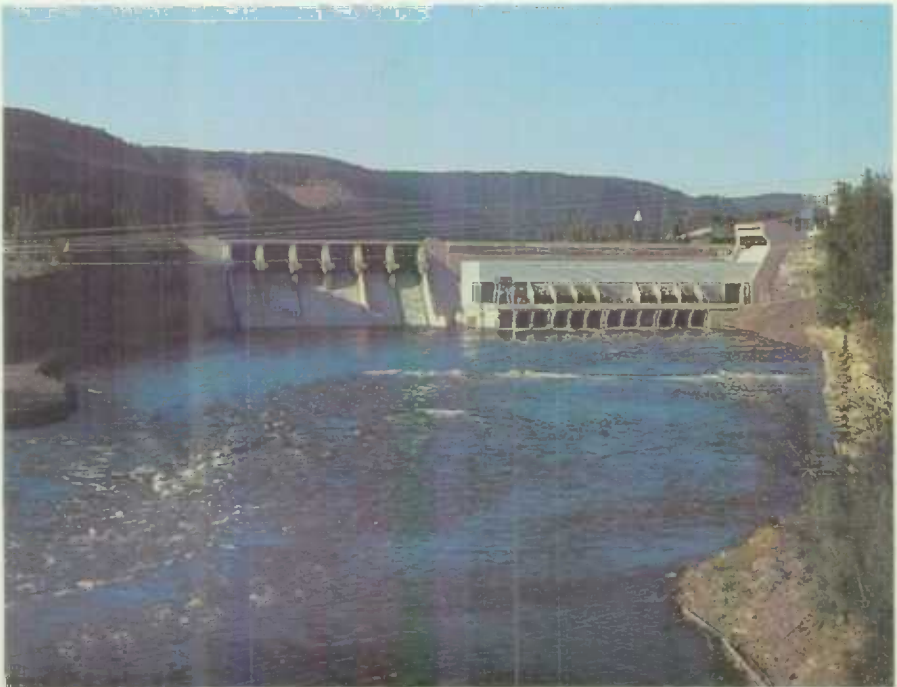
Electricity

Canada's total generating capacity increased from a modest 133 MW (megawatts) in 1900 to approximately 81 999 MW in 1980.

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

W.A.C. Bennett Dam near Hudson's Hope, BC.



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, the richest province in water power resources, with over 40 per cent of the total for Canada, has the most developed capacity. Plans for the development of a number of rivers flowing into James Bay are becoming a reality; four units were added at the LG-2 site of the James Bay project in 1980. Future developments could result in an additional 7 000 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.

Chute-à-Caron, a power plant on the Saguenay River in Quebec.





Hydro technicians conduct routine maintenance on the reactor face at the Pickering nuclear station near Toronto, Ont.

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, the 3 200 MW Bruce Station in Ontario, began generating electricity in 1978.

Power Generation and Utilization. In 1980 Canada's generating facilities produced 367 305 670 MWh (megawatt hours) of electric energy, 70 per cent in hydroelectric stations. Energy exported to the US exceeded by 27 237 237 MWh the energy imported, bringing the total available to Canadian users to 340 068 433 MWh. Average domestic and farm consumption continues to rise year by year. In 1980 it was 10 742 kWh (kilowatt hours), ranging from a low of 5 975 kWh in Prince Edward Island to a high of 13 795 kWh in Quebec. The average annual bill for domestic and farm customers was \$363.87.



Ocean terminal at Halifax, NS.

Employment

The Labour Force

In 1981 the Canadian labour force averaged 11,830,000 persons, or 64.7 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 and the Northwest Territories and residents of Indian reserves); it was composed of 10,933,000 employed and 898,000 unemployed persons. Table 1 shows the growth in this labour force during the 1970-81 period. From 1970 to 1981 this growth was generated by increases in both the size of the population aged 15 and over and the participation rate. (The participation rate is the percentage of the working age population in the labour force.) The main source of growth in the overall participation rate continued to be the increase in the rate for women of all ages.

Table 1. Labour force characteristics, annual averages, 1970-81

Year	Population ¹ '000	Labour force '000	Employed '000	Unemployed '000	Participation rate %	Unemployment rate %
1970.....	14,528	8,395	7,919	476	57.8	5.7
1971.....	14,872	8,639	8,104	535	58.1	6.2
1972.....	15,186	8,897	8,344	553	58.6	6.2
1973.....	15,526	9,276	8,761	515	59.7	5.5
1974.....	15,924	9,639	9,125	514	60.5	5.3
1975.....	16,323	9,974	9,284	690	61.1	6.9
1976.....	16,706	10,206	9,479	727	61.1	7.1
1977.....	17,057	10,498	9,648	850	61.5	8.1
1978.....	17,381	10,882	9,972	911	62.6	8.4
1979.....	17,691	11,207	10,369	838	63.3	7.5
1980.....	18,004	11,522	10,655	867	64.0	7.5
1981.....	18,295	11,830	10,933	898	64.7	7.6

¹ Persons 15 years of age and over, excluding inmates of institutions, full-time members of the Canadian Armed Forces, residents of the Yukon and the Northwest Territories and residents of Indian reserves.

Table 2. Employment by age and sex, annual averages, 1975-81
(thousands)

Age and sex	1975	1976	1977	1978	1979	1980	1981
Total employed.....	9,284	9,479	9,648	9,972	10,369	10,655	10,933
Men.....	5,903	5,965	6,031	6,148	6,347	6,430	6,522
Women.....	3,381	3,515	3,617	3,824	4,022	4,225	4,411
Employed aged 15-24.....	2,376	2,393	2,417	2,493	2,632	2,675	2,683
Men.....	1,299	1,299	1,317	1,352	1,428	1,438	1,436
Women.....	1,077	1,094	1,100	1,141	1,204	1,237	1,247
Employed aged 25+.....	6,908	7,086	7,231	7,479	7,737	7,981	8,250
Men.....	4,605	4,666	4,714	4,796	4,919	4,993	5,086
Women.....	2,304	2,421	2,517	2,683	2,818	2,988	3,164

Table 2 shows an employment increase of 564,000 between 1979 and 1981. Between 1979 and 1981 persons aged 15 to 24 years accounted for 51,000 or 9 per cent of total employment growth, in contrast with their 35 per cent share of the growth between 1978 and 1979. The growth from 1979 to 1981 for those aged 25 years and over was 513,000, or 91 per cent.

Table 3 shows the distribution of unemployment by principal age and sex groups for 1970 and 1981 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 37 per cent of the unemployed in 1970 but only 29 per cent in 1981, while women in the same age group increased from 18 per cent to 25 per cent and persons aged 15 to 24 years moved from 45 per cent to 46 per cent. The figures in Table 3 also show that the range in provincial unemployment rates increased between 1970 and 1981.

Table 3. Unemployment by age and sex and by province, annual averages, 1970 and 1981

Age and sex	No. unemployed		Province	Unemployment rate	
	1970 '000	1981 '000		1970 %	1981 %
Total unemployed	476	898	Nfld.	7.3	14.1
Men	312	497	PEI	--	11.4
Women	164	401	NS	5.3	10.2
			NB	6.3	11.7
Unemployed aged 15-24	214	412	Que.	7.0	10.4
Men	133	239	Ont.	4.4	6.6
Women	81	174	Man.	5.3	6.0
			Sask.	4.2	4.6
Unemployed aged 25+	262	486	Alta.	5.1	3.8
Men	178	260	BC	7.7	6.7
Women	84	226			

-- 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 \$355.30 in 1981; this was an 11.9 per cent rise from the 1980 level. The industrial gains ranged from 10.1 per cent in trade to 16.2 per cent in finance, insurance and real estate. Among the provinces, gains ranging from 8.7 per cent in Prince Edward Island to 14.2 per cent in Alberta were recorded.

Table 4. Average weekly earnings for all employees, selected industries and industrial composite¹, annual averages, 1961, 1980 and 1981

Industry and province	Average weekly earnings (dollars)			Percentage increase	
	1961	1980	1981	1961 to 1981	1980 to 1981
Industry					
Forestry	79.02	404.87	452.58	472.7	11.8
Mining, incl. milling	95.57	468.60	534.43	459.2	14.0
Manufacturing	81.55	342.19	383.83	370.7	12.2
Durables	88.22	364.99	408.83	363.4	12.0
Non-durables	76.17	320.65	360.29	373.0	12.4
Construction	86.93	461.59	520.95	499.3	12.9
Transportation, communications and other utilities	82.47	381.17	427.49	418.4	12.2
Trade	64.54	238.53	262.56	306.8	10.1
Finance, insurance and real estate . . .	72.82	304.37	353.78	385.8	16.2
Service	57.87	211.17	234.86	305.8	11.2
Industrial composite ¹	78.24	317.39	355.30	354.1	11.9
Industrial composite by province					
Newfoundland	71.06	288.90	328.12	361.8	13.6
Prince Edward Island	54.91	230.03	250.10	355.5	8.7
Nova Scotia	83.72	265.95	296.44	365.2	11.5
New Brunswick	63.62	284.36	313.43	392.7	10.2
Quebec	75.67	315.36	351.57	364.6	11.5
Ontario	81.30	311.45	347.94	328.0	11.7
Manitoba	73.66	283.20	314.31	326.7	11.0
Saskatchewan	74.38	303.71	336.82	352.8	10.9
Alberta	80.29	341.93	390.41	386.2	14.2
British Columbia	84.99	363.51	407.06	379.0	12.0

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.

Average Hourly Earnings.¹ In 1981 average hourly earnings rose 13.2 per cent in mining, 12.0 per cent in manufacturing and 13.0 per cent in construction. By province, average hourly earnings in manufacturing registered gains ranging from 11.8 per cent in Ontario and Manitoba to 16.5 per cent in Newfoundland.

Average Weekly Hours.¹ From 1980 to 1981 average weekly hours decreased in all industries except manufacturing. Average weekly hours in manufacturing increased in the provinces of Newfoundland, Ontario and Manitoba, and decreased in the remainder of the provinces.

¹Data on average hourly earnings and average weekly hours pertain only to those wage-earners from whom data on hours were available.

Table 5. Average hourly earnings and average weekly hours for hourly-rated wage-earners, annual averages, 1961, 1980 and 1981

Industry and province	Average hourly earnings (AHE)			Average weekly hours (AWH)			Increases in AHE		Changes in AWH		
							1961 to 1981	1980 to 1981	1961 to 1981	1980 to 1981	
	1961	1980	1981	1961	1980	1981	%	%	%	%	
	\$	\$	\$	No.	No.	No.					
Industry											
Mining, incl. milling . . .	2.13	10.80	12.23	41.8	40.8	40.4	474.2	13.2	- 3.3	- 1.0	
Manufacturing	1.83	8.19	9.17	40.6	38.5	38.5	501.1	12.0	- 5.2	-	
Durables	2.00	8.72	9.74	40.9	39.2	39.3	387.0	11.7	- 3.9	+ 0.3	
Non-durables	1.69	7.62	8.58	40.3	37.8	37.8	407.7	12.6	- 6.2	-	
Construction	2.06	12.11	13.69	40.9	39.0	38.8	564.6	13.0	- 5.1	- 0.5	
Building	2.16	12.48	14.04	38.9	37.6	37.6	550.0	12.5	- 3.3	-	
Engineering	1.90	11.42	12.99	44.8	41.9	41.9	583.7	13.7	- 6.5	-	
Manufacturing by province ¹											
Newfoundland	1.69	7.38	8.60	40.5	35.9	36.1	408.9	16.5	- 10.9	+ 0.6	
Nova Scotia	1.58	7.25	8.16	40.3	38.2	37.7	416.5	12.6	- 6.5	- 1.3	
New Brunswick	1.55	7.42	8.46	40.9	39.0	38.6	445.8	14.0	- 5.6	- 1.0	
Quebec	1.65	7.54	8.48	41.5	38.9	38.8	413.9	12.5	- 6.5	- 0.3	
Ontario	1.94	8.17	9.13	40.5	39.0	39.1	370.6	11.8	- 3.5	+ 0.3	
Manitoba	1.67	7.20	8.05	39.7	37.6	37.8	382.0	11.8	- 4.8	+ 0.5	
Saskatchewan	1.98	8.79	10.13	39.0	37.0	36.9	411.6	15.2	- 5.4	- 0.3	
Alberta	1.96	9.21	10.49	39.7	37.9	38.2	435.2	13.9	- 3.8	- 0.8	
British Columbia	2.23	10.82	12.19	37.7	36.2	35.5	446.6	12.7	- 5.8	- 1.9	

¹Data for Prince Edward Island are not available.

— Nil or zero.

The Public Service Commission

The Public Service Commission is an independent agency responsible to Parliament and having the exclusive right to make appointments to the public service and from within the public service. The commission also operates staff development and training programs, assists deputy heads with these concerns, and, since 1972, has been charged with investigating cases of alleged discrimination of various kinds in connection with the application and with the operation of the Public Service Employment Act.

The commission may establish boards to decide on appeals against certain staffing decisions and to rule on allegations of political partisanship.

The commission may delegate any of its powers, other than those relating to appeals and inquiries, to deputy heads, and has done so with regard to the operational and administrative support categories. Authority has also been delegated for the administrative and foreign service, technical, and scientific and professional



Technicians installing lens retaining rings on camera bodies at a plant in Midland, Ont.

categories, while at the same time preserving the commission's authority as the public service's central recruiting agency.

The commission is the guardian of the merit principle as it applies to its major task — staffing the public service — ensuring that high standards are maintained in the service, consistent with adequate representation of the two official language groups, a bilingual capability to the extent prescribed by the government, equal employment and career development opportunities irrespective of sex, race, national origin, colour or religion, and encouragement of equal opportunities for the handicapped and for under-represented groups.

The Public Service Commission offers interdepartmental courses in government administration, occupational training and managerial improvement, acts as a consultant to deputy heads, and makes training and development facilities available for specific occupations or for promotion in administration and management.

The commission ensures that employees are qualified to meet relevant linguistic requirements, and where they do not, ensures that those who require it receive training in their second official language. The commission is also responsible for establishing the method used in assessing language knowledge and the degree of language knowledge or proficiency of candidates.

Labour Organizations

Membership in labour organizations active in Canada totalled 3,396,721 in 1980. About 68.5 per cent of the members were in unions affiliated with the Canadian Labour Congress (CLC); 5.5 per cent were affiliates of the Confederation of National Trade Unions (CNTU); 1.3 per cent were affiliated with the Centrale des syndicats

démocratiques (CSD); 0.8 per cent were affiliates of the Confederation of Canadian Unions (CCU); and the remaining 23.8 per cent were members of unaffiliated national and international unions and independent local organizations.

Of the total union members, 46.3 per cent belonged to international unions with headquarters in the United States.

Sixteen unions reported memberships of 50,000 or more in 1980. The five largest unions were the Canadian Union of Public Employees (257,180); the United Steelworkers of America (203,000); the National Union of Provincial Government Employees (195,754); the Public Service Alliance of Canada (155,731); and the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (130,000).

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 1981 benefit payments under the Act amounted to \$4,828 million.

In 1972, coverage was extended to include virtually all paid workers in the labour force and members of the armed forces. The main exceptions are persons working less than 15 hours weekly, or earning less than 20 per cent of the maximum weekly insurable earnings (\$63.00 per week in 1981) and persons 65 years of age and over. Coverage, contributions and benefit entitlement cease at age 65. The number of insured persons was estimated at 10.5 million in December 1981.

Employers and employees absorb the cost of administering the program as well as the cost of initial regular benefits plus the labour force extended benefits. They also pay for the entire cost of special benefits (sickness, maternity and retirement). The federal government is responsible for regionally extended benefits and the cost of benefits to self-employed fishermen. In addition, costs entailed with claimants who have their benefits extended while on approved developmental programs of training and job creation are also paid by the federal government. There is no fund, and employer and employee contributions are adjusted yearly. In 1981, the maximum weekly contribution by an employee was \$5.67. The employer's rate is 1.4 times the employee's rate.

The duration of benefit under the new program is not determined solely by the length of time a person has worked. A claimant can normally draw to a maximum of 50 weeks, depending on his or her employment history and the prevailing economic



Transporting logs in British Columbia

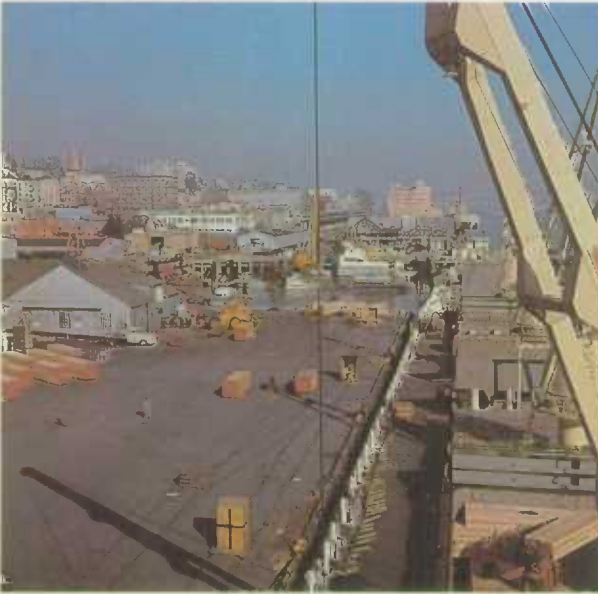
conditions, provided that (1) he or she has had at least 10 to 14 weeks (relating to rate of unemployment in the region of residence) of contributions in the last 52 and (2) he or she has been available, capable of and searching for work. Persons with 20 or more weeks of insured earnings (called a "major 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 the confinement.

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 60 per cent of a person's average insured earnings in the qualifying period, to a maximum in 1981 of \$189 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 1981 maximum weekly insurable earnings were \$315.

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.



Shipping docks in New Westminster, BC

Industry

Industrial Growth and Change

In Canada the long expansionary phase of constant price gross domestic product 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, followed by slower growth until the end of 1981.

The 1961-71 Period

The expansion of the 1960s was evident throughout most of the major divisions of the economy. While gross domestic product grew by 74 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 79 per cent growth of mines, quarries and oil wells from 1961 to 1971 reflected strong increases in iron mines, crude petroleum and natural gas. Gains in the manufacturing industries brought the aggregate growth for manufacturing to 84 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 that exceeded the aggregate for gross domestic product. Air transport and rail transport rose 253 per cent and 86 per cent respectively, while education rose 134 per cent. Two large aggregations of industries — community business and personal services, and finance, insurance and real estate, which together contribute over one-quarter of gross domestic product — showed 1961-71 growth of 87 per cent and 74 per cent respectively.

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. 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.

A computer overhaul department in Toronto, Ont.



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.

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 postsecondary school education.

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 11.5 per cent in 1971; growth in computer-related services also added to service-industry growth.

The 1971-81 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.

Installing gas pipeline in Ottawa, Ont.





Foundations for underground electrical substation in the commercial core of Vancouver, BC, with historic Holy Rosary Cathedral in background.

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 6.4 per cent to 2.9 per cent; goods-producing industries reversed from the 1971-74 growth rate of 5.6 per cent to a decline in that one-year period of 5.8 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 changes from October 1975 to May 1976 in the goods-producing industries, services-producing industries and total gross domestic product were 7.4 per cent, 3.5 per cent and 5.0 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, and residential construction.

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 to gross domestic product, showed strong growth between May and December 1976.

From 1976 to 1979, no division of the economy showed any particular strength: the growth in gross domestic product was lower in this period than in the early 1970s. There was very little growth from 1979 to 1980; the year over year change was only 0.3 per cent. The goods-producing industries registered their first decline since 1975, falling by 1.5 per cent. At the same time the services-producing industries rose by 1.5 per cent. Signs of renewed growth appeared in the fourth quarter of 1980 and through the first quarter of 1981, levelling off during the rest of the year. Gross domestic product rose 2.6 per cent in 1981.

Inserting machines, at The Calgary Herald, where special sections are mechanically inserted into the centre of the paper.





Winnipeg, Man.

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 represent the installations required for the production of goods and services in future periods.

Measurements of these capital expenditures are made at regular intervals every year through surveys and other means. On each occasion statistics are published for expenditures on housing, non-residential construction, and machinery and equipment by all sectors of the Canadian economy. Approximately 25,000 establishments are surveyed for their investment intentions with adjustments made for non-surveyed and for non-reporting firms to represent full coverage. 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 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

Table 1. Summary of capital and repair expenditures, by sectors, 1981 and 1982¹
(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.	1981	1,308.0	3,421.6	4,729.6	1,627.6	4,478.4	6,106.0
	1982	1,364.1	3,625.1	4,989.2	1,712.7	4,833.3	6,546.0
Forestry.	1981	126.7	170.2	296.9	202.6	434.1	636.7
	1982	151.7	159.9	311.6	237.7	470.5	708.2
Mining, quarrying and oil wells.	1981	7,553.4	1,883.6	9,437.0	8,342.4	3,637.1	11,979.5
	1982	9,228.1	2,226.1	11,454.2	10,116.8	4,104.1	14,220.9
Construction industry.	1981	206.3	1,083.9	1,290.2	235.0	1,911.9	2,146.9
	1982	234.0	1,230.2	1,464.2	266.5	2,170.0	2,436.5
Manufacturing.	1981	2,839.7	9,591.9	12,431.6	3,668.8	13,714.6	17,383.4
	1982	3,122.8	10,737.4	13,860.2	4,073.6	15,448.6	19,522.2
Utilities.	1981	8,835.2	7,474.2	16,309.4	10,280.8	11,057.3	21,338.1
	1982	11,181.0	8,040.3	19,221.3	12,805.0	12,228.0	25,033.0
Trade	1981	560.3	1,429.7	1,990.0	741.7	1,684.9	2,426.6
	1982	602.3	1,323.9	1,926.2	797.7	1,592.2	2,389.9
Finance, insurance and real estate.	1981	4,087.9	485.5	4,573.4	4,336.4	581.2	4,917.6
	1982	4,512.1	560.7	5,072.8	4,784.7	666.8	5,451.5
Commercial services.	1981	766.8	3,544.6	4,311.4	886.5	3,980.9	4,867.4
	1982	732.2	4,101.5	4,833.7	856.9	4,602.7	5,459.6
Institutions	1981	1,781.2	580.3	2,361.5	2,167.7	709.7	2,877.4
	1982	2,007.1	629.6	2,636.7	2,392.2	767.8	3,160.0
Government departments.	1981	6,594.9	1,046.9	7,641.8	8,105.2	1,311.4	9,416.6
	1982	7,405.7	1,177.5	8,583.2	9,114.8	1,491.0	10,605.8
Housing	1981	13,139.6	—	13,139.6	16,359.9	—	16,359.9
	1982	12,818.7	—	12,818.7	16,396.6	—	16,396.6
Total.	1981	47,800.0	30,712.4	78,512.4	56,954.6	43,501.5	100,456.1
	1982	53,359.8	33,812.2	87,172.0	63,555.2	48,375.0	111,930.2

¹ Preliminary actual expenditures 1981, intentions 1982.

— Nil or zero.

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. The addition of non-capital repairs to capital expenditures provides a more complete picture of all demands likely to be made on labour and materials used in upkeep of existing productive capacity as well as in creation of new capacity.

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 creation of these assets may generate its major employment and income-giving effects in other regions. For example, the spending of millions of dollars

**Table 2. Summary of capital and repair expenditures, by province,
1981 and 1982¹**
(million dollars)

Province or territory		Capital expenditures			Capital and repair expenditures		
		Construc- tion	Machinery and equipment	Sub- total	Construc- tion	Machinery and equipment	Total
Atlantic region:							
Newfoundland	1981	811.9	339.3	1,151.2	951.1	645.8	1,596.9
	1982	958.6	406.4	1,365.0	1,114.2	745.1	1,859.3
Prince Edward Island	1981	109.0	65.4	174.4	151.5	96.6	248.1
	1982	122.0	71.2	193.2	167.7	105.8	273.5
Nova Scotia	1981	1,199.9	740.9	1,940.8	1,499.9	1,035.2	2,535.1
	1982	1,567.2	999.7	2,566.9	1,899.5	1,330.7	3,230.2
New Brunswick	1981	792.3	721.9	1,514.2	1,008.2	1,063.9	2,072.1
	1982	939.0	827.4	1,766.4	1,168.0	1,216.9	2,384.9
Total, Atlantic region	1981	2,913.1	1,867.5	4,780.6	3,610.7	2,841.5	6,452.2
	1982	3,586.8	2,304.7	5,891.5	4,349.4	3,398.5	7,747.9
Quebec	1981	8,608.8	5,436.0	14,044.8	10,678.6	8,027.5	18,706.1
	1982	8,866.7	5,910.4	14,777.1	11,106.4	8,804.9	19,911.3
Ontario	1981	11,743.0	11,044.7	22,787.7	14,567.7	15,405.5	29,973.2
	1982	12,956.3	12,439.4	25,395.7	16,087.2	17,447.3	33,534.5
Prairie region:							
Manitoba	1981	1,227.9	1,054.2	2,282.1	1,580.7	1,625.3	3,206.0
	1982	1,230.1	1,076.9	2,307.0	1,610.0	1,736.0	3,346.0
Saskatchewan	1981	2,340.5	1,803.1	4,143.6	2,756.8	2,504.1	5,260.9
	1982	2,460.1	1,829.8	4,289.9	2,930.0	2,616.3	5,546.3
Alberta	1981	12,241.4	4,920.9	17,162.3	13,818.5	8,717.3	20,535.8
	1982	14,887.8	5,659.7	20,547.5	16,652.7	7,692.0	24,344.7
Total, Prairie region	1981	15,809.8	7,778.2	23,588.0	18,156.0	10,846.7	29,002.7
	1982	18,578.0	8,566.4	27,144.4	21,192.7	12,044.3	33,237.0
British Columbia	1981	7,708.3	4,020.8	11,729.1	8,866.3	5,710.5	14,576.8
	1982	8,265.2	3,960.1	12,225.3	9,642.6	5,924.0	15,566.6
Yukon and Northwest Territories							
	1981	1,017.0	565.2	1,582.2	1,075.3	669.8	1,745.1
	1982	1,106.8	631.2	1,738.0	1,176.9	756.0	1,932.9
Total, Canada	1981	47,800.0	30,712.4	78,512.4	56,954.6	43,501.5	100,456.1
	1982	53,359.8	33,812.2	87,172.0	63,555.2	48,375.0	111,930.2

¹ Preliminary actual expenditures 1981, intentions 1982.



Port Alberni, BC.

on installation of 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.

Housing

Canada Mortgage and Housing Corporation (CMHC) is the federal agency which administers the National Housing Act (NHA). CMHC, a Crown corporation, is one of the largest financial institutions in Canada. It also has responsibilities in the administration of grants, contributions and subsidies, and in the provision of policy advice to government on housing and related matters.

In its role as a financial institution, CMHC's primary function is that of a mortgage insurer. It continues, however, to make direct mortgage loans, as a residual lender, with funds borrowed from government. CMHC also administers a \$10.3 billion portfolio of loans and investments, as well as 5,400 dwelling units owned by the Corporation over and above the assets of the mortgage insurance fund. In addition CMHC is responsible for grants, contributions and subsidies amounting to just over \$1 billion a year, directed to: the pursuit of social housing goals; the rehabilitation and conservation of the housing stock; community improvement; research, development and demonstration; and the dissemination of information.

CMHC undertakes a limited amount of direct lending at current market interest rates where private mortgage lenders are not active. As a residual lender, CMHC experienced very limited activity in 1981 with commitments totalling \$8.2 million for 382 units. The Corporation was authorized to make mortgage loan and investment commitments amounting to \$385.8 million in 1981, little changed from the previous year. Actual commitments during the year totalled \$325.8 million, mainly for social housing and residential rehabilitation.

The Corporation assists Canadians whose income is insufficient to gain access to adequate housing. Progress was achieved through the commitment of 31,080 social housing units. More than 10 per cent of these units were financed by direct mortgage loans through CMHC. The provision of public housing, where tenants pay rent according to their income, involves the ongoing cost-sharing of operating deficits with the provinces on some 224,800 dwelling units. This represents almost 65 per cent of all units under the social housing programs. While units are still being provided under

New housing in Yellowknife, NWT.

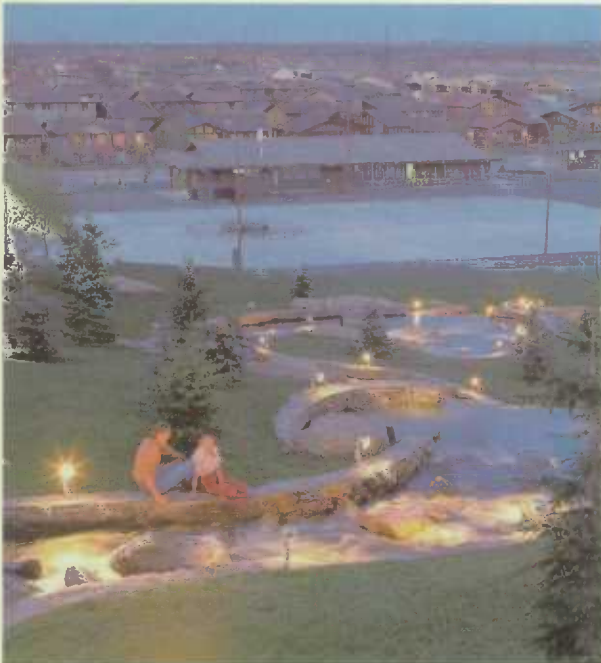


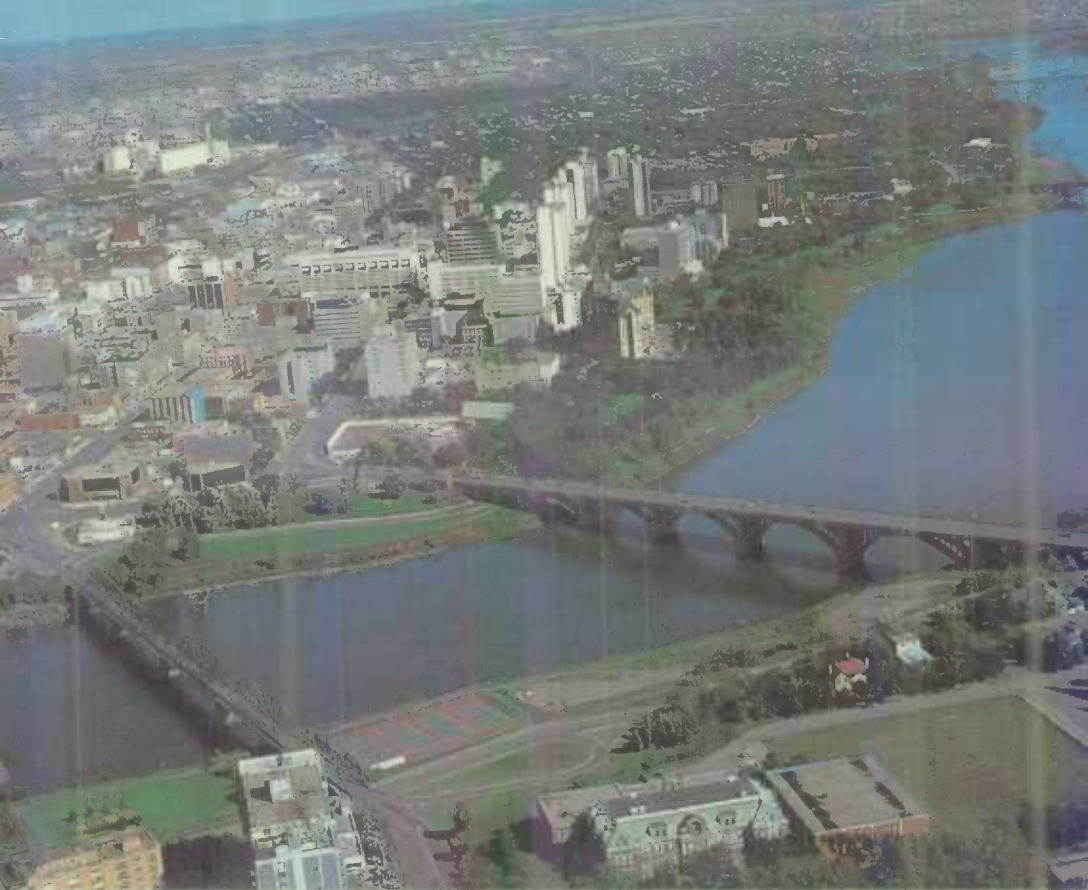
public housing programs, particularly the Rent Supplement Program, most subsidized housing is now produced under the Non-Profit and Co-operative Housing Programs. Both are federally funded programs which provide subsidies based on project operating deficits.

CMHC's social housing activities include assistance for native and rural Canadians living in communities of less than 2,500. During 1981, the Rural and Native Housing Program provided 18,166 units of new, acquired or rehabilitated housing. The production and rehabilitation of housing under this program have been supported by sustaining grants, project funding and a variety of training and assistance measures which help local people play an active role in meeting their own housing needs. CMHC has completed an evaluation of the program, and recommendations for improvements are being considered by government.

The main activity of CMHC in community development in 1981 was the planning and development of lands held under federal-provincial partnership agreement, with a commitment of \$10 million during the year. In addition, some 80 hectares of serviced land held under this arrangement were sold, resulting in a profit of \$6.0 million to the federal government. Funds were advanced under a number of programs, now terminated, but for which commitments had been made previously. Funds paid out in

Housing subdivision near Calgary, Alta.





Saskatoon, Sask.

1981 under the Community Services Contribution Program (CSCP) included \$65 million of the \$150 million made available to municipalities, through the provinces, in 1979. Also during the year, \$144 million were paid of the \$250 million allocated in 1980 to reimburse municipalities for capital expenditures incurred on projects accepted between January 1, 1980 and February 28, 1984.

The Corporation's objective of promoting and supporting the rehabilitation and improvement of substandard housing is achieved through the Residential Rehabilitation Assistance Program (RRAP). Under this program, loans and grants helped in the repair and improvement of 37,546 dwelling units and hostel beds in 1981. Under changes made to this program's policy in 1981, disabled persons requiring modifications to their residences to make them barrier free, were eligible for assistance whether or not they lived in a RRAP-designated area. During 1981, older non-profit and co-operative projects also became eligible for RRAP assistance. CMHC was authorized to make RRAP commitments up to \$146.6 million in 1981, of which \$126.3 million were committed.

On April 1, 1981, full responsibility for the Canadian Home Insulation Program (CHIP) and the Home Insulation Program (HIP) was assumed by the Department of Energy, Mines and Resources. CMHC is acting, under contract, as this department's

agent in delivering the two programs. CMHC, under contract, also administers part of the Canada Oil Substitution Program (COSP) for the Department of Energy, Mines and Resources.

CMHC supports and undertakes research on housing and living conditions. It annually formulates a research program to provide information on which policy and technical advice to government on housing and related matters can be based.

In 1981, NHA loan insurance was underwritten on 77,200 dwelling units compared with 99,500 during 1980. Although this represents a decrease in absolute terms, the proportion of NHA-insured loans to total insured loans rose to 55 per cent during 1981. The equal payment mortgage continued to be the predominant type of mortgage insured under the NHA, with the graduated payment mortgage accounting for 10 per cent of the mortgages insured.

The reduction in volume of mortgage loan insurance can be directly attributed to the impact of high interest rates. Purchasers of single-family homes made larger down payments to avoid these interest rates, thus further reducing the need for loan insurance. Developers of multiple-unit buildings have been restricted in the amount of insured loans which projects could support; resulting from rent levels which do not reflect economic cost, and the inability of CMHC to insure the additional risk of higher loans under present limited premium structures.

Housing starts across Canada increased in 1981 from the 1980 level of 158,601 units to 177,973 units. During the same period, housing completions decreased to 174,996 units from 176,168 units.

Condominium housing in a ski resort area near Invermere, BC.





Truck cab assembly line in a plant at Oakville, Ont.

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 2,120,000 persons were being paid salaries or wages by the manufacturing industries in 1981, out of a total for all industries of 10,933,000. This household survey yields a somewhat higher estimate of employees in manufacturing than a monthly survey of employees, which showed an average employment of 1,884,000 for 1981. (The difference in figures is believed influenced by the employees of manufacturing companies who were not working in units classified to manufacturing by the employer survey.)

Preliminary data from another monthly survey show that Canadian manufacturers shipped \$188.2 billion of their own products in 1981, an increase of 12.0 per cent over 1980. (By comparison, the annual average index of selling prices of manufacturing industries increased 10.2 per cent over the same period and the annual average index of industrial production increased 1.7 per cent.)

Table 3. Manufacturing industries, selected years, 1920 to 1981

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	24,264,829	56,190,740
1973	31,145	1,751,066	15,220,033	28,716,119	66,674,393
1974	31,535	1,785,977	17,556,982	35,064,752	82,455,109
1975	30,100	1,741,159	19,156,679	36,105,457	88,427,031
1976	29,053	1,743,047	21,799,733	39,921,910	98,280,777
1977	27,716	1,704,483	23,595,238	44,104,548	108,881,959
1978 ²	31,963	1,790,618	26,571,956	51,523,349	128,889,376
1979 ²	34,578	1,856,198	30,123,709	60,623,174	152,133,081
1980 ³	35,495	1,861,395	33,145,313	65,959,136	168,017,408
1981	..	1,884,000 ⁴	37,415,600 ⁴	73,961,000 ⁵	188,238,000 ⁶

¹ Before 1952, data represent gross value of production.² Increase in number of establishments due to improved coverage.³ Preliminary figures.⁴ Based on monthly surveys of employment and earnings.⁵ Estimate.⁶ 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.



Pressing room in a plant specializing in blue jeans in Winnipeg, Man.

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 1981. Domestic exports of fabricated materials amounted to \$31.5 billion, compared with \$27.6 billion for end products.

However, exports of end products — roughly equivalent to highly manufactured goods, though including very small values of non-manufactured goods — have increased in value 39.1 times since 1961, when they amounted to only \$706 million, while those of fabricated materials have risen almost elevenfold 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 manufactures by Canadian factories, but they give an impression of the approximate intensity of export activity as measured by shipments. The relative 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



Verifying thickness and width of a new shipment of steel coils for a leading processor and distributor of metals in Montreal, Que.

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, create an incentive to economy in the use of workers and this often leads to increased mechanization.

In 1982, according to a survey of investment intentions, it was anticipated that the manufacturing industries would be accounting for 32 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 presumably 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. Output (per man-hour worked) in the manufacturing industries increased at an average rate of 3.6 per cent over the 1961-81 period.

The leading manufacturing industry in Canada in 1981, measured by the value of shipments of its own products, was petroleum refining. With a total value of \$18.9 billion, this industry's shipments were approximately \$4.7 billion greater than in 1980, prices having increased by 36.3 per cent during the year. There have been substantial price increases in this leading industry in recent years in attempts to reach world market prices.



Fuselage assembly line at an aircraft plant in Downsview, Ont.

The second-ranking industry in 1981 was motor vehicle manufacturers at \$11.7 billion, with an increase of \$1.6 billion in shipments from the previous year. Prices have increased by 12.2 per cent over 1980 while production has decreased as a result of weak consumer and export demand and the substitution of more fuel-efficient foreign imports. Pulp and paper mills had the third largest value of shipments at \$11.4 billion, an increase of approximately \$0.5 billion from 1980. The industry's real domestic product fell 3 per cent from 1980, while prices rose 9.8 per cent over the same period. A favourable exchange rate has helped maintain export demand for Canadian pulp and newsprint despite a slowing down of the US economy.

Ten other industries, in descending order of magnitude, had shipments over \$3 billion in 1981: slaughtering and meat processing, \$7.6 billion; iron and steel mills, \$6.8 billion; miscellaneous machinery and equipment manufacturers, \$5.5 billion; dairy products, \$5.4 billion; sawmills and planing mills, \$5.0 billion; motor vehicle parts and accessories, \$4.3 billion; metal stamping and pressing, \$3.3 billion; smelting and refining, \$3.3 billion; miscellaneous food processors, \$3.1 billion; and commercial printing, \$3.0 billion. Thirty-eight industries had shipments of between \$1 billion and \$3 billion. These preliminary estimates for 1981 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 manufactures.

A quarterly survey on business conditions conducted 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 1982 respondents representing 55 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. The level of new orders was reported as

declining by respondents representing 60 per cent of manufacturing shipments while 14 per cent claimed shortages of skilled labour and working capital as major sources of production difficulty.

The largest four enterprises or groupings of commonly controlled companies had 90 manufacturing establishments in 1978 and accounted for 9.4 per cent of all manufacturers' shipments, 8.2 per cent of manufacturing value added and 5.6 per cent of total employees. The largest 16 enterprises accounted for approximately 24 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 1980 was \$4.7 million worth of shipments of goods of own manufacture—or about 53 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, 50.0 per cent of the total work force in the manufacturing industries was in establishments employing 200 or more persons and there were 148 manufacturing establishments with more than 1,000 persons employed in 1980.

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 foreign companies. However, a special analysis of the census of manufactures for 1978 showed that Canadian-controlled firms nonetheless accounted for 60.2 per cent of all employment in the manufacturing industries; the proportion of manufacturing value added was somewhat lower, 53.5 per cent.

The 1981 profits of incorporated companies classified as manufacturing industries amounted to 6.9 per cent of total revenue, before taxes and certain extraordinary items. Average weekly wages and salaries in Canadian manufacturing in a preliminary January 1982 figure amounted to \$412.24.

Testing computer read-out assemblies at Toronto, Ont.





Sides of beef in a chilling room of a packing house in St. Boniface, Man.

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 business and personal services. Businesses generally operate within one or another of these sectors, although some are active in two or all three sectors (co-operatives, for example, may be engaged in either wholesaling or retailing activities or both).

The channels of distribution are characterized by continuous change. During the past few years, the volume of business transacted by franchised operations has increased rapidly especially within the food-serving industry. In the retail food and general merchandise sectors, a small number of firms continue to be dominant.

The growth of regional shopping centres has decreased in recent years due to difficulty in securing suitable sites and to the high cost of land acquisition and construction. However, there has been a growing movement in construction of

Table 1. Summary statistics on retail trade 1979 and 1980
(million dollars)

	1979			1980		
	Chain stores	Independent stores	All stores	Chain stores	Independent stores	All stores
Kind of business						
Combination stores (groceries and meat)	10,328	4,333	14,661	11,192	5,141	16,334
Grocery, confectionery and sundries stores	674	2,864	3,538	851	3,020	3,870
All other food stores	111	1,164	1,295	114	1,238	1,352
Department stores	8,534	—	8,534	9,367	—	9,367
General merchandise stores	1,429	362	1,791	1,531	386	1,916
General stores	435	959	1,394	531	1,013	1,544
Variety stores	737	228	966	772	222	994
Motor vehicle dealers	207	15,214	15,421	188	15,510	15,698
Used car dealers	—	335	335	—	439	439
Service stations	926	4,242	5,168	1,106	4,789	5,895
Garages	—	1,049	1,049	—	1,093	1,093
Automotive parts and accessories stores	184	1,387	1,571	158	1,582	1,741
Men's clothing stores	319	608	927	335	638	973
Women's clothing stores . .	753	652	1,405	873	710	1,584
Family clothing stores	549	543	1,092	635	553	1,188
Specialty shoe stores	45	49	94	49	60	109
Family shoe stores	461	212	673	520	230	750
Hardware stores	1	1	756	1	1	792
Household furniture stores .	171	958	1,128	229	992	1,221
Household appliance stores	1	1	266	1	1	296
Furniture, TV, radio and appliance stores	107	444	551	134	414	548
Pharmacies, patent medicine and cosmetic stores	533	1,862	2,395	607	2,121	2,728
Book and stationery stores	175	189	365	216	207	424
Florists	11	271	281	15	305	320
Jewellery stores	312	375	687	366	380	746
Sporting goods and accessories stores	101	845	946	1	1	1,015
Personal accessories stores	284	777	1,062	339	868	1,207
All other stores	4,479	4,192	8,672	5,155	4,729	9,884
Total, all stores	32,014	45,012	77,025	35,535	48,492	84,027
Province						
Newfoundland	571	865	1,435	591	907	1,498
Prince Edward Island	117	244	360	123	245	368
Nova Scotia	1,025	1,499	2,524	1,134	1,509	2,643
New Brunswick	827	1,148	1,976	888	1,231	2,119
Quebec	6,163	13,462	19,625	6,698	14,197	20,895
Ontario	13,100	14,414	27,514	14,544	15,122	29,666
Manitoba	1,364	1,572	2,936	1,492	1,671	3,164
Saskatchewan	1,119	2,084	3,202	1,253	2,200	3,453
Alberta	3,491	4,562	8,053	4,136	5,275	9,411
British Columbia	4,138	5,057	9,195	4,571	6,001	10,572
Yukon and Northwest Territories	99	105	205	104	134	238

† Confidential.

— Nil or zero.

Figures may not add to totals owing to rounding.



Candy factory at Toronto, Ont



A confectionery plant at Elmira, Ont.

shopping malls in central business districts of many major metropolitan areas, as well as the refurbishing of existing shopping centres in downtown areas and in the suburbs. Although independent retailers appear to be holding their share of the retail market, many individual retailers are facing difficulties in competing directly with the larger chain operations.

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 continues but at a slower pace than in the past.

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. The 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. 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.



Retail Trade

In 1980 sales in retail locations reached an estimated \$84,027 million, 9.0 per cent higher than in 1979. The largest sales increases occurred in Alberta (17.0 per cent), in the Yukon and the Northwest Territories (16.0 per cent) and British Columbia (15.0 per cent), while Prince Edward Island, Newfoundland and Nova Scotia had the lowest rates of growth (2.2 per cent), (4.4 per cent) and (4.7 per cent) respectively. For the other provinces, the rates of increase ranged from 7.8 per cent to 6.5 per cent.

By kinds of business, the most substantial increase in sales for the period 1979-80 was recorded by used car dealers (31.0 per cent), followed by book and stationery stores, and specialty shoe stores with 16.0 per cent each. Service stations, florists and pharmacies each recorded an increase of 14.0 per cent. The lowest rate of growth was recorded in motor vehicle dealers' sales (1.8 per cent). The only kinds of business which did not show any growth in sales were furniture, television, radio and appliance stores.

During 1980, the largest share of the retail market was held by the automotive group—motor vehicle dealers, used car dealers, service stations, garages, and automotive parts and accessories stores (29.6 per cent); followed by the food group—combination stores (selling groceries and meats), grocery, confectionery and sundries stores and all other food stores (25.7 per cent). Sales recorded by department stores, general merchandise stores, general stores and variety stores represented (16.4 per cent) of all retail store sales. Department store sales alone captured 11.0 per cent of the retail market.



The annual Madawaska Craft Festival near Fredericton, NB.

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 has continued to improve over the years. In 1979 chain stores accounted for 41.6 per cent of total retail sales. In 1980 their share increased to 42.3 per cent. With department stores excluded from both chain and total retail sales, the market share of chain store organizations accounted for 34.3 per cent in 1979 and 35.0 per cent in 1980.

Between 1979 and 1980 the share of the market held by chains increased in 21 of the 28 kinds of business with data available (including all other stores), and declined in two. In 1980, chain store organizations accounted for the following proportion of sales by kind of business: general merchandise stores (80.0 per cent), variety stores (77.7 per cent), family shoe stores (69.3 per cent), combination stores (68.5 per cent), women's clothing stores (55.1 per cent), the all other stores group (52.2 per cent) and specialty shoe stores (45.0 per cent). All department store organizations are automatically classified in the chain store category (100.0 per cent).

Independent retailers had an increase of 7.7 per cent in sales between 1979 and 1980. All kinds of business shared in this rate of growth, even if only slightly, except variety stores, furniture, television, radio and appliance stores. In 1980, motor vehicle dealers reported the largest share of independent store sales, followed by combination stores and service stations.

Direct Selling

Every year, substantial volumes of goods are sold to consumers through channels other than retail stores, primarily consisting of direct selling, vending machines and campus bookstores. In 1980, total sales of these "non-store-retailing" channels, amounted to \$2,689.0 million. Of this total, the direct selling activities of manufacturers, mail-order agencies, book, newspaper and magazine publishers and other specialized agencies accounted for \$2,179.0 million, reflecting an increase of 15 per cent over the 1979 level. In addition, vending machine operators reported total sales in 1980 of \$371.8 million and campus bookstores contributed an additional \$138.3 million during the 1980-81 academic year.

The results of the 1980 survey of direct selling in Canada showed that the largest proportion of direct sales (42 per cent) continues to be made by means of door-to-door canvassing, representing \$914.0 million. This volume of sales consisted largely of milk and dairy products, newspapers, cosmetics and costume jewellery.

Mail-order purchases by householders accounted for 15 per cent of total direct sales and amounted to \$327.6 million. Books, newspapers and magazines represented the largest share of this volume of business.

Direct purchases made from showrooms and premises of manufacturing companies, or primary producers, amounted to \$523.9 million and included such items as food products, furniture repairs and re-upholstering, household electrical appliances and greenhouse and nursery stocks. In addition, consumers purchased

Arctic char plant at Cambridge Bay, NWT.



Table 2. Estimated sales of wholesale merchants, 1980 and 1981

Trade group	Sales		Percentage change 1980-81
	1980	1981	
	\$'000,000	\$'000,000	
Total, all trades ¹	79,889	87,993	10.1
Farm products (excluding grain)	518	431	-16.6
Paper and paper products	1,895	2,131	12.5
Food	16,610	18,660	12.3
Tobacco products	1,515	1,689	11.5
Drugs and toilet preparations	1,179	1,426	20.9
Apparel and dry goods	1,854	2,228	20.2
Household furniture and house furnishings	1,399	1,415	1.1
Motor vehicles	2,883	3,783	31.2
Automotive parts, accessories and supplies	3,780	4,269	12.9
Electrical machinery, equipment and supplies	4,427	5,300	19.7
Farm machinery and equipment	5,187	5,923	14.6
Machinery and equipment (not elsewhere specified)	12,386	12,343	-0.3
Hardware	1,694	1,784	5.3
Plumbing and heating equipment, etc.	1,938	2,287	18.0
Metals and metal products	2,359	2,617	10.9
Lumber and building materials	8,475	8,496	0.2
Scrap and waste materials	957	874	-8.7
Wholesalers (not elsewhere specified) ²	10,852	12,337	13.7

¹ Excluding grain and petroleum product dealers.

² Also includes general merchandise and coal and coke dealers.

goods valued at \$413.0 million, through such channels as house parties, roadside stands and shows.

The growth rate of total direct selling in Canada (15 per cent), between 1979 and 1980, was considerably exceeded by the growth rate in sales of clothing (47 per cent), household cleaners (39 per cent), newspapers (24 per cent), frozen food plans (17 per cent) and furniture, re-upholstering and repairs (17 per cent).

Wholesale Trade

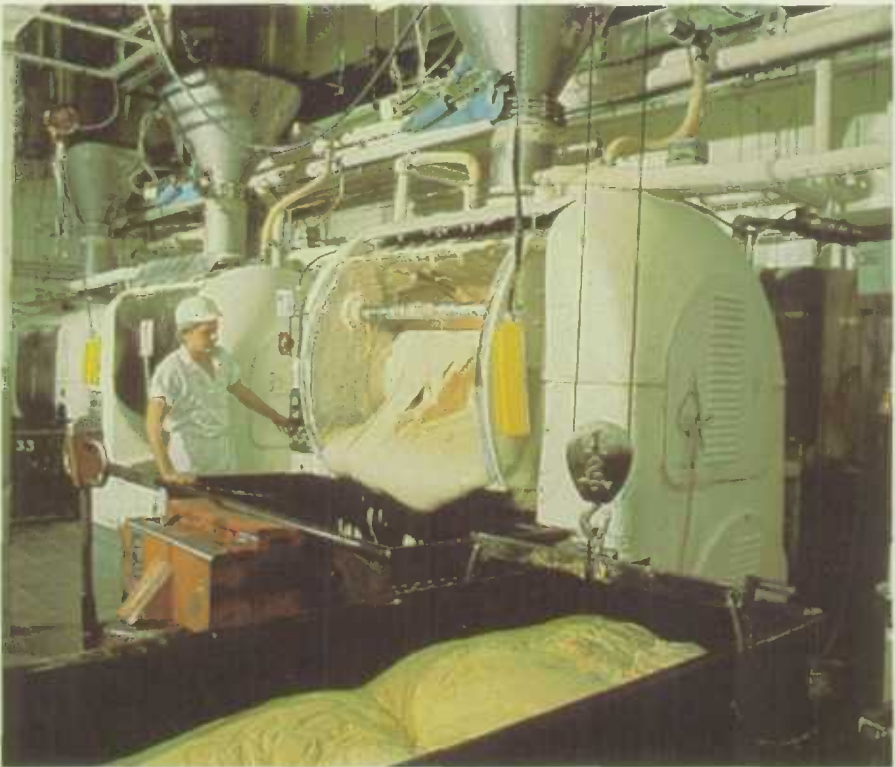
Wholesalers are primarily engaged in buying merchandise for resale to retailers, to farmers for use in farm production, to industrial, commercial, institutional or professional users or to other wholesalers. Also forming part of wholesale trade are those who act as agents, or brokers, in such transactions and who derive commissions from the purchase and/or sale of goods on behalf of others.

For statistical purposes wholesalers are grouped into two categories, the largest and most important of these being wholesale merchants; the other group comprising agents and brokers. The wholesale merchant category includes import and/or export merchants, manufacturers' sales branches, 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.

On a current basis a monthly survey of wholesale merchants provides estimates of sales and stocks for selected kinds of business.

In 1981, total sales of wholesale merchants increased to \$87,993 million, reflecting a growth rate of 10 per cent over the previous year. Of the 18 trade groups, shown in Table 2, the only two reporting noteworthy declines in sales from the previous year were farm products (excluding grain), and scrap and waste materials. The highest growth rate occurred in motor vehicles sales, increasing to \$3,783 million, 31 per cent

Vats of dough and dough mixing machines at a bakery in Toronto, Ont.





Automobile plant near Toronto, Ont.

higher than in 1980, followed by drugs and toilet preparations, reporting a sales volume of \$1.426 million, 21 per cent higher than in 1980. Substantial rates of growth were also reported by the apparel and dry goods; electrical machinery, equipment and supplies; and plumbing and heating equipment trade groups.

Service Trades

Service trades cover both commercial and non-commercial services. Commercial service trades cover six principal groups: amusement and recreation services; personal services; restaurant services; miscellaneous services; services to business; and accommodation services.



A shopping centre in Calgary, Alta.

Intercensal surveys which provide partial coverage of this large and diverse sector show that accommodation preliminary receipts reached \$4,514 million in 1980, of which hotel receipts amounted to \$3,685 million, an 11.6 per cent increase over 1979. Restaurant, catering and tavern preliminary receipts totalled \$9,111 million in 1981, an increase of 33.1 per cent over 1978. Receipts of motion picture theatres and drive-ins rose to \$403 million (including taxes) in 1980, an increase of 11.2 per cent over 1979. Other intercensal surveys carried out for the year 1980 in the service trade sector produced the following results: computer service industry, \$1,930 million; motion picture production, \$174 million; and motion picture distribution (film exchanges), \$248 million.



Prince Rupert, BC.

The Consumer Price Index

Based on annual averages the all-items consumer price index (CPI) rose 10.1 per cent in 1980 and climbed still higher to a rise of 12.5 per cent in 1981. The increases in the latest two years were noticeably higher than the rise of 9.1 per cent observed in 1979. The 12.5 per cent increase in 1981 represented the sharpest rise in consumer prices in Canada since the advance of 14.2 per cent registered in 1948. In 1980 and 1981 the food index posted increases of 10.7 per cent and 11.4 per cent respectively. The acceleration in the all-items excluding food index was still more pronounced rising by 10.0 per cent in 1980 to 12.8 per cent in 1981. As a consequence of these differences in relative price increases, the advance in food prices accounted for slightly under one-quarter of the increase in the all-items index in 1980, subsequently declining to one-fifth of the overall increase in 1981.

The sharp price advances noted in the all-items index in 1980 and 1981 were also evident in the price movements of goods and services. The goods index rose 11.4 per cent and 13.1 per cent in 1980 and 1981 respectively after rising by 10.6 per cent in 1979. Similarly, the services index advanced 8.2 per cent and 11.5 per cent in 1980 and 1981 respectively, up from the 7.0 per cent increase recorded in 1979.

The consumer price index for cities measures changes in consumer prices within the specified cities. These indexes cannot be used to make comparisons in price level differences between cities. In 1980 the increases in the all-items index for cities varied from 9.4 per cent in Vancouver to 11.7 per cent in St. John's. In 1981 the increases ranged from 11.1 per cent in Winnipeg to 14.3 per cent in Vancouver.

The purchasing power of the 1971 consumer dollar which stood on average at 52 cents in 1979 declined to 47 cents in 1980 and fell still further to 42 cents in 1981.

Table 3. The consumer price index and its major components for Canada, percentage change between annual average indexes

	1976 1975	1977 1976	1978 1977	1979 1978	1980 1979	1981 1980
All-items	7.5	8.0	9.0	9.1	10.1	12.5
Food	2.7	8.4	15.5	13.2	10.7	11.4
All-items excluding food	9.4	7.8	6.4	7.9	10.0	12.8
Housing	11.1	9.4	7.5	7.0	8.2	12.4
Clothing	5.5	6.8	3.8	9.2	11.8	7.1
Transportation	10.7	7.0	5.8	9.7	12.8	18.4
Health and personal care	8.7	7.4	7.2	9.0	10.0	10.9
Recreation, reading and education	6.0	4.8	3.9	6.9	9.5	10.1
Tobacco and alcohol	7.2	7.1	8.1	7.2	11.2	12.9

Table 4. Consumer price indexes and major components for selected cities, percentage change between 1980 and 1981
(based on annual averages)

City	All items	Food	Hous- ing	Cloth- ing	Trans- porta- tion	Health and personal care	Recreation, reading and education	Tobacco and alcohol
St. John's, Nfld.	13.3	10.3	15.3	7.4	17.5	9.0	9.8	14.9
Charlottetown- Summerside, PEI, ...	13.5	11.4	14.4	7.7	19.9	12.5	9.9	18.5
Halifax, NS,	11.8	12.1	12.0	7.0	15.3	12.3	9.6	10.3
Saint John, NB,	12.8	12.0	15.0	6.4	14.5	10.7	9.4	13.9
Quebec, Que.	12.2	13.3	11.3	5.3	17.9	10.3	8.7	12.5
Montreal, Que.	12.4	12.5	12.3	6.9	17.3	10.1	8.7	13.1
Ottawa, Ont.	11.8	11.7	10.8	8.3	17.9	10.0	11.5	11.5
Toronto, Ont.	12.5	11.1	12.2	6.8	18.8	11.5	10.9	12.4
Thunder Bay, Ont. ...	11.7	10.0	11.0	7.6	18.2	10.7	10.3	13.8
Winnipeg, Man.	11.1	10.0	10.4	7.3	18.5	8.9	8.3	11.6
Regina, Sask.	11.7	10.7	11.5	7.5	16.5	10.8	9.7	11.7
Saskatoon, Sask.	11.7	8.9	12.3	7.3	17.5	13.3	8.6	10.1
Edmonton, Alta.	12.5	11.0	13.7	7.8	16.2	11.7	9.4	13.0
Calgary, Alta.	13.3	10.6	15.3	8.6	17.3	11.8	9.4	13.8
Vancouver, BC,	14.3	11.0	15.4	8.1	21.8	11.5	10.1	15.5



Shipping at Port of Montreal, Que.

International Trade

Canada's merchandise exports and imports on a balance of payments basis grew at a slower pace in 1980 and 1981 than in 1979. Increases in exports slowed from 23 per cent in 1979 to 17 per cent in 1980 and to 10 per cent in 1981, amounting to \$84.1 billion; imports increased 25 per cent in 1979, 12 per cent in 1980 and 13 per cent in 1981 to \$77.5 billion. The merchandise trade surplus, also on a balance of payments basis, was \$4.2 billion, \$7.8 billion and \$6.5 billion in 1979, 1980 and 1981 respectively.

The figures on a customs basis are the totals of detailed merchandise trade data tabulated from customs documents according to procedures and concepts published in *Summary of External Trade*. The figures on a balance-of-payments basis reflect a number of adjustments applied to the customs totals to make them consistent with the concepts and definitions used in the system of national accounts. The adjustments include timing adjustments to exports of crude petroleum, natural gas and wheat and to receipts and payments for capital equipment, deduction of transportation charges included in the customs returns and the reduction of import values calculated for customs duty purposes to values which reflect transaction prices.

Exports (Customs Basis)

The United States was Canada's most important customer accounting for 66.3 per cent (or \$53,875 million) of domestic exports in 1981. Other leading export destinations were Japan, the United Kingdom, and the USSR, followed by the Federal Republic of Germany, the Netherlands and the People's Republic of China. As a result of increased

Table 5. Exports¹, by commodities, 1979-81
(million dollars)

Commodity	1979	1980	1981
Wheat	2,180	3,796	3,723
Animals and other edible products	4,134	4,419	5,713
Metal ores and concentrates	3,895	4,209	4,083
Crude petroleum	2,405	2,899	2,505
Natural gas	2,889	3,984	4,370
Other crude materials	3,349	3,664	4,250
Lumber	3,901	3,353	2,990
Wood pulp	3,083	3,870	3,820
Newsprint	3,222	3,682	4,326
Fabricated metals	5,808	8,662	8,352
Other fabricated materials	8,362	9,767	11,078
Motor vehicles and parts (partial)	11,900	10,619	13,072
Other machinery and equipment	7,296	8,489	9,964
Other domestic exports	1,893	2,646	2,982
Re-exports	1,324	1,705	2,470
Total exports	65,641	75,964	83,698

¹ Customs basis.

Table 6. Domestic exports¹, by leading countries, 1979-81²
(million dollars)

Country	1979	1980	1981
United States	43,521	46,829	53,875
Japan	4,083	4,364	4,485
United Kingdom	2,589	3,187	3,329
USSR	771	1,535	1,866
Federal Republic of Germany	1,368	1,640	1,286
The Netherlands ³	1,083	1,434	1,157
China	604	870	1,005
France	620	995	973
Italy	729	983	914
Belgium - Luxembourg ³	668	989	827
Australia	558	664	777
Mexico	236	483	715
Brazil	422	893	678
Sub-total	57,252	64,866	71,887
Total domestic exports	64,317	74,259	81,228
Per cent of total domestic exports	89.0	87.0	89.0

¹ Customs basis.

² Countries are ranked according to 1981 values.

³ Due to trans-shipments via the Netherlands and Belgium-Luxembourg, exports to and imports from these countries tend to be overstated, whereas exports to and imports from Germany, France and some other European countries may be under-represented by these data.



Loading lumber at Duncan, BC.

wheat sales, the USSR and China were the fourth and seventh leading destinations of total domestic exports in 1981. France, Belgium–Luxembourg, Australia, Mexico and Brazil were also important export destinations. These 13 leading destinations accounted for about 89 per cent of total domestic exports in 1981.

The share of automotive product exports increased slightly from 14.2 per cent of total exports in 1980 to 15.6 per cent in 1981. Wheat export sales decreased slightly in 1981 following a strong 74 per cent increase in 1980. Prices of metals, in ore and in fabricated form, were firm in 1980 but weakened in 1981 and the share of metal exports decreased from 16.9 per cent in 1980 to 14.9 per cent in 1981. Export growth in forest products — lumber, wood pulp and newsprint — slowed, rising 7 per cent in 1980 and 2 per cent in 1981. The share of forest product exports dropped from 15.9 per cent in 1979 to 13.7 per cent of domestic exports in 1981. Crude petroleum and natural gas exports accounted for 8.2 per cent of total exports in 1981; this share was below the 9.1 per cent share for 1980. The shares of crude materials, fabricated materials and end products exported in 1981 were essentially similar to 1979.

Imports (Customs Basis)

The share of total imports from the US decreased from 70.1 per cent (\$48,473 million) in 1980 to 68.9 per cent (\$54,311 million) in 1981. Automotive products were an important component of imports from the US but dropped from 32 per cent of imports from the US in 1979 to 26 per cent in 1981.

Ranking next was Japan with a share growing from 4.0 per cent in 1980 to 5.1 per cent in 1981. Venezuela and Saudi Arabia ranked third and fourth and superseded the United Kingdom and the Federal Republic of Germany which in 1981 ranked fifth and sixth. Rapid increases of imports from Mexico, chiefly crude petroleum, increased imports from \$208 million in 1979 to \$974 million in 1981 and ranked Mexico in seventh place. Other important sources of imports included France, Taiwan, Italy, Hong Kong, South Korea, Australia and Sweden. These 14 countries accounted for about 92 per cent of total imports in 1979, 1980 and 1981.

Automotive products and machinery and equipment represented 48 per cent of total imports in 1980 and 49 per cent in 1981. The share of total imports represented by automotive products decreased from 24 per cent in 1979 to 20 per cent in both 1980 and 1981, while the share of machinery and equipment was 27.3 per cent, 28.5 per cent and 29.1 per cent in 1979, 1980 and 1981 respectively. A breakdown of the category machinery and equipment showed that imports of electronic computers, aircraft, aircraft engines and parts were showing strong growth in 1980 and 1981. Increases in the values of crude oil imported slowed from 54 per cent in 1980 to 13 per cent in 1981, while coal imports in 1980 and 1981 decreased slightly from the 1979 level. Imports of fruits and vegetables increased almost 3 per cent in 1980 and over 20 per cent in 1981.

Table 7. Imports¹, by commodities, 1979-81
(million dollars)

Commodity	1979	1980	1981
Meat and fish	668	662	689
Fruits and vegetables	1,462	1,498	1,802
Animals and other edible products	2,106	2,643	2,692
Coal	865	811	834
Crude petroleum	4,497	6,919	7,840
Other crude materials	2,608	3,605	3,471
Textiles	1,391	1,275	1,426
Chemical products	3,240	3,354	3,814
Fabricated metals	3,835	4,250	4,759
Other fabricated materials	3,558	3,822	4,554
Motor vehicles and parts (partial)	15,161	13,479	15,956
Industrial machinery	5,691	6,751	7,295
Agricultural machinery	2,115	2,092	2,396
Aircraft, aircraft engines and parts	1,364	1,828	2,347
Electronic computers	1,103	1,653	2,328
Other machinery and equipment	6,882	7,402	8,622
Other imports	6,325	7,084	8,051
Total imports	62,871	69,128	78,876

¹ Customs basis.

Table 8. Imports¹, by leading countries, 1979-81²
(million dollars)

Country ³	1979	1980	1981
United States	45,571	48,473	54,311
Japan	2,159	2,796	4,039
Venezuela	1,505	2,217	2,385
Saudi Arabia	1,242	2,452	2,273
United Kingdom	1,928	1,974	2,235
Federal Republic of Germany	1,559	1,455	1,608
Mexico	208	345	974
France	779	772	849
Taiwan	522	558	729
Italy	636	610	696
Hong Kong	427	574	675
South Korea	463	414	608
Australia	462	517	496
Sweden	384	416	445
Sub-total	57,845	63,573	72,323
Total imports	62,671	69,128	78,876
Per cent of total imports	92.0	92.0	92.0

¹ Customs basis.

² Countries are ranked according to 1981 values.

³ The list of countries was developed to indicate trade figures; its scope does not reflect the views of the Government of Canada on international issues of recognition, sovereignty or jurisdiction.

Imports of meat and fish showed very little change. Imports of manufactured goods accounted for 60.3 per cent and 61.4 per cent of all imports in 1980 and 1981. The share of processed materials imported was about 20 per cent in 1980 and 1981, while the share of crude material imports was 20 per cent of total imports in 1980 and 19 per cent in 1981.

Price and Volume Changes

On a fixed weight annual basis, the domestic export price index increased 23 per cent in 1980 and 9 per cent in 1981. The slowdown in increases of import prices was less pronounced: import prices increased 17.8 per cent in 1980 and increased 14.7 per cent in 1981.

The volumes of both domestic exports and imports increased 2.7 per cent in 1981 following declines of 1.6 per cent for exports and 5.4 per cent for imports in 1980. The years 1977 and 1978, following the 1974-75 downturn, were characterized by strong increases of 10 per cent annually of export volume associated with moderate increases in export prices relative to import prices and declines in the value of the Canadian dollar vis-à-vis the US dollar. Correspondingly, growth in import volume was slower than for exports with increases of 0.5 per cent in 1977 and 3.2 per cent in 1978.



Sulphur from Alberta for export to Japan.

Canadian Commercial Corporation

This Crown corporation was established by Act of Parliament in 1946 "to assist in the development of trade between Canada and other nations". It is wholly owned by the government of Canada and reports to Parliament through the Minister for International Trade, Department of External Affairs.

The Corporation's principal activity is to develop government-to-government contracts tying together the requirements of foreign governments and international agencies with the supply capabilities of Canadian producers of goods and services. In its 35 year history, the Canadian Commercial Corporation (CCC) has helped more than 500 Canadian firms to export nearly \$10 billion in goods and services to over 90 foreign customers. Since 1978 CCC has also made its services available to Canadian capital project exporters in an effort to stimulate Canadian participation in trade opportunities abroad.

When a government-to-government arrangement is preferred by the foreign buyer and the Canadian exporter, the CCC assumes the role of prime contractor with a commitment to deliver a product, service or project package to a foreign customer, based on a back-to-back obligation from a Canadian supplier.



The Saint John Harbour bridge in New Brunswick.

Finance

Public Finance

Powers and Responsibilities of the Various Levels of Government

The British North America (BNA) Act of 1867, which now forms part of 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 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

Road construction at Long River, PEI.





City Hall, Toronto, Ont.

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.

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 annual grants in support of provincial legislatures and annual allowances up to amounts based upon provincial populations. Under the Public Utilities Income Tax Transfer Act, the federal government remits to the provinces a certain percentage (the amount of which is established periodically by an Act of Parliament) 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

Winnipeg, Man. with legislative buildings at centre.





Regina, Sask. — legislative buildings in foreground.

lieu of the property taxes the community must forgo because of the exempt status of the property. 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 reciprocity 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 postsecondary 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



Railway along the Fraser River in British Columbia.

"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 and territories in 1980-81, exclusive of the value of the fiscal transfers, were as follows: hospital insurance, \$2,482 million; medical care insurance, \$860 million; postsecondary education, \$1,605 million; and extended health care services, \$640 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.

Financial Transactions of the Various Levels of Government in the Fiscal Year Ended Closest to December 31, 1978

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, 1978. The fiscal years concerned were April 1, 1978, to March 31, 1979, for the federal and provincial governments and January 1, 1978, to December 31, 1978, for most local governments.

Table 1. Revenue of federal, provincial and local governments
(fiscal year ended closest to December 31, 1978)

Source of revenue	All governments consolidated			Federal government			Provincial governments			Local governments		
	\$'000	Amount	Share of total revenue %	\$'000	Amount	Share of total revenue %	\$'000	Amount	Share of total revenue %	\$'000	Amount	Share of total revenue %
Income taxes:												
Personal	25,022,550	14,179,660	33.3				10,842,890		21.9			...
Corporation	8,807,122	6,261,694	14.7				2,545,428		5.1			...
On payments to non-residents	568,136	568,136	1.3				...		...			...
Sub-total — income taxes	34,397,808	21,009,490	49.3				13,388,318		27.0			...
Property and related taxes	8,102,985	...	...				110,406		0.2	7,992,579		37.1
Consumption taxes:												
General sales	9,251,801	4,729,371	11.1				4,509,571		9.1	12,859		...
Motive fuel	2,180,635	516,040	1.2				1,644,595		3.3	...		...
Alcoholic beverages and tobacco	1,944,669	1,286,366	3.0				658,303		1.3	...		...
Custom duties	2,747,258	2,747,258	6.5				...		...	...		...
Other	525,081	174,895	0.4				331,640		0.7	16,546		0.1
Sub-total — consumption taxes	16,629,444	9,453,930	22.2				7,144,109		14.4	31,405		0.1
Health and social insurance levies	8,768,373	4,863,075	11.4				3,905,298		7.9	...		...
Miscellaneous taxes	1,639,912	640,251	1.5				873,829		1.8	125,832		0.6
Natural resources revenue	5,485,306	37,832	0.1				5,447,474		11.0	...		...
Privileges, licences and permits	1,599,483	57,228	0.1				1,400,290		2.8	141,965		0.7
Other revenue from own sources	15,460,525	6,553,884	15.4				6,639,839		13.4	2,768,645		12.8
Transfer from other levels of government:												
For general purposes .....	...	...	...				3,263,234		6.6	1,532,719		7.1
For specific purposes .....	...	...	...				7,400,642		14.9	6,965,735		41.6
Sub-total — transfers .....	...	...	...				10,663,876		21.5	10,498,454		48.7
Total revenue	92,083,836	42,615,690	100.0				49,573,439		100.0	21,558,880		100.0

... Not applicable.

--Amounts too small to be expressed.

Table 2. Expenditure of federal, provincial and local governments
(fiscal year ended closest to December 31, 1978)

Functions of expenditure	All governments consolidated		Federal government		Provincial governments		Local governments	
	\$'000	Share of total expenditure %	Amount \$'000	Share of total expenditure %	Amount \$'000	Share of total expenditure %	Amount \$'000	Share of total expenditure %
General services	6,976,535	5.5	2,800,186	5.5	3,109,167	6.4	1,067,162	4.6
Protection of persons and property	8,381,950	10.0	5,046,487	10.0	1,561,317	3.2	1,733,746	7.5
Transportation and communications	8,570,200	6.1	3,079,814	6.1	2,810,780	5.8	2,679,606	11.6
Health	12,039,173	0.6	299,627	0.6	11,494,309	23.7	245,237	1.1
Social services	22,685,198	30.3	15,318,890	30.3	6,708,961	13.8	657,247	2.9
Education	14,951,249	1.3	639,951	1.3	4,590,066	9.5	9,721,232	42.0
Environment	2,689,822	0.6	281,886	0.6	413,986	0.9	1,993,850	8.6
Other expenditure	24,142,163	23.3	11,787,382	23.3	8,255,971	17.0	4,098,810	17.7
Intergovernment sales of goods and services .....	...	0.3	155,323	0.3	346,520	0.7	...	...
Transfers to other levels of government:								
For general purposes .....	...	6.9	3,493,475	6.9	1,381,577	2.8	...	...
For specific purposes:								
Transportation and communications .....	...	0.4	189,360	0.4	828,497	1.7	4,711	...
Health .....	...	7.0	3,548,840	7.0	114,842	0.2	884,352	3.8
Social welfare .....	...	3.2	1,619,601	3.2	372,299	0.8	23,797	0.1
Education .....	...	3.1	1,591,833	3.1	5,923,022	12.2	493	...
Other purposes .....	...	1.4	721,003	1.4	640,134	1.3	15,027	0.1
Sub-total — specific purpose transfers .....	...	15.1	7,670,637	15.1	7,878,794	16.2	928,380	4.0
Sub-total — transfers .....	...	22.0	11,164,112	22.0	9,260,371	19.0	928,380	4.0
Total expenditure	100,436,290	100.0	50,614,158	100.0	48,551,468	100.0	23,125,370	100.0

... Not applicable.

... Amounts too small to be expressed.

Table 3. Financial assets of federal, provincial and local governments
(fiscal year ended closest to December 31, 1978)

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	5 567 482	9.5	5 306 686	11.7	1 578 592	18.9
Receivables	594 592	1.0	2 841 757	6.3	2 939 111	35.2
Loans and advances	29 902 644	51.2	5 839 353	12.9	925 953	11.1
Investments:						
Canadian securities	20 155 270	34.5	25 050 136	55.4	1 653 139	19.8
Foreign securities	53 284	0.1	...	...	...	...
Sub-total — investments	20 208 554	34.6	25 050 136	55.4	1 653 139	19.8
Other financial assets	2 161 380	3.7	6 187 160	13.7	1 250 734	15.0
Total financial assets	58 434 652	100.0	45 225 102	100.0	8 347 529	100.0

... Not applicable.

Table 4. Liabilities of federal, provincial and local governments
(fiscal year ended closest to December 31, 1978)

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	...	...	444 680	1.0	2 491 565	10.9
Payables	13 695 365	17.2	3 615 792	7.7	1 994 304	8.7
Loans and advances	...	...	2 444 328	5.2	...	...
Treasury bills	9 600 508	12.1	532 613	1.1	...	...
Bonds and debentures:						
Canadian market	36 890 100	46.3	28 504 218	60.8	14 758 109	64.4
Foreign market	2 976 681	3.7	9 242 226	19.7	3 045 471	13.3
Sub-total — bonds and debentures	39 866 781	50.0	37 746 444	80.5	17 803 580	77.7
Other liabilities	16 453 152	20.7	2 098 119	4.5	631 947	2.7
Total liabilities	79 615 806	100.0	46 881 976	100.0	22 911 396	100.0

... Not applicable.

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 the various levels of governments.

Federal Government Transactions. In 1978-79 the federal government derived a revenue of \$42,615,690,000 and incurred an expenditure of \$50,614,158,000. Of the federal revenue 33.3 per cent was obtained from personal income tax, 14.7 per cent from corporation income tax and 11.1 per cent from general sales taxes; these three sources accounted for 59.1 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, 22.0 and 10.0 per cent respectively (62.3 per cent collectively) of the total federal expenditure.

The financial assets of the federal government amounted to \$58,434,652,000 and its liabilities to \$79,615,806,000 on March 31, 1979. Of its financial assets 51.2 per cent were in the form of loans and advances and 34.6 per cent pertained to holding of securities; 50.0 per cent of its liabilities related to bonds and debentures, 17.2 per cent to payables and 12.1 per cent to treasury bills.

Kindergarten in New Brunswick.





Victoria, BC

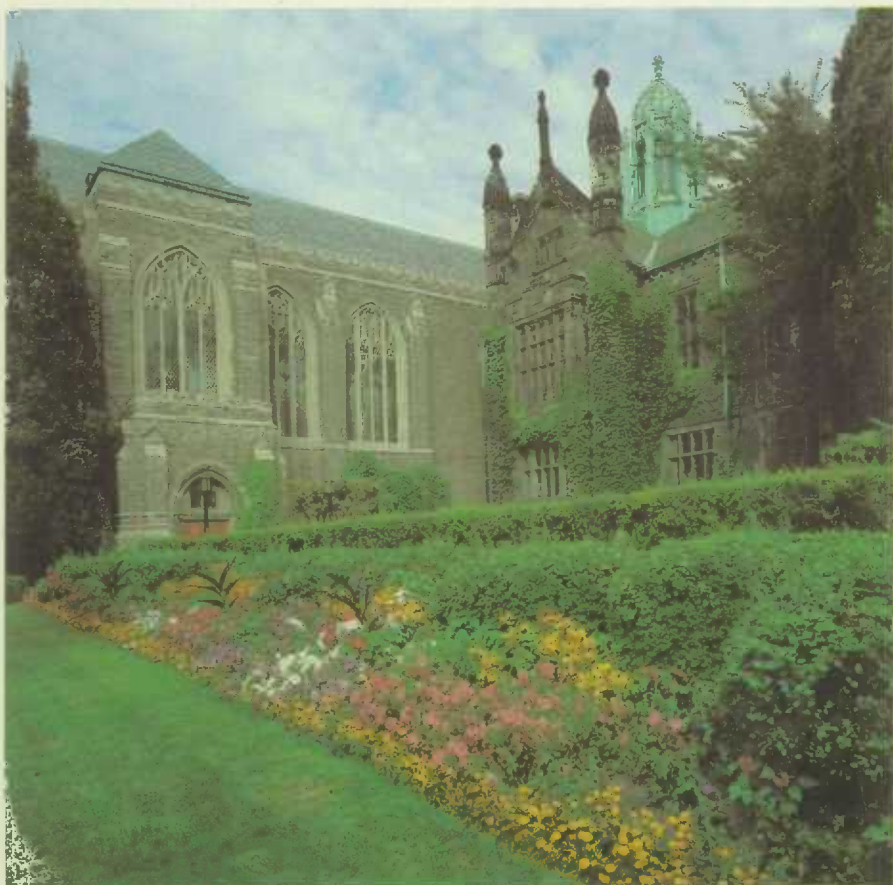
Provincial Government Transactions. In the fiscal year 1978-79 the total revenue of provincial governments amounted to \$49,573,439,000 and total expenditure was \$48,551,468,000. Health and social insurance levies and the levies on personal income, general sales, motive fuel and corporation income provided 7.9, 21.9, 9.1, 3.3 and 5.1 per cent respectively (47.3 per cent collectively) of total revenue. Provincial governments also received 21.5 per cent of their revenue in the form of transfers from other governments (mainly from the federal government). Health, transfers to other levels of government, education and social welfare accounted for 23.7, 19.0, 9.5 and 13.8 per cent respectively (66.0 per cent collectively) of total expenditure.

On March 31, 1979, the total financial assets of provincial governments stood at \$45,225,102,000 and their total liabilities at \$46,881,976,000. Of their financial assets 55.4 per cent were in the form of investments and 12.9 per cent related to loans and advances, while 80.5 per cent of the liabilities of provincial governments were covered by bonds and debentures.

Local Government Transactions. During the fiscal year ended closest to December 31, 1978, local governments had total revenue of \$21,558,880,000 and total expenditure of \$23,125,370,000. Real property taxes and transfers from other levels of government (mainly from provincial governments) produced 37.1 and 48.7 per cent respectively of total revenue. Education, transportation and communications, protection of persons and property, and environment accounted for 42.0, 11.6, 7.5 and 8.6 per cent respectively (69.7 per cent collectively) of total expenditure.

At the end of the fiscal year, 1978, the total financial assets of local governments amounted to \$8,347,529,000 and total liabilities to \$22,911,396,000. Most of these financial assets were in the form of receivables and investments (35.2 and 19.8 per cent respectively), while their liabilities related mostly to bonds and debentures (77.7 per cent of the total).

University of Toronto.





Vancouver Harbour, BC.

Balance of International Payments

The Canadian balance of international payments is a statistical summary of transactions between residents of Canada and 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 also provide information concerning transactions between residents of Canada and non-residents.

In 1981, the current account deficit reached a record high of \$6,576 million, more than three times the level recorded in the previous year. This occurred as a result of a deterioration in the merchandise trade surplus from \$7,810 million in 1980 to \$6,636 million in 1981 combined with an expansion in the non-merchandise deficit from \$9,714 million to \$13,212 million. The growth in the deficit on invisibles largely reflected an increase in net payments of interest, dividends and miscellaneous investment income.

Capital transactions produced a net inflow of \$16,230 million in 1981, up from \$2,418 million in 1980. Net inflows from long-term capital movements amounted to \$1,340

million, about the same as in 1980. Within the components of long-term capital, there was a record capital inflow from the sale of new issues of Canadian bonds to non-residents, which was largely offset by record outflows on direct investment transactions.

Short-term capital movements led to an unprecedented net inflow from abroad of \$14,890 million, compared to a net inflow of only \$1,113 million in 1980. The increase was more than accounted by the net inflow from the foreign currency operations of the chartered banks, which amounted to nearly \$18 billion. This was substantially offset, however, by a large net capital outflow relating to an increase in non-bank holdings of short-term funds abroad.

Further allocations of Special Drawing Rights (SDR) were made by the International Monetary Fund in 1980 and 1981, with Canada's share being the equivalent of \$217 million and \$210 million respectively. Net errors and omissions in the recorded estimates of current and capital transactions were the equivalent of an outflow of \$8,438 million, up from \$2,011 million in the previous year. Net official monetary assets increased by \$1,426 million in 1981, following a net decline of approximately the same amount in 1980. The net increase in 1981 included a \$1,044 million repayment of monetary liabilities and a \$382 million growth in official reserve assets.

During 1981 the value of the Canadian dollar in terms of the United States dollar traded within a wide band, ranging from a near record low of 80.3 US cents in August to a high of 85 US cents reached in November. At year end the external value of the Canadian dollar stood at 84.35 US cents, up .58 US cents from the close of the previous

Gander International Airport, Nfld.





Railway near Drumheller, Alta.

year. Against other major currencies the Canadian dollar recorded a strong appreciation in 1981, which was largely associated with the strengthening of the United States dollar in international markets.

Balance of International Indebtedness

Preliminary estimates produced on the basis of available data indicate that Canada's balance of international indebtedness amounted to \$90 billion at the end of 1981, up from \$78 billion in the preceding year. The book value of Canada's gross external assets totalled \$83 billion while gross liabilities to other countries amounted to \$173 billion at 1981 year end.

Canadian long-term investment abroad increased by 18 per cent to \$53 billion as capital outflows for Canadian direct investment abroad registered a record outflow during 1981. Short-term assets, however, declined to \$30 billion from \$32 billion at 1980 year end.

Canada's gross liabilities to non-residents rose to \$173 billion from \$155 billion at the end of 1980. Foreign long-term investment in Canada increased by \$14 billion to \$140 billion as new issues of Canadian bonds exceeded \$13 billion in 1981. The growth in foreign direct investment was moderated by the large repatriations from non-resident owners of Canadian companies operating in the natural resource sector. Other long-term liabilities, such as non-resident equity in Canada's assets abroad and official SDR liabilities amounted to \$9 billion at 1981 year end while short-term claims by non-residents increased by \$3 billion to \$24 billion.

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 in the form of deposit balances at financial institutions which may be drawn on for making payments. These transferable deposit accounts are available in the form of non-interest and interest-bearing demand or 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

Halifax, NS.





Applying serial numbers to gold bricks in a mine vault near Yellowknife, NWT.

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.

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 February 1981, the target range for the money supply has been a trend rate of increase of 4 per cent to 8 per cent measured from the average level for the three months centred on September 1980. Since 1975 the targets for monetary expansion have been lowered on five 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.

Each chartered bank is required to maintain a stipulated minimum average amount of cash reserves, calculated as a percentage of deposit liabilities. These reserves may be held in the form of deposits at the Bank of Canada (or, with the approval of the Bank, at another chartered bank), holdings of Bank of Canada notes, and holdings of coins with a face value of \$2 or less that are current under the Currency and Exchange Act. 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 or bid for new deposits in order to acquire more cash reserves. These actions by the banks will tend to cause short-term interest rates to rise, making it more costly for the public to hold non-interest bearing deposits and currency. Alternatively, an increase in cash reserves would put downward pressure on interest rates and indirectly induce 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 in its holdings of Government of Canada securities and the transfer of government deposits between the central bank and chartered banks.

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. Although the bank rate is ordinarily administered directly by the Bank of Canada, the bank rate was set at one-quarter of 1.0 per cent above the weekly average tender rate of 91-day treasury bills during the period from November 1, 1956 to June 24, 1962 and the period beginning March 13, 1980. However, under a floating bank rate system the bank continues to play an important role in the determination of short-term interest rates through its open-market operations and its management of the reserves of the banking system.

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. At present, they also operate the country's cheque-clearing system. (The Canadian Payments Association [CPA] was created in December 1980 for the purpose of operating the national clearings and settlements system. It is anticipated that the CPA will take over this responsibility in the near future.) 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.

Canada's chartered banks operate under the Bank Act which regulates certain internal aspects of bank operations such as the issuing of stock, the setting aside of reserves, etc. Under the revised Bank Act, enacted in December 1980, foreign banks are permitted to incorporate subsidiaries by letters patent. On February 28, 1982, the banking system consisted of 11 Canadian-owned banks which have been chartered by Parliament, and 47 foreign-owned banks which have received their letters patent.

Canadian banks generally accept various types of deposits from the public including accounts payable on demand, both chequing and non-chequing notice deposits, and fixed-term deposits. In addition to holding a portfolio of securities, they



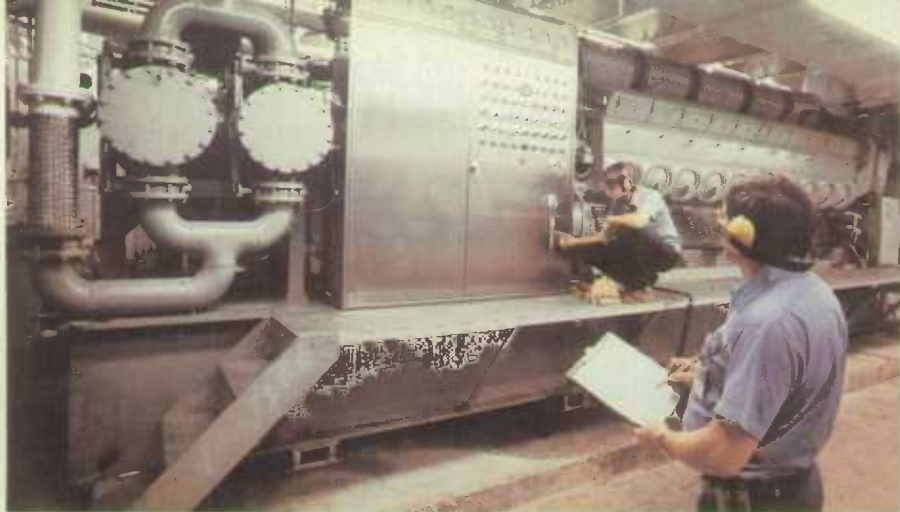
Foreign exchange trading desks are located in major cities across Canada and abroad.

typically make loans under a wide variety of conditions for commercial, industrial, and agricultural purposes, and account for a major share of the consumer credit extended. While many loans are relatively short-term, the banks also provide term loans to businesses and farmers, and invest in residential and non-residential mortgages. Under the current revision to the Bank Act, banks may also carry out certain types of leasing and factoring activities through subsidiaries. Banks also generally deal in foreign exchange, receive and pay out bank notes, provide safekeeping facilities and perform various other services.

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, the caisses populaires 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-term to long-term financing for small businesses, farmers and exporters or in particular types of lending such as leasing.

There are currently about 135 deposit-taking trust and mortgage loan 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



This 20-cylinder diesel engine supplies back-up power for the 3 000 kW generator in case of an electricity failure at the Bank of Montreal's central computer facility at Scarborough, Ont. This is enough power to serve a town of 100,000 inhabitants.

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 companies are licensed and supervised either by the federal Department of Insurance or by provincial authorities.

Credit unions and caisses populaires are also 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 of these belong to central credit unions operating within their respective provinces.

Insurance

At the end of 1980, Canadians owned over \$440,000 million worth of life insurance, with an average of \$54,800 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 which total over \$41,000 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 insurance have assets in Canada of over \$12,000 million.

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. In 1980, trucking revenues, excluding those of carriers earning less than \$100,000, surpassed railway freight revenues by \$1.4 billion.

Air Transport

Transport Canada both regulates and serves civil aviation — providing registration and licensing of aircraft and licensing of personnel. As of December 31, 1981, there were 24,437 civil aircraft registered in Canada. Licences in force for pilots, flight navigators, air traffic controllers and flight and maintenance engineers totalled 71,822 on December 31, 1981. In addition, there were 23,996 registered student pilots at the end of 1981. The department operates airports and provides air traffic control and

Float plane base at Watson Lake, Yukon.



Table 1. Distribution of itinerant movements¹ at Transport Canada tower-controlled airports, by type of power plant, 1977-80

	1977		1978		1979		1980	
	No.	%	No.	%	No.	%	No.	%
Piston.....	2,004,785	62.1	2,107,432	61.8	2,227,003	61.1	2,202,581	59.6
Turbo-prop.....	287,841	8.9	295,919	8.7	326,645	9.0	340,858	9.2
Jet.....	771,114	23.9	805,344	23.6	871,227	23.9	907,360	24.5
Helicopter.....	158,704	4.9	192,578	5.7	214,339	5.9	242,193	6.6
Glider.....	5,203	0.2	6,951	0.2	5,891	0.1	4,538	0.1
Total.....	3,227,647	100.0	3,408,224	100.0	3,645,105	100.0	3,697,530	100.0

¹A landing or take-off of an aircraft that is arriving from one airport or departing to another.

Table 2. Scheduled air passenger origin and destination journeys, top 10¹ city pairs, 1974-80
(thousands of passengers)

City pair	1974	1975	1976	1977	1978	1979	1980
Montreal, Que. —							
Toronto, Ont.	965.7	962.8	948.4	924.1	948.7	1,073.6	1,127.4
Calgary, Alta. —							
Edmonton, Alta.	372.4	412.5	429.4	478.8	551.3	634.6	722.7
Ottawa, Ont. —							
Toronto, Ont.	493.8	495.9	479.8	487.0	513.1	563.7	574.5
Toronto, Ont. —							
Vancouver, BC	302.0	301.8	287.2	288.7	347.4	475.0	532.1
Calgary, Alta. —							
Vancouver, BC	275.1	291.3	291.9	278.8	319.7	411.7	455.2
Calgary, Alta. —							
Toronto, Ont.	156.7	174.2	184.9	193.2	240.7	338.1	396.6
Edmonton, Alta. —							
Vancouver, BC	246.7	253.8	265.7	247.7	277.6	354.3	377.2
Toronto, Ont. —							
Winnipeg, Man.	234.2	238.3	233.5	231.4	251.5	283.0	315.7
Edmonton, Alta. —							
Toronto, Ont.	124.1	138.7	150.5	153.3	195.7	266.1	297.7
Halifax, NS —							
Toronto, Ont.	158.6	168.4	168.6	156.6	176.7	218.2	270.3

¹ Ranked on 1978 figures.

Table 3. Operations, operating revenue and expenses and fuel consumption, commercial air services, 1979 and 1980
(thousands)

	Transcontinental and regional air carriers ¹		All other air carriers		Total, all air carriers	
	1979	1980	1979	1980	1979	1980
Operations						
Passengers	22,769	23,968	4,354	4,624	27,123	28,592
Passenger-kilometres	38 592 004	39 902 243	6 306 741	7 190 255	44 900 745	47 092 498
Goods tonne-kilometres	858 562	868 340	49 119	67 116	907 681	935 456
Flight departures	407	412	845	834	1,252	1,246
Hours flown	614	630	2,222	2,377	2,836	3,007
Operating revenues and expenses						
Total operating revenues (\$)	2,568,068	3,080,571	687,480	904,137	3,255,549	3,984,708
Total operating expenses (\$)	2,419,816	2,944,150	671,166	853,412	3,090,982	3,797,562
Fuel consumption						
Turbo fuel (litres)	3 321 153	3 322 842	468 662	548 531	3 789 815	3 871 373
Gasoline (litres)	1 791	1 572	79 034	80 672	80 825	82 244

¹ Air Canada, CP Air, Eastern Provincial Airways, Quebecair, Nordair, Transair and Pacific Western Airlines. In December 1979 Transair merged with Pacific Western Airlines; operations since that date have been conducted under the name of Pacific Western Airlines.

other navigation facilities. In 1980, the 61 airports with Transport Canada air traffic control towers handled 6.2 million landings and take-offs which was down 4.3 per cent from 1979.

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.

In 1980, the 860 licensed Canadian air carriers reported operating revenues of \$3,985 million; comparable figures for 1979 were \$3,256 million. Expenditures, shown at \$3,091 million in 1979, increased to \$3,798 million for 1980. In 1979, these carriers transported 19.3 million passengers domestically and 7.8 million on international services; in 1980 they carried 20.7 million domestic passengers and 7.9 million international passengers, an increase of 5.4 per cent over the 1979 total figure of 27.1 million passengers.

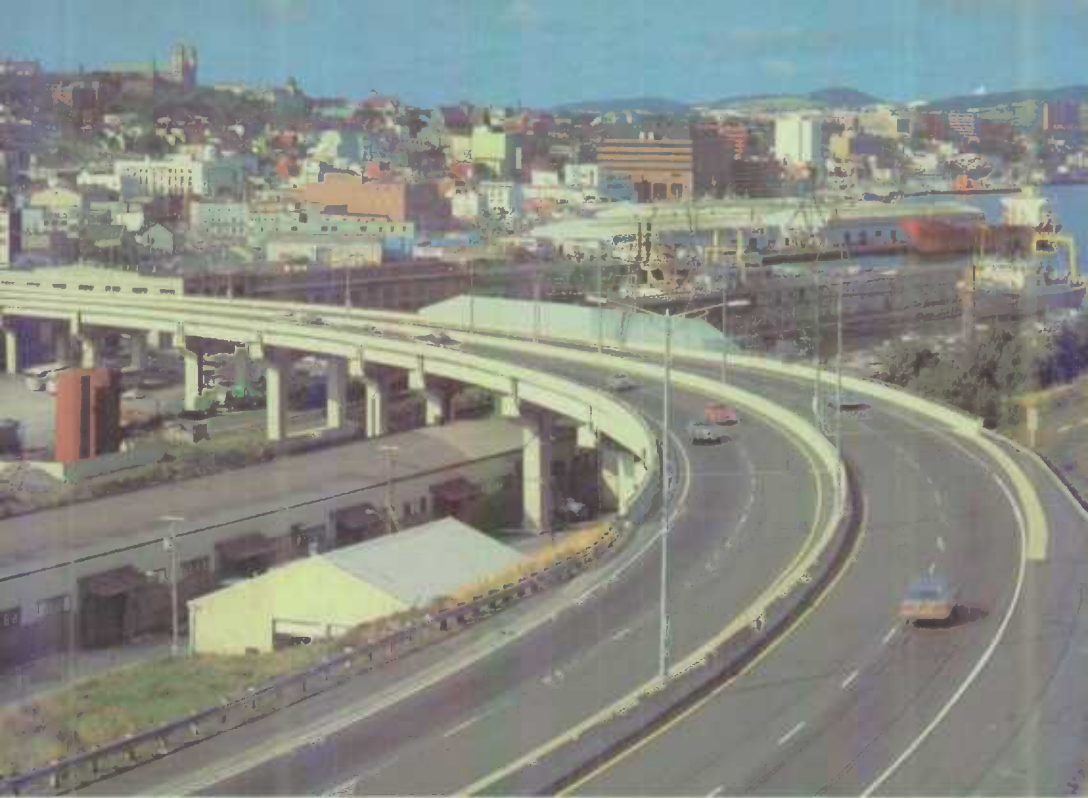
Trends in domestic travel are illustrated by scheduled air passenger origin and destination data (Table 2). All of the 10 top city pairs had record years in 1979 and again in 1980. For two city pairs, Calgary/Toronto and Edmonton/Toronto, 1979 figures were more than double those for 1974.

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. From 1930, growth was slow, reaching 96 958 km by 1974; by 1980, length of track in use had decreased to 93 361 km. 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

Calgary, Alta.





St. John's, Nfld.

multi-modal transportation services, with emphasis on quick, cheap and efficient long-distance movement of bulk commodities and containers. Intercity passenger services are provided by VIA Rail Canada. Provincially operated railways including the British Columbia Railway, British Columbia Hydro's railway, Ontario Northland and GO Transit, as well as an additional number of other railways, complete Canada's rail system.

In 1979, revenue freight carried by rail increased 7.7 per cent to 257 100 000 t (tonnes) from the 1978 total of 238 800 000 t. The number of fare passengers carried in 1980 dropped 3.0 per cent from 23.7 million in 1979. The number of employees needed to transport these people and goods in 1980 was 110,994, down slightly from 112,307 employees in 1979.

Motor Vehicle Transportation

The principal means of passenger transportation remains the motor vehicle, with its associated high levels of fuel usage. Registrations of all road motor vehicles for 1980 totalled 13.7 million, of which 75 per cent, or 10.3 million, were passenger automobiles. From October 1979 to September 1980, personal use passenger cars consumed an estimated 18 trillion litres to travel over 100 billion kilometres, according to preliminary results of the passenger car fuel consumption survey.

Table 4. Motor carrier industry, 1980

	Motor carriers- freight ¹	Household goods movers ¹	Urban transit	Intercity passenger bus	Other passenger bus service ²
Establishments reporting (No.)	4,320	402	76	54	1,694
Operating revenues (\$ millions)	5,224	337	1,064	270	491
Operating expenses (\$ millions)	5,060	322	1,021	255	448
Average number of employees includ- ing working owners (thousands)	99	9	33	6	29
Pieces of revenue equipment operated (thousands)	142	6	13	2	25

¹ Excluding establishments reporting gross annual revenues of less than \$100,000 for the previous year.

² Establishments engaged in limousine service to airports or stations, sightseeing, charter, tour and school bus service.

The annual survey of motor carriers freight covers establishments reporting annual operating revenues of \$100,000 or more in the previous year. The 4,700 carriers in 1980, including 400 household goods movers, earned revenues of \$5.6 billion, a 14 per cent increase over 1979 earnings of \$4.9 billion reported by 4,000 carriers. The surveyed industry had 108,000 employees and 148,000 pieces of equipment in 1980, compared with 108,000 employees and 142,000 pieces of equipment in 1979.

Heavy terrain vehicles provide a form of transportation on the Beaufort Islands, N.W.T.





Scenic route in British Columbia.

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 1,824 carriers surveyed in 1980, 76 were mainly engaged in urban transit and reported \$1,064.2 million or 58 per cent of total operating revenues of \$1,825.5 million. The 54 operating intercity passenger bus services accounted for 15 per cent of the revenue. Carriers providing such services as school bus, charter, tour and sightseeing, as well as limousine services to airports and stations, numbering 1,694, accounted for 27 per cent of the operating revenue.

A transport unit negotiates the narrow streets of the historic section of Quebec City.



Water Transport

During 1980, water transportation generated revenues of \$1,841 million for 308 Canadian marine carriers, up 13.2 per cent from the \$1,626 million earned by 289 such carriers in 1979. Included in this total were 49 private carriers whose main activity was other than water transport. These reported revenue for 1980 of \$351 million, compared with \$315 million shown by 47 such carriers in 1979. Revenues of all carriers for the transport of commodities were \$1,112 million in 1980 or 11 per cent over \$1,005 million in 1979. Towing accounted for \$214 million revenue in 1980 and \$188 million in 1979. Subsidies amounted to \$213 million in 1980 and \$193 million in 1979. Revenues for chartering of all kinds totalled \$182 million in 1980 and \$143 million in 1979. Transport of passengers earned \$57 million in 1980, compared with \$48 million in 1979. Other vessel revenues amounted to \$63 million in 1980 and \$47 million in 1979.

The dock at Port Hawkesbury on Cape Breton Island in Nova Scotia.





The St. Lawrence Seaway system at Sault Ste. Marie, Ont.

Preliminary survey results for the 1980 shipping season indicate that 218 million tonnes of international freight were handled at Canadian ports. Of this total, 87 528 000 t were handled by Quebec ports and 58 779 000 t by those in British Columbia. More than half the national total or 117 596 000 t, was handled by the ports of Vancouver, Montreal, Quebec, Lévis and Port Alfred, and the harbours of Sept-Îles, Pointe Noire and Halifax. In terms of vessel arrivals and departures in international shipping, Pacific ports were the most active, reporting 19,623 or 35 per cent of the Canadian total of 56,463.

In domestic or coastwise shipping, a total of 75,600 vessel arrivals and departures were reported for the 1980 season. Cargo transported amounted to 82 761 000 t. British Columbia ranked first with 30,100 vessel arrivals and departures and a total of 33 838 000 t handled.



Governments and Their Services

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 federation consisted initially of four provinces; the pre-Confederation "province of Canada" was divided into the two 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 federation in 1871 and Prince Edward Island in 1873. In 1905 the Parliament of Canada created Saskatchewan and Alberta and in 1949 Newfoundland joined.

Canadians had acquired internal self-government prior to Confederation and the new country gradually acquired full control over external affairs as well. Canada

became a fully sovereign state in principle in 1926, although it was not until the proclamation of the Constitution Act 1982 that the last formal vestige of Canada's former colonial status was finally removed.

The BNA Act, now renamed the Constitution Act, 1867, 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 legislating with respect to: 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" situated within a province that are declared by Parliament to be "for the general advantage of Canada". An amendment in 1940 added unemployment insurance to the federal jurisdiction.

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 Constitution Act 1982 established the equality of status of English and French in all the institutions of the Parliament and Government of Canada and of the legislature and government of New Brunswick. English and French may be used in the debates of the legislatures and in any pleading or process of the courts of Quebec and Manitoba and must be used in keeping the records and journals of the legislatures of those provinces.

In addition to these language rights, the Constitution of Canada also provides for language of education rights for the linguistic minority, whether anglophone or francophone, in each province or territory. The Constitution sets out certain educational rights for some denominational groups and it affirms and recognizes the rights of Canada's aboriginal peoples. Furthermore, the Canadian Charter of Rights and Freedoms protects the fundamental freedoms, the democratic rights, the mobility rights, the legal rights and the equality rights of all Canadians.

Each provincial legislature has exclusive power over: the amendment of the provincial Constitution (except as regards the office of Lieutenant Governor, the legal head of the provincial executive); natural resources; direct taxation for provincial purposes; prisons; hospitals; asylums and charities; municipal institutions; licences for provincial or municipal revenue; local works and undertakings; incorporation of provincial companies; solemnization of marriage; property and civil rights; 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 unanimous consent of Parliament and the legislatures of all the provinces is required for certain amendments to the Constitution respecting matters such as the office of the Queen, the Governor General or the Lieutenant Governor of a province.



"Today I have proclaimed this new Constitution — one that is truly Canadian at last. There could be no better moment for me, as Queen of Canada, to declare again my unbounded confidence in the future of this wonderful country."

Elizabeth II, April 17, 1982.

and the composition of the Supreme Court. For other constitutional amendments of general application, the consent of Parliament and of seven provinces representing at least 50 per cent of the population is required. However, where an amendment derogates from the legislative powers, the proprietary rights or any other right or privilege of the legislature or government of a province, the legislative assembly of a province can express its dissent and the amendment will not have effect in that province. In such a case, if the amendment is one that transfers legislative powers to Parliament relating to education or relating to other cultural matters, Canada shall provide reasonable compensation to any province to which the amendment does not apply.

The Canadian Constitution

The Constitution 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 powers of the Crown 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

Canada is a constitutional monarchy. The executive government "is vested in the Queen" of Canada, who is also Queen of the United Kingdom and more than a dozen other Commonwealth countries. In strict law the powers of the Crown are very great. In fact they are exercised on the advice of a Cabinet responsible to and having the confidence of the House of Commons, which is elected by the people. The powers of the Crown are normally exercised in the Queen's name by the Governor General, her personal representative, now always a Canadian, whom she appoints on the advice of the Prime Minister of Canada.

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 Parliament shall be dissolved for a general election, although one must be held at least once every five years. The Governor General in Council (that is, on the advice of Cabinet), appoints judges of the superior, district and county courts, the Lieutenant Governors of the provinces, deputy ministers and other senior officials.

The Cabinet and the Prime Minister derive their powers from the conventions rather than the law of the Constitution. The Constitution 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 1982 the Cabinet had 36 members, including the Prime Minister. By convention all ministers must be members of Parliament and most ministers are members of the House of Commons (at times only the Leader of the Government in the Senate is a Senator). In 1982, four Senators were ministers. 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.



The royal wedding ceremony over. Prince Charles and his bride, Princess of Wales en route to Buckingham Palace for the reception.



The Princess of Wales and son, Prince William.

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.

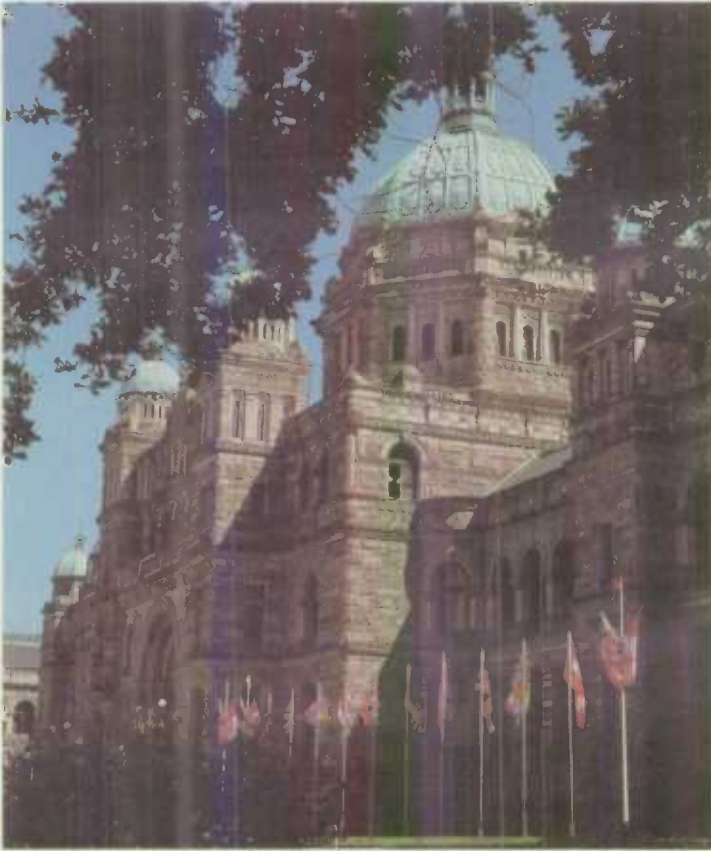
Only the government can introduce bills for the raising or spending of public funds. Members of the House of Commons other than ministers may move to reduce proposed taxes or expenditures, but not to raise them. The rules of the House allot most of the time for debate of government business and nearly all legislation now comes from the government. If the parties fail to agree on a timetable for dealing with the various stages of a bill, the government has the power to move closure, so as to cut off debate. At the same time, the rules are careful to provide abundant opportunity for the Opposition to question, criticize, and move amendments to the government's bills. Twenty-five days of each parliamentary year are specifically allotted to the Opposition to debate any subject it chooses and on six of these 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, 1 from Yukon and 1 from the Northwest Territories. In May 1982, the political distribution was: 60 Liberals, 1 Independent Liberal, 24 Progressive Conservatives, 1 Social Credit and 3 Independents. There were 15 vacancies. Senators are appointed by the Governor General who, by convention, appoints on the advice of the Prime Minister. They must retire at age 75.

The Senate and the House of Commons have identical legislative duties and powers, with the exception that financial bills must originate in the Commons. Much of the Senate's work is done in expert committees, where recommendations may be made to amend bills. Private bills, most of which are non-political, usually originate in the Senate. On occasion, the Senate provides a forum for debate on important social and economic issues of the day.

The House of Commons has 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 each from Manitoba and Saskatchewan, 21 from Alberta, 28 from British Columbia, 1 from Yukon and 2 from the Northwest Territories. Members are elected by obtaining a plurality of votes in single-member constituencies. Every adult Canadian citizen, with some exceptions, (such as people in jail) may vote. In May 1982 the Liberals held 146 seats, the Progressive Conservatives 100 and the New Democratic Party 32. One constituency was represented by an Independent and three seats were vacant. The number of constituencies allotted to each province is computed according to the democratic principle of representation by population, on the basis of a complex formula contained in the Constitution Act. The total number of members and the representation of each province is readjusted after each decennial census. No province can have fewer members in the House of Commons than in the Senate. The representation of Quebec is fixed on an upward sliding scale. That of the other populous provinces is related to Quebec's share. The representation of provinces with intermediate or small populations is calculated by the use of electoral quotients determined according to the constitution. The Chief Electoral Officer is responsible for this entire process.



Parliament buildings in Ottawa, DC.

In the House of Commons, all 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 may be 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 20 "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. Third reading then follows. If the bill passes this last stage, it is sent to the Senate, where it goes through a similar procedure, following which it receives Royal Assent and thereby completes the process by which legislation is enacted.

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 conventions of the Constitution. Political parties and party discipline make possible a stable government, capable of carrying its policies into effect. They also provide for 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 Prime Minister of the Canadian federation, 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.

Territorial capital building in Whitehorse, Yukon.





Legislative buildings in Quebec City, Que.

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. The Crown is represented by a Lieutenant Governor.

All of Northern Canada west of Hudson Bay and many islands northeast of Hudson Bay constitute two territories, Yukon and the Northwest Territories, which come directly under the Government and Parliament of Canada but enjoy a growing degree of self-government.

The Yukon is administered by a commissioner, appointed by the Government of Canada, and an elected Council of 16 from which an Executive Council is appointed. This Council is responsible to the elected Council in much the same way as a provincial Ministry is responsible to a provincial legislature. 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 22, with an executive committee

composed of a commissioner, deputy commissioner and up to five members of the elected Council who are nominated by the Council. The Commissioner in Council has substantially the same powers as in the Yukon.

Municipal Government

Municipal government, being a matter of provincial jurisdiction, varies considerably. All municipalities (cities, towns, villages and rural municipalities) are governed by elected councils. In Ontario and Quebec there are also counties, which group smaller municipal units for certain purposes, and both these provinces have 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 town hall at Dalhousie, NB.





Chief Justice Bora Laskin and Justice Bertha Wilson, Canada's first woman appointed to the highest court in the land, the Supreme Court of Canada.

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 the 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.

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.

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

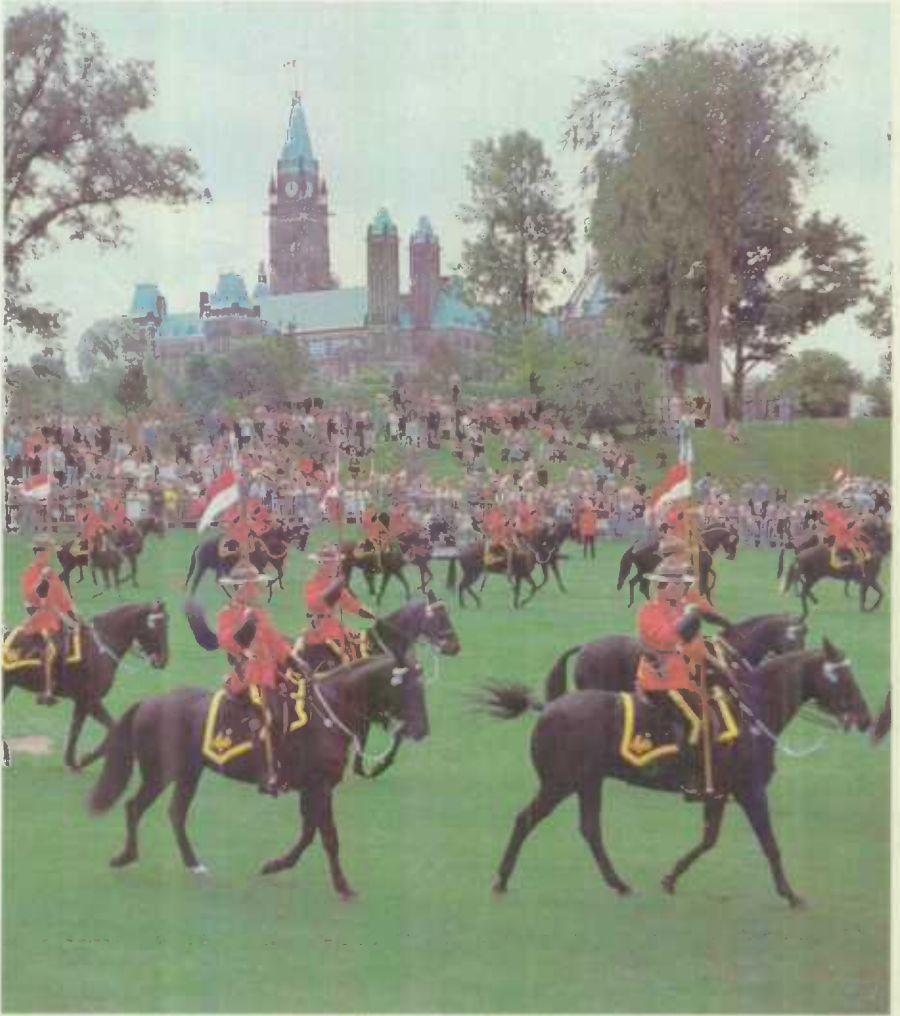
In common law jurisdictions in Canada, practising lawyers are both called as barristers and admitted as solicitors. In Quebec the legal profession is divided into the separate branches of advocate and notary. In all cases admission to practice is a provincial matter.

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



The RCMP Musical Ride in Ottawa.

responsibility to provide general police services in that area. A municipality that has not created its own municipal 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



Interior of the old Carleton County courthouse at Upper Woodstock, NB.

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 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); Canada joined this organization in 1949.

The RCMP maintains and operates the Canadian Police Services, which include: eight crime detection laboratories strategically located across Canada; an 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 January 28, 1982, had an establishment of 20,797.

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, police and security, and programs.

The Correctional Service of Canada

The Correctional Service of Canada 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 Corrections, under the direction of the Solicitor General, is responsible for control and management of the service and for related matters.

As of March 31, 1982, the Correctional Service of Canada controlled 59 institutions: 14 maximum security, 15 medium security, 12 minimum security and 18 community correctional centres. Total inmate population was 10,200. New institutions are being designed to provide more programs for inmates, with indoor and outdoor recreation, and plans to phase out old institutions are being worked out.

The National Parole Board

The National Parole Board, under the provisions of the Parole Act, has the authority to grant, deny or revoke full and day parole for certain federal and provincial offenders except in British Columbia, Ontario and Quebec, where provincial parole boards have jurisdiction over inmates serving a definite sentence in provincial prisons. The board is ultimately responsible for granting unescorted temporary absences, authority which it has delegated in part to wardens of institutions. The board may also revoke mandatory supervision although, in such cases, the original release comes about by force of law and not through a decision of the board. The board also makes recommendations on applications for pardons under the Criminal Records Act.

The board has 26 members, located at its headquarters division in Ottawa and in five divisional offices across Canada; the offices are located in Moncton, Montreal, Kingston, Saskatoon and Vancouver. Members are appointed by the Governor General in Council for periods of up to 10 years. All may be reappointed. Community representatives, appointed by the Solicitor General, 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.

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, take the Oath of Citizenship, and not be subject to the specific prohibitions set out in the Citizenship Act. To become a Canadian citizen a person must apply for citizenship, appear before a Citizenship Judge for a hearing, and take the Oath of Citizenship at a court ceremony. 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.

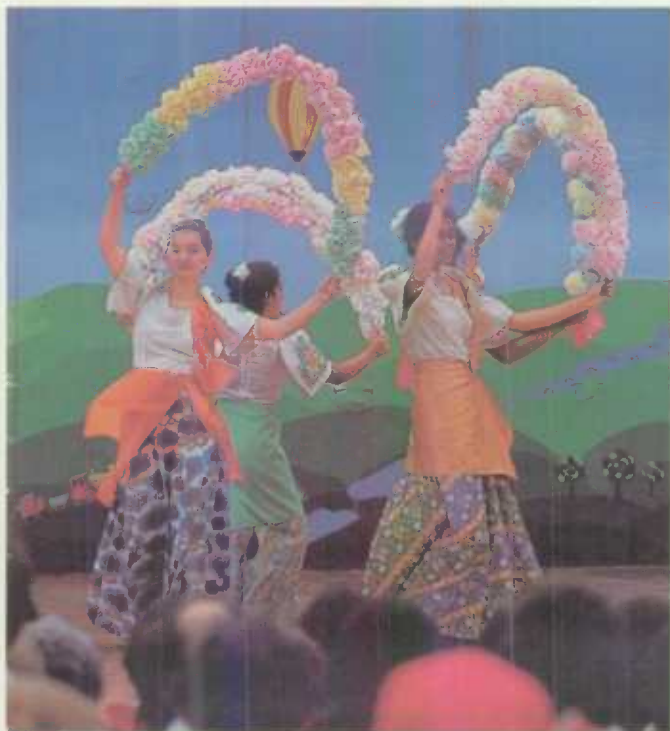
Citizenship Development

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 Directorate 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 1980 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 political associations at the provincial, territorial and national levels.

The Multiculturalism Program encourages Canada's many different ethnic and racial minority groups to maintain and develop their cultural heritage, to share it with



Filipino dancing at July 1st celebrations in Ottawa.

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.



Logging at Rennell Sound, BC.

Employment and Immigration

The Canada Employment and Immigration Commission 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 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.

Immigration

Canada's immigration law regulates the admission of all people seeking to come into Canada. In addition to immigrants, this includes refugees, foreign students, temporary workers, business people, tourists and other visitors. Immigration policy and all immigration matters within Canada are the responsibility of the commission; the Department of External Affairs is responsible for immigration services abroad.

Persons wishing to immigrate to Canada must apply at one of the 60 Canadian visa offices in 40 countries around the world and be selected according to universal standards designed to assess their ability to settle successfully in this country. There are three classes of admissible immigrants: the family class, or those 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 authorization at a Canadian immigration office before travelling to Canada.

The commission operates a network of more than 100 Canada Immigration Centres at Canadian airports, sea and 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

Unemployment insurance provides 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.

Construction in Nova Scotia.





A crab processing plant in Iles-de-la-Madeleine, Que.

Following is the outline of the unemployment insurance benefit rate, qualifying weeks, insurable earnings, premiums and benefit duration.

Benefit Rate: (1) 60 per cent of average weekly insurable earnings in qualifying weeks; (2) Maximum benefit in 1982 — \$210 a week; and (3) All benefits subject to income tax.

Qualifying Weeks: (1) Regular benefit for claimants applying for the first time — 10 to 14 weeks of insurable employment in the qualifying period depending on unemployment rate in area where claimant ordinarily lives; (2) Claimants applying for the second time in 52 weeks may require a maximum of six additional weeks. Recent first-time entrants into the labour force or those entering after a long absence of almost two years — 20 weeks of insurable employment; (3) Special benefit — 20 weeks of insurable employment in qualifying period; (4) Qualifying period — last 52 weeks or since last claim for unemployment insurance started, whichever is shorter.

Insurable Earnings: Maximum insurable earnings in 1982 — \$350 weekly.

Premiums: (1) Basic employee premium in 1982 — \$1.65 per \$100 weekly insurable earnings; (2) Employer premium — 1.4 times employee rate; (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.

Labour

Labour Canada's major objectives are the promotion and protection of 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. Major programs and services are aimed at meeting these objectives.

Under the Canada Labour Code the Minister, in addition to other duties, is responsible for granting consent to refer certain complaints regarding unfair labour practices to the Canada Labour Relations Board and for granting consent to complainants to institute prosecution in the courts.

Although employee and employer relations in all sections of Canadian business and industry are of interest to the department, its direct concern is with enterprises and their employees, numbering over 500,000, within the federal jurisdiction.

Labour Canada is decentralized into five regions — Atlantic, St. Lawrence, Great Lakes, Central and Mountain — with headquarters in the national capital region. The department is divided into several main bodies — the Policy Co-ordination and Liaison Group; the Federal Mediation and Conciliation Service; the Regional Operations Group; the Women's Bureau; and Central Analytical Services. Administrative Policy and Services and Legal Services are also included in these divisions.

Gold mining in the Northwest Territories.



The Policy Co-ordination and Liaison Group is responsible for the examination of broad issues which have a bearing on the department's programs and policies. It suggests ways to keep Labour Canada relevant in a rapidly changing economic and social environment and generates information and suggestions to appropriate centres in the department. This group is also responsible for the department's international labour activities and for managing Labour Canada's relations with the provinces, maintaining strong links with provincial departments of labour.

The Federal Mediation and Conciliation Service seeks to promote and encourage good industrial relations in federal industries governed by the Canada Labour Code. It provides third-party conciliation and mediation assistance to labour and management in the settlement of collective bargaining and other types of industrial relations disputes. This service has offices in six centres across Canada and is composed of three branches — Mediation and Conciliation, Program Planning and Technical Support, and Arbitration Services.

The Regional Operations Group is responsible for the decentralized segment of the department which delivers and enforces various laws, programs and services. The group assumes a leading role with the regional directors in the planning and implementation of departmental programs and in the development of common operational policies and procedures. In addition, it includes the department's Occupational Safety and Health Branch and the Employment Relations and Conditions of Work Branch.

Manufacturing plant at Arvida, Que.





An oil refinery in Alberta.

The Occupational Safety and Health Branch develops policies and programs to promote safe and healthy working conditions. It is also responsible for policy advice on the administration of compensation for work injuries to employees under federal jurisdiction and the administration of these benefits for seamen not covered by other compensatory legislation.

The Employment Relations and Conditions of Work Branch conducts research, designs programs and evaluates departmental policies relating to labour-management relations. It is concerned with the development and growth of constructive labour-management relations. The branch also develops policies and programs designed to improve employment standards such as hours of work, minimum wages, job security and vacation leave.

The Women's Bureau is concerned with all aspects of the status of women in the workplace. In co-operation with other federal agencies the Women's Bureau has been instrumental in bringing about legislation for equal pay, maternity leave and benefits, and equal employment opportunities.

Central Analytical Services is responsible for co-ordinating analytical operations carried out in the department. Analyses of labour developments are the bases for reports that contribute to departmental and government policies concerning collective bargaining and labour affairs. It includes Labour Data, Economic and Industrial Relations Research, the Library and Legislative Analysis and the Industrial Relations Information Service.

The Labour Data Branch collects, processes and distributes national labour-related information. Data are regularly provided on the following: occupational wages and salaries; working conditions; collective agreement settlements and provisions; and strikes and lockouts.

The Economic and Industrial Relations Research Branch undertakes studies dealing with wage and non-wage compensation issues and dealing with general economic conditions.

The Library and Legislative Analysis Branch provides a departmental and national information service in the fields of labour affairs and labour legislation. The library has a collection numbering more than 100,000 volumes covering all aspects of industrial relations. The legislative analysis unit undertakes research into labour laws and related administrative practices in all jurisdictions in Canada.

An electronics plant in Scarborough, Ont





Shopping in Grosvenor, Yukon.

Regional Industrial Expansion

On January 12, 1982, the Prime Minister announced the creation of a new federal government department which merged the industry sectoral strength of the Department of Industry, Trade and Commerce with the regional expertise of the Department of Regional Economic Expansion. The new department is charged with the responsibility of promoting industrial development across Canada's regions. In addition, new stress is placed on the promotion of tourism and small business.

Through its many incentive and development programs, the new department offers assistance, with expert advice and information and in many cases financial help, to the Canadian businessman. The objectives of the department's programs are: to stimulate the establishment, expansion, productivity, competitiveness and innovative capability of business enterprises in order to realize economic potential; enhance regional industrial benefits associated with major development projects; support industrial restructuring and renewal for firms and communities requiring exceptional economic adjustment measures; facilitate the identification, development and exploitation of domestic and international market opportunities; and foster an environment supportive of innovation, including research and development, entrepreneurship and economic growth.

Regional offices, one in each of the 10 provinces, plus satellite local offices, are integral to the delivery of federal industrial development programs, handling more than 90 per cent of all cases and accounting for approximately 40 per cent of departmental funding. These offices play a key role in the development of policies, programs and strategies to assist local Canadian businesses to improve their market positions provincially, nationally and internationally.

Consumer and Corporate Affairs

The Department of Consumer and Corporate Affairs was created in 1967 to bring together in one department many federal laws governing and regulating 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.

The department is organized into four bureaus that share responsibility for achieving its objectives. Their work is supported by three service branches and field staff in the Atlantic, Quebec, Ontario, Prairie and Pacific regions.

The Bureau of Consumer Affairs acts 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 including those covering packaging and labelling, weights and measures and hazardous products. The bureau monitors events and trends in the marketplace and works with organizations in business and industry to promote self-regulation for the resolution of consumer complaints. It also carries out consumer information programs, supports community-based consumer help offices, provides financial support to consumer advocacy programs and, through grants to voluntary consumer organizations, fosters the development of the consumer movement in Canada.

Field staff are attached to regional offices in Halifax, Montreal, Toronto, Winnipeg and Vancouver, and 54 district and local offices. The bureau administers the programs and activities for which it is responsible through a decentralized organization, therefore, its services are available to the greatest number of Canadians.

The Textile Labelling Act requires dealers to apply—on a permanent label on most articles—the generic names of the fibres contained in order of importance and identify the dealer by name and postal address or identification number. The name and postal address of a particular company using an identification number may be obtained by contacting your nearest Consumer and Corporate Affairs Canada office.

Care labelling is voluntary and gives care instructions in coloured symbols. Articles carrying these symbols are increasingly frequent, since they are preferred by consumers. There are five standard symbols, one each for washing, bleaching, drying, ironing and dry cleaning. The traffic light system is used to indicate the degree of caution—red means stop, amber means proceed with caution, and green means go ahead.

Almost any household chemical product, bleach, floor polish, or drain cleaner can be harmful if it is misused. Regulations under the Hazardous Products Act require labels to warn users of the possible hazards. Four symbols portray the major hazards: skull and crossbones (poison), flame (indicating a flammable substance), exploding grenade (explosive), and a skeleton hand (the danger of a substance corrosive to human tissue).

The department has created a puppet show to warn young children about hazards around the home.

Cleaning Instructions



Stop



Be careful



Go ahead



Washing



Do not wash



Hand wash in lukewarm water



Machine wash in lukewarm water at a gentle setting —reduced agitation



Machine wash in warm water at a gentle setting —reduced agitation



Machine wash in warm water at a normal setting



Machine wash in hot water at a normal setting



Chlorine Bleaching



Do not use chlorine bleach



Use chlorine bleach as directed



Drying



Dry flat



Tumble dry low temperature



Tumble dry medium to high temperature



Hang to dry



Drip dry



Ironing



Do not iron



Iron at low setting



Iron at medium setting



Iron at high setting



Dry Cleaning



Do not dry clean



Dry clean—tumble dry at low temperature

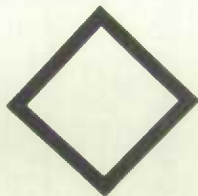


Dry clean

Symbols for Hazardous Products



Danger



Warning



Caution

Corrosive



Explosive



Flammable



Poison





A meat packing plant in Kitchener, Ont.

The Bureau of Corporate Affairs seeks to provide a legal framework for the orderly conduct of business. It develops federal commercial institutions through incorporation; regulates bankruptcy proceedings for insolvent companies and individuals; and licenses and supervises trustees in bankruptcy. It also encourages invention, innovation and creativity in Canada through granting exclusive property rights for inventions (patents), trademarks, industrial design and copyright of original literary, dramatic, musical and artistic works. Ownership rights are granted so that innovators are able to control and profit from reproduction of their creative works while making them available for the benefit of all Canadians.

The Bureau of Competition Policy administers the Combines Investigation Act, the legislation aimed at maintaining a competitive market system, increasing efficiency in the economy and fairness in the marketplace. The director of investigation and research has authority under the Act to conduct inquiries with respect to offences relating to conspiracies, mergers, monopolies, unfair trade practices involving price discrimination, disproportionate promotional allowances, misleading advertising, deceptive marketing practices or price maintenance. The results of these inquiries are usually sent to the Attorney General of Canada for possible legal action. The director also conducts inquiries regarding business practices subject to review under civil procedures such as refusal to deal, market restrictions, tied selling and exclusive dealing. Where his findings warrant, he makes an application to the Restrictive Trade Practices Commission for a remedial order.

The Bureau of Policy Co-ordination has responsibility for conducting research and policy analysis activities related to consumer and corporate affairs including co-ordination of all communications and policy-related activities. The bureau undertakes reviews of legislation administered by the department. It has overall responsibility for evaluating and periodically auditing all departmental programs and co-ordinates planning activities at the corporate level. It is organized in four branches: policy research, analysis and liaison; communications service; operations review; and program evaluation.

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. The department is also committed to ensure, through commemoration activities, that the achievements and sacrifice made by Canadians for their country in time of war are not forgotten.

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; 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 the Korean conflict. More than 140,000 veterans were established under the various provisions of the Act before the final deadline of March 31, 1975. On January 31, 1981 more than 35,000 veterans had subsisting contracts with the director, representing a total principal indebtedness of approximately \$286 million. The Veterans Land Administration also has operational responsibility for the Veterans 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 adjudicates on



Veteran patient being examined at Deer Lodge Hospital in Winnipeg, Man.

pension claims under various other measures, included among these measures are 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 is independent of the Canadian Pension Commission and reports to Parliament through the Minister of Veterans Affairs. The procedures followed by the board in the preparation for and conduct of hearings are informal. Proceedings are not adversative and the board is not permitted to hear oral evidence. It does, however, exercise wide latitude in accepting documentary evidence. Hearings are conducted in both official languages.

Bureau of Pensions Advocates

The bureau provides a legal aid service for persons seeking to establish claims, relating to military service, 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.



The National War Memorial in Ottawa which was first unveiled in 1939, was rededicated in 1967 and the dates 1939-1945 and 1950-1953 were added in bronze numerals on the sides of the memorial.

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 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. It also provides interpretation of the War Veterans Allowance/Civilian War Pensions and Allowances Acts and Regulations. The board may, at any time, review and alter its own former decisions.



Cancer treatment at the Civic Hospital in Ottawa, Ont.

Health and Welfare

Health Care

Responsibility for health and welfare 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 for these matters. The principal objective of the department 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 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 department acts in conjunction with other federal agencies and with provincial and local governments. Provincial governments are directly responsible for actual administration of most health and welfare services.

Federal Health Programs

The Department of National Health and Welfare includes three branches which administer federal programs dealing with health. These are the Health Protection Branch, the Medical Services Branch, and the Health Services and Promotion Branch.



The Fountain of Hope, located at Rideau Hall in Ottawa, was dedicated on June 3, 1982 and commemorates the International Year of Disabled Persons and, in particular, Terry Fox and his Marathon of Hope.

In addition, the Medical Research Council reports to Parliament through the Minister of National Health and Welfare.

Health Protection Branch. The Health Protection Branch carries out a wide range of activities intended to protect Canadians from hazards which may contribute to illness or death. These include efforts to guard the safety and nutritional quality of foods; to ensure the safety and effectiveness of drugs and control the availability of drugs which may be used unwisely; to reduce the presence of dangerous substances in the environment; to govern exposure to radioactivity; to control the safety and effectiveness of medical devices; to control the safety of cosmetics; to improve capabilities to diagnose diseases; and to improve public information concerning various aspects of health status.

The main legislative base of the health protection program includes: Department of National Health and Welfare Act, Food and Drugs Act, Narcotic Control Act, Radiation-Emitting Devices Act, Hazardous Products Act, atomic energy control regulations and Canada dangerous substances regulations.

Medical Services Branch. The responsibilities of the Medical Services Branch encompass a wide variety of services responding to the health needs of such varied groups of clients as the Indian and Inuit people, public servants, certain groups of immigrants and refugees, residents of the Northwest Territories and Yukon, and others. The branch provides diagnosis, treatment and preventive health services including Indian and northern health, public service health, prosthetic services, civil aviation medicine, emergency services, quarantine and regulatory, and immigration medical services.

Health Services and Promotion Branch. This branch has two main responsibilities: to encourage and assist Canadians to adopt a way of life that enhances their physical, mental and social well-being; and to provide leadership, co-ordination and financial support in assisting the provinces and territories to bring their health services to national standards and maintain them at that level.

A strengthened health promotion program reflects the branch's emphasis on prevention. It includes national public education and advertising campaigns; the production and distribution of over 6 million printed materials; co-operative programs with provinces and voluntary organizations; and funding of health promotion projects across Canada.

The branch is also responsible for payments with respect to provincial programs providing hospital, diagnostic, medical and extended health care services, as provided by legislation; and for monitoring provincial compliance with the program conditions associated with federal payments. Complementary branch activities include consulting services and collaboration with the provinces and professional groups in the development of standards and guidelines, in such areas as facilities planning and design, health assessment, community health, mental health, institutional health services, health systems, and family planning. Other activities include co-ordination of planning for the training and deployment of health workers. The branch also supports extramural health research in Canada, and conducts policy and program analysis on the Canadian health system.

Enrolling kindergarten students in Vancouver, BC receive immunization shots.





The pediatric section of the hospital in Chicoutimi, Que.

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 provincial plans.

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. Medical care insurance 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 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, operation of health insurance plans, 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.

Federal Welfare Programs

Health and Welfare Canada has the goal of improving and maintaining a high level of social security in Canada. The branches of the department with responsibilities primarily for social security matters are the Social Services Programs Branch and the Income Security Programs Branch.

Social Services Programs Branch

This branch administers a series of direct and cost-shared programs that benefit more than 2 million Canadians every year.

Cost-shared programs include such programs as the Canada Assistance Plan under which the federal government meets 50 per cent of the costs incurred by the provinces,

Mobile lending libraries bring books to readers.



territories and municipalities in providing assistance and welfare services such as day care, rehabilitation and homemaker services to persons who meet specified eligibility criteria. The Vocational Rehabilitation of Disabled Persons Program enables federal sharing with the provinces in costs of providing vocational rehabilitation services to the physically and mentally disabled. Total federal costs of the two programs in 1981-82 were estimated at \$2.3 billion.

Other programs encourage the development of projects which are designed to promote demonstration, research and preventive activities in social services.

The National Welfare Grants Program promotes self-help activities and improvements in welfare services. Funds are granted each year for demonstration projects, short-term research projects, program development activities and social service training activities.

The New Horizons Program encourages the self-determination and community involvement of retired persons. Through project grants to groups of retired persons, seniors are provided with the opportunity to engage in community activities — planned, organized and developed by themselves.

Income Security Programs Branch

This branch has the responsibility of a wide range of publicly-funded and administered income security programs.

The Canada Pension Plan. The Canada Pension Plan is designed to provide workers with a basic level of income protection in the event of retirement, disability or death.

A retirement home in Woodstock, N.B.





Peggys Cove, NS.

Benefits are determined by the contributor's earnings and contributions made to the plan and they are adjusted annually to reflect full cost of living increases. Contribution is compulsory for most employed and self-employed persons in Canada aged 18 to 70. The Canada Pension Plan is financed from contributions and interest on funds invested.

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 or 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.

A Guaranteed Income Supplement (GIS) may be added to the basic OAS pension. Entitlement is subject to an income test. The supplement is payable for only six months outside of Canada, in addition to the month of departure.

The spouse of a pensioner may be eligible for a Spouse's Allowance (SPA) 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 GIS and SPA are adjusted quarterly to reflect increases in the consumer price index. In January 1982 the monthly OAS pension was \$227.73; the maximum monthly GIS was \$228.83 for a single pensioner or a married pensioner whose spouse did not receive OAS or SPA, and \$176.27 each for a married couple. The maximum monthly SPA was \$404.00.

Family Allowances and Child Tax Credit. 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 1982 the federal rate of Family Allowances was \$26.91 a month per eligible child. Provinces may vary the rates of FA paid, provided certain conditions are met; Quebec and Alberta have chosen this plan. Quebec has a provincial program to supplement that of the federal government.

A federal child tax credit program became effective in January 1979. It was designed to provide additional assistance in meeting the costs of raising children in low-income to middle-income families. This lump sum benefit is in addition to the monthly Family Allowances and is normally paid to the mother. The program is administered through the income tax system. The credit for 1982 was \$261 for each eligible child, payable in full where the net income of the parents in 1981 was \$23,470 or less. The maximum amount payable is reduced by 5 per cent of the amount by which the family income exceeds the basic income level. The credit and the basic income level are adjusted each year in accordance with the consumer price index.

Enjoying the simple pleasures in life at Riding Mountain National Park in Manitoba.





Silhouettes of northern life at a playground in Eskimo Point, NWT.

Provincial Welfare Programs

All provinces have programs to provide social assistance and welfare services to persons who are eligible. Benefits which may be included in assistance programs are monetary benefits, items of special need and maintenance in homes for special care. Welfare services may include services such as homemaker, day care, community development, counselling, rehabilitation, and the protection and adoption of children. These are cost-shared by the federal government.

International Health, Welfare and Social Security

Canada actively participates in international health, welfare and social security matters. The Department of National Health and Welfare participates in the work of the World Health Organization, the Pan American Health Organization, the United Nations Commission on Narcotic Drugs, the Canadian delegation to the UNICEF Executive Board, 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.

Environment

The Department of the Environment

To preserve and enhance the quality of the environment for the benefit of present and future generations of Canadians is the objective of the Department of the Environment. The department came into existence in 1971 to bring together those elements within the federal government already involved in work related to the environment and renewable resources. It combined services dealing with fisheries and marine matters, forestry, meteorology, air pollution and water pollution, wildlife and land use.

By 1974 fisheries responsibilities had increased and a Minister of Fisheries was appointed to assist the Minister of Environment. From 1976 to 1979 the department bore the joint designation Fisheries and Environment. In April 1979 Fisheries was

Exploring tranquillity in the Yukon.





Fond Inlet, N.W.T.

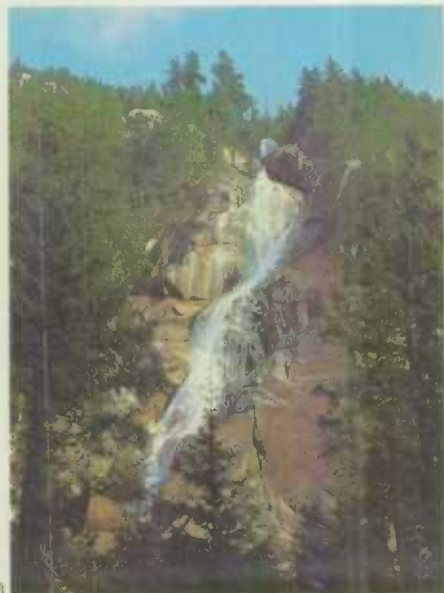
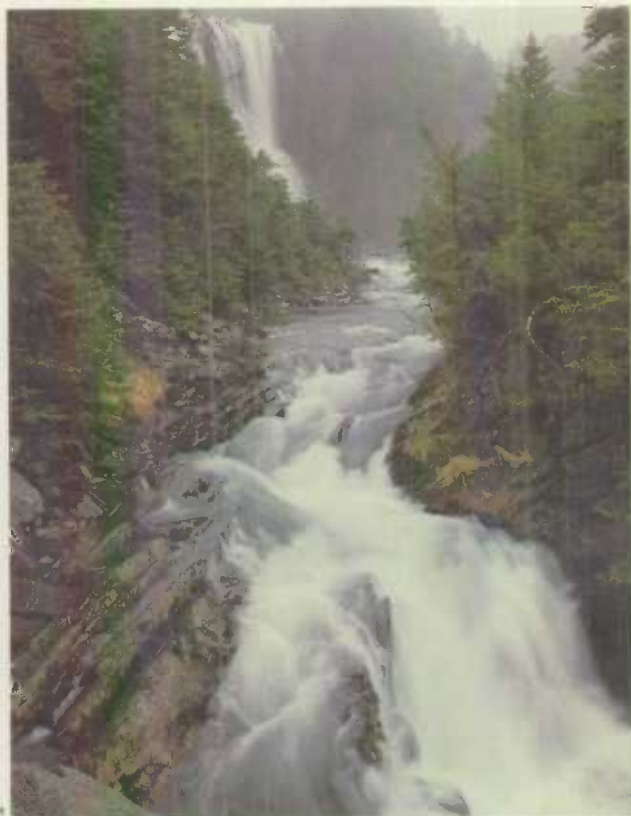
elevated to full departmental status as the Department of Fisheries and Oceans. In June of the same year, Canada's national parks and national and historic parks and sites became part of Environment Canada.

In pursuit of a quality environment for all Canadians, the department has set these goals: to safeguard man's health and property from harmful substances and environmental changes, whether natural or man-made; to protect resource productivity through conservation and wise use of renewable resources, thereby ensuring sustained economic and social benefit; to preserve man's quality of life and enjoyment of the environment, based on the development of society in harmony with its environment; and to safeguard Canada's heritage by protecting those places that are significant examples of Canada's natural and cultural legacy, and by encouraging public understanding, appreciation and enjoyment of this legacy so that it may be left unimpaired to future generations. The fulfilment of this commitment encompasses the functions of informing and influencing, protection and regulation, resource management and conservation, and monitoring and scientific research.



◀ Drysdale Falls, NS.

1. Conception Bay area, Nfld.
2. Waterfall near Val-Jalbert, Que.
3. Shannon Falls, BC.

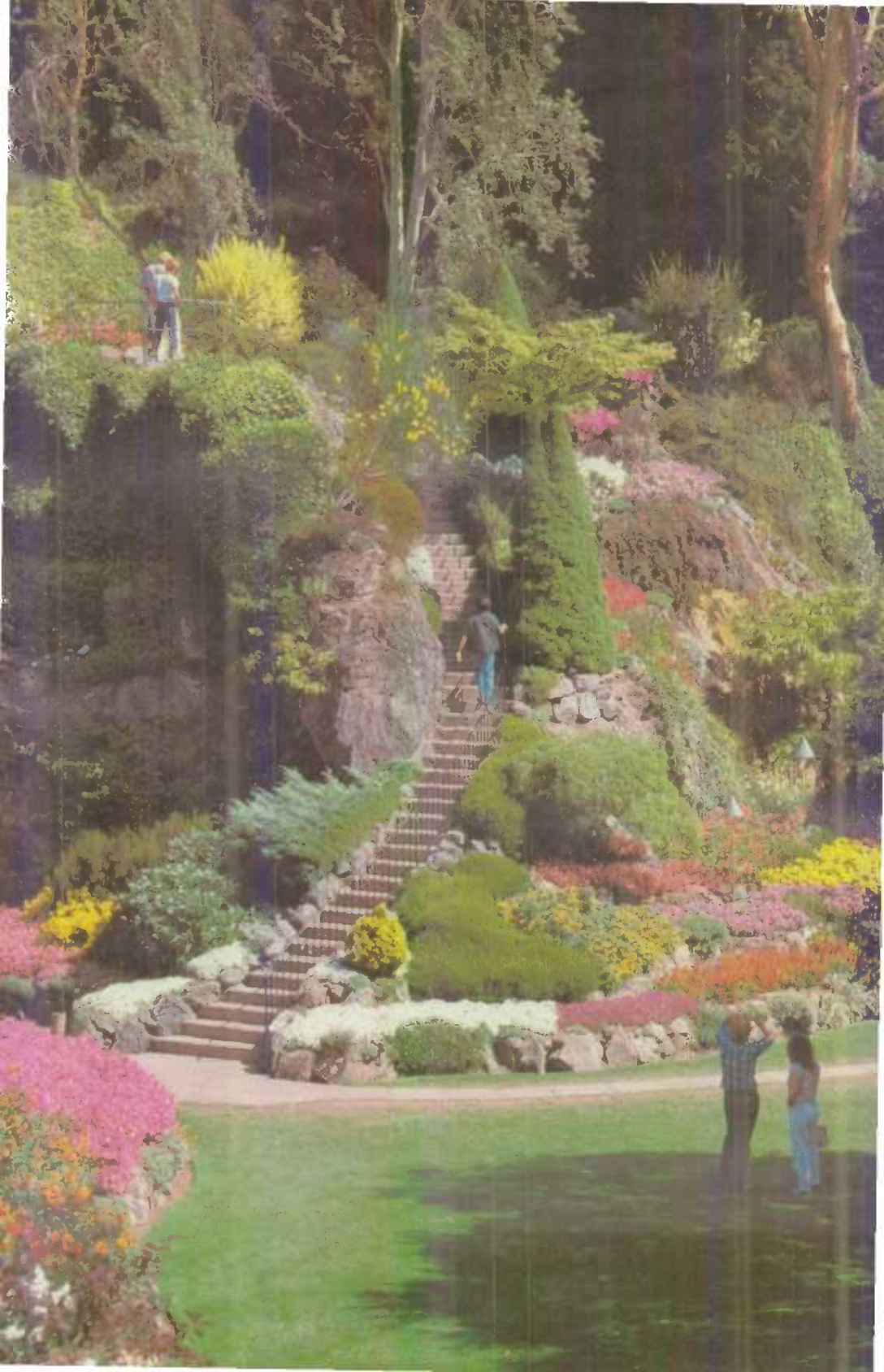




Maligne Lake in Jasper National Park, Alta.

The responsibility involving the environment and its constituent resources is shared between the federal and provincial governments, with each level having authority over different aspects of the environment. The provinces have direct management responsibility for most environmental and resource matters within their borders. The federal government is accountable for those matters which are clearly within its jurisdiction, such as the territories and national parks, and for matters which the provinces cannot readily or cost-effectively undertake separately such as weather services. As environmental processes transcend political boundaries, and as the same human activity can touch on concerns under both federal and provincial jurisdictions, there is a basic requirement for both levels of government to co-operate in the formulation and execution of their environmental policies.

Butchart Gardens in Victoria, BC. —>





High on a cliff of Ogden Islands, N.W.T., Canadian Wildlife Service scientists study a murre colony.



During government-industry oil spill control trials in the Northwest Territories, chemicals are sprayed on an oil-covered section of beach. The chemicals combine with the oil to form a rubbery mat which can then be cleanly removed.

In addition to activity within this overall domestic framework, the department is also dealing with international issues in a way that will protect Canada's environment and renewable resources and at the same time contribute to the resolution of international problems such as acid rain, worldwide contaminants research, climatic change, the long-range transport of air pollutants and the development in Third World countries.



Algonquin Provincial Park in Ontario.

The Canadian Environmental Advisory Council (CEAC) and the Canadian Forestry Advisory Council (CFAC) provide the Minister with independent advice on environmental and forestry priorities respectively and the effectiveness of departmental activities in meeting those priorities. CEAC, concerned about the state of the environment and threats to it, reviews environmental matters and prepares statements and reports on its findings. It is composed of up to 16 members drawn from a wide cross-section of Canada. CFAC was set up with the view that the federal government's forestry programs would benefit from regular policy guidance from outside government service. Its members include prominent Canadians from industry, the universities and the scientific community, as well as representatives from provincial natural resources departments.



1



2

1. Muskoxen on Banks Island, NWT.

2. Arctic fox in northern Manitoba.

3. Deer in Ontario.



3



4



5



6

4. Mallard duck & ducklings at Beaver Lake, BC.

5. Canada geese at a game sanctuary in Ontario.

6. Puffins in Newfoundland.



Treeline in winter, near Churchill, Man.

Environmental Assessment Review

The federal environmental assessment and review process was established by Cabinet decision in 1973 to ensure that environmental matters are taken into account early in planning that involves the government either through its departments or agencies or through use of federal funds or property. All departments and agencies are subject to the process, except proprietary Crown corporations and regulatory agencies which are invited to participate.

The process begins with an environmental screening when a proposal is conceived. If the environmental consequences of it are not known or appear to be substantial, a more detailed evaluation is made. At either stage, a proposal may be accepted, modified or rejected. In fact, most proposals need no further assessment. However, if it seems a proposal may have a significant effect on the environment, it is referred to the federal environmental assessment review office for a formal public review by an independent panel.

An environmental impact statement is prepared by the proponent of the proposal following the panel's guidelines. Public meetings are held in communities near the proposed project site to hear comment on the proposal. The panel then submits a report containing conclusions and recommendations on the proposal to the Minister of the Environment. Decisions on the recommendations are made by the Minister of the Environment and the Minister responsible for the project.



A fishing fleet in Nova Scotia.

Fisheries and Oceans

The Department of Fisheries and Oceans came into being officially in April 1979, and is responsible for a broad range of programs and services related to the living resources and aquatic environment of the oceans and inland waters.

Canada's major oceanographic vessel, CSS Hudson.





Salmon from the Fraser River in British Columbia.

The department's role includes overall management of Canada's ocean fisheries and certain inland fisheries; fisheries and oceanographic research contributing to the understanding, management and best use of renewable aquatic resources; developing markets for Canadian fisheries products and negotiating fisheries agreements with other countries; hydrographic surveying and charting of navigable coastal and inland waters; administration of approximately 2,300 small craft harbours across Canada and the co-ordination of the federal government's policies and programs in respect to the oceans.

National Capital Commission

The National Capital Commission (NCC) is the Crown Agency, charged under the National Capital Act (1958), with the responsibility "to prepare plans for and assist in the development, conservation and improvement of the National Capital Region in order that the nature and character of the seat of the Government of Canada may be in accordance with its national significance". The Commission is composed of 20 commissioners, including a chairman, chosen from across the nation, to ensure that there will be input from all sections of the country into its policies and activities.

The NCC is responsible for acquisition, development and maintenance of federal public land in the nation's capital; it co-operates with provincial regional governments and municipalities in developing projects of benefit to both the national and local publics and it advises the Public Works Department on the siting and appearance of all federal government buildings in the National Capital Region. The NCC reports to Parliament through the Minister of Public Works.

The NCC manages Gatineau Park, the largest outdoor recreation and conservation area in the Capital Region. In addition, it promotes a wide variety of public activities on many acres of parkland, including recreational paths, cross-country and downhill ski centres and golf courses; the spring tulips and floral displays for which the region is justly famous are maintained by the NCC. The promotion of winter activities has taken on special importance with the use of the 7.8 km Rideau Canal ice surface, maintained as the world's longest skating rink, for the Winterlude festival which features ice sculptures, horse races on the canal ice, parades and other activities designed to help residents and visitors enjoy the long Canadian winter.

The National Capital Commission has dedicated itself to the maintenance of a Capital which stands as a symbol of identity, a model of unity and a source of pride and inspiration for all Canadians, a Capital which provides a national focus representative of our values and aspirations for the future.

National Capital Commission sugar bush near Old Charlton, Ont.





Spraying a potato field near Grand Falls, NB.

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 43 Acts of Parliament.

Organization

The department has nine branches. The Food Production and Inspection Branch is responsible for all production and regulatory activities of the department, including inspection, grading, licensing and registration. The work of the Marketing and Economics Branch is aimed at helping to improve the marketing efficiency of Canada's agriculture industry, to increase agricultural exports and domestic use of Canadian-produced supplies, and to ensure the long-term supply of agricultural products. The Research Branch, with over 50 establishments across Canada, conducts programs designed to solve problems of production, to ensure a stable and profitable agriculture and food industry, and to promote judicious use of natural resources. The Farm Income Services Branch administers programs concerned with providing income stability for farmers. The Regional Development and International Affairs Branch is responsible for co-ordinating the department's domestic and international commitments relating to agricultural development work. It also maintains liaison with provincial and international agricultural agencies and with non-governmental organizations. The Strategic Planning and Evaluation Branch supports the

departmental senior management on the development of corporate strategies, and in the evaluation of current programs. The Communications Branch carries out a wide variety of programs to acquaint farmers with new knowledge from agricultural research and to keep the agriculture and food industry and the general public informed about the policies, programs and activities of the department. 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 balance of food stocks in Canada. The Canadian Dairy Commission ensures adequate supplies of processed dairy products and fair returns for industrial milk production. The Canadian Grain Commission licenses grain elevator operators, recommends grade specifications for Canadian grain, inspects and weighs grain, and operates a

Harvesting near High River, Alta.





Farming near Hébertville, Que.

cereal and oilseed research laboratory. The Canadian Livestock Feed Board ensures the availability and price stability of domestic feed grains in Eastern Canada and British Columbia. The Farm Credit Corporation makes loans to individual farmers and to syndicates of farmers. The National Farm Products Marketing Council oversees both the establishment and the operation of national farm commodity marketing agencies.

Programs and Policies

As a step toward establishing national agricultural and food priorities for the 1980s, Agriculture Canada released, in July 1981, an agricultural and food strategy discussion paper which outlines how current constraints to growth can be overcome through action in three main areas: market development, strengthening the agricultural supply base, and mission-oriented research. This strategy also outlines how Canada can continue to meet its obligations to the international community through food trade and agricultural development assistance.

Three important pieces of agricultural legislation were introduced in Parliament in 1980-81. The first of these, the Meat Import Act, was passed and given royal assent December 18, 1981. This Act regulates importing fresh, chilled and frozen beef and veal into Canada.

The second bill which was introduced would establish a Crown corporation called Canagrex. It would seek to increase the volume and variety of sales of Canadian agricultural products on world markets. It would provide support such as export financing to would-be exporters — or engage in direct selling or enter into contracts with existing firms or agencies. Farmers, commodity groups, marketing boards, food processors, provincial governments and others would work with Canagrex in export marketing, promotion and related activities.

The third bill which was introduced would allow the Farm Credit Corporation (FCC) to borrow funds from sources other than the Government of Canada. This innovation would give the FCC additional money for meeting the growing demand for long-term farm loans. The long-term credit extended to farmers from all sources rose

Cattle round-up in Alberta.



from about \$655 million in 1975 to \$2 billion in 1980. Total credit requirements for 1981-82 were expected to reach \$2.2 billion and are forecast to increase annually by 14 per cent in the next few years.

During 1981 the federal government began a full review of the long-term dairy policy, examining issues such as formula pricing, import policies, butterfat self-sufficiency, subsidies, quota values, interprovincial quota movement, and public participation in dairy policy formulation.

In March 1981, the National Farm Products Marketing Council released new guidelines for cost-of-production formulas used by national agricultural marketing agencies to establish producer prices. The Council monitors producer prices for eggs, turkey and chicken, and must approve the cost-of-production formulas developed by marketing agencies.

The Agricultural Stabilization Board distributed \$81 million to farmers affected by the partial embargo on grain shipments to the USSR. In order to counter the effects of adverse market conditions, deficiency payments were made to producers of

Europeans and Japanese are the major importers of Canadian horse meat.





Harvest time in Western Canada.

various commodities such as hogs, potatoes, grain, greenhouse cucumbers and sour cherries.

During 1980-81 farmers borrowed almost \$500 million from the Farm Credit Corporation. Under the Farm Improvement Loans Act, banks loaned farmers \$221 million in 1980, and \$49 million in the period from January 1981 to March 1981. Since the Act was established in 1945, loans totalling \$4.4 billion have been made.

Agriculture Canada announced measures aimed at phasing out some 2,4-D herbicide products because some types of this popular weed killer were found to be contaminated with dioxins. Similarly, some uses for the chemical group chlorophenols have been banned. The safety, merit and value of all fumigation products used in Canada are being re-evaluated. Since January 1, 1981 all agricultural chemicals sold in Canada are packaged and labelled only in metric measurements.

Cattle and sheep imports from continental Europe were cancelled in 1981 because of outbreaks of foot and mouth disease in Italy, France and Austria. Foot and mouth is a highly contagious livestock disease. Canada has been free of the disease except for one outbreak in 1952. Any introduction of the disease could seriously affect Canada's ability to export livestock.

External Affairs

The Department of External Affairs has three primary functions: (1) to advise the government on foreign policy, foreign trade and international economic matters, co-ordinate implementation of the government's policies and programs in these areas, represent Canada in other countries and in international organizations, and negotiate international agreements; (2) to provide consular assistance to Canadians travelling or living abroad and to provide immigration services to persons intending to come to Canada; and (3) to promote Canada and its interests abroad.

The headquarters of the department is in Ottawa. In 1982, there were 111 diplomatic and consular missions in 77 countries; many of these missions are accredited to two or more governments, thus permitting Canada to maintain diplomatic relations with an additional 80 countries. Canada also has 15 honorary consulates, located in cities where the consular needs of visiting Canadians are very frequent. In addition, in 1981, there were 99 resident diplomatic missions in Ottawa and 44 non-resident accreditations.

A Canadian diplomatic mission in a Commonwealth country is designated as a high commission and is headed by a high commissioner, while a diplomatic mission in a non-Commonwealth country is known as an embassy and is headed by either an ambassador or a chargé d'affaires. Consular missions, which attend primarily to Canada's trade relations or consular responsibilities, are headed by consuls or consuls-general.

Canada also has eight permanent and separate missions accredited to a number of international organizations, including: the United Nations (UN) in New York and Geneva; the European Communities (EC) and the North Atlantic Treaty Organization (NATO) in Brussels; the Organization for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) in Paris and the Organization of American States (OAS) in Washington.

Foreign Policy

A review of foreign policy published in 1970 identified six major themes of national policy at home and abroad: to foster economic growth; to safeguard sovereignty and independence; to work for peace and security; to promote social justice; to enhance the quality of life; and to ensure a harmonious natural environment. The annual review of the Department of External Affairs (which can be obtained free of charge by writing to: Enquiries, External Affairs, Pearson Building, Ottawa K1A 0W6) sets out the particular goals and achievements of Canadian foreign policy from country to country, from region to region and in the fields of international law, disarmament and arms control, energy, trade and international economic affairs, social and humanitarian affairs, international security and other issues.

Services to Canadians

Consular Assistance. One of the primary functions of Canada's embassies and other missions abroad is to assist the Canadian traveller or overseas resident in need of help. In any given year, consular personnel will handle close to 600,000 cases ranging from the issuance of a passport (approximately 45,000) to special services in



Department of External Affairs building, centre foreground, in Ottawa.

the event of death abroad (over 400), hospitalization (in excess of 600), financial difficulties (from 2,000 to 3,000) and imprisonment due to drug-related or other offences (rarely less than 1,000).

Passports. Between 700,000 and 750,000 passports are issued every year under the authority of the Department of External Affairs. In Canada, the issuance of passports, certificates of identity, and UN refugee convention travel documents is handled through regional passport offices in Calgary, Edmonton, Fredericton, Halifax, Hamilton, London, Montreal, Quebec, St. John's, Saskatoon, Toronto, Toronto/North York, Vancouver, Victoria, Windsor, and Winnipeg, and through the main passport office in Ottawa.

Assistance in International Legal Matters. Requests from Canadian citizens for assistance in pressing claims against or involving foreign governments are dealt with by the department's bureau of legal affairs. In the area of private international law, the bureau offers a variety of services to facilitate legal proceedings involving Canadian and foreign jurisdictions on the basis of conventions or by arranged procedures.

Canadian International Development Agency (CIDA)

CIDA is the government department that administers Canada's program of co-operation with developing countries. Canada provides assistance to approximately 80 countries and in the 1980-81 and 1981-82 fiscal years this official



Extensive rehabilitation of the railways is a major CIDA commitment in Bangladesh.

development assistance amounted to \$1.24 billion and \$1.46 billion respectively. The goals of development assistance are to help Third World countries to meet the basic needs of their poorest populations, to support those countries' efforts to achieve self-reliance, and to ensure that the mutual interests of Canada and the recipient country are observed.

The major portion of Canada's contribution to international development is made in the form of bilateral assistance. In 1980-81 this amount was \$523.84 million disbursed under agreements between Canada and the recipient governments for the financing of development projects. More than half is provided in the form of grants, and the remainder in loans which are provided under generous terms. Loans are used by developing countries to purchase materials, equipment or services for their industry and agriculture, or to gain access to the Canadian export market through lines of credit. In addition, bilateral grants cover technical assistance, which pays the cost of sending Canadian advisers overseas and training students and trainees from developing countries. Asia remains the principal recipient of bilateral economic assistance (\$209 million in 1980-81), followed by Francophone Africa (\$137 million), Commonwealth Africa (\$110 million), Latin America (\$29 million) and the Caribbean (\$27 million). Further assistance is provided in the form of bilateral food aid which amounted to \$60.5 million in 1980-81.

The second channel for official development assistance to the developing world is multilateral aid (\$510.15 million in 1980-81), whereby Canada and other donors provide funds to international institutions that help the Third World. Canada supports about 65 programs in all. In 1980-81, \$295 million was provided in the form of

loans and capital subscriptions to international financial institutions — the World Bank group and the regional development banks of Asia, Africa, Latin America and the Caribbean. These institutions, by operating on private markets, are able to raise funds for major projects, sometimes of a magnitude that transcends national boundaries. In addition, \$99 million was provided to the various programs of the United Nations agencies and to international institutions involved in development and research. Another \$8 million was channelled into international humanitarian assistance for relief for refugees and victims of natural and man-made disasters. Food aid (\$106 million) was also provided through multilateral channels, mainly the World Food Program.

Under the third channel of development assistance CIDA provides flexible forms of assistance to the developing world through Canadian and international non-governmental organizations (NGOs) and through Canadian business, labour and academic groups. CIDA's support of NGOs is given through grants which can double the funds collected by the NGO to help expand the scope and increase the impact of a given project. CIDA emphasizes support of efforts to build self-reliance, especially through rural development, education, training and public health. In total, CIDA provided \$35 million in 1980-81 to support the work of 140 Canadian NGOs working on 2,143 projects in 100 countries. In addition, \$8 million was provided in support of international NGOs which stress community development, management training, and institution building and support.

The Institutional Co-operation and Development Services Division (ICDS) fosters links between Canadian institutions — universities, colleges, professional associations, unions and co-operatives — and their counterparts in the Third World. ICDS helps to cultivate activities that can lead to mutual enrichment and an increased ability on the part of the developing nations to achieve social and economic progress. In 1980-81 ICDS provided \$29 million in support of 425 projects.

Finally CIDA's industrial co-operation program (\$7 million in 1980-81) encourages Canadian firms to establish or expand operations and to test Canadian technology in developing countries. It also assists Canadian companies to obtain a fairer share of multilaterally-funded business for development projects. Developing countries are also given assistance to create an environment conducive to industrialization.

Canadian Executive Service Overseas (CESO)

CESO is a private, non-profit, Canadian corporation. It was organized in 1967 by a group of Canadian business and professional people, with the support of the Canadian International Development Agency (CIDA). A board of directors determines the policy of the corporation.

The objectives of CESO include the use of qualified, experienced Canadian men and women: (1) to conduct a mutual co-operative exchange of applied professional and technical knowledge with governmental, industrial or other organizations in applicable countries; and (2) to enhance operations in projects with developing countries, through co-operative action with Canadian industry and the Canadian government.

CESO operations include three programs: (1) The overseas program operates within developing countries of the world. Applications are handled for business or financial

management and for technical and professional advice in agriculture, communications, education, fishing, lumbering, manufacturing, mining, printing, pulp and paper, pollution control, reforestation, tourism and many other areas. (2) The Canadian native program operates throughout Canada. CESO administers the program in response to requests received from the Indian bands. They can request that CESO provide consultation to assist native people in establishing effective businesses such as stores and garages or enterprises in the various fields such as tourism, lumbering and fishing. and (3) The trade development program includes joint ventures and trade facilitation with developing countries of the world. With increasing frequency companies in the developing countries are contacting CIDA to propose joint ventures with Canadian industry. The trade development program parallels an effective overseas program. CESO volunteers assist in the developing of industries in developing countries that in turn provide good products.

CUSO and SUCO

The Canadian University Service Overseas (CUSO) and the Service universitaire canadien outre-mer (SUCO) recruit and send skilled individuals from all walks of life to help Third World nations train their people.

Since 1961, CUSO has sent more than 8,000 volunteers of all ages and from all walks of life to fill temporary manpower requirements in developing countries on two-year contracts.

The countries or agencies requesting assistance pay the worker's salary at local rates. CUSO, an independent, non-profit organization, pays travel, medical, insurance, orientation, and language training costs.

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.

SUCO is active in more than 20 countries of Africa and Latin America. It supports development projects of the Third World by sending volunteers and by financial contributions toward social and educational projects. It is also involved in development education in Quebec and the Maritimes.

International Development Research Centre (IDRC)

IDRC was created by an Act of Parliament in 1970 as an autonomous public corporation. Its purpose is to stimulate and support research designed to adapt science and technology to meet the needs of developing countries. It does this through providing financial support, advice and training for scientists and institutions of developing countries to carry out research on subjects they feel are important in their own national context.

The centre is financed by an annual grant from Parliament, but its policies are set by an independent Board of Governors representing Canada, the Third World, and the industrialized nations. The head office is in Ottawa, but the centre has direct links with the developing world through regional offices in Africa (Dakar, Nairobi), Asia (Singapore), Latin America (Bogota), and the Middle East (Cairo).



irrigated rice fields in the dry zone of Sri Lanka — part of an experimental cropping systems project supported by IDRC.

Before a project proposal is submitted to the centre's Board of Governors for approval, it is assessed to ensure that the research is practical, that it meets the priorities of the country or region, and that it will have the widest possible impact. Recipient institutions are also expected to contribute to the cost of the designated research projects.

The role of IDRC staff is to provide guidance in defining research needs and developing project proposals, to provide professional and administrative support where necessary, to monitor the progress of projects, and to disseminate the results of research as widely as possible.

Most IDRC funded projects are managed by the four program divisions: agriculture, food and nutrition sciences; health sciences; information sciences; and social sciences. Grants for advanced study and training for individual researchers are provided through the fellowships program. More recently, the centre has established a co-operative programs unit to facilitate direct collaboration between Canadian and Third World research institutions. An expanded program of support for energy research was introduced in 1982.

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 Aerospace 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 by air or

Aircrew aboard a flight deck simulator.





A submariner peering through a periscope.

by 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 May 1981 and effective for five years, is the salient feature of defence in the North American area. Canada's current contribution consists of three all-weather fighter squadrons, a training squadron, two continental radar lines, space sensor units and an electronic warfare squadron.

Canada's maritime forces are tasked with the surveillance and control of the sea approaches of the three oceans bordering Canada and the provision of combat ready ships in support of Canada's commitment to NATO and continental defence in co-operation with US forces. Current operational maritime forces consist of 20 destroyers, three support ships, one diving support vessel and three submarines.

In support of United Nations efforts to halt hostilities through the peacekeeping and truce observation roles, Canada currently has approximately 220 military personnel serving in the Golan Heights between Syria and Israel, more than 500 in Cyprus and approximately 20 officers with the truce supervisory organization operated by the United Nations in the Middle East.

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.

Forces firefighters battle a blaze at CFB Borden's firefighting school.



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 harrels
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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Auyuittuq, which in Inuit means "the place that does not melt", is Canada's first national park above the Arctic Circle, located on Baffin Island.

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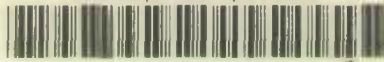


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