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of present conditions
and recent progress

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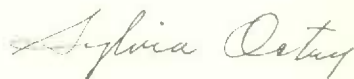
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preface

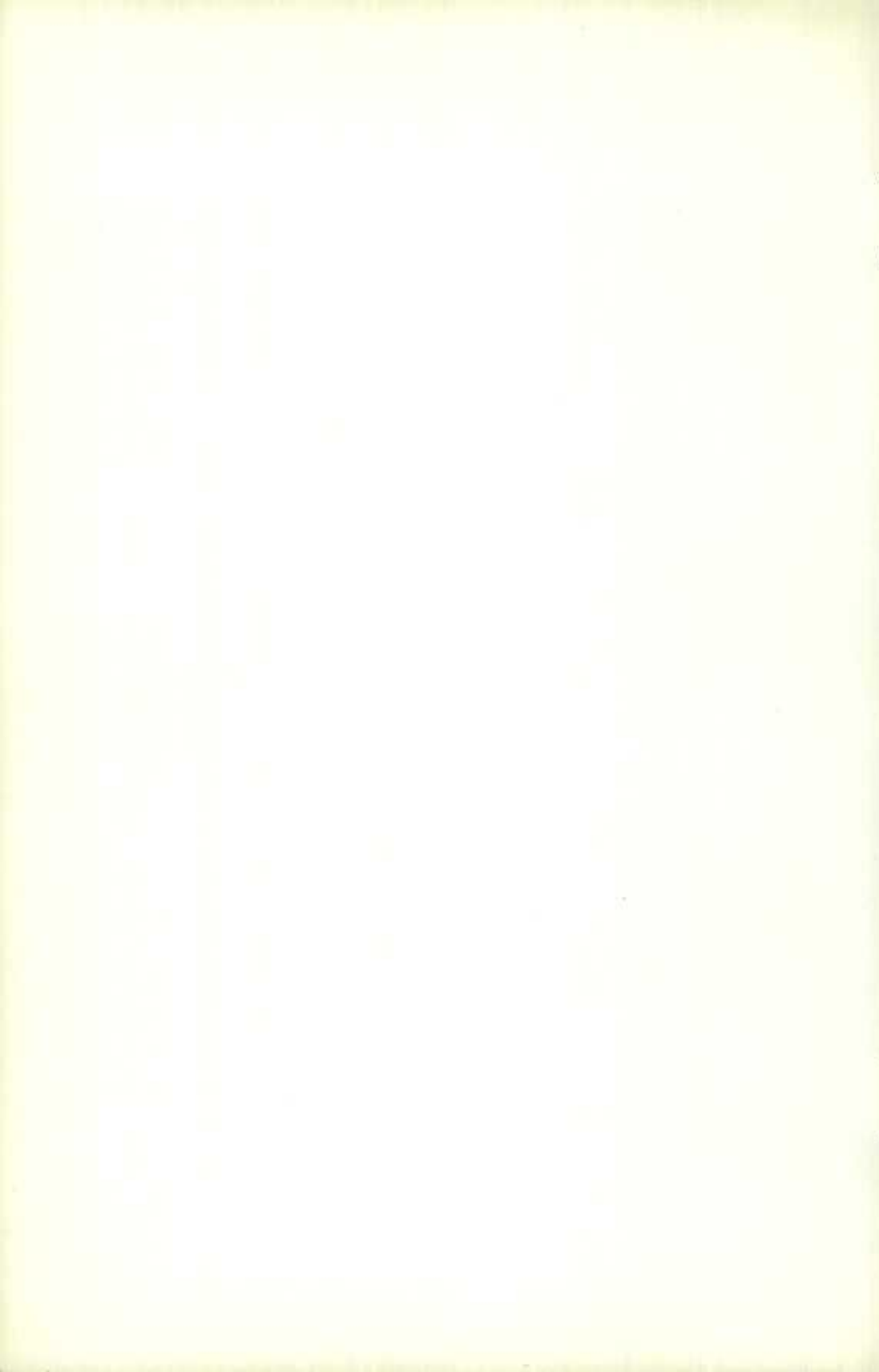
Canada 1975 is the 44th edition of the *Handbook Canada*. It presents a view of life in this country and a summary of recent social, cultural, and economic developments. Textual and statistical material has been provided by various divisions of Statistics Canada, by other government departments, and by special contributors. Articles on Canada's geography, climate, North, arts and culture, scientific research, history, and religion are features of this edition. The illustrations have been selected from a wide range of governmental, commercial, press, and private sources.

Canada 1975 was planned and produced by Constance McFarland, Editor, Margaret Johnstone, Assistant Editor, and the Year Book Section staff, of the Information Division.

A handwritten signature in cursive script, reading "Sylvia Ostry".

Sylvia Ostry
Chief Statistician of Canada

December 1974



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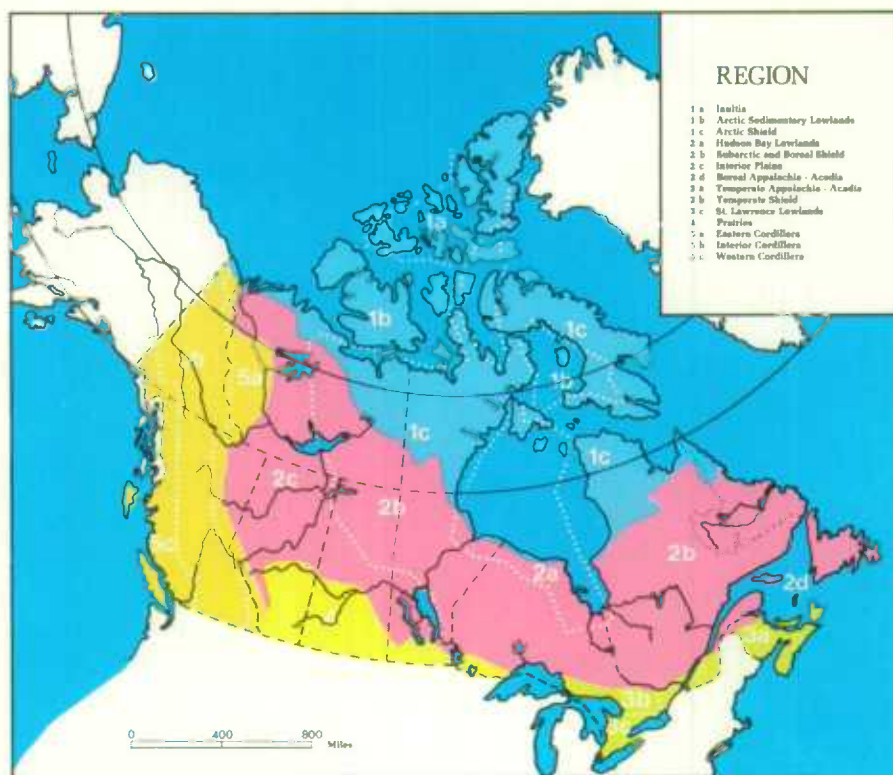
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the land and the environment

The Physical Geography of Canada

Canada is the second largest country in the world with an area of 3,852,000 square miles and the over-all pattern of relief is simple. The interior of the country is a plain-like surface bounded on the east, west, and north by a highland rim but open to our American neighbours to the south. This low relief area is 2,000 miles wide at its widest in the south and narrows to about 1,000 miles in the north. On the western side, the Cordilleran region is an almost unbroken mountain chain extending from the American border to the Beaufort Sea. On the eastern side, the Appalachian Mountain system forms the Atlantic Provinces. On the northern side, the Torngat Mountains of Labrador and the Baffin, Axel Heiberg, and Ellesmere Island Mountains form a more broken barrier.

In any analysis of Canada's physical geography the fact that up to 97 per cent of its surface has been repeatedly covered by glacier ice within the last million years is of fundamental importance in that the surface features of both mountains and plains have been extensively modified. Only the central part of the Yukon Territory and minor parts of the Northwest Territories escaped glaciation. About 2 per cent of Canada is still covered by glacier ice, and the distribution is so restricted that



probably two thirds of the Inuit (Eskimo) population, for example, has never seen a glacier. About 60,000 square miles of ice remain in the Arctic islands and 20,000 square miles remain on the mainland.

Four major vegetation zones and five major landform regions of Canada are used as a basis for the discussion that follows. In general the vegetation zones provide a convenient basis for regional description; only in the case of the Cordilleran region are landforms considered most useful for this purpose. Accordingly, the regions are described under the five major headings of (1) The Arctic Tundra; (2) The Subarctic Parkland and Boreal Forest; (3) The Eastern Temperate Forest; (4) The Prairies; and (5) The Cordillera. Sub-regions of these regions are based on physiographic considerations.

1. The Arctic Tundra Region

The Arctic Tundra corresponds closely to that region which lies north of the southern limit of continuous permafrost. Permafrost is the thermal condition in earth materials that remain below 32°F for several years. Problems connected with building and highway construction, sewage disposal, water supply, and hot-oil pipelines are magnified in such a region and as a result much attention has recently been directed to these problems. Approximately 26 per cent of the land surface of the world is underlain by permafrost, so it is not merely a local problem. The tundra vegetation that is characteristic of this region shows considerable variety, and is discussed under each sub-region.

(a) The Inuitian Sub-region (146,000 square miles)

This is the northernmost part of Canada, north of Parry Channel (74°N). Included are Ellesmere, Axel Heiberg, Parry, and Queen Elizabeth Islands. One third of Ellesmere and Axel Heiberg are covered with ice (about 37,000 square miles) and this includes 12 ice caps each with an area of more than 1,000 square miles. Local relief up to 4,000 feet and highest summits around 8,200 feet provide the setting for some of the harshest environments on earth. In this high Arctic polar desert, vegetation may be completely absent except for crustaceous lichens. "In its variety, its aridity and its glaciers, and above all its potential for petroleum development, it is perhaps the most fascinating of all the regions of northern Canada."¹

(b) Arctic Sedimentary Lowlands Sub-region (158,000 square miles)

Included in this category are most of the Arctic islands south of Parry Channel, such as Banks, Victoria, Prince of Wales, Somerset, and Southampton Islands; low-lying parts of Devon, Ellesmere, and Baffin Islands; and the Arctic Coastal Plain, including the Mackenzie River Delta. They form low coastal plains and plateaus underlain by horizontally bedded sedimentary strata covered by a variable depth of drift sediments or, in the case of the Mackenzie Delta, fluvial sediments. Although underlain by continuous permafrost, the land surface shows a markedly

¹J. B. Bird in W. C. Wonders, *The North* (Toronto, 1972), p. 24.

Numerous fiords stretch through the barren rock in the northwest section of Ellesmere Island.



richer tundra vegetation than the Inuitian sub-region. Lichen moss tundra, including reindeer moss in the drier sites and wet tundra with grasses and sedges, provide an almost continuous vegetation cover. The Mackenzie Delta has an exceptionally rich vegetation including stands of white and black spruce on the higher parts of stable river island bars. Rock deserts and peat-covered tundra plains are also present and are especially well developed on Southampton, Coats, and Mansel Islands in Hudson Bay.

Of particular interest in this sub-region are the distinctive landforms that have developed under the influence of periglacial processes. Spectacular conical shaped hills called pingos develop in drained lake bottoms along the Arctic coastal plain; polygonal patterned ground is common; mounds, hollows, and mud circles are widespread; and solifluction terraces — resulting from the saturation of the soils and frost action — are here classically developed. All this over a depth of permafrost that reaches 1,300 feet in the delta and 1,600 feet on the islands; also on massive layers of ice up to 100 feet thick.

(c) Arctic Shield Sub-region (545,000 square miles)

Included in this part of the Arctic tundra are 20 per cent of the Mackenzie District of the Northwest Territories, 80 per cent of the Keewatin District, 35 per cent of the Franklin District (including most of Baffin Island)—all in the Northwest Territories—and 15 per cent of Quebec. At least two rather distinct landscapes are evident. There is the spectacular eastern highland rim which includes the south-eastern corner of Ellesmere Island, the eastern end of Devon Island, Bylot Island, eastern Baffin Island, and the Torngat Mountains of Quebec, with local relief in the Baffin fiords as high as 6,000 feet. Some of the most remarkable glaciated erosional topography of the North American continent is found on Baffin Island's east coast. The remainder of the sub-region is commonly known as Canada's Barren Grounds, and is characterized by uplands, hills, and rocky lowlands.

The Coppermine River flows through areas of varying tundra vegetation in the Northwest Territories.



The most luxuriant tundra vegetation known as bush tundra, with willow and alder bushes and dense undergrowth, occurs locally in the Barren Grounds, especially on the south side of Amundsen and Coronation Gulfs. Wet tundra is more common in the eastern part of the sub-region where the environment is generally more humid. While the eastern rim may have long periods of cold, cloudy, damp weather in summer, the western shield has weeks of warm, dry, cloudless weather.

In spite of this poor climate the fiord lands of Baffin Island support the widest variety of arctic ecosystems. Cliffs and talus slopes, gravel outwash plains, coastal sedge and grass marshes, and permanent ice caps, in addition to the standard wet tundra, give variety to the landscape.

2. The Subarctic Parkland and Boreal Forest Region

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

(a) Hudson Bay Lowland Sub-region (117,000 square miles)

Although continuous permafrost is present in the narrow strip along the Hudson Bay coast where the mean annual air temperature is less than 25°F, the significant change that characterizes this sub-region compared with those areas discussed above is that it does not have permafrost. In the southernmost part of the lowland there is no permafrost at all; at the southern fringe of the discontinuous permafrost zone (53½°N is the southernmost occurrence of permafrost in Canada outside the Cordillera), permafrost islands vary from less than 50 feet to several acres in extent and a few inches to 2 feet in depth. At Churchill the permafrost is continuous and 200 feet deep.

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

Scattered to dense spruce stands, 2 to 40 feet in height, and tamarack are dominant. Alder and willow form the undergrowth. Sphagnum, feather, and other mosses; Labrador tea; grass; and marsh sedge form the ground vegetation.

Microrelief of hummocks, peat plateaus, and palsas up to 20 feet in height is characteristic. It is estimated that peat is accumulating at a rate of 1 inch every 20 years.

(b) Subarctic and Boreal Shield Sub-region (1,295,000 square miles)

Covering 40 per cent of Mackenzie, 10 per cent of Keewatin, 35 per cent of Saskatchewan, 60 per cent of Manitoba, 80 per cent of Quebec, and 55 per cent of Ontario, this represents the largest single sub-region described. The Precambrian bedrock of the Shield gives subdued relief, and extensive drift areas are preserved.



Rugged Canadian Shield terrain at Redrock Lake and Point Lake areas.

Fluvioglacial deposits in the form of eskers are particularly well expressed in the Keewatin and eastern Mackenzie Districts. Another noteworthy feature is the recentness of massive post-glacial marine inundation such that, for example, on the east side of Hudson Bay post-glacial marine features are found as high as 900 feet above the present sea level.

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

The forest-tundra zone varies from 30 miles wide in Mackenzie to 100 miles wide in Keewatin and Quebec. Islands or strips of white or black spruce or (in Quebec) larch are restricted to sheltered areas but become progressively more dominant southwards.

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

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

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

(c) Interior Plains Sub-region (571,000 square miles)

This sub-region covers 25 per cent of Mackenzie, 10 per cent of British Columbia, 80 per cent of Alberta, 30 per cent of Saskatchewan, and 30 per cent of Manitoba. With the same three major vegetation associations as the Shield immediately to the east, the major difference between the interior plains and the Shield lies in its physiography. Major hills, plateaus, and escarpments are formed by outcrops of gently dipping sedimentary rocks (limestone, sandstone, and shale) which contrast with the Precambrian rocks of the Shield. On the other hand, the details of the landscape are a product of glaciation and particularly extensive areas are occupied by meltwater channels from proglacial lakes, and by much lake-bed materials. The sub-region is about 600 miles wide in the south, it narrows to 200 miles wide east of the Franklin Mountains, and widens to 500 miles again in Western Mackenzie. The scenery consists of wide vistas of undulating plains, the occasional valley cut deep below the general surface and the distant lines of hills and escarpment.

There are no mountain barriers to provide protection from cold air moving south

Iron ore in transit near Sept-Îles, Que.



from the Arctic or from warm air from the Gulf of Mexico. Consequently the widest variation of temperature between summer and winter tends to occur and day-to-day changes are frequent. Those areas within 100 miles or so of the Rocky Mountain foothills experience Chinook winds that can raise temperatures from -20° to $+35^{\circ}\text{F}$ in a few hours (see page 18 below).

(d) The Boreal Appalachian – Acadian Sub-region (60,000 square miles)

This area includes Newfoundland and the Gaspé Peninsula of Quebec. It is moderately rugged country reaching its highest elevation of over 4,000 feet in the Shickshock Mountains of the Gaspé. Newfoundland has an extremely varied physiography and as a result there are considerable limitations to agriculture. About half the province is classified as bedrock outcrop or thinly mantled with stony till; one quarter is classified as ground moraine; one tenth is end moraine; one tenth is organic terrain or sphagnum peat in morainic depressions; the remaining 5 per cent is glaciofluvial, marine sediment, and recent alluvium, which has some agricultural potential.

3. The Eastern Temperate Forest Region

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

(a) Temperate Appalachian – Acadian Sub-region (81,000 square miles)

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

(b) Temperate Shield Sub-region (62,000 square miles)

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



Prisms of autumn colour shimmer in the Mont Tremblant area of Quebec.

Prince Edward Island's fertile greenery reflects its agricultural potential.



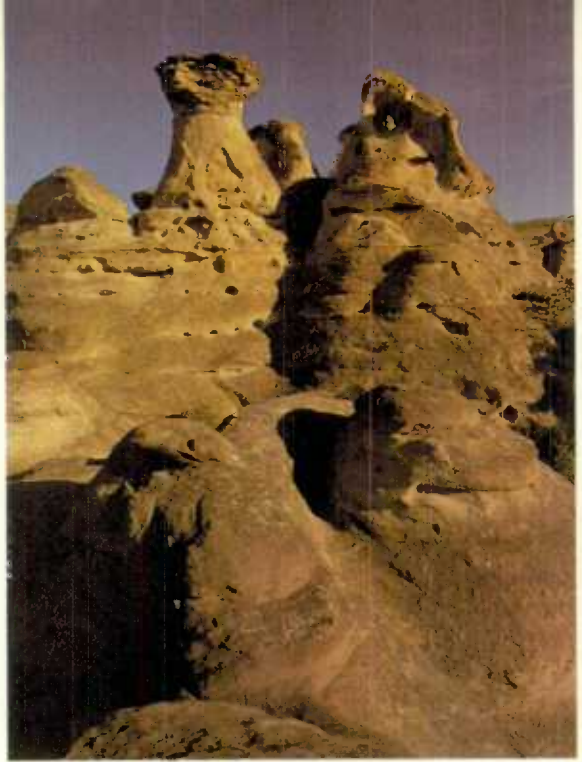
(c) St. Lawrence Lowlands Sub-region (70,000 square miles)

Ten per cent of Ontario and 5 per cent of Quebec are included in this small sub-region. It contains Canada's two largest cities, Toronto and Montreal, and the St. Lawrence Seaway connects the heart of Canada to the Atlantic Ocean. Located between the Appalachians and the Shield, these lowlands are formed of very gently dipping Palaeozoic sedimentary rocks. West of the Thousand Islands they are 150 miles wide; east they are never more than 75 miles wide. Most of the land is undulating and less than 500 feet above sea level, but in the Bruce Peninsula, above the Niagara Escarpment, the plain reaches 1,800 feet. In detail, the lowland has a varied terrain that has been investigated more comprehensively than any other landform region of Canada. Glacial depositional features predominate. Till plains are extensive, and there are recurring end moraines, drumlins, clay plains, and sand plains. Beech-maple forest is the dominant vegetation with admixtures of white oak, hickory, walnut, basswood, and black cherry. In terms of heat and sunshine or growing days a year the southwestern corner is by far the most favourable area for agriculture in Canada. The presence of deciduous forest is evidence of that preferred environment. The influence of the Great Lakes reduces the range in temperature from winter to summer by as much as 15°F compared with parts of Minnesota in equivalent latitudes.

Rapeseed in Manitoba. Over 90 per cent of the rapeseed crop is exported, principally to Japan.



Weird pinnacles and grotesque forms called "hoodoos" at Writing-on-Stone Provincial Park, Alta.



4. The Prairie Region (130,000 square miles)

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

Tall, short, and mixed grass prairie form the core of the region. The tall grass prairie, typical of the Lake Agassiz plain west of Red River, Man., is the result of an abundant supply of moisture. The short grass prairie (notably blue grama, June grass, wheat grass, and spear grasses) has a moisture deficit of 8 to 12 inches. But there are many complex associations relating to particular drainage, soil, and topographic conditions. The mixed grass prairie has a denser, taller, and more diverse cover. It is transitional between both long and short grass prairie to parkland.

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

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

5. The Cordilleran Region

The Cordilleran region is part of one of the major mountain systems of the world. Five of the eight major forest zones of Canada (not to mention the Alpine tundra zone) are represented: the boreal, subalpine, montane, coast, and Columbia forest zones. The boreal forest zone has already been described and is well developed in the Cordillera in northern British Columbia, southern Yukon Territory, and southern Mackenzie territory. The subalpine forest is a coniferous forest found on the higher slopes of the mountains east of the Coast Mountains. Typical species are Engelmann spruce, alpine fir, and lodgepole pine. The montane forest, with Ponderosa pine, Douglas fir, lodgepole pine, aspen (in the north), and sagebrush (in the southern valleys), is extensive in the interior plateau of British Columbia and a small area on the east side of the Rockies. The Columbia forest is characteristic of the southeastern part of the interior system of British Columbia, with western red cedar and western hemlock the typical trees. Finally the coast forest, on the west-facing slopes of the Coast Mountains and the western islands, is the finest forest in Canada. Towering stands of western red cedar, western hemlock, Douglas fir (south), and Sitka spruce (north) are extensively exploited commercially.

(a) Eastern Sub-region (177,000 square miles)

This area is 60 per cent rugged mountains (Mackenzie, Richardson, and Rocky Mountains), 30 per cent plateaus and foothills (Porcupine and Liard Plateaus and Rocky Mountain Foothills), and 10 per cent plains (Old Crow, Eagle, and Mackenzie Plains). The highest peak is Mt. Robson at 12,972 ft. One of the most characteristic features of this landscape is the impressive cliffs in near-horizontally bedded sedimentary strata, which have been carved by glaciation. The Rockies are seldom more than 60 miles wide but together with the Mackenzie and Richardson Mountains they form an almost continuous series of ranges from the 49th parallel to the Arctic.

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

(b) Interior Sub-region (317,000 square miles)

Approximately 55 per cent are plateaus (Interior, Stikine, Hyland, and Yukon), 40 per cent true mountains (British, Ogilvie, Selwyn, Cassiar, Omineca, Skeena, Hazelton, and Columbia) and 5 per cent lowlands (Rocky Mountains, Tintina and Shaskwak Trenches). This extremely complex region is characterized by lesser local relief and a drier climate than the surrounding mountains. A considerable number of the peaks of the Columbia Mountains exceed 10,000 feet. The interior plateau ranges from 2,000 to 5,000 feet in elevation with local relief up to 3-500 feet and deeply entrenched valleys to 3,000 feet deep. The plateau is narrowest and highest in the south where it narrows to less than 30 miles between the Cascade and Monashee Mountains. It broadens to 200 miles in the Nechako-Prince George area.



Mount Forbes rises over 11,000 feet in Banff, Alta., Canada's first established national park.

Fall colouring in the North—between Dawson City and the Alaska border.



Here the plateau is lower, the valleys are less deeply incised, and low hills form the scenery. There is also a change in vegetation from the mixed forests in the north to the mountain woodland, grassland, and arid sagebrush country to the south.

(c) Western Sub-region (121,000 square miles)

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

Longitudinally, the System is divided into three: the Coast Mountains of the mainland, the outer mountains forming the Queen Charlotte and Vancouver Islands, the St. Elias Mountains, and between the three a series of lowlands. The Coast Mountains and the St. Elias Mountains contain the bulk of the 20,000 square miles of glacier ice on the Canadian mainland. Mt. Waddington, over 13,000 feet, is the highest peak in the Coast Mountains and Mt. Logan at 19,850 feet is the highest in the St. Elias Mountains. Along the coast for nearly 1,500 miles from Vancouver to Alaska there are major fiords.

The tree line declines from 6,000 feet on Vancouver Island to 3,000 feet in the northern Coast Mountains. Over the same distance the level of glacier snouts declines from 7,800 feet to sea level. This means that in the northern Coast Mountains, glaciers and forests are juxtaposed. The heavy snow accumulation is perhaps the most distinctive hydrologic feature of this sub-region.

OLAV SLAYMAKER

The Grand Pacific Glacier inching through northern British Columbia toward Glacier Bay, Alaska.



The Impact of Canada's Climates on Agriculture and Forestry

A considerable share of Canada's national income is derived from the annual export of agricultural and forest products. Statistics have shown that climate has a dominant influence on grain yield: as the climatic elements like temperature and rainfall vary from year to year so varies the number of bushels of grain harvested on a given acreage. In a similar manner the yield of the national forests depends on long-term variations in climate. Climatic requirements for crops and forests are well known; the crop selection open to farmers depends on climatic factors.

Canada is a northern country and its agriculture is always at the mercy of the elements. Losses due to climatic extremes are sustained year after year: cash receipts are reduced by hundreds of millions of dollars. Frost, flood, drought, heat, hail, and storm are the main threats. Man answers these by introducing frost protection methods, dykes and irrigation, various cultivation practices as well as by developing hardier species and hybrids. The agroclimatologist, together with many other scientists, strives to assist the farmer by putting new knowledge and methods at his disposal. Use of this information will help him to improve his chances in the continuing struggle against the weather elements and thus to maximize his income over the years.

Climatic Controls

Canada's climates are closely related to its physical geography. The Coastal Mountains shield interior British Columbia from invasion by mild and moist Pacific air, thus creating a variety of local dry and continental climates, generally characterized by cold winters and hot summers. Another wall, farther east and even higher in places—the Rocky Mountains—intensifies this trend towards drought. The prairies are open to invasion by both arctic winds and hot southerly breezes. The Great Lakes and Hudson Bay, legacies from the last glaciation epoch, are huge bodies of water, capable of storing summer heat and releasing it during autumn and early winter. Thus the occurrence of the seasonal temperature extremes is delayed by several weeks and the winter to summer temperature difference is significantly reduced in the region around these bodies of water, especially to their south and east.

While the ameliorating effect of Pacific ocean breezes is limited to the coastal region, the eastern provinces of Canada are open to invasion by Atlantic air masses. In view of the generally westerly circulation this does not happen frequently but it tends to add a dimension to the climate of eastern Canada. In winter most of northern Canada and the frozen Arctic Ocean are the source of very cold air masses which from time to time "spill" across the southern districts and most of the United States. In summer the atmospheric circulation is weak, giving the sun an opportunity to warm the cold land and water bodies and the air in contact with them. Both the intensity and the frequency of disturbances are reduced during this season, and slow-moving systems usually frequent a relatively high latitude belt close to the Arctic Ocean.

West of the Rocky Mountains

The climate of Canada's mountainous province, British Columbia, is only partly under the influence of the Pacific Ocean. The greater Vancouver area, the centre of the population, is located near the mouth of the Fraser River, draining a valley which is narrow in the east and open towards the sea in the west. High mountain ranges provide shelter from north winds while the horizon is very low in the south. Thus the storms that move inland from the Pacific bring mild oceanic air and copious rains with them, maintaining the highest January mean temperatures in all of Canada, Tofino 40°F, Vancouver 37°F, and Agassiz 34°F. The warming influence of the Pacific through the Fraser Valley in January, the coldest month, is thus appreciated. Even the coldest temperature at Tofino in the last fifteen years was only 5°F, compared to 0°F at Vancouver Airport, but to -13°F at Agassiz. This is barely below the temperature that damages peach blossom buds in the dormant state (-12°F). Temperatures are normally mild and there is very little snowfall.

Sometimes, however, low pressure areas move onto the continent well to the south of British Columbia, causing cold air to flow southwestward through the valleys. If this situation persists for a while, snowfall and low temperatures occur in southern British Columbia. But these spells rarely last long and invariably the mild but rainy weather returns to melt the snow. Recently, winters have been relatively cold with many new records established, as comparisons of normal temperatures from the 1931-60 period with those from the 1941-70 period show a cooling trend.

In the warm season, the zone of westerly winds shifts farther north, steering the rain-bearing clouds onshore in northern British Columbia while the southern part enjoys a predominantly hot and dry climate, tempered by cool breezes near the Pacific. This climate, which is reminiscent of the Mediterranean's, tends to summer drought, which allows only spare growth in the valleys of the southern interior. Only pines can survive the rigors of this climate and vegetable growers must resort to irrigation to supply the needed moisture. Thunderstorms frequently occur over

Fruit orchards flourish throughout the Okanagan Valley of British Columbia.





Roundup in the foothills of Alberta where soil is well suited to grain production.

the higher ranges where they augment the copious winter snows in maintaining rich forests on the slopes of the higher ranges in the south and merge into a broad wooded belt in the northern half of the province. The complicated and variable distribution of tree species bears witness to the variety of local climates, produced by complex thermal and precipitation regimes resulting from variations of slope, elevation, and aspect in this rugged mountain land.

Agricultural acreage is found primarily in the Fraser River Valley below Hope, in most southern interior valleys, in the southeastern regions of Vancouver Island and in scattered smaller enclaves in the central part of the province. Mild winter temperatures allowed the establishment of widespread fruit orchards in the southern interior especially the Okanagan Valley, where choice fruit is grown for export and home consumption. Irrigation is used to raise yields and to protect crops against spring freeze. In these mountain valleys, spring and autumn frosts are a threat to the fruit harvest. In addition, some cold winters may bring temperatures injurious to the fruit trees. Thus while gains may be high, risks have to be taken.

The length of the growing season is an important limit in selecting crops for cultivation. The number of consecutive days with mean temperatures higher than 42°F gives a good appreciation of this season. In the lower Fraser River Valley, there are 240-60 such days each year, permitting a great variety of crops, fruit, and berries to be raised. In southern interior valleys, there are 200 days, falling to 160 in the north. These values represent point statistics from valley stations only and do not permit conclusions about the climate on the slopes or at high elevations. Frost-free periods range from 200 days at the coast to 140 in the southern interior valleys to 80 days and less in the northern interior.

The Prairies

This area's climate is significantly affected by the wall of the Rocky Mountains to the West. Its main effect is to remove the moisture from the mild Pacific air and to heat the westerly winds descending the eastern slopes by compression. This well-known phenomenon is locally called the Chinook. Even during deepest winter it may suddenly raise the mercury 50°F, often higher, at the same time lowering the relative humidity of the air to desert levels. There are no mountain barriers to protect this region against the arctic air, neither is there a significant physical barrier to the south, leaving the region open for air currents from all directions except the west. During winter, the Prairies are usually dominated by Arctic air, occasionally interrupted by the Chinook in the southern part of Alberta for a spell, where it is strong enough to "eat up" the snow. A true Chinook with temperatures above freezing is never felt as far east as the Saskatchewan border.

There is a gap in the Rocky Mountains west of the Peace River area, allowing moist Pacific air masses to pass through at low levels. Usually during winter the air pressure distribution is such that this happens rarely, but in summer it happens more often and enhances the precipitation regime with important benefits to grain growers. In the southern Prairies, summer precipitation usually falls as showers, amounting to 8-12 inches during the growing season. During the cold season about 4 inches falls mostly in the form of snow, totalling about 30-40 inches. However, the depth of the snow cover rarely exceeds 12 inches at any time.

The regime of precipitation varies from year to year, introducing an element of high risk into agricultural production. Consequently the conservation of moisture from winter snowfall is a very important aspect of land management on the Prairies. Another risk besetting agriculture is the early fall frosts. The growing season starts early, during the second half of April, and also usually ends early, in the first half of October, owing to the high latitude and the lack of major modifying influences. This means the growing season is 160-70 days long. The frost-free period runs from 100 to 120 days, and even as low as 80 days in exposed locations.

Winter temperatures are very cold, with mean temperatures close to 0°F, in the south and -10°F in the north. Sometimes periods occur with readings as low as -40°F and colder. The northeastern areas tend to have a more uniform temperature regime than the southwest. Hot summer temperatures are general in the Prairies, with mean maximum temperatures above 80°F, but there are cool temperatures during the night, giving daily mean temperatures in July of 65-70°F. The humidity is usually low, making summer weather pleasant.

Winds in the Prairies are relatively strong due to the absence of obstructions in the airflow. This causes both high evaporation rates and a constant threat of soil erosion. In view of the relatively light precipitation the high evaporation reduces the available moisture below the requirements of forest trees, especially in the southwest. Thus the climate sustains only a grass cover in its natural state. Irrigation is practised in southern Alberta and Saskatchewan to augment the natural precipitation. Shelter belts have been planted in some areas to reduce wind and evaporation.

Almost every year one or more tornadoes are observed in the Prairies. Due to the low density of population, significant damage or loss of life is quite rare. Prairie



soils are well suited to grain production, the chief source of income for farmers, but forage crops and sugar beets are also grown. Although the choice of crops is limited by the short growing season and moisture considerations, the area as a whole has seen a significant increase in agricultural income over the years.

Southern Ontario and Southern Quebec

This region forms part of the drainage system of the Great Lakes. It owes its topography largely to the latest glaciation period which ended about 10,000 years ago. There is relatively high ground in the Algonquin Park region and the Laurentians as well as to the south, where the Appalachians form a barrier toward the

Atlantic Ocean. These topographic features all but enclose the region, with important climatic benefits. While the higher elevations to the north help buffer the region from the worst rigors of arctic outbreaks, the Appalachians tend to deflect many winter storms to the south and east of the region. The Great Lakes system modifies the continental winds from the west by warming and supplying moisture to them. As a result of these topographic factors, winter temperatures rarely fall below -30°F in Southern Ontario and below -40°F in the eastern townships of Quebec. Closer to large bodies of water even milder winter conditions prevail. There is climatic protection in the Niagara belt, a zone protected from northerly winds by Lake Ontario and cold westerly winds by the Niagara escarpment. Similar singularities, but not as pronounced, are found along the eastern shores of Lake Huron and the southern shore of Georgian Bay.



Southern Ontario is one of the richest agricultural areas of Canada, measured by yield per acre.

The synoptic pattern over the region is one of disturbances occurring throughout the year, producing a precipitation regime of 30-40 inches fairly evenly distributed throughout the year. The frequency of precipitation is twice to three times as high in winter as in summer, when less frequent showers but heavier rainfall are the rule. Some 40 to 80 inches of snow can be expected in winter with a maximum snow belt region to the east and south of the Great Lakes. Ice storms are frequent in December but rare by March. In April the Lakes begin to have a depressing effect on the development of rain clouds. The summer months see showers and thunderstorms and, infrequently, a tornado.

The temperature regime shows maritime characteristics. The lowest mean tem-

peratures tend to occur early in February and the highest toward the end of July. While summer temperatures are rather uniform, winter temperatures differ widely. January means vary from 25°F in the southwest to 10°F at the lower St. Lawrence Valley. July means vary from 72°F to 66°F over the same distance. Spring is retarded by the combined effects of the Great Lakes and Hudson Bay. Thus the growing season starts on the average by April 10 in the southwest, April 15 in the Montreal area and April 25 in Quebec City. Delayed by the same factors, it ends around October 21 at Quebec but lingers until November 10 near Windsor, Ont. The length varies from 180 to 230 days. Frost-free periods are over 100 days everywhere, and as long as 140 days near large bodies of water. The maximum is about 160 days from Toronto around Lake Ontario to St. Catharines, thence along the shores of Lake Erie to the American border north of Lake St. Clair.

Evaporation is high, but so is the precipitation during the growing season, leaving only a small deficit, which varies, in the mean, from one inch in the north and east to five inches in the southwest. Irrigation is practised on a small scale only, since the expense is not offset by a large enough increase in yield. However, its use may result in such side benefits as protection from frost.

This climatic belt has many regions with good soils, which permit the growing of many kinds of agricultural crops from soft fruit to sweet corn, from vegetables to grain, from forage to berries, making it a mixed farming area. Soft fruits are limited to the Niagara and other small regions in southwestern Ontario while hardier species are grown in Quebec. A large acreage is annually planted to corn and tobacco. Forage crops are raised and sold for profit. On a yield-per-acre basis this is the richest agricultural area of Canada.

The Atlantic Provinces

The climate of this region is determined by two main factors, the land mass of Quebec-Labrador in the north and the Atlantic Ocean in the south. In addition the Labrador current east of Newfoundland is also of significance as is the presence of the Gulf of St. Lawrence. The mountains of the Gaspé peninsula have a minor influence on the general air flow. Storm tracks tend to converge near Newfoundland producing highly variable and generally stormy winter weather over the Maritimes. In summer, however, the ocean as well as the Gulf are stabilizing factors which tend to suppress storm development. This influence is short-lived, as by October a noticeable increase in the frequency of storms may be observed. November and December have the greatest and most frequent storm fury.

Precipitation is abundant and rather evenly distributed throughout the year. In the south there is more precipitation in the winter months than in the summer months, illustrating the stabilizing influence of the ocean. Only in northern New Brunswick is this trend reversed to show a modest July maximum. Despite the high winds, evaporation is suppressed somewhat by the prevailing cloudiness. Thus summer precipitation everywhere exceeds evaporation ensuring more than adequate soil moisture. Freezing rainstorms are frequent in all winter months. Freezing drizzle is observed very frequently, but the deposits are usually slight. Fog tends to occur in all months with maximum frequencies in spring and early summer.



Barren areas are extensive in Newfoundland.

especially near the south shore of Nova Scotia and Newfoundland.

The temperature regime is moderated by the nearby ocean. February means, the lowest of the year, run in the mid-twenties in Nova Scotia and Newfoundland and around 20°F in Prince Edward Island. In New Brunswick January is the coldest month with mean temperatures in the teens.

Summer comes slowly in the Atlantic Provinces, where the cooling influence of the ocean is most pronounced. The monthly means of July and August are almost equal, around 60°F in Newfoundland and 65°F in Nova Scotia and Prince Edward Island. In New Brunswick, the phase lag is reduced with the warmest month being July, as mean temperatures vary from near 60°F along the shore of the Bay of Fundy to the mid and high 60's in the interior.

Most of the region enjoys a long frost-free period of around 120 days except in the northern interior of New Brunswick and Newfoundland. The growing season tends to start around April 25 in the southwest, May 5 in Cape Breton, May 10 in interior Newfoundland and May 15 around Cape Race. The end of the growing season must be expected by October 11 in the northern interiors of New Brunswick and Newfoundland, however, it is delayed until after November 5 near the Atlantic shore of Nova Scotia. The length of the growing season in Nova Scotia, more than 200 days, compares with that in southern Ontario while there is a minimum of 160 days in the Great Northern Peninsula.

The physical geography of the Atlantic Provinces is not conducive to the practice of agriculture. This is especially true in Newfoundland where climate and rugged terrain combine against it. Conditions in Cape Breton Island are rather similar, and hostile terrain also prevails near the south shore of Nova Scotia. The Annapolis Valley however forms an enclave which is favoured by the flanking protection of ridges both north and south. Furthermore, the Bay of Fundy acts as the modifier of arctic air. Another region of suitable soil and topography conditions is found in Cumberland County, N.S., and Westmorland County, N.B. Prince Edward Island has a combination of soil, topography, and climate well suited for agriculture. Furthermore, the southeastern and eastern regions of New Brunswick have good arable acreage. More is found in the Sussex belt and the Saint John River Valley, but the total arable land acreage in New Brunswick and Nova Scotia is small compared with their size. A fairly wide range of crops, including tobacco, may be grown in Prince Edward Island. As a result the Island (despite its small size) has an agricultural income which rivals that of its sister provinces. High yields are obtained from commercial apple farming in the Annapolis Valley of Nova Scotia, which, owing to its geographic location is close to ports shipping exports to the United Kingdom. The crop selection in New Brunswick, however, is fairly narrow owing to both soil and climate. Here, as on the Island, potato farming is widespread, producing a crop that sells well on the national market.

The Boreal Forest Zone

This is the largest climatic zone of Canada. It begins in the west at the Alaskan border and covers the northern parts of Alberta, Saskatchewan, almost all of Manitoba, Northern Ontario, most of Quebec north of the St. Lawrence, Labrador, and Newfoundland. This forest is essentially made up of the evergreen species such as spruce, balsam fir, and jack pine with varying stands of the deciduous species birch and aspen. Its northern belt, bordering the tundra region, has stands predominantly of white and black spruce and willow. This environment is well adjusted to withstand the rigors of the climate. The interaction of precipitation and the forest deserves particular mention, because of the efficient properties of water retention, reduction of evaporation, and runoff; but its effect on the wind and radiation fields also draws attention to the near perfect ecological balance of the environment.

The thermal regime is the result of the radiation balance and the general circulation of the atmosphere; the former predominates in winter, the latter in summer. During the cold season the sun provides little energy because it is at very low elevation angles, causing a strong attenuation of its rays and a high albedo (reflection ratio). However the ground and the atmosphere continue to lose heat by radiation resulting in a negative balance that causes general cooling until radiative equilibrium has been reached or until other atmospheric influences become more powerful. These main determinants of the temperature regime produce, in January, mean values from 0°F near the southern border to -20°F near the arctic tree line. These means give little inkling of the bone chilling -30°F to -40°F temperatures that may prevail for several days particularly in the Yukon Territory. The forest belt knows cool summers with July mean temperatures ranging from 60°F in the south to 55°F in the north. The 50°F July isotherm runs close to the arctic tree line, demon-

strating the minimum summer warmth requirements of the boreal forest.

While the distribution of species appears to be determined by the temperature, the yield seems more closely related to the precipitation, which varies considerably throughout this zone. The annual precipitation west of Ontario ranges from 12–16 inches, compared to 20–40 inches in the east. The precipitation regime tends to vary more from year to year in the west, giving that part a greater probability of drought. Droughts contribute to the spread of forest fires, the worst threat to the environment. Following a widespread forest fire the threat of soil erosion persists until new growth has restored the soil and its moisture retention properties.

The Boreal Forest zone is significant as a climatic buffer zone between the arctic climate zone and the milder climates to the south by virtue of its radiation balance, which is influenced significantly by the ability of the forest to reduce the amount of reflected solar radiation. It also improves the hydrological balance by reducing the evaporation of precipitation and the regulation of run-off. It not only provides the home for many wildlife species, which could not exist outside, but also affords aesthetic pleasure to man and makes possible many forms of recreation. Thus the forest represents not only an important source of income but also a significant ecological asset which is well worth protecting for the common benefit.

The boreal forest is essentially evergreen with varying stands of deciduous species.





The treeline between the boreal forest and the tundra in Quebec.

The Arctic Climate

Most of this climatic zone is located to the north of the Arctic Circle. As a result, almost continuous insolation (sunshine) from 21 March until 22 September is followed by the polar night. Twilight near the southern edge of this zone provides small amounts of scattered sunlight. Therefore the radiative balance is strongly negative during this period and low temperature is the atmospheric response. Although storms are frequent, the precipitation remains light and falls usually as snow. During the warm season the radiation regime is positive, around the clock. This energy however must be used to melt snow and ice before it can warm the atmosphere. Over the continental portion, this may be accomplished by the end of June, so that July and August are mild months. While the warmth is too brief and insufficient to sustain the growth of trees, it can support a variety of grasses, shrubs, and lichen, which in turn provide shelter and food for the scant arctic fauna.

The Arctic archipelago is in a different position: much sea ice surrounds the islands and the higher elevations are covered by glaciers. While the winter climate is almost indistinguishable from that of the tundra, the summers are quite different. Since the solar warmth is insufficient to completely melt ice and snow, the air temperature during the summer cannot rise much above the freezing point. In addition much fog and cloudiness are observed together with drizzly precipitation. Thus only in sheltered locations can plant life survive here. Most of this land remains devoid of soil and barren. Even in the tundra the layer of top soil thaws only during the brief summer while the lower soil strata remain in the grip of permafrost. Thus agriculture and forestry as known in the southern parts of Canada are impossible in this climatic zone.

Climatic Data for Selected Stations

Station	Mean Temperatures (Fahrenheit)				Lowest on Record	Days Length of Growing Season	Normal Precipitation (inches)			
	Jan.		July				April to September Rain Fall	Total Annual Precipitation ¹	Annual Snowfall	
	Min.	Max.	Min.	Max.						
Newfoundland										
Belle Isle	8.4	21.0	43.0	54.8	-31	98	16.97	35.16	94.5	
Buchans	10.6	24.7	49.5	69.9	-35	148	15.98	38.44	122.7	
St. Andrews	19.3	31.8	51.0	66.9	-11	168	18.48	43.79	77.3	
St. John's	20.5	32.4	51.2	69.4	-14	173	19.03	54.58	130.0	
Maritime Provinces										
Charlottetown	13.3	27.2	58.0	74.5	-23	192	18.50	35.47	120.1	
Annapolis Royal	17.9	32.0	54.3	75.6	-17	206	20.02	47.42	85.9	
Sydney	17.2	30.8	55.3	74.0	-13	186	20.52	52.78	113.4	
Truro	12.8	29.7	52.3	74.8	-30	184	18.47	43.33	95.7	
Yarmouth	21.0	33.4	54.1	68.9	-6	206	21.09	50.52	80.5	
Chatham	6.4	24.1	55.6	77.5	-31	181	17.82	41.38	121.8	
Fredericton	6.0	24.7	54.8	77.7	-38	188	19.67	42.68	95.9	
Moncton	9.3	26.0	54.6	76.3	-36	185	17.85	43.27	123.5	
Saint John	12.2	28.2	54.0	70.1	-22	194	22.58	51.40	85.4	
Quebec										
Bagotville	-5.8	13.4	53.5	74.7	-46	169	19.81	36.87	134.5	
Normandin	-10.2	9.3	51.2	73.6	-53	162	18.13	31.67	92.5	
Quebec	5.6	20.1	58.3	77.9	-34	187	24.08	45.80	118.9	
Sherbrooke	6.1	23.2	58.3	77.9	-42	198	19.89	38.29	110.0	
Trois Rivières	0.6	20.2	56.5	79.2	-38	189	20.07	39.28	123.8	
Ontario										
Kapuskasing	-11.2	9.7	50.7	74.1	-53	160	18.10	34.31	126.7	
Ottawa	4.0	20.5	58.6	79.6	-33	196	17.38	33.50	84.9	
Parry Sound	5.7	24.0	56.8	76.6	-42	194	18.52	40.16	116.8	
Toronto	18.1	30.1	62.3	80.3	-27	218	15.95	31.10	55.5	
Trout Lake	-20.8	-2.0	51.6	69.8	-54	133	14.01	23.51	83.6	
Windsor	18.0	30.7	62.1	82.0	-15	221	18.47	32.91	40.8	

Prairie Provinces

Churchill.....	-24.6	-10.7	44.5	62.5	-49	94	8.06	15.61	72.4
The Pas.....	-17.0	0.4	54.4	74.2	-57	155	11.33	17.70	61.9
Winnipeg.....	-9.8	7.9	56.3	78.6	-49	179	14.44	21.06	51.7
Regina.....	-8.6	10.4	52.9	79.1	-58	181	10.92	15.66	45.2
Saskatoon.....	-11.1	7.7	53.0	78.6	-54	171	9.08	13.88	44.3
Calgary.....	2.0	22.5	49.1	74.3	-49	174	11.41	17.21	60.6
Edmonton.....	-2.9	13.8	52.7	74.1	-55	164	12.73	17.58	51.6
Lethbridge.....	4.8	25.2	52.1	79.6	-45	190	10.12	17.17	71.1

British Columbia

Agassiz.....	29.1	39.0	53.4	75.4	-13	264	19.04	64.87	33.3
Prince Rupert.....	30.6	39.9	50.2	62.5	-6	245	36.36	95.06	44.5
Tofino.....	34.9	45.0	50.4	65.2	5	269	30.04	120.52	16.4
Vancouver.....	31.2	41.4	54.9	71.9	0	255	11.08	42.05	20.6
Victoria.....	35.5	43.0	52.3	68.0	4	301	5.57	25.87	12.9
Kamloops.....	14.7	27.7	56.1	85.3	-35	220	5.17	10.02	30.5
Penticton.....	21.9	31.5	52.9	83.5	-17	219	5.95	11.66	27.2
Princeton.....	9.8	24.9	47.2	80.0	-45	190	5.43	14.13	61.8
Atlin.....	-4.8	9.2	44.7	64.4	-58	137	4.42	11.15	47.8
Barkerville.....	5.3	23.3	41.1	66.8	-52	136	18.56	45.23	228.9
Dease Lake.....	-11.3	5.6	42.4	66.9	-60	138	8.09	15.53	73.5
Fort Nelson.....	-17.6	-1.9	50.7	73.4	-61	152	10.41	17.57	75.4
Prince George.....	2.4	19.0	45.9	71.8	-58	168	11.96	24.43	91.9

Yukon Territory

Whitehorse.....	-9.5	5.6	46.5	68.1	-62	139	5.27	10.24	50.3
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Northwest Territories

Clyde River.....	-23.5	-9.3	33.1	47.2	-50	0	2.14	8.12	60.2
Coppermine.....	-28.0	-14.0	41.3	56.2	-58	65	4.31	8.51	40.1
Probisber Bay.....	-22.1	-8.0	39.1	53.4	-50	61	6.75	16.34	97.2
Resolute.....	-33.1	-20.0	34.9	44.5	-62	0	2.31	5.37	31.0

¹Total rainfall plus 10% of total snowfall.

The Canadian North

In geographic terms, one of the most striking features of Canada is that most of its inhabitants live near the American border. The most densely populated cities—Montreal, Toronto, Vancouver, and Ottawa—Hull—are located within less than 100 miles of the most powerful country in the world. It would, however, appear necessary to define where the Canadian population lives in relation to latitude. During the Second World War Canada became involved with a new frontier area—the North. Is this region more populous now than before? Is it evenly populated? And how does one define “northern” Canada?

The North and the South

In general, there are two different ways of defining Canada in relation to the North. From an administrative point of view, on the one hand are the Northwest Territories and the Yukon Territory, which might be considered the North, and on the other the provinces which are almost entirely in the South. This official but somewhat unsatisfactory way of looking at the country leaves 40 per cent of the total area of Canada and 60,000 of its inhabitants in the North.

Another way of dividing the country by latitude consists in defining an Arctic zone with 20,000 inhabitants beyond a sub-Arctic zone which includes a few million inhabitants. The latter, the definition of which is based exclusively on summer temperatures, has the conceptual inconvenience of grouping together such vastly different regions as the Laurentians and Great Bear Lake.

Using a personal interpretation of “northness” calculated on the basis of 10 physical and human factors, we suggest drawing a base line running between the south and the north of Canada. The northness of this 30-mile wide geographical frontier, is equal to 200 “northern, or polar units.” (For purposes of comparison the North Pole rates 1,000.) As the map shows, the frontier zone crosses Newfoundland and the north shore of the St. Lawrence, passes north of Lac St-Jean and Abitibi in Quebec, Lake-of-the-Woods in Ontario, north of Winnipeg, Man., cuts across Saskatchewan to the east of Prince Rupert, takes in the Peace River in Alberta and British Columbia, and reaches the Pacific at the southern tip of Alaska.

To the south of this broad geographic strip lies what is generally known as southern Canada and to the north lies the “Canadian North.” The comparative populations of the two zones are quite unequal. At the time of the 1971 census, one included 21,275,609 inhabitants and the other only 292,702. Thus, 98 per cent of all Canadians live in southern Canada even though the latter represents only 23 per cent of the land area of the country. Despite their major differences, the North and the South need each other. The North provides space, wildlife resources (polar bears), primary metals (iron, nickel, uranium and fossil fuels) and two unique cultures (Inuit or Eskimo and Indian) while the South serves as a base for social, economic, and political development.

Between the true North and the principal centres of southern Canada lies a transition zone—the Near North—which includes the island of Newfoundland, the Ontario shore of Lake Superior, the Interlake region of Manitoba, and the Peace



River bloc. By the date and density of its settlement and by its transportation systems, the Near North is very much a part of southern Canada.

A Century of Development in the Canadian North

Settlement of this area falls into three distinct periods. First, in the early 1880's Canadian northerners were located mainly in the east of the country. By the end of the first decade of the 20th century, there were scattered groups of 8,000 to 10,000 northerners (whites and native peoples): in the Northwest Territories (Inuit), in the Yukon (gold-seekers), in Manitoba and Ontario (Indians), and on the north shore of the St. Lawrence (whites and Indians). However, the main northern group lived in Newfoundland.

The second stage of penetration into the North as a whole occurred during the 20th century. Between 1911 and 1941 the regional pattern of the population was redrawn by new settlement. Following mining and agricultural development along the western edge of pioneer eastern Canada, "Alsama" (Alberta, Saskatchewan, and Manitoba) became the principal demographic "megaregion" of the North. In 1941, the weakening of the northern character of the Abitibi region in both Ontario and Quebec strengthened the Prairie proportion, which at that time absorbed more than half of the northerners in Canada. Before long this privileged position of the North became a major factor influencing new arrivals to settle in the North—the

grandchildren of the wave of settlers in 1911 or the children of those who came in 1941. Their background contributed to the "westernization" of the new pioneer areas of the Mackenzie. The Yukon Territory, then deserted by its prospectors, was the only political division to record a drop—and a substantial one—in population.

Finally, the third stage came after the Second World War. The present-day pattern reveals a new-style North. As the last agricultural frontiers—such as those in the Peace River bloc—become less north in character, new reasons for settlement are becoming visible: developments in mining, petroleum production, hydro-electric power, administration, and tourism. Thus, for any of these reasons, or a combination of some, Manitoba and Quebec—Labrador have become the most densely populated northern centres. At the megaregion level however, Alsama is still predominant, with 41 per cent of the people, followed by the two Territories combined, with 18 per cent. As for the three largest Canadian provinces, they contain only 22 per cent of the northern population of the country.

The North is continually evolving and the various regions concerned, while progressing along their own individual ways, still reflect the Canadian condition as a whole.

Subdivisions of the Canadian North

The Canadian North is no more a single region than is southern Canada. It is obvious that "northness" becomes more accentuated as one moves from south to north. The growing season becomes shorter; the snow carpet, although thinner, lasts longer; on Melville Island the soil is frozen to a depth of 1.600 ft. As one goes northward, the heavy forest cover gives way to scattered trees, then to dwarf bushes, which in turn leads to the rich tundra and then to bare rock. However, this gradation is uneven, hence the inadequacy of using specific criteria such as degrees of latitude to delimit the various northern zones. There are three such zones: the Middle North, the Far North, and the Extreme North. These simple yet meaningful designations have been chosen deliberately. Because they have the twin advantages of a common root and a specific comparative, they are easily understood.

The Middle North

Beyond the Near North, which has been incorporated into "southern" Canada, extends the widest single northern band of the country, that of the Middle North. On the basis of the polar index described in an earlier article (*Canada 1970*) this zone is bounded by the isograms of 200-500 polar units. About 500 miles wide, this concave belt stretches from Labrador to the Yukon. As to climate, the region is generally sub-arctic. Economically, it was once the realm of the beaver, but is now the site of pioneer penetration or "corridors" such as the central core linking the Peace River bloc to Great Slave Lake. Across Quebec—Labrador, downstream from the Saguenay River, this manner of penetration has become increasingly apparent over the last 20 years. There are two main reasons for the opening-up of pioneer routes—iron ore to the east of Havre-Saint-Pierre, Sept-Îles, and Port Cartier, and hydro-electric power along the Betsiamites (Bersimis) River system, and the Outardes, Manicouagan, and Churchill Rivers. "Vertical" axes of communication are

characteristic of this area. Unfortunately neither in Quebec-Labrador nor elsewhere in the Canadian North, are these linear penetrations linked across parallels of longitude. In the whole of the Middle North there is no transcontinental passage—not even by air. That is one of the prime reasons for the weak economic structure of the North. The subarctic has no centre, according to W. Wonders.¹

The Middle North, with nearly 300,000 inhabitants, contains 93 per cent of all northerners in Canada and represents the end of the linear and contiguous expansion of southern “bases”. The territorial capitals of Whitehorse and Yellowknife, with good connections to the south, are within this zone. In the Canadian North, increasing “northness” and fewer inhabitants go hand in hand.

From the Atlantic to Alaska, economic activity in the Middle North is uneven, a fact that reflects the unequal distribution of primary materials and the active interest of the major urban development centres with which these northern oases are linked. The provincial and territorial distributions of the population of the Middle North underline the degree of this interest. Eighty-seven per cent of the Middle North lies within the various provinces: Western Canada predominates, especially if the Yukon Territory and the Mackenzie section of the Northwest Territories are included with the western provinces. Hence, on the basis of population, southern Canada and northern Canada are a long way from having their principal population centres near the same longitude. The main core of the North is not opposite the central core in the South which has developed largely in the east-central part of the country. From the St. Lawrence, the Canadian North seems something away off to the northwest.

¹In *Canada: A Geographical Interpretation*, ed. J. Warkentin (Toronto, 1968), p. 476.

Yellowknife, the capital of the Northwest Territories, has two gold mines.





1



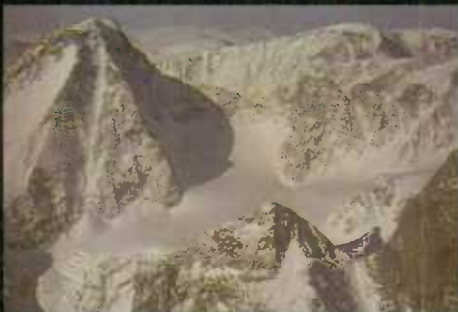
2

A multitude of distributaries and channels form unique patterns in the Mackenzie River delta.

Muskoxen are among the Arctic animals found on Devon Island.

Penny Ice Cap on Baffin Island — Alpine glaciation is significant on the Island.

Baillarge Bay, Baffin Island, N.W.T.



3



The Far North and Extreme North

These descriptive names pertain to the harshest climatic regions in the country. It is scarcely to be wondered at that the civilian population totals only about 20,000 persons, with most of these in the Far North. Together, the Far North and the Extreme North are akin to the Arctic in the strictest sense of the word.

Location

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

By definition the southern limit of the Arctic (or the Far North) corresponds to the 500-polar-unit isogram. This line does not follow the political boundary of the Northwest Territories, but diverges from it, particularly in the Mackenzie Valley which, because of its summer climate, is better classified as subarctic. It is therefore in central and eastern Canada that polar conditions extend farthest south.

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

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

Climatic Features

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

There are different types of ice inside the ground, from pingos (hills with ice cores in the Mackenzie region) to the ice cement which binds mineral particles together (permafrost). In Melville Island the ground is frozen to a depth of almost 1,600 feet. (In Central Siberia the permafrost is three times as deep.) During the



Inuvik, N.W.T., built on permafrost is serviced by the utilidor system—with a large insulated tube housing water, steam, and sewage pipes.

summer the upper zone of the permafrost thaws from a few inches to a few feet deep. As a result of this seasonal change, the foundations of houses and roads become less solid. Special building techniques have had to be developed, such as those used for the radar bases and in Inuvik. Permafrost also prevents the inhabitants from placing their water pipes underground. They have therefore invented the "utilidor system," which consists of boxes mounted on pilings. Inside the boxes are pipes carrying clean and used water. The boxes are well insulated and are heated when necessary. The alternate freezing and thawing at ground level creates curious surface formations such as perfect circles of stones and innumerable pools. These figurations show how extremely sensitive to seasonal change is the shallow layer of ground which is naturally in harmony with its equally delicate covering of vegetation. Any disturbance of this thin surface will set in motion uncontrollable melting or freezing. On account of this danger, it seems desirable to limit vehicle movement to winter when the frozen ground is protected by a bit of snow.

A considerable volume of floating ice is found between the land masses. Outside the strips along the coast where surface water freezes on the spot, icepacks are formed by the inward movement of separate pieces of ice. These independent blocks and floes may be welded together by new ice. This creates an attractive mosaic of colours and shapes. Impressive ice thrusts accumulate on the low-lying coasts. The thaw comes late, yet it extends everywhere except for some channels in the Far North exposed to the polar cap. For this reason, the *Manhattan* was blocked in 1969 north of Banks Island. To facilitate navigation, two types of ice indexes have been developed: one informs the ship's master of the quantity of ice and the other indicates the size of the floes. In the Canadian Arctic the three main waterways at the end of summer are Hudson Strait toward Churchill, and the passages from Baffin to Resolute and Amundsen Gulf to the north west estuary of the Mackenzie.

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

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

As in the rest of Canada, seasonal climatic changes are pronounced. The sunless period (north of the Arctic Circle), the half-seasons when travel is difficult, and the storms of winter are the most difficult times of the year.

Territorial Organization

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

There are several political structures in the Arctic. For example, the part north of the 60th parallel of latitude (outside the Quebec-Labrador peninsula) is the domain of the two governments, the federal and the territorial governments. Since 1967, in the Northwest Territories an important transfer of administrative and legislative responsibility was made to the territorial government, a matter of considerable benefit to Yellowknife. The Legislative Council of the Northwest Territories now includes 15 elected members and that of the Yukon, 12. Altogether, a federal department (aided by other departments), two Members of Parliament, two territorial governments, and some local administrations are responsible for the political functioning of this part of the Canadian North.

This administrative structure does not mean that the region functions politically in the same way as the developed parts of the country. On the contrary, the Northwest Territories are still only slightly organized. The inhabitants are few and

scattered in almost 50 centres; 60 per cent of the so-called arctic settlements have less than 300 people. The most populated centres, Inuvik in the west and Frobisher Bay in the east, do not have more than 4,000 people. Huge, repulsive moles separating the settlements make land travel difficult: for example the distance between Baker Lake and Snowdrift on Great Slave Lake is 400 miles. In these circumstances, the political presence is due less to the population or the development of natural resources. Rather it is tied to liaison functions: air routes, social services, and telecommunications (conventional, radar, or satellite). To a large extent the Canadian character of the North depends on these modern techniques.

Economic Life

In the Arctic proper, economic activity is not unknown. In the past Inuit were self-sufficient, living on sea, land, air, and river faunae. At the beginning of the century the Canadian government issued whale-hunting permits. The Hudson's Bay Company still maintains a few dozen trading posts. Reindeer are raised on a commercial scale in the Mackenzie Delta. Nickel has been extracted from Keewatin, and the setting-up of nickel mining operations on the Quebec side of Hudson Strait is being contemplated. Public and private capital have facilitated the discovery of oil, and discussions are under way on the construction of gas and oil pipelines along the Mackenzie River to bring fuel from the Canadian Arctic and Alaska to the principal markets in North America. Sculpture, handicraft, engraving, and fishing co-operatives have sprung up in several places such as Cape Dorset and Povungnituk. Rankin has acquired a cannery. The midnight sun, the Inuit way of life, the

Seabirds nest on the sheer cliffs of Bylot Island in the eastern Arctic.



contact with nature at her harshest, and the hunting of polar bears are tourist attractions. Certain parts of this area are well provided with facilities and for a few weeks each summer the ports of Hay River, Tuktoyaktuk, and Resolute are very busy.

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

The Far North and the Extreme North are two different worlds. There could be no more serious mistake than to apply here, without any adaptation, the ideas generally accepted or put into practice in the populated areas of Canada. For the inhabitants of southern Canada, adaptation to the North remains an almost totally new objective.

The North is under-populated. This is an alarming situation at a time when enormous population pressures show signs of becoming a factor in directing regional politics. The North is in great need of people to be able to make its voice heard by the sometimes distracted ears of Canadians in the South.

LOUIS-EDMOND HAMELIN

Northern Population by Zone and by Political Division, 1971

Province or territory	Percentage of the Area in the North	Middle North	Far North	Extreme North	Total
Manitoba	75	70,895	25 ¹	—	70,920
Newfoundland and Labrador.....	77	52,629	—	—	52,629
Northwest Territories	100	17,546	17011	250 ¹	34,807
Quebec.....	70	30,008	2501	—	32,509
Alberta.....	40	28,696	—	—	28,696
Saskatchewan.....	50	21,821	—	—	21,821
Ontario	40	19,837	—	—	19,837
Yukon.....	100	18,378	10 ¹	—	18,388
British Columbia.....	31	13,095	—	—	13,095
Canada	77	272,905	19,547	250	292,702

¹Estimated.

— Nil.

Table based on the Census of Canada (1971) in co-operation with M. C. Cayouette.

the people and their heritage

The Native Peoples

Indians

At the time of the first settlements in North America, the Indian population of what is now Canada was, according to the best estimates of anthropologists, about 200,000. Shortly after the arrival of Europeans, the Indian population started to decline until it was commonly believed that the Indians were a dying race. But after steady increases since that time, the Indian population today numbers over 295,000 persons.

There are 565 separate Indian communities, known as "bands." With the exception of certain nomadic groups inhabiting the outlying and northern regions, these bands are located on 2,300 "reserves," varying in size from a few acres to more than five hundred square miles, set aside by the Canadian government for the use and benefit of Indians. About 25 per cent of the total Indian population have chosen to live off reserves as members of the general community.

Although the origin of the Indians remains uncertain, anthropologists believe that they came to America in successive migrations in prehistoric times from Northern Asia, probably by way of Bering Strait.

The Indians are not a single people. They are divided into a number of basic linguistic groups that are, in turn, sub-divided into language groups with many local dialects. There are ten linguistic groups, of which four are found east of the Rocky Mountains—Algonkian, Athapaskan, Iroquoian and Siouan— and six in British Columbia—Kootenayan, Salishan, Wakashan, Tsimshian, Haida, and Tlin-Kit. Some Athapaskan-speaking Indian bands also live in the interior of British Columbia.

The Indians of Algonkian origin are the most numerous, covering an area from the Atlantic Ocean to the Rockies. They include such well known tribes as the Micmacs of Prince Edward Island, Nova Scotia, and New Brunswick; the Montagnais of Quebec; and the Ojibway, Cree, and Blackfoot of Ontario and the Prairies.

Iroquoian peoples, including the Hurons, are found in Ontario and Quebec; Athapaskans inhabit the Yukon and Northwest Territories as well as parts of the interior of British Columbia, while tribes of Sioux inhabit parts of Manitoba, Saskatchewan, and Alberta.

The Indian population of Canada is widely scattered, with different racial and cultural backgrounds, and in varying stages of economic and social development, from the nomadic hunter to the highly skilled industrial worker or member of the learned professions. Like every other community in Canada, the Indian band or group is subject to the economic, social, and geographical influences of the region in which it lives.

As early as 1670, during the reign of Charles II, instructions were given to the governors of the colonies that Indians who desired to place themselves under British protection should be well received and protected. Later it was found necessary to establish an office devoted solely to the administration of Indian affairs, and in 1755 Sir William Johnson was appointed Indian Superintendent with headquarters in the Mohawk Valley, in what is now the State of New York. The establishment of that office was the genesis of future Indian administrative organizations in North America. Following the American Revolution, the Indian office was removed to Canada. From that time on, a continuing administrative organization has been maintained for the protection and advancement of Indian interests.

Until 1860, the Imperial Government was responsible for the management and expense of Indian affairs in Ontario and Quebec, but in that year it was decided that the Province of Canada should assume the charge. By a special provision in the British North America Act of 1867, the administration of Indian affairs came under the jurisdiction of the Government of Canada. Since Confederation this responsibility has been entrusted to various government departments. Today it is carried out by the Department of Indian Affairs and Northern Development.

A primary function of the Department of Indian Affairs and Northern Development is to assist the Indian people to participate fully in the social and economic life of the country. To this end, the department has brought into effect a broad range of programs in the fields of education, economic development, social welfare, and community development—including housing, road construction and maintenance, sanitation facilities, child and adult education, band business enterprises on reserves, and so on.

Among the more important responsibilities of the Indian Affairs Branch are the administration of Indian reserves and surrendered land, band funds, descent of

property and Indian treaty obligations. Administration is carried on through a headquarters staff at Ottawa and regional and district offices in each province or territory. Medical services are provided, as required, by the Department of National Health and Welfare.

Early in the settlement of North America, the British recognized, as a matter of policy, Indian rights to the lands they occupied, rights which could be abrogated only by agreement with the Indians and then only to the Crown. This gave rise to the practice of making agreements, or treaties as they were afterwards called, with various Indian tribes. The policy began in British colonial times in what is now the United States and was later introduced into Canada. Today about half the Indian population of Canada is under treaty.



1

1. The mask of a medicine man is among the fascinating treasures of the Indian Village restoration at Port Elgin, Ont.
2. Totem poles at Stanley Park, B.C.
3. 'Ksan village, a reconstructed Indian village near Hazelton, B.C., is an arts and crafts cultural centre.
4. North Western Indian art, Yukon Territory.



Inuit (Eskimos)

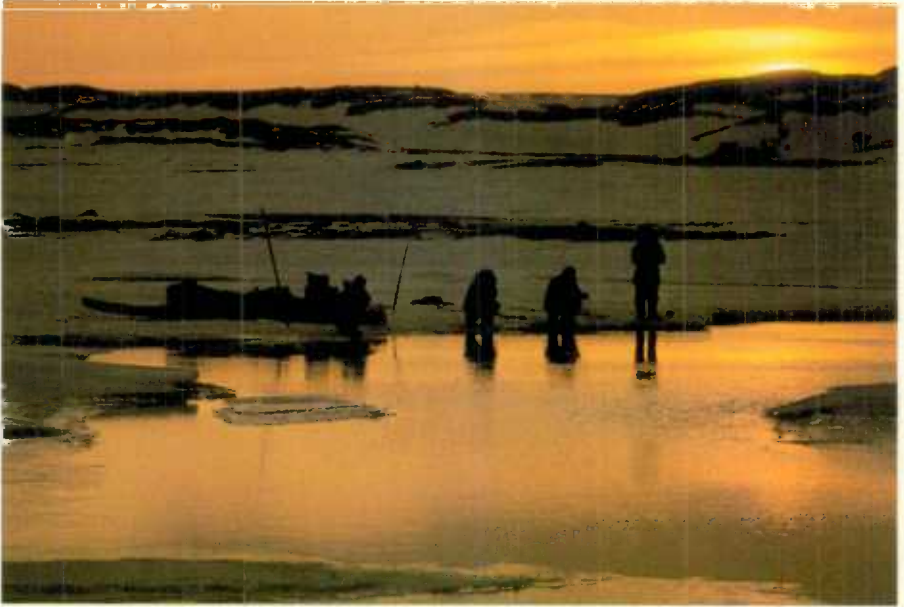
During recent years the many changes and developments in the Canadian North have affected almost every aspect of the lives of the more than 18,000 Eskimos (or Inuit as they prefer to be called) living there. These northern people have survived for many centuries in spite of the harsh conditions under which they have had to live and in recent years they have been offered new opportunities and facilities for strengthening their capacity to survive.

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

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



An ancient, vaguely man-shaped Eskimo stone landmark near the coast of north-western Hudson Bay.



Inuit from Repulse Bay jig for char at Sapodit Lake on the Rae Isthmus.

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

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

Many of these people have made a difficult and dramatic transition from nomadic hunters to modern urbanized residents. By such means as the ANIK communications satellite, telephone, radio, and television transmissions are now beamed into the Inuit household.

The sled dogs, long-time companions and necessity to the Inuit, have gone. The motorized toboggan has replaced them, and for longer journeys the airplane is the Arctic taxi. 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.

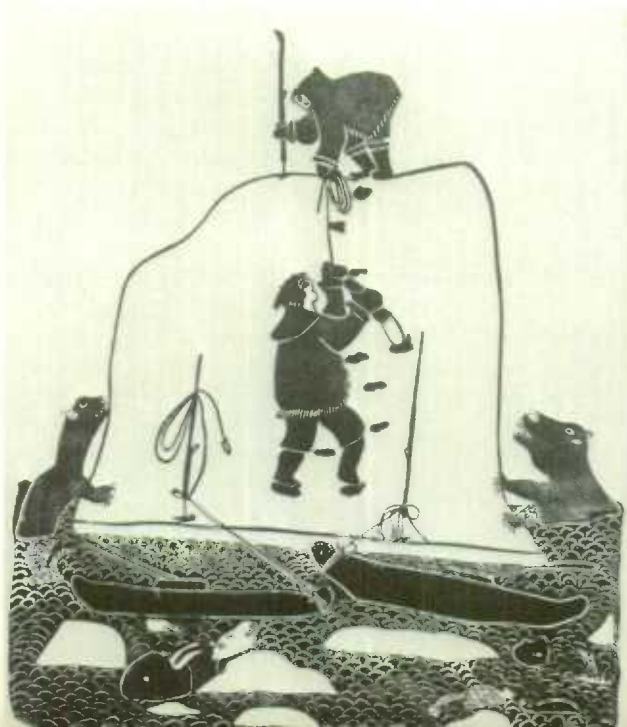
Various programs, initiated by the federal government, such as education, social affairs, local government, and economic development, have also contributed to the dramatic change in the Inuit way of life. Arctic co-operatives, for example, today do a total volume of business of over \$8 million annually, and to a large extent control the marketing of all Eskimo art. Federal schools have been built in every Eskimo community. Beyond Grade 6, or 8 in some locations, students attend pre-vocational or secondary schools either in the Arctic or at locations in southern Canada.

Many communities have evolved from having a resident government adminis-

trator to becoming incorporated villages, managing their own affairs through elected councils. The Council of the Northwest Territories, a provincial-style body, has three Eskimo elected members.

Concern for the survival of Inuit identity and culture resulted in 1971 in the formation of Inuit Tapirisat of Canada (ITC — the Eskimo Brotherhood), an association funded by the Secretary of State in the interest of the Inuit people. In consultation with the Department of Indian Affairs and Northern Development, ITC has initiated many programs aimed at improving the lot of the Inuit. These include a major study of land claims (the legal view of the Inuit with regard to the lands and waters they occupy), a land-use and occupancy study (similar to, and supporting the land claims), legal assistance and a proposal for legal service centres to assist Inuit in remote areas, a language commission which will study the possibility of standardization of the Inuit orthography, sponsorship of an Inuit Cultural Institute in the Arctic, and a layman's information guide to Canadian law entitled "Inuit and the Law." In all of these the Department of Indian Affairs and Northern Development has contributed much in finances and encouragement.

With the spirited search for oil, gas, and minerals in the Arctic, much is being done to create and make available opportunities for the employment of Inuit in the petroleum and related industries. However, some adult Inuit still live by their traditional skills of hunting, trapping, and fishing. One of the most successful and remarkable revenue-producing pursuits of the Inuit is based on their creative talents expressed in the media of stone, bone, and ivory sculpture and vibrant graphics depicting his life-style and culture. This industry is expanding and through local co-operatives ensures the artist of a fair return for his works of art.



An Inuit print by Pit-seolak, an artist from Cape Dorset.

History

Canada's story proceeds from the old world: from the mountains of Mongolia and the steppes of Siberia whence, at some unrecorded date, prehistoric tribes crossed the narrow straits to Alaska and filtered into the vast territories to the South; from Scandinavia, home of the Norsemen who discovered the coast of Labrador in the 9th century and whose leader, Thorfinnr Thordarson, was the first known European to attempt a settlement in Canada; from the ports of the Atlantic seaboard of southern Europe where merchants scheduled enterprises for the development of Canada's wealth in fish and fur; from England, where King Henry VII authorized expeditions that discovered the Grand Banks off Newfoundland; and from France, whence, in 1534, Jacques Cartier sailed to the estuary of the St. Lawrence. It begins early in the 17th century, when the Indians and Inuit, numbering some 220,000, stretched across Canada down to the Pacific and Atlantic Oceans, and when continuous English and French settlement commenced in Newfoundland, Acadia, Quebec, and Hudson Bay. It progresses for 300 years, continuously marked by the policies and people of the old world as well as by the problems of the new.

Within seven years of each other (1603-10), Champlain, Henry Hudson, and John Guy claimed the riches of Canada for their respective kings. And for well over a century afterwards, the empires of France and England fought the Amerindians and each other. Ultimately, after Wolfe defeated Montcalm on the heights of Quebec in 1759, it was the British who won. Yet it was the French who set the pattern of what would be Canada's distinct character: that of a small people, politically rooted in



Samuel de Champlain
monument, Quebec City.

the old world, touched by religion, collected in isolated settlement, and therefore defending abundant natural resources against rivals vastly superior in number.

Between 1604 and 1759, French Canadians founded colonies in the Maritimes, at Quebec, Trois-Rivières, and Montreal; and the total population of New France slowly rose from 500 in the 1640's, to some 65,000 in 1755. Guided by strong governors such as Frontenac, they fashioned their own law out of the *Coutume de Paris* and gave a legal basis to all their institutions. At the same time, under Bishop Laval and his successors, they founded their distinctive religious educational system, established the Roman Catholic parishes as their main civil administrative unit, and encouraged missionary activity such as that of St. Jean de Brébeuf among the Wendat and Father Marquette among the Illinois. They also took over the continent: Jolliet and LaSalle opened up the enormous territories of Louisiana, Radisson travelled to Lake Winnipeg and Hudson Bay, Lamothe Cadillac dotted the Niagara and Ohio areas with trading posts, LaVérendrye raised the arms of France on the Great Plains. By 1712, they had stamped on the map of North America a giant *fleur-de-lis* extending from Hudson Bay to New Orleans, from Newfoundland to Lake Winnipeg. And they were exporting some 550,000 pounds of beaver pelt a year. Although the Conquest deprived them of much of these territories and profits, it did not weaken their identity. On the contrary, it confirmed it. In 1774, King George III gave royal assent to the Quebec Act in which were recognized and given a firm constitutional foundation all the major civil and social institutions of the French Canadians as well as their language, religion, and culture. For the two centuries since, the character and claims of French Canada have been a permanent feature of Canadian development.

In 1774, the French Canadians were not, however, in sole possession of Canada. The fur traders of the Hudson's Bay Company, chartered in London in 1670, had gained control over all the lands draining into the North, and from a dozen small forts established between 1672 and 1733 they exercised a monopoly over the area in close alliance with the native peoples. In Nova Scotia, begun as a Scottish colony in 1621 and definitely acquired by Britain in 1714, some 4,500 fisherfolk and farmers clustered in villages along the coast. At Halifax, founded as a naval base in 1749, an Assembly of elected representatives met in 1758 for the first time in Canada. In Montreal, a few hundred British merchants, mostly Scots, had established their businesses and, within a few years, acquired control of the fur trade as well as of the French imperial dream of developing from the settlement on the St. Lawrence a commercial network that supplied and regulated the trade of the West.

Neither the Hudson's Bay officials, nor the Nova Scotians, nor yet the Montreal merchants or the French Canadians had much sympathy with the insurgents in America when violence broke out there in 1773. The Americans attacked, by land and sea, but they were repulsed. Halifax and the colonists of Nova Scotia remained loyal to their allegiance; in Quebec, French Canadians and British officers drove the rebel army back to New York. Despite this victory, however, Canada had to defend its border for over a century. A second military invasion was repelled in 1812, as well as a series of attacks, notably in 1838, 1842, and 1865. In 1871, by the Treaty of Washington, the United States accepted the existence of the Canadian realm; then, in 1911, the settlement of the dispute over the Alaska boundary finally fixed the northern territorial limits of republican experimentation.



Statue of a Loyalist family in Hamilton, Ont.

The American war nevertheless had a profound influence on Canada. It provoked the flight northward of some 40,000 Loyalists who settled in the Maritimes and along the northern shores of Lake Ontario. For these "old subjects," two new provinces were created: New Brunswick in 1783 and Upper Canada (later Ontario) in 1791. Thus, within a decade after the Quebec Act had confirmed the nationality of French Canada, the basis of a British society was also secured. From then until the 1860's, it was within the framework of these four provinces, to all of which representative institutions had been extended by 1791, that the economic, cultural, and political evolution of Canada would take place.

The Maritimes and Central Canada enjoyed a golden age. In New Brunswick, three generations of lumber barons and lumberjacks played double parts as ship-builders and sailors. The clippers of Nova Scotia formed one of the world's leading merchant fleets; and, after Samuel Cunard established regular steamship service in 1839, Halifax gained a practical monopoly of transatlantic communication. The fisheries continued always to be one of British North America's most important assets. Along the St. Lawrence, timber, and then grain, replaced fur as the richest resource. Lands were opened up in loyalist territory, roads were laid, and the beginnings appeared of manufacturing and small industry. Montreal grew into a metropolis whose power would not be challenged for a century. In the last and best flourish of the fur trade, the Montrealer Simon MacTavish spent the winter of 1813 on the Pacific Coast, trading direct with China. Thirty years later, his successors in Montreal business had completed the canal system from Lake Erie to the lower St. Lawrence. It would carry the grain of Ontario and the mid-Western United States to Europe and, after 1854, a ten-year reciprocal trade agreement with the United States would give an assurance of new markets to replace those lost by the coming of free trade in Britain. Meanwhile, the population rose from some 500,000 in 1815 to over

3 million in 1850, as floods of immigrants from the British Isles came to intensify the British character of the country.

In 1802, King's College was established at Halifax and the literature of the Maritimes began to acquire international renown through the writings of Thomas Haliburton. In the central provinces, newspapers such as *Le Canadien* in Quebec and the *Colonial Advocate* in Toronto spread into the French Canadian villages and Upper Canadian farming communities the latest European letters as well as the first songs and poems of Canadian writers. As Roman Catholic priests and nuns extended the network of schools and classical colleges in Quebec, Anglican and Methodist clergymen, most notably Bishop John Strachan and Egerton Ryerson, laid the foundations of the educational system of the English-speaking provinces. In the 1840's, François-Xavier Garneau published the first scientific history of Canada, and by 1860, a pleiad of young literary figures announced the beginnings of a distinctive Canadian culture.

Having resisted American aggression, Canadians also began to define their independence vis-à-vis Great Britain. In the central provinces, radical politicians called for independence and violence. They received little support. Moderate reformers led by Joseph Howe, Robert Baldwin, and Sir Louis Hippolyte LaFontaine achieved self-government in 1848 when LaFontaine became the first modern Canadian Prime Minister. During the century that followed, his successors, notably Sir Wilfrid Laurier, Sir Robert Borden, and W. L. Mackenzie King, gradually extended the authority of the Canadian Parliament. The Report of the Imperial Conference of



Statue of Queen Victoria in Ottawa.



Statue of LaFontaine in Montreal, Que.

1926 and the Statute of Westminster, 1931, finally established the sovereignty of the Canadian Parliament and gave the Canadian Crown its full constitutional meaning.

Before the close of the 1850's, however, it had become obvious that a new constitutional order was required within British North America. The heavy expenses brought on by railway construction, the fears engendered by the threat of another invasion from the United States as well as from the desire of Britain to curtail its responsibility for defence, the need to settle the western territories which the Hudson's Bay Company, despite the achievements of Sir George Simpson, could no longer afford or control, and the demand in the central provinces for a redistribution of responsibility among the French and English-speaking peoples, all convinced Canadian leaders of the need for a federation of the separate provinces, of Nova Scotia, New Brunswick, and "Canada" (now Quebec and Ontario). After conferences in Charlottetown, Quebec, and London, the "Fathers of Confederation," led by Sir John Macdonald and Sir George-Etienne Cartier, agreed on the "British North America Act." In this document, which forms part of the Canadian Constitution, they set the framework of the "new nationality" which was meant to reconcile social and cultural plurality with political unity.

Within six years of its proclamation by Queen Victoria on July 1, 1867, the Dominion had expanded "from sea to sea" and organized its territory. The lands of the Hudson's Bay Company were acquired in 1869 and Manitoba was cut out of them after a brief rebellion by the Scottish and French Canadian settlers there, led by the Métis Louis Riel in 1870. British Columbia, which had been opened to British



Joseph Howe's statue in
Halifax, N.S.

and Canadian influence in the 1790's by the explorations of Vancouver, Mackenzie, and Simon Fraser, voted to join in 1871, and the little province of Prince Edward Island, rich in the control it exercised over fisheries in the Gulf of St. Lawrence, entered in 1873. Saskatchewan and Alberta were created in 1905; and in 1949 Newfoundland completed Canada's transcontinental growth.

Expansion, however, was more than territorial. Although not unmarked by serious strains, economic, cultural, and political development continued throughout the century that followed Confederation.

The Canadian Pacific Railway, finished in 1884, and, later, the publicly-owned Canadian National, bound the Dominion's distant sections, assuring Montreal's hegemony over western resources, as did the "National Policy" of tariff protection, announced in 1879. By 1914, a successful industrial system had been founded, and southern Ontario, helped by its wealth of hydro-electric power, also began to acquire metropolitan status. A massive influx of immigrants from Britain and Central Europe, especially during the years 1896-1911 and 1945-60, accentuated the curve of Canada's prosperity. These "New Canadians," developed the West and North as a source of grain, newsprint, minerals, and oil. They also strengthened Canada's traditional links with Europe, especially after the 1940's when the United States replaced the United Kingdom as the main competitor for control of the country's resources.

The coming of the "New Canadians," who tended to conserve most of the traits of their national cultures, caused a serious reappraisal of the country's identity. A Britannic counter-nationalism sought to impose cultural homogeneity. Already, in the 1870's, a series of treaties reduced the influence of the native peoples, as most certainly did the failure of a brief rebellion in 1884 led by the Cree chief Pound-

maker. Later, the limiting of French language rights in New Brunswick, Manitoba, and the western provinces stimulated separatism in Quebec. It was not until the 1960's that pressures from a renascent French-Canadian nationalism, and the studies of the Royal Commission on Bilingualism and Biculturalism led to a reaffirmation of the "new nationality." The strong encouragement given to bilingualism and multiculturalism by the Prime Minister, the Rt. Hon. Pierre Elliott Trudeau, proceeds from the same effort to harmonize cultural plurality with a reaffirmation of vigorous federal leadership.

The challenge to Ottawa's control began shortly after Confederation when Premiers Sir Oliver Mowat of Ontario and Honoré Mercier of Quebec devised a theory of "Provincial Autonomy." This doctrine, which many French Canadians considered essential to their own particular national survival, was upheld in the courts. It so weakened the federal government, however, that Ottawa was unable to help the deep distress and unemployment caused by the depression of the 1930's. This latter brought strong demands for social reform, especially from church groups in the West where the Methodist minister, J. S. Woodsworth founded the socialist Co-



Statue of Louis Riel
in Winnipeg, Man.



Sir Wilfrid Laurier's statue in Montreal, Que.

operative Commonwealth Federation (succeeded by the New Democratic Party) in 1933. It challenged the two traditional Liberal and Conservative parties, whose origins went back to the debates over reform and Confederation in the 1850's; and, in 1944, the CCF took office in Saskatchewan, becoming the first socialist government in the new world. In Ottawa, its members supported the Liberal W. L. Mackenzie King in initiating a government controlled program of social security which, despite strong protests from some provinces, was successfully completed by the Rt. Hon. L. B. Pearson in 1965. In a series of federal-provincial conferences since then, Prime Minister Trudeau has emphasized the importance of placing the federal government's undoubted economic and political strength at the service of cultural development.

Canada's story is not ended. Beside its giant neighbour, and compared to an economically reviving Western Europe, it remains a small community, trying to maintain an identity amid large empty spaces, and to control its coveted natural resources. Canadians are thus increasingly concerned with opportunities to improve the quality of their life. "These opportunities", Her Majesty, Queen Elizabeth reminded Canadians in 1973, that "they owe not only to their own energies and the cultures they bring with them, but to the inheritance they have received from the pioneers who came before them, who in their day learned to survive in the new world from people who had flourished among the lakes and forests from time immemorial."

JACQUES MONET, S.J.

Population

Compared with population statistics for the rest of the world, Canada's are both interesting and unique. While Canada has within its territorial boundaries land equivalent to 6.8 per cent of the total world land area, the estimated population of 21.6 million at mid-year 1971 was only 0.6 per cent of the world total of 3,706 million. This abundance of land in relation to population is reflected in Canada's density ratio of 6.1 persons per square mile—one of the lowest in the world and only about one thirteenth of that for all countries together. Population growth averaged 1.8 per cent each year in the period 1963 to 1971 compared to 2 per cent for the world. Relatively recent and significant reductions in the annual birth rates, which first appeared in the mid-1950's, coupled with a comparatively slower flow of immigration contributed substantially to a lower population growth. Compared to Northern America, which also includes the United States, Bermuda, Greenland, St. Pierre and Miquelon, our annual rate of population increase from 1963 to 1971 was about 0.5 per cent higher. However, with a population equal to just over 9 per cent of the total for Northern America (230 million), Canada's density was only about one fifth of that for the region as a whole.

**Table 1. Numerical and Percentage Distribution
of the Population of Canada by Province**

Province or Territory	Population in Thousands				Percentage Distribution			
	1961 Census	1971 Census	1972 Estimate	1973 Estimate	1961	1971	1972	1973
Newfoundland	458	522	532	541	2.5	2.4	2.4	2.4
Prince Edward Island ..	105	112	113	115	0.6	0.5	0.5	0.5
Nova Scotia	737	789	794	805	4.0	3.7	3.6	3.6
New Brunswick	598	635	642	652	3.3	2.9	2.9	3.0
Quebec	5,259	6,028	6,050 ^r	6,081	28.8	27.9	27.7 ^r	27.5
Ontario	6,236	7,703	7,824 ^r	7,939	34.2	35.7	35.9 ^r	35.9
Manitoba	922	988	992	998	5.1	4.6	4.5	4.5
Saskatchewan	925	926	916	908	5.1	4.3	4.2	4.1
Alberta	1,332	1,628	1,655	1,683	7.3	7.5	7.6	7.6
British Columbia	1,629	2,185	2,247	2,315	8.9	10.1	10.3	10.5
Yukon Territory	14	18	19	20	0.1	0.1	0.1	0.1
Northwest Territories ..	23	35	36	38	0.1	0.2	0.2	0.2
Canada	18,238	21,569	21,820	22,095	100.0¹	100.0¹	100.0¹	100.0¹

¹Totals may not add owing to rounding.

^rRevised.

The post-censal estimate of the Canadian population at June 1, 1973 was 22.1 million—an increase of some 275,000 over the 1972 estimate. This was less than the average annual increases of 326,000 during 1961 to 1972 and 301,000 in the 1966-72 period. In 1973, over one third (35.9 per cent) of the population lived in Ontario, over one quarter (27.5 per cent) in Quebec and between 10 and 11 per cent in British Columbia. Since 1961, the proportion in Ontario and British Columbia

Table 2. Land Area and Density of Population, by Province, Census Years 1951-71

Province or Territory	Land area sq. miles	Population per sq. mile				
		1951	1956	1961	1966	1971
Newfoundland.....	143,045	2.53	2.90	3.20	3.45	3.65
Prince Edward Island.....	2,184	45.07	45.46	47.91	49.70	51.11
Nova Scotia.....	20,402	31.50	34.05	36.12	37.06	38.67
New Brunswick.....	27,835	18.53	19.93	21.48	22.16	22.80
Quebec.....	523,860	7.74	8.84	10.04	11.04	11.50
Ontario.....	344,092	13.36	15.71	18.12	20.23	22.39
Manitoba.....	211,775	3.67	4.01	4.35	4.55	4.66
Saskatchewan.....	220,182	3.78	4.00	4.20	4.34	4.21
Alberta.....	248,800	3.78	4.51	5.35	5.88	6.54
British Columbia.....	359,279	3.24	3.89	4.53	5.22	6.08
Yukon Territory.....	205,346	0.04	0.06	0.07	0.07	0.09
Northwest Territories.....	1,253,438	0.01	0.02	0.02	0.02	0.03
Canada.....	3,560,238	3.93	4.52	5.12	5.62	6.06

has advanced by a little more than 1.5 per cent, while Quebec experienced a decline of just under that amount. Since lower birth rates are the main factor behind the general decline in the rate of population growth on a national scale over the last 10 years, it is likely that net migration explains most of such variations on a provincial level.

Canada's density of population in 1971 of 6.1 persons per square mile represented an increase of 0.4 persons in the previous five years and 2.1 persons in the decade. Prince Edward Island, the smallest province, recorded the highest density of 51.1, although largely as a result of its confined land area rather than significantly high levels of population. The lowest was quite naturally encountered in the Northwest Territories (.03), which if excluded from Canada along with the almost as sparsely populated Yukon, advances the national average to a density of 10.2 persons per square mile.

Although density described in general terms appears low, there are areas in Canada where density is extremely high in reality, such as the cities of Montreal and Toronto where it approaches 20,000 per square mile. Canada is gradually becoming highly urbanized with 16.4 million or just over three quarters of its 1971 population living in incorporated cities, towns, and villages of 1,000 or more population or in other (usually fringe) areas where the density is at least 1,000 per square mile. In 1951, the proportion of urban population was 61.6 per cent, rising to 69.6 per cent in 1961 and 73.6 per cent in 1966. With each gain in the percentage of urban population, there is a corresponding decline in the rural segment, although lately at the expense of rural farm as opposed to non-farm. The latter actually experienced an increase from 16.9 to 17.3 per cent between 1966 and 1971. Canada's metropolitan areas alone (cities with 100,000 population or more) which have increased from 17 in 1961 and 19 in 1966 to 22 in 1971, accounted for over one half of the Canadian population in 1971 and close to three quarters of the urban dwellers.

According to 1973 population estimates by sex, there were fewer males in Canada than females in the ratio of 999 to 1,000, continuing the trend discovered in earlier censuses—1,022 in 1961 and 1,002 in 1971. There were slightly more males than females in each 5-year age group up to 40-44 years, from which point the imbalance

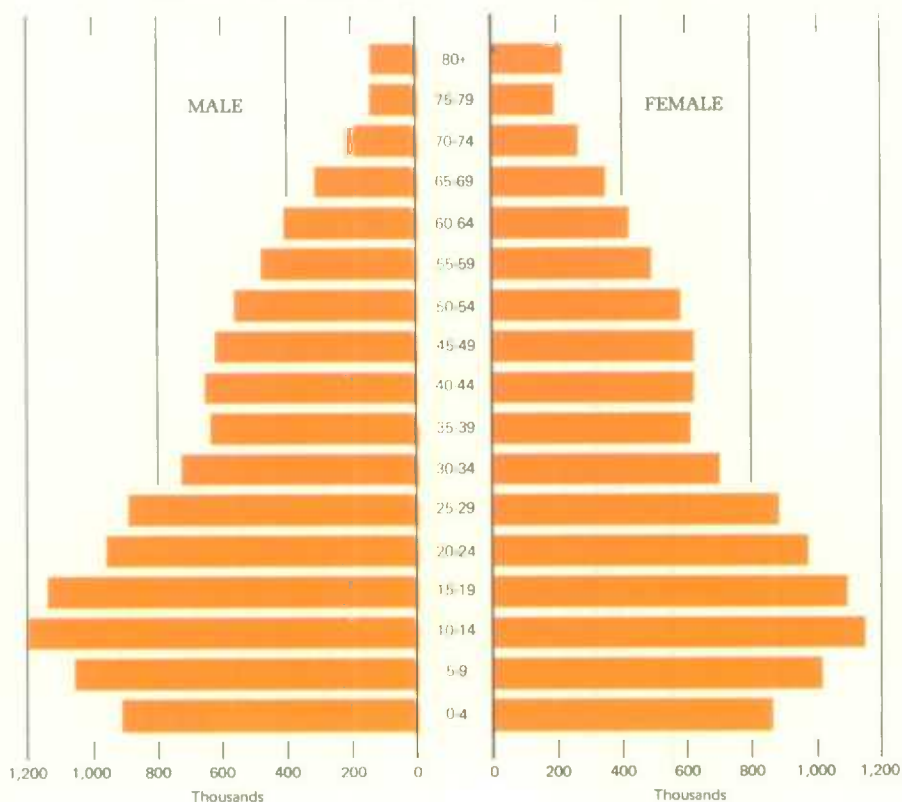
Table 3. Population of the Metropolitan Areas¹ of Canada, 1961, 1966-72

Census Metropolitan Areas	1961 Census	1966 Census	1967 Estimate	1968 Estimate	1969 Estimate	1970 Estimate	1971 Census	1972 Estimate
Thousands								
Canada	18,238	20,015	20,378	20,701	21,001	21,297	21,569	21,830
Total urban population ..	12,700	14,727	..	..	..	..	16,411	..
% urban population	69.6	73.6	..	..	..	..	76.1	..
Metropolitan areas	9,293	10,684	10,968	11,220	11,444	11,678	11,876	12,043
Percentage of Canadian population...	51.0	53.4	53.8	54.2	54.5	54.8	55.1	55.2
Percentage of total urban population	73.2	72.5	..	..	..	..	72.4	..
Calgary	279	331	348	364	378	391	403	417
Chicoutimi-Jonquière	128	133	133	133	133	134	134	135
Edmonton	360	425	439	454	470	484	496	507
Halifax	193	210	214	217	219	221	223	224
Hamilton	401	457	471	480	488	494	499	505
Kitchener	155	192	199	206	213	221	227	232
London	227	254	263	270	276	281	286	290
Montréal	2,216	2,571	2,628	2,669	2,700	2,724	2,743	2,761
Ottawa-Hull	457	529	547	561	574	590	603	613
Québec	379	437	446	452	461	470	481	487
Regina	114	132	134	136	138	139	141	144
St. Catharines-Niagara	258	285	289	293	296	300	303	307
St. John's	107	118	120	123	127	130	132	133
Saint John	98	104	105	105	106	106	107	109
Saskatoon	96	116	118	121	123	125	126	128
Sudbury	127	137	140	144	148	152	155	157
Thunder Bay	102	108	109	110	110	111	112	113
Toronto	1,919	2,290	2,366	2,435	2,495	2,567	2,628	2,672
Vancouver	827	933	965	998	1,025	1,059	1,082	1,098
Victoria	156	175	179	183	186	191	196	199
Windsor	217	238	243	248	252	255	259	262
Winnipeg	477	509	512	518	526	533	540	550

¹Based on areas as delineated for the 1971 census.

.. Not available.

in favour of females became increasingly evident, reaching a peak at 65 years and over where there were just 789 men per 1,000 women. The diminishing proportion of the population aged 0-4 (12.4 per cent in 1961, 11 per cent in 1966, 8.4 per cent in 1971) was further reflected in the estimates for 1973 which calculated that 8 per cent were in this group. The suggestion again is that there will be lower levels of school enrollment and rates of labour force participation in the future. Persons under 15 constituted just 28 per cent of the total population in 1973 down from 29.6 per cent in 1971 and 32.9 per cent in 1966. Somewhat proportionate increases in the percentage of the population of labour force age (15-64) occurred simultaneously with decreases in the under-15 group; the former accounted for 63.7 per cent of the total in 1973, an increase from 62.3 in 1971 and 59.4 in 1966. Much of the increase in the 15 and over group occurred in the 15-24 age bracket, the cohort of the high birth rates following World War II. The population aged 65 and over also advanced proportionately during this time, although at a slower rate, reaching 8.3 per cent in 1973. Another dominant characteristic of Canada's age-sex structure is a marked indentation on the population pyramid shown concerning the ages 25-45 reflecting

Age and Sex Distribution of Population (Estimated) 1973

lower birth rates during the Depression and the subsequent World War.

Canada's population can be termed a colourful mosaic of many different ethnic groups, resulting from several past periods of high immigration from European countries, particularly during the 1901-11 decade and the 1950's. The largest block is composed of those from the British Isles and their descendants who amounted to 44.6 per cent in 1971, up from 43.8 per cent 10 years earlier, while the second most significant group claims French origin, 28.7 per cent, a decrease from 30.4 per cent in 1961. Twenty-three per cent of Canadians or their male ancestors were of European descent, primarily German (6.1 per cent) and Italian (3.4 per cent). Persons of Asian ethnic background represented 1.3 per cent of the Canadian population in 1971, just about double their numbers in 1961. Canada's first citizens, the native Indian and Eskimo population, together amounted to 1.5 per cent of the total, only slightly higher than in 1961.

Table 4. Population by Selected Ethnic Groups, 1961 and 1971

Ethnic Group	1961		1971	
	Number	%	Number	%
British Isles ¹	7,996,669	43.8	9,624,115	44.6
French	5,540,346	30.4	6,180,120	28.7
German	1,049,599	5.8	1,317,200	6.1
Italian	450,351	2.5	730,820	3.4
Jewish	173,344	1.0	296,945	1.4
Dutch	429,679	2.4	425,945	2.0
Polish	323,517	1.8	316,425	1.5
Ukrainian	473,337	2.6	580,660	2.7
Other European	1,217,022	6.7	1,291,680	6.0
Native Indian and Inuit	220,121	1.2	312,765	1.4
Other and not stated ²	364,262	2.0	491,625	2.3
Total	18,238,247	100.0	21,568,310	100.0

¹Includes English, Irish, Scottish and Welsh.

²Includes Asian of 121,753 and 285,540 in 1961 and 1971, respectively.

In the 20 years since 1951, the percentage of the population born in Canada has decreased by about 0.5 to 84.7 per cent, which raises the proportion of the immigrant population by an equal amount. Persons born in the United Kingdom accounted for 4.3 per cent in 1971, a drop from 5.3 per cent in 1961 and 6.5 per cent in 1951. The rest of the immigrants came mostly from other European countries, such as Italy (0.4 to 1.8 per cent), Germany (0.3 to 1.0 per cent), and the Netherlands (0.3 to 0.6 per cent). The last 3 censuses revealed a declining proportion of persons born in the United States: 2.0 per cent in 1951, 1.6 in 1961 and 1.4 in 1971.

Internal movements of population from one residence to another as well as immigration from abroad have a significant impact on regional economics and patterns of population growth. Between 1966 and 1971, almost one in every two Canadians (47.4 per cent) aged 5 and over moved once, either within the same municipality (23.5 per cent) or inter-municipally (23.9 per cent), including 4.2 per cent whose previous location was outside Canada. In terms of the migrant population, those who moved within the same province accounted for 14.0 per cent of the population aged 5 and over, while 4.3 per cent were classified as interprovincial.

According to 1972 estimates, the number of persons in the population 15 years

Table 5. Country of Birth of the Population, 1971

(Canada's population, 21,568,310)

Canada	84.7%	U.S.S.R.	0.7%
United Kingdom	4.3%	Netherlands	0.6%
Other Commonwealth Countries	0.8%	Other European Countries	2.9%
Italy	1.8%	United States	1.4%
Germany	1.0%	Asian Countries	0.6%
Poland	0.7%	All Others	0.4%

**Table 6. Population Five Years and Over,
by Migration Status, 1971¹**

Migrant Status	Number	%
Population 5 years and over	19,717,210	100.0
Non-migrants.....	14,996,620	76.1
Non-movers.....	10,371,280	52.6
Movers within same municipality	4,625,340	23.5
Migrants.....	4,720,585	23.9
From same province.....	2,766,185	14.0
From different province.....	851,495	4.3
From outside Canada	823,580	4.2
Province of residence in 1966 not stated.....	279,325	1.4

¹Excludes Canadians stationed abroad in the armed forces or diplomatic service.

and over increased by about 29 per cent from 1961. During the same time, the number of married people (including those separated) among this population advanced by some 24 per cent but their proportion of the total aged 15 and over declined from 66.6 to 64.1 per cent. While there were more marriages in absolute terms, the proportion of married females in the child-bearing ages of 15 to 44 continued to decline, also contributing to the lower birth-rates. The number of single persons climbed by 38 per cent over 1961, increasing their share of the 15 and over group to 28.3 from 26.5 per cent. The most dramatic event of recent times in marital status was the sharp increase in divorces (occasioned by more liberal divorce legislation), climbing by 170 per cent between 1966 and 1971, although as a group still not much more than 1 per cent of the total population aged 15 and over.

The total number of families in Canada in 1972 was estimated to be 5,140,000, an increase of 1.6 per cent over 1971, although the average family size remained unchanged at 3.7 persons. In general, families in British Columbia were smaller (3.5 persons) than in other provinces, with Newfoundland displaying the highest average size of 4.4 persons. In 1972, families with no children dropped by 0.5 per cent to 1,536,000 from 1,543,300 in 1971, and represented close to 30 per cent of the total number of families.

Table 7. Estimated Average Number of Persons in Families, Canada,¹ 1972

Province or Territory	Total Families	Average Number in Family
Newfoundland.....	108,000	4.4
Prince Edward Island	24,000	4.1
Nova Scotia	182,000	3.8
New Brunswick.....	141,000	4.0
Quebec.....	1,380,000	3.9
Ontario.....	1,925,000	3.6
Manitoba.....	240,000	3.6
Saskatchewan.....	215,000	3.7
Alberta	387,000	3.7
British Columbia	538,000	3.5
Canada.....	5,140,000	3.7

¹Not including Yukon and Northwest Territories.

The Status of Women

The cultural influences that in the past gave women a status of inferiority are very long standing. Improvement in their status depends above all on women's ability to play a role in the political decision-making process. Under the Constitutional Act of 1791, the right to vote was limited to property owners, but women were not explicitly excluded. In Quebec, the mother of Joseph Papineau voted for her son in 1809. However, legislation in 1849 took away women's right to vote in any county, city, or town.

Women in Canada, as in other countries, were forced to fight to obtain or regain their rights to participate in the political life of their country. This gave rise to the first feminist movement. A group of women known as suffragettes demanded their rights, principally the right to vote. In Canada, women in the West were the first to be granted that right. The work of Lillian Thomas, Dr. Mary Crawford, Nellie McClung, and their supporters succeeded in Manitoba, which in 1916 became the first province to grant women the right to vote. Women gained the right to vote in federal elections in 1918. In Quebec, however, Idola St-Jean, Thérèse Casgrain, Florence Martel and many others were still to face another 20 years of work. In fact, Quebec was the last province to grant the right to vote and only did so in 1940.

The Federal Elections Act of 1920 reaffirmed that women were entitled to be elected to Parliament. Agnes Macphail, elected in the federal elections of 1921 was the first woman to sit as a member. Since that date only 27 women have been elected to the House of Commons which at present includes 9 women members, one of

Women and men perform equal tasks on the assembly line at the Transcona bus factory in Manitoba.





In 1972, the proportion of women receiving first degrees in medicine was 17.3 per cent, and in law, 12 per cent.

whom is a Cabinet Minister. Only two other women have held such posts. At the provincial level, there are now 15 women members.

The right of women to become Senators was attained through the courts. In 1927, five Alberta women, including Nellie McClung, sought an official interpretation of section 24 of the British North America Act before the Supreme Court of Canada. The government had been using this section to deny the claims of those wanting to have women appointed to the Senate. On October 18, 1929, the Privy Council in London decided that the word "person" as used in section 24 applied to persons of both sexes and that women could be named Senators. Cairine Wilson was the first such nominee in Canada. Since that time 14 women have been named to the Senate; 7 are now members including the Speaker.

At the same time as the suffragettes were working to obtain the right to vote, women wishing to enter various professions met with stiff opposition that crumbled only after many attempts at different times in various provinces. About 1860, the University of Toronto refused to admit Emily Howard Stove to its School of Medicine. This woman, who had to support an invalid husband and three children, enrolled in an American medical school and practised medicine illegally for 20 years before her daughter became the first woman to graduate from a Canadian medical school—in Toronto. The first woman lawyer in the British Empire was Clara Brett Martin who was called to the bar in Ontario in 1897. The last province to allow women to practise law was Quebec, in 1941. In 1972, the proportion of women receiving first degrees in medicine was 17.3 per cent, and in law, 12 per cent.

During the Second World War, women made a breakthrough in the world of work. However, industrialization had brought about its own series of problems such as job-segregation by sex and lower wages for women doing similar work or work of equal value. To solve these problems the federal government in 1954 set up the Women's Bureau as a division of the Department of Labour with the express mandate of studying the status of the female worker in Canada, to investigate conditions under which women worked, to inform the public on legislative measures taken to eliminate discrimination against women workers, and to encourage the acceptance of women in all fields of activity.

In 1967, at the insistence of a number of women's organizations, the federal government appointed a Royal Commission on the Status of Women to investigate the situation in which Canadian women found themselves. In 1970 the Commission published a report containing 167 recommendations, some of them addressed to the federal government and others to either provincial or municipal authorities.

The Commission's Report concentrated on the numerous problems facing women in all areas of their lives—family, public life, work, and education. The Report was generally well received by the Canadian public. Following publication of the Report, the Prime Minister in a major policy declaration promised the support of his government to eliminate discrimination against women and to ensure equal opportunity and equal pay for women in all spheres of activity in Canada. The government set up an interdepartmental committee to study the recommendations of the Report, named a woman co-ordinator on the status of women, and designated the Minister of National Health and Welfare to be responsible for recommendations concerning the status of women. Other positions have subsequently been created in various departments to ensure that departmental policies concerning women are in line with the general policy of the government.

Finally, in 1973, the government set up an Advisory Council on the Status of Women. The role of the Council, which consists of 30 members is to advise the government on matters pertaining to the improvement of the status of women. The Quebec government followed suit and legislation setting up a council on the status of women was adopted. Ontario, and then Saskatchewan, set up similar councils.

At the United Nations, Canada is represented on the Commission on the Status of Women.

Women's groups which had led the campaign to set up the Royal Commission have encouraged other associations to join with them to promote the implementation of the recommendations of that Commission. Several organizations including some that have been influential over the years and others established specifically to improve the lot of women, have continued to put pressure on the government to implement the recommendations of the Royal Commission. In most major cities, women's groups have been organized and Women's Centres have been established to allow women to unite and become more aware of their problems.

The status of women is becoming a subject of increasing interest. The government restated its aim of eliminating discrimination in the Speech from the Throne of February 27, 1974. During debate on the Speech, the minister responsible announced that the government intended to use the proclamation of 1975 as International Women's Year to encourage equal opportunities and pay for women, and to make the public more aware of the role of women in society.

Bilingualism

It was somewhat more than ten years ago that Canadians began seriously to examine the significance of the existence of two major linguistic groups for the present development and future density of their country. The need was perceived for special measures to ensure that members of both groups could participate fully in the life of the country on the basis of linguistic equity and in a spirit of partnership. The initial event in this decade of development was the appointment of a Royal Commission on Bilingualism and Biculturalism which endeavoured to view all elements of the situation in national perspective and to make long-range recommendations for improvements. On the basis of the Commission's reports and in the light of evolving circumstances, the federal government formed policies and implemented programs for promoting the development of bilingualism in the public and private sectors of Canada and for encouraging equal participation of the two language groups. A milestone was the unanimous approval given by Parliament in mid-1969 to the Official Languages Act which stipulates that "The English and French languages are the official languages in Canada" and that they "possess and enjoy equality of status and equal rights and privileges as to the use in all the institutions of the Parliament and Government of Canada."

Among the agencies of government concerned with questions relating to the official languages are the Department of the Secretary of State, the Treasury Board, the Public Service Commission, the National Capital Commission, and the Commissioner of Official Languages.

Bilingualism Development Program

In a series of decisions the federal government has established a far-reaching program for the development of bilingualism in education. This program, which began in 1970 and was recently renewed for a further five-year period, is intended to increase the opportunity for Canadians of the majority official language group in each province to acquire a knowledge of the other official language and also to increase the opportunity for Canadians of the minority official language group in each province to be educated in their own language. Financial aid is offered to the provinces on the basis of the numbers of students engaged in these language programs. Provision is also made for various bursaries, awards, and contributions to institutions at post-secondary and teacher-training levels and special projects on a cost-shared basis. Assistance is given to provincial governments and municipalities so they can offer services to the public in both official languages.

In the private sector various programs have been developed to encourage the adoption of improved methods for acquiring and using both official languages. These include technical advice to business and industry; assistance to voluntary associations for interpretation and translation; and the dissemination of research results, documents, and information on bilingualism. In collaboration with other appropriate departments the Secretary of State's Department co-operates with other countries and international organizations on problems relating to institutional and individual bilingualism. These programs are all administered by the Language Programs Branch. The Program for Official Language Minority Groups in the

Citizenship Branch administers programs concerned with the linguistic and cultural development of official language communities in areas where they are established as minorities.

The Translation Bureau

To enable the federal government to use the two official languages effectively in its operations, the Translation Bureau provides translation and interpretation services in all languages, as needed. It is responsible for the translation of parliamentary and departmental reports, documents, debates, bills, statutes, proceedings, and correspondence. It also provides simultaneous interpretation of the proceedings of the House of Commons, of the Senate, and of Parliamentary committees. When government departments and agencies require them, interpreters are sent by the Translation Bureau to national and international conferences held in Canada or abroad. In co-operation with specialized institutions in Canada and abroad it organizes and promotes research on terminology. It is also responsible for establishing the proper terminology to respond to the needs of Parliament, the government, and its agencies and to increase the efficiency of translation in the two official languages.

The Treasury Board

The newly created Official Languages Branch of the Treasury Board secretariat reflects the government's approval of the majority of recommendations of the Royal Commission on Bilingualism and Biculturalism and more recently the Resolution adopted by Parliament in June 1973 concerning the implementation of the official languages within the public service. Specifically it develops and ensures the communication, implementation, and effective monitoring of the application of the Official Languages Act and official languages policy and programs within the public service. To carry out its mandate, the Branch is divided into three divisions: (a) Policy and Planning, (b) Operations, and (c) Training and Information Development.

Policy and Planning

This Division plans, develops, and recommends the programs and procedures required to give effect to the government's policy on the official languages. For example the Treasury Board has determined the language requirement — unilingual or bilingual — of every position in the federal public service and it has established sections within the public service where English or French is the main language of work. Beyond this, the Policy and Planning Division has designed measures to encourage the greater use of French and the full participation of both anglophones and francophones in the public service. It is also responsible for establishing a statistical analysis and monitoring system to evaluate progress. Finally, it is concerned with the implementation by departments of recommendations made by the Commissioner of Official Languages.

Operations

This Division assists departments and agencies in monitoring the implementation of the Treasury Board guidelines on the language requirements of positions and other official languages policies and programs. It also analyzes requests for man-years and other resources required to support departmental programs carrying out the government's official languages policy. Finally, it maintains liaison with staff associations through the National Joint Council.

Training and Information Development

This Division ensures the co-ordination, development, and provision of training in the official languages and information policy and programs. It also responds to inquiries about the official languages.

The Public Service Commission

The major responsibilities for providing language training in French and English for federal public servants and others rests with the Public Service Commission. It has modified its language training system within the past year. The change has

Language labs are designed for individual study.



involved a greatly increased emphasis on continuous language training under which the public servants concerned can spend up to 52 weeks at language school without interruption. This change of technique was brought about to increase the effectiveness of language training and also to ensure compatibility with the language requirements of positions in the federal government service established by the Treasury Board. Under an agreement with the Department of National Defence, the Public Service Commission is also responsible for the language training of Canada's military personnel. In addition it conducts various specialized courses to meet particular needs. While its main training facilities are at Ottawa the Public Service Commission also conducts regional language training operations in language schools in Halifax, Quebec City, Montreal, Winnipeg, and Vancouver. Language training is also available to federal public servants through contract arrangements in Moncton, Fredericton, Toronto, Sudbury, North Bay, Edmonton, Regina, and Banff.

National Capital Commission

Since December 1971, responsibility for the development of bilingualism in the National Capital Region, apart from the federal public service, has rested with the National Capital Commission. Its endeavours have included negotiations with the Provinces of Ontario and Quebec in whose territories the National Capital Region is located to assure that the linguistic and cultural values of the Anglophone and Francophone communities are adequately reflected in the area. It collaborates with the regional and municipal governments and other local public authorities such as school boards to strengthen their bilingual capabilities. In co-operation with private business organizations, voluntary associations, and individuals it also seeks to make the capital a true reflection of the country.

Commissioner of Official Languages

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

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

It follows from this section that the Commissioner exercises two functions, those of language ombudsman and linguistic auditor general. It should be noted that his powers can only be brought to bear in matters of federal jurisdiction.

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

Multiculturalism

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

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

Implementation of the government's multiculturalism policy is carried out by the Multicultural Program in the Department of the Secretary of State and a number of federal cultural agencies which have developed special programs designed to encourage respect for individual and group identities within the larger Canadian context.

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

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

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

With regard to services for adult immigrants, the Multicultural Program administers funds, under the terms of federal-provincial agreements, to underwrite provincial costs for official-language teaching and orientation programs. To inform



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1. Japanese tea ceremony in the Japanese gardens at Lethbridge, Alta.
2. Ukrainian festival at Dauphin, Man.
3. Dance of India, revolving around a religious legend, performed during a folk program in Ottawa.
4. Israeli folk dance.
5. Greeks performing their national dance at Ottawa's recent multicultural festival.



elderly people and recent immigrants having a limited command of English or French about federal activities and programs affecting them, the Multicultural Program together with other government departments and agencies is extending its use of the ethnic media to provide detailed information on old age pensions, immigration regulations, consumer protection, and so on.

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

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

The Mennonite museum in Steinbach, Man. Quakers, Mennonites, Tunkers, and Moravians were among the early religious bodies that settled in Canada.



Religion

Religion has been an important influence in Canada's history since the earliest days of discovery. Not just the search for riches or the lure of exploration, but a sense of mission, to Christianize the Indians, drew Frenchmen to the New World. Later settlers, both French- and English-speaking, looked to their church as a centre of social stability, of community as well as religious activities, and of the consolations of faith in the face of adversities, sufferings, and despair. The institutional church still provides leadership and guidelines for living to many Canadians, and most would agree that the Judaeo-Christian values carried from Europe influence their national life.

Although French Protestants were active in the early fur trade of New France, religious and economic rivalries led to the banning of all but French Roman Catholics from the colony in 1627. Before settlers arrived in any numbers, however, the Roman Catholic Church was already operating schools and hospitals as part of its great missionary effort to convert the Indians. One of the most heroic stories in Canada's past is that of the 17th century mission to the Hurons on Georgian Bay where Fathers Jean de Brébeuf and Gabriel Lalemant died at the hands of Iroquois natives. Five other Jesuits killed in the course of their mission to the Hurons have also been recognized as martyr saints. From similar missionary enterprise in that century grew the great city of Montreal.

When the British acquired Acadia in 1713 and New France in 1763, the new rulers guaranteed to the Roman Catholic population freedom to practise their religion. A policy encouraging a "Canadian" Catholic Church was confirmed by the Quebec Act of 1774 which gave official recognition to that church. This pattern of religious unity inherited from New France was, however, soon altered by the predominantly Protestant Loyalists. Their arrival meant that from that time forward Canada would be religiously pluralistic. This religious diversity and the growing spirit of equality eventually doomed to failure the post-revolutionary plan to make Anglicanism the official religion of the colonies. Vast land endowments and special political and legal privileges for the Church of England had all disappeared before Confederation as voluntarism — the separation of church and state — became the unwritten law and universal practice in Canada.

Canadians have come literally from a hundred nations, and their different faiths are now represented in this country of their adoption. The larger churches have established "ethnic" parishes where the temporary use of their mother tongue helps ease the immigrants' entrance into Canadian culture, but in ethnic churches such as the Eastern Orthodox community where the mother language is an essential part of religious services, the cultural transfer from the Old World to the New is sometimes more lengthy and difficult. Historically the churches of England and Scotland too could be considered ethnic churches, but in Canada they have had the advantage of using one of the two "charter" languages.

While the great majority of Canadians are Christian by heritage, and in times past have often referred to Canada as a "Christian nation," other faiths are also represented in the religious mosaic of the country. European Jews have brought both the major Judaic religious traditions with them and are organized in orthodox, conservative, and liberal synagogues. Judaism in Canada has remained essentially



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1. St. Mary's Catholic church at Red Deer, Alta.
2. Splashes of fall beauty frame an early Canadian church near St. Margaret Village, Cape Breton Island.
3. Greek Orthodox church at Winnipeg, Man.
4. Mohawk chapel, Beaufort, Ont.



an urban phenomenon, with 77 per cent of its followers living in Montreal and Toronto alone. Since the 1940's the Canadian Council of Christians and Jews has worked for greater understanding between these two faiths but it has also promoted civil rights and the end of religious prejudice through education. From Asia other recent immigrants have introduced Islam, Hinduism, Buddhism, Sikhism and one of Christianity's oldest branches, the Coptic Church of Ethiopia, now has a congregation in Toronto.

Soon after Confederation nationalists like George M. Wrong, principal of Queen's University, voiced their dream of reuniting all Christians in a single Canadian church. Their ideal of Protestant-Catholic reunion seemed an impossibility until Vatican II, but in the intervening century Canadian Protestant denominations did take long strides towards church union. In 1875 all Presbyterian bodies in Canada were joined into a single church, and nine years later all Methodist groups were similarly reunited. These denominational unions led immediately to discussion of an interdenominational union of Anglicans, Methodists, Presbyterians, Congregationalists, and Baptists. Not until 1925, however, and then only after bitter controversy divided the Presbyterian church, was a United Church achieved that included Methodists, Presbyterians, and Congregationalists only.

The United Church of Canada, a unique experiment in interdenominationalism and Canada's largest Protestant denomination, has recently merged with the smaller Evangelical United Brethren, and since 1944 has been discussing union with the Anglican Church and the Disciples of Christ. Such a union would contain nearly 30 per cent of Canada's population, and since Roman Catholics make up 46 per cent, three out of every four people in the country would then belong to these two huge churches. The three next largest denominations—Presbyterians, Lutherans, and Baptists—claim another 12 per cent of the population so that nearly nine of every ten Canadians would be members of just five churches—the remainder would be divided among more than thirty other denominations, as well as sects and cults. Thus, while the Canadian religious scene is often called pluralistic, in fact it has increasingly tended towards fewer and bigger "main line" churches.

Members of Canada's larger churches—Roman Catholic, United, and Anglican—are found in every province but the smaller denominations often reflect a regional concentration that stems from the pattern of settlement or from particular religious events in Canada's history. The Presbyterian Church in Canada is predominantly an urban and Ontario institution because of the schism caused by the union of 1925. Canadian Baptists number only 667,000 and are mainly in the Maritimes where they separated from the Congregationalists as a result of an 18th century religious revival. Over the past two centuries Canada's tradition of religious freedom has attracted many small religious bodies that have suffered persecution in other lands. These have often settled here in close communities to preserve their religious and folk ways. Among the earliest of such groups were the Quakers, Mennonites, Tunkers, and Moravians; more recent arrivals are the German-speaking Hutterites and the Doukhobors from Russia.

During the 19th century rapid and widely dispersed settlement absorbed most of the resources of the churches as they tried to reach these scattered flocks. Where the Catholic Church had earlier provided schools, hospitals, orphanages, and asylums in the more compact settlement of New France, it was now left to the state to



Winter's white cloak of snow completes the picturesque setting for Christmas.

develop such social agencies in the rest of Canada so that the work of the churches, particularly the Protestant churches, was largely limited to providing exclusively religious help.

Despite this growth of the welfare state and its separation from the churches, Canadians have always believed that religion and secular life are necessarily connected. The organized churches have acted as the conscience of the state and have lobbied with some success on such issues as temperance, Sunday observance, birth control and abortion, working and living conditions, capital punishment, and criminal law reform. They have also attempted to influence Canada's external relations in connection with aid to underdeveloped countries and the nonrecognition of certain foreign governments. In Quebec the Roman Catholic Church continued to play an important role in politics until the Quiet Revolution of the 1960's, whereas the Protestant churches were strongest as social critics in the generation of mass immigration and industrialization immediately before the First World War.

Since the early 1960's the relative decline in the influence of the older churches on national life has been complemented by the rise of various sects and cults whose radical beliefs and practices seem to have attracted a sizable following among a restless younger generation. The more traditional forms of religion may yet regain some of their former effectiveness thanks to the revival of religious conservatism that has recently appeared in the United States and Canada in reaction against the uncertainties, confusion, and challenges of the previous decade.

JOHN S. MOIR

Arts and Culture

Canada is now more culturally aware than at any time in history: arts-based community festivals are myriad; more than 1,100 museums receive about 60 million visitors annually; and international producers consider the Toronto region's production capabilities on a par with those of New York and Los Angeles. We are living in a theatrical revolution. Canada is dotted with magnificent theatres and today public attendance at performing arts productions across Canada equals the 20 million a year who watch spectator sports.

Theatre in 1973-74

Newfoundland's full-time theatre company, the Mummer's Troupe, toured nearly 6,000 miles in the Atlantic Provinces.

The Neptune Theatre, Halifax, celebrated its 10th anniversary with the formation of the Student Theatre Group. It presented widely contrasting fare such as *You're a Good Man Charlie Brown* and *Peer Gynt*. It also toured the Atlantic Provinces, including Labrador.

Theatre New Brunswick, Fredericton, serves the entire province: in 1973-74, four plays travelled over 1,000 miles. TNB also toured other Maritime provinces, took *Death of a Salesman* to Victoria's Bastion Theatre in exchange for *Born Yesterday*, and played *Dracula* in Toronto's Theatre in Camera.

La Sagouine by Antonine Maillet toured New Brunswick, Saskatchewan, Manitoba, and Ontario, as well as Montreal, Que., and Paris, France.

Centaur Theatre, Montreal's professional English-language company, has given Canadian actors experience and it has developed an international repertory, and a large following in a predominantly French-speaking city. *The Tooth of Crime*—a rock musical by Sam Shepard—was a sell-out. The core of the season was Canadian plays, co-sponsored with Toronto's Tarragon Theatre.

Le Théâtre du Nouveau Monde, one of the six main French-language theatre companies in Montreal, has maintained a classical repertory and created original works. The highlight was the *première* of *Mésalliance* at the National Arts Centre.

Five other theatres—Rideau Vert, d'Aujourd'hui, Compagnie des Deux Chaises, Théâtre de Quat'Sous and la Poudrière—provided a variety of Canadian plays and international fare.

Since 1969 Ontario Youth Theatre has trained over 1,000 young people and funded 44 theatre programs in 22 communities. Summer 1974 marked the opening of The Showcase Company.

For 15 years, Toronto Workshop Productions has staged politically-oriented plays. For 1974, two Jack Winters plays were commissioned—one concerning the Canadian government's attitude to Chilean refugees; another about the 1976 Olympics. It also produced a drama by Steven Bush and Rick McKenna about prairie Orangemen in the days of Louis Riel.

The Toronto Arts Foundation in the St. Lawrence Centre is one of the few Canadian theatres based on a resident theatre company. The company produced the first English-language performance of *Les Belles Sœurs* by French-Canadian playwright Michel Tremblay.

Factory Theatre Lab, dedicated to the development of Canadian playwrights, has staged over 100 Canadian plays in three years; taken a festival of Canadian plays to London, England; created a Playwrights' Workshop sponsored by a Local Initiatives Program grant; and has opened Factory Theatre West in Calgary, Alta.

The Tarragon Theatre in Toronto produces Canadian plays. Main successes were the launching of two Canadian playwrights—David French, with *Leaving Home* and *Of the Field Lately*, and David Freeman with *Creeps* and *Battering Ram*.

Toronto's Theatre Pass Muraille has specialized in group creations reflecting community life. The *Farm Show* toured Canada and the United States.

Theatre London, has grown from a community to fully professional theatre, one of the few companies to make that transition.

In March 1973, le Théâtre de l'Homme—Hamilton's experimental theatre company—was invited to New York to perform for Polish director Jerzy Grotowski and New York University's drama faculty. The outcome was festival appearances in Belgrade, Yugoslavia; Wrocław, Poland; Amsterdam; Munich; and Edinburgh.

The Manitoba Theatre Centre completed its second year in a new theatre. The 1973-74 program included *Winnie The Pooh*, *Godspell*, and *The Dybbuk* directed by MTC founder John Hirsch, which toured Canada.

Since Regina's Globe Theatre was established in 1966, the company has toured Saskatchewan schools with children's programs. In 1970, a second company was formed and now adult performances are visiting the same Saskatchewan communities.

Other important developments included the establishment of the Canadian Playwrights' Factory Theatre West; the Centennial Planetarium's *Pléiades* Theatre presentation of *Canadian Gothic*; and Alberta Theatre Projects' performance of four Canadian plays in the old log Canmore Opera House in Heritage Park. Highlight for Theatre Calgary was the first performance of Sharon Pollock's play *Walsh* about General Walsh and Chief Sitting Bull, which went to the Stratford Festival.

The Jasper-based Palisades Arts Company entered its sixth summer season, presenting four full-length comedies in Calgary and Jasper, Alta.

Edmonton's Citadel Theatre sent *Oedipus Rex* to the National Arts Centre in May. *Citadel on Wheels*—the children's theatre company—travelled over a million miles throughout Alberta and the Northwest Territories. Studio Theatre, in 1973-74, presented visiting artists and experimental work emanating from the University of Alberta's Drama Department. Stage 3, Edmonton's newest professional company, completed its fifth season.

The Vancouver Playhouse, noted for staging Canadian plays, in 1974 premiered *Queer Sights*, presented *Mandragola*, and took to Ottawa *A Doll's House*, one of the most successful productions in the theatre's 11-year history. City Stage, whose lunchtime theatre presents Vancouver's finest entertainers, opened its summer season with *Hands Across the Sea*. Highlights of the season for The Arts Club Theatre were *Jacques Brel—Alive and Well* and the Vancouver première of *Creeps*. The Vancouver East Cultural Centre was transformed from a former church into a miniature European-type opera house. Tickets rarely cost more than \$2.00.

Victoria's improvisational Company I toured Canada, and Turnabout Bastion Theatre toured British Columbia with *Born Yesterday*, following the 1974 run in Fredericton's Playhouse.



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1 & 3. *Bonjour là, Bonjour!* and *La Sagouine II* were among the theatre productions presented during 1974 at the National Arts Centre in Ottawa.

2. *Charley's Aunt* at the Shaw Festival, Niagara-on-the-Lake, Ont.

4. *Romeo and Juliet* at the Globe Theatre, Regina, Sask.





Len Birman as Rabbi Azrielke in the Manitoba Theatre Centre's production *The Dybbuk*.

Festivals

Canadian festivals include the Charlottetown Summer Festival, which annually presents a newly-created Canadian musical comedy, while reviving *Anne of Green Gables*. In 1974, a pop-rock musical *Hamlet*, was composed by Cliff Jones. Anne went on a trans-Canada tour.

The Sixth annual Summer Festival of the Arts in St. John's, was a highlight of Newfoundland's Silver Jubilee.

On the 1974 program of Wolfville's Theatre Arts Festival International were the Bolshoi Ballet and Gordon Lightfoot. The Nova Scotia Festival of the Arts was a showcase of Canadian and local talent.

Carrefour des arts de la Mauricie, a new summer festival at Shawinigan, Que., was launched in the 1973-74 season.

The establishment of Festival Lennoxville, in its third summer season of presenting exclusively Canadian plays, is a significant development in Canadian theatre. Included in the 1974 playbill were *Adam's Fall*, *My Brother's Keeper*, and *The Blood is Strong*.

The second annual Ontario Theatre Festival was held in May 1974, in conjunction with Oshawa's 50th Anniversary celebrations. *Ten Lost Years*, Toronto Workshop's evocation of the Depression, was the one professionally-produced play.

The Stratford Shakespearean Festival, initiated by Sir Tyrone Guthrie and designer Tanya Moiseiwitsch, is famous for its Shakespearean productions. In its 22nd season in 1974, the Stratford Festival mounted nine dramatic and musical productions. The Festival Theatre housed three Shakespearean plays and Molière's *The Imaginary Invalid*, which had enjoyed a successful Australian tour.

Light musical fare returned to the Avon Theatre, and Offenbach's *La vie parisienne* was presented. Programs in the new Third Stage, which is devoted to experimental works in theatre and music, included Maureen Forrester in *The Medium*; *The Summoning of Everyman*, Walsh, and a children's play *Ready, Steady, Go*.

1974 marked the formation of the Stratford Festival Ensemble, and the music season honoured the centenary of the birth of Arnold Schoenberg by including his works in the Saturday Concerts. In September, Stratford hosted its 10th International Film Festival.

The plays of George Bernard Shaw performed at the Shaw Festival at Niagara-on-the-Lake, Ont. draw consistently packed houses.

Since 1968, Artistic Director Nicholas Goldschmidt has presented an annual two-week showcase of great talents at the Guelph Spring Festival. The 1973 Festival was opened by Yehudi Menuhin playing a violin concerto by Harry Somers. Among the 1974 attractions were a Film Festival of Laughter, the National Arts Centre Orchestra, and the Toronto Mendelssohn Choir.

Maestro Laszlo Gati, conductor of the Victoria Symphony, originated the Victoria Summer Festival where people enjoy an exhibition of British Columbia prints, a film festival, chamber ensembles, and orchestral concerts in parks in Victoria, Saanich, Oak Bay, and Esquimalt.

Walsh by Sharon Pollock was first staged in Calgary in 1973.



1973 was a year of festivals in the Yukon celebrating the 75th anniversaries of the Territory, the Klondike Gold Rush, the Yukon Field Force, and the White Pass and Yukon Railway.

In the 1973-74 season a Break-up Drama Festival marked the Yukon River ice break-up. A May tour by the Edmonton Symphony was followed by Dawson City's Palace Grand Theatre's annual variety show, plus a melodrama, *The Fate of the Poor Man's Daughter*, and *The Frantic Follies* in Whitehorse.

The Canadian Puppet Festivals of Toronto took on their annual Spring Tour in 1974 *The Firebird*, which had its world *première* at the Detroit Institute of Art. The Canadian Mime Theatre toured Europe in the autumn of 1974.

Canada's National Theatre School in Montreal draws its students from across Canada. This co-lingual professional training school is committed to training actors, production personnel, and designers, for both English and French theatre. NTS has also served as a model for New York's Juilliard School and other North American training programs.

Multicultural Festivals

Nearly one-third of Canada's population is of an ethno-cultural background other than English or French. Since 1973, the Secretary of State Department has encouraged the federal government's multicultural policy by supporting local and regional performing folk art activity in the form of festivals.

Canada's first national folkloric festival was Multicultural Festival '74, which regaled Ottawa throughout July in conjunction with the annual Festival Canada. Forty-one amateur performing groups from all provinces represented 32 ethno-cultural backgrounds.

Multicultural festivals blossomed from coast to coast. There was a Yukon-wide, two-day festival. The Prince George Folkfest '74 was an example of localized festivals, culminating in a grand spectacle, Folkfest '74 in Vancouver. There were groups of ethno-cultural dancers and musicians in smaller centres, such as Weybourne, Sask., and Flin Flon, Man. Since 1973, Thunder Bay, Ont., has contributed to performing folkloric arts. In 1973-74 there were fine presentations in centres such as Sudbury and Brantford, Ont.

Toronto's annual Caravan consisted of 57 pavilions, representing cities around the world. In the Maritimes, a Caravan-type festival from Fredericton, N.B., performed in six centres. A multicultural festival was held at Charlottetown's Confederation Centre, P.E.I., during September. To celebrate the 25th anniversary of Newfoundland's joining Confederation, festivals in Stephenville, Marystown, and Gander culminated in a gala festival in St. John's. Halifax, N.S., also had a grand program of folkloric arts.

Opera

A galaxy of international opera stars came to Canada in 1973 for the Canadian Opera Company's 25th Anniversary season. The program included five traditional operas and the world *première* of *Héloïse and Abélard*.

festival attended by 1,800 youth between 18 and 35 years of age, from 25 French-speaking countries, who participated in 602 activities.

Close to 500,000 young visitors packed the old capital for the first International festival of French youth sponsored by the Paris-based Agency for Cultural and Technical Co-operation established by French language countries in 1970. Canadian participation was made possible through joint efforts of the federal departments of External Affairs, Health and Welfare, and Secretary of State, and the provinces of Quebec, New Brunswick, Ontario, and Manitoba. With financial support from their respective provinces and from the Department of the Secretary of State, the Canadian delegation included painters, sculptors, poets, singers, musicians and comedians who participated in the cultural component of the festival.





The Opéra du Québec opened the 1973-74 season with *Otello*.

The COC's 1974 season included six different evenings of opera. First productions were *The Flying Dutchman*, *Boris Godunov*, and a double bill of *L'Heure, Espagnol* and *Bluebeard's Castle*. Jan Rubes was appointed Director of Touring and Program Development.

For Opéra du Québec's big-league *Otello*, which opened the 1973-74 season, Jon Vickers joined Clarice Carson and Conductor Zubin Mehta to head a powerful cast. Pierre Hétu, new music director of the Edmonton Symphony, conducted *Madama Butterfly*.

Opera West

A 1968 discussion between the Edmonton Opera and the Vancouver Opera led to a successful joint venture. In 1971, the Manitoba Opera Association was created and welcomed into the group. 1972 saw the formation of the Southern Alberta Association, and at a Vancouver Conference attended by all four companies, Opera West was officially inaugurated. The Vancouver Opera Association began in 1960, with four performances of *Carmen*. The VOA has grown to four productions and a \$730,000 budget for the 1974-75 season. Many international stars appeared with VOA early in their careers, and Joan Sutherland made two important débuts. In 1975, the Association launched a resident company of young artists which performed *Rodelinda* and *La Buona Figliuola*. Richard Bonyne was appointed Artistic Director of the Company.

Music

In 1973, Elmer Iseler, conductor of the Festival Singers of Canada and the Toronto Mendelssohn Choir was the first Canadian to be awarded the silver medal of the Société d'Encouragement et d'Éducation of Paris, for conducting both groups during 1971 and 1972 European tours.

In 1973, the first conservatory of music in British Columbia offering instruction in all instruments and voice commenced operation.

Vancouver's Chamber Choir achieved top honours in mixed voices category of the 1973 international choral competition *Let The People Sing*.

In 1973-74, Canadian orchestras playing to world-wide audiences included the Toronto Symphony, which had a 16-city European tour. During the National Arts Centre Orchestra's European tour, the NACO opened the 1973 Bath Music Festival.

The National Arts Centre's 46-member resident orchestra, under the direction of Mario Bernardi, is considered one of the finest ensembles of its size in the world. NACO made its third New York appearance in December 1974 at a Carnegie Hall début.

The 1974 joint conference of the Association of Canadian Orchestras and the Ontario Federation of Symphony Orchestras was held in April. Delegates represented the ten major Canadian symphony orchestras and over 20 community orchestras.

In the spring of 1974 youth orchestras from Vancouver, B.C., Calgary, Alta., Regina, Sask., London and St. Catharines, Ont., and Fredericton, N.B., participated in the First Festival of Canadian Youth Orchestras, at the Banff Centre.

The National Youth Orchestra provides training for music students. Musicians audition each season in major centres across Canada. NYO members receive an intensive season of concert repertoire, rehearsals, chamber music ensembles, workshops, sight-reading sessions, lectures and orchestral concerts.

The Montreal Symphony Orchestra celebrated its 40th anniversary in January 1975.



Throughout Ontario's Niagara Peninsula, Hamilton Philharmonic Orchestra members present over 500 concerts annually in locations varying from schools, shopping centres, and city parks to senior citizens' homes and steel mills.

The entire cultural community mourned the death of Sir Ernest MacMillan, long associated with the Toronto Symphony and Toronto Mendelssohn Choir. New music director of the Toronto Symphony is Andrew Davis.

The Winnipeg Symphony saluted Manitoba's 100th anniversary with a "Starburst 1973-74 Season," featuring such international soloists as Van Cliburn, plus top Canadian talent. Among Winnipeg Symphony performances was the world première of a new symphony, by Winnipeg's Victor Davies.

During a northern tour, the Edmonton Symphony scored a first, with a concert in Yellowknife, N.W.T., for native people, many of whom were bussed 60 miles.

Two major groups specializing in 20th century music are New Music Concerts of Toronto and the *Société de musique contemporaine du Québec* in Montreal.

In October 1973 a new Flentrop organ was installed in the National Arts Centre, a gift from Canadians of Dutch ancestry in recognition of Canada's role in the 1945 liberation of the Netherlands.

Dance

1973-74 was a year of successful activity for Canadian dance, at home and abroad. A Canada Council study, *The Group of Twenty-Nine*, announced that dance companies more than doubled performances in the past five years, and that dance leads theatre, music, and other art forms in audience growth.

Jazz ballet, *Mobiles in Motion*, by the Alberta Ballet Company.





Dancers of the Royal Winnipeg Ballet in *What To Do Till The Messiah Comes*.

Rudolf Nureyev and Veronica Tennant in *Les Sylphides* — National Ballet of Canada.



Leading Dance Companies

Les Grands Ballets Canadiens operates 23 schools throughout Quebec and a professional École supérieure de danse. In the 1973-74 season, the company toured Quebec and Ottawa with *Nutcracker*, *Giselle*, and new works. The GBC also appeared in Paris with *Ceremony* and their famous rock ballet *Tommy*, whereas the company's sister troupe, *Les Compagnons de la Danse*, toured Quebec. Company founder Mme Ludmilla Chiriaeff retired as Artistic Director and was succeeded by the Canadian choreographer, Brian Macdonald.

Other exciting Montreal dance groups include *Groupe Nouvel d'Aire*, *Contemporary Dance Theatre*, *Les Ballets-Jazz*, and *Le Groupe de la Place Royale*, which received a warm welcome at Canada Week in Mexico and in Belgium.

The National Ballet of Canada completed a triumphant United States tour at the end of the 22-year reign of Artistic Director Celia Franca. Miss Franca, who relinquished leadership to David Haber, was awarded the \$15,000 Molson Prize and received an honorary doctorate from the University of Toronto. The National Ballet's American tour included two weeks at New York's Metropolitan Opera House. During part of the season in 1973, with Rudolf Nureyev as guest artist, the company travelled 15,000 miles to 36 cities, giving 158 performances in five months. In the Moscow International Competition Karen Kain won the silver medal.

The Toronto Dance Theatre. In the 1973-74 season, the experimental Toronto Dance Theatre repeated its successful 1972 European tour; toured Canada with three programs including *Atlantis*, a major new work; performed in New York and London; and toured Ontario. It also toured western Canada for the first time.

The Royal Winnipeg Ballet. Within the past few years, the Royal Winnipeg Ballet has performed on three continents, as well as in dozens of cities and towns across Canada. In the 1973-74 season a 9-week tour of South America was included.

Contemporary Dancers of Winnipeg. The 1973-74 season was the 10th anniversary of Winnipeg's Contemporary Dancers, and it was marked by a successful North American tour presenting seven new works.

Anna Wyman Dance Theatre of Vancouver played to rave reviews and standing ovations at the Young Choreographer's Competition in Cologne, Germany, with the ballet *Here at the Eye of the Hurricane*.

The Canadian Broadcasting Corporation

The CBC has demonstrated continuing support for the arts during its 38 years of existence. In music, CBC English radio offers a wide variety, including international artists. Regular programming includes broadcasts by major Canadian orchestras. The CBC sponsors public concerts and summer music festivals, commissions works by Canadian composers, and sponsors annual talent festival competitions.

The CBC's French radio network is equally active in music production and also provides opportunity for pop artists and chansonniers on such programs as *Feu Vert*. In 1974, the Canada Council and the CBC's French radio service jointly sponsored a young composer's competition. The CBC also introduces Canadian music and artists to foreign audiences through international festivals, programs, and transcription services.

CBC television has had several ballet and opera successes, such as Norman



The CBC's *Quelle Famille*. French language television presents variety, including serious programs, serial dramas, and comedy.

Campbell's *Sleeping Beauty* featuring the National Ballet of Canada and Rudolf Nureyev. In the United States, it won an Emmy Award as the outstanding classical music program in 1973. The *Musicamera* series featured well-known Canadian concert artists. Among the French network's music programs, was Verdi's opera *Macbeth*, also seen on the English network.

Canadian drama, a mainstay of CBC's French-language television, has a tradition of presenting serious programs such as *les Beaux Dimanches* as well as popular *téléromans* (weekly serial dramas). On the English network, one of the prominent 1973 Canadian drama productions was *Vicki*. The Play's *The Thing* presented commissioned works by leading Canadian writers.

In drama documentaries, *The National Dream* was based on Pierre Berton's books about the Canadian Pacific Railway. CBC radio featured dramatized Canadian history in *The Bush* and *The Salon* series. *CBC Tuesday Night* continued dramatic and documentary productions.

The French radio network, which introduces new works by Canadian writers, also presented a 25-year retrospective series of plays by French Canadians in 1973. For the second year, the network held a competition for original radio drama by Canadian writers. The CBC Northern Service included Indian and Inuit (Eskimo) folk music, history, and legends, presented in native languages.

Films

Film-making by Canadians has increased rapidly in recent years. The Canadian Film Festivals Bureau reports Canadian films were entered in 99 events (film festivals and six film-weeks) between January 1973 and March 1974. Private industry received 81 awards with 66 films, while the National Film Board (NFB) won 69 awards for 42 films. Canadian film weeks were held in Mons, Belgium; Amiens, France; Madrid/Barcelona, Spain; and Mexico City, Mexico; with both the NFB and private industry participating.

On the 1974 European festival circuit, *Les Dernières Fiançailles* at Dinard, France, was awarded a special prize at the International Festival of French-

language Films. Selected for the Directors' Fortnight at Cannes, *Les Dernières Fiançailles* was on the International Festival program at Sorrento, Italy, which included a week of Canadian Films and Arts. In Toulon, France, Morley Markson's Toronto-produced *Monkeys in the Attic* was named Best Foreign Film at the International Festival of Young Cinema. *The Apprenticeship of Duddy Kravitz* won the Golden Bear Award at the Berlin International Film Festival. *Alien Thunder*, Claude Fournier's film inspired by the 1885 Northwest Rebellion was shown at the Karlovy Vary Festival in Czechoslovakia.

An Inuit animation film, directed by Joanase Salamonie, won the Jury Award for outstanding achievement at the World Animation Film Festival in Zagreb, Yugoslavia, in June, 1974.

The Canadian Centre for Films on Art sponsored by the National Gallery of Canada, the National Film Board of Canada, and the National Arts Centre, marked its 10th anniversary in 1974 by publishing *Films on Art No. 10*, providing, with Catalogue No. 9, a record of more than 1,400 films available to Canadian borrowers from Ottawa sources.

The National Film Board of Canada

Of five full-length commercial feature films produced by the National Film Board, three originated in the French production branch: *Taureau*, *O.K. Laliberté*, and *La Gammick*. English production features included *Cry of the Wild*, and *Why Rock the Boat*.

Prominent films produced for television were *Grierson*, *Des Armes Et Les Hommes*, *Ratopolis*, *Station 10*, *Tout En L'Air*, *Rock-A-Bye*, and *King of the Hill*. The West series dealing with the three Prairie Provinces, is to be followed by a series on Canada's east and west coastal regions.

A one-hour documentary on National Film Board founder, the late Dr. John Grierson, won the 1974 Robert Flaherty Award. Six films entitled *Corporation* received praise from the business community and press. For the second time, NFB won the *Palme d'or* at the Cannes Festival for the animated short *Balablok*. Animation, a Board specialty, has won many awards for Norman McLaren, as retrospectives in Philadelphia, New York, Toronto, Montreal, Berlin, and London testify.

O.K. Laliberté was among the five feature length films produced by the National Film Board in the 1973-74 season.



The National Museums of Canada

A board of trustees, reporting to the Secretary of State, administers all four National Museums of Canada. The National Gallery, the National Museum of Man, the National Museum of Natural Sciences, and the National Museum of Science and Technology share responsibility for collecting and exhibiting the products of nature and works of man.

The National Museum of Science and Technology

The Museum of Science and Technology is one of Ottawa's most popular museums. Displayed are technologies of ground transportation—with steam locomotives, sleighs, rail cars, and automobiles; agricultural development—from muscle-power to motor-powered machinery and modern production techniques; communications—from music boxes to today's sophisticated data transmission; marine transport—with model ships illustrating the evolution of vessels used for discovery, research, cargo and passenger transport; a physics hall—exploring natural phenomena by experiments in motion, light, force, electricity, and optics; and aviation—encompassing everything from the first flight to space exploration. Many displays are sent on tour.

The National Aeronautical Collection at Rockcliffe Airport is part of the Science Museum. The collection of over 90 historic aircraft reveal the progress of aviation technology from primitive times to the present.

The National Museum of Man

The National Museum of Man is comprised of The Canadian Centre for Folk Culture Studies, the Archaeological Survey of Canada, the Canadian War Museum, and the Divisions of Ethnology, History, and Communications.

The Canadian Centre for Folk Culture Studies is a research institute and a repository of the largest archive of folk culture materials in Canada. In 1973-74, the Centre also produced a record number of films.

The Archaeological Survey of Canada has undertaken over 300 research projects in Canadian prehistory which have dramatically altered knowledge of Canada's past.

The Nieuport 17, a World War I aircraft is part of the National Aeronautical Collection.



Work continues on some 100 sites, with increasing emphasis on salvaging sites in immediate danger of being destroyed by human or natural forces.

The *Ethnology Division* provides advisory services relating to the Indian, Inuit, and Métis culture of Canada. 1973-74 research included the Urgent Ethnology Program, which is recording the disappearing traditional cultures and languages of Canadian native peoples.

The *Canadian War Museum* houses a collection of memorabilia of Canada's military past, ranging from military art to tanks. In the past year nearly 6,000 specimens were added to the collection, and exhibitions included the Polish Cooperation in Two World Wars, the Overlord Embroidery, and the D-Day Art Exhibition.

The *History Division* continued studies on Canadian society and material culture since the beginnings of European colonization. The Division has collected and restored over 15,000 items of period furnishings, including the Schwartz Collection of Canadiana. Canada's Visual History, a co-operative venture of the National Museum of Man and National Film Board, was well under way in 1974.

The *Communications Division* plans and co-ordinates the interpretation and exhibition program in museum exhibit halls and organizes travelling exhibitions. In 1973-74 there were 14 travelling exhibitions and 18 temporary exhibits on tour.

The National Museum of Natural Sciences

The Museum of Natural Sciences has divisions of botany, zoology, geology, mineralogy, and palæontology. During the past year, thousands of specimens were added to its collection. The staff was also engaged in almost 70 major research projects and 30 projects of lesser importance. The museum has supported such research as the Polar Continental Shelf Project and the Hudson and Sackville expeditions. The museum also supports university projects undertaken by staff members or research associates, and provides financial assistance, facilities, and field work for several National Research Council post-doctoral fellows.

As part of the Canadian government's cultural heritage policy, a program has been launched to make museum service available to communities across the country. In the decentralization program, a display of 80-million-year-old dinosaur remains from Alberta was presented in the Nova Scotia Museum, Halifax, N.S.; a collection of bones of ice-age mammals excavated from the Yukon was displayed at Dawson during Discovery Day celebrations; and other travelling displays were placed in museums across Canada.

The National Gallery of Canada

The National Gallery's international collection, gives Canadians an indication of the origins of their traditions. The collection of Canadian art, over 12,200 works, is the most extensive and important in existence and is continually being augmented. Included are many Old Masters, 12 having been acquired from the famous Liechtenstein collection. Over 60 per cent of all new acquisitions since 1966 have been Canadian. There is a growing collection of contemporary art, prints and drawings, and diploma works of the Royal Canadian Academy. The Gallery's services include a reference library containing over 42,000 volumes and periodicals on art history and other related subjects.



The Pool by L.L. FitzGerald, a recent acquisition of The National Gallery of Canada.

The Federal Government and the Arts

Ever since the end of World War II successive governments in Canada have given increasing attention to the importance of culture and the arts in Canadian life and the need for government assistance in sustaining and developing them.

Creation of the Canada Council

The first real involvement of the government in the arts came in 1949 with the establishment of the Massey Commission. One of the principal recommendations of the Commission's report was that a government agency should be established to encourage artistic and cultural expression by Canadians. Parliament implemented this recommendation in 1957 when it created the Canada Council which since that time has been a major source of federal financial support to the arts community.

Centennial Year—1967

In preparation for the year-long festivities, public funds were allocated for the construction throughout the country of cultural centres or buildings dedicated to the arts, and during the Centennial year substantial sums were spent sending performing arts companies on tour across the country. The term "cultural explo-

sion" could aptly be applied to the burst of artistic creativity in Canada during 1967. The year's highlight, Expo '67, brought together creative and performing artists from all over the country. As a result of its extensive involvement in these activities, the federal government established a climate of co-operation between the public and private sector which represented a kind of cultural "take-off."

The Broadcasting Act

One of the government's initiatives was the approval by Parliament in 1968 of a new Broadcasting Act which set out a broadcasting policy for Canada, providing for a national broadcasting system that would be Canadian-owned and predominantly Canadian in program content. The Act called for the creation of an agency—the Canadian Radio Television Commission—to supervise and regulate national broadcasting. One of the first actions of the Commission was to introduce a regulation requiring 80 percent Canadian ownership and complete control of radio and television stations, as well as cable television systems under foreign control.

Canadian Film Development Corporation

Another important step taken by the government in 1968 was the establishment of the Canadian Film Development Corporation, an investment agency with a mandate to foster and promote the development of a feature film industry in Canada through government loans.

Development of a Cultural Policy

In October, 1968 the Secretary of State announced the government's intention of formulating a comprehensive cultural policy that would give effect to the principles of democratization and decentralization. Democratization, on the one hand,

The Canadian Film Development Corporation financed 19 films during 1973-74, including *The Apprenticeship of Duddy Kravitz*.



would make it possible for all levels of society to enjoy and contribute to Canada's cultural wealth while decentralization, on the other hand, would help to overcome the isolation from culture caused by vast distances and the uneven distribution of cultural facilities.

By this time the Department of the Secretary of State had become a focal point for the arts at the federal level, the Secretary of State being spokesman in Parliament and responsible in varying degrees for the Canadian Broadcasting Corporation (CBC), the National Film Board (NFB), the National Library and Public Archives, the Canada Council, the Canadian Radio Television Commission, the Canadian Film Development Corporation, and the National Museums Corporation.

One of the first measures undertaken by the Secretary of State to realize the objectives of the policy was to set up machinery to provide for co-operation among the various levels of government (federal, provincial, and municipal) and the arts community.

Multiculturalism Policy

Another measure that has influenced Canada's artistic and cultural development was the announcement by the Prime Minister in October, 1971 of a policy on multiculturalism. The new policy gave recognition for the first time to the valuable contribution made to Canada by its many and diverse cultural groups and promised support and encouragement to these groups in developing their heritage and sharing it with other Canadians.

Publishing Policy

In February, 1972, the Secretary of State announced the first phase of a book publishing policy. Its principal aim is to promote the growth of a Canadian industry capable of publishing the works of all talented Canadian authors and of ensuring their widest possible distribution.

Under the policy, financial assistance in the form of increased grants was made available to publishers for the publication of Canadian works and additional funds were provided for the translation, purchase, and export of Canadian books. The policy further provided that henceforth, wherever possible, the publication for commercial use of non-official publications sponsored by federal departments, organizations, and Crown corporations would be entrusted to private publishers.

Museum Policy

In 1968, the three national museums and the National Gallery were incorporated under one administration known as the National Museums of Canada, with the object of increasing the capacity of both large and small museums throughout the country to serve a much greater public. The deliberations of museum directors from across the country early in 1971 led to the announcement in March, 1972 of a new policy for museums with the National Museums of Canada responsible for its implementation.

The main features of the policy include the establishment of an "Associate Museum" network of some 20 or so museums (including the National Museums of Canada) in which activities, collections, and standards of member museums are

raised to the same professional level and within which exhibits may be exchanged. National Exhibition Centres are also to be set up in areas not served by museums, and a Museumobile Program established which would bring specially designed exhibits to areas where, because of inadequate facilities, collections are not exhibited.

Other features of the policy provide for an Emergency Purchase Fund to buy cultural objects; a Conservation Institute in Ottawa and five regional branches; a National Inventory; and the training of museum professionals.

Film Policy

In July 1972 the Secretary of State announced the first phase of a film policy designed to bring about better co-ordination of the film production and distribution activities of the federal cultural agencies and the private sector and to bring about a more rational development of the film industry in general.

Under the new policy, the statutory appropriation for the Canadian Film Development Corporation was doubled. An advisory board with representatives from the film industry and the cultural agencies was set up to advise the government on its participation in film matters. A Film Festival Bureau was created to handle and co-ordinate Canadian participation in film festivals at home and abroad. Arrangements were made with the CBC to show more Canadian films and the National Film Board was required to decentralize its production operations in order to offer greater encouragement to regional film-makers. Henceforth, the NFB would no longer be the exclusive agent for government sponsored films but would have to compete with the private sector for these contracts.

One of the first results to come out of the new policy was the signing in the summer of 1973 of an agreement with Odeon and Famous Players, two of the largest theatre chains in Canada, to increase the showing of Canadian films in their theatres.

Performing Arts Policy

In the summer of 1969 the National Arts Centre opened. Established to encourage the performing arts in the National Capital Region and to support the Canada Council in promoting the arts throughout the country, the Centre has been a success from its inception.

Early in 1972 as the first phase of a policy designed to provide further assistance to the performing arts in Canada, a National Touring Office was opened in Ottawa. The new organization, which is an arm of the Canada Council is served by an advisory board of performing arts professionals from across the country. Its functions include the administration of touring grants to Canadian performing arts companies, the booking and co-ordination of tours and the provision of information and consultative services to the arts community in Canada. In addition to its domestic responsibilities, the National Touring Office in conjunction with the Department of External Affairs, arranges international tours for Canadian companies and artists and assists performing groups from other countries coming to Canada under cultural exchange arrangements.

Science and Technology

With an estimated gross expenditure in 1970-71 of \$1,145 million on research and development (R&D), Canada lies sixth amongst the countries of the Organization for Economic Co-operation and Development (OECD) in expenditure on these activities. In terms of gross national product this expenditure represents 1.2 per cent, a figure exceeded by eight OECD countries.

The average annual rate of growth of expenditure on R&D which was 14.6 per cent in Canada from 1963 to 1967 was reduced to 4.5 per cent from 1967 to 1969 and to 1.4 per cent in 1969-71, the latest years for which figures are available. In common with the United States and one or two other countries, Canada has seen a marked levelling-off in the support of science and technology since the period of rapid growth in the early 1960's.

About 53,000 scientific and technical personnel were employed in research and development in Canada in 1970-71. Rather more than half of them were graduate scientists and engineers.

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.)

This was probably the first coherent definition of science policy on the international scene. It was written by a group of advisers to OECD of which the late Dr. E.W.R. Steacie, then President of the National Research Council, was a member.

Now in 1975, science policy has additional dimensions. There is a greater realization of the social, economic, environmental, and political effects of the application of science and technology. During wartime, science was used for military purposes quite deliberately and with great success. It is recognized that the time has come for the equally deliberate application to social and economic ends. While this recognition exists in many countries, Canada is singularly well-prepared for action. A period of intensive study in the latter half of the 1960's and the early 1970's has resulted in a great variety of useful reports principally sponsored by the Science Council of Canada and by the Senate Special Committee on Science and Technology. The latter in particular in its three-volume report (1971-73) advocated the substantial reorganization of government institutions to meet the challenges of the 1970's.

The Ministry of State for Science and Technology

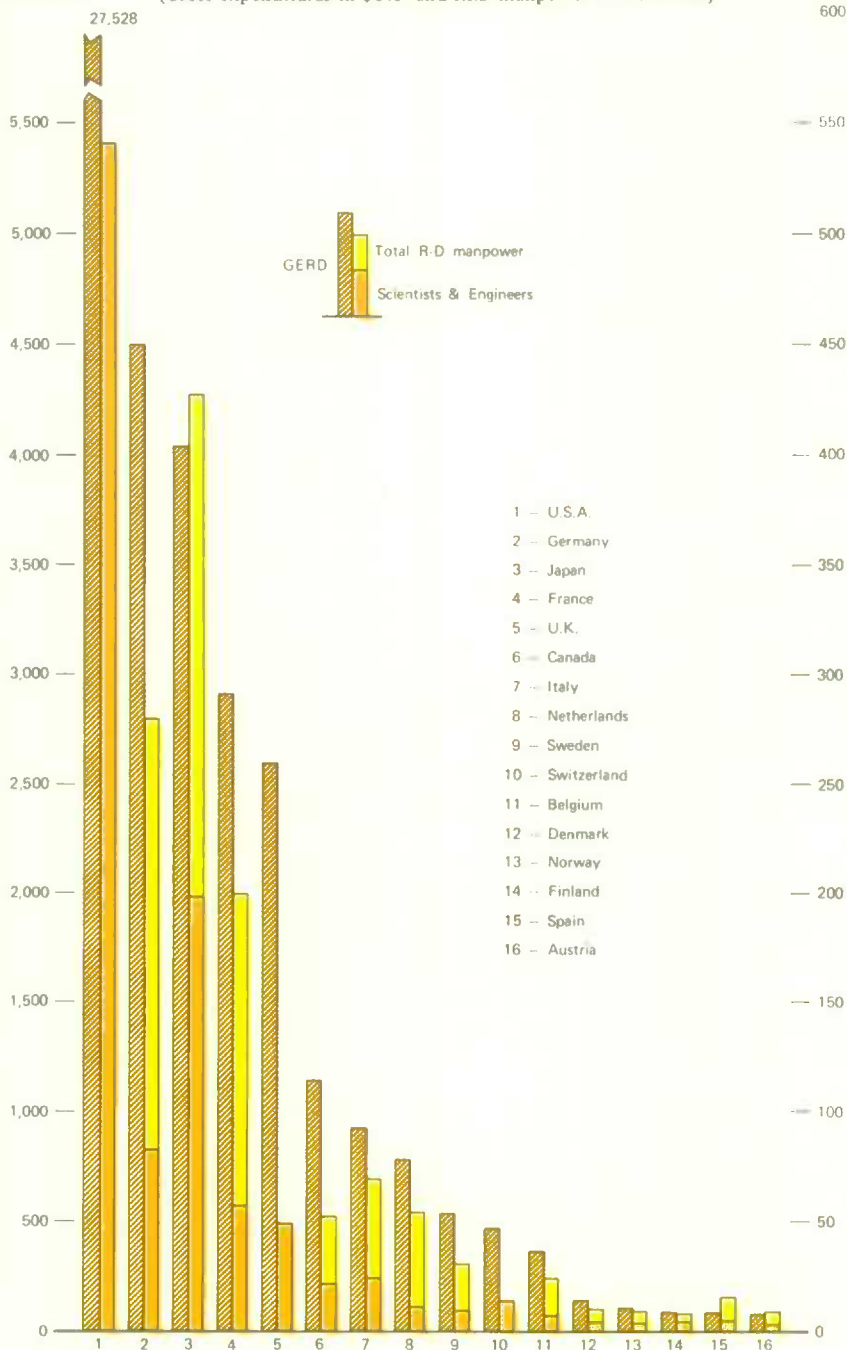
The Ministry of State for Science and Technology, created in 1971, is the body that now develops the initiatives for change. One of its earliest policies was

Absolute Amount of Resources Devoted to R&D in OECD Member Countries, 1970-71

Million \$ U.S.

(Gross expenditures in \$U.S. and R&D manpower in thousands)

Manpower
(Thousands)



The scale chosen does not permit the inclusion of Ireland, Portugal, Greece and Iceland.

intended to redress the balance between research activities in government and those in industry. With a few exceptions, new research and development requirements of the government will be contracted out to industry instead of being undertaken in government laboratories. A recent extension of the policy will facilitate the government's response to unsolicited proposals for the support of specific R&D projects in industry, as well as in universities.

Efforts are being made to develop an improved ability to innovate in Canadian industry, including the service sector, with a view to increasing Canada's indigenous technological capability. At the same time the specific impediments to innovation are under study, some of which may be implicit in tariff and tax regulations, or in legislation relating to patents and restrictive trade practices. There is also interest in how industrial management decides to invest money in research and development.

The mechanism for the allocation of grants for university research is under review and there are major policy thrusts in several areas of national interest including the oceans, space, energy, and communications.

There is now provision for the regular review and assessment of the scientific activities of government as a whole in relation to national objectives. To this end formal mechanisms have been established whereby the Ministry of State for Science and Technology advises the Treasury Board and the operating departments of the federal government on the budget for science and technology.

The Science Council of Canada

The Science Council, a quasi-independent body which advises the government on science policy by the publication of reports on subjects of current importance, published its eighth *Annual Report* in June 1974. During the year it published reports on *Canada, Science and International Affairs* and *Strategies of Development for the Computer Industry*. It also published a number of background studies on subjects ranging from *Health Care in Canada* to *Governments and Innovation*.

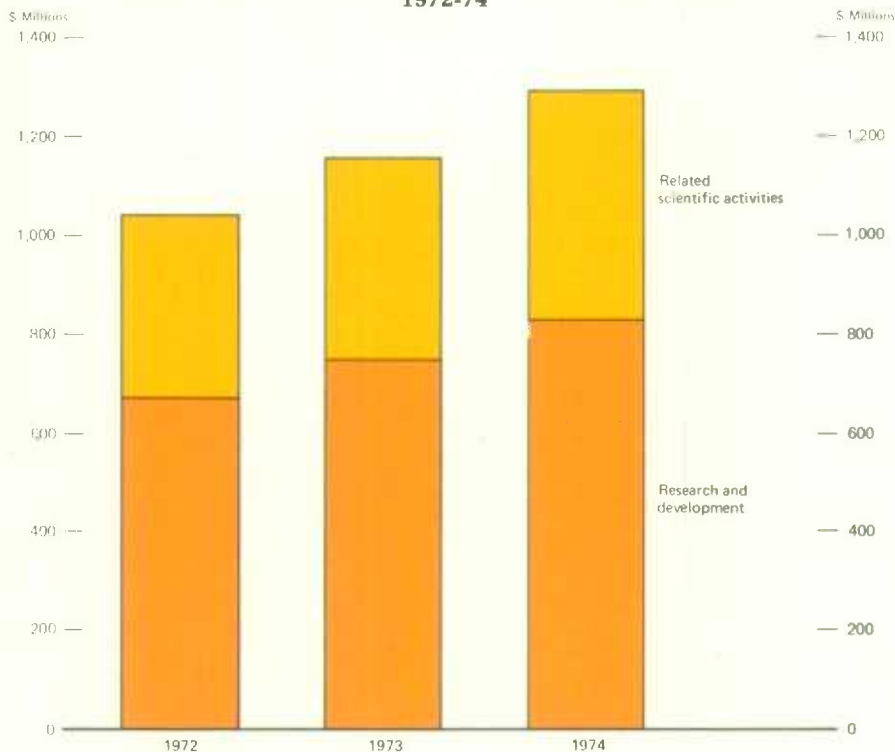
Science and Technology in Government

Total expenditures on science and technology by the Canadian government are expected to reach \$1,300 million in 1974, or 7 per cent of the total federal budget. This represents an increase of almost 12 per cent over the preceding year. The natural sciences receive 80 per cent of this amount; the human sciences 20 per cent. Some 64 per cent of the expenditure of \$1,300 million is devoted to R&D. The remainder covers other scientific activities such as seismic and magnetic surveys and the collection and dissemination of data and statistics.

As it has in recent years, the National Research Council will spend more on R&D than any other federal department or agency. Its estimated expenditure of \$127 million represents 15 per cent of the government's R&D budget. Government spending on related scientific activities in 1974 will be mainly attributable to the Department of the Environment and Statistics Canada which together are responsible for more than half the total expenditure in this category.

Government expenditures are generally classified under eleven headings: (1) General government services, (2) Foreign affairs, (3) Defence, (4) Transportation and communications, (5) Economic development and support, (6) Health and

Federal Expenditures on Scientific Activities, by Activity, 1972-74



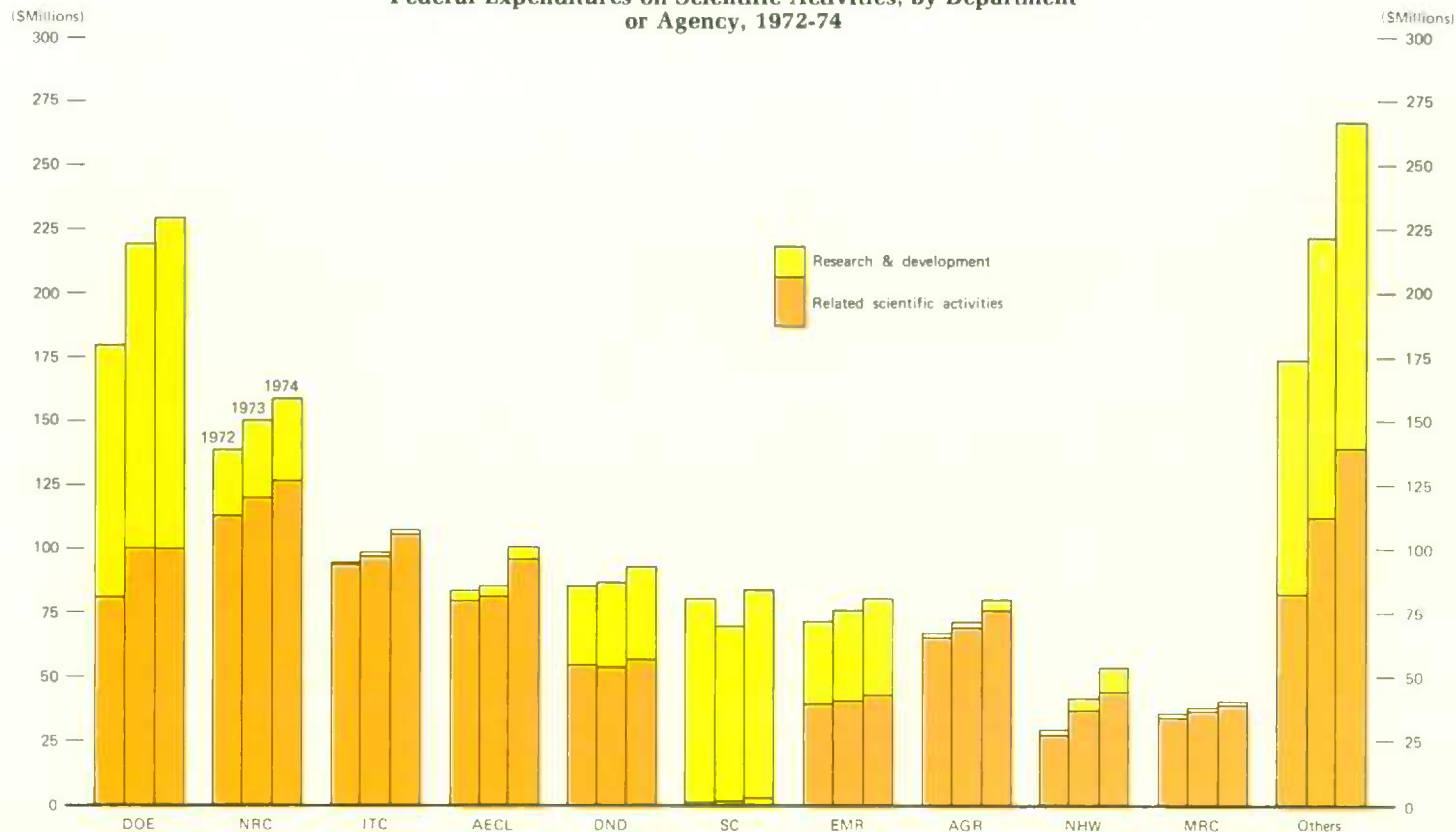
welfare, (7) Education assistance, (8) Culture and recreation, (9) Fiscal transfer payments, (10) Public debt, and (11) Internal overhead expenses.

In 1973, government expenditures on scientific activities totalling \$1.160 million fell within nine of these headings. The greatest part of science expenditures was related to economic development and support, with transportation and communications and health and welfare close behind.¹

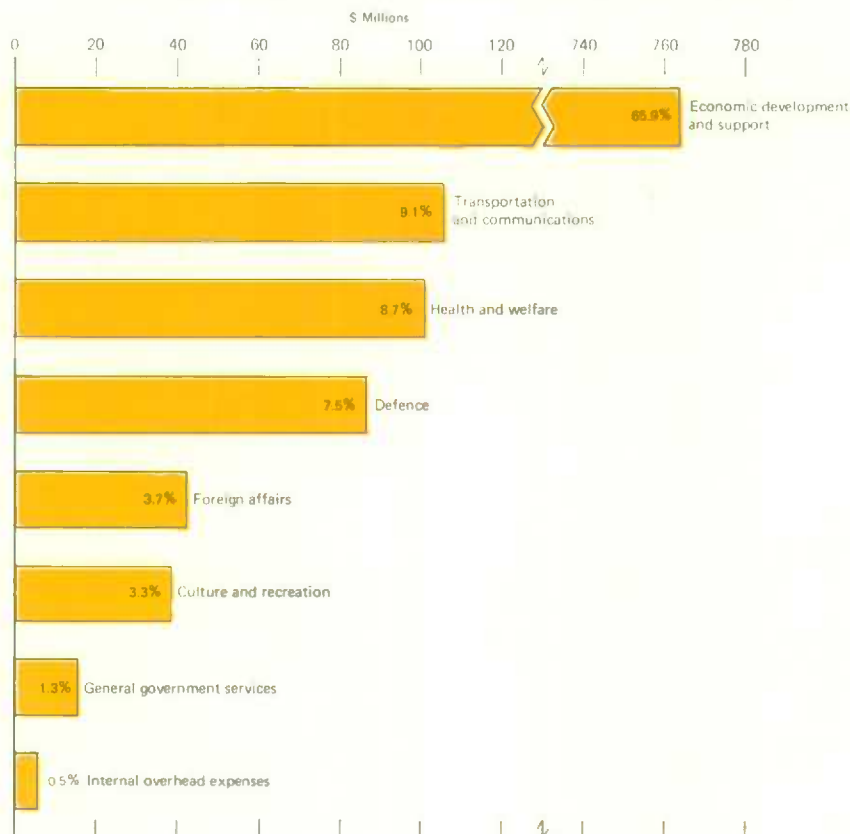
The National Research Council (NRC), a federal body, operates a central complex of laboratories in Ottawa and a network of laboratories across the nation pursuing basic and applied R&D in the natural sciences and engineering. Trisectoral collaboration, R&D efforts, and projects performed jointly by industry, university, and government are the NRC's current priorities. NRC laboratories are active in the full spectrum of the natural sciences. NRC is also a granting body providing funds to Canadian university scientists, doctoral and post-doctoral scholarships and fellowships to university students, and grants to industries through the Industrial Research Assistance Program (IRAP) to stimulate R&D in the industrial sector.

¹More detailed statistics are available in the book *Federal Scientific Resources* published by the Ministry of State for Science and Technology.

Federal Expenditures on Scientific Activities, by Department or Agency, 1972-74



Federal Expenditures on Scientific Activities, by Function, 1973



Science and Technology in Canadian Industry

A preliminary estimate would suggest that Canadian industry spent some \$470 million on R&D in the year 1973, of which about \$160 million was financed by the federal government in the form of grants or contracts.

The Department of Industry, Trade and Commerce, the National Research Council, and some others provide financial assistance and scientific support to industrial research, usually on a cost-sharing basis. In spite of this assistance, for the sixth consecutive year, growth in industrial research and development has failed to keep up with the rising costs of performing it. While a few industries may have achieved real growth in R&D, many others have clearly declined as evidenced by reduced levels of staff or the actual closing of laboratories. The petrochemical industry has suffered badly in this respect. The decline in industrial R&D is particularly noticeable as it follows a period (1960-67) in which industrial expenditure on research and development increased almost four-fold from \$80 million to \$300 million. In the succeeding seven years it has increased by less than 60 per cent.

While the difficulty of accurately defining industrial R&D makes these figures at best approximate, they are sufficiently startling to have stimulated intensive

analysis of the causes. One major problem is the size of the Canadian market, which does not provide sufficient promise of financial return from new undertakings. It is generally felt, in industrial circles, that Canadian industry must find a *modus vivendi* in a world in which more and more businesses are being organized from central points on a world scale.

University Research

Federal support of research in the natural sciences in Canadian universities will amount to about \$140 million in 1974 — a 7 per cent increase over the preceding year. Most of this support came from the National Research Council, the Medical Research Council, and the Canada Council for research in the human sciences. Government extramural support for the human sciences in 1974 will be 26 per cent greater than in 1973, reflecting a policy to improve their position relative to the natural sciences and to ensure that all disciplines receive proper support.

Federal government support has traditionally been given to individual scientists on the basis of scientific excellence, rather than to institutions. Federal grants have not normally paid the salaries of scientists nor for much of the overhead cost. Consequently the provincial governments, in their financing of the universities, pay a very substantial but indefinable share of the costs of scientific research as well as the costs of teaching. Increasing efforts are being made to estimate this contribution but no figures are available.

Many aspects of the government support of university research are currently under review. Among these are: the balance between pure and applied research in the universities; the means of research support, whether by grant or contract; the mechanisms of financial support, both federal and provincial; the extent of overhead payments; the uniformity of treatment of the universities by various federal and provincial departments and agencies; and, finally, the relationship of government expenditures on university research to various government objectives.

The government's role in providing aid to students and research assistants is also under study, with particular emphasis on the social factors that influence their motivation and employment.

The Ministry of State for Science and Technology is also considering the advisability of identifying a certain number of full-time research institutes devoted to problems of national interest, with opportunities for industrial and federal and provincial government scientists to participate.

Science and Technology in International Affairs

Canada has agreements with several countries for co-operation in science and technology. These often provide for the exchange of scientists for limited periods, for co-operative scientific projects, and for the exchange of information. Even without formal agreements regular bilateral meetings may be held or scientific missions exchanged. An expanding network of science counsellors in Canadian embassies plays a key role in establishing and maintaining these relationships.

The Minister of State for Science and Technology has, in recent months, led scientific missions to China, the United Kingdom, Belgium, and France. Such missions include scientists from federal and provincial governments, industry,

and universities. The missions are planned to ensure that all the interested parties in governments and in the private sector derive the maximum benefit from them.

Canada plays a significant role in the plenary committees on science and technology of the Organization for Economic Co-operation and Development (OECD), the North Atlantic Treaty Organization (NATO), the Economic Commission of Europe (ECE), the United Nations, and the Commonwealth. The NATO Science Committee met in Canada for the first time in its history in September 1974. The work of those international groups such as the Club of Rome, that endeavour to apply scientific techniques to the clarification of global problems, is also followed very closely. Canada has played a substantial role in the creation and support of the International Institute of Applied Systems Analysis in Vienna, which is devoted to the development and application of systems analysis and modelling.

Canadian scientists participate widely in international conferences on specialist scientific and technological subjects and Canada frequently hosts such meetings. For example the International Symposium on Subscriber Loops and Services held in Ottawa in May 1974 brought together the leading telecommunications experts from many countries.

Scientific Activities

The following are some of the highlights of Canadian research, development, and other scientific activities in major areas of national interest.

Environmental Research

Very large oil and gas reserves have been estimated to exist under the Beaufort Sea. The federal government will not permit exploratory drilling in this area until 1976, thus allowing more than two years to carry out a wide ranging environmental assessment. The petroleum industry has joined with government and is providing more than \$4 million as its contribution to the cost of 21 separate environmental studies. The over-all cost will approach \$6 million and will provide assessments related to all phases of the Arctic environment, fish, marine mammals, and wildlife; physical and chemical oceanography; meteorological and sea bottom observations; and studies related to the effects of possible oil spills in ice-covered waters.

A prototype sensor for the night-time detection of oil spills has been successfully flown by scientists from the Department of the Environment's Canada Centre for Inland Waters. The sensor utilizes laser-induced fluorescence of oil. Significant fluorescent signals have been obtained from crude oil spills at altitudes of 984 feet and flying speeds of 137 mph in recent tests.

An advanced atmospheric prediction model has been developed by the Atmospheric Environment Service of the Department of the Environment for use in routine weather forecasting. This model known as a Primitive Equations Model uses sophisticated numerical methods, based on complex physical equations, to predict twice daily the future state of the atmosphere up to three or four days in advance. It operates over the Northern Hemisphere on a grid of 212 miles at five atmospheric levels and requires so much computational power that only the very largest present-generation computers are adequate for routine use of the model.

Winter in Canada is a difficult time for motorists. It is also a time of concern for



The results of pollution studies at Shirleys Bay, near Ottawa, will be considered in testing the effects of controlled spills on three small natural lakes in the Mackenzie Delta in efforts to protect the fragile ecological systems of the Arctic.

automobile emissions. Environment Canada, in a special study of cold weather driving, has shown that emissions from a car which was started in a cold environment (-4°F) are more than doubled when compared with a starting temperature of 68°F .

Emission controls have been blamed widely for a reduction in gasoline mileage. However, engineers of Environment Canada have shown that they have comparatively little effect provided the vehicle is well maintained.

Renewable Resources

Significant advances have been made by the Research Branch of the Department



Equipped with computers and weather-monitoring instruments, the Canadian Coast Guard Ship *Quadra* played a key role in the Global Atmospheric Research Program (GATE) in the Atlantic Ocean.

of Agriculture and by the Forestry and Fisheries Branches of Environment Canada in the development and protection of indigenous renewable resources.

Agricultural Research. About 900 scientists at some 40 establishments across Canada are employed by the Canada Department of Agriculture.

Unique Canadian conditions demand that production research start at the plant or animal stage. The development of improved cultivars or breeds is essential to efficient production. As a result of this type of research a wide range of new or improved products have been introduced. They include several new forage grasses, new cultivars of rapeseed and other oil seed crops, a new scab-resistant apple, the first hardy dwarfing apple rootstock, several high-quality peaches, a new strawberry for the east and one for British Columbia, an improved raspberry for the Fraser Valley, new vegetable varieties including a seedless cucumber for greenhouse production, a new table-stock potato variety, several new ornamental shrubs, among them a prize winning hardy rose and four rhododendrons, new varieties of wheat resistant to disease and having improved quality to maintain Canada's world-wide reputation, a new feed barley and one for malting purposes, several varieties of oats including one with high protein for processing, a number of inbred lines of grain corn for use by commercial companies to produce special hybrids, new varieties of flue-cured and cigar tobacco, new field beans, peas, and even buckwheat. The plant breeding program of the Research Branch of the Department of Agriculture has a massive effect on crop production in Canada. A new compact sweet cherry of the self-fertile variety *Stella*, the first in the world to combine such

characteristics, has been introduced from Summerland, B.C. It may represent a future pattern for commercial sweet cherries. Another high point in horticultural research is that the 60-acre hardy plant arboretum at Morden, Man., with its 7,391 plants of 2,776 taxa, is now the largest such planting of hardy stocks on the continent.

Animal breeding, though complex and requiring much longer periods of time to achieve new breed development, is making steady advances in a parallel program. Perhaps the most spectacular in recent years has been the use of "exotic" strains of beef cattle imported from other countries. The hybrids and further backcrosses achieved through the use of these animals has made a significant breakthrough in the beef cattle industry of North America.

Other animal breeding research with such species as sheep and swine has attempted to increase the efficiency of reproduction through intensive physiological studies on reproductive capacity related to environmental conditions and hormonal action.

Other research on the husbandry and management of crops and animals has led to new and improved procedures for increasing the efficiency of growth and protection from plant and animal pests. Much of the latter is through the use of chemical pesticides, but because of some of their undesirable side-effects, much research is being centred on attempts to develop integrated control programs that utilize both biological factors, such as predators or parasites, and the specification of more precise chemicals that kill only the undesired species without injuring other kinds that are beneficial. A highly sophisticated research program has been launched to determine the effects of the pesticides on the surrounding environment, and to develop procedures and chemical compounds that are less toxic and less persistent, yet capable of performing the necessary control action.

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

Forestry Research. About half of the research on forests and forest products in Canada is carried out in industry and about 40 per cent in government laboratories. A comparatively small proportion is done in university or provincial government laboratories.

Major trends in government research in recent years have been towards the environmental impact of forestry practices. Research in the forestry industry is mainly in harvesting and forest products. The Pulp and Paper Research Institute in Pointe Claire, Que., does much of this work. Research supported in Canadian

universities lies mainly in the fields of forest biology, entomology, mensuration, soils, silviculture, wood science, economics, and policy.

For the past three years, research scientists of the Canadian Forestry Service and the University of Toronto have been co-operating in the development of an entirely new method of controlling Dutch elm disease, the accidentally-imported plague that threatens to wipe out North America's elm trees. The new method attacks the disease itself by the injection of a fungicide, known as CFS-1020, directly into the tree's root or lower trunk. As a result of tests carried out in the Ottawa area, researchers are satisfied that the treatment will prevent infection in healthy trees, and will arrest the disease in infected trees with less than 10 per cent crown mortality. Although still comparatively expensive, the new treatment will be economically feasible for highly-valued elms. It was available for use by licensed firms in 1974.

Fisheries Research. A number of aquaculture projects are aimed at enhancing the supply of fish. They include studies of disease and nutrition with particular attention to salmonids and the culture of selected species.

The government is assisting secondary industry, through applied research, to develop the technology for handling and processing new species and to conduct research on fish contamination, particularly by heavy metals. Environmental impact studies are being made across Canada but particularly on northern ecosystems where rapidly increasing industrial development is making new demands and causing new problems. The development of bioassays for environmental contaminants is progressing.

By using a salmon hormone extract, gonadotropic, to advance the pink salmon's maturity, Fisheries Research has produced eggs that are suitable for establishing off-year pink salmon runs in the Fraser River and other southern British Columbia river systems. Natural salmon runs occur predominantly at two-year intervals, northern runs on the even-years and southern on the odd-years. The hormone was first isolated from the pituitary gland of sexually mature Chinook salmon. It was then used to accelerate the sexual development of pink salmon. The successful return of even-year adults which had been hatched in southern waters from northern stream eggs two years previously was achieved, and pink salmon were reared successfully in captivity.

Non-renewable Resources

In a country the size of Canada substantial effort is devoted each year to geodetic, topographic, seismic, geothermal, gravitational, and magnetic surveys and to research on their improvement.

A new fundamental grid of precisely-positioned stations is now under development which will provide a basis for a complete readjustment of horizontal control with a consequent improvement in accuracy and consistency. New mapping techniques combine computer technology and precision lithography to produce colourful, easily understood and relatively inexpensive maps.

The network of seismic stations is being extended in the Ottawa region and a specific survey near La Malbaie, Que., is studying some of the small earthquakes

that occur there. An on-line digital processor for the automatic detection of seismic events has been commissioned at the Yellowknife medium-aperture seismic array.

Scientists in government and university are beginning to explore Canada's geothermal power potential. Current effort is concentrated on learning the state of the art in countries where geothermal power has been developed (Iceland, New Zealand, Italy, USA) and in preliminary small-scale drilling in the Canadian Cordillera.

Government scientists last year redetermined the position of the north magnetic pole. From measurements of the magnetic field at many points in the vicinity of Bathurst Island it was found that the pole is moving northward with increasing speed. In the last 10 years it has crossed Bathurst Island from south to north, a distance of 70 miles.

Paleomagneticians in government and university laboratories made significant advances during the past year in reconstructing the configuration of the continents and oceans as they were at various times in geological history. One application by the Earth Physics Branch and Carleton University is in understanding the present distribution of known oil reserves. By analyzing measurements of the natural

Modern transportation and new instruments assist in the collection of geological information but the traditional role of the geologist remains important.



magnetization of rock samples from many countries, scientists have determined the latitude at which oil deposits were formed, and have been able to produce a rather specific reconstruction of geological events about 100 million years ago — the time at which 60 per cent of the present reserves originated.

The computations for the first geoidal map of Canada were completed at the Earth Physics Branch during 1973. This map has been computed using the new world-gravity standard adopted at the Moscow meeting of the International Union of Geodesy and Geophysics cartographers.

The possible use of the Mackenzie Valley as a transportation corridor and gas pipeline route has required the integration of surficial geology and landform mapping with an evaluation of the thermal properties of unconsolidated materials — derived from laboratory and field studies of permafrost terrains — and the documentation of case histories of the reaction of terrain to man's activities. Other areas of terrain evaluation include the environmental aspects of coal mining in Alberta, environmental geology of selected Canadian urban centres, and the commencement of studies on radioactive waste disposal. Attention was also focused on coastal studies on the Pacific Coast, particularly in the populous industrial region of the Strait of Georgia; in the Arctic, to understand the distribution of permafrost offshore and to deal with problems of shore ice; and in Canso Strait in the Maritimes where a causeway and subsequent industrialization have brought changes in the regime and quality of coastal waters.

Another major component of the Geological Survey's program deals largely with the development of methods whereby chemical and physical parameters can be measured rapidly to provide an adjunct to geological mapping and an aid to mineral exploration. Method development in the recent past has resulted in lake sediment geochemical surveys in the Bear-Slave region and a high sensitivity airborne gamma-ray spectrometry survey in northern Saskatchewan. Information from both surveys resulted in considerable staking in the past year. Current method development has led to the application of high resolution aeromagnetic studies in the mountains of southern British Columbia and demonstrated that adequate results can be obtained by flying at constant barometric altitude, thereby effecting considerable economies over the present methods of flying. In addition, promising results were obtained whereby in the future permafrost distribution may be mapped using airborne electrical techniques.

Mining and Metallurgical Research. The Mining Research Centre at the Department of Energy, Mines and Resources has undertaken a \$4 million, five-year program to improve the stability of open-pit slopes. The objective of this project is to reduce the cost of producing minerals from open pits by synthesizing research data into engineering systems for the design and support of the sloping walls. This could reduce the excavation of mine waste which is the largest cost element in open-pit mining. The successful completion of this project could save the mining industry \$50 million annually.

A major area of R&D is the mining of coal in the mountainous areas of Western Canada. The severely folded and faulted coal seams restrict the use of conventional coal-mining techniques and create difficult ground support problems. Spontaneous combustion in coal exposed to the atmosphere is complicating both cost recovery and the mine working environment. R&D is being undertaken by govern-

ment and industry to resolve these problems.

By far the largest and most comprehensive R&D is taking place with respect to the oil sands of the Athabasca region of Western Canada. These low-grade deposits of petroleum present a multitude of problems, from their removal from the ground, separation of the oil from the sand, to the use of the product. One company alone has a program that will cost \$1,000 million. The NRC's Division of Chemistry has developed a process of spherical agglomeration for recovering oil from tar sands such as the Athabasca's.

The same Fuels Research Centre has developed a blue-flame domestic oil burner which is expected to save up to 10 per cent in fuel consumption and is non-polluting. This burner is undergoing extensive trials and should be available commercially in the near future.

The production of steel is vital to the development of all sectors of the Canadian economy, including energy. There are three separate R&D projects that are attempting to circumvent the need for the blast furnace and dependence on coking coal. One steel company has developed the SL/RN rotary kiln process for the direct reduction of iron ore. Another is operating a pilot plant at Niagara Falls, Ont., on a rotary kiln process, also for direct reduction of iron ore. The Metals Reduction and Energy Centre of the Department of EMR has successfully demonstrated a process called the Shaft Electric Reduction Furnace (SERF), which utilizes the waste gases from an electric reduction furnace to preheat and pre-reduce iron ore.

Two mineral processing companies have co-operated on a multi-million dollar, multi-year project to develop a hydro-metallurgical method for the commercial production of copper. This technique would avoid the atmospheric pollution which typifies copper smelters, and be environmentally acceptable. Moreover, the process would recover sulphur, rather than having it emitted to the environment. The successful commercialization of this process would give Canada a strong position in copper production in an era when environmental concerns are forcing restrictions on the traditional smelters.

Fuels. The refining of Canada's low-grade crude oils and bitumen sands is complicated by the presence of organically-combined traces of nickel and vanadium, and 5 per cent sulphur, which must be removed. The Mines Branch has developed a high pressure hydro-cracking process that eliminates much of the nickel and vanadium and produces a low viscosity product that would make a suitable feedstock for refineries.

Research on the chemical composition of Athabasca bitumen has resulted in the development of improved analytical techniques that have proved their value in detecting oil spills, and "fingerprinting" crude oils. This capability has revealed differences in Canadian cretaceous oils of the tar belt. The extent of thermal maturation of the crude oil determines the possibility of its extraction from the terrain. This promises to be a useful tool for oil exploration in the Arctic and off-shore on the East Coast.

Energy Research

Current expenditures on energy research and development by the federal government are distributed approximately as follows: nuclear energy, 75 per cent; coal,

3 per cent; oil and gas (including tar sands), 17 per cent; hydro-electric power, 2 per cent; and on other (including renewable resources), 3 per cent.

Most of the R&D on nuclear energy is conducted by the Crown agency, Atomic Energy of Canada Ltd. (AECL), although this agency also funds considerable amounts of R&D in industries and universities. AECL's current major thrust is in support of its CANDU (Canada Deuterium Uranium) nuclear power reactor system and associated heavy water plants. Successful operation of the Pickering Generating station, and of both the Port Hawkesbury and the Bruce heavy water plants has convincingly demonstrated the commercial viability of the CANDU system. Much of AECL's R&D in improved equipment, components, and materials for CANDU reactors is done in collaboration with Canadian industry.

The success of the Canadian reactor system has no doubt had some influence on the recent British decision to choose a similar type of reactor for its new power program. The British authorities have already declared their intention of seeking substantial co-operation with Canada during the development of that project.

Private industry and the utilities play a major role in R&D on oil, gas, and hydropower (notably in pipeline transportation, thermal electric conversion, hydropower development, and electrical-industrial equipment), which compensates for lesser federal funding in these areas.

Several provincial governments support research councils or foundations that are involved to some degree in energy R&D activities. The largest performer is the Alberta Research Council, with an energy R&D budget of \$500,000 in 1972. Alberta has announced a five-year, \$100 million research program on *in situ* production of deep oil sands. Most of the other energy R&D in Alberta is concentrated on conventional oil, gas, and coal research.

A CANDU fuel bundle is examined after wear tests in the development lab at Sheridan Park Power Projects Group of Atomic Energy Corporation Ltd.



Within the federal government, the Department of Energy, Mines and Resources is concerned with the determination of reserves of oil and gas, mainly in the frontier areas. The Department of Industry, Trade and Commerce (ITC) is playing an important role funding R&D in the development, production, and processing of energy resources and it is by far the predominant department in transportation and storage R&D, mainly for oil and gas.

ITC and the NRC are major contributors to transmission R&D. The Department of the Environment is predominant in environmental management (especially of oil and gas pipelines).

Through grants administered by the Atomic Energy Control Board, the federal government supports Canadian universities in fundamental research associated with nuclear energy. A good example of this support is the TRIUMF accelerator facility in Vancouver, which began to operate in 1974. The TRIUMF cyclotron will be a versatile and powerful tool for basic research in nuclear physics and chemistry. It will be used by the universities of Alberta, Simon Fraser, Victoria, and British Columbia.

Oceans

The world ocean, covering more than three quarters of the planet's surface, is the original repository of life and now a vital component of the life support system of the planet's biosphere. The sea produces much of the oxygen in the atmosphere and controls the weather for thousands of miles inland.

Submarine Canada is one third as large as the Canadian land mass: more than 1 million square miles. The Canadian continental shelf, to a depth of 656 feet, is as large as the Indian subcontinent. In addition, it extends into three separate oceans, along nearly 60,000 miles of island and mainland coastline.

The ocean-beds hold non-renewable resources of oil, gas, and metals. Oil and gas exploration in the Arctic and off the Atlantic Provinces has not yet yielded deposits worth immediate exploitation but the discovery rate matches the early development of the North Sea oil and gas fields. Seabed mining is a new technology and industry which will affect Canada's export markets for minerals.

Renewable resources in the form of marine life were worth nearly \$500 million to coastal fish-packing plants in 1972 and supported, at least seasonally, 60,000 fishermen and 18,500 plant workers. About 95 per cent of Canadian fish catches are from coastal waters. Other countries take even more from deepwater Canadian fisheries off the Grand Banks and the Pacific coast.

Water is still the cheapest form of transport. At Canada's 250 ports for which statistics are available, there were more than 176,000 vessel arrivals and departures in 1972. Shipping moved 177,500 million tons of international trade in and out of Canadian ports in 1972 and 126 million tons were handled between Canadian ports. Canada is pioneering deepwater ports for supertankers, although it is also concerned about navigation, especially by oil carriers, in the Arctic and along the Pacific coast.

Canadian research in marine science and technology is carried out in such prominent permanent installations as the federal government's Bedford Institute in Halifax, N.S., the University of British Columbia's Institute of Oceanography, the

Fisheries Research Board station at St. Andrew's, N.B., and the nearby Huntsman Marine Laboratory, created in 1970 by a consortium of 20 eastern universities. Other institutes include the Fisheries Research Board establishment at Montreal, McGill University, the Arctic Institute of North America in Montreal, the Halifax Oceanographic Centre, the Defence Research establishments at Victoria and Ottawa, the Marine Station at Memorial University, in Newfoundland, and the GIROQ group (*Groupe interuniversitaire de recherche en océanographie du Québec*).

Man's excursions into alien environments incompatible with his form of existence necessitate that he take with him many of the critical life-support elements of his terrestrial environment such as gas to breathe and heat to metabolize. Prolonged sojourns in an alien environment, such as the ocean, have physiological and psychological effects on the human organism. The federal government and private industry have been supporting ongoing research into the problems of oceanic architecture for human habitation and the physiological performance and responses of humans in the submarine environment. An innovation in oceanic architecture is a sub-igloo, a plastic sphere module resting on spider legs, which is used as a research station on the ocean floor. In mid-1974, an expedition established a sub-igloo marine module research station on the ocean-bed at the geographic north pole. Extensively studied were the physical and mental effects of saturation diving on the human organism in ice-covered arctic polar waters. This type of research is consistent with the government's Oceans Policy promoting Canadian capability for operations in ice-covered waters.

Oceans technology is becoming the basis for a whole new industry in Canada, much of it directed to the needs of oil and gas corporations for instrumentation and new techniques. Some of the companies in this new field are located in Dartmouth, N.S., Toronto, Ont., Montreal, Que., Calgary, Alta., and Vancouver, B.C. Also in Vancouver Canadians have developed the series of Pisces research submarines and pioneered their use in three oceans.

To stimulate and support the growing technical expertise of such industries the Department of Industry, Trade and Commerce announced in May 1973 a \$525,000 grant over three years to the British Columbia Research Council, for an oceans engineering centre. The Minister of Industry, Trade and Commerce has been given specific responsibility, under the national oceans policy, to encourage new Canadian entrepreneurs in this field.

The National Research Council has been heavily involved in the marine sciences since 1959, when first asked to participate in the inter-governmental Polar Continental Shelf Project. Its development of new instruments has led to the creation of at least one new Canadian-owned instrument-fabricating company.

Pollution control equipment is a realm in which an immediate need can be turned into a marketable product. The "slick-licker," invented by Defence Research Board scientists in the 1960's, was rapidly produced to help clean up the Chedabucto Bay oil spill in 1970. In the following two years, 45 were sold. Since then, on a contract from the Canada Centre for Inland Water, a Halifax company has developed a filter for oil-contaminated water.

Canadians are even turning to the sea in increasing numbers for recreation, particularly as sailing, angling, and scuba diving become more popular. New underwater national parks have been suggested for the tourist regions of both the

Atlantic and Pacific coasts.

Cognizant of the intricate complexities and the great significance of the oceanic realm in terms of biology, geology, geophysics, economics, industry, and recreation, the Ministry of State for Science and Technology, in July of 1973, announced the federal government's new Oceans Policy. The Oceans Policy commits the federal government to a wide range of marine science and technology programs, to achieving excellence in operating on and below ice-covered waters, to promoting industrial and technological expertise for the exploitation of off-shore resources, and to developing and maintaining a current information base about its renewable and non-renewable off-shore resources.

The Canadian Committee on Oceanography, at present composed of senior science managers from government and representatives from universities and industry, is charged under the new policy with co-ordinating activities in marine science and technology.

Canada was a key player amongst some 148 participating nations fielding some 5,000 delegates to the third United Nations Conference on the Law of the Sea, one of the biggest international conferences in history.

Communications and Space Research

Total government expenditure on space research in 1974 has been estimated at \$35 million. The Department of Communications spends some two thirds of this amount on its satellite program. The Department of Energy, Mines and Resources spends about one sixth in its remote-sensing centre and the National Research Council is the other significant spender; its activities include the operation of the Churchill Rocket Range.

Telesat Canada was set up in 1969 to establish and operate a domestic satellite communications system. While the ANIK satellites were developed in the United States to Canadian specification, many of the components were developed and produced by Canadian industries.

The system was inaugurated in January 1973 by a telephone call from Ottawa to Resolute Bay via ANIK I. By the end of that year a second satellite, ANIK II was also in orbit. Both satellites are performing satisfactorily "exhibiting only slight anomalies which are not expected to have any major effect on their longevity or usefulness." These satellites have an estimated useful life of six years.

The Communications Research Centre (CRC) of the Department of Communications is developing an experimental communications satellite which may point the way to the design of later operational satellites. Tests have been completed on mechanical and thermal models of this Communications Technology Satellite and final contracts have been placed for the flight model, due to be launched in December 1975. CRC has installed heavy equipment for spacecraft integration in the David Florida Laboratory at Shirleys Bay.

The Trans-Canada Telephone System and CN/CP Telecommunications have installed new computer-communications networks to meet the fast-growing demand for this type of service.

Scientific Satellites. With the launching of Alouette I in 1962, Canada became a pioneer in the use of satellites in scientific research. This "topside sounder"

satellite and its successors, Alouette II and ISIS-I and II, contain experiments designed to study the properties of the upper atmosphere and of electronic devices such as antennas in that environment. No new scientific satellites were launched in the past year but ISIS-I and ISIS-II are both in good health and are providing extensive scientific data to scientists from the eight countries that are participating in the analysis of the data. On June 3, 1973, the Alouette II satellite was placed in a standby "mothball" state after 7½ years of extensive and valuable data-acquisition.

The optical experiments incorporated in ISIS-II have provided some of the first views of the polar aurora from space. The synoptic capability of these instruments enables them to provide information on the airglow and aurora that are virtually unattainable from ground observations. In addition since this satellite can observe the aurora, and the magnetospheric energetic particles that give rise to it, much new information is emerging on auroral processes.

Another feature of ISIS-II is its ability to measure at very low frequencies the impedance of the sounding antenna. In a plasma such as the ionosphere the behaviour of antennas is very different from that in free space. The study of the data obtained from this experiment has provided valuable new information on the performance of an antenna mounted on a spacecraft.

Rocket Experiments. While the rocket range of the NRC at Churchill, Man. has seen reduced activity in recent years, 14 of the 16 Canadian-built rocket payloads launched in 1973 used the Churchill Research Range. One was launched from Kauai in Hawaii and one from Gillam, Man. Low energy X-ray astronomy was the objective of the Kauai launch, and this required a launch site at low geomagnetic latitudes to avoid adverse effects from the energetic particles found at higher latitudes. The launch from the Gillam site was co-ordinated with two launches from the Churchill range. The rockets provided very useful information on the spatial variation and motion of the aurora, and the particles and processes that give rise to it. Five small rockets were launched during a 24-hour period from the Churchill Range to probe the characteristics of atomic oxygen in the upper atmosphere. These experiments provided new information on the processes that lead to auroral luminosity.

Remote Sensing. The Canada Centre for Remote Sensing, a part of the Department of Energy, Mines and Resources, is now in full operation. It collects, processes, and disseminates data derived from airborne and satellite-borne sensors for their application to resource management and environmental control of the Canadian land and waters. The Centre is operating four aircraft with an array of photographic and other sensors to collect airborne remote sensing data on behalf of investigators all across Canada. The data are applied to a wide variety of disciplines including agriculture, forestry, geology, oceanography, glaciology, and ice reconnaissance.

A receiving station in Prince Albert, Sask., has been converted for use as a tracking station for the American Earth Resources Technology Satellite (ERTS 1). The data received are processed into image form at a special facility in Ottawa. These images are distributed throughout Canada by the National Air Photo Library.

Computer Research and Development

The computer business in Canada as elsewhere is noted for a high level of R&D in

industry, by both supplier and user, as well as in government and universities.

A significant event in Canada in 1974 was the development of a large-scale Cyber 170 computer family to be manufactured in Mississauga. The system, developed under the Program for the Advancement of Industrial Technology of Industry, Trade and Commerce, features high-speed ECL logic, semi-conductor memory, and a multi-tasking, network-oriented operating system.

Micro processor and micro computer units have been developed in Canada by four companies.

Developments on almost every conceivable computer application continue at the user's level, especially in manufacturing, banking, and finance. Regular surveys by the Canadian Information Processing Society show that approximately 10 per cent of all computers in Canada are employed in real-time sensor-based systems. Recent surveys in the mining, steel, and pulp and paper industries report that approximately 30 per cent of total spending on computers in these primary industries is for sensor-based process control systems.

Many government departments and agencies are employing or developing sophisticated computer systems for specialized applications. An example is the research program at the National Research Council on a computer-aided learning system, a multidisciplinary activity involving co-operation between educational groups and industry. Since 1969, the NRC has employed a central computer in Ottawa to provide research facilities to educators across Canada through remote terminals and telephone circuits. More than a dozen universities and colleges, from Calgary to Montreal, are contributing to the preparation and evaluation of courses while the NRC provides the technical support in software, communication, and specialized terminal design.

A major objective of this program is the establishment of acceptable standards that will allow the economic use of computers at all learning levels, including the

The development of a large-scale Cyber 170 computer family was a significant event in 1974.



continuing education of adults and the specialized teaching of the handicapped. To this end the NRC is supporting the development of a standard language and contributing to the specification of essential terminal and communication standards.

In addition to ongoing work at the Universities of British Columbia, Alberta, Manitoba, Toronto, and Montreal, a major new program of computer research was launched in 1973 at the University of Waterloo, where a group is studying computer communications, a new technology involving both computers and the transmission of computer data by satellites and other telecommunications media. Their research is aimed at providing computer services to users in remote areas, and at linking physically scattered computers into networks allowing data and programs to be shared by the subscribing machines. The Waterloo research program is funded by a negotiated grant of \$709,000 from the NRC, and is being pursued in close co-operation with Canadian business and industry.

Transportation Research

The Ministry of Transport has launched the Ottawa-Montreal STOL (Short Take-Off and Landing) Demonstration as a showcase for Canadian technology and a testing ground for this innovative mode of air transport. This service uses Twin Otter aircraft, city centre STOL ports, all-weather navigation equipment, and microwave landing guidance. Another major project is the development of a new coast-to-coast automated air traffic control network known as JETS (Joint Enroute Terminal System). This project provides for the design, testing, and gradual introduction over the next several decades of modular data acquisition, processing, and display equipment adaptable to the different conditions across Canada's airspace.

Research into several aspects of Arctic marine navigation, including the design of ships and ice-breakers, is being accelerated in anticipation of increased requirements.

Through its Transportation Development Agency (TDA) the Ministry of Transport is also sponsoring research and development to improve surface transportation. These projects include higher-speed passenger trains, high-speed tracked passenger systems having magnetic or air-cushion suspensions, applications of air-cushion technology for offroad transport and ice breaking, and advanced urban transit systems.

The prototype of the 120 mph Canadian LRC (Light-Rapid-Comfortable) passenger train is now undergoing tests. Research into track/train dynamics for safe higher-speed rail operations is being given priority by the railway sector.

The Agency is also sponsoring research to minimize undesirable environmental effects such as noise, vibration, and exhaust pollutants. An example of this is research at the University of Toronto Institute of Aerospace Studies on the sonic boom phenomenon.

Three levels of government have co-operated in the demonstration of a service in Regina, whereby a bus that will deliver the passenger to the city's main transportation routes can be summoned by telephone. This Telebus Service has attracted wide-spread interest and has resulted in a permanent service in Regina.

The Ontario government's demonstration system of Intermediate Capacity



Field trials of large towed air-cushion transporters have been conducted in Quebec.

Transit will commence operations on 2.5 miles of test track in Toronto in 1975. This advanced technology uses linear motor propulsion, magnetic suspension, and fully automatic operation and puts Canada in the van of modern transit developments.

Medical and Health Research

With the completion of the Nutrition Canada Survey and the release of the Minister's position statement on a health perspective for Canadians, it is apparent that a change in emphasis has occurred over the past year. This change places more emphasis on prevention of disease, disability, and death as opposed to treatment in institutions. With the increased interest in prevention, the government has realized the need to change eating habits, food-purchasing patterns, and a range of other life styles that involve recreation, exercise, and a reduction in self-destructive practices such as smoking and the abusive intake of alcoholic beverages.

Research in the Health Programs Branch of National Health and Welfare has seen the development of a preparation for the slow release into the body of the anti-tuberculosis drug isoniazid, permitting larger doses to be given to Eskimos among whom the risk of tuberculosis is greater. There has been substantial progress in field trials of rubella vaccines and increased activity in the study of rehabilitation problems at both the mental and physical level.

Attempts to identify and encourage research in the epidemiology of all forms of cancer have been increased in co-operation with the National Cancer Research

Institute. A Cancer Research co-ordinating committee has been set up to increase and make more visible the collaboration which exists between the Medical Research Council, National Health and Welfare, the Ontario Cancer Treatment and Research Foundation, and the National Cancer Institute of Canada. The current activities of the Committee include collaborative nationwide trials of BCG immunotherapy for the treatment of certain types of cancer.

During the year three new Medical Research Council groups have been formed in Canadian universities: one in allergy research at the University of Manitoba, one in molecular endocrinology at Laval, and one in periodontal physiology at the University of Toronto. There are now nine such groups across the country.

The field of biomedical engineering, which is relatively new to Canada has seen several recent developments. These include reading machines for the blind, improved limb prostheses, an analyser for the detection of trace atmospheric gases, and a new type of artificial kidney device.

Northern Research

The Canadian North has long been recognized as an area for research of unusual scientific interest and also of particular importance to Canada. The Department of Indian Affairs and Northern Development has therefore designed certain long-term measures to give special encouragement to northern research. The training of graduate students is assisted by special grants administered by the Department which also operates a general purpose laboratory in Inuvik in the Mackenzie Delta to accommodate scientists from government, universities, and industry. A second laboratory is nearing completion at Igloolik in the eastern Arctic, and plans are being made for a third laboratory at Whitehorse in the Yukon Territory. These measures do not however meet the need for research to support major projects, and in particular to obtain the specific detailed information required to assist and control the development of non-renewable resources and the construction of major transportation facilities. For these purposes substantial short-term programs of applied problem-oriented research have been organized, such as the Environmental/Social Program for the Mackenzie Highway and Northern Pipelines. New policy thrusts in this important area can be expected in the years to come.

Research on the Urban Environment

Canada, in spite of its vast area, suffers many of the urban problems common to the other industrialized countries. The population is largely concentrated in a very few cities. The pressing urban problems of poverty, housing shortages and escalating land costs, transportation, and urban servicing are interdependent and cannot be dealt with effectively in isolation from each other, or in the geographic isolation of the city from its surroundings.

In the context of the development of urban policies, the Ministry of State for Urban Affairs has initiated a comprehensive research program based on a number of priority areas. These include: urban growth, urban economy, land and space, transportation, environment, information systems, and urban planning. This research program is an integral part of the Ministry's policy development activity.

Leisure

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

Definitions of leisure are numerous and reflect a variety of views. Leisure can be simply defined as those groups of activities undertaken in "non-work" time. Leisure 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 available for leisure activities.

Despite the fact that there is no precise agreement on what constitutes leisure, there is agreement on a core of activities. These are activities that offer recreation or give pleasure to the participants. Examples would be playing tennis or taking a walk in the park. There are instances of activities that may be regarded as undesired household tasks in some circumstances, yet pleasurable recreational activities in others. Such tasks might include mowing the lawn, cooking, dressmaking, or house painting. Thus recreation and leisure may be regarded as qualitative terms which 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. While additional work time normally provides additional income, additional leisure time typically leads to increased expenditures. The distribution of time between work and leisure is theoretically a matter of choice. But in practice most employed persons as individuals have only limited freedom in determining how long they work. This is because working hours and holidays in Canada are normally fixed, either by employers or as a result of collective bargaining, according to current legislation and accepted norms. As a result, Canadian workers are typically committed to working a fixed number of hours per day and days per week.

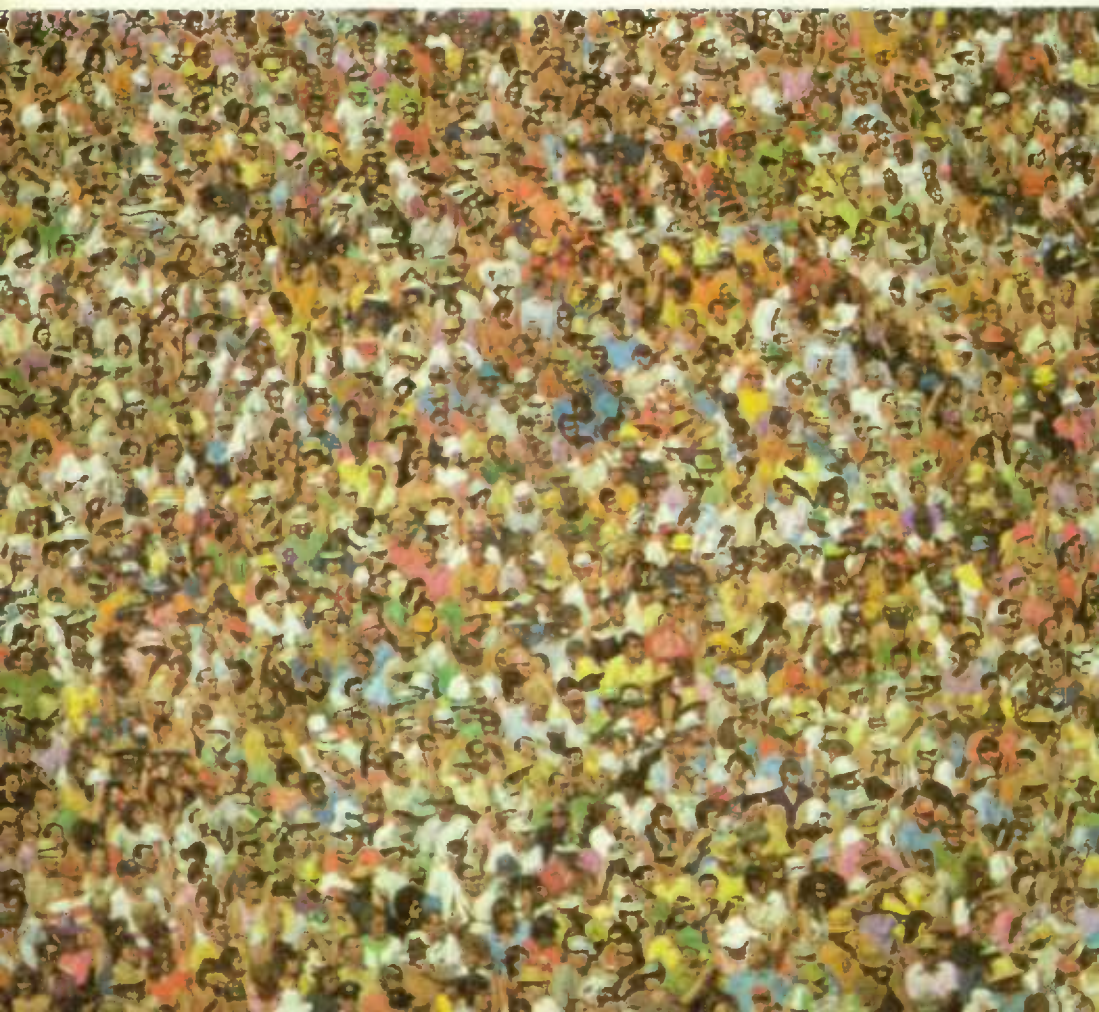
The normal work week in Canada is 40 hours or slightly less for office employees, spread over five working days. Most employees receive at least nine paid holidays annually and a two-week annual vacation, which may be extended to three or four weeks after several years of service with the same employer. Allowing for weekends, paid holidays, and annual vacations with pay, most employed persons in Canada have at least 123 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.

Recreation

The types of leisure activities undertaken vary widely according to the age, sex, income, and occupation of the individual. A survey by Statistics Canada in 1972 of leisure time activities showed that in a series of selected physical recreational activities, walking was the most popular of all, followed by swimming, hunting, and fishing. In recent years bicycling has become increasingly popular with adults

Football spectators in Regina, Sask.



and families in many parts of Canada. In 1972, close to 12 per cent of the adult population indicated that they went bicycling regularly.

Every year more Canadians discover the pleasures of winter sports. Survey results have shown that in the winter months, the sports that have the most participants are indoor skating, snowmobiling, and both downhill and cross-country skiing. The recent growth of trail and cross-country skiing in the winter has to some degree paralleled the growth of bicycling in the summer months. Non-professional hockey is a traditionally popular Canadian sport in which many young people take part regularly. Curling is also a favourite indoor winter sport in most parts of Canada. Other common leisure-time activities of Canadians include home handicrafts and bowling and attendance at movies, sports events, musical performances, exhibitions, fairs, and the theatre.

All levels of government play an active role in enriching the leisure time of Canadians. Several federal agencies have major programs related to leisure. Among these is the Fitness and Amateur Sports Branch of the Department of National Health and Welfare. It is mainly responsible for outdoor recreation and physical fitness programs and 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' clubs, Scouts, Guides, and youth hostels. It also assists Canada's native people in increasing their participation in sports and recreation.

The responsibilities of the Department of the Environment include various facets of recreation including sports fishing, the conservation of migratory game birds, the provision of interpretative centres on wildlife and the construction and maintenance of wharf facilities for small recreational crafts.

The support of tourism is the responsibility of the Canadian Government Office of Tourism in the Department of Industry, Trade and Commerce. It not only provides direct assistance to the industry but also plays a leading role in promoting travel by visitors to Canada and by residents within Canada. By these means it has a significant influence on the nature of travel and the way in which people spend their vacations in Canada. It also assists in the attraction of major meetings and conventions to Canadian centres.

The responsibilities of the Ministry of State for Urban Affairs for co-ordinating all federal programs that have an impact on urban areas includes open-space recreation. For the area in and around Ottawa-Hull, the National Capital Commission plays an important role in conserving and developing outdoor recreation. The facilities it provides include the Gatineau Park, an area of 138 square miles, 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.

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

National Parks

The conservation of Canada's unique and outstanding natural features and historic sites is the responsibility of the National and Historic Parks Branch of the Department of Indian Affairs and Northern Development which not only adminis-





1. Canoe racing on the Ottawa River.
2. A lone fisherman forms a silhouette in the reflecting patterns of sunset on the Ottawa River.
3. Golfing near Clear Lake, Man.
4. More than 20 countries competed in the 1974 yachting events at Kingston, Ont., the site of the approaching Olympic yachting competitions.
5. Family hiking at Mont Ste-Marie, Que.
6. Whitewater canoe race near Rocky Mountain House, Alta.
7. Dirt track racing enthusiasts.



ters the system of national parks and historic sites, but also maintains and develops a system of scenic and historic land and water routes.

By 1974 the department was administering 28 national parks and more than 50 major national historic parks and hundreds of historic sites. The first national park was Banff established in 1885 in what is now the Province of Alberta. No less than ten parks have been added since 1968.

Canada's national parks system covers an area of about 50,000 square miles consisting mainly of forests, streams, lakes, and mountains. It extends from Terra Nova on the east coast of Newfoundland to the west coast of Vancouver Island and from Point Pelee in southern Ontario to Baffin Island inside the Arctic Circle.

Typical recreational uses of the national parks system are those related to the enjoyment of nature such as sightseeing, camping, fishing, hiking, and photographing. Tours and literature as well as campgrounds and picnic areas are available in most parks. Each national park has its own particular characteristics and most parks include some outstanding natural features. Canada's highest mountain, Mount Logan (19,850 feet), is situated in the southwest corner of Kluane National Park in the Yukon Territory. The two highest free-flowing waterfalls in Canada are both situated in national parks: Virginia Falls in Nahanni National Park in the Northwest Territories and Takakkaw Falls in Yoho National Park, B.C.

In the West, Banff and Jasper, situated in western Alberta, are characterized by the high scenic Canadian Rockies. Both parks are noted for their mineral hot springs and their wildlife which includes moose, elk, grizzly bears, mountain goats, and mountain sheep. National parks of central Canada have entirely different features. For example, the Georgian Bay Islands Park in Ontario is noted for its facilities for waterborne campers, recreational and camping areas, and its unusual geological formations.

National Historic Parks

The role of Canada's national parks is not only dedicated to physical preservation of the country's natural history and landmarks, but also to the conservation of its human and historical heritage. A record of Canada's past is preserved in a string of monuments, cairns, and buildings across the country. The first such site to be developed was Fort Anne at Annapolis, N.S., which was declared a historic national park in 1871. There are more than 100 historical parks and sites, many of which have been restored to their original condition. They include outposts of fur traders, battlefields, fortifications, old homes, and military barracks. The houses of three Canadian prime ministers and three Fathers of Confederation have also been restored. Examples of simple early homesteads, some of which have been occupied by persons who later became famous and a number of 19th century Northwest Mounted Police posts have been preserved for future generations to relive their country's history and contemplate its heritage.

During the fiscal year 1973-74, there were close to 22 million visits to national parks, historic parks, and major historical sites in Canada. The total number of nights spent by campers in national parks was about 3 million.

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. Provincial parks cover an area of about 106,000 square miles, which when added to the area of the national parks brings the total federal and provincial park land available to more than 4 acres (1.6 hectares) for each resident of Canada.

Some of the earliest parks in Canada were created by the provinces. In Quebec, the provincial government's concern for the conservation of the caribou in 1895 led to the establishment of Laurentide Park of which one boundary is only 30 miles north of Quebec City. In Ontario the first park was Algonquin created in 1897. It covers an area of 2,910 square miles and extends to within 150 miles of the northern limits of Toronto and to within 100 miles of the national capital. This park like many of the others in Ontario and the other provinces features camping, canoeing, and sport fishing.

In 1972 the total number of visits to provincial parks were estimated at over 40 million and the total number of nights spent by campers was about 9 million.

In addition, provincial governments administer a variety of recreational programs; the management of natural resources, hunting, and fishing; and the provision of recreational facilities, both directly and through municipal programs.

Events and Attractions

Every year, from all parts of Canada, events and attractions draw large numbers of vacationers and travellers seeking diversion, excitement, and relaxation. Events are organized to promote or celebrate historical, social, or cultural occasions. Examples are the Quebec Winter Carnival and the Calgary Stampede. On the other hand, attractions can be either natural or man-made physical features of a permanent nature which provide facilities for displaying distinctive architectural or geographic qualities or recreational or cultural activities. Falling 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 such as the Fortress of Louisbourg in Cape Breton, N.S.

Outstanding events take place every year in each province and territory. In 1974 Newfoundland celebrated its 25th anniversary of entry into the Canadian Confederation by a wide variety of events, which took place in many parts of the province. The annual International Tuna Cup Match, which drew anglers from many parts of the world, was held near Yarmouth, N.S. The Molson Grand Prix international automobile race was held in Trois-Rivières, Que. It is the only one in North America run on city streets. Another important racing event, the Canadian Grand Prix, took place in Mosport during June. St. Catharines celebrated the Niagara Grape and Wine Festival featuring sporting events and ethnic concerts during the last week of September.

In Western Canada, one of the most important series of events during 1974 was Winnipeg's centennial celebrations featuring a variety of performances and happenings. The City of Calgary is celebrating its centennial in 1975. Another 1974 centennial took place in Maple Ridge, B.C. Events included an 1874-style picnic, oldtimers' banquet, and a pageant. Also in British Columbia was a province-wide Spring Festival of Sports held in the month of June, involving entries from all provinces, as well as from overseas countries and the United States. Some 125,000 athletes participated in 322 events in 91 communities.



1



1. Competitor in ski racing at Banff, Alta.
2. Snowmobiling along the Tobique River at Nictau, N.B.
3. Canoe racing on ice in Quebec.
4. Cross country ski meet at Inuvik, N.W.T.
5. Dog-sled races in Ottawa.
- 6 & 7. Broomball and snow sculpture are among the favourite winter activities in Canada.





5



In the Territories special events are held each summer. In Yellowknife, N.W.T., a Midnight Golf Tournament is held each year late in June.

In Dawson City, Yukon Territory, the discovery of gold in 1896 is celebrated on Discovery Day in August by raft races on the Klondike River, dances, sports, and entertainment relating to the period.

The most important sports event ever to be held in Canada will be the 1976 Summer Olympics. The games will take place in Montreal, except for sailing which will be held in Kingston, Ont. Close to 8,000 athletes from about 30 countries will compete. Visitors and sports enthusiasts from all parts of Canada, the United States, and many other countries will visit Montreal to attend the games. For the Olympics, a number of permanent sports facilities and installations have been constructed. The most significant of these is the unique stadium-pool-mast complex. The mast containing 18 floors rises to a height equivalent to an office building 50 stories high. From it is suspended a membrane that will cover the entire playing area of the stadium when needed.

Another important sports event is the Canada Winter Games held in Lethbridge, Alta., early in 1975. During this year also Canada's athletes will compete in the Pan-American Games in São Paulo, Brazil.

Travel

Canadians are amongst the world's most travelled people. In 1973, 1.4 million Canadians were counted returning to Canada from visits to overseas countries. The corresponding count of Canadians returning from the United States was 30.8 million, of whom 8.6 million stayed there one or more nights. The overseas countries most visited by Canadians were the United Kingdom, Italy, France, and Spain. Canadian travel to countries other than the United States rose by 19 per cent in 1973, while travel to the United States increased only slightly. In 1972, the average stay of Canadian residents in countries other than the United States was 27 nights and the average expenditure for each trip was \$329, excluding fares paid to foreign air carriers. Canadian residents travelling in the United States on the average stayed 2.9 days and spent an average of \$7.00 a day.

Canadians travel extensively in their own country also. It is estimated that in 1971, Canadians took 43.5 million trips of 100 miles or more from home in Canada. On these trips they spent a total of 170 million nights away from home. More than half of this time was recorded during July, August, and September, the time when most Canadians take their main vacation. Business trips, on the other hand, were most numerous in the second quarter of the year. Total expenditures on trips of 100 miles or more with destinations in Canada have been estimated at about \$2,000 million, 20 per cent of which was spent on transportation. The provinces of Ontario, Quebec, Alberta, and British Columbia attracted the largest number of out-of-province Canadians.

Visitors from overseas countries to Canada increased steadily from a mere twelve thousand in 1946, to over one million in 1973. In order of importance, overseas visitors to Canada in 1973 came from the United Kingdom, the Federal Republic of Germany, France, and Japan. The provinces these visitors most frequently stated as their destinations were Ontario, Quebec, and British Columbia. The vast majority of

**Receipts and Payments on
Travel Between Canada and Other Countries, 1969-73**
(Millions of dollars)

Countries	1969	1970	1971	1972	1973 ¹
United States					
Receipts	934	1,054	1,092	1,023	1,124
Payments	862	898	898	919	1,047
Balance	+72	+156	+194	+104	+77
Other Countries					
Receipts	113	152	154	207	270
Payments	399	524	550	545	637
Balance	-286	-372	-396	-338	-367
All Countries					
Receipts	1,047	1,206	1,246	1,230	1,394
Payments	1,261	1,422	1,448	1,464	1,684
Balance	-214	-216	-202	-234	-290

¹Preliminary, subject to revision.

international visitors to Canada, however, continue to come from the United States. In 1973 they numbered 37.2 million of whom 13.4 million stayed one or more nights in Canada.

Visitors from overseas countries in 1972 stayed, on the average, 16.8 nights in Canada and spent \$195. The average length of stay of American travellers in Canada in 1972 was 2.6 days and their average expenditure was \$10.70 a day. The majority of travellers came from the Eastern seaboard states and the Great Lakes states. The main destinations reported were Ontario and Quebec. The most quoted reason for non-resident travellers entering Canada in recent years has been to visit friends and relatives. This is probably a reflection of the fact that according to the 1971 census 3.3 million Canadians were born outside Canada. It should also be noted that according to the American census of 1970 nearly one million residents of the United States were born in Canada.

Preliminary estimates of Canada's balance of payments on international travel in 1973 showed that Canadian residents spent \$1,683 million on international travel, of which \$1,047 million were spent on travel to the United States. During the same year Canada earned \$1,394 million from international travel of which 80.6 per cent came from the United States.

Canadian expenditures on international travel were higher than foreign travellers' expenditures in Canada and this resulted in a net deficit of \$290 million in the country's balance of payments on travel accounts in 1973 with all countries except the United States. For the last 10 years, American residents have spent more on travel in Canada than Canadian residents have spent on travel in the United States. However, Canadians spend more on travel in the United Kingdom and other countries than travellers from these countries spend in Canada. Payments of Canadians on international travel include transportation costs paid to foreign carriers.

The Mass Media

The Canadian Radio – Television Commission

The Broadcasting Act of 1968 vested authority to regulate and supervise all aspects of the Canadian broadcasting system—radio, television, and cable television—in the Canadian Radio–Television Commission (CRTC).

In the 1973-74 fiscal year CRTC granted licences for 16 new AM and 9 new FM radio stations, along with 54 new television stations and 22 new cable television systems, extending Canadian broadcasting through additional services into more regions, and to more people across the country. As of March 31, 1974, 1,733 broadcasting undertakings were in operation in Canada. This included 365 AM and 101 FM radio stations, 283 low-power relay transmitters, 588 television and 387 cable television undertakings, and 9 shortwave transmitters, along with the networks to which they are affiliated.

CRTC's jurisdiction however extends beyond the responsibility of licensing broadcasting stations. It is also concerned with the social and cultural implications of the media. Convinced that a strong and healthy communications system is vital to the health of a nation as a whole, and an important factor in national unity, the Commission has undertaken, developed, and directed a variety of policies aimed at achieving these objectives.

In the past six years the Commission has enunciated and implemented policies which have eliminated foreign ownership and control of Canadian broadcasting undertakings through a complex divestiture process which affected 80 undertakings across the country at a cost of \$149.5 million to new Canadian investors, but which resulted in a complete repatriation of the broadcasting industry. It has extended Canadian radio and television services to every section of the country and where possible ensured at least several choices to listeners and viewers, so that now more than 97 per cent of the Canadian population are within reach of clear broadcast signals. The CRTC has licensed further television networks so that Canadians can in future look forward to their choice of a variety of networks in each language. Furthermore, it has defined the relationship between cable television and conventional over-the-air broadcasting in a series of policy announcements, and implemented decisions which posed, with greater precision than ever before, conditions for the further growth and improvement of a single, interrelated Canadian broadcasting system. The encouragement of forms and types of programming more closely tuned to the needs and tastes of Canadians, and the encouragement of indigenous talent and creative resources has been a continual preoccupation of the Commission.

These concerns have been reflected in the Canadian content programming regulations for radio and television, and the subsequent dramatic results throughout the broadcasting industry, particularly in the English language sector. The music regulation for AM radio in particular produced almost immediate, startling successes as more than a dozen international calibre recording studios were established across the country, a wide variety of Canadian artists were signed to recording contracts, and their music was aired widely in both Canada and abroad. This resulted in Canada's advancing to the third rank in the production of hit music.



René Simard at 13 years, among the favourite voices of Canada.

behind the United States and Britain, and royalty payments brought millions of dollars back to Canada and into the hands of Canadian performers, composers, and publishers. The television regulation has resulted in programming of increased quality and quantity, and has spurred the development of Canadian independent program production. Canadian programs are being sold to more international markets than ever before, and many have gained further recognition as the winners of a variety of prestigious international broadcasting awards.

Of equal importance, the Commission has established policies aimed at encouraging the production of local programming on community channels on cable television and produced guidelines aimed at increasing Canadian television programming output through the encouragement of co-productions. It has published a varied and challenging series of proposals for the future development of FM radio programming. In addition, it has initiated policies and issued licences to student organizations on campuses across the country to provide both career training and broadcasting services through student facilities. It has encouraged the development of, and licensed, a variety of community oriented broadcasting stations, including non-profit co-operatives; licensed two new ethnic language radio stations in Vancouver and Winnipeg, where sizable ethnic communities exist; and encouraged and licensed native broadcasting undertakings, providing service to a variety of communities, in the Inuit and Indian languages.

Additional Commission policies in the area of advertising ensure that children are not manipulated by forces in the marketplace through advertising oriented to them; that clutter in broadcast advertising be reduced to a minimum; and that broadcast commercials, where possible, be produced in Canada by Canadians.

The CRTC's 15 commissioners — five full-time including the Chairman and the

Vice-Chairman, plus ten part-time members selected regionally—hold a number of public hearings each year, in centres across the country. In the 1973-74 fiscal year Commissioners attended 23 hearings from Vancouver, B.C. to St John's, Nfld. The Commission in this way ensures that all decisions and policies receive a maximum of open public debate, further ensuring that the national trust of the airwaves is protected for the people of Canada.

The Canadian Broadcasting Corporation

The CBC is a publicly-owned corporation established by the Broadcasting Act "for the purpose of providing the national broadcasting service" in Canada. The CBC was created on November 2, 1936, replacing an earlier public agency, the Canadian Radio Broadcasting Commission, which had been operating since 1932. The CBC reports to Parliament through the Secretary of State. It is financed mainly by public funds voted annually by Parliament, and obtains additional revenue from commercial advertising. The directors and officers of the CBC are responsible for its policies and operations.

CBC facilities extend from Atlantic to Pacific and into the Arctic Circle. The head office of the Corporation is in Ottawa. The network centre for English-language radio and television is in Toronto, with regional production centres in each of the main geographical areas of the country. French-language operations are centred in Montreal, with local outlets at other points in Quebec and in most other provinces.

Appelez-moi Lise, a CBC French television production originating in Montreal.



The CBC Northern Service provides northern communities with national, local, and shortwave radio programs, and with national television. Live network television service is provided to some 25 communities in the North by way of the Anik domestic communications satellite. Community television in the North will be developed as local facilities become available.

Radio Canada International, the CBC's shortwave service, has its headquarters in Montreal and its transmitters near Sackville, N.B. It broadcasts daily in 11 languages to Europe, Africa, Latin America, the Caribbean area, North America, and Australasia. It also distributes music and spoken-word transcriptions to broadcasting organizations in other countries.

In other international activities the CBC sells a variety of its programs to other countries, is a frequent winner of international program awards, and belongs to international broadcasting organizations such as the *Communauté des télévisions francophones* and the Commonwealth Broadcasting Conference. The CBC Armed Forces Service, in co-operation with the Department of National Defence, provides recorded and shortwave radio programs for Canadian military bases abroad. The CBC maintains offices in London, Paris, New York, and Washington, as well as news bureaux in the Far East and Lima, Peru.

CBC program schedules are varied, reflecting the principle set out in the 1968 Broadcasting Act that "the national broadcasting service should be a balanced service of information, enlightenment and entertainment for people of different ages, interests and tastes covering the whole range of programming in fair proportion." Program content is largely Canadian: it reaches 70 per cent in television and usually more in radio, with a selection of programs from other countries. The CBC is the major employer of Canadian talent, paying performers fees of over \$20 million a year. It provides continuing support for the arts in Canada through such means as the broadcast of Canadian music, drama, and poetry; the commissioning of special works; the sponsorship of talent competitions; and the presentation of Canadian films. The CBC presents local public concerts in many communities and participates in international program festivals and competitions. It gives co-production assistance to independent Canadian producers, and produces books and recordings derived from selected programs. About 9,000 employees are on the CBC staff.

CBC coverage of the country is substantially complete, with CBC radio service accessible to 98.7 per cent of Canadians and CBC television to 97.5 per cent. In all there are more than 440 outlets for CBC radio (including CBC stations and privately-owned affiliates plus auxiliary relay transmitters) and more than 400 for CBC television. An accelerated coverage program has been approved, costing \$50 million. During the next five years this program will bring radio and television service to some 300 remote communities not now served or inadequately served.

Private Radio and Television

The Canadian Association of Broadcasters (CAB) represents about 90 per cent of Canada's private radio and television stations. In 1973, the CAB commenced a major restructuring of its operations, including hiring a new president and centralizing at its head office in Ottawa functions formerly performed at the Toronto and Montreal branches. Incorporated in 1926, the CAB has in membership 258 AM stations, 59 FM stations, 53 television stations, 2 networks, many rebroadcasting stations, and

about 80 associates. Approximately 11,000 persons are employed in private broadcasting in Canada. More than 97 per cent of all homes in Canada have at least one radio and one television set; 41 per cent of homes have one or more colour sets, and 73 per cent have FM radio. Canadians watch television or listen to radio an average of 60 hours a week.

An important CAB function is the gathering and distribution of many Canadian and some foreign programs. CAB also produces "Report from Parliament Hill," a non-partisan radio series featuring reports by Members of Parliament. Running since 1944, and aired by 80 stations, the series is private broadcasting's longest running public service. CAB for years also sponsored the Dominion Drama Festival. CAB stations qualify for awards presented annually for excellence and originality, for exceptional news presentations and for major engineering achievements.

A prime concern of private broadcasters has been the adoption of an effective code for advertising to children. The code, which was formulated in conjunction with the Association of Canadian Advertisers, came into effect in September 1973.

In the past year the Canadian Association of Broadcasters initiated, in co-operation with other national associations, two gatherings of nation-wide significance—an "FM of the Future" seminar and an "Expectations" seminar. The idea for the two-day seminar in November 1973 on "FM and the Future" grew out of the CAB's brief to the Canadian Radio-Television Commission. It drew 150 broadcasters to discussions of FM's role in the Canadian broadcasting system and the parts played by music, news, and the spoken word in FM broadcasting, as well as future technical advances.

A heated family confrontation from *Excuse My French*, on the CTV television network.





Bingo, a popular French film, financially assisted by the Canadian Film Development Corporation.

Private Film and Television Production

Film and television production in the private sector has become increasingly more competitive during the past three years. By July 31, 1974, some 300 companies in Canada were engaged in various aspects of motion picture and television production. The apparently rapid growth can be attributed to the large number of technical and creative people who are freelancing and also to the large number of individuals graduating from film and television courses across the country. Of those who were unable to secure employment with an established production house, many have set up their own companies.

During the period from August 1, 1973 to July 31, 1974, over 5,000 film and videotape productions were completed which produced a total revenue of over \$40 million. Although the production of feature films has severely declined, television commercial and sponsored documentary productions made significant gains. Federal and provincial government film and television contracts tendered to the private sector have provided part of the increased number of such films.

One particularly interesting development has occurred within the industry. In past years, private television and motion picture producers have on the whole operated independently. Recently, the two groups have joined forces under a new name, the Canadian Film and Television Association, formerly the Association of Motion Picture Producers and Laboratories of Canada. This new association with a large, strong membership will be responsible for all the industry's dealings with governments, certain negotiations of union contracts, liaison with educational institutions, and the over-all development of motion picture and television production in Canada.

The National Film Board

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

NFB produces some 150 films in English and French each year, ranging from one-minute TV spots to two-hour documentaries and feature films. The number of awards won by the Film Board has passed 1,300.

Staff members garner a fair share of individual recognition; Norman McLaren, Canada's internationally renowned film-maker, continues to receive the highest honours from the international film community with retrospectives of his work in such cities as Philadelphia, New York, Toronto, Montreal, Berlin, and London. Sydney Newman, Canadian Government Film Commissioner and chairman of the National Film Board, was honoured by the Motion Picture Pioneers of Canada for his outstanding contribution to the development of the Canadian film industry. Hundreds of invitations are received each year by the NFB for its staff to participate in international festivals, seminars, and workshops on the production, distribution,

Cry of the Wild, a National Film Board production.



and technical aspects of films and related media. The British Film Institute honoured the Film Board in 1974 with a two-week retrospective at the National Film Theatre in London. Another important tribute came from the University of Miami, which presented the Film Board with an award for its "distinguished contribution to communication arts."

In the 1973-74 fiscal year, NFB films were seen by an estimated world audience of 766 million. Almost 400,000 films were booked-out from NFB libraries located in 27 major Canadian cities. To encourage the development of community film distribution services across the country, the Board has introduced a new program offering a discount to libraries purchasing films in quantity and undertaking to serve their communities by initiating self-service in some NFB libraries. Abroad, NFB films loaned by the Department of External Affairs in 81 countries reached an audience of over 70 million.

The Board continues to extend its commercial distribution of films in about 100 countries through television and theatres. In Canada alone, the Board set a record during 1973-74 of over 17,000 commercial bookings for theatrical short films.

To support and assist those Canadians teaching or learning one or the other of Canada's two official languages, the Board has produced a series of Language Learning Support films which are being distributed with suitable support materials for teachers. In keeping with Canada's multicultural character, films about the major ethnic populations are being made. The Film Board is distributing in Canada almost 900 prints of 356 different films in 19 languages. The films are located in five main regional libraries and a complete catalogue of these titles is available.

In co-operation with the Department of National Health and Welfare, the Film Board has compiled a package of films on the non-medical use of drugs and these are now available to the public through NFB and other film libraries across Canada. This special package is to be enlarged to include films on alcohol and tobacco addiction.

Production facilities are being decentralized from the operational headquarters in Montreal to bring film-makers in closer touch with the people of the various regions of Canada. The Vancouver production office has been expanded, one in Halifax opened in 1973, and a Winnipeg office opened in the fall of 1974.

The Still Photography Division encourages and assists Canadian photographers by organizing travelling photo exhibits and publishing some of the outstanding works, the most recent of which is an acclaimed colour book entitled *Canada*. A permanent photo gallery is maintained in Ottawa.

The Challenge for Change/*Société nouvelle* project continues to stimulate and assist communities concerned with social action, often by providing video-tape and access to cable television. Among new productions are: "Urba 2000," a follow-up series of the much acclaimed 15-part "Urbanose," which deals with the future of the world's big modern cities; "Promises, Promises" examines the problems of small towns; "Cree Hunters of Mistassini," a study of the Cree Indian people of the James Bay region; "En Tant Que Femmes," a five-part series of films by women and about women; and an eight-part series of short films, "Working Mothers." Robert Forget, producer of *Société nouvelle/Challenge for Change*, and currently head of the *Vidéographe* program, received the second Grierson award for his significant contribution to documentary films.

governments and their services

Government

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

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

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

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

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

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

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

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

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

Except for limited official bilingualism, and certain educational rights for some



Changing of the Guard ceremony on Parliament Hill in Ottawa, an annual summer performance since 1959, attracts thousands of tourists.

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

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

The Canadian Constitution

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

The Government of Canada

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



Official portrait of Her Majesty Queen Elizabeth.



The Governor-General the Rt. Hon. Jules Légar and Mrs. Légar at the opening of Parliament.

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

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

The Cabinet is unknown to the law, the Prime Minister very nearly so. The B.N.A. Act provides only for a "Queen's Privy Council for Canada," appointed by the Governor-General to "aid and advise" him. In fact, this body does nothing. It consists of all Cabinet Ministers, all former Ministers, ex-Speakers of both Houses, the Chief Justice, ex-Chief Justices, and various distinguished citizens appointed as a mark of honour. Its only practical importance is that it provides the legal basis for the Cabinet, which, legally, is simply "the Committee of the Privy Council."



The Prime Minister of Canada the
Rt. Hon. Pierre Trudeau.

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

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

If an opposition party wins more than half the seats at a general election, the Cabinet resigns, and the Governor-General calls on the leader of the victorious party to become Prime Minister. The new Prime Minister chooses his Cabinet from his own party. It is customary, insofar as representation in Parliament permits, for the Cabinet to include at least one minister from every province, with the more populous provinces receiving greater representation.

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

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

Only the Cabinet can introduce bills for the raising or spending of public money.

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

The Legislature

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

The B.N.A. Act gives the Senate exactly the same powers as the House of Commons, except that money bills must originate in the Commons. The Senate can reject any bill, but rarely does. It does most of the work on private bills (incorporation of companies, and so on), and subjects general legislation to careful scrutiny in committee. Special Senate committees have also investigated major public problems and produced valuable reports. In October 1973, the Senate had 73 Liberals, 1 Independent Liberal, 17 Progressive Conservatives, 1 Social Credit, 2 Independents, and 8 vacancies.

The House of Commons, to which alone the Cabinet is responsible, has 264 members: 7 from Newfoundland, 11 from Nova Scotia, 10 from New Brunswick, 4 from Prince Edward Island, 74 from Quebec, 88 from Ontario, 13 each from Manitoba and Saskatchewan, 19 from Alberta, 23 from British Columbia, and 1 each from the Yukon and the Northwest Territories. They are elected by single-member constituencies, broadly speaking in proportion to the population of each province; but no province can have fewer members in the Commons than in the Senate. The total number of members is redistributed after each decennial census. Any adult Canadian citizen (with obvious exceptions, such as people in jail) can vote. In November 1974 the Liberals had 141 members, the Progressive Conservatives 95, the New Democratic Party 16, the Social Credit Party of Canada 11, and Independent 1.

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



St. John's Nfld, with legislative building in the background. 1974 marked Newfoundland's 25th anniversary in the Canadian Confederation.

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

The Liberal party has its roots in the pre-Confederation Reform parties which struggled for the establishment of parliamentary responsible government in the 1840's. The Progressive Conservative party goes back to a coalition of moderate Conservatives and moderate Reformers in the province of Canada in 1854, six years after responsible government had been won. It was broadened into a national party in 1867, when Sir John A. Macdonald, the first national Prime Minister, formed a Cabinet of eight Conservatives and five Liberals or Reformers, whose followers soon became known as "Liberal-Conservatives." The present name was adopted in 1942. The New Democratic Party dates from 1961, when the major trade union federation (the Canadian Labour Congress) and the CCF party joined forces to launch a new party. (The CCF—Co-operative Commonwealth Federation—had been founded in 1932 by a group of farmer and labour parties in the western provinces.) The Social Credit Party of Canada is based on the monetary theories of Major Clifford Douglas and, at the present time, its members in the House of Commons are all from Quebec.

Provincial and Territorial Government

In each province, the machinery of government is substantially the same as that of

the central government, except that no province has an Upper House.

Most of northern Canada west of Hudson Bay is not part of any province. It is organized in two territories, the Yukon and the Northwest Territories, which come directly under the Government and Parliament of Canada but enjoy a growing degree of self-government.

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

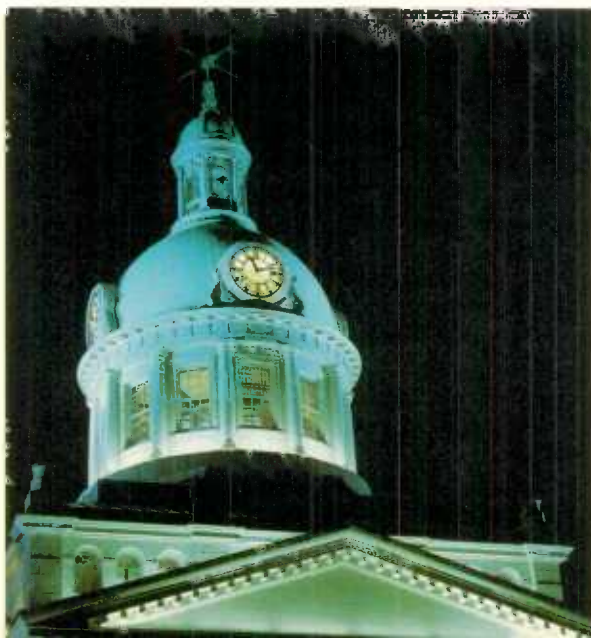
The Northwest Territories are ruled by a Commissioner, appointed by the Government of Canada, and a council of 14, of whom 4 are appointed by the central government and 10 elected. The Commissioner in Council has substantially the same powers as in the Yukon.

Municipal Government

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

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

Kingston City Hall. From 1841 to 1844 Kingston was the capital of the province of Canada.



The Legal System

The legal system is an important element in Canadian government. Since the British North America 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 in Canada a large body of case law which 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 via the early English settlers. It is the basis of much of the law in all provinces and territories as well as of much federal law. The province of Quebec, however, was originally settled by French inhabitants who brought with them civil law derived from French sources. Thus, in Quebec, civil law principles govern such matters as personal, family, and property relations. Quebec 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, as well as in by-laws made by municipalities. This subordinate legislation, as it is called, is issued under authority conferred either by Parliament or the provincial legislatures.

Statutes enacted by the federal Parliament of course apply throughout the country; those enacted by provincial legislatures, only within the territorial limits of the province. 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 B.N.A. 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 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. The totality of statutory federal criminal law is not contained in the Criminal Code. 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.



Opening of Parliament

Law Reform

As society changes, as its needs and even its standards change, the law will have to reflect these changes. Therefore, many of the provinces now have Law Reform Commissions which 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 B.N.A. Act guarantees the independence of the judiciary of superior courts. This means that judges are not answerable to Parliament or 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, and, in any event, 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 courts, as well as judges of the 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

The Supreme Court, established in 1875, consists of nine judges. It is the highest appeal court of Canada in civil and criminal matters.



courts. However, the Supreme Court of Canada and 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. The Court 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 appeals are heard by the Court are determined by the statute law of Parliament. The 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. It has two divisions, a Trial Division and an Appeal Division. 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. The Appeal Division hears appeals from decisions rendered by the Trial Division of the Court, as well as appeals from decisions rendered by many federal boards and agencies.

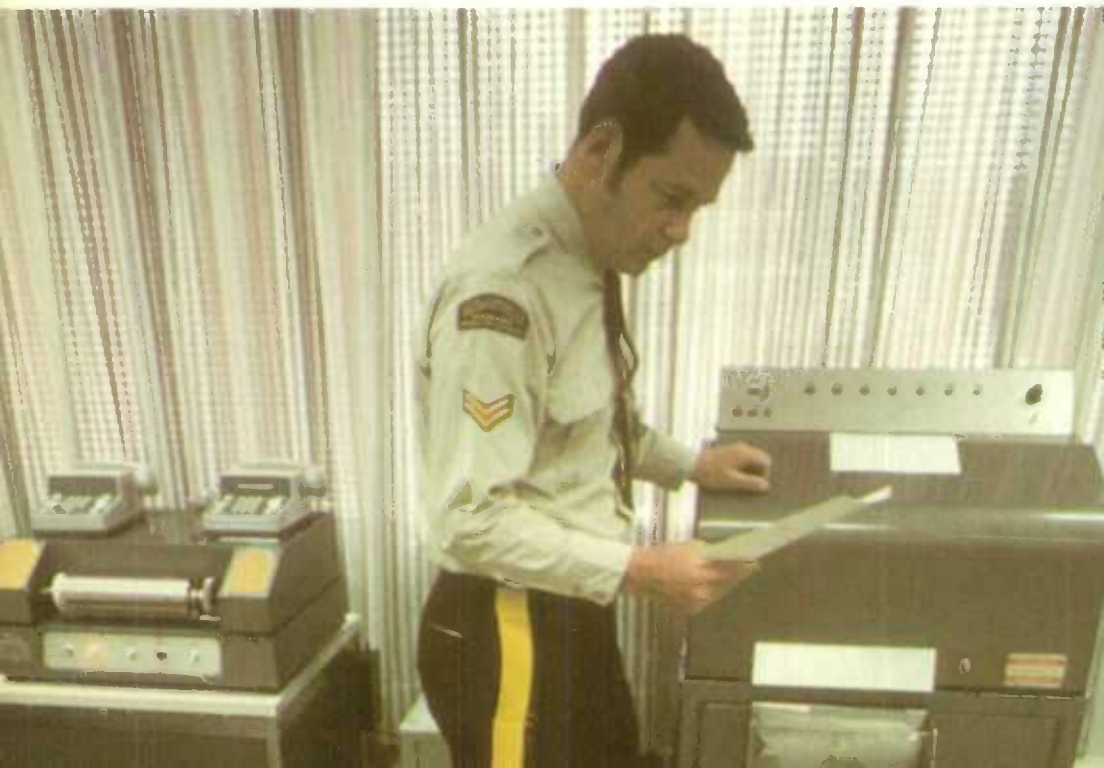
Provincial courts. Provincial courts are established by provincial legislation and thus their names vary from province to province; but nevertheless their structure is roughly the same.

Provincial courts exist at three levels. Each province has inferior courts, such as family courts, juvenile courts, magistrates' courts, and small debts courts. In these courts, which deal with minor civil and criminal matters, the great majority of cases originate and are decided. With the exception of the province of Quebec all provinces have a system 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. The superior courts have trial and appeal levels. The appeal courts, with some exceptions, hear appeals from all the trial courts within the province and may also be called upon to give opinions respecting matters put to them, under a special reference procedure, by the respective provincial governments.



The RCMP Musical Ride, a reminder of past traditions. During 1973 the force's strength was over 12,255 members.

RCMP receiving fingerprints by wire photo.



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.

The Police

Responsibility for the administration of justice in the provinces is assigned by the B.N.A. Act to the provinces; but police forces have been created by federal, provincial, and municipal governments. Responsibility for providing general police services in areas of sufficient population density and real property assessment is in the hands of municipal police forces where they exist. Municipalities which have not created their own police force use either federal or provincial police forces.

Ontario and Quebec have created provincial forces which police areas of the province not served by municipal forces. The duties of the provincial police also include providing police and traffic control over provincial highways, assisting municipal police in the investigation of serious crimes, and providing a central information service respecting such matters as fingerprints, criminal records, stolen and recovered property.

The Royal Canadian Mounted Police is a civil force maintained by the federal government. It was originally created in 1873, under the name North-West Mounted Police to deal with public order in what were then sparsely settled territories many parts of which have since become provinces. The RCMP is still today the sole police force in the Yukon and the Northwest Territories. Provinces that do not have their own police forces employ the RCMP to provide appropriate service within their borders.

The RCMP is also responsible for enforcing many federal statutes including those dealing with drug offences, smuggling, commercial fraud, and immigration. In addition, it is responsible for internal security investigation, the protection of government property, and the protection of important persons. The RCMP represents Canada at the International Criminal Police Organization (Interpol) which Canada joined in 1949.

Legal Aid

In recent years, most provincial governments have established publicly funded legal-aid programs to assist people 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 their financial circumstances. These programs vary by 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 the development or expansion of the programs. The purpose of all such programs is to ensure that people get adequate legal representation regardless of their financial circumstances.

Agriculture

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

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

The Department is composed of seven branches: Economics, Health of Animals, Production and Marketing, Food Systems, Research, Financial and Administration, and Personnel Administration.

Special Agencies

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

The Canadian Dairy Commission and the Canadian Livestock Feed Board are responsible to the Minister of Agriculture. The Dairy Commission supports the market price of major processed dairy products and makes direct payments to milk producers to supplement returns from the market. The Feed Board ensures the availability and price stability of feed grains to meet the needs of livestock farmers.

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

The National Farm Products Marketing Council, responsible to the Minister of Agriculture, oversees the establishment and operation of national marketing agencies for various farm commodities.

Programs and Policies

Cattle imported from Europe, which began arriving in 1966, continue as a means of improving Canadian herds. Permits to import more than 876 head of cattle were issued in 1973. Cattle from Austria, France, the Federal Republic of Germany, Italy, and Switzerland can be imported into Canada through quarantine stations at Grosse Île and St. Pierre. Incoming cattle are held for a mandatory 90 days for observation and tests before being released to the buyers.

Early in 1973, the federal government announced that Canada exported a record \$2,135 million in agricultural products in 1972, exceeding \$2,000 million for the first time.

A national Turkey Marketing Agency was established December 18, 1973.



Chianina cattle are among Canada's exotic breeds.

In March 1973 the federal government removed the 4 million-acre limit on total acres payable under the three-year Grassland Incentive Program designed to encourage livestock producers who want to grow more forage. Under the program, the government paid \$10 per acre on all eligible acres of added forage production.

Three more provinces—Manitoba, Quebec, and Saskatchewan—signed agreements with the federal government to implement the Small Farms Development Program established in February 1972. Nine provinces now participate in the program. It provides farm management and counselling services to participating farmers, and extends credit to small farm operators to purchase the land required to develop a profitable business.

A New Crop Development Fund headed the list of a 15-point action program introduced at the Western Economic Opportunities Conference in Calgary, Alta., in the summer of 1973. The federal government contributed \$1 million to launch the fund for the development of new crops, the adaptation of new varieties to practical farm growing conditions, and the development of new protein sources.

A new lamb carcass grading system was implemented by the Department. Under the new system, a cutability factor has been introduced to divide the Canada A grade lamb carcasses into four fat levels with A1 having the lowest amount of external fat and A4 the highest. The restrictive weight ranges which were part of the old regulations were eliminated to permit producers to raise heavier, meatier lambs without risking a penalty.

A national hog stabilization plan was announced to cover hogs indexing 88 or above marketed between April 1, 1974, and March 31, 1975. It guaranteed producers a margin of \$22.41 per hundredweight of pork between the wholesale cost of feed grain and hog prices.

To ensure that imported meats have not been treated with the hormone diethylstilbestrol (DES), foreign countries shipping beef, lamb or mutton, cattle, and sheep to Canada must present certificates indicating the meats and animals have not been treated with the hormone.

Compensation for cattle ordered slaughtered as a disease control measure under the provisions of the Animal Contagious Diseases Act was increased to \$450 from \$200 for each purebred and to \$200 from \$120 for grade cattle.

Citizenship

The Citizenship Branch of the Department of the Secretary of State is concerned with strengthening Canadian unity and identity through group understanding and through increased participation by all citizens in their local and national communities. Its responsibilities encompass all aspects of citizenship from granting citizenship status to encouraging citizens to help identify and resolve the social issues that directly affect their lives.

The Citizenship Branch consists of a headquarters staff in Ottawa, and a network of regional offices and citizenship courts located in the major centres throughout the country.

Citizenship Development

The Citizenship Branch programs pursue the common goal of encouraging citizens to develop Canada's multicultural character, and to create a society which respects the rights and responds to the needs and aspirations of all its citizens. But no master plan can be drawn to guide such activities in every place and situation in Canadian society; rather, it is citizens' own initiatives to improve the quality of their lives that show the way. Therefore, the Citizenship Branch makes financial resources available to citizens' organizations and unstructured social groups to enable them to pursue their activities and realize their goals.

Recent activities of the Branch include strong support to native citizens' associations and friendship centres in urban areas. The Multiculturalism program also supports social and cultural centres, and encourages ethnic preservation and inter-ethnic understanding. In the same vein, the program for Official Language Minority Groups is concerned with improving understanding between the two principal language groups, promoting a better appreciation of official bilingualism on the part of all Canadians, and supporting the linguistic and cultural progress of groups speaking one or other of the official languages wherever they are in a minority position.

Through the Citizens' Rights and Freedoms program, the Branch engages in research and education, and makes grants to voluntary agencies in order to promote and protect the rights of all Canadians to participate equally in their society. Similarly, the Women's Organization program concentrates on women's rights and supports centres and organizations that enhance their social and cultural position in various ways. The Citizens' Organizations program deals with a very broad spectrum of such voluntary organizations, both established and recently created. Many organizations and youth groups also receive support from the Travel and Exchange program for projects which encourage personal interaction among Canadians from different regions of the country, to enable them to develop a greater understanding of the cultural and geographic diversity of Canada and of its history and political institutions. The Citizenship Promotion program pursues similar aims by assisting educational and cultural projects that encourage a deeper identification with Canada. Further, to enable immigrants to acquire at least one of the official languages, the Branch provides assistance either through its own language training programs, through cost-sharing arrangements with the provincial

governments, or by grants to voluntary agencies for the provision of language instruction.

Citizenship Registration

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

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

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

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

Choir at Queen's Park, Toronto, celebrating July 1, Dominion Day.



Consumer and Corporate Affairs

The Department of Consumer and Corporate Affairs was created in December 1967, and given the goal of fostering an efficient Canadian market system in the interest of every individual Canadian. The new department brought together, under one Minister, most federal laws regulating business in the marketplace. Its existence reflects Parliament's belief that a competitive market is basic to an effective national economy and that it can be structured to benefit consumers, businessmen, and investors equally.

Legislation and policies administered by the department are designed to have a dual effect: to stimulate productivity among suppliers of market goods, and to promote fair economic treatment for all who take part in the market system. One result of the department's activities has been a strengthening of the idea that consumers have rights and must be protected and that the widest possible audience must be provided with more information on consumer matters.

Four bureaux and the Field Operations Service share the responsibility for achieving these objectives.

The Bureau of Consumer Affairs develops legislative proposals and programs for consumers' protection and information in such areas as packaging, labelling, weights and measures, and hazardous products. The Bureau operates the Consumer, Box 99, Ottawa, a mailing centre for direct communication between the public and the federal government on matters of concern to consumers. Box 99 received over 70,000 complaints and inquiries in 1973. The Bureau also maintains consumer research programs and provides extensive information to consumers through its monthly newsletter, *Consumer Contact*, and other media.

The Bureau of Corporate Affairs concerns itself with much of the legal framework at the federal level that governs the orderly conduct of business. New businesses incorporated under federal law receive their federal charters of incorporation from

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 writing to the Consumer, Box 99, Ottawa, K1N 8P9.

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 corrosive substance).











The department has created a puppet show to warn young children about hazards around the home.

Cleaning Instructions

	Stop	Be careful	Go ahead
			
		 Machine washable in warm water	
WASHING	Do not wash	 Machine washable in lukewarm water	Machine washable in hot water
		 Hand washable in lukewarm water	
			
BLEACHING	Do not bleach	Use chlorine bleach as directed	
			
		Tumble dry low.	Tumble dry medium-high
			
DRYING		Dry flat	Hang to dry soaking-wet
			
		Iron medium	Hang to dry
			
IRONING	Do not iron	Iron low	Iron high
			
DRY CLEANING	Do not dry clean	Dry clean low	Dry clean

Symbols for Hazardous Products

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	Poison	Flammable	Explosive	Corrosive
Danger				
Warning				
Caution				

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the Bureau, which also presides over bankruptcy proceedings for insolvent companies and licenses trustees in bankruptcy.

The Bureau's Bankruptcy Branch has extended its program to benefit individuals who are so deeply in debt that they must declare personal bankruptcy. Liquidations are administered for a fee of \$50 compared to the \$500 or more charged by trustees in private practice. To qualify, a debtor must have debts exceeding \$500 and have annual income of \$5,000 or less.

The *Bureau of Intellectual Property* acts to encourage innovation and creativity and the sharing and use of knowledge and information in Canada. The Bureau grants exclusive rights for inventions (patents), trade marks, and industrial designs and copyright for original artistic, dramatic, literary, or musical works. The owners of these rights can then sell or license them to someone else, if they do not intend to make use of them.

Patents are granted for new and useful inventions. They give the patent owner exclusive rights to use the invention for 17 years in Canada. In return, a full description of the invention is made public. Businesses use *trade marks* to distinguish their products or services from those of other businesses and to indicate their source or origin. Trade mark registration gives the owner exclusive rights to use the mark for specific products or services for renewable periods of 15 years. An *industrial design* is an original artistic design for the outward appearance of an article, such as its shape or pattern. The registration of an industrial design gives the owner exclusive rights for five years, with possible renewal for five additional years. An author or creator has exclusive rights to his/her original work automatically upon the work's creation. These rights last, in most cases, for the lifetime of the author plus 50 years. Registration of copyright gives the author recognized evidence of ownership.

The *Bureau of Competition Policy* administers the Combines Investigation Act, the legislation aimed at maintaining a competitive market system. The Director of Investigation and Research, who has the status of an assistant deputy minister, has authority under the Act to conduct inquiries where he has reason to believe there may have been a violation relating to agreements, mergers, monopolies, price discrimination, promotional allowances, misleading representation as to prices, false and misleading advertising and retail price maintenance. The results of these inquiries are then sent to the Restrictive Trade Practices Commission, or to the Attorney General of Canada for possible legal action. The Attorney General must decide whether charges should be laid following the report of the Commission.

The *Field Operations Service* administers a field force across Canada, operating from regional offices in Vancouver, Winnipeg, Toronto, Montreal, Halifax, and from district offices in many other cities. It implements and enforces the legislation for which the department is responsible, and ensures that these laws are interpreted and applied uniformly throughout the country. Members of the force inspect food, hazardous products, electric and gas meters, verify weights and measures, and investigate false and misleading advertising. Patent, trade mark, industrial design, and copyright applications can be filed at the five regional offices. New companies can be registered in the area where they are located, and specialists in bankruptcy are also located in the regions. And at every regional office and some district offices, a consumer consulting, information, complaints and inquiry service is provided.

Education

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

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

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

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

Educational Jurisdictions

Under the British North America Act, section 93, the provinces are generally responsible for education, except for federally-sponsored schools for Indian and Inuit (Eskimo) students, children of servicemen in Europe, and inmates of federal penitentiaries. In addition the federal government helps finance tertiary education in the provinces, participates in informal education, and makes grants-in-aid for research personnel and equipment.

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

Changes in the original departments of education in some provinces have created

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

a second governmental department dealing exclusively with post-secondary education. Provinces with two departments concerned with education are Alberta, Manitoba, Ontario, and Saskatchewan. In addition, Quebec has established two directorates within its department of education, one concerned with universities and the other with colleges.

Elementary and Secondary Education

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

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

Following the recommendations made by the Royal Commission on Education and Youth in 1964, school districts have been consolidated in Newfoundland. The 300-odd "denominational" boards were reduced to 35 districts and in January 1971 there were 12 Roman Catholic school districts, 21 integrated Protestant boards, and

Through water play Nova Scotia youngsters learn about measurement in the "open education" methods being introduced in many Canadian schools.





Inuit students in the Northwest Territories.

one each for the Pentecostal and Seventh Day Adventist denominations. The trend in Prince Edward Island and Nova Scotia is also towards the consolidation of small educational units. In the former, a newly-passed School Act provides for the amalgamation of approximately 300 small local units into 5 regional boards. In Nova Scotia, the consolidation of school boards was recently initiated with the formation of 3 regional municipal boards, and plans are under way to amalgamate school boards into approximately 20 regional boards. Similarly, New Brunswick has replaced its 422 school districts with 33 enlarged districts.

In Quebec, legislation enacted in 1961 created large units of administration for secondary school education. The number of elementary school boards was reduced from 1,109 to 250 by legislation passed in 1972.

As a result of legislation in the late 1960's, significant administrative reorganization occurred in Ontario. Thousands of small units, administered by three-member boards of trustees, were replaced by about 200 enlarged county boards of education integrating elementary and secondary school operations. Large cities have been exempted from this reorganization and are allowed to administer their own school systems. Most Roman Catholic school administrations have been integrated within these county boards, although separate schools have the option of whether or not to join.

In all four western provinces districts have been consolidated. In fact, Alberta and British Columbia were the precursors of this trend towards amalgamation in Canada. Since 1937 in Alberta, the school districts' authority has to a large extent been assumed by enlarged school divisions (aggregations of designated school

districts) and gradually counties are superseding divisional organizations. In the mid-1940's, British Columbia reduced the number of school districts from 650 to 74 large administrative districts. In the 1960's school administration in Manitoba was reorganized. In this province, in January 1971, over 90 per cent of public school enrolments were the responsibility of 44 unitary boards administering elementary and secondary education within their districts; the rest came under four secondary divisional boards and 44 smaller elementary district boards. In Saskatchewan, recommendations regarding implementation of consolidated school districts are being considered.

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

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

Most secondary schools offer technical and commercial subjects as options in the academic curriculum. Vocational, technical, and commercial secondary schools, at one time located only in large cities, are now an integral part of the school system, province-wide in many provinces. An increasing number of composite schools offer optional programs in academic or technical subjects, such as agriculture, home economics, and commerce, allowing more flexibility for individual interests and capabilities.

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

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

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

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

The western provinces are also encouraging a less rigid classification by grade. In Saskatchewan the traditional 12 elementary-secondary grades are in the process of being replaced by four divisions, each consisting of three years of school for a student making normal progress. In Divisions I and II, the principal of non-grading with continuous evaluation and flexible promotion has been adopted. Division III programs have been designed to accommodate the special problems of the young

adolescent. At present, progress is still being made in the development of both Divisions III and IV. The newly developed programs stress more flexibility, which makes allowance for individual differences. Students are encouraged to discover facts and think for themselves; at the core of these divisions is the belief that students should develop values, skills, and ideas or concepts rather than learn by rote.

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

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

Education systems in the Northwest Territories and the Yukon are primarily geared to fulfilling the needs of the local population, chiefly the Inuit (Eskimo), Indian, and Métis living in isolated settlements. Responsibility for education was moved from the federal Department of Indian Affairs and Northern Development to the new Department of Education in the Northwest Territories. The official transfer occurred in the Mackenzie District in April 1969 and in the Franklin and Keewatin Districts in April 1970. The Territorial Department of Education is continuing the progress made by the federal government in providing a far-flung, modern, and solidly-based school system and it has rapidly begun constructing numerous new schools and developing new curricular materials relating to the cultural backgrounds of the students. By choice the schools in the Northwest Territories follow the programs of Alberta and Manitoba.

The majority of schools in the Yukon have always been classified as public and have been administered directly by the Yukon Department of Education in Whitehorse. The Yukon has chosen to follow the British Columbia school curriculum although the program is adapted to incorporate material relevant to the heritage of the native peoples.

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

Enrolment. Enrolments of public, elementary, and secondary students over the past two decades have increased fairly rapidly, a result of the high postwar birth rate in Canada. Public school enrolments at the elementary level began to decline in 1971-72 as a result of the lower birth rates in the mid 1960's. This decline can be expected to have an effect on secondary enrolment in future years. However, for the present and immediate future, the expectation is that enrolment in secondary educational institutions will continue to increase, as elementary school students of



Open area classroom in Dieppe School, Regina, Sask.

the mid and late 1960's who are from earlier birth-rate cohorts now move into the secondary system, and students stay in school longer before entering the labour force.

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

Total enrolments between 1972-73 and 1973-74 in the public elementary and secondary school system declined from 5,571,319 to 5,493,557 or about 1.4 per cent. Quebec experienced the greatest decline during this period: it decreased by 48,535 students, while British Columbia increased its enrolments by 10,441 students. The drop in total enrolment is primarily a result of declining enrolments in the elementary sector and not the secondary sector. In all provinces except British Columbia, the Northwest Territories, the Yukon Territory, and Nova Scotia, total enrolments declined.

The increase at the pre-elementary level was not because the population was greater but because more facilities were opening. Student enrolments at the



Pupils in West Vancouver examine a model molecule of the substance krypton which was among the students' science fair exhibits.

elementary level declined 1.1 per cent from 1971-72 to 1972-73, while at the secondary level enrolments declined only .1 per cent. Between 1972-73 and 1973-74 enrolments at the elementary level continued to decline, 3.6 per cent, while at the secondary level enrolments increased .3 per cent.

Over the 1971-72 to 1972-73 school year the number of teachers decreased from 262,517 to 261,638, a decline of .3 per cent in the combined elementary-secondary teachers category.

Vocational and Technical Education

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

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

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

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

Adult Continuing Education

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

Tertiary Education

The past decade has witnessed an extraordinary increase of enrolment in the tertiary level of education which has surpassed the elementary-secondary rate of growth during the same period. This educational level has two main sectors: the non-degree-granting institutions, encompassing community colleges and other related institutions, teachers' colleges, and diploma schools of nursing; and degree-granting institutions, including universities and affiliated colleges. Over the decade the increase in enrolments was especially marked in the universities and community colleges, although at present there is a short fall in enrolment in the former.

Several factors contributed to this continuing significant growth. Some are the high birth rates in the postwar years which resulted in increases in enrolments at the elementary-secondary level and culminated in a rise in numbers at the tertiary level, and higher retention rates in secondary schools. Other factors are the growing diversification of types of post-secondary institutions and programs that cater to individual interests and abilities, and the supposition that education beyond the secondary level is a path to increased social mobility.

Community Colleges and Related Institutions

Community colleges have developed to meet the need for various types of programs and an increase in students seeking post-secondary education in other

than the university sector. Enrolments in these institutions are rapidly increasing because of the community colleges' flexible open-door policies. Further, the need for semi-professional personnel in a system that is rapidly moving towards a service economy has recently stimulated increased enrolments. These institutions are discussed in the context of that need.

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

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

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

Provincial Systems of Community Colleges

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

In Quebec, the *Collèges d'enseignement général et professionnel* (CEGEPs), offering three-year terminal technical studies and two-year academic programs (a prerequisite for entrance to university), were inaugurated in the mid-1960's following recommendations of the Royal Commission on Education. This new college system incorporated a variety of post-secondary institutions, including many normal schools, diploma schools of nursing, and institutes of technology. A few classical colleges and public technical institutes and related institutions are still independent of the CEGEP structure. In the 1970-71 academic year, there were over 30 CEGEPs. In addition to the two institutions which existed in 1970-71, two new English-language CEGEPs, Sir John Abbott and Champlain College, began operations in the early 1970's.

In Ontario in 1965, colleges of applied arts and technology (CAATs) were established in 20 regions. They are oriented to providing vocational and technical

An extraordinary increase of enrolment during the past decade in the tertiary level of education has surpassed the elementary-secondary rate of growth during the same period.



education. Other institutions in this educational sector include the Ontario College of Art, the Ryerson Polytechnical Institute, four colleges of agricultural technology, and a school of horticulture. In 1972-73 there were 42,091 students enrolled in the CAATs and other related institutions.

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

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

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

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



Total enrolment in nurses' (R.N.) diploma programs in 1972-73 within hospital schools, regional schools of nursing, and community colleges was 24,088.

Schools of Nursing

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

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

In 1972-73 the total enrolment in nurses' (R.N.) diploma programs within hospital schools, regional schools of nursing, and community colleges was 24,088. This represents a decrease of 1,946 students or 7.5 per cent from 1971-72.

Teacher Training

The trend during the past few years has been to phase out the teachers' college or normal school, which at one time was the principal post-secondary non-university institution. Previously, only teachers at the secondary level were required to have university degrees, but now candidates for both elementary and secondary teaching

certificates are required to have a degree in all but two provinces, Nova Scotia and New Brunswick. Even in those two, teachers' colleges are being phased out and university professional training for teachers is being stressed.

University Education

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

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

Depending on the province, a student must have a junior or senior matriculation certificate in order to gain admission to courses leading to a first degree. Many universities now require or suggest in addition that students write specified aptitude tests. The length of programs varies from three to four years for a pass bachelor's degree to five years or longer for a professional degree in medicine, theology, architecture, and law. The master's degree program following the bachelor's degree requires one or more years of study, and doctorates require a minimum of two years of study and intensive research after completion of the master's degree. In 1972-73, 321,417 full-time students were enrolled in degree, diploma, and certificate programs in universities, 202,425 (or 63.0 per cent) of whom were men. It is noteworthy that in the past 10 years part-time enrolment increased at a higher rate than full-time enrolment.

An interesting trend began to develop in 1970-71 in regard to full-time enrolment in universities. The western provinces showed much lower rates of increases than had been expected. In 1971-72 the pattern was repeated not only in the western provinces but almost nation wide. The rapid expansion of university enrolments during the 1960's was past and projections for the first half of the 1970's showed much more modest increases.

When first considered, this might seem to contradict some of the predictions of Daniel Bell, referred to previously. However, this is not the case. While it is true that the previously expected increases in full-time enrolments have not been as high as expected, and have decreased in some instances, the over-all view of post-secondary education gives a different picture. At present it appears that the rise in

importance of the community college will substantially increase. In general, universities will continue to produce professionals, while community colleges will specialize in producing technical manpower, who in some instances will become support staff for the professional.

Unlike the community colleges, universities experienced small declines in full-time enrolments: .5 per cent from 1971-72 to 1972-73, whereas annual increases during the 1960's were in the order of 12 to 14 per cent and in the 1969-70 - 1970-71 school year, 5.7 per cent. Declining enrolments in the university sector were experienced by all provinces except Newfoundland, Quebec, and Ontario.

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

Financing

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

Federal government expenditure at the elementary-secondary school level for

University of Lethbridge, Alta.



1969, 1970, and 1971 was \$204,089,000; \$194,403,000; and \$188,783,000 respectively, representing 27.7, 24.2, and 23.3 per cent of the total federal government expenditure, not including transfer payments. The greatest amounts spent by the federal government are in the areas of university and vocational-occupational training. Under the terms of the Adult Occupational Training Act of 1967, the federal government pays the total costs incurred by the provinces to provide vocational training of adults in a training course arranged by a federal Manpower Office or in an apprenticeship training program. It also pays part of the capital expenditure required for provincial occupational training facilities. In 1969, 1970, and 1971 the expenditures by the federal government in this area were \$296,855,000, \$357,475,000, and \$350,391,000 respectively. In the same years federal government expenditure on universities was \$199,581,000, \$205,044,000 and \$220,545,000.

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

Table 1. Educational Expenditure of Public School Boards for 1971 and 1972 Calendar Years

Province	Local Taxation	Provincial Government	Federal Government	Fees	Other	Total
Thousands of dollars						
Newfoundland .....1971 [†]	747	61,874	—	1,871	2,475	66,967
.....1972	915	71,229	—	1,826	2,261	76,231
Prince Edward Island .....1971 [†]	4,732	12,739	—	—	50	17,521
.....1972	2,500	16,558	—	—	60	19,118
Nova Scotia .....1971 [†]	54,364	68,935	967	6	911	125,183
.....1972	58,339	76,693	743	13	683	136,471
New Brunswick .....1971 [†]	—	89,903	—	21	186	90,110
.....1972	—	96,412	—	26	902	97,340
Quebec .....1971 [†]	444,033	695,337	7,173	10,143	13,981	1,170,667
.....1972	458,863	787,651	7,847	11,096	15,295	1,280,752
Ontario .....1971 [†]	766,848	1,016,266	7,183	3,837	26,327	1,820,461
.....1972	829,275	1,098,900	7,770	4,150	28,465	1,968,560
Manitoba .....1971 [†]	77,527	98,321	751	995	1,244	178,838
.....1972	88,624	105,036	903	1,211	1,245	197,019
Saskatchewan .....1971 [†]	82,258	77,787	2,597	750	2,643	166,035
.....1972	84,555	88,261	2,389	760	3,278	179,243
Alberta .....1971 [†]	145,500	214,800	5,184	2,517	4,481	372,482
.....1972	159,438	225,376	6,902	2,719	5,695	400,130
British Columbia .....1971 [†]	210,724	171,433	5,335	160	12,602	400,254
.....1972	231,577	187,853	5,563	170	13,103	438,266
Yukon .....1971	—	5,212	550	73	115	5,950
.....1972	—	5,906	623	83	130	6,742
Northwest Territories .....1971	600	610	22,269	—	35	23,514
.....1972	720	730	25,410	—	42	26,902
Canada .....1971[†]	1,787,333	2,513,217	52,009	20,373	65,050	4,437,982
.....1972	1,914,806	2,760,605	58,150	22,054	71,159	4,826,774

[†] Revised.

Table 2. Statistical Profile of Public Elementary-Secondary Education,¹ 1972-73 (Fall), 1973-74

Province or Territory		Total		Students ²			Full-time Teachers ^{3,6}		
		Enrolment ²	Pre-Elm.	Elem. ⁴	Sec. ⁴	Ungraded	Elem. ⁵	Sec. ⁵	Total
Newfoundland	1972-73	161,723	12,618	85,347	59,676	4,082	4,910	1,983	6,893
	1973-74	160,430	12,289	84,177	59,111	4,853			
Prince Edward Island.....	1972-73	29,340	...	16,171	12,755	414	1,120	510	1,630
	1973-74	28,370	...	15,408	12,669	293			
Nova Scotia.....	1972-73	211,262	14,587	104,135	89,309	3,231	6,563	3,524	10,087
	1973-74	214,401	14,496	102,402	94,399	3,104			
New Brunswick.....	1972-73	173,851	...	90,538	81,975	1,338	5,130	2,840	7,970
	1973-74	170,179	...	87,170	80,932	2,077			
Quebec	1972-73 ⁶	1,526,586	95,034	713,327	650,732	67,493	50,400	26,700	77,100
	1973-74 ⁷	1,478,051	91,692	673,141	643,585	69,633			
Ontario	1972-73	2,028,114	157,919	922,238	915,268	32,689	56,720	35,820	92,540
	1973-74 ⁸	2,008,610	162,067	891,805	922,313	32,425			
Manitoba	1972-73	238,861	14,903	114,210	103,569	6,179	7,200	4,425	11,625
	1973-74	234,569	15,441	110,028	106,120	2,980			
Saskatchewan	1972-73	234,152	4,338	116,953	108,356	4,505	7,207	3,643	10,850
	1973-74	225,732	5,363	109,858	106,675	3,836			
Alberta.....	1972-73	425,251	2,918	216,195	201,260	4,878	12,843	7,493	20,336
	1973-74	419,737	...	210,220	204,314	5,203			
British Columbia	1972-73	526,061	22,681	250,441	246,381	6,558	13,740	7,995	21,735
	1973-74	536,502	31,417	249,064	247,759	8,262			
Yukon.....	1972-73	4,749	—	2,812	1,904	33	182	76	258
	1973-74	4,957	—	2,863	2,080	14			
Northwest Territories.....	1972-73	11,369	1,185	7,296	2,842	46	514	100	614
	1973-74	12,019	1,280	7,370	3,060	309			
Total Canada.....	1972-73	5,571,319	326,183	2,639,663	2,474,027	131,446	166,529	95,109	261,638
	1973-74	5,493,557	334,045	2,543,506	2,483,017	132,989			

¹ Includes separate schools.

² Does not include in 1972-73 155,910 students in private elementary, secondary, kindergarten, and nursery schools; 28,990 students in schools operated by the federal Department of Indian Affairs and Northern Development; students in Department of National Defence schools overseas; and 3,410 and 660 students in schools for the deaf and blind, respectively.

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

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

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

⁶ Includes some estimates.

⁷ Preliminary—received from Ontario Ministry of Education.

⁸ Estimate.

...figures not available.

...not appropriate or not applicable.

— nil or zero.

Table 3. Full-time Enrolment in Tertiary Education, 1972-73¹

Province	Community Colleges and Related Institutions ²		Teachers' Colleges	Non-Univ. Sector		University Sector	
	Technical Programs ³	Univ. Transfer Prog.		Diploma Schools of Nursing ⁴	Univ. and Affil. Colleges		
	Total	Total	Total	Total	Total	Total	Males
Newfoundland.....	820	—	—	671	7,308	4,569	
Prince Edward Island.....	313	—	—	177	1,581	888	
Nova Scotia.....	985	130	548	814	16,098	9,576	
New Brunswick.....	668	—	412	761	10,230	6,294	
Quebec.....	36,701	55,314	213	7,999	65,430	42,024 ⁵	
Ontario.....	42,091	—	2,082	8,348	135,024	85,974	
Manitoba.....	2,133	—	—	1,118	17,022	10,413	
Saskatchewan.....	1,609	48	—	804	13,380	8,307	
Alberta.....	9,074	2,347	—	1,909	27,762	17,322	
British Columbia.....	5,751	5,380	—	1,487	27,585	17,055	
Total, Canada.....	100,145	63,219	3,255	24,088	321,420	202,422	

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

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

³ Students in R.N. diploma programs have been excluded.

⁴ Includes students enrolled in diploma and regional schools of nursing and those enrolled in R.N. diploma programs in community colleges.

⁵ There are 387 students at Université du Québec not enumerated by sex.

— nil or zero.

The Environment

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

The job that needs to be done in Canada entails providing information and services and, where necessary, undertaking research to aid in understanding the natural environment, and using and protecting it. The job also entails managing renewable resources to increase harvests while guiding man's activities so that the natural environment may become healthy and attractive, and remain so.

Organization

The Department of the Environment is organized into two principal components: Fisheries and Marine Service and Environmental Services. Each component is headed by a senior Assistant Deputy Minister. The Fisheries and Marine Service manages fisheries, often co-operatively with the provinces and other nations. This involves extensive research on which to base programs designed to protect, and, where possible, to increase harvestable stocks. The Department assists the fishing industry to increase its markets and sales. The Service's activities include hydrography and oceanography in three oceans and all inland waters. It is also responsible for the planning and management of 2,000 harbours for small craft.

Environmental Services is responsible for the Atmospheric Environment Service (AES), the Environmental Protection Service (EPS), and the Environmental Management Service (EMS). These three services have distinct areas of responsibility.

The Atmospheric Environment Service is primarily concerned with meteorology—the branch of science that deals with the phenomena of the atmosphere. Meteorology includes studies of the physics, chemistry, and dynamics of the atmosphere and of the direct effect of the atmosphere upon the earth's surface, the oceans, and life in general. Since 1958, the AES has been assigned responsibility for information on ice conditions in the navigable waterways of Canada.

The Environmental Protection Service implements federal environmental legislation by developing and enforcing regulations, standards, protocols, and so on. It is also the source of information for other federal departments administering the legislation within the framework of which environmental regulations are to be formulated. The Service develops national effluent and emission standards in consultation with the provinces and industry and is the public's point of contact within the Department on problems relating to the protection of the environment.

The Environmental Management Service was established to co-ordinate activities relative to inland renewable resources, their use, and the impact of their use on the environment. It is composed of four directorates—Inland Waters, Forestry, Wildlife, and Lands—responsible for providing data on the quantity and quality of the resources, conducting research on the methods and techniques of conservation,



Environment Canada's 13-ton bus and trailer conducts tests on motor vehicles throughout Canada to assure compliance with government standards to combat air pollution.

and planning the comprehensive utilization of renewable resources throughout the country as provided for in federal legislation.

Advisory Councils

The Environmental Advisory Council was set up to provide advice to the Minister in four general areas: the state of the environment and threats to it; the priorities for federal or joint federal/provincial government action; the effectiveness of Environment Canada's efforts to restore, preserve, or enhance the quality of the environment; and other matters which the Minister may refer to it as the need arises.

A Forestry Advisory Council and a Fisheries Advisory Council were established to report to the Minister on specific areas of responsibility relative to our renewable resources.

These advisory bodies review programs, assess their impact, and provide links with organizations outside the government. The Councils' memberships include prominent Canadians from industry, the universities, and the scientific community as well as the Department of the Environment.

Although Environment Canada cannot accomplish on its own all of the renewable resource and environmental tasks, it can accomplish some, influence others, and provide leadership.

Decision-makers everywhere need adequate knowledge and information in order to protect the environment and develop resource needs in harmony with it. There are many sources of information on the environment. The Department must identify knowledge gaps and seek to have these gaps filled in the most appropriate way and by the most appropriate agency. The key elements in this role are collecting data, taking surveys and inventories, making assessments, conducting research, monitoring, analyzing and predicting, together with providing advisory and consultative services, and exchanging information with other countries. For example,



A suitcase containing a portable computer terminal, weighing 22 pounds, is the latest thing in spill countermeasures devices. From any telephone, remote computers containing the Environmental Emergency Management systems can be reached.

the Atmospheric Environment Service in its provision of meteorological information and advisory services to the Canadian public, government departments, industry, and so on, has developed over the past century effective mechanisms for the gathering, storage, retrieval, dissemination, and international exchange of information on atmospheric conditions. This requires the use of complex computer systems.

Another activity is that of drafting requirements for maintaining and enhancing the quality and productivity of the environment under specific conditions. Guidelines are required for environmental impact assessments, environmental design, environmental quality objectives, codes and zones, quotas and other restrictions on the harvesting of fish and wildlife, for example.

Environment Canada also advises international and inter-governmental negotiators on environmental matters or, under appropriate conditions, acts as a negotiator, through working relations with External Affairs, the Privy Council Office and others. Environment Canada co-operates with the provinces in providing information that is basic to effective management of air, water, land, forest and wildlife resources. In all of these resources there is extensive provincial jurisdiction with significant transboundary effects. Environment Canada also implements plans of joint concern to the provinces and territories, and acts as an enforcement agency when required to implement regulations, such as those concerning petroleum refining, pollution control, fish inspection, or various conservation or protection measures.

In cases where provinces have the responsibility of enforcing standards, such as those for controlling effluents and emissions, Environment Canada looks to them to take the lead for both governments. The Department will also offer supporting services in such areas as monitoring and surveillance. But the federal government must act directly, where it has jurisdiction, if the provinces are unable to provide adequate protection, or fail to do so.

With experience, one can say with some confidence whether projects or products are well planned from a financial point of view. Environment Canada must be able to say whether they are well designed from an environmental point of view. Since April 1, 1974, federal activities have been screened in the early planning stage to make sure that they do the least possible damage to the environment. In future, all federal departments, agencies, and firms under federal jurisdiction will have to prepare statements on the impact of their plans on the environment. These will be reviewed by an Environmental Assessment Panel or by outside review boards that can call for changes in a project before large financial commitments are made or construction begins. The federal government must be exemplary in its own house-keeping.

More than 5,000 people visited the three-day international pollution control show held in Toronto recently, with displays from over 250 companies.



External Relations

The Department of External Affairs

Established in 1909 and headed by a minister styled Secretary of State for External Affairs, the Department of External Affairs has three main purposes: (1) to provide information and advice to the government on issues of foreign policy, (2) to foster understanding of Canada and its people by other governments and nations, and (3) to help Canadian travellers and foreign citizens abroad.

In December 1973, Canada had diplomatic, consular and/or trade representation in 134 countries. (The asterisk denotes non-resident representation and the country shown in parentheses is that in which the Canadian representative resides.)

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

Canada has permanent missions to the United Nations in New York and Geneva; the European Economic Community, the European Atomic Energy Community, and the European Coal and Steel Community in Brussels; the Organization for Economic Co-operation and Development, and the United Nations Educational, Scientific and Cultural Organization in Paris; the International Atomic Energy Agency, the United Nations Industrial Development Organization and the Mutual and Balanced Force Reduction Talks in Vienna; the North Atlantic Council in Brussels; the Conference of the Committee on Disarmament and the Conference on Security and Co-operation in Europe, Geneva; and the Organization of American States in Washington.

Federal-Provincial Aspects of Canada's International Relations

The Federal-Provincial Co-ordination Division of the Department of External Affairs serves to maintain close liaison with the provinces and to facilitate their international activities in a manner that meets provincial objectives while remaining consistent with a unified foreign policy for Canada.

Provincial participation at international conferences and in the work of international organizations on a wide range of subjects of interest to the provinces is assured by the inclusion of provincial officials on Canadian delegations and by the canvassing of provincial governments for their views on the positions and attitudes that the Canadian government might adopt on these subjects internationally.

The federal government, through the Department of External Affairs and its embassies and high commissions, assists provincial officials by making arrangements and appropriate appointments for provincial visits abroad and by co-ordinating visits of foreign dignitaries to the provinces.

During the negotiation of treaties, conventions, or other formal agreements between Canada and other countries, consultations take place between the federal government and the provinces if the terms of such agreements touch on provincial or joint federal-provincial fields of jurisdiction.

Canada and the United Nations

It is a fundamental element of Canadian foreign policy to continue actively to strengthen the United Nations as an effective instrument for international co-operation and, in particular, to improve its capacity to discharge its charter responsibilities. To this end eleven major policy objectives have been defined: (1) contributing to social and economic development; (2) working to stop the arms race; (3) promoting peace-keeping and peace-making through the United Nations; (4) reconciling Canadian objectives in southern Africa; (5) taking measures to prevent further deterioration in the human environment; (6) promoting international co-operation in the peaceful uses of satellite systems; (7) promoting international co-operation in the use of the seabed beyond the limits of national jurisdiction; (8) promoting observance of human rights, including adherence to and respect for various United Nations conventions; (9) contributing to the progressive development and codification of international law; (10) projecting Canada as a bilingual country within the United Nations context; and (11) contributing to the institu-



Flags of the United Nations.

tional development of the United Nations as a centre for harmonizing the actions of nations. Canada maintains permanent missions to the United Nations in New York and Geneva, and a Bureau of United Nations Affairs in Ottawa provides advice and co-ordinates the implementation of Canadian policy towards the UN.

Canada participates in all of the specialized agencies of the UN, one of which is located in Canada, the International Civil Aviation Organization (ICAO) in Montreal. Canada is the eighth highest contributor to the regular budget of the UN. Since 1946 Canada has contributed over \$500 million to activities of the United Nations' family of organizations.

Canada and the United States

It is doubtful that any two countries in the world are as closely and intimately related as are Canada and the United States; for Canada the relationship is clearly its most important. Canadians and Americans are constantly involved in exchanges at all levels, as tourists, heads of government, businessmen, artists, officials, and students. In the course of such a varied and complex relationship differences and frictions can and do occur from time to time. However, the basic character of the relationship between the two peoples and governments is very much one of friendship and of constant effort at mutual understanding and co-operation.

While the two governments conduct most of their everyday business through official channels, they have also established over the years a number of permanent bilateral organizations, such as the International Joint Commission. The IJC has come to be the focus of joint endeavours to deal with pollution and problems of the environment along the Canada-United States border. There are similar permanent organizations in other areas such as defence co-operation (the Permanent Joint Board of Defence). Canadian and American legislators meet every year in the

Canada-United States Inter-Parliamentary Group to discuss matters of common concern.

The two countries are each other's best customer. Canadian exports to the United States account for about 70 per cent of Canada's total exports, and the exports of the United States to Canada approximately 21 per cent of their total. There is also great interdependence in the financial field with large American investments in Canada and substantial Canadian investments in the United States.

Finally, there is a continual intermingling of Canadians and Americans across the shared border: there were 37.2 million visits by Americans to Canada in 1973 and 30.8 million visits by Canadians to the United States.

Canada and the Commonwealth

An active member of the Commonwealth since its inception, Canada has contributed significantly to the evolution of the association and to successive changes in its outlook. Initially made up of 5 members, the Commonwealth is now composed of 33 sovereign states. Nauru, fully independent since 1968, enjoys a special membership which entitles it to all the advantages of membership except attendance at Heads of Government meetings. The two most recent members of the Commonwealth are the Bahamas and Grenada, which became members upon attaining independence on July 10, 1973, and February 1, 1974, respectively. Commonwealth countries cover about one quarter of the world's land surface, and incorporate approximately one quarter of its population embracing a variety of races, creeds, and languages. These include both economically developed and developing countries; the different member governments participate independently in a variety of international organizations in which not all are members, and the Commonwealth as a whole benefits from this participation.

Canada views the Commonwealth as a unique and extensive association linking nations of six continents and five oceans which share, to a surprisingly high degree, similar attitudes and institutions, like political and social values, a similar political and historical experience, and a common language. Because of this, the association is unusually well qualified to enable its members to co-operate and consult together in the common interests of their peoples, and the promotion of greater international understanding. In a world increasingly polarized between developed and developing nations, or along racial lines, or tending to view regional or continental associations as agents for change or the resolution of problems, the Commonwealth serves to bring a multilateral, multiracial perspective to bear on many major international issues. The shared values and traditions derived from historical experience permit an informality in encounters between Commonwealth leaders and officials which gives the association its particular character. Relations between member countries are motivated by a spirit of kinship and understanding, and are characterized by the desire to consult and co-operate wherever possible in the interests of political, economic, and social development. In each instance this activity is undertaken in a purely voluntary manner. Canada has hosted many important Commonwealth meetings, among them the Commonwealth Heads of Government Meeting in 1973 and the Commonwealth Finance Ministers Meeting in 1974.

Commonwealth developing countries continue to receive considerable Canadian

assistance bilaterally under the Colombo Plan, launched in 1960 and now including non-Commonwealth countries; the Special Commonwealth Africa Assistance Plan (SCAAP); and the Canadian Program for Commonwealth Caribbean assistance. In 1973-74, over \$200 million was allocated to Commonwealth countries bilaterally, \$131 million in Asia, \$62 million in Africa, and \$15 million in the Caribbean. Over 600 teachers and advisers were provided and 1,279 students and trainees studied in Canada during this time. Canada's total aid allocation to Commonwealth countries for 1974-75 amounted to over \$300 million. In addition to this, Canada contributes to the Commonwealth Scholarship and Fellowship Plan and to the Special Commonwealth Program for Rhodesians, the latter administered through the Commonwealth Fund for Technical Co-operation. In 1973, 283 students were studying in Canada under the Commonwealth Scholarship and Fellowship Plan. During fiscal year 1973-74, Canada contributed approximately \$4,750,000 to various Commonwealth institutions and programs including the Commonwealth Foundation, the Commonwealth Fund for Technical Co-operation, and the Commonwealth Youth Program.

Canada has contributed \$21 million in development loans to the hydro-electric project in Kerala, India, which will create one of the world's largest man-made reservoirs.



Relations with the Commonwealth Caribbean

The present relationship between Canada and the Commonwealth Caribbean is the result of a logical progression from the historical ties existing between the two areas. Trading relations over several centuries have been close, and have been supplemented by considerable Canadian commercial interests and investment in the area. Canada's common association in the Commonwealth has also contributed to understanding through mutually shared traditions, institutions, and values, resulting in increased communication between the two areas. In the past few years, this communication has been emphasized through the large movement of tourists, students, businessmen, and immigrants between the West Indies and Canada.

The current phase of Canadian relations with the Commonwealth Caribbean dates from the Commonwealth/Canada Conference held in Ottawa in July 1966, which established a broad framework on which relations between the two areas could develop. Considerable progress has been made in realizing the recommendations agreed to at the conference. As part of the continuing process of consultation and review of relations, a special Canadian Mission to the Commonwealth Caribbean in the fall of 1970 visited 13 countries and territories. Specific discussions on a wide range of matters of bilateral interest were held during the visit.

By the end of 1973, Canadian investment in the region was estimated at over \$500 million. In the same year, Canadian imports from the region totalled \$69,995,000 while exports were valued at \$128,909,000. Canadian bilateral development assistance to the Caribbean began in 1958, and has averaged approximately \$20 million a year in loan and grant funds in recent years. It has been concentrated in the sectors of education, air transport, water supply, and agriculture. Funds have also been made available multilaterally through various organizations including the United Nations and the Caribbean Development Bank.

More than 3,000 Canadians live in the region and over 200,000 visit the islands annually. During 1973, some 21,900 West Indians immigrated to Canada. There are Canadian High Commissions in Jamaica, Trinidad and Tobago, Guyana, and Barbados, and these four countries maintain High Commissions in Ottawa. There is also a Commissioner for the Eastern Caribbean in Montreal who represents the five West Indies Associated States (Antigua, Dominica, St. Kitts-Nevis-Anguilla, St. Lucia, and St. Vincent), as well as Montserrat, and Grenada.

Canada and Europe

While Canadian interest in most areas of the globe is increasing, Canada's relations with Europe remain of special importance. They are deeply rooted in Canada's origins, springing from the common cultural heritage that is shared with Britain and France and also reflecting the ties with other European countries from which Canada's population is derived. These relations contribute to the richness of Canada's national life and to the diversity of its links with the outside world. They have been strengthened by Canada's substantial participation, on European soil, in two World Wars and by Canada's continuing stake in European security in the interests of international peace. In addition, Canada in July 1972, became a full member of the Economic Commission for Europe of the United Nations.



Prime Minister Trudeau and President Giscard d'Estaing of France.

Canada's traditionally close bilateral relations with Britain and France are of particular importance, since Britain's accession to the Common Market has broad implications for Canada, and since there is increasing interest by many Canadians in our French heritage. Britain and several other western European countries have been among Canada's major partners in external trade and have been its chief source of immigrants. Western Europe is assuming increasing economic and political importance for Canada in the context of the Canadian government policy of diversification of its external economic relations.

Canada has a substantial interest in developing its relations with the Communist countries of Eastern Europe. This derives both from the benefits of increased trade, scientific and technological co-operation, and cultural exchanges, and from the benefits of strengthening *détente* in Europe. The Conference on Security and Co-operation in Europe which opened in Helsinki in July 1973 and in which Canada has taken an active part, should be an important step in relaxing tensions through increased exchanges and contacts.

A new era in Canadian-Soviet relations, based on a more candid and friendly atmosphere and on the principle of mutual benefit, was opened in 1971 with the Protocol on Consultations, the Agreement on Co-operation in the Industrial Application of Science and Technology, and the General Exchanges Agreement, which provide for regular and long-term co-operation between Canada and the USSR. At the same time, Canada has been pursuing improved and mutually beneficial relations with the other Eastern European countries. At present, Canada has resident diplomatic missions in Moscow, Prague, Warsaw, Belgrade, and Budapest and maintains diplomatic relations with Romania and Bulgaria through non-resident ambassadors.

Canada and the Middle East

The renewal of full-scale hostilities in the Middle East in October 1973 brought to an end the uneasy truce which had prevailed in that region since 1967. The Secretary of State for External Affairs held out the possibility that Canada was prepared to participate in a new United Nations peacekeeping effort if it would open the way for a negotiated settlement on the basis of United Nations Security Council Resolution 242. On October 22, the Security Council approved Resolution 338 co-sponsored by the USA and the USSR, calling for a ceasefire and the commencement of negotiations leading to a just and lasting settlement. Then, on October 25, the Security Council authorized the formation of a UN peacekeeping force. The Canadian Parliament subsequently approved the Secretary-General's request that Canada provide the logistic component of the force. More than 1,000 Canadians took up duties along the ceasefire line between Egyptian and Israeli forces, and, subsequently, in the disengagement zone negotiated between the two countries. Following the disengagement on the Syrian - Israeli front some 150 of these troops were reassigned to the United Nations Disengagement Observer Force stationed on the Golan Heights.

Prior to the war, Canada had actively campaigned to increase her representation in the Middle East. Diplomatic relations were opened with Saudi Arabia in May 1973. It was also decided to establish full diplomatic relations with the countries of the Persian Gulf, and with the Yemen Arab Republic and the People's Democratic Republic of Yemen. Canada now has diplomatic relations with every Middle Eastern country. On December 21, 1973, this policy of strengthening representation was furthered when the decision to open an embassy in Saudi Arabia was announced.

Both Canadian exports to most Middle East countries and imports from them rose significantly during 1973 and the first half of 1974 and prospects are excellent for continued rapid growth in the future. A Canadian trade delegation led by the Minister of Industry, Trade and Commerce visited Lebanon, Saudi Arabia, Iraq, and Iran in the spring of 1974. The Minister of Energy, Mines and Resources also visited the region early in 1974.

In August 1974, His Royal Highness King Hussein of Jordan visited Canada and held talks with the Prime Minister and the Secretary of State for External Affairs.

In the absence of a solution to the Palestinian problem Canada continued to give substantial support to the work of the United Nations Relief and Works Agency. The Canadian contribution was increased by \$500,000 in 1973, bringing our total annual contribution to \$2.05 million and making Canada the third largest contributor to the organization since its inception.

Canada and Africa

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

Direct relations were first established with former British colonies as they became independent within the Commonwealth. Increasing contacts and diplomatic relations with the newly-independent French-speaking African states soon followed as a result of the increasing emphasis that the Canadian government placed on French culture in this country as well as the important role played by francophone African countries in their continental affairs. Canada now has diplomatic relations with almost all the independent African states and there are resident Canadian missions in 15 countries on that continent. The development of bilateral diplomatic and commercial relations has been accompanied by a significant and growing program of Canadian aid to Africa. This program, with its English and French components, directed more than \$113 million of aid funds to the African continent in 1972-73 and \$131 million in 1973-74.

Canada and the French-Speaking Community

The federal government, anxious to demonstrate the different aspects of Canadian society and to extend Canadian bilingualism internationally, fosters the broadening and strengthening of the ties with Francophonie, or countries that are entirely or partially French-speaking. In the last few years, traditional relations with the French-speaking countries of Europe have been considerably expanded and diversified, particularly in the scientific and technological fields. These relations have been complemented by the establishment of many ties with the French-speaking countries of the Third World. In addition to development aid, which remains the principal focus, there is a gradual growth of cultural and economic exchange.

Canada also plays a very important role within multilateral organizations such as the Agency for Cultural and Technical Co-operation, of which it is a founding member. In conjunction with the Quebec government, the First International Francophone Youth Festival, sponsored by the Agency, was held in Quebec City in August 1974. Canada is also a member of the Conference of Ministers of Education and the Conference of Youth and Sports Ministers of francophone countries; their annual meeting was held in 1974 in Montebello, Que.

The federal government is not alone in its efforts to draw francophone countries closer together. On the bilateral level, the provinces are invited to take part in the work of joint commissions and in the implementation of Canadian government aid programs. On the multilateral level, in addition to participation by New Brunswick, Ontario, and Manitoba in some of the activities of the Agency for Cultural and Technical Co-operation, the federal government and the Quebec government have agreed on an arrangement under which the latter was admitted as a participant in the Agency's institutions, activities, and programs.

Canada and Latin America

Canada maintains diplomatic relations with all the Latin American countries through 13 resident missions and through dual or multiple accreditations from these missions. As envisaged in the foreign policy paper on Latin America, published in 1970, progress has been made in the development and the intensification of relations with these countries and with inter-American institutions.

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

The most significant Canadian commitment to the development of this region was Canada's accession to full membership in the Inter-American Development Bank (IDB) in 1972. Canada has contributed \$100 million (US) payable over an initial period of three years. Prior to Canadian membership IDB had administered Canadian loans totalling \$74 million for Latin American development over a period of eight years.

Bilateral relations were also intensified with countries in the area. Although introduced only recently, the Canadian program of bilateral development assistance to Latin American countries increased to \$12.72 million in 1973-74 with \$20 million earmarked for 1974-75. Those countries that most need and can most effectively use Canadian technical assistance are receiving a major part of available resources through sustained programs. Other countries in the region are eligible to receive assistance *ad hoc* and project by project; in 1972 both Cuba and Haiti were included in this group. In order to concentrate Canadian assistance within those sectors where Canadian technical expertise is most applicable to the needs of the region, emphasis has been given to projects in education, agriculture, fisheries, forestry, and public administration. Canadian aid funds are also available through non-governmental organizations in Canada that are engaged in developmental and humanitarian work in the poorer countries of Latin America, and through disaster-relief organizations.

Bilateral relations with Latin American countries have broadened in a number of other ways. In the spring of 1973, the President of Mexico and Mrs. Echeverria visited Canada and agreements on an exchange of young technicians and on consular assistance were signed. Trade with and investment in Brazil continue to expand, and activities in the areas of information, culture, and technical assistance are increasing steadily. There were ministerial visits in 1973 to Venezuela, which is of growing importance as a supplier of oil to Canada. Following the *coup d'état* in Chile, special provisions were made to set up an immigration program for refugees and others affected by the events. Closer consultation and liaison with Latin American countries have been cultivated on a widening range of questions of mutual interest such as the law of the sea, environmental improvement, narcotics control, anti-hijacking measures, emergency relief, and disarmament.

During 1973 Canada's trade and economic relations with Latin American countries expanded. Available statistics show an increase in Canadian exports to \$681 million and imports to \$889 million from their 1972 levels of \$629 million and \$661 million respectively. In value terms this represents an increase of 8.4 per cent in Canada's exports and 34.4 per cent in imports. Approximately three quarters of

Canada's exports to Latin America consisted of semi-manufactured and fully manufactured goods. The bulk of Canadian imports from this area consisted of crude or raw materials, in particular oil from Venezuela. The use of long-term financial facilities, extended by the Export Development Corporation, has promoted Canadian exports to Latin America and indirectly assisted Latin American economic development.

Asia and the Pacific

For many years Canada has had important links, both official and private, with a number of countries in Asia. During the past decade Canadians have become increasingly aware of their position as a Pacific as well as an Atlantic nation. With the development of modern transportation and communications, the Pacific Ocean has ceased to be a barrier and, because of the expanding interest in Asia and its importance, contacts between Canadians and the peoples of Asia and the Pacific are growing rapidly in number and variety. From mid-1974 Canada had diplomatic relations with 24 countries in the Asian and Pacific region and has resident diplomatic missions in 15 countries.

Although some of these contacts have developed as a result of historic and traditional ties, as in the case of Australia and New Zealand, many new contacts have been economic in character: trade has increased and assistance for development has been provided. The importance of Asia as a trading area is evident from the emergence of Japan by 1973 as Canada's second largest bilateral trading partner, ahead of Britain and after the United States, with trade in 1973 amounting to more than \$2,800 million. The potential for further trade in the Asian and Pacific region has also been demonstrated by trade fairs in the People's Republic of China (the most recent being a solo electronics fair in Shanghai in 1974), by the conclusion of a trade agreement with that country in October 1973, by agreements on bilateral trading preferences with New Zealand and with Australia in 1973, and through economic consultations held with India in November 1973, which grew out of Prime Minister Gandhi's visit to Canada in June of that year. A growing number of Canadian trade missions, both official and private, are also visiting the area.

Canada's relations with the countries of Asia and the Pacific continue to broaden and to deepen, as part of Canada's general policy of diversification of its international relationships. This is reflected in the growing number of meetings between Canadian ministers and officials and their counterparts in the Far East. Regional co-operation and development are fundamental to future growth and stability. Canada's interest in these objectives is promoted through participation in the Colombo Plan, membership in the Asian Development Bank, and Canada's official observer status with the United Nations Economic Commission for Asia and the Pacific. A significant proportion of Canada's total development assistance continues to be provided to the developing countries of the region, among which India has always been the largest recipient. However this long-standing relationship was severely strained by India's nuclear explosion in May 1974.

For more than a quarter-century parts of Asia have been a focus of tension and conflict. Canada has participated in various United Nations efforts to restore or maintain peace in Asia and has participated in the United Nations operations in



Chou En Lai and Prime Minister Trudeau at the conference table during a visit to China.

South Asia, in Korea, and in Indonesia. In 1954, Canada became a member of the International Commissions for Supervision and Control (ICSC) in Cambodia, Laos, and Viet-Nam. This role ceased at the end of 1969 in Cambodia with the adjournment *sine die* of the Cambodia Commission, and in Viet-Nam with the adjournment *sine die* of the Viet-Nam ICSC in early 1973 followed by Canada's withdrawal, after six months' participation, from the present International Commission of Control and Supervision in Viet-Nam on July 31, 1973. In Laos, it ended for all practical purposes in the wake of a new agreement in that country, with the withdrawal from Vientiane on June 15, 1974 of the Canadian Delegation to the Laos ICSC which was established by the Geneva agreement of 1962. Canada, however, despite its disengagement from truce supervisory roles in Indochina, continues to take an active interest in the area and pursues that interest in particular through its readiness to contribute to the economic rehabilitation of Indochina when peace comes to the area, and through its development of diplomatic contacts with the countries of the area.

Arms Control and Disarmament

Canada's concern for international arms control and disarmament negotiations is reflected in her active participation in the Conference of the Committee on Disarmament (CCD) since its inception, as well as in disarmament discussions in the United Nations. On May 17, 1972, Canada ratified a treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the seabed. This treaty entered into force the next day. On April 10, 1972, Canada

signed the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxic Weapons and on their Destruction and later, on September 18, 1972, became the fifth state to ratify the treaty. Canada's ultimate objective in disarmament negotiations in the CCD, the United Nations and elsewhere remains the achievement of general and complete disarmament under effective international control.

Canada is also participating in the Conference on the Mutual Reduction of Forces and Armaments and Associated Measures in Central Europe which opened officially in Vienna on October 30, 1973. The other participants are the United States, Britain, the Federal Republic of Germany, Belgium, the Netherlands and Luxembourg, the Soviet Union, Poland, Czechoslovakia, and the German Democratic Republic.

Foreign Policy and Defence

In consonance with basic foreign policy objectives, Canada's defence policy is designed to assure the protection of Canadian sovereignty and to contribute to the maintenance of world peace through adherence to the concept of collective security. Canada participates in the area of collective security through arrangements with other states that share such fundamental democratic ideals as liberty of the individual, tolerance of diversities, and maintenance of democratic political institutions.

Canada continues to be a member of the North Atlantic Treaty Organization (NATO) along with the United States and a number of Western European countries. The stabilizing influence of NATO has helped to reduce the likelihood of a general conflict originating in Europe. Canada also attaches importance to NATO's role in fostering east-west détente especially in moving from confrontation to negotiation through a number of important east-west conferences currently under way (the Mutual and Balanced Force Reductions talks and the Conference on Security and Co-operation in Europe) and through NATO's non-military activities such as the Committee on the Challenges of Modern Society and the NATO Science Committee. Such NATO structures provide Canada with a useful means of continuing consultation and joint action not only in the military and political fields but also in the economic, social, and environmental spheres.

Canada co-operates with the United States in the defence of North America through NATO and the North American Air Defence Command (NORAD). Canada considers that co-operation with the United States in the joint defence of North America is vital for sovereignty and security. The Permanent Joint Board on Defence (PJBD) is a principal consultative mechanism for Canada-U.S. co-operation in defence questions.

As a responsible member of the international community, Canada's policy continues to be the serious consideration of requests for participation in peacekeeping ventures when an operation is seen to hold the promise of contributing to peace and stability. Thus Canada participates in a number of United Nations peacekeeping operations such as the United Nations Emergency Force (UNEF) in the Middle East, the United Nations Force in Cyprus (UNFICYP), and a number of other peacekeeping bodies.

Canadian International Development Agency (CIDA)

Although Europe and the Middle East received Canadian relief assistance after the Second World War, Canada's involvement in international development assistance really began in 1951 when the country became a founding member of the Colombo Plan. The plan was established to help the newly independent states of South and Southeast Asia, and this is still one of the major areas where foreign aid is concentrated. Canada's allocation over the past 23 years has totalled more than \$2,306 million.

In the past 13 years, the flow of Canadian resources has broadened to include both technical and capital assistance to some 70 countries in Asia, Africa, Latin America, and the Commonwealth Caribbean. Canada's allocations for international development have increased more than eightfold from \$64.4 million in the 1963-64 fiscal year to \$565 million for 1973-74, not counting loans made by the Export Development Corporation to help developing countries purchase equipment from Canadian companies.

During 1969, CIDA undertook a comprehensive review of Canada's policies in the

Malaysian school child. CIDA's program of development assistance to Malaysia has concentrated in the education, communications, power and natural resources sectors.



field of assistance to international development as part of an over-all review of Canadian foreign policy. Following the findings of this review, the Government of Canada confirmed its commitment to the support of international development.

About 26 per cent of Canadian assistance is multilateral. Funds are given or loaned to support the development projects of such international agencies as the United Nations, the World Bank, the International Development Association, and regional development banks.

Canadian bilateral aid is extended mainly in the form of goods and services. The principal recipients are: India, Bangladesh, Sri Lanka, Malaysia, Indonesia, Nigeria, Ghana, Tanzania, Francophone Africa, Latin America, and the Commonwealth Caribbean. Various kinds of assistance are provided under Canada's bilateral aid program, including capital projects such as the construction of schools, dams, roads, and transmission lines. Commodity aid is given in the form of food, fertilizers, equipment, and raw materials for industry. Technical and educational assistance is also provided. Under the latter program, Canada sent 293 advisers and 561 educators to developing countries as of January 1974 and provided training in Canada for 1,567 students and trainees from these areas.

As a result of the 1969 foreign policy review, the bilateral assistance programs to Latin America and Francophone Africa grew rapidly. For Latin America, disbursements rose from \$3.98 million in 1969-70 to \$13.07 million in 1972-73. Canada also joined the Pan-American Health Organization and became a full member of the Inter-American Development Bank, agreeing to subscribe US \$40 million to the Bank's capital stock and US \$60 million to its special operations fund over a three-year period. Amongst the Francophone African nations are some of the least developed countries of the world. In recognition of this, CIDA has increased both the scope and the coverage of its program from \$21.66 million in 1969-70 to \$59.08 million in 1972-73. The sub-Saharan or Sahelian Zone of Francophone Africa has had a severe drought during the last five years. In order to help alleviate the resultant famine CIDA in 1973 contributed some \$10 million in food, cash, air transportation, and other goods and emergency services to the six countries concerned.

As well as working in multilateral and bilateral areas, CIDA is also involved with non-governmental aid organizations and business and industry. In the 1968-69 fiscal year, \$5 million was allocated to help voluntary and non-governmental agencies increase their contribution to international development. This figure rose to \$16 million in 1973-74. It has been estimated that the total value of private assistance to developing nations from Canadian organizations is about \$50 million annually. Many of these agencies were pioneers in the development field and are operating successful programs that can be expanded and strengthened with the support that CIDA offers them.

CIDA has become involved in helping the private sector of developing countries' economies and expanding suitable Canadian overseas enterprises, resulting in the transfer of business knowledge and investment funds to these nations. In this endeavour, CIDA works closely with Canadian business, the Department of Industry, Trade and Commerce, international finance corporations, development banks, and overseas corporations to identify and help finance worthwhile investment opportunities in all types of secondary industry in the developing world.

Canadian Executive Service Overseas (CESO)

CESO was incorporated under the auspices of the Canadian International Development Agency late in 1967. It brought together a group of Canadians prominent in industry and the professions who recognized the need for counselling and guidance in the developing nations overseas where some two thirds of the population of the world urgently need a happier future. CIDA, whose major emphasis must be on government-to-government activity, was and is aware of the importance of making specialized skills available with a minimum of formality to private and governmental enterprises and agencies in developing nations.

It all came together in the mandate to CESO. That mandate is to find volunteers who will serve overseas as consultants for not more than six months at no fee or salary. CESO to pay transportation costs, including those of spouses when projects will take more than two months. Living costs abroad are borne by the organizations using the volunteer. Thus no one gets anything for nothing, one of CESO's key aims. There are two others: one is to help people to help themselves, so that benefits will accrue far beyond the period of the visit of the Canadian specialist. The third fundamental aim is to continue using only volunteers: Canadian specialists volunteer their services after which they may accept or reject any specific assignment. Similarly, the overseas organizations must first invite CESO's participation in its affairs and then it may accept or reject volunteers nominated by CESO.

There is much evidence that the plan is fulfilling its purpose. Nearly a thousand Canadians, most of them accompanied by their spouses, have served or are now

A CESO volunteer consultant advising a ceramics products firm in Brazil on improving the quality of production.



serving as CESO volunteers overseas in 46 countries. Each year the number of projects undertaken increases—two years ago it was 181 and last year 209. All CESO volunteers necessarily become part of the community in which they work, their lives intermingling with those of workers and their supervisors in social and economic environments that are rich in interest, challenge, and opportunity for service. Often their assignments are in places far off the tourist track where little is known of Canada. These are reasons the personal as well as the professional qualities of volunteers are so important and are so carefully assessed. When the volunteers succeed as most of them do, CESO, on behalf of Canada, weaves threads of friendship and shared skills into the web of international relations.

Canadian University Service Overseas (CUSO)

CUSO began in 1961 with 17 volunteers in 7 occupations going out to 4 developing nations in Asia and Africa. The volunteers' job was to fill manpower gaps in trades and professions until local people could be trained to take their places. From those 17 university graduates, CUSO has grown until in 1974 there were about 1,000 volunteers in 70 categories, serving in 44 nations from Jamaica to Tonga.

Most of them are still university graduates, but not all. A growing number of

A CUSO industrial arts teacher in a woodwork shop in Antigua.



requests are for technical people, skilled tradesmen, and farmers with a solid background of both training and practical experience. The ages of the volunteers range from 22 to 79, with the average around 25 but a growing number are in the 40 to 60 bracket. Two things have not changed: the relationship between CUSO and the host nation is still dictated by the plans and priorities of the country concerned and volunteers are paid by their hosts at the going local rate.

In the past years, CUSO has broadened its terms of reference to embrace projects in co-operation with the host nations. A volunteer assigned as production manager in a Bangladesh factory proposes capital expenditure to replace tools and spare parts taken by looters or destroyed in the war. A physiotherapist sees the need for a playground for handicapped children in her area, and asks CUSO for help to build and equip it. A clinic owner realizes that education of mothers in basic hygiene and nutrition would go a long way towards reducing the local infant mortality rate of 55 per cent; CUSO commits itself to raising the funds to build a nutrition centre. The projects are based on the same premise as the rest of CUSO's operation: projects are undertaken according to the priorities of the host nation and with their co-operation at every level from the government ministry involved right down to the individual villager making bricks.

CUSO is an independent non-profit organization with direct and indirect financial support coming from four sources. A grant from the Canadian International Development Agency (CIDA) provides 52 per cent of the funds needed; employers in the host country add 36 per cent in salaries and benefits to CUSO volunteers; and 12 per cent comes from the private sector in the form of participation in the sponsorship program and involvement in the Miles for Millions marches. Indirect support conservatively valued at over \$500,000 annually comes from many sources. The mass media carry recruitment advertising at no charge. Pharmaceutical companies provide free medical kits, universities and colleges provide office space, equipment, and staff for local recruitment and selection committees. In Ottawa, low-cost access to the facilities of the Association of Universities and Colleges of Canada helps keep administrative costs down.

International Development Research Centre

The IDRC was created by an Act of the Canadian Parliament in 1970 when the need was recognized for a donor agency that had more flexibility than a government department to support research into the problems of developing countries. The objective of the Centre has been to promote the economic and social development of those regions—and, in particular, the well-being of their rural peoples—by research designed to adapt scientific and technical knowledge to their specific requirements.

This research is being done almost entirely by scientists and technologists from the countries and regions involved, in accordance with their own priorities. The role of the Centre's senior staff is to help refine research proposals, recommend projects for funding, monitor their progress, and disseminate the results as widely as possible. The provision of funds for researchers in developing countries to direct their own studies and learn how to solve their own problems is possible only because IDRC, unlike government agencies, is able to offer "untied aid."



Entomologists are studying the environment of the African blackfly with one sponsoring the research, to find a way of controlling the blackfly biologically.

Research programs

Within a general concern for the advancement of rural peoples, there is a focus on research in four areas: Agriculture, Food and Nutrition Sciences; Information Sciences; Population and Health Sciences; and Social Sciences and Human Resources, of which the following are examples:

1. A network of plant breeding programs to introduce improved varieties of sorghum and millet in semi-arid areas in Senegal, Ethiopia, Tanzania, and India, and to grow these staple foods inter-cropped with various kinds of beans and peas.
2. The gathering of all relevant literature on cassava (or manioc) into a cassava information centre in Colombia which can serve research and field workers in all continents.
3. A pilot scheme in southern Iran, to train a health worker in each village to deliver simple but rapid medical care and to teach preventive hygiene.
4. A study of the role of hawkers and vendors in the marketing of agricultural products in six cities in Asia, in order to recommend to municipal authorities policies to improve their role in the community.

Proposals are judged on such factors as whether they fit into the priorities of developing countries; whether they are likely to have useful application beyond the country involved; whether the research will help close gaps in living standards inside these countries; whether they will make full use of local resources and

people; and whether they will leave behind investments in better trained or more experienced researchers.

The Centre is a public corporation with an international Board of Governors and an international staff. The Chairman, Vice-Chairman, and 9 others of the 21 Governors must be Canadian citizens, but the Board in 1974-75 also had members from Ethiopia, Zaïre, India, Indonesia, Brazil, and Jamaica, as well as from Britain, France, the United States, and Australia. The Chairman was Louis Rasminsky and the President W. David Hopper. Three IDRC regional offices have been set up in Singapore, Bogota, and Dakar.

Financing has so far come entirely from the Canadian government in the form of annual grants. In 1973-74 the grant was \$14 million and this is expected to rise in future years to approximately 5 per cent of Canada's foreign aid budget. As at December 31, 1973, IDRC had approved a total of 190 projects, involving 142 recipients in 75 countries, to an amount of \$23.2 million.

National Defence

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

Canada's military role in North American defence includes contributing to the stability of deterrence by assisting the United States in operating a comprehensive system of warning and providing some active defence against any potentially hostile air, sea, or land forces within the North American area. The Canadian government has decided that to the greatest extent feasible defence activities on Canadian territory will, in normal peacetime circumstances, be carried out by members of the Canadian Armed Forces. During periods of international crisis, however, special arrangements are required to increase the protection of North America and to contribute to the maintenance of stable mutual deterrence. There are, therefore, a number of bilateral Canadian-American defence agreements that specify the terms and conditions of joint co-operative defence arrangements for Canadian territory, airspace, and waters.

The control and management of all matters relating to National Defence, the Canadian Armed Forces, the Defence Research Board, and Defence Construction (1951) Ltd., are the responsibility of the Minister of National Defence. Until October 1973, he was also responsible for the Canadian Emergency Measures Organization which, effective 1 April 1974, was renamed the "National Emergency Planning Establishment" and given wider responsibilities for the co-ordination of civil emergency planning. This new organization will remain, for administrative purposes, within the department but will report to the Privy Council Office. However, the Minister of National Defence will continue to be responsible for certain civil emergency powers, duties, and functions.



Finnish and Canadian members of the United Nations Emergency Force military police at a United Nations post on the Suez Canal.

The manning level of the forces has been progressively reduced over the past eight years. In 1964 the total strength was approximately 120,000; by late 1973 it approximated 82,000, and it is planned to stabilize the total strength at around this figure. In 1973 the defence budget was \$2,156 million.

Canadian forces allocated to support NATO in Europe are under the jurisdiction of Canadian Forces Europe. These forces, located in the Black Forest region of southern Germany at Lahr and Baden-Soellingen, consist of a land force—4th Canadian Mechanized Brigade Group—and an air force—1st Canadian Air Group. The two forces come under the command and control of a single Commander of the Canadian Forces (Europe). The air group consists of three conventional attack squadrons of CF-104 aircraft.

An important aspect of Canada's defence and foreign policy is the support of peacekeeping and truce supervisory operations, particularly those conducted under the auspices of the United Nations.

Canada's largest peacekeeping commitment in 1974 was in the Middle East where approximately 1,100 Canadian Forces personnel were serving with the United Nations Emergency Force.

For six months in 1973, Canada contributed a contingent of about 250 military personnel to the International Commission of Control and Supervision in Viet-Nam. The Canadian contingent observed and reported on the implementation of a cease-fire agreement.

Since March of 1964, a contingent of Canadian Forces personnel has been serving with the United Nations Force in Cyprus. It was dispatched to Cyprus as a result of inter-communal strife there.

Since the success of these operations may depend on the speed with which such missions can be established on the ground, the Canadian Forces maintain a number of individuals on standby to ensure a quick response.

Health Care

Health-service administration is primarily under provincial jurisdiction, but municipalities often exercise considerable delegated authority. The federal government has jurisdiction over a number of health matters of national scope and provides important financial assistance to provincial health programs. The Department of National Health and Welfare includes five health branches: Health Protection, Health Programs, Medical Services, Fitness and Amateur Sport, and Long-Range Health Planning. The Medical Research Council also reports to Parliament through the Minister of National Health and Welfare. Statistics Canada, the Department of Veterans Affairs, and the Canada Department of Agriculture also carry out specialized health functions.

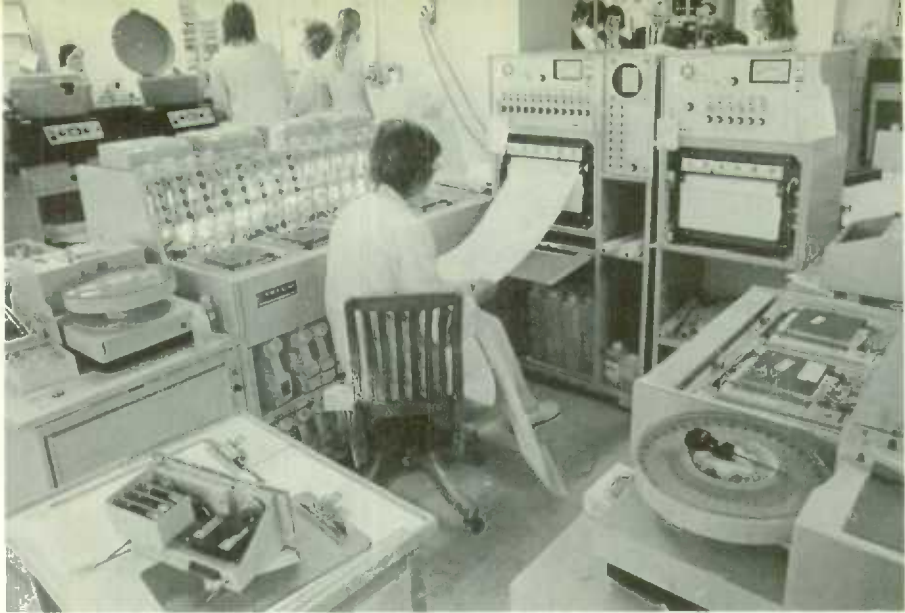
Each province assigns health to one department, although some combine health and social services within the same department. In some provinces, health insurance plans and some health programs are administered by semi-autonomous commissions. In every province, the health department provides care for tuberculosis and mental illness, and increasingly it is directing attention to prevention. Programs related to cancer, alcoholism and drug addiction, venereal diseases, and dental conditions have been developed, often in co-operation with voluntary associations. Other provincial programs assist specific groups, such as mothers and children, the aged, the needy, and those requiring rehabilitation care. Environmental health responsibilities are frequently shared between health departments and other agencies. Public health and community health units, generally decentralized, provide health education, school health, and organized home-care. Several provinces have inaugurated district and regional health-service co-ordinating boards.

Insured Services

Public Medical Care

Under the Medical Care Act, which began to operate in 1968, the federal government contributes to each participating province half the national per capita cost of insured medical services for each insured person in that province. All provinces and territories have entered the program; the federal contribution amounted to \$631 million in the fiscal year 1972-73. The provincial plans must cover all medically required services rendered by a physician, be available to all eligible residents on equal terms and conditions and actually cover at least 95 per cent of them, provide coverage between provinces and be administered by a non-profit authority. By early 1972 almost the entire population was insured for all medically-required services of physicians. Several methods are used by the provinces to finance their share of the cost. Premiums are levied in Ontario, Alberta, British Columbia, and the Yukon.

Patients have the right to the physician of their choice and physicians, the right to choose patients. In all provinces the characteristic mode of paying privately-practising physicians is a fee for each insured service rendered. Some provincial plans insure residents for benefits not eligible for cost-sharing by the federal government, such as the services of optometrists, chiropractors, podiatrists (chiroprodists), osteopaths, and naturopaths.



A \$240,000 Berkley Scientific Laboratory Clindata 400 series computer, the largest of its kind in North America and the only such system in Canada, is in operation at the University Hospital in Edmonton, Alta.

Hospital and Institutional Care

Provincial hospital insurance programs cover 99 per cent of the population of Canada under the Hospital Insurance and Diagnostic Services Act of 1957, by which the federal government meets about half the cost of providing specified hospital services other than in tuberculosis or mental hospitals or institutions providing custodial care. The insured in-patient services must include accommodation, meals, the necessary nursing service, diagnostic procedures, pharmaceuticals, the use of operating rooms, case rooms, anaesthesia facilities, and, if available, radiotherapy and physiotherapy. Similar out-patient services may be included; all provinces include some. Federal payments to the provinces (including Quebec, where the federal contribution is made through tax abatement) under this program for 1972-73 amounted to \$1,355 million.

Hospital insurance plans, begun in Newfoundland, Saskatchewan, Alberta, and British Columbia before the proclamation of the Hospital Insurance and Diagnostic Services Act in 1957, covered all of Canada by 1961. In most provinces coverage is automatic for all residents. Some plans insure services the costs of which are not shared under the federal Act, such as care in psychiatric hospitals and in nursing homes, ambulance service, physiotherapy and occupational and speech therapy in non-hospital facilities, and care in senior citizens' lodges or hostels.

Provinces finance their portion of the cost of hospital care by general revenue, premiums, sales or property tax, authorized charges payable at the time of hospitalization, or various combinations of these. Ontario and Alberta levy premiums, but no premiums are payable by persons 65 years of age or over.

Other Programs and Services

Federal

Health Manpower and Development. The purpose of this program of the Department of National Health and Welfare is to improve and maintain the quality of service of those employed in health care. The program includes the administration of the Health Resources Fund Act of 1966, which provided \$500 million payable over a 15-year period (1966 to 1980) to assist in the planning, acquisition, construction, renovation, and equipping of health training and research facilities.

As of December 31, 1972, there were 34,508 active civilian physicians in Canada including interns and residents. Well over a third, 13,364, were located in Ontario. That province and British Columbia had the most favourable population-to-physician ratios—591 and 595 respectively—compared with the national figure of 637.

Indian and Northern Health Services. The Department of National Health and Welfare assists Indian bands and native peoples' organizations in providing health services and promoting health. Health facilities have been constructed in almost 200 communities that otherwise would lack them. The Department manages many health services for all residents of the Territories, including public health, special communication arrangements for medical consultation, and transportation to medical centres to which a patient may be referred.

Food and Nutrition. The Department also conducts laboratory research in foods, inspects food-manufacturing establishments, and controls chemical additives used in foods. The field work for Nutrition Canada, the first survey of the nutritional health of Canadians throughout the country, was completed in the fall of 1972 in collaboration with the provinces. It revealed a very high prevalence of obesity, and sub-optimal supplies of iron, vitamins C and D, calcium, and folic acid.

Drug Quality Control. Pharmaceutical plants are visited regularly by Health and Welfare inspectors to ensure that the drugs produced there meet the standards of quality required for sale in Canada. New drugs are carefully controlled by the Department, and after a new drug is on the market, its sale can be banned if it appears unsafe. The Department assesses claims and clinical equivalency of competing brands, and publishes the findings to enable the public to purchase high quality drugs at the cheapest price.

Non-Medical Use of Drugs. This program combats drug abuse, seeks ways of dealing with its effects and rehabilitating its victims, and conducts information and education programs to prevent drug abuse and to persuade smokers to stop and young people not to start.

International Health. Canada actively assists and co-operates with the World Health Organization and the Pan-American Health Organization. Persons come to Canada each year for health training under WHO/PAHO fellowships and Canadian health experts undertake specific assignments abroad in response to international requests. The Department enforces the International Shellfish Agreement with the United States, safeguards biological standards for the World Health Organization, enforces the Single Convention on Narcotic Drugs, 1961, and represents Canada on the United Nations International Narcotic Control Board.



The 2nd Canada Summer Games held at Burnaby - New Westminster, B.C. in 1973 drew together over 3,000 athletes.

Fitness and Amateur Sport. This federal program is designed to increase the numbers of those who engage in physical activity and to raise their skills. It is concerned not only with the competitive excellence of Canada's athletes, but also with participation by all in activities that increase physical fitness.

Other Services. The Department of National Health and Welfare also inspects those who arrive from foreign countries, to prevent the entry of diseases and determine the health of prospective immigrants. It is responsible for the occupational health of federal employees and advises the Ministry of Transport on health and safety in civil aviation. It also provides prosthetic and orthotic rehabilitation and assesses disability claims under Unemployment Insurance and the Canada Pension Plan. Furthermore, it is available to the provinces as a consultant on health matters; through advertising it promotes desirable health practices on the part of the public; and it makes emergency health plans. It studies the adverse effects of pollution and monitors radiation exposure. Its Laboratory Centre for Disease Control combats communicable diseases, is on the alert for outbreaks of disease, and studies epidemics.

Provincial

Mental Health Services. Among provincially operated health services, those for mental illness loom large; in 1971, mental institutions cost \$436 million, while their personnel numbered 52,000. During 1973 the number of in-patients under care was 58,000 and there were 121,000 admissions to mental institutions; some 233,000 patients were treated in mental health clinics and psychiatric out-patient departments. Psychiatric units in general hospitals contribute by integrating psychiatry with other medical care and making it available to patients in their own community; in 1973, the 115 psychiatric units, which had 3,980 patients as the year closed, admitted 44 per cent of the total admissions to all kinds of mental institutions. Specialized rehabilitation services, operated by mental hospitals and community agencies, assist former patients to function more adequately.

Alcoholism afflicts at least 2 per cent of adult Canadians. Official and voluntary agencies carry out public education, treatment, rehabilitation, and research. Among these agencies are Alcoholics Anonymous, the Alcoholism and Drug Addiction Research Foundation of Ontario, the Alcoholism Foundation of British Columbia, the Alcoholism Foundation of Manitoba, and the Nova Scotia Alcoholism Research Foundation. Community treatment programs for narcotic addicts have been established under the aegis of the Narcotic Addiction Foundation of British Columbia and the Ontario Alcoholism and Drug Addiction Research Foundation, supported primarily by provincial funds.

Facilities for mentally retarded persons include day training schools or classes, summer camps, and sheltered workshops, as well as residential care in institutions.

Cancer. Cancer accounts for about one of every five deaths, most of them in the middle and later years of life. Special provincial agencies for cancer control carry out detection and treatment, public education, professional training, and research. Cancer programs in all provinces provide a range of free diagnostic and treatment services to both out-patients and in-patients. Hospital and medical insurance benefits for cancer patients include diagnostic radiology, laboratory tests, radiotherapy, and medical and surgical services.

Tuberculosis and Respiratory Diseases. In 1972 there were 453 deaths from tuberculosis. Canadians reported to be under treatment for tuberculosis in 1972 numbered 9,019 while an additional 12,865 susceptible persons received prophylactic drugs as a preventive measure.

Venereal Disease. Public health authorities estimate that the real incidence of the venereal diseases may be three to four times the number of cases actually reported. The 1972 figure of 3,064 cases of syphilis was substantially above the 1971 figure of 2,489. The total figure for gonorrhea cases in 1972 was 41,467, a marked increase over the rate for 1970. Provincial health departments have expanded public V.D. clinics, which provide free diagnostic and treatment services at convenient hours.

Cigarettes being tested for tar and nicotine content.





A Department of Health and Welfare hemoglobinometer providing automated blood-cell counting.

Public Health Services. Provincial health departments, in co-operation with regional and local health authorities, administer such services as environmental sanitation, communicable-disease control, maternal and child health, school health, nutrition, dental health, occupational health, public-health laboratories, and vital statistics. Case-finding, screening, diagnosis and referral, and health education have continued to be the responsibility of local authorities. Some smaller local services have been amalgamated to increase their effectiveness.

Research

Federal expenditures for health science research in 1972-73 were estimated at \$69 million. The expenditures are accounted for by the Medical Research Council, \$37.4 million, the Department of National Health and Welfare, \$30.4 million, and other federal agencies, \$1.2 million. The Department of Veterans Affairs and the National Research Council support clinical studies. The principal national voluntary agencies supporting medical research in Canada are the Canadian Arthritis and Rheumatism Society, Canadian Association for the Mentally Retarded, Canadian Cystic Fibrosis Foundation, Canadian Heart Foundation, Canadian Mental Health Association, Multiple Sclerosis Society of Canada, Muscular Dystrophy Association of Canada, and the National Cancer Institute. Provincial governments also fund research through councils, foundations, and grants.

The Department of National Health and Welfare spends most of the federal government's intramural funds on health research. Extramurally, the Department of National Health and Welfare in 1972-73 distributed \$6.5 million under the National Health Grant and the Public Health Research Grant for applied and developmental research and related scientific activities.

Immigration

More than 10 million immigrants have come to Canada since Confederation. Here they have played a major role in the development of the country. Canada's non-discriminatory and universal immigration policy allows for the recruitment of immigrants with skills required by the economy. Due to economic conditions in the principal source countries, and the changes in demand for manpower in Canada, the flow of immigration has varied from year to year. Since World War II, Canada has admitted more than 3.6 million immigrants, primarily from Great Britain, Italy, the United States, West Germany, and the Netherlands. The peak years for immigration since World War II were 1957 when 282,164 persons were admitted, and 1967 when 222,876 settled in Canada.

During 1973, Canada received 186,200 immigrants, an increase of 64,194 people over 1972. Ontario continued to attract the greatest number of immigrants, with 103,187. British Columbia was second with 27,949, and Quebec received 26,871 immigrants.

On October 1, 1967, new immigration regulations came into effect and the principles governing the selection of immigrants were spelled out. An assessment system permits immigration officers to apply the same standards, in the same way, to potential immigrants from all areas of the world. By linking selection standards to conditions within Canada, the regulations ensure that the flow of immigrants is suited to the economic and manpower requirements of the country. There is a clear distinction between dependents and other relatives entering the work force. There are three categories of immigrants: "sponsored dependents," "nominated (non-dependent) relatives," and "independent applicants," who are neither sponsored nor nominated.

Sponsored dependents, such as spouses and children under age 21, must be directly related to citizens or permanent residents of Canada, who will be responsible for their accommodation, care, and maintenance. They are admitted to Canada provided they are in good health and of good character. Nominated relatives are

Canada's labour force was augmented by 92,228 immigrant workers during 1973.



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

The immigration regulations of 1967 permitted visitors to apply for landed immigrant status from within Canada. On November 3, 1972, the department temporarily suspended this right because immigration policy was being abused.

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

New immigration regulations became effective in February 1974, linking the entry of unsponsored immigrants more closely to the needs of Canadian employers. An immigrant intending to enter the labour force must have a firm job offer from a Canadian employer or an occupation in which there are known to be persistent vacancies in the region of Canada in which he intends to settle.

New measures were also introduced to make it easier for families with adopted children, half-brothers or half-sisters, to come to Canada together.

Not all non-immigrants are prevented from working in Canada. All diplomats and visiting armed forces personnel performing official duties are exempt. Foreign newsmen, visiting businessmen, clergymen, and professional athletes do not need an employment visa, but they must register if they stay here longer than three months.

Canadian immigration offices—or the services of an immigration officer—are maintained in 37 countries. These include Argentina, Australia, Austria, Belgium, Britain, Colombia, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Ireland, Israel, Italy, Jamaica, Japan, Korea, Lebanon, Malaysia, Mexico, Morocco, the Netherlands, Norway, Pakistan, the Philippines, Poland, Portugal, Spain, Sweden, Switzerland, Trinidad, the United States, and Yugoslavia. Of those listed, offices were opened in 1973 in Seoul, Korea; Rabat, Morocco; Warsaw, Poland; and Singapore, Malaysia, as part of a world-wide extension of Canadian immigration services abroad. Again in 1973, nine offices were opened in the United States—at Boston, Buffalo, Detroit, Minneapolis, Seattle, Los Angeles, New Orleans, Dallas, and Atlanta. Added to the branches in San Francisco, New York, and Chicago, this makes a total of 12 in that country. In 1974, two more offices were opened in Bogota, Colombia, and in Mexico City, Mexico. Agreement was also reached to provide immigration services to the People's Republic of China out of Hong Kong. The 165 Canadian immigration officers stationed in these countries make periodic visits to countries in their area not serviced by immigration officers, to process applications.

Industry, Trade and Commerce

The Department is involved primarily in five areas: the development of industry, markets, and tourism; the formulation of international trade policies; and the marketing of grains and oilseeds. It requires the services of more than 2,500 people in Ottawa, 10 regional offices across Canada, and 84 posts in 60 countries. Its budgets total approximately \$342 million.

The Department bases its operations on three programs (not to be confused with the various assistance programs administered by the Department). These are the Trade/Industrial Program, the Tourist Program, and the Grains and Oilseeds Program. The Trade/Industrial Program is further defined in the following two sub-programs.

The Industry Development Activity

The Department, through this activity, seeks (1) to develop an efficient manufacturing and secondary processing industry to meet competition at home and abroad; (2) to achieve and maintain maximum employment in Canadian industry; (3) to increase national income and reduce economic disparities; (4) to increase the processing of natural resources; (5) to provide for greater domestic control of the Canadian economy and ensure its future development by Canadians; (6) to continue improving the quality of life in Canada by creating satisfying jobs for Canadians and

A mission to Canada of electrical utility officials from Colombia and Panama at the Canadian General Electric plant in Peterborough, Ont.



reducing the harmful effects of industrial activity on the natural and social environment.

The International Trade Development Activity

This has one objective—to increase markets for goods and services produced in Canada. This is an activity providing a forum for the private sector. Through the Department it also promotes increased sales of Canadian goods and services by providing information on export opportunities and giving sales assistance. In addition, the Department negotiates trade arrangements to give Canadian producers access to world markets; develops trade strategies; provides financial assistance; and maintains Canadian trade representatives abroad.

Tourism Program

This program's objective is the sustained and orderly growth of tourism and the travel industry in Canada. Three activities have been laid down for this program: travel marketing; travel industry development; and policy, planning, and industry relations.

The Travel Marketing Activity

Its objective is to encourage both Canadians and visitors to explore Canada. The Department provides information, market research and analysis, marketing planning, and a variety of promotional campaigns in all news media.

The Travel Industry Development Activity

This activity aims to expand the facilities available to travellers. The requirements for expanding the travel industry are assessed, and various programs to assist that development have been undertaken.

Policy, Planning, and Industry Relations

This section of the Department gives directions to the Tourism program and co-ordinates the efforts of federal, provincial, and private developers of the tourist industry.

Grains and Oilseeds Program

An orderly system for marketing Canadian grains and oilseeds and the expansion of markets for these products are the objectives of the program.

Management of this program comes under the Minister responsible for the Canadian Wheat Board but the Deputy Minister of the Department of Industry, Trade and Commerce is responsible for administering payments made under the program and for its marketing operations. The marketing activity is intended to complement and extend efforts by the private sector. Production guidelines are determined and initial payments for Wheat Board grains are established. The private sector is assisted in a number of ways, including the provision of market intelligence and financial assistance.

Labour

Labour Legislation

Labour legislation is enacted by both the federal Parliament and the provincial legislatures. Parliament has authority to enact labour laws relating to any federal work, undertaking, or business that is under its legislative authority, such as air transportation, navigation, or other operations that it declares to be for the general advantage of Canada or for more than one province.

Labour Standards

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

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

Cutting tables at a Winnipeg needle trades plant specializing in blue jeans.



General Minimum Rates for Experienced Adult Workers as of April 2, 1974

Jurisdiction	Hourly Rates
Federal.....	\$2.20 effective April 1, 1974
Alberta.....	\$2.00 effective April 1, 1974
British Columbia.....	\$2.25 effective December 3, 1973
	\$2.50 effective June 3, 1974
Manitoba.....	\$1.90 effective October 1, 1973
New Brunswick.....	\$1.75 effective January 1, 1974
	\$1.90 effective July 1, 1974
	\$2.15 effective January 1, 1975
Newfoundland.....	\$2.30 effective July 1, 1975
	\$1.80 effective January 1, 1974
	\$2.00 effective July 1, 1974
	\$2.20 effective January 1, 1975
Nova Scotia.....	\$1.65 effective July 1, 1973
	\$1.80 effective July 1, 1974
	\$2.00 effective October 1, 1974
	\$2.20 effective January 1, 1975
Ontario.....	\$2.00 effective January 1, 1974
Prince Edward Island.....	\$1.65 effective January 1, 1974
	\$1.75 effective July 1, 1974
Quebec.....	\$1.85 effective November 1, 1973
	\$2.00 effective May 1, 1974
	\$2.15 effective November 1, 1974
Saskatchewan.....	\$2.00 effective December 1, 1973
Northwest Territories.....	\$2.50 effective April 1, 1974
Yukon Territory.....	\$2.30 effective April 1, 1974

Hours of Work as of April 1974

Jurisdiction	Daily and Weekly Limits
Federal.....	Standard hours: 8 daily, 40 weekly after which 1½ times regular rate must be paid
Alberta.....	Maximum hours: 8, 44 after which 1½ times regular rate must be paid
British Columbia.....	Maximum hours: 8, 44; 1½ times regular rate must be paid after 8 and 40
Manitoba.....	Standard hours: 8, 44 after which 1½ times regular rate must be paid
Nova Scotia.....	Maximum hours: 48 after which 1½ times minimum rate must be paid
Ontario.....	Maximum hours: 8, 48 after which 1½ times regular rate must be paid
Prince Edward Island.....	Maximum hours: 48 after which 1½ times minimum rate must be paid
Quebec.....	Standard hours: 45 after which 1½ times minimum rate must be paid
Saskatchewan.....	Standard hours: 8, 40 after which 1½ times regular rate must be paid
Northwest Territories.....	Standard hours: 8, 44 after which 1½ times regular rate must be paid
Yukon Territory.....	Standard hours: 8, 48 after which 1½ times regular rate must be paid

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

Employees throughout Canada are legally entitled to a paid annual vacation. Two weeks with pay is the general standard. In Saskatchewan and Manitoba the vacation increases with the length of service (three weeks after five years). Vacation pay is payable on termination of employment before completion of a year's service.

Under federal, British Columbia, Alberta, and Saskatchewan legislation, employees are entitled to eight paid holidays. Manitoba provides for seven and has special provisions for Remembrance Day and Nova Scotia for five. Employees who work on a holiday must be given premium pay in addition to a normal day's wages. Ontario requires that the premium rate be paid when employees work on four of the seven holidays (Good Friday, Dominion Day, Labour Day, and Christmas). An overtime rate is to be paid on the three remaining holidays (New Year's Day, Victoria Day, and Thanksgiving).

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

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

Parliament and eight provinces (Newfoundland, Prince Edward Island, Nova Scotia, Quebec, Ontario, Manitoba, Saskatchewan, and Alberta) have enacted legislation requiring an employer to give notice to the individual worker whose employment is to be terminated. In federal undertakings, two weeks' notice is required. In Ontario and Nova Scotia the period of notice varies with length of service from one week to eight weeks. In the other provinces, notice of one week or notice equal to the regular pay period is the usual requirement.

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

An employee is entitled to maternity leave of at least 17 weeks (11 pre-natal and 6 post-natal) under federal jurisdiction and in Nova Scotia and Manitoba and at least 12 weeks (6 pre-natal and 6 post-natal) in New Brunswick, Ontario, and British

Notice of Mass Lay-offs

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

Recently introduced TV message monitors assist operators.



Columbia. Saskatchewan provides for up to 18 weeks (12 pre-natal and 6 post-natal) of maternity leave. The Ontario Act applies to employers with 25 or more employees. To be eligible for leave under the federal, Ontario, Saskatchewan, Manitoba, and Nova Scotia laws, the employee must have worked for her employer for at least a year. The law protects the employees against dismissal for reasons arising from maternity leave during a specified period or throughout pregnancy, and Ontario, Manitoba, Saskatchewan, Nova Scotia, and the federal government guarantee that on her return to work she must be reinstated without loss of benefits.

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

Collective Bargaining

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

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

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

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

Unemployment Insurance

Unemployment Insurance has been part of Canada's social and economic life since the Unemployment Insurance Act was passed in 1940. Since that time the basic structure of the Act has remained unaltered. However, various amendments

have brought new categories of workers into the plan and contributions and benefit rates have been raised periodically to keep abreast of changing economic conditions.

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

During 1973, benefit payments to recipients under the Act amounted to \$2,004 million.

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

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

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



Safety laws are continually being revised to meet new conditions.

Sickness benefits are available up to a maximum of 15 weeks for persons with major labour force attachment who have suffered an interruption of earnings due to illness, injury, or quarantine (excluding Workmen's Compensation). If a person becomes ill while receiving unemployment benefits, sickness benefits are available, but the combined duration of benefits during the initial benefit period cannot exceed 15 weeks. Maternity benefits are available for eight weeks before confinement, the week of confinement, and six weeks after, to women who have had a major labour force attachment. They must also have been part of the labour force at least 10 of the 20 weeks prior to the 30th week before the expected date of confinement.

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

The benefit rate for all claims will be two thirds of a person's average insured earnings in the qualifying period, to a maximum in 1974 of \$113 per week and with a minimum of \$20 per week. For claimants (with dependents), whose average qualifying earnings are equal to or less than one third of the maximum weekly insurable earnings (\$170 in 1974), the benefit rate is 75 per cent. During the later stages of benefit all claimants with dependents draw benefit at 75 per cent of qualifying earnings, subject to the \$113 maximum. The maximum insurable earnings and therefore the maximum benefit are subject to annual adjustment based on an index calculated from earnings of Canadian employees.

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

Manpower

The Department of Manpower and Immigration strives to provide the best possible manpower services to all Canadians. More than 4,000 counsellors, in some 400 Canada Manpower Centres across the country, help people find employment and assist employers in securing efficient workers.

In 1973, a new way of matching jobs and workers was introduced. Known as the Job Information Centre, or Job Bank, it provides a rapid service for those who are job-ready, and leaves more counsellors free to help those with special needs. The Job Information Centre is a modernized system for receiving, distributing, and controlling job orders. Daily updated job vacancy lists are displayed in "job banks." Clients may study these lists, select a job that interests them, and discuss it with a Canada Manpower counsellor. If the counsellor is satisfied that the worker is suitable, an interview is arranged with the employer.

Services for Employers

The department provides a variety of services designed to help employers obtain, train, and make the most efficient use of qualified employees.

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

The Canada Manpower Industrial Training Program (CMITP) is an employer incentive program designed to stimulate the Canadian economy, reduce unemployment, and improve productivity. CMITP brings together three former programs — Training-in-Industry, Training-on-the-Job for Skill Shortages and Training-on-



Daily updated job vacancy lists are displayed in "job banks" at Manpower Centres.

the-job for the Disadvantaged — to encourage Canadian business and industry to expand and improve their employee training programs.

Employers are encouraged to hire and train new workers in anticipation of future needs, and to benefit from the most comprehensive recruitment and counselling services provided by the country-wide network of Canada Manpower Centres. From coast to coast the Canada Manpower Centres are linked by a telecommunications system to facilitate the continuous flow of labour market information.

Services for Employees

Under the Canada Manpower Training Program, workers lacking occupational skills may be referred by a CMC counsellor to adult training courses. Persons who have been out of school for any 12-month period and are at least one year past the school-leaving age of the province in which they reside are eligible for courses and training allowances.

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

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

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

The Local Initiatives Program (LIP) and Opportunities for Youth (OFY) are special programs brought into operation when seasonal unemployment reaches an unacceptable level. LIP invites Canadians to initiate and implement job-creating projects which will benefit the community. OFY is similarly structured, enabling students to initiate summer projects that, besides creating jobs, will contribute to the betterment of community life. In both LIP and OFY federal funds are available to pay salaries and some overhead expenses of project workers.

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

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

Canada Manpower Centres are co-ordinated by five regional offices in Halifax, Montreal, Toronto, Winnipeg, and Vancouver. All manpower programs and services are implemented through these field offices.

Regional Economic Expansion

The Department of Regional Economic Expansion was formed in April 1969 to carry out, in co-operation with the provinces, a co-ordinated effort to reduce regional economic disparities in Canada. The programs that the Department administers are of a long-term nature, in recognition of the fact that regional disparities are not new and, by their very nature, cannot be resolved in a short time. The Department's strategy is composed of three major and closely-related activities: industrial incentives, infrastructure assistance, and social adjustment and rural development.

Early in 1972 the Department undertook a comprehensive review and analysis of its programs and organization. As a result, it was decided to decentralize the organization and at the same time to negotiate general development agreements with each province. These agreements (GDAs) are a legal framework whereby closer co-operation between the provincial and federal governments in the field of development is made possible. Subsequent subsidiary agreements to exploit specific development opportunities will be signed as needed. Existing agreements will be continued and integrated as experience dictates.

To facilitate this closer co-operation, four regional offices at Moncton, Montreal, Toronto, and Saskatoon were established and are being staffed to handle most of the planning and implementation of programs previously handled in Ottawa.

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

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

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

Urban Affairs

The Ministry of State for Urban Affairs was created by proclamation June 30, 1971, as a key element in the federal government's response to the challenge of rapidly accelerating urbanization.

The Ministry is a policy agency designed specifically to plan, develop, foster, and co-ordinate policies and programs through which the federal government can exert a beneficial influence on Canada's urban centres, in close co-operation with other levels of government and with non-governmental groups. In addition, policy-making for urban Canada is concerned with injecting urban considerations into the development and implementation of other federal policies and programs and with fostering intergovernmental relationships to promote the co-ordination of urban policies and programs.

The Ministry is actively involved in several areas:

Urban Growth. It is developing and recommending federal policies and programs that can serve to offset the present trend to excessive concentration of growth in a relatively few cities and urban regions. At the second national tri-level conference in Edmonton, in October 1973, consensus was reached on the federal call for a concerted response by the federal government, the provinces, and the municipalities, to manage urban growth.

Urban Economy. It is developing policy alternatives and program proposals for urban public finance, suggesting alternative ways of financing urban expansion in Canada, and participating in a tri-level examination of public finance. The tri-level

Sailboat at dock in Toronto.





Calgary, Alta.

group is currently developing a common set of facts on the financial situation of each level of government. The aim of this work is to produce a comparative data base acceptable to all levels.

Urban Land and Space. The Ministry is developing policy on the use of federal land holdings and is participating in its implementation. The federal government owns millions of acres of land across Canada, including some 200,000 acres of prime urban land in major centres. The new federal land management policy is designed to harmonize planning and use of federal lands with the development goals and strategies of local communities and regions, wherever possible. Land not needed by a department will, generally, no longer be sold but will be held in the public domain. Where urban land is no longer required by the federal government, the Ministry of State for Urban Affairs will examine the property to determine the best use of the land for urban purposes. Finally, all major federal land-holdings are to be reviewed periodically to ensure they are being put to the best use consistent with the new policy.

Urban Transportation. It is developing and recommending urban transportation policies, including the National Urban Transportation Development Corporation, developing the railway relocation program, and participating in its implementation.

Urban Environment. The Ministry is developing and recommending federal policies and programs to influence the form and quality of Canadian cities. It is developing plans and projects for the imaginative use of federal lands and properties as instruments for urban change and is participating in their implementation. A number of projects (collectively termed URBEX—for Urban Experiments) are being implemented across Canada to demonstrate how the redevelopment of federal property in urban centres can spur the redevelopment of a neighbourhood or business area.

Urban Information. It is evaluating the main federal programs having urban implications and recommending changes where necessary. It is also developing means to assess the impact of federal programs on urbanization and urban areas.

Urban Planning and Intervention. The preparation of regional plans and

strategies by the provinces to guide the development of Canadian urban regions is being supported. Examples are regional planning for Vancouver, Halifax-Dartmouth, Quebec City, and other centres.

Urban Institutions. By joining with the other two levels of government, the federal government provides leadership in establishing provincial and metropolitan tri-level bodies.

Illustrations of Current MSUA Activity

Tri-Level Co-ordination. Two national tri-level conferences have been held (in 1972 and 1973) at which it was agreed there was need for concerted efforts by all levels of government to deal with the problems created by urban growth. At the regional/provincial level, one continuing consultation has been established—the Ontario tri-level committee—and interest has been expressed in such mechanisms by several other provinces. Metropolitan consultation groups have been established in Vancouver, Regina, Winnipeg, Halifax, and Quebec City, and more are in the works. Metropolitan tri-level committees have concentrated on specific local problems such as metropolitan planning, roads, housing, airports, public buildings, parks, and local growth problems. Intergovernmental committees in which the Ministry participates have also been set up to handle specific urban issues such as the co-ordination of planning for the Toronto harbourfront project, the Welland and Lachine Canals redevelopment, and the Vancouver and Halifax waterfronts.

Railway Relocation. The Railway Relocation and Crossing Act became law June 1, 1974. Under its provisions the federal government has, for the first time, the power to expropriate railway land, allowing cities and towns to get on with planned urban redevelopment. The Ministry of State for Urban Affairs administers Part I of the Act, which is intended to help achieve a better balance between the need for efficient rail services and the adverse effects of railways on the quality of the urban environment and urban development. The program applies particularly to cities where railway facilities—tracks, yards, terminals—are obstacles to the planned redevelopment of the community. Part I of the Act permits the federal government to financially support the planning and implementation of railway relocation and rail traffic rerouting proposed by provinces and municipalities so that expanded rapid transit facilities, housing, and recreation facilities, among other projects, can go forward.

The Canadian Urban Demonstration Program. A five-year urban demonstration program established by the Ministry of State for Urban Affairs aims at identifying and stimulating projects that provide new approaches to the important problems facing Canadian urban communities in the next decade. Through the program, promising projects, procedures, and technological advances will be implemented and information on the innovations and their effectiveness will be disseminated across the country. The basic cost of such demonstration projects will be met in the normal way by federal, provincial, and municipal governments, by the private sector, or a combination of these. The federal government will provide any necessary additional assistance to projects through a \$100 million fund established to support the program. The fund is intended to be a catalyst and a supplement, rather than a prime source of capital financing.

Veterans Affairs

The Department of Veterans Affairs and four associated agencies—the Canadian Pension Commission, the Pension Review Board, the War Veterans Allowance Board, and the Bureau of Pensions Advocates—continue to offer to Canada's nearly one million veterans a broad spectrum of services: medical treatment, land settlement, home construction, welfare counselling and assistance, pensions, war veterans' allowances, educational assistance to children of the war dead, to mention but a few.

In March 1974, the government introduced a measure to extend the operation of the Veterans' Land Act for one year, to March 31, 1975, to enable additional veterans who are qualified to apply. Veterans engaged in full-time farming, part-time farming, commercial fishing, or building their own homes are provided with loans and assistance under this Act. Since it was passed in 1942, loans and grants have been

Canada's Billy Bishop was the British Commonwealth's leading fighter pilot in World War 1. He scored 72 victories.



made to more than 139,000 veterans (4,000 in 1973-74). From the beginning of operations to the end of 1973-74, loans advanced have totalled close to \$1,295 million of which 55 per cent, \$713 million, have been repaid.

During the 1973-74 fiscal year over 32,000 veterans were treated or given long-term care at the Department's expense, either in the Department's eight hospitals and three veterans' homes or in community hospitals.

Two books were published under the authority of the Minister of Veterans Affairs in 1973. Joseph Schull wrote *Veneration for Valour*—an assessment of the Veterans Charter and its impact on Canadian veterans, and on Canada as a whole. *We Will Remember*, a volume describing overseas memorials to Canada's war dead, was written by Col. G.W.L. Nicholson, C.D.

The administration of the Pension Act is the responsibility of the Canadian Pension Commission which in 1973 paid pensions totalling \$290 million for disability and death, mainly incurred during wartime service, to over 150,000 veterans and dependents. An important amendment was made to the Pension Act which, effective July 1, 1974, determined the basic pension rate of a single 100 per cent pensioner to be the average salary of five groups of public servants. This resulted in an average increase in pensions of 24 per cent.

The Pension Review Board is the final binding judicial authority on pension entitlement, amount of awards, and interpretation of the provisions of the Pension Act. During the year the Board heard 233 appeals and rendered 88 favourable decisions and 216 unfavourable decisions on disabilities appealed.

The Bureau of Pensions Advocates provides counsel and free legal aid to pension applicants in the preparation and presentation of their pension claims. The relationship between the Bureau and an applicant or pensioner is that of a solicitor and client.

During the fiscal year the Bureau submitted 8,994 claims to the Canadian Pension Commission under various sections of the Pension Act. Of 9,840 decisions rendered by the Commission, 3,662 or 37.2 per cent were favourable. Pensions Advocates also presented 1,928 cases at Entitlement Board and Quantum Hearings during the year; of 1,642 decisions rendered, 567 or 34.53 per cent were successful.

The final appeal procedure under the Pension Act is to the Pension Review Board. During the year specialist advocates of the Bureau staff at head office made 226 submissions, and of these, 78 decisions were favourable.

The War Veterans Allowance Act provides benefits to veterans pre-aged by the rigours of wartime service. Widows and orphans of such veterans may also benefit under the terms of the Act. Similar benefits are available under Part XI of the Civilian War Pensions and Allowances Act to civilians who served in close support of the armed forces. In April 1973, the concept was altered in that the granting of an allowance was geared to a "modified income test" instead of a "means test." The wva and Civilian War Allowance (CWA) programs are administered by the War Veterans Allowance Board, a quasi-judicial body, which during 1973-74 paid out nearly \$112 million in allowances to some 85,000 recipients. Recent amendments to the wva and CWA Acts and Regulations have removed all limitations on the ownership or disposal of real or personal property, and have provided for the escalation of allowance rates and income ceilings in accordance with the increase in the Consumer Price Index.

Social Welfare

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

A number of social security programs are administered by the Department of National Health and Welfare—the Canada Pension Plan, Old Age Security pensions, the Guaranteed Income Supplement, and Family Allowances. Through the Canada Assistance Plan, the Department supports provincial social assistance programs, child welfare services, and services for the elderly, including institutional care.

The Canada Pension Plan

With its counterpart the Quebec Pension Plan, the Canada Pension Plan covers most of the Canadian labour force. The minimum age for participation is 18. Employees and employers both contribute at a rate of 1.8 per cent on earnings between \$700 and the maximum pensionable earnings which were \$7,400 after



January 1, 1975. Effective in 1974, the 2 per cent ceiling on the escalation of benefits was removed and annual increases in the Consumer Price Index were to be fully reflected in the escalation of benefits payable under the Act. Self-employed persons contribute 3.6 per cent of their earnings over \$700, provided that these are at least \$900 a year. Monthly retirement pensions to persons who have retired and who are 65 years or over are equal to 25 per cent of the contributor's average monthly pensionable earnings. These benefits are payable at reduced rates until 1976, when they become payable at their full rates. The Plan also provides for survivors' benefits and disability pensions.

Old Age Security (OAS)

The federal government pays a monthly pension to all persons aged 65 and over who meet the residence requirements. A person must have resided in Canada for at least 10 years immediately prior to the approval of his or her application, but any gaps in the 10-year residence can be offset by periods of residence in earlier years from age 18 equal to three times the gap, provided the applicant has lived in Canada for one year immediately prior to his making the pension application. An amendment to the Old Age Security Act in September 1973 provided for the quarterly escalation of benefits, in line with increases in the cost of living. As a result, the basic pension rose to \$120.06 in January 1975.

Guaranteed Income Supplement (GIS)

Old Age Security pensioners who have little or no other income may receive a supplement under the Guaranteed Income Supplement program introduced in 1967. The maximum supplement is reduced by \$1 a month for every full \$2 a month of income over and above the Old Age Security pension. Both OAS and GIS are escalated to reflect changes in the Consumer Price Index. With the quarterly escalation that became effective in October, 1973, the maximum GIS benefit for a single pensioner rose to \$84.21, as of January 1975, a pensioner couple receiving a maximum of \$149.58. This means that, effective January 1975, the combined OAS-GIS provides a maximum monthly income of \$194.85 for a single pensioner and \$389.70 for a pensioner couple.

Guaranteed Income Supplement benefits are based on an annual declaration of the beneficiary's income in the preceding year. Income is determined in accordance with the Income Tax Act, and for each married applicant it is taken as one half of the combined income of the married couple.

Family Allowances

A new Family Allowances Act came into force on January 1, 1974. The objective of the new program is "to provide for the payment of family allowances in respect of children to supplement the income of Canadian families and for the payment of special allowances to provide for the care and maintenance of other children. . . ." This plan replaces the Family and Youth Allowance, Quebec Schooling Allowance, and Family Assistance programs. It applies to dependent children under 18 years of age, whether or not they are attending school.



The Act provides for the payment of a monthly allowance of \$20 for each child, escalated annually in accordance with the Consumer Price Index. It also provides that each province adopt a rate configuration, or structure, that varies with either the age of the child, the number of children in the family, or both. The minimum must not be less than \$12 a child, allowing for escalation in accordance with the Consumer Price Index. The provincial configuration must result in the payment of a monthly average of \$20 a child in that province. Benefits are also payable for children who are deemed to be resident in Canada and on behalf of children of immigrants as soon as they are legally landed. The Act also provides for the payment of a special allowance of \$20 a month on behalf of children in institutions or foster homes. This payment does not vary in those provinces electing to introduce a rate configuration.

The new allowance is taxable and must be declared as income for tax purposes by the parent who claims the child as a tax exemption.

Two provinces, Alberta and Quebec, have chosen to vary the federal rate of \$20 a child. In addition, Quebec and Prince Edward Island pay a supplementary allowance. The Quebec supplement is paid to all children but the Prince Edward Island supplement is paid on behalf of the fifth child and subsequent children.

Social Assistance

Financial aid is available to persons in need and their dependents through provincial or municipal departments of welfare. The costs of aid and of certain welfare services supplied to such needy persons are shared by the federal government under the Canada Assistance Plan. Persons assisted include widows and needy mothers with dependent children, those who cannot work because of their age or because of mental or physical disability, the unemployed, and those whose

income from other sources is not adequate to meet their needs. Allowances are granted to cover the basic costs of shelter, food, clothing, and personal care, and to cover special needs such as household furnishings, school supplies, and homemaker services when necessary. Aid may also be given in the form of institutional care for elderly persons who are not able to look after themselves.

A number of provinces have discontinued special federal-provincial programs whereby needy disabled and needy blind persons receive a monthly allowance of \$75, in favour of provincial social assistance programs under which costs are shared with the federal government under the Canada Assistance Plan.

Child Welfare Services

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

Day care services are available in large centres under public and voluntary auspices.





In addition to the usual services for older persons, clubs and centres provide social activities.

Welfare Services

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

Day-care services for children of working mothers are available in large centres under public and voluntary auspices. Through the provisions of the Canada Assistance Plan, the federal government can share in the cost to provinces and municipalities of providing day-care services to families who are in need or who are likely to become in need without this service.

Services for the Aged

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

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



University of Manitoba medical students demonstrate methods of heart resuscitation.

National Welfare Grants

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

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

International Welfare and Social Security

Canada plays a prominent role in international welfare activities at the United Nations through its contribution to the work of the Economic and Social Council, the General Assembly, and the Executive Board of UNICEF. Canadian participation in the work of the Manpower and Social Affairs Committee of the Organization for Economic Co-operation and Development is increasing rapidly. Governments at all levels, individuals, and voluntary organizations take an active part in the work of such non-governmental organizations as the International Council on Social Welfare and the International Union of Family Organizations. Agreements on social security with other countries are being negotiated to ensure that people moving between Canada and other countries do not suffer the loss of their social security rights. Technical assistance is supplied to other countries in the development of social welfare.

the economy

Economic Growth in 1973

The strong expansion of the Canadian economy under way since the beginning of 1971 continued in 1973 at an accelerated pace. A 6.8 per cent growth in production was accompanied by an even more rapid rise in prices and by the largest percentage employment gain on record. Since the labour force also registered an increase of record proportions, the rate of unemployment remained high in 1973, although it declined to 5.6 per cent from 6.3 per cent in 1972. As the year progressed, the emergence of an extremely strong rise in unfilled orders and lengthening delivery dates suggests that a number of industries were encountering capacity constraints in plant and equipment and shortages of certain materials and specific labour skills.

Inflation was particularly severe in 1973, especially in the case of basic commodities such as raw materials and food products. The price increases were mostly due to world-wide demand pressures together with shortages of supply, particularly in the agricultural sector. The situation was exacerbated in the final quarter of the year by the international energy crisis, which was accompanied by very sharp increases in crude oil prices posted by all producing countries. Though the impact of this major development on the Canadian economy appears to have been small in

1973, the future repercussions on the world economy are a matter of considerable concern.

Gross National Product (GNP) at market prices rose by \$15,400 million, or 14.9 per cent, to reach a level of \$118,900 million. This was the largest percentage gain registered since the early 1950's, when expansion was associated with rapidly rising prices during the Korean war period. The 7.6 per cent rise in the over-all implicit price index in 1973 was one of the highest on record far exceeding the rise of 4.8 per cent in 1972 and of 3.1 per cent in 1971. However, the growth in GNP of 6.8 per cent in real terms, that is, after removing the part of the increase that reflected higher prices rather than greater output, was well above that experienced in any year since 1966, when it was 6.9 per cent. By comparison, real growth amounted to 5.8 per cent in 1972 and to 5.6 per cent in 1971.

As in the previous two years, consumer outlays, especially on automobiles and other durable goods, and housing construction continued to provide a major impetus to expansion. In 1973 sharp increases in business fixed investment in non-residential structures and in machinery and equipment gave an additional important boost to the economy. The rate of increase of 17.6 per cent in the latter categories occurred after six years of relatively low outlays. There were indications that the fast pace of business fixed investment in plant and equipment would continue in 1974. On the other hand, the rate of non-farm inventory investment for the year as a whole showed only a modest increase. The external sector continued to display buoyancy, with both exports and imports of goods and services posting large gains. Economic growth was mirrored on the income side by sharp rises in all components but most spectacularly in corporation profits and in farm income.

Within the year the pace of activity was uneven. There was widespread demand strength in the opening quarter, which showed an exceptional 3.0 per cent spurt in real growth on the heels of a strong 2.5 per cent rise in the closing quarter of 1972. The initial burst of activity, which put the economy at a much higher level than the average performance in 1972, was followed by two quarters of relatively slow growth, partly caused by developing supply constraints and the disruptive effects of a railway strike and other labour disputes in the third quarter. The sharp rebound in the fourth quarter, which showed a 2.6 per cent increase in real growth, was general, including a substantial buildup of non-farm inventories at wholesale and retail trade levels, apparently related to the resumption of rail shipments following the strike.

Consumer Outlays

In line with very strong increases in personal disposable income and in consumer credit outstanding, consumer outlays on goods and services registered an unusually large gain for the second consecutive year. Personal expenditure rose \$8,800 million, or 14.5 per cent and accounted for almost 57 per cent of the rise in GNP. In real terms, the rise of 8.0 per cent, which surpassed rises of 6.9 per cent and of 5.3 per cent in 1972 and in 1971 respectively, was much higher than any recorded since 1955. Growth in consumer spending outpaced the rise in personal disposable income, resulting in a decline in the savings ratio (personal saving as a proportion of personal disposable income) from 8.3 per cent in 1972 to 7.4 per cent in 1973.

This ratio, however, remained very high by historical standards.

The 18 per cent increase in personal expenditure on durable goods was very broadly based. About one third of the \$1,700 million increase consisted of greater expenditures on new automobiles. The over-all strength of demand for cars evident in the previous two years continued into the first quarter of 1973, which showed an acceleration in spending from 11 per cent growth in the fourth quarter of 1972 to 14 per cent in the first quarter of 1973. These outlays declined over the rest of the year. Expenditure on durable goods, other than automobiles, rose by 18 per cent. In particular, there were strong gains in outlays on furniture and home appliances, reflecting the concurrent boom in the housing sector. A modest 1.3 per cent rate of price increase for the durable goods category as a whole resulted in a volume gain of 16.8 per cent, up from 14.7 per cent in the previous year.

Expenditure on semi-durable goods and on non-durable goods also rose at unusually strong rates, the former by 17.1 per cent and the latter by 16.2 per cent. Here, however, much of these gains consisted of higher prices, especially for non-durable goods, where a price rise of 10.1 per cent was registered, largely centred in the prices of food and fuels. In volume terms, outlays on semi-durables rose by 11.8 per



Non-residential construction and machinery and equipment spending rose at accelerated rates in 1973.

cent and on non-durables by 5.6 per cent. In semi-durables, there were very strong gains in outlays on clothing and footwear. Expenditure on services showed some acceleration, from 8.8 per cent in 1972 to 10.8 per cent in 1973.

Investment

All components of gross fixed capital formation displayed strength in 1973. The housing sector, contrary to earlier expectations, registered a strong gain of 23 per cent after sharp rises in 1971 and 1972. Even in volume terms, the gain of about 13 per cent was considerable. Housing starts rose by over 7 per cent to reach a record level of 269,000 units. As in the previous year, the rise was concentrated in starts of single detached dwellings.

Business fixed investment in plant and equipment rose by almost 18 per cent in value terms and by about 11 per cent in terms of volume. Both non-residential construction and machinery and equipment spending rose at accelerated rates, but especially the latter, which was up by 19 per cent. Rises in spending on machinery and equipment were widespread but especially notable in outlays in the manufacturing and utilities industries and on farm machinery and business vehicles.

Investment in non-farm business inventories rose by only \$159 million to a level of \$923 million. The accumulation was almost equally distributed among the three major industry groups, manufacturing, wholesale trade, and retail trade. Within manufacturing, the stocks of industries producing durable goods showed substantial accumulations while the stocks of industries producing non-durable goods were liquidated for the second consecutive year. At the trade level, increases in the stocks of durable and of non-durable goods were of similar magnitudes. The stocks-to-shipments ratio continued the pronounced decline begun in 1971.

The External Sector

The pace of activity in the external sector quickened markedly in 1973. The value of merchandise exports rose by 26.1 per cent, up substantially from 12.6 per cent in 1972. The most notable gains occurred in exports of lumber, crude petroleum, wood pulp, and automobiles. All of the acceleration (with the exception of automobiles and parts) was due to sharp increases in the prices of certain basic commodities. With a price increase of 16.0 per cent, the rate of growth of merchandise exports measured by volume actually decelerated somewhat from 9.1 per cent in 1972 to 8.7 per cent. The value of merchandise imports rose at about the same rate as that of merchandise exports. However, since the price increase of 8.9 per cent was much smaller than that shown by exports there was a substantial increase of about 15 per cent in volume. Particularly strong increases were recorded in imports of machinery and equipment, in line with rising investment outlays, and of automobiles and parts.

An increase of \$586 million in the surplus in merchandise trade was somewhat offset by an increase in the deficit in the services account, partly owing to increased travel payments and larger outflows of interest and dividends. The deficit on all transactions in goods and services with non-residents declined by \$160 million to a level of \$785 million.



The Sparks Street Mall in Ottawa.

Incomes

Economic expansion was reflected on the income side by extensive gains in practically all components. Labour income (representing over one half of the GNP) rose by over 12 per cent, corporation profits rose by about 36 per cent, and accrued farm income rose by 92 per cent. The astounding rise in farm income reflected sharply rising prices in international grain markets.

The acceleration in labour income (the rate of increase in 1972 was 11.0 per cent) resulted from gains in employment, and from a rise in average earnings similar to that experienced in the previous year. Wages and salaries rose at similar rates in the goods-producing and the service-producing industries. The gain in the goods-producing industries of 12.5 per cent exceeded the increase of 9.2 per cent in the previous year. Within the goods-producing industries, wages and salaries in manufacturing, up 12.8 per cent, posted their largest gain in many years. Within the service-producing industries, there were higher wages and salaries in trade and in finance, insurance, and real estate, in line with significant increases in the number employed in these industries.

The rise of 35.7 per cent in the preliminary estimate of corporation profits represented a sharp acceleration after very large gains of 12.9 per cent in 1971 and 21.1 per cent in 1972. Since 1971, this component has been rising faster than total income generated and now represents 12.0 per cent of GNP, the largest proportion since 1952. Although nearly all industries showed profit increases, especially strong growth was recorded in manufacturing and mining. Within manufacturing, particularly large gains were recorded in textiles, wood, paper and allied industries, primary metals, metal fabricating, non-metallic minerals, and refined petroleum products. All mining groups—base metal mining, oil and gas mining, and others—increased substantially.

As in the previous year, a significant part of the rise in corporation profits and in non-farm unincorporated business income was due to inventory gains resulting from the turnover of goods at rising prices. The inventory valuation adjustment,

intended to remove from income profits that do not reflect current production, rose by almost \$1,500 million in 1973.

Sources of Personal Income, 1950, 1960, 1970, 1972, and 1973

Source	1950	1960	1970	1972	1973
	Millions of dollars				
Wages, salaries, and supplementary labour income.....	8,998	19,582	46,706	56,976	64,108
Military pay and allowances.....	154	559	914	979	1,039
Net income received by farm operators from farm production.....	1,165	1,023	1,119	1,597	2,972
Net income of non-farm unincorporated business including rent.....	1,882	3,192	5,424	6,359	6,803
Interest, dividends, and miscellaneous investment income.....	983	2,029	5,220	6,254	7,467
Current transfers:					
From government (excluding interest).....	1,025	3,099	6,995	9,935	11,225
Charitable contributions by corporations.....	40	81	148	164	177
Personal remittances from non-residents.....	15	30	107	176	201
Personal Income.....	14,262	29,595	66,633	82,440	93,992

Disposition of Personal Income, 1950, 1960, 1970, 1972, and 1973

Disposition	1950	1960	1970	1972	1973
	Millions of dollars				
Personal expenditure on consumer goods and services:					
Durable goods.....	1,576	3,236	6,799	9,062	10,718
Semi-durable goods.....	2,162	3,577	6,645	8,108	9,497
Non-durable goods.....	4,896	9,002	16,186	19,387	22,528
Services.....	3,848	9,664	20,697	23,780	26,351
Total personal expenditure on consumer goods and services.....	12,482	25,479	50,327	60,337	69,094
Personal direct taxes and other deductions:					
Income taxes.....	612	1,979	8,811	11,410	13,308
Succession duties and estate taxes.....	66	158	266	231	205
Miscellaneous taxes.....	62	234	1,077	1,043	1,069
Employer and employee contributions to social insurance and government pension.....	237	657	2,470	3,016	3,433
Total personal direct taxes and other deductions.....	977	3,028	12,624	15,700	18,015
Other current transfers:					
To corporations.....	29	123	641	706	1,009
To non-residents.....	36	98	169	178	214
Total other current transfers.....	65	221	810	884	1,223
Personal savings.....	738	867	2,872	5,519	5,660
Personal income.....	14,262	29,595	66,633	82,440	93,992
Personal disposable income.....	13,285	26,567	54,009	66,740	75,977

Primary Industries

Agriculture

Although Canada is largely an urban and industrial country, agriculture remains an extremely important part of the economy and accounts for approximately 30 per cent of the activity in the primary industry sector of the economy.

The total investment in agriculture exceeded \$29,000 million in 1973, with about 69 per cent of it in real estate, 15 per cent in machinery and equipment, and 16 per cent in livestock. The export of agricultural products is an important source of foreign exchange for Canada, one of the world's five largest exporters of farm products. In 1973, agricultural exports exceeded \$3,000 million and represented approximately 12 per cent of the country's total exports for that year.

In terms of employment, agriculture continues to be the leading primary industry in Canada; it ranks ahead of forestry, fishing, mining, and oil production. In 1973, more than twice as many workers were engaged directly or indirectly in agriculture as in all other primary industries combined.

However, owing to the development of industries providing alternative employment, and the extensive mechanization of work on farms, the number of farm workers has been declining. While 681,000 workers were employed on farms in 1961, the estimated number for 1973 was 467,000. The number of farms declined

Eighty-two per cent of the country's farmland lies in western Canada.





Swather in wheat field, near Portage la Prairie, Man.

from 480,903 in 1961 to an estimated 340,370 in 1973.

Although the numbers of workers and farms have been declining, the total production of food has increased steadily. Since 1960, output by one man or productivity in agriculture has increased by 95 per cent compared with 39 per cent for commercial non-agricultural industries. It is estimated that one farmer currently produces sufficient food to feed 50 people as a result of his farming efforts or nearly 10 times as many as a farmer of the early 1900's could support.

Family farms dominate the agricultural picture in Canada. A relatively small proportion of these are incorporated or operated as partnerships but most are individually owned and operated. With the decrease in the number of farms, the average size of existing farms has increased either through purchase or rental arrangements. A relatively small proportion of farmers rent all the land they farm. In 1971, there were 170 million acres of land in agriculture and this was distributed among 366,128 farms of which 69 per cent were owned by farm operators and 31 per cent were rented. Eleven per cent of farms were run by operators who did not live on their farms.

The cultivated area of a farm is frequently determined by the type of production carried on and the extent of family or hired labour available. On a farm specializing in crops such as fruits and vegetables, the acreage is small but the labour requirements are large. At the other extreme, on a mechanized grain farm on the Prairies, a farmer may work 1,000 acres or more with very little help.

Although 82 per cent of the country's farmland lies in western Canada, farming is carried on in all provinces and even in a few small areas of the Yukon and the

Northwest Territories.

There are five main types of farms: dairy, livestock (excluding dairy), grain, combination grain and livestock, and special crops. Farms specializing in general livestock production are found mainly in Alberta and Ontario, and to a lesser extent in Quebec and Saskatchewan. Quebec and Ontario have the most dairy farms, but 40 per cent of Nova Scotia's farms are devoted to dairying. General grain farms with such crops as wheat, rapeseed, oats, barley, and flax are found mostly in Saskatchewan, Alberta, and Manitoba and these provinces also have the largest number of farms engaged in a combination of grain and livestock production. Ontario has the most special-crop farms—those that gain most of their revenue from vegetables, fruits, potatoes, other root crops, and tobacco—with Quebec second and British Columbia third.

Agriculture benefits the country in other ways than simply by providing sufficient food for the population's needs and foreign exchange from sales abroad. The processing of farm products and the manufacture of farm machinery, feeds, and fertilizers contribute to industrial employment in Canada, and thousands of jobs at the retail level depend on the sale of agricultural products and supplies. At the same time, farm customers provide an important market for producers of petroleum products, building materials, electric power, and other products.

Field Crops

The Prairie Provinces' most important crop is spring wheat of which over 23 million acres were seeded in 1974. Wheat is a source of natural wealth of long standing. Its importance to the Canadian economy, particularly in the West, goes back to the time of the first extensive development of Prairie farming, which followed the coming of the railways in the latter part of the 19th century. Much of the development of that time was based on wheat, which was an exportable commodity. Wheat growing produces revenue for Canadian farmers amounting to approximately \$782.5 million a year. It is also an important earner of foreign exchange since about 75 per cent of the crop is usually exported. Canada is one of the five or six major exporters of wheat in the world.

However, wheat is not the only grain grown in Canada; oats and barley in the Prairies particularly, and corn in Ontario are essential to the Canadian livestock industry. Prairie farmers in 1973 grew about 722 million bushels of oats and barley and total production of these grains for all of Canada was just over 800 million bushels. Total supplies of oats and barley in 1973-74 amounted to a combined figure of some 1,074.2 million bushels. Disposition of these two major feed grains was accounted for by exports of 128.3 million, domestic use of 667.2 million and carry-over stocks of 278.7 million bushels.

The third major type of field crop is the oilseeds: rapeseed and flaxseed are grown on the Prairies and soybeans in Ontario. These crops are processed to produce vegetable oils for human consumption or industrial use and for high protein meal for feed. Although rapeseed is a relatively new crop, 5.3 million acres were grown in 1971. However planting declined to 3.2 million acres in 1973 as strong markets for wheat developed. About 94 per cent of the rapeseed crop is exported, principally to Japan.

**Estimated Area, Yield, and Production of Principal Field Crops,
1972 and 1973**

	Area in Acres		Yield per Acre in Bushels		Production in Bushels	
	1972	1973	1972	1973 ¹	1972	1973 ¹
Winter wheat	365,000	375,000	43.5	39.5	15,878,000	14,812,000
Spring wheat ²	20,984,700	24,385,700	24.7	25.2	517,410,000	613,926,000
All wheat	21,349,700	24,760,700	25.0	25.4	533,288,000	628,738,000
Oats for grain	6,104,000	6,698,000	49.2	48.8	300,208,000	326,880,000
Barley for grain	12,508,900 [†]	11,958,200	41.4	39.7	518,316,000 [†]	474,570,000
Fall rye	593,000	591,500	21.6	22.9	12,784,000	13,517,000
Spring rye	41,500	42,000	17.8	18.2	740,000	765,000
All rye	634,500	633,500	21.3	22.5	13,524,000	14,282,000
Flaxseed	1,321,000	1,450,000	13.3	13.4	17,617,000	19,400,000
Mixed grains	2,064,900	2,001,500	50.5	48.5	104,285,000	97,013,000
Corn for grain	1,327,000	1,286,000	75.0 [†]	84.7	99,538,000 [†]	108,941,000
Buckwheat	102,800	89,000	16.6	12.7	1,711,000	1,129,000
Peas, dry	67,600	88,600 [†]	23.5	24.0	1,587,000	1,649,000
Beans, dry	134,200	133,200 [†]	24.1 [†]	21.7	3,233,000 [†]	2,885,000
Soybeans	405,000	470,000	34.0	31.0	13,770,000	14,570,000
Rapeseed	3,270,000	3,150,000	17.5	16.9	57,300,000	53,200,000
Potatoes ³	244,100 [†]	262,200 [†]	cwt. lb.	cwt. lb.	cwt. lb.	cwt. lb.
Mustard seed	180,000	335,000	842	782	151,500,000	262,000,000
Sunflower seed	217,000	129,000 [†]	783	705	170,000,000	90,900,000
			tons	tons	tons	tons
Fame hay	12,859,000	13,200,000	1.88	2.00	23,929,000	26,448,000
Fodder corn	812,200 [†]	892,500	12.36 [†]	12.63	10,042,000 [†]	11,276,000
Field roots	10,400	10,500	12.31	10.67	128,000	112,000
Sugar beets	77,610	69,031 [†]	13.78	14.40	1,069,744 [†]	993,925

¹As indicated on the basis of conditions about October 22.

²Includes durum wheat and relatively small estimates of winter wheat for all provinces except Ontario.

³The 1972 and 1973 acreage figures refer only to potatoes grown mainly for sale.

[†]Revised figures.

Grain corn is grown for livestock feed and for industrial use.



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

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

Horticultural Crops

The fruit and vegetable industry is an important part of the agricultural and food distribution sectors of the economy. Fresh and processed fruits and vegetables account for more than one third of the quantity of all food consumed in Canada. There are over 25 fruit and vegetable crops (potatoes excluded) grown commercially in Canada with an annual farm value of over \$200 million.

The most important fruit grown in Canada is still the apple. Commercial apple orchards are found in Nova Scotia, New Brunswick, southern Quebec, much of Ontario and the interior of British Columbia, particularly in the Okanagan Valley. Tender tree fruits—pears, peaches, cherries, plums—are also grown in Ontario; the most important concentrations in the Niagara Peninsula and in Essex County. These fruits as well as apricots are also grown on a large scale in the southern part of the Okanagan Valley in British Columbia.

In addition to tree fruits, strawberries and raspberries are cultivated commercially in the Maritimes, Quebec, Ontario, and British Columbia. British Columbia fruit growers also produce loganberries commercially in the Lower Mainland and on Vancouver Island. Grapes also are grown quite extensively in the Niagara district of Ontario and on a smaller scale in British Columbia. The native blueberry is found wild over large areas in Canada and is harvested in commercial quantities in the Atlantic Provinces, Quebec, and Ontario. A cultivated crop is grown in British Columbia.

The production of field-grown vegetables in Canada is seasonal. During the winter when no domestic vegetables are being harvested, except in greenhouses, supplies of most fresh vegetables are imported duty free from the United States. During the growing season a large percentage of domestic requirements are met from Canadian output. Some vegetables are exported from Canada, particularly to a few large centres of population in the United States close to the border.

From the point of view of income, potatoes are the most important of the vegetables produced in Canada. Production slightly exceeds consumption and normally about 5 per cent is exported.

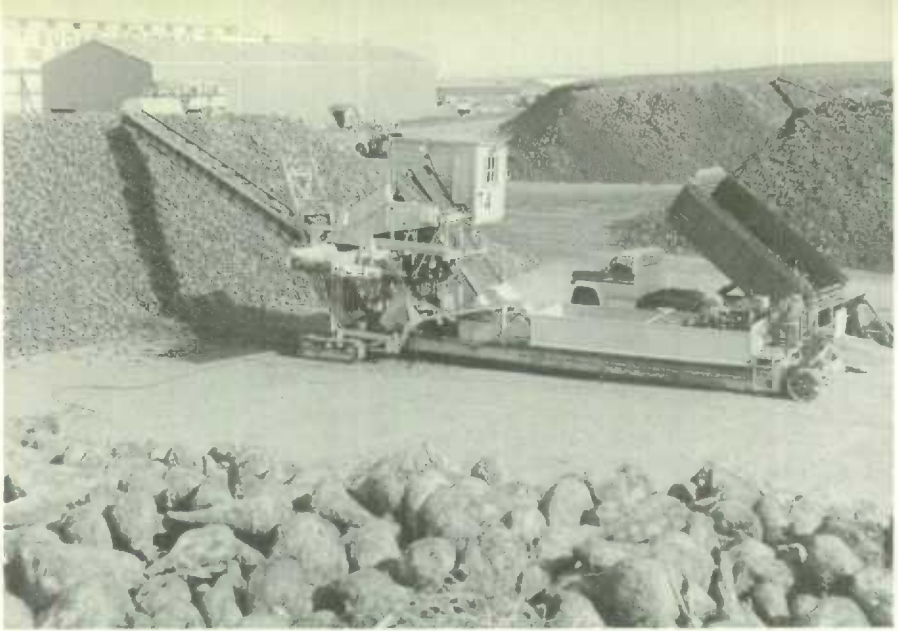
The processing industry plays an important part in the marketing of Canadian-



grown fruits and vegetables. Over the years factories have been built in most of the important growing regions and considerable proportions of fruit and vegetable crops are canned, frozen, or otherwise processed each season, especially asparagus, beans, peas, corn, and tomatoes. In recent years the importance of freezing has been increasing. Almost all vegetables for processing are grown under a system whereby the processor contracts annually with each grower for certain acreages.

The processing of canned tender tree fruits has declined considerably and imports have increased rapidly. Over the past 25 years the tonnage and value of exported vegetables has varied considerably but there is a slight upward trend. However, in the same period vegetable imports have doubled.

In recent years the supply of fruits available for consumption in Canada has remained relatively unchanged while the supply of vegetables has declined. The per capita domestic consumption of all fruits for 1972 of 247.1 pounds (fresh equivalent weight) was almost identical to the five-year average (1966-70) of 247 pounds. Of this total, 109.3 pounds per capita were fresh, 51.8 were canned, 3.3 were frozen and 60.3 were made into juice. Per capita consumption of vegetables, excluding potatoes, was 109 pounds for the same period and this was 6 per cent lower than the five-year average of 116 pounds. Each individual consumed an average of 64.2 pounds of fresh vegetables, 25.2 pounds of canned vegetables, and 9.7 pounds of frozen vegetables in 1972 (fresh equivalent weight). This means that there were 519.3 pounds of fruits and vegetables, including potatoes, available for consumption by every Canadian in 1972.



Sugar beets being delivered to a plant at Taber, Alta. The harvest last year was 561,600 tons, from 37,000 acres, producing 140,000,000 pounds of sugar.

The total area operated under glass and plastic in 1971 and 1972 amounted to 32.1 million square feet and 35.6 million square feet, respectively, while the total value of growers' sales stood at \$64.6 million in 1971 and \$74.1 million in 1972.

In 1972 nurseries had a total revenue of \$55 million. Approximately 44 per cent of this represents growers' sales of traditional fruit and nursery stock and 34 per cent was earned by supplying the increasing demand for contracted services.

Sugar beets are grown commercially in Quebec, Manitoba, and Alberta and beet sugar factories are located in these provinces. In Quebec, commercial production is centred in the St-Hilaire area of the Eastern Townships. Sugar beets are grown under irrigation, in Alberta, which produces the largest crop.

Maple syrup is produced commercially in Nova Scotia, New Brunswick, Quebec, and Ontario. The bulk of the crop comes from the Eastern Townships of Quebec, a district famous in both Canada and the United States as the centre of the maple products industry. Virtually all of the maple products are exported to the United States, the larger proportion in the form of sugar, although substantial quantities of syrup are also shipped. Much of the syrup sold in Canada is marketed in one-gallon cans direct to the consumer from the producer but a considerable amount of both sugar and syrup is sold each year to processing firms.

Honey production in 1972 was below that in 1971. Honey is produced commercially in all provinces except Newfoundland and yields naturally vary to some extent from year to year. Alberta is consistently the largest producer; it accounted for almost 41 per cent of the total output in 1972. Honey-bees are kept in some districts to pollinate fruit trees and in others to pollinate seed crops. To facilitate storage, shipment, and uniformity of quality, large quantities of Canadian honey are pasteurized. Beekeepers' marketing co-operatives are active in several provinces. In 1971, Canada exported 24.2 million pounds of honey valued at \$4.3 million, more than two and a half times the quantity exported in 1970. Exports went mainly to Britain, the United States, the Federal Republic of Germany, Japan, and the Netherlands.

Livestock

Preliminary estimates for 1973 indicate that total cash receipts from farm produce were \$6,741 million of which \$4,011 million (60 per cent) came from livestock and animal products, an increase from 57 per cent in 1972. Cattle (including calves) and pig sales in 1973 amounted to \$1,576 million and \$835 million respectively. This represents 23 and 12 per cent of total cash receipts. Cash receipts from the sale of sheep and lambs in 1973 increased to about \$11.6 million from about \$9.1 million in 1972.

On June 1, 1973, the number of cattle and calves on farms in Canada (not including Newfoundland which had 7,138 head at the time of the June 1, 1971, census) was estimated at 14,158,500, up 4 per cent from 13,656,500 at June 1, 1972. This was a record high for cattle at this time of year. The number of milk cows, estimated at 2,177,000, was down 2 per cent from 2,210,800 in June 1972 but the number of dairy heifers increased to 539,800 from last year's 524,300, a difference of 3 per cent. Beef cows, estimated at 3,940,600, were up 7 per cent while beef heifer figures showed little or no change over 1972. Steers were up a mere 1 per cent while calf figures jumped 6 per cent. Inspected slaughter of cattle in 1973, reported by Agriculture Canada, showed no change at 2,878,016 but calf slaughter, reported at 291,524, was down 28 per cent over last year.

Agriculture Canada also reports exports of slaughter cattle (200 pounds and more) amounted to 16,146 an increase of 50 per cent over 1972 and feeder cattle (200 pounds and more) jumped from 52,084 in 1972 to 128,167 in 1973.

Agriculture Canada reports that the weighted average price by hundredweight of A1 and A2 steers at Toronto was \$46.56 in 1973, well above the 1972 price of \$37.20. The weighted average price for feeder steers over 750 pounds was \$46.54, also up

Ova-transplant operations hold promise of increasing the production of superior breeds of cattle.



Estimated Meat Production and Disappearance, 1972 and 1973

	1972	1973	1972	1973
	Beef		Veal	
Animals slaughtered .....No.	3,392,700	3,411,700	644,600	482,200
Meat exports.....'000 lb.	83,829	88,241	1	1
Meat production '000 lb.	1,898,328	1,910,575	80,525	65,857
Domestic disappearance.....'000 lb.	2,021,750	2,030,365	75,662	69,676
Per capita consumption..... lb.	92.5	91.8	3.5	3.1
	Pork		Mutton and Lamb	
Animals slaughtered No.	10,564,700	10,398,800	446,300	501,100
Meat exported '000 lb.	115,517	125,614	676	156
Meat production '000 lb.	1,392,607	1,360,418	19,850	21,893
Domestic disappearance.....'000 lb.	1,332,239 [†]	1,274,687	101,687 [†]	82,183
Per capita consumption lb.	61.0 [†]	57.6	4.7 [†]	3.7
	Offal			
Production '000 lb.	127,023	125,461		
Domestic disappearance '000 lb.	88,741	79,982		
Per capita consumption lb.	4.1	3.6		

[†]Revised.

[†]Included with beef.

from the 1972 figure of \$39.75. Both of these 1973 figures were well above their respective five-year averages of \$32.66 and \$33.10. Choice and good veal calves averaged \$56.37 in 1973 and \$45.35 in 1972. The five year average was \$39.85.

On June 1, 1973, pigs on farms in Canada (not including Newfoundland which had 14,639 at the June 1, 1971 census) numbered 7,022,000, unchanged from a year ago. Inspected slaughter of pigs in 1973 totalled 9,041,420 according to Agriculture Canada, a decrease of 3 per cent from 1972. Decreased slaughterings raised prices, making the weighted average price at Toronto \$54.66 a hundredweight for Index 100 pigs, up from \$37.40 in 1972. Despite higher prices and lower output, Agriculture Canada reports that exports of pork were up again in 1973 to 117,169,311 from 114,053,411 in 1972, an increase of 3 per cent.

The sheep and lamb population of Canada (not including Newfoundland which had 9,384 at the June 1, 1971 census) suffered a further decrease to 832,500 in June 1973 from 845,000 in June 1972, a drop of 2 per cent. The West showed a loss of less than 1 per cent; the East, a drop of almost 3 per cent. The breeding flock of sheep one year old and over showed a decrease of 4 per cent. Inspected slaughter of sheep and lambs was up to 234,206 in 1973, over the 1972 figure of 214,769. Exports of sheep and lambs to the United States was down to 7,216 in 1973, from 12,443 in 1972 according to Agriculture Canada. Imports of live animals from the United States increased from 40,696 in 1972 to 56,227 in 1973. The weighted average price for good lambs at Toronto was \$34.73 in 1972 and jumped to \$42.87 in 1973. The 1973 average was also well above the five-year average of \$32.30.

Dairying

According to estimates of June 1, 1973, there were 2.3 million milk cows in Canada. A total of 16,886 million pounds of milk was produced during the year.

**Per Capita Disappearance of Meats
on a Cold Dressed Carcass Weight Basis**

Year	Beef	Veal	Mutton and Lamb	Pork	Offal	Canned Meat	Total
Pounds							
1935.....	53.6	9.8	6.0	39.3	5.5	1.5	115.7
1940.....	54.5	10.8	4.5	44.7	5.5	1.3	121.3
1945.....	65.4	12.4	4.3	52.8	5.6	3.3	143.8
1950.....	50.8	9.4	2.2	55.0	4.9	5.1	127.4
1955.....	69.1	8.4	2.6	49.2	5.3	4.2	138.8
1960.....	70.0	6.9	2.9	52.6	4.8	6.4	143.6
1966 ¹	84.0	6.9	3.9	47.0	3.6	4.2	149.6
1967 ¹	83.2	7.0	4.2	54.5	3.9	4.7	157.5
1968 ¹	85.1	6.8	4.9	53.5	3.7	4.7	158.7
1969 ¹	85.6	5.1	5.0	51.4	3.8	4.6	155.5
1970 ¹	84.4	4.6	4.6	58.7	3.4	4.7	160.4
1971 ¹	89.2	4.7	3.3	68.3	4.4	..	169.9
1972.....	92.5	3.5	4.7 [†]	61.0 [†]	4.1	..	165.8
1973.....	91.8	3.1	3.7	57.6	3.6	..	159.8

¹ Intercensal revisions.

.. Figures not available.

[†] Revised figures.

Although milk cows are raised in every province in Canada, production tends to be concentrated in the more densely populated regions of Quebec and Ontario where milk cows gave 73 per cent of the country's milk supply in 1973.

The most important manufactured dairy products were butter, cheese, concentrated milk products, and ice cream mix; approximately 60 per cent of the total milk supply was used to manufacture these products. Fluid milk sales accounted for 33 per cent and farm use made up the balance, or 7 per cent. Farm use figures include milk fed to livestock, farm home consumption, and farm-made butter.

Approximately 17,000 million pounds of milk were produced in Canada during 1973.

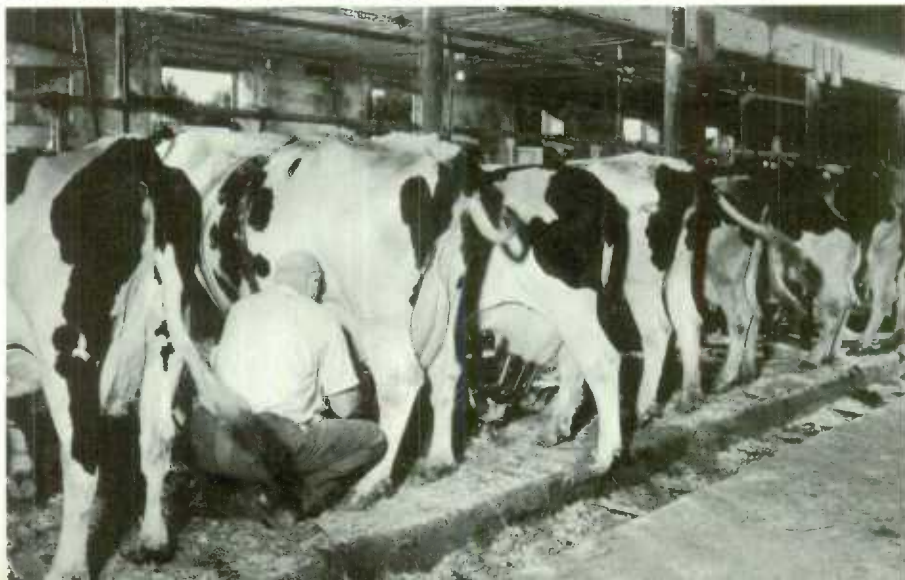


Dairy farms in Canada are fewer and bigger than a decade ago. Using the census years of 1961, 1966, and 1971, there were, respectively, 309,000, 222,000, and 145,000 farms reporting milk cows. The principal dairy breeds in Canada are Holstein, Ayreshire, Guernsey, and Jersey. In addition there is a small amount of milk from dual-purpose breeds. During 1973, the farm value of milk production was approximately \$912 million. The farm value of milk used in factories was \$447 million and that for fluid sales \$411 million.

**Milk Production and Utilization, Canada, by Regions
1971-73**

Region	Year	Total Milk Production	Milk Used for Dairy Factory Products	Fluid Milk Sales	Milk Used on Farms
		Thousands of pounds			
Maritimes.....	1971	781,150	357,593	367,278	56,279
	1972	784,831	355,319	375,902	53,610
	1973	744,677	318,343	378,730	47,604
Quebec and Ontario.....	1971	12,783,247	8,650,794	3,503,616	628,837
	1972	12,992,439	8,793,083	3,561,524	637,832
	1973	12,307,825	8,020,099	3,632,639	655,087
Prairies.....	1971	2,933,686	1,659,381	824,071	450,234
	1972	2,921,996	1,639,589	853,856	428,551
	1973	2,847,385	1,561,429	878,728	407,228
British Columbia.....	1971	971,110	345,006	579,679	46,425
	1972	976,937	330,205	603,137	43,595
	1973	986,146	314,195	626,092	45,859
Totals, Canada.....	1971	17,469,193	11,012,774	5,274,644	1,181,775
	1972	17,676,203	11,118,196	5,394,419	1,163,588
	1973	16,886,033	10,214,066	5,516,189	1,155,778

Holstein, Ayreshire, Guernsey, and Jersey are the principal dairy breeds in Canada.





Over 80 per cent of the eggs in Canada are provided by about 5 per cent of producers.

Poultry and Eggs

Recently there has been a high degree of specialization and concentration, particularly in the egg, broiler chicken, and turkey industries. The egg industry itself, for example, is further specialized into fields such as hatching eggs, started pullets, and shell eggs for the table. Over 80 per cent of eggs are produced by about 5 per cent of producers. The production of broiler chickens and turkeys has comparable features. A few very large enterprises account for most of the geese and ducks produced in the country.

The producers of eggs, turkeys, and broiler chickens operate within the constraints of supply-management programs directed by provincial producer marketing-boards. The activities of egg producers and turkey producers at the provincial levels are co-ordinated by national agencies (the Canadian Egg Marketing Agency and the Canadian Turkey Marketing Agency, respectively), which operate under a federal government charter.

Summary of Supply and Disposition of Poultry Meat and Eggs in Canada, 1973

	Total Poultry Meat	Fowl	Chicken	Turkey	Goose	Duck	Eggs
	Thousand pounds eviscerated weight						'000 dozen
Stocks at January 1	56,454	4,688	26,882	24,292	191	401	6,307
Production	1,042,941	72,180	728,990	230,330	4,299	7,142	461,720
Imports	17,572	1,096	7,644	7,861	—	971	4,084
Total	1,116,967	77,964	763,516	262,483	4,490	8,514	472,111
Exports	4,931	37	4,045	848	—	1	12,014
Stocks at December 31	75,899	5,106	33,814	36,418	335	226	3,393
Eggs used for hatching	—	—	—	—	—	—	26,575
Domestic disappearance	1,036,137	72,821	725,657	225,217	4,155	8,287	430,129
	pounds						dozens
Per capita consumption	46.9	3.3	32.8	10.2	0.19	0.37	19.4

Furs

Fur statistics have been collected and published annually since 1920. For the 1972-73 fur season the reported harvest of pelts was 3,956,463, a 7 per cent decrease from the 4,274,599 pelts harvested in 1971-72. The value, however, increased to \$46,659,186 from the 1971-72 figure of \$32,733,913. The value of wildlife pelts in 1972-73 was \$29,942,031 or 64.2 per cent of the total. The value of pelts produced by fur farms increased from \$14,703,702 to \$16,717,155 for the 1972-73 season. The value of mink pelts was \$16,619,053, only about 59 per cent of the 1965-66 peak of \$28,279,404. The value of undressed furs exported during the 1972-73 season increased to \$41,159,000, over the previous season's value of \$29,773,000. Imports were also up to \$39,648,000 from \$30,020,000 in 1971-72.

Value of exported undressed furs increased to \$41,159,000 during 1972-73.



**Number and Value of Pelts Produced, by Kind,
Canada, 1971-72 and 1972-73**

Kind	1971-72			1972-73		
	Number	Value	Average value	Number	Value	Average value
	Dollars			Dollars		
Wildlife						
Badger	2,121	23,384	11.02	5,170	68,131	13.18
Bear:						
Black or brown	2,522	59,111	23.44	3,008	146,788	48.80
Grizzly	7	915	130.71	19	3,230	170.00
White	389	128,000	329.05	472	289,685	613.74
Beaver	375,213	6,444,713	17.18	452,275	9,912,695	21.92
Coyote or prairie wolf	46,500	727,258	15.64	78,148	2,192,763	28.06
Ermine (weasel)	39,016	25,060	0.64	82,127	92,413	1.13
Fisher or pekan	8,278	242,963	29.35	13,798	508,651	36.86
Fox:						
Blue	133	1,651	12.41	119	2,520	21.18
Cross and red	53,731	869,806	16.19	48,215	1,411,441	29.27
Silver	470	7,730	16.45	392	9,263	23.63
White	33,655	383,819	11.40	10,146	196,059	19.32
Not specified	2,243	22,442	10.01	10,542	292,916	27.79
Lynx	53,589	2,040,085	38.07	53,400	4,739,826	88.76
Marten	56,231	468,280	8.33	61,109	831,745	13.61
Mink	72,946	857,547	11.76	100,049	1,770,456	17.70
Muskrat	1,798,025	3,168,382	1.76	1,506,810	3,720,005	2.47
Otter	15,261	511,877	33.54	18,411	828,659	45.01
Rabbit	10,021	1,009	0.10	7,743	784	0.10
Raccoon	28,755	156,750	5.45	61,290	637,136	10.40
Seal:						
Fur seal—North Pacific ¹	9,138	310,728	34.00 ²	8,228 ⁴	373,753	45.42 ²
Hair seal ^{3, 4}	109,154 ⁴	1,123,334 ⁴	10.29 ⁴	94,572 ⁴	1,155,081 ⁴	12.21 ⁴
Skunk	179	67	0.37	224	196	0.88
Squirrel	390,893	217,974	0.56	291,492	304,770	1.05
Wildcat	3,837	81,729	21.30	3,682	149,116	40.50
Wolf	3,804	115,628	30.40	4,208	217,119	51.60
Wolverine	561	39,969	71.25	1,022	86,830	84.96
Sub-total	3,116,672	18,030,211	...	2,916,671	29,942,031	...
Ranch-raised:						
Fox	1,405	54,950	39.11	1,473	98,102	66.60
Mink	1,156,522	14,648,752	12.67	1,038,319	16,619,053	16.01
Sub-total	1,157,927	14,703,702	...	1,039,792	16,717,155	...
Total	4,274,599	32,733,913	...	3,956,463	46,659,186	...

¹ Commonly known as Alaska Fur seal. The value figures are the net returns to the Canadian Government for pelts sold.

² The gross average realized price per pelt sold in 1971-72 was \$73.59 and \$90.82 in 1972-73.

³ Includes data for the three Maritime provinces.

⁴ Hair seal data are based on a calendar year for 1972 and 1973 except for the Northwest Territories which is on a fur year ending June 30.

...Figures not applicable.

Fisheries

The waters off Canada's coasts, which rank among the most productive fishing grounds in the world, support the country's oldest primary industry. On the Pacific and Atlantic coasts and in the great freshwater areas of inland Canada, fisheries provide a livelihood to some 60,000 fishermen operating out of 35,500 fishing craft ranging from small dories to large stern trawlers. The fishery also employs an additional 18,500 persons in fish processing plants across the country.

Although Canada's total seafish catch of 21,800 million pounds in 1973 was slightly less than that of the previous year, higher prices boosted the landed value to fishermen by 37 per cent to \$300 million representing a market value of roughly \$700 million.

Canada's role in world fisheries is that of a major exporter since, unlike many other fishing nations, Canada's production is principally for international trade. Occupying eleventh place among the 15 or so countries that harvest more than one million short tons of fish annually, Canada ranks fourth in the world in the value of its fishery exports. In 1973, exports of fish products amounted to approximately \$500 million, representing about two thirds of the country's total production and an increase of \$150 million over 1972.

During the past year attention continued to be focused on the conservation

A fish hatchery near Topley Landing, Babine Lake, B.C.





Canada ranks fourth in the world in the value of fishery exports. Landings of salmon on the West Coast reached a record-breaking value of \$100.2 million.

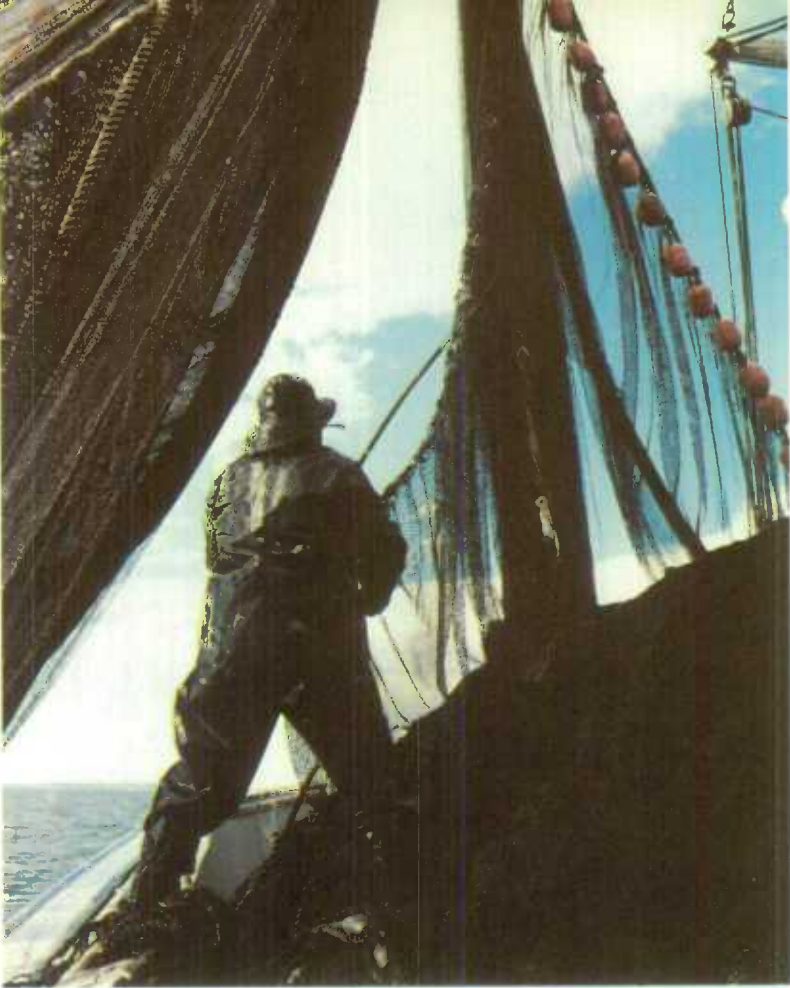
problems precipitated in large measure by the concentration of foreign fishing fleets off Canadian coasts. In an attempt to reverse the declining harvest of certain species, such as herring, cod, Atlantic salmon, and halibut, and further rationalize the Canadian fishing effort, the federal government has introduced a complex system of quotas and restrictions. At the international level, Canada has achieved some success in bringing about revised fishing quotas in order to conserve the stocks. Other measures aim at increasing production of formerly unexploited or under-exploited species, many of them valuable as human food, but which consumers are unaccustomed to eating.

For the fifth consecutive year, total landings on the Atlantic Coast declined from the previous year's. Contributing factors to this decline were the steady offshore exploitation of the continental shelf by foreign vessels and bad ice conditions at the opening of the season in northern areas.

Groundfish are the most important portion of the Atlantic catches, contributing nearly one half of the total value of landings. Although catches of cod in this category declined by 19 per cent over 1972, this was offset by a 47 per cent increase in the catch of redfish to a record 356 million pounds.

In quantity and value, herring is still the most important species of pelagic fish caught on the Atlantic Coast, despite the fact that landings dropped by 26 per cent to just under 500 million pounds. Mackerel and capelin catches both showed substantial increases.

The lobster harvest increased by 7 per cent for a total landed value of \$40.5 million, while scallops, the second most valuable Atlantic shellfish species, declined by a similar percentage for a value of \$16.3 million.



Fisherman tends his capelin purse seiner in the Strait of Belle Isle, Labrador. The Atlantic capelin catch increased during 1973.

On the Pacific Coast, landings rose for the sixth consecutive year. The total catch of 388.8 million pounds had a landed value of \$130 million. Landings of salmon, which supply the most important fish processing industry on the West Coast, were the highest since 1958 at 185 million pounds, worth a record-breaking \$100.2 million.

Halibut catches dropped drastically during the year to slightly over 14 million pounds, prompting renewed efforts by Canada to obtain international agreement on halibut conservation measures in the Gulf of Alaska and Bering Sea areas.

The 55,000 tons quota imposed by Canada on Pacific herring catches continued in 1973. However, the fact that herring fishermen succeeded in catching the full quota, plus an additional 5,500 tons allowed under a government program to reduce the dogfish population, indicated that conservation measures to replenish the stocks are succeeding.

Landings from the inland fisheries are estimated at approximately 90 million pounds, valued at \$16 million.

Forestry

Canada's forests are among her greatest renewable resources. Stretching across the continent in an unbroken belt 600 to 1,300 miles wide, they provide raw material for the great lumber, pulp and paper, plywood, and other wood-using industries so vital to the country's economy. In addition, the forests of Canada control water run-off and prevent erosion, they shelter and sustain wildlife, and they offer unmatched opportunities for human recreation and enjoyment.

Forest land—that available for producing usable timber— covers nearly 800 million acres. The total volume of wood on these lands is estimated at 630,000 million cubic feet, of which four fifths is coniferous and one fifth deciduous.

Three quarters of Canada's productive forest area is known as the Boreal Forest, stretching in a broad belt from the Atlantic Coast westward and then northwest to Alaska. The forests of this region are predominantly coniferous, with spruce, balsam fir, and pine the most common species. Many deciduous trees are also found in the Boreal Forest; poplar and white birch are the most widespread.

The Great Lakes—St. Lawrence and Acadian regions are south of the boreal region. Here the forests are mixed, and many species are represented. Principal conifers are eastern white and red pine, eastern hemlock, spruce, cedar, and fir. The main deciduous trees are yellow birch, maple, oak, and basswood.

Entirely different in character is the coastal region of British Columbia. Here the forests are coniferous, and because of a mild, humid climate and heavy rainfall, very large trees are common—200 feet tall and more than six feet in diameter. This region contains less than 2 per cent of the country's forest area, but supplies almost one fourth of the wood cut. Species are cedar, hemlock, spruce, fir, and Douglas-fir.

The coniferous forests of the mountainous regions of Alberta and the British Columbia interior are mixed; distribution and characteristics of species depend on local climate, which ranges from dry to very humid. Production in this area has expanded rapidly in recent years with the establishment of many new pulp mills.

The only true deciduous forests in Canada occupy a relatively small area in the southernmost part of Ontario, which is predominantly an agricultural district.

Ownership and Administration of Forests

Eighty per cent of Canada's productive forest land is publicly owned. Under the British North America Act, the various provincial governments were given the exclusive right to enact laws regarding management and sale of public lands within their boundaries, including the timber and wood on those lands. In the northern territories, which contain only about 8 per cent of the country's productive forest land, the forests are administered by the federal government.

For many years the policy of both the federal and provincial governments has been to retain in public ownership lands not required for agricultural purposes. In some of the older settled areas of Canada, however, a high proportion of land is privately owned, especially in the three Maritime Provinces, where nearly two thirds of the productive forest area is owned by individuals and companies. Thus, the administration and protection of most of Canada's productive forest area is vested in the various provincial governments, which make the forests available to private industry through long-term leasing and other arrangements.



1. Canadian Shield terrain in Ontario. The forests of Canada cover nearly 800 million acres.
2. The Boreal Forest in Alberta. Three quarters of Canada's productive forest area is known as the Boreal Forest.
3. Christmas tree farm near Meductic, N.B.
- 4 & 5. Logs in transit by truck in B.C. and by waterway in the Gatineau River in Quebec.
6. Port Alberni, Vancouver Island, B.C. The coastal region of B.C. supplies almost one fourth of the wood cut in Canada.



3



4





Firefighters drop bombs of fire retardant in B.C.

Forest Industries

This group of industries accounted for approximately 18.2 per cent of all Canadian exports in 1973. It includes logging; the primary wood and paper manufacturing industries, using roundwood as their chief raw material; and the secondary wood and paper industries, using lumber, wood pulp, basic paper, and so on, as raw materials to be converted into a host of different wood and paper products.

Logging. The output of Canada's forests in the form of sawlogs, veneer logs, pulpwood, poles, and other roundwood is estimated at 4,384 million cubic feet (MMcf) for 1972. This is a slight increase in production from 1971 (4,227 MMcf). British Columbia accounted for approximately 46 per cent of the total, followed by Quebec with 22 per cent and Ontario with 14 per cent.

Pulpwood production in the provinces east of the Rocky Mountains increased by 4 per cent in 1972 (to 1,357 MMcf). This was caused by a greater demand for roundwood by the pulp and paper industry owing to improved markets for their products.

Although production of roundwood in the interior region of British Columbia increased substantially (from 994 MMcf in 1971 to 1,116 MMcf in 1972), production in the coastal region dropped from 1,003 MMcf to 872 MMcf during the same period. The net result was a small loss in 1972 production in British Columbia of approximately 0.5 per cent of 1971 production.

The trend towards fewer exports of roundwood continued in 1972 with the value of exports down from \$47 million in 1971 to \$34 million in 1972.

The value of shipments by the logging industry increased from \$1,630 million in

1971 to \$1,873 million in 1972. The number of persons employed in logging continued to decrease (from 40,126 in 1971 to 39,052 in 1972) but wages increased from \$344 million to \$367 million thanks to increased wage rates.

Sawmills and Planing Mills. This industry is particularly dependent upon the general economic condition of the country and on the state of foreign markets, particularly the market in the United States. As economic conditions in Canada and the United States continued to improve—because residential construction in both countries increased in the course of 1973—the lumber market improved considerably, both in price and volume. As a consequence lumber production in Canada continued its upward trend to reach a total of approximately 15,465 million board feet in 1973, an increase of about 10 per cent over 1972 when production amounted to approximately 14,017 million board feet. The long-term trend towards increased size of individual sawmills and towards more complete automation is continuing, particularly in the interior of British Columbia, where the sawmill industry is becoming more and more integrated with the pulp and paper industry. The sawmill and planing mill industry paid its employees \$447,712,000 in salaries and wages in 1972. For this same year the total value of shipments of their products amounted to \$1,893,573,000 of which lumber accounted for \$1,631,668,000, and pulp chips \$131,496,000. The value of exports of lumber amounted to \$1,173,990,000 in 1972 and to \$1,628,414,000 in 1973.

Other Wood Industries. This group includes the shingle mills, veneer and plywood mills, and particleboard plants which, like the sawmills and pulp and paper mills, are primary wood industries. It also includes the secondary wood industries which further manufacture lumber, plywood, and particleboard into flooring, doors, sashes, laminated structures, prefabricated buildings, boxes, bar-

Bales of pulp paper for remanufacturing.



rels, caskets, woodenware, and so on. In 1972 these industries paid their employees \$323,189,000 in salaries and wages while the value of shipments of their products was \$1,184,034,000. Of this amount the veneer and plywood industry accounted for \$393,336,000 and the sash, door, and millwood industry (including hardwood flooring, prefabricated buildings, and wooden kitchen cabinets) for \$508,898,000.

Pulp and Paper. The manufacture of pulp and paper has been Canada's leading industry for many years. Although it is not growing as fast as some other manufacturing industries in Canada, it still ranks first in employment, salaries and wages paid, and in value added by manufacture. The manufacturing value added by this one industry accounts for 1.3 per cent of the total Gross National Product and it contributed 11.3 per cent to the total value of domestic exports in 1972 (11.9 per cent in 1971). Canada is the second largest producer of wood pulp in the world (19,239,086 tons in 1972) after the United States (46,604,000 tons), and the largest exporter. It is by far the largest producer of newsprint, 8,905,680 tons in 1972, which is close to 40 per cent of the world total.

Although the pulp and paper industry is primarily engaged in the manufacture of wood pulps and basic papers and paper-boards, it also produces converted papers and paper-boards and even chemicals, alcohol, and other by-products. More than 68 per cent of the wood pulp manufactured in 1972 was converted in Canada to other products, particularly newsprint. The rest was exported.

Quebec has the largest share of Canada's pulp and paper industry, accounting for 35.4 per cent of the total value of production in 1972. It is followed by Ontario with 25 per cent and British Columbia with 23.7 per cent. Development in British Columbia has been climbing rapidly in recent years owing to the establishment of a number of kraft pulp and paper mills, particularly in the interior of the province. In eastern Canada the kraft sector of the pulp and paper industry has grown most quickly.

Paper-converting Industries. These include asphalt roofing manufacturers, paper box and bag manufacturers, and other paper converters. In 1972 this group had 513 establishments (500 in 1971), employed 41,789 persons (40,312 in 1971), and paid \$326,430,000 in salaries and wages (\$293,698,000 in 1971). The value of factory shipments set a new record of \$1,286,995,000 (\$1,168,584,000 in 1971). In contrast to the basic pulp and paper industry the paper-converting industries are primarily dependent on the domestic market.

Principal Statistics of the Pulp and Paper Industry, 1970-72

Item		1970	1971	1972
Establishments.....	No.	139	142	141
Employees.....	No.	80,371	79,397	78,969
Salaries and wages.....	\$'000	701,395	745,608	808,869
Value of shipments of goods of own manufacture.....	\$'000	2,850,836	2,832,267	3,127,821
Value added—manufacturing activity.....	\$'000	1,323,278	1,272,551	1,374,129
Pulp shipped.....	'000 tons	6,665	6,419	7,383
	\$'000	913,287	878,132	976,147
Paper and paper-board shipped.....	'000 tons	12,118	11,939	12,848
	\$'000	1,757,215	1,751,847	1,925,194
Newsprint exported.....	'000 tons	8,090	7,798	8,102
	\$'000	1,110,393	1,084,282	1,157,509

Minerals and Energy

Canada is richly endowed with mineral wealth: it ranks among the world's largest producers of minerals. A great deal of Canada's history is closely entwined with mineral exploration and development, beginning with Frobisher's search for illusory gold in the 16th century. Coal in Nova Scotia and iron ore in Quebec were discovered and later mined in the 17th and 18th centuries. The Geological Survey of Canada, founded in 1842, encouraged the collection of information about Canada's minerals. In the next decade came the first gold rush—to Barkerville in the Cariboo district of British Columbia. Silver, zinc, and lead were subsequently found in the Kootenay district. Crews blasting a roadbed for the Canadian Pacific Railway in northern Ontario first revealed the riches in copper and nickel to be found there. The most famous event in Canadian mining history undoubtedly was the Klondike gold rush of 1896, but more significant have been the discoveries in the 20th century of cobalt, silver, uranium, asbestos, and potash among other minerals, as well as more copper, nickel, and iron ore.

The remarkable progress of the Canadian mining industry since the Second World War is shown by the increase in value of mineral production from \$499 million in 1945 to \$8,238 million in 1973. A measure of the importance of mining to the Canadian economy may be found in the following figures. In 1971 expenditures by mining and exploration companies (excluding the petroleum and natural gas industry) for exploration, development, and capital and repair expenditure was greater than \$1,340 million; over \$5,000 million worth of mineral products exported—over one quarter of Canada's export trade; more than 100,000 Canadians employed in the industry; and about 300 mines operating. Cities such as Sudbury.

A geologist examines an ore sample at Ruttan Mine, Leaf Rapids, Man.





Drilling in a Sudbury, Ont. area nickel mine.

Ont., and Trail, B.C., depend almost entirely on the mineral wealth in the surrounding area, while Toronto and Calgary are financial centres for the mining and oil industries and many people employed in these cities depend on mining for their livelihood.

The value of production of Canadian minerals in 1973 increased to \$8,238 million from \$6,403 million in 1972 and \$5,963 million in 1971. Metallic minerals accounted for 46 per cent of the value of Canadian mineral production in 1973. In order of importance the principal metallic minerals produced in Canada are copper, nickel, zinc, iron ore, gold, lead, and silver. Headed by crude oil and natural gas, mineral fuels accounted for 39 per cent of the total value of production. Non-metallic minerals and structural materials each accounted for 7 per cent. The main structural materials are cement, sand and gravel, and stone, while the non-metallic minerals group is dominated by asbestos followed by potash, salt, and elemental sulphur. The leading mineral commodity in 1973 was crude oil with a value of production of \$2,246 million, up from \$1,569 million in 1972 and \$423 million in 1960.

Copper production in 1973 amounted to 899,475 tons, valued at \$1,148 million; the figures for 1972 were 793,303 tons and \$806 million. Canada ranks fourth in the production of copper in the non-Communist world. The major producing provinces were British Columbia (354,272 tons), Ontario (277,262 tons), and Quebec (155,345 tons).

Nickel production in Canada in 1973 amounted to 268,908 tons, valued at \$785 million, an increase from 258,987 tons and \$717 million in 1972. Rising labour costs during recent years have contributed to an increase in the price from \$1.00 a pound in 1968 to \$1.46 a pound in 1973. Most of Canada's nickel is produced in the Sudbury, Ont., region from mines operated by the International Nickel Company and Falconbridge Nickel Mines Ltd.

The fourth most important mineral in Canada is zinc. Production in 1973

amounted to 1,362,648 tons (worth \$653 million); in 1972 it was 1,244,142 tons (worth \$475 million).

Ranked according to value of production, iron ore was the fifth most important mineral produced in Canada. Production was 55 million tons, valued at \$613 million in 1973. In 1972, 43 million tons worth \$489 million were mined.

Natural gas production continued its substantial growth with an output of 3,152,410 MMcf (million cubic feet) worth \$482 million. Production in 1972 was 2,913,537 MMcf (\$397 million) and in 1960 was only 523,000 MMcf (\$52 million).

Natural gas by-products (propane, butanes, and pentanes plus) remained in seventh place among Canada's most important minerals. In 1973, production amounted to \$341 million, up from \$251 million the previous year.

Asbestos production in 1973 was 1,974,000 tons valued at about \$241 million. Over 80 per cent of the asbestos produced in Canada comes from the province of Quebec; the rest comes from British Columbia, the Yukon Territory, Newfoundland, and Ontario. Canada produces over 40 per cent of the world's total supply of asbestos and is the world's leading producer.

Cement is the most important structural material produced in Canada and the ninth in the list of minerals. About two thirds of Canadian cement comes from Ontario and Quebec.

Among the minerals of lesser importance whose production has increased significantly in the past decade are potash, molybdenum, elemental sulphur, gold, and coal.

Molten metal at copper mine, Sudbury, Ont.



Canada's Mineral Production, by Class, 1963-73

Year	Metals	Non-metals	Fossil Fuels	Structural Materials	Total
	Millions of dollars				
1963	1,510	253	885	379	3,027
1964	1,702	287	973	403	3,365
1965	1,908	327	1,045	434	3,714
1966	1,985	363	1,152	481	3,980
1967	2,285	406	1,234	455	4,380
1968	2,493	447	1,343	440	4,722
1969	2,378	450	1,465	443	4,736
1970	3,073	481	1,718	450	5,722
1971	2,940	501	2,014	512	5,968
1972	2,952	513	2,368	570	6,403
1973 ¹	3,793	590	3,246	609	8,238

¹ Preliminary estimates.

Figures may not add to totals owing to rounding.

Canadian potash production increased from less than \$1 million in 1960 to \$151 million in 1973 as a number of mines were opened in Saskatchewan between 1962 and 1970. About 95 per cent of the world's potash is used as fertilizer.

Canada is second only to the United States among the producers of molybdenum. The value of production increased from \$1 million in 1960 to \$39 million in 1973, with over 75 per cent of the Canadian production coming from British Columbia.

A large proportion of sulphur is transformed into sulphuric acid and used in the manufacture of fertilizers.





Cominco's Con Mine, the first gold mine in the Northwest Territories, at Yellowknife, began production in 1938.

In 1973 elemental sulphur production increased to 4,545,000 tons from 3,635,631 tons in 1972 and the value rose to \$22.6 million from \$19.6 million. Natural gas is the major source of elemental sulphur in Canada so its production is in direct proportion to natural gas production regardless of the price of sulphur. Nearly all sulphur is transformed into sulphuric acid of which one half is used in the manufacture of fertilizers.

Although gold production decreased to 1,930,000 troy ounces in 1973 from 2,078,567 troy ounces the previous year, its value, due to increases in world prices, rose to \$186 million from \$120 million in 1972.

Coal production saw a slight increase from 20.7 million tons in 1972 to 22.0 million tons in 1973 with its value increasing from \$150.6 million to \$177.0 million.

Canada's Mineral Production, by Province, 1971-73

Province or Territory	1971		1972 ¹		1973 ¹	
	Value in dollars	Per cent	Value in dollars	Per cent	Value in dollars	Per cent
Newfoundland	343,431,278	5.7	290,610,467	4.5	377,151,000	4.6
Prince Edward Island	978,000	—	1,097,000	—	1,200,000	—
Nova Scotia	60,137,535	1.0	57,520,458	.9	62,502,000	.8
New Brunswick	107,133,849	1.8	119,930,339	1.9	156,644,000	1.9
Quebec	769,857,462	12.9	782,640,843	12.2	903,040,000	10.9
Ontario	1,554,153,901	26.1	1,534,754,060	24.0	1,779,271,000	21.6
Manitoba	329,913,482	5.5	323,291,463	5.0	404,914,000	4.9
Saskatchewan	408,853,455	6.8	409,619,706	6.4	499,091,000	6.1
Alberta	1,641,222,509	27.6	1,978,605,603	30.9	2,747,508,000	33.3
British Columbia	543,655,735	9.1	677,994,571	10.6	990,879,000	12.0
Yukon	93,110,570	1.6	106,780,867	1.7	145,594,000	1.8
Northwest Territories	115,554,416	1.9	120,336,970	1.9	170,308,000	2.1
Totals	5,968,002,192	100.0	6,403,182,347	100.0	8,238,102,000	100.0

¹Preliminary estimates.

²Revised estimates.

Figures may not add to totals owing to rounding.

Canada's Mineral Production, by Kind, 1972 and 1973

Mineral	1972		1973 ¹	
	Quantity	Value in dollars	Quantity	Value in dollars
Metallics				
Antimony.....lb.	..	1,243,542	..	3,219,000
Bismuth.....lb.	275,029	849,675	90,000	444,000
Cadmium.....lb.	4,267,987	10,798,008	4,285,000	15,592,000
Calcium.....lb.	469,378	337,609	617,000	446,000
Cobalt.....lb.	3,351,108	8,320,722	3,946,000	11,667,000
Columbium (Cb2 Os).....lb.	3,873,787	3,868,448	2,867,000	3,720,000
Copper.....lb.	1,586,606,832	806,427,128	1,798,950,000	1,147,629,000
Gold.....troy oz.	2,078,567	119,742,087	1,930,000	186,111,000
Indium.....troy oz.	462,000	..	700,000	..
Iron ore.....ton	42,698,462	489,023,459	55,107,000	613,112,000
Iron, remelt.....ton	..	41,543,927	..	41,423,000
Lead.....lb.	738,849,301	113,989,670	771,728,000	124,556,000
Magnesium.....lb.	11,847,671	4,537,125	11,660,000	4,319,000
Mercury.....lb.	1,112,412	..	943,000	..
Molybdenum.....lb.	28,493,007	44,067,885	27,450,000	39,188,000
Nickel.....lb.	517,974,549	717,485,105	537,816,000	785,213,000
Platinum group.....troy oz.	406,048	34,656,545	288,000	34,274,000
Selenium.....lb.	582,060	5,186,155	598,000	5,430,000
Silver.....troy oz.	44,792,209	74,802,988	48,843,000	122,107,000
Tantalum.....lb.	41,120	246,658	115,000	785,000
Tellurium.....lb.	45,649	271,155	45,000	266,000
Tin.....lb.	351,043	473,908	280,000	638,000
Tungsten (WO3).....lb.	4,447,316	..	5,793,000	..
Uranium (U3O8).....lb.	9,762,700	..	9,328,000	..
Zinc.....lb.	2,488,284,385	474,540,715	2,725,297,000	652,981,000
Total metallics.....	...	2,952,412,514	...	3,793,120,000
Non-metallics				
Asbestos.....ton	1,687,051	206,088,535	1,974,000	241,001,000
Barite.....ton	77,261	804,096	98,000	1,020,000
Feldspar.....ton	11,684	232,383	..	..
Fluorspar.....ton	..	5,432,151	..	5,505,000
Gemstones.....lb.	703,725	305,218	..	325,000
Gypsum.....ton	8,099,480	19,335,891	8,316,000	21,998,000
Magnesian dolomite and brucite.....ton	..	2,928,942	..	3,100,000
Nepheline syenite.....ton	559,483	5,902,063	576,000	7,372,000
Nitrogen.....Mcf.	..	..	..	..
Peat.....ton	375,725	13,612,326	390,000	14,855,000
Potash (K2O).....ton	3,852,120	135,512,850	4,432,000	151,123,000
Pyrite, pyrrhotite.....ton	125,897	456,157	22,000	147,000
Quartz.....ton	2,663,836	9,536,318	2,800,000	10,250,000
Salt.....ton	5,416,925	40,143,665	5,327,000	45,185,000
Soapstone, talc, pyrophyllite.....ton	80,946	1,462,507	110,000	2,162,000
Sodium sulphate.....ton	507,275	6,200,598	525,000	6,930,000
Sulphur in smelter gas.....ton	678,844	5,118,483	742,000	9,641,000
Sulphur, elemental.....ton	3,635,631	19,587,807	4,545,000	22,630,000
Titanium dioxide, etc.....ton	..	40,828,421	..	46,318,000
Total non-metallics.....	...	513,488,411	...	589,562,000

Canada's Mineral Production, by Kind, 1972 and 1973 — Concluded

Mineral	1972		1973 ¹	
	Quantity	Value in dollars	Quantity	Value in dollars
Mineral fuels				
Coal.....ton	20,709,316	150,600,310	21,960,000	176,979,000
Natural gas.....Mcf.	2,913,537,215	397,185,830	3,152,410,000	482,155,000
Natural gas by-products.....bbl.	108,586,704	250,940,075	118,732,000	341,127,000
Petroleum, crude.....bbl.	561,976,934	1,568,827,606	649,868,000	2,246,149,000
Total fuels.....	...	2,367,553,821	...	3,246,410,000
Structural materials				
Clay products (bricks, tile, etc.).....	...	52,347,688	...	57,995,000
Cement.....ton	9,975,762	209,221,337	10,884,000	228,094,000
Lime.....ton	1,730,311	26,732,421	1,826,000	28,421,000
Sand and gravel.....ton	225,194,000	178,100,000	228,000,000	187,500,000
Stone.....ton	80,202,524	103,326,155	85,500,000	107,000,000
Total structural materials.....	...	569,727,601	...	609,010,000
Grand total.....	...	6,403,182,347	...	8,238,102,000

¹Preliminary estimates.

... Figures not available.

... Figures not appropriate or not applicable.

— Nil or zero.

Red-hot billets ready for shipment to the rolling mill at Dofasco, Hamilton, Ont.



Petroleum and Natural Gas

The petroleum industry is Canada's leading mineral producer; it extracted about \$3,069.4 million worth of hydro-carbon products in 1973, an increase of 38.5 per cent over 1972. Crude oil, Canada's most important mineral, contributed \$2,246.1 million (649.9 million barrels) to this total. Natural gas production accounted for \$482.2 million (3,152,410 MMcf) and pentanes, propane, and butanes for \$341.1 million (118.7 million barrels). In addition, elemental sulphur is a very valuable by-product of gas-processing plants. Alberta accounted for 85 per cent of all production, Saskatchewan for 10 per cent, British Columbia for 4 per cent, and all the other provinces for 1 per cent.

In 1973 domestic shipments and exports to the United States increased for all commodities. Natural gas exports amounted to 1,030.9 million Mcf (thousand cubic feet) with a value of \$350.7 million, an increase of 14.3 per cent over 1972. Crude oil exports were 420 million barrels, valued at \$1,483.1 million, an increase in value of 47.2 per cent over the previous year. Imports amounted to 327.6 million barrels. Refineries located east of the "energy line" (a line running from Pembroke, Ont., south to Brockville, Ont.) historically have operated on imported crude. This is supplied mainly by Venezuela, but some oil comes from the Middle East and Africa. Canadian crude, mostly from western Canada, is used west of the energy line. During late 1973 foreign crude prices escalated sharply while at the same time volume restrictions were enforced by certain oil exporting nations. As a result some western crude was supplied to Montreal, Que., by pipeline to Sarnia, Ont., and thence by ship. Western crude also moved by pipeline to Vancouver, B.C., to be shipped through the Panama Canal to the eastern seaboard.

Gas storage tanks.





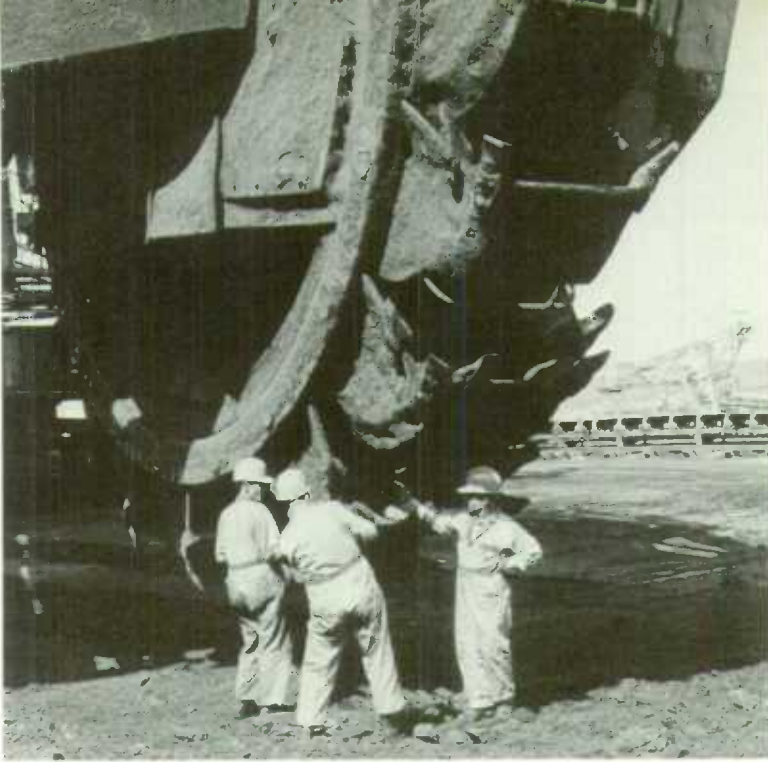
Montreal oil refinery.

In order to help redress a situation where western Canadian crude oil was being exported at relatively low prices, while eastern Canada had to rely on expensive foreign crude, the federal government applied an export tax effective November 1, 1973. It is intended to use the proceeds from this tax to subsidize eastern Canadian consumers.

Total sales of refined petroleum products were 581.2 million barrels in 1973 including 203.1 million barrels of motor gasoline, 186.4 million barrels of middle distillates, 112.7 million barrels of heavy fuel oils, and 78.9 million barrels of lubricating oils and grease, asphalt, and other products.

The movement of oil and natural gas necessitates large pipeline systems to carry these products to many parts of the continent. Consequently, oil and gas pipelines have become a major form of transportation. In 1973 the transportation of crude oil and its equivalent, liquefied petroleum gases, and refined petroleum products amounted to 558,089 million pipeline barrel miles, up 16.8 per cent from 1972, and that of natural gas to 1,843,026 million Mcf miles, an increase of 15.4 per cent in a year.

In 1972 the total operating and capital expenditures of the petroleum industry amounted to \$1,865.6 million. The industry has made great efforts to find new reserves and increase its production of hydro-carbon products since 1961 when its investment was only \$716.2 million. In 1972 geological and geophysical work accounted for \$200.1 million of the total; \$176.9 million was spent on acquiring



Giant machine used to mine oil sand at the Great Canadian Oil Sands plant near Fort McMurray, Alta.

land or leases; \$431.3 million on exploratory and development drilling; \$329.3 million on capital additions; \$335.9 million on field, well, and natural gas plant operations; and \$392.1 million on royalties, taxes, and other miscellaneous expenditures. Sixty-six per cent of all expenditure amounting to \$1,227.2 million was in Alberta; 13 per cent in the Northwest Territories, the Yukon Territory, and Arctic islands; 8 per cent in British Columbia; and 6 per cent in Saskatchewan.

The energy crisis of 1973 brought about a much greater awareness that the use of energy, particularly oil and gas, was growing faster than the rate at which new resources were being found. Canada is fortunate in that it is one of the few countries in the world that is self-sufficient in energy. Canada has proven reserves of conventional crude oil to last approximately 12 years, and enough natural gas to last 24 years at current rates of consumption. However, the long-term oil and natural gas supply depends on harnessing the vast reserves of "synthetic" crude oil in the Athabasca Tar Sands, and in finding more reserves in the frontier areas of Canada. Great Canadian Oil Sands has the only plant now operating in the Tar Sands area, but several other consortiums are planning similar operations. The Athabasca Tar Sands contain an estimated 300,000 million barrels of synthetic crude recoverable by mining or thermal processes, although only some 6,000 million barrels are recoverable using present technology. Along with this development is the increasing emphasis being placed on exploratory work in the Arctic and offshore areas together with studies on the optimum method of transporting any energy form that may be found.



Construction has begun on a second artificial drilling island in the Beaufort Sea.

Gigantic mounds of coal at Neptune Terminals in North Vancouver, awaiting shipment to Japan.



Coal

In 1973, western Canadian bituminous coal production increased to 12.1 million tons compared with 10.7 million tons in 1972. The increase was largely due to the partial overcoming of technical and financial difficulties which have plagued many of the producers during the past few years. Some of the contracts to supply the Japanese steel industry with high-grade coking coal were renegotiated in 1973. Both quantity and price changes were involved in the renegotiated contracts and, as a result, it is expected that mine shipments for export to Japan will be more than 13 million tons annually for the next several years compared with 11.1 million tons in 1973. In addition, foreign shipments of western Canadian bituminous coal to the United States and European markets and domestic shipments to Ontario were expected to boost 1974 production by upwards of 1 million tons.

The continued expansion of mine-mouth thermal plants in Saskatchewan resulted in an increase in the production of lignite coal from the 1972 figure of 3.3 million tons to 4 million tons in 1973. This trend should continue in the future since the development of the few remaining hydro sites in Saskatchewan and Alberta cannot by itself meet the growing demand for electrical energy. Although Alberta's 1973 sub-bituminous coal production remained at the 1972 figure of 4.9 million tons, future growth in production is expected. Total coal production in Alberta increased to 9.2 million short tons.

Production of Coal, by Province, 1972 and 1973

	1972	1973 ¹
	Short tons	
Nova Scotia.....	1,425,439	1,175,587
New Brunswick.....	429,544	394,219
Saskatchewan.....	3,282,798	4,028,280
Alberta.....	9,024,437	9,196,397
British Columbia.....	6,547,098	7,772,866
Total Canada.....	20,709,316	22,567,349

¹Preliminary estimates.

In eastern Canada, the continued rationalization of the Nova Scotia bituminous industry resulted in a further substantial fall in production—from 1.4 million tons in 1972 to 1.2 million in 1973. New Brunswick Coal Ltd., the provincially-owned coal operation in New Brunswick, also reported a drop in production—from 0.43 million to 0.39 million.

Canadian production of coal in 1973 increased to 22.6 million tons—9.0 per cent or 1.9 million tons more than in 1972. Excluding subvention payments, the preliminary value of this production amounted to \$182 million, up from the 1972 figure of \$151 million. Imports, 90 per cent of which go to steel mills and thermal plants in Ontario, fell to 16.6 million tons from 18.6 million tons a year earlier, while mine shipments for export amounted to 11.3 million tons.

Electricity

Canada's electrical power development has grown steadily at a remarkable rate since the beginning of this century. A modest 133,000 kilowatts of generating capacity in 1900 had increased to approximately 53,300,000 by the end of 1973.

Although water power traditionally has been the main source of electrical energy in Canada and still is, thermal sources are becoming more important and this trend is expected to continue. The choice between the development of a hydro-electric power site and the construction of a thermal generating station must take into account a number of complex considerations, the most important of which are economic. The heavy capital costs involved in constructing a hydro-electric project are offset by maintenance and operating costs considerably lower than those for a thermal plant. The long life of a hydro plant and its dependability and flexibility in meeting varying loads are added advantages. Also important is the fact that water is a renewable resource. The thermal station, on the other hand, can be located close to areas where power is needed, with a consequent saving in transmission costs. However, pollution problems at these plants are coming to be regarded as an undesirable factor.

The marked trend towards the development of thermal stations, which became apparent in the 1950's, can be explained to some extent by the fact that in many parts of Canada, most of the hydro-electric sites within economic transmission distance of load centres had been developed, and planners had to turn to other sources of electrical energy. More recently, however, advances in extra-high-voltage transmission techniques have given impetus to the development of hydro power sites previously considered too remote. Nevertheless, thermal stations



should be the more important of the two sources in the long run.

Water Power Resources and Developments. Substantial amounts of water power have been developed in all provinces except Prince Edward Island, where there are no large streams. The resources of Newfoundland are estimated to be considerable; topography and run-off favour hydro-electric power development. In fact, the most dramatic development of any single hydro project is now taking place at Churchill Falls in Labrador. When this project was completed in 1974, the capacity of the plant reached 5,225,000 kW., thus making it the largest single generating plant of any type in the world. The water power of Nova Scotia and New Brunswick, small in comparison with that of other provinces, is none the less a valuable source of energy. The numerous moderate-sized rivers provide power for the cities and for the development of the provinces' timber and mineral resources. Quebec is richest in water power resources, with over 40 per cent of the total for Canada, and has the most developed capacity. Even this considerable figure could be doubled when plans for the development of a number of rivers flowing into James Bay become a reality. Ultimately this development could result in an additional 12 to 15 million kW. The present largest single hydro-electric installation in Quebec is Hydro-Quebec's 1,574,260-kW. Beauharnois development on the St. Lawrence River. Others are the Bersimis I development, with a capacity of 912,000 kW., and the 742,500-kW. Chute des Passes plant of the Aluminum Company of Canada Ltd. Another significant development is Hydro-Quebec's Manicouagan-Outardes pro-

Kettle Rapids dam in Manitoba.



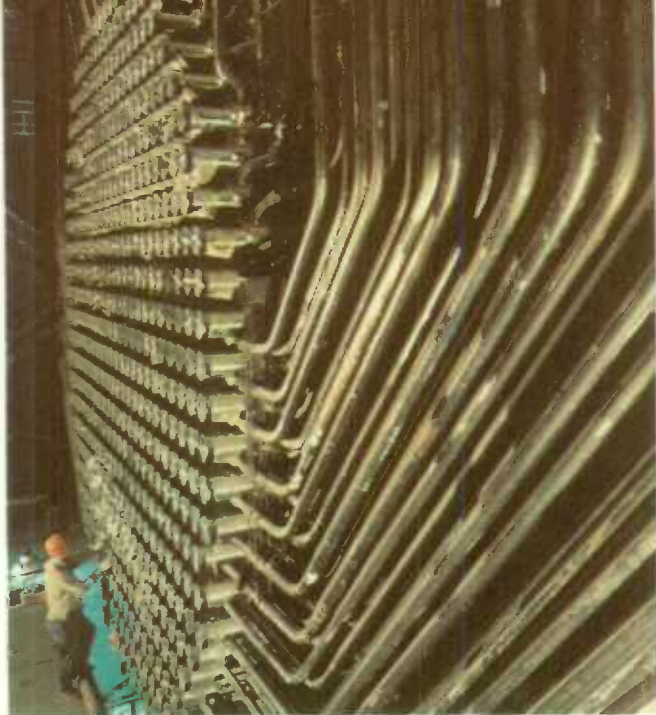


The W.A.C. Bennett dam in British Columbia. B.C. has the second greatest potential water power resources.

ject which when completed will produce 5,540,000 kW. on the two rivers. Already some 3,900,000 kW. are installed. Almost all of the sizable water power potential in Ontario within easy reach of demand centres has been developed, and planners are looking to more remote sites. Most of the hydro-electric power produced in the province comes from the Hydro-Electric Power Commission of Ontario, the largest public utility in Canada. Its chief stations are on the Niagara River at Queenston, with total generating capacities of 1,804,200 kW. Manitoba is the most generously endowed of the Prairie Provinces, with immense potential on the Winnipeg, Churchill, Nelson, and Saskatchewan Rivers. In Alberta, most of the developments are located on the Bow River and its tributaries. British Columbia ranks second in terms of potential water power resources, and is third in installed generating capacity. The current development of the Peace and Columbia Rivers will provide immense power resources in the future. In the Yukon Territory and the Northwest Territories, water power is of special importance in the development of mining areas, such as Mayo and Yellowknife. In the Yukon, most resources are on the Yukon River and its tributaries. Although not yet thoroughly surveyed, the rivers flowing into Great Slave Lake, and the South Nahanni River draining into the Mackenzie River have considerable potential.

Conventional Thermal Power. Some 90 per cent of all conventional thermal power generating equipment in Canada is driven by steam turbines and the remainder of the load is carried by gas turbine and internal combustion equipment. Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Saskatchewan, Alberta, and the Northwest Territories depend on thermal stations for most of their power requirements. The abundance of Quebec's wealth of water power has so far limited the application of thermal power in that province to local use. The James Bay project should maintain hydro pre-eminence. Manitoba and British Columbia both have substantial amounts of thermal capacity but current development is still of hydro electricity.

Nuclear Thermal Power. Development of commercial electric power generation in thermal plants using the heat generated by nuclear reactors is one of the major



The reactor face of Unit 2 at the Bruce Generating Station, Ont.

contributions of Canada to energy resource technology. This development has centred around the CANDU reactor which uses a natural uranium fuel with a heavy-water moderator. Heavy water as a moderator provides a high energy yield and facilitates the handling of spent fuel. The first experimental reactor went into use in 1962 at Rolphon, Ont., with a capacity of 20,000 kW. Since then, four major nuclear projects have been undertaken. The first full-scale nuclear plant is situated at Douglas Point on Lake Huron. It consists of a single unit, completed in 1967, with a capacity of 220,000 kW. The second project is a four-unit 2,160,000-kW. capacity plant built at Pickering east of Toronto. Its four units came on line from 1971 to 1973. Both the Douglas Point and Pickering plants use heavy water as a coolant. The third nuclear plant is a 250,000-kW. unit situated at Gentilly, Que., using boiling light water as a coolant. The fourth plant is the 3,200,000-kW. Bruce Station at Douglas Point, Ont., scheduled for completion by 1978. However, the utilization of present nuclear plants has been hindered by a shortage of heavy water. Programs under way should alleviate this shortage in the near future.

Power Generation and Utilization. In 1972 Canada's generating facilities produced 240,213 million kW(h). of electric energy, 75 per cent in hydro-electric stations. Energy exported to the United States exceeded by 8,656 million kW(h). the energy imported, bringing the total available to Canadian users to 231,557 million kW(h). In the same year, industry used about 54 per cent of the total energy available in Canada; homes and farms accounted for 22 per cent; and commercial customers for 15 per cent. Average domestic and farm consumption continues to rise year by year. In 1972 it was 7,814 kW(h)., ranging from a low of 4,753 kW(h). in Prince Edward Island to a high of 10,017 kW(h). in the Yukon. The average annual bill for domestic and farm customers was \$126.23.

Industry

Industrial Growth

Early in the 1960's, the Canadian economy rebounded from the relative stagnation which had marked the late 1950's. With few exceptions, the 1960's witnessed rates of growth approaching those achieved during the early 1950's. In the period from the first quarter of 1961 to the fourth quarter of 1969, real output increased by 68.6 per cent or at an average quarterly rate of 1.5 per cent. In 1970, there was a dampening of the rate of growth, reflecting to some extent the tightened monetary and fiscal situation introduced in the previous year. From the fourth quarter of 1969 to the fourth quarter of 1970, total real output increased by an average 0.5 per cent quarterly. From the fourth quarter of 1970 to the fourth quarter of 1973, the rate of over-all growth quickened to surpass that of 1961-69.

As can be seen from the Table, the 2.2 and 2.4 per cent average quarterly increases in the output of durable goods in the two most recent expansionary periods were the highest for any major industry group in the 1970-73 periods. The above-average advance of the durable manufacturing component in expansionary periods can in

Quarterly Growth Rates¹

	4th Q. 1957- 1st Q. 1960	1st Q. 1960- 1st Q. 1961	1st Q. 1961- 4th Q. 1969	4th Q. 1969- 4th Q. 1970	4th Q. 1970- 4th Q. 1973
Real Domestic Product	1.1	-0.3	1.5	0.5	1.6
Goods-producing industries	1.2	-0.9	1.6	0.1	1.7
Agriculture	0.7	-3.7	0.9	0.0	0.4
Forestry	3.5	-2.0	1.2	-2.3	1.9
Fishing and trapping	-1.6	8.4	0.2	-1.7	1.0
Mining	1.7	-1.0	1.4	3.9	1.5
Manufacturing	1.4	-0.6	1.7	-0.7	2.0
Non-durables	1.5	0.1	1.4	0.4	1.5
Durables	1.3	-1.6	2.2	-1.9	2.4
Construction	-0.5	0.5	1.3	0.4	1.3
Electric power, gas, and water utilities	2.8	1.0	1.7	2.1	2.1
Service-producing industries	1.0	0.5	1.5	0.8	1.4
Transportation, storage and communication	1.1	0.9	1.6	0.8	2.1
Transportation	1.0	0.9	1.6	1.5	2.1
Trade	1.1	-	1.4	0.3	1.5
Wholesale	1.8	-0.9	1.7	0.3	1.4
Retail	0.8	0.4	1.2	0.3	1.6
Finance, insurance and real estate	1.0 ²	2	1.5	1.0	1.3
Community, business and personal service	1.3	0.5	1.7	1.0	1.1
Public administration and defence	0.5 ²	2	0.6	1.0	1.3

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

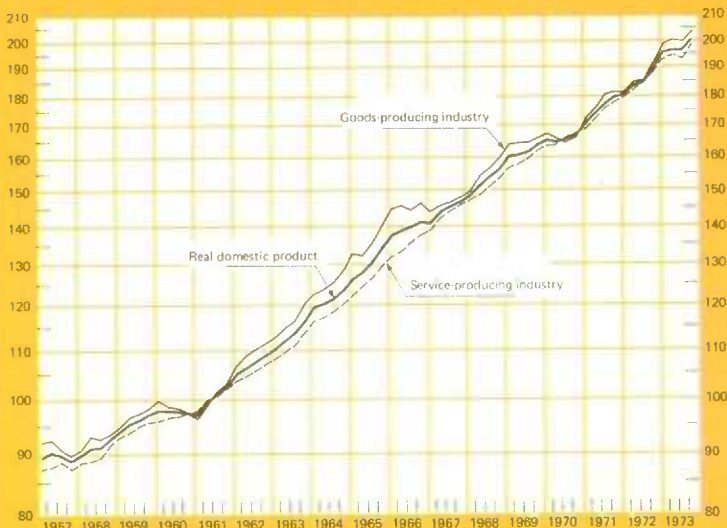
²No data are available prior to 1961 on a 1961 base due to a break in historical continuity resulting from the implementation of the 1960 standard industrial classification and the 1961 weight and reference base for the indexes. The data for the 1957-60 period are on a 1948 standard industrial classification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

fact be said to be among the most notable features of the economy's performance since 1961. Growth was particularly strong in the transportation equipment, electrical appliances and equipment, and primary metals components.

The two most recent periods of expansion, when compared with the expansion in the late 1950's, reveal that some industry groups have advanced more slowly than during the earlier expansion. The deceleration in electric power, gas, and water utilities—which were still among the fastest-growing industry groups—and the deceleration in mining and wholesale trade appeared to be a phenomenon which brought the rate of growth of these groups more in balance with that of the economy as a whole. Both industries had experienced exceptional expansionary pressures during the earlier postwar years.

Strong international demand for Canadian minerals, massive hydro-electric development, the use of natural gas in the West and marketing of it in the East required large-scale capital investments. Investment reached a high for that period in 1955-58. The result was a surge in the output of the industry concerned as each new project became operational. These industries are strongly affected by technological innovations and change. But once changes have been made, it is not surprising to see a gradual easing in the rate of growth. However, 1973 proved exceptional for the mines group as a whole. Investments increased in this sector, partly because of changes in the system and financially, at the manufacturing level.

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



The accompanying chart illustrates the growth since 1957 in total real domestic product with a breakdown of the goods-producing and service-producing sectors. Over the past decade within the goods-producing industries, the durable manufacturing component has provided a prime thrust. Services continued to grow, although less rapidly over the latest expansionary period, slowing from an average of 1.5 per cent in 1961-69 to 1.4 per cent between 1970-73.

The major factor behind this advance in the output of durables was the unprecedented increase in the production of motor vehicles and motor-vehicle parts, which by the end of 1973 had increased by 587 and 444 per cent respectively from the first quarter of 1961. Except for production stoppages due to labour disputes, motor-vehicle production advanced without major interruption until the second quarter of 1966 when output declined significantly. The temporary decline in production of this industry in both Canada and the United States has been variously related to changes in economic conditions in North America generally, and particularly to the tightening of monetary conditions, and to inflation. In addition, public concern about car safety has also been generally mentioned as a factor in the decline of car sales. Clearly, none of these factors offers a unique explanation.

By the second quarter of 1967, improved consumers' confidence, supported by greater liquidity and a buoyant export market, encouraged an increased production of motor vehicles. However, during 1968 and 1969, various inhibiting factors, such as strikes and shortages of parts, directly or indirectly checked motor-vehicle production, which slumped sharply in 1970 in response to the softening in consumer demand and the growing popularity of vehicles manufactured overseas. For these reasons total annual manufacturing output declined for the first time since 1958 and the increase in volume of retail trade was the slowest since 1957. In 1971, motor-vehicle production once again surpassed its 1969 level. The industry made further good gains during 1972, despite an interruption in the second half of the year to permit a major producer to switch product lines. No record was set in 1973 however, as the rate of growth over the year was lower than the annual average increase in automobile production of 15.5 per cent between 1961 and 1973.

The iron and steel industry has been another major contributor to industrial growth, increasing by 136 per cent since the first quarter of 1961. After reaching full capacity in 1965, this industry experienced some levelling off during 1966 and 1967. However, since the end of 1967, the industry has made solid gains, if one deducts the direct and indirect negative effects of time lost in labour disputes in the latter part of 1969 and in 1970. This strong expansion continued through most of 1971 and 1972. By the fourth quarter of 1973, output of the iron and steel mills had increased by 30 per cent from the first quarter of 1971.

The increase in the volume of construction has been a notable feature of industrial growth since 1961, despite industrial disputes in 1969, 1970, and 1972 and acute labour problems in 1973. This activity first surpassed its 1958 peak in 1962. In the intervening period, the output of the construction industry had hovered around its 1957 level. Large-scale new investments in industrial and social capital were made, however, during the mid-1960's in such industries as pulp and paper, hydro-electric power development (which provided a boost to non-residential construction) and in social capital such as hospitals and particularly schools. Construction activity was also spurred by projects commemorating Canada's Cen-



New cars awaiting shipment from the Ford plant at Oakville, Ont.

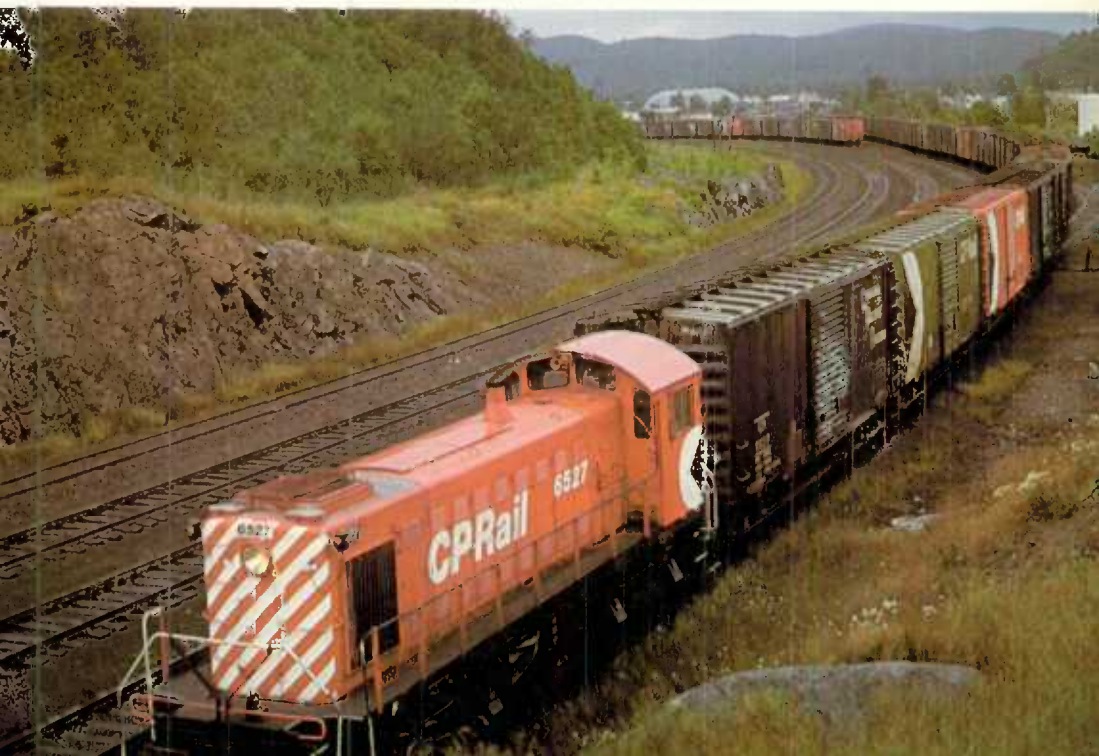
ennial in 1967 and by outlays for Expo 67. However, at this high level of activity, certain segments of the industry in some regions were straining against their available resources and as a result non-residential construction slowed somewhat early in 1967. The combination of scarce and costly funds, increasing costs, and strikes, as well as a June 1969 deferral of capital-cost allowances on commercial projects in three provinces have all contributed to some weakness in this sector since the beginning of 1970.

The growing demand for housing, stimulated by the influx of people from rural areas and immigrants from abroad to the larger urban centres, and to some extent by the entry into the labour and housing markets of the first waves of the "baby boom" of the mid-1940's, resulted in a considerable expansion in residential construction. With this went a new emphasis on the construction of multiple-dwelling units. The rate of housing starts peaked early in 1969 and continued sliding until the third quarter of 1970, reflecting scarcity of mortgage funds, rising interest rates, and higher construction costs. Since that time this activity has remained strong, particularly in the three last quarters of 1973. The easing on the supply side was directly evident in the sharp increase in residential construction activity in the closing quarter of 1970. This renewed vigor continued through 1971 and most of 1972 despite industrial disputes in that year. Nevertheless, for the year 1973, house-building activity remained strong even through the last quarter.

Throughout the 1961-73 period, the service-producing industries have been a significant source of growth in the aggregate output of the Canadian economy. In the period from the first quarter of 1961 to the fourth quarter of 1969, transportation, wholesale trade, and the community, business, and personal service industry groups all experienced above-average quarterly growth rates. Transportation showed particular strength with a quarterly growth average of 2.1 per cent between the last quarter of 1970 and the last quarter of 1973, although wholesale trade was slowing down. Over the same period, railway transportation alone contributed 38 per cent of the gains in transportation, although the output of the air and pipeline transport industries grew more rapidly. In general, transportation has played a vital role in meeting Canada's large and growing export commitments. This was clearly indicated by the upsurge in activity of the rail and water transport industries at the height of the grain deliveries to overseas countries during 1963 and 1964. In 1966 and 1969, major components of the transportation group were severely affected directly and indirectly by strikes. From the beginning of 1970 to the end of the first quarter of 1973 there were no major work stoppages except in the railway industry and even this group reached a higher level of growth than in 1969, thus continuing to make significant contributions to the change in total output in 1971 and 1972. In 1973 transportation output had more than doubled from its 1961 level with an increase of 123 per cent.

Work stoppages slowed industrial growth in 1973 but far less sharply than during

Transportation output increased 123 per cent from 1961 to 1973.



the preceding record year. The number of man-days lost in 1973 was 26 per cent lower than the previous records set in 1972 and 1969. The industries primarily involved were transportation, paper and related industries, construction, rail transportation equipment, and electrical appliances and equipment.

Under extreme distortions in both Canadian and international markets, increased prices gave rise to a much more uneasy situation than in 1972. Employment in 1973 expanded at the fastest rate in four years, surpassing the 1971 record. This increase, together with a slowing of growth in the labour force, led to a slight drop in unemployment, from 6.3 per cent in 1972 to 5.6 per cent in 1973. Prices however continued to climb erratically as illustrated by the changes in the Consumer Price Index, which rose by 7.6 per cent in 1973 compared with 4.8 per cent in 1972, and 2.9 per cent in 1971.

In general terms, the Canadian economy has remained strong since 1961 with the exception of the latter part of 1969 and the beginning of 1970. In spite of increased prices, consumer demand grew sharply in 1973 with a resurgence in the manufacturing sectors. The volume of international trade followed a similar pattern with exports showing a 9 per cent increase and imports a 12.5 per cent increase as against 10 per cent and 16 per cent respectively in 1972.

The cover being lowered over a transformer at a Fort Garry, Man., electrical manufacturing plant.



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 which encourage the production of goods and services in future periods.

Surveys of these capital expenditures are made at regular intervals every year. On each occasion statistics are published for expenditures on housing, non-residential construction, and machinery and equipment by all sectors of the Canadian economy. A survey of the intentions of all sectors of the economy to invest capital, which was carried out early in 1974, indicated that these expenditures were expected to reach a total of \$30,318 million. This represents an increase of nearly 16 per cent above the 1973 preliminary estimate of \$26,131 million. This increase, if reached, represents an acceleration in spending plans to one of the highest levels on record, and follows a rapid expansion of capital investment in 1973.

The following Table shows that the capital investment program for 1974 involves yet another acceleration in business investment. Planned outlays in this sector incorporate an increase of 19 per cent from the total spent in 1973. In 1973, a little more than 13 per cent was anticipated early in the year. Expected outlays in the social capital sector, including housing, are to grow by nearly 12 per cent whereas only 2 per cent was planned at this time in 1973. In contrast to the pattern in evidence early in 1973 and in the recent past in general, investment plans in the goods producing sector, exclusive of housing, show a greater annual gain in 1974 than in the services producing sector. The spending intentions of producers of goods for 1974 are nearly 25 per cent higher than their outlays in 1973. In the sector providing services, some 14 per cent more is expected to be spent than in 1973.

All major components of goods producing industries, notably mining and manufacturing, contributed to the acceleration of capital spending plans in 1974. Particular strength was displayed by projects connected with non-metal mines and the extraction of petroleum from shales and sands, natural gas processing plants, and drilling for petroleum and gas. The only exception is in the mining sector, where it is expected that less will be spent in 1974 on iron mines.

In manufacturing, a significant expansion in capital spending of some 28 per cent envisaged for 1974 follows on an increase of 19 per cent in investment expenditures in 1973. Before that, spending by manufacturers on new production facilities had lacked buoyancy for some years. With the prime exception of the knitting mills and clothing industries, nearly all components of manufacturers' planned outlays show substantial increases. Extensive new production facilities are being installed by producers of primary metals. Strength is also shown in petroleum and coal products, in the chemical industry, in transportation equipment, in paper manufacturing, and in textiles and tobacco processing. In most cases a strong advance is anticipated in these industries, especially by paper and steel producers.

In the services producing sector, a relatively slow growth in the capital projects of utilities, government departments, schools, universities, other institutions, and wholesale and retail trade has dampened the expansion somewhat. This is offset in part by the increases anticipated by banks, insurance and real estate firms, and



establishments in commercial services. As a result, capital outlays planned for 1974 are smaller than in 1973, although still considerable when the development of the recent past is taken into account.

Outlays by government departments at all levels are expected to advance by 18 per cent. An increase of 16 per cent is anticipated in federal capital projects whereas in 1973 such spending increased by 25 per cent. At the provincial and municipal level, capital expenditures for 1974 show rises of 18 and 19 per cent respectively; last year they rose by 8 and 17 per cent.

Within the utilities sector, the impact of the expansion in planned urban transit systems and railways was reduced by declines in proposed expenditures from the level attained in 1973 in water and air transport and in oil and gas pipelines. Growth of 11 per cent is now anticipated in this sector; in 1973 an advance of some 20 per cent was realized.

Following a year of above-average growth in investment in all regions and particularly in the Prairies—the advance in 1973 resembled the expansion of the mid-1960's—further extensive development is planned throughout the country. An increase of 19 per cent is looked for in the Prairies region. In both the Atlantic Provinces and Quebec, capital investment in 1974 is expected to be some 14 per cent above the level of spending in the year before. In Ontario, British Columbia, the Yukon and Northwest Territories, a 16 per cent rise is anticipated.

The strong expansion in the Prairie Provinces ranges from 14 per cent in Manitoba to 17 per cent in Saskatchewan and 22 per cent in Alberta. In all instances the goods producing industries, exclusive of housing, exhibit most strength. Within the Atlantic region increases range from 2 per cent in Newfoundland, 12 per cent in Prince Edward Island and Nova Scotia, to 28 per cent in New Brunswick. In Quebec, with the over-all increase of 14 per cent anticipated in capital spending, expansion in the services producing sector is relatively stronger than in the goods producing industries, despite a significant growth of some 26 per cent in outlays planned by manufacturing firms. In Ontario, spending plans for 1974 are 16 per cent above the total in 1973, with particular increases in the goods producing sector, exclusive of

housing, notably manufacturing. Expected capital expenditures in British Columbia are up some 17 per cent. Particular growth is envisaged in the goods producing industries. The Yukon and Northwest Territories viewed jointly incorporate an increase of some 7 per cent.

Capital Expenditures, Canada, Business and Social Capital 1969-74

Business and Social Capital	1969	1970	1971	1972	1973 ¹	1974 ²
Millions of dollars						
Business capital (excluding housing):						
Agriculture and food industries	1,277	1,189	1,282	1,558	1,970	2,412
Resource based forest and mineral industries	1,570	1,852	2,121	1,924	1,985	2,296
Secondary and construction industries	1,496	1,760	1,639	1,675	2,040	2,538
Fuel and power (including distribution)	2,531	2,939	3,290	3,451	4,032	4,819
Trade, finance and commercial services	1,656	1,745	1,915	2,641	3,214	3,833
Transportation, storage and communication	1,547	1,620	1,706	1,882	2,356	2,669
Sub-totals	10,077	11,105	11,953	13,131	15,597	18,567
Housing and social capital:						
Housing	3,384	3,138	4,025	4,820	5,939	6,504
Institutional services	1,343	1,311	1,435	1,218	1,106	1,118
Government departments and waterworks	2,123	2,244	2,771	3,049	3,489	4,129
Sub-totals	6,850	6,693	8,231	9,087	10,534	11,751
Total capital expenditures³	16,927	17,798	20,184	22,218	26,131	30,318
Percentage distribution						
Business capital (excluding housing):						
Agriculture and food industries	7.5	6.7	6.4	7.0	7.6	7.9
Resource based forest and mineral industries	9.3	10.4	10.5	8.7	7.6	7.6
Secondary and construction industries	8.8	9.9	8.1	7.5	7.8	8.4
Fuel and power (including distribution)	15.0	16.5	16.3	15.5	15.4	15.9
Trade, finance and commercial services	9.8	9.8	9.5	11.9	12.3	12.6
Transportation, storage and communication	9.1	9.1	8.5	8.5	9.0	8.8
Sub-totals	59.5	62.4	59.3	59.1	59.7	61.2
Housing and social capital:						
Housing	20.1	17.6	19.9	21.7	22.7	21.5
Institutional services	7.9	7.4	7.1	5.5	4.2	3.7
Government departments and waterworks	12.5	12.6	13.7	13.7	13.4	13.6
Sub-totals	40.5	37.6	40.7	40.9	40.3	38.8
Total capital expenditures	100.0	100.0	100.0	100.0	100.0	100.0

¹ Preliminary.

² Intentions.

³ For analytical purposes, the industries may also be grouped according to goods producing (agriculture, fishing, forestry, mining, manufacturing, construction and housing) and service producing industries (utilities, trade, finance, commercial, institutions and government departments).

Housing

The year 1973, in terms of housing construction, was the most productive in Canada's history. Housing starts reached a total of 268,529, an increase of 7 per cent over the previous record of 249,914 established in 1972. This performance is well ahead of the annual rate of 245,000 starts that the Economic Council of Canada forecast would be required to meet the needs of Canadians. The greatest increase in starts was in single-family dwellings, although multiple unit starts also rose.

The bulk of these housing starts, or 240,000 dwelling units, was financed by the private sector. This included 75,000 units built under the National Housing Act (NHA). In addition, approximately 30,000 units were financed directly by Central Mortgage and Housing Corporation under NHA programs which provide low-cost loans and other assistance for low-income people in meeting their housing needs.

Amendments to the NHA during 1973 created a range of new housing and community improvement programs that reflect the increasing emphasis the government and the CMHC have given in recent years to the social aspects of housing and the special needs of Canadians with low or modest incomes. In particular, these new programs gave low-income people a wider choice than ever before about the kind of housing they would occupy and their form of tenure. Low-income people were also the principal beneficiaries of the new Neighbourhood Improvement Program which helps improve and conserve vital urban neighbourhoods in danger of decay or destruction.

In addition, a wide range of federal assistance was made available for the planning and development of new communities. Within provincial growth strategies, these communities would be related to metropolitan areas or could be designated

Heritage Hills—townhouses in Toronto, Ont.





The Market Court—condominiums in Victoria, B.C.



The Good Samaritan Nursing Home, Edmonton, Alta.



Senior citizen residence, Rivière des Prairies, Montreal, Que.



Government housing, Pond Inlet, northern Baffin Island.

growth centres, or they could be remote communities based on natural resource development.

The assistance provided for the assembly of land for housing purposes was broadened and made more generous to encourage provinces and municipalities to become more active in land acquisition. By this means these governments can increase the supply of serviced land for housing, be better able to plan and control community and urban growth, and exert downward pressure on house prices.

From the time the new programs became available, until the end of 1973, the Corporation was able to commit over \$130 million in loans to families who qualified under the Assisted Home-Ownership Program and more than \$160 million to entrepreneurs and non-profit and co-operative housing organizations prepared to build or acquire low-income housing.

The Neighbourhood Improvement Program and the related Residential Rehabilitation Program require federal-provincial agreements before they can have effect. By the end of 1973, British Columbia, Alberta, Saskatchewan, and Ontario had signed NIP agreements and substantial progress towards agreement had been made with the other provinces.

In the closing months of 1973 considerable activity was generated in public land assembly. The Corporation's approvals for this purpose totalled more than \$185 million.

Housing prices continued to rise in 1973. The impact was felt most in the large, rapidly growing urban areas. Mortgage interest rates were relatively high but fairly stable throughout 1973. The Residential Mortgage Financing Act is expected to exert a downward pressure on mortgage interest rates by stimulating the flow of private capital into the mortgage market.

During 1973 a comprehensive review of the Sewage Treatment Assistance Program was completed and future plans include the introduction of legislation that will expand the kinds of assistance available and provide for a more equitable distribution of funds, particularly for smaller communities where the cost of sewage systems imposes an inordinate burden on local financial resources.

Manufacturing

Manufacturing is the largest of Canada's goods-producing industries. Because of this fact and of its importance to the growth of national productivity, its high demand for capital goods, and its contribution to exports, it plays an especially important role in the economy.

A monthly sample survey of households produced an estimate that an average number of 1,928,000 persons were being paid salaries or wages by the manufacturing industries in 1973, compared with a total for all industries of 7,757,000.

Preliminary data from a monthly survey shows that Canadian manufacturers shipped \$65,361 million of their own products in 1973, an increase of 17.8 per cent over 1972 in the same monthly survey. (By comparison, the annual average index of selling prices of manufacturing industries increased 12 per cent over the same period.)

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 five dollars out of every seven of exports of Canadian products in 1973. Domestic exports of fabricated materials amounted to \$8,532 million, compared with \$8,950 million for end products. This nearly equal status indicates the importance of industrial materials produced for export.

However, the end products—roughly equivalent to highly manufactured goods, though including very small values of non-manufactured goods—had increased in value more than twelve and a half times since 1961, when they amounted to only \$706 million, while those of fabricated materials had only tripled, from a 1961 figure of \$2,916 million. This is a striking reflection of the growth of those sectors of Canadian manufacturing producing more highly fabricated goods. For various reasons, these values are not strictly comparable with the value of over-all shipments of manufactures by Canadian factories, but they give an impression of the approximate intensity of export activity as measured by shipments. The importance

Transit coach body receives final installations at Transcons plant in Manitoba.







Assembly of chests of drawers at a furniture factory in Winnipeg, Man.

of production for export would be appreciably higher if it were feasible to use a measure of the Canadian value added that is exported, as the over-all manufacturing shipments of Canadian manufacturers necessarily contain double counting of output from manufacturers supplying each other with inputs.

Most manufacturing activity in Canada is highly mechanized and Canadian factories thus constitute a large market for capital equipment. This is partly because many types of natural resource processing are inherently capital intensive, that is, they employ a great deal of machinery, equipment, and buildings in proportion to employees. Industries producing highly manufactured goods like machinery and automobiles are increasingly important. In addition, high living standards, reflected in high wages, bring about economy in the use of workers and this often leads to increased mechanization.

In 1974, according to a survey of investment intentions, it was anticipated that the manufacturing industries would be accounting for 29 per cent of all capital expenditures by business and government for new machinery and equipment. These expenditures represent, of course, not only the expansion of productive capacity but also some "deepening" of capital, or an increase in capital per employee or per unit of product.

Increasing capital intensity of production has probably been a prime cause of the rise in productivity of each employee in the manufacturing industries. Physical output in the manufacturing industries, by man-hour worked, increased at an average rate of 4.3 per cent over the 1961-72 period.

The largest manufacturing industry in Canada in 1973, measured by the value of shipments of its own products, was motor vehicle manufacturers. With a total of \$4,655 million, this industry was more than \$1,000 million larger than the second ranking industry, pulp and paper mills, which, however, ranks first in number of employees. (Data on shipments are based on a monthly survey of shipments,



Manufacture of a stator for a large steam turbine generator in Peterborough, Ont.

inventories, and orders of manufacturers and can be treated as advance estimates of what the annual census of manufactures will show.)

Slaughtering and meat processing, which experienced large price increases, was the third largest manufacturing industry in 1973, followed by petroleum refining, characterized by a marked quickening of its rate of price increase toward the end of the year. Slaughtering and meat processing shipments totalled \$3,087 million, compared with the estimate of \$2,798 million for petroleum refining. The fifth largest industry was sawmills and planing mills, with shipments of \$2,422 million in 1973. Two other industries had more than \$2,000 million shipments in 1973, iron and steel mills and motor vehicle parts and accessories manufacturing. Industries with shipments of between \$1,000 million and \$2,000 million were: the dairy products industry, miscellaneous machinery and equipment manufacturing, smelting and refining, manufacturing of industrial chemicals, metal stamping, pressing, and coating, and miscellaneous food processors, not elsewhere specified.

The largest four enterprises or groupings of publicly owned companies had only 39 manufacturing establishments in 1968, but accounted for 10 per cent of all manufacturers' shipments, 7.7 per cent of manufacturing value added, and 4.6 per cent of total employees. The largest 16 enterprises accounted for more than 60 per cent of 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 1971 was \$1.6 million worth of shipments of goods of own manufacture or about 51 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 many industries throughout Canada. Actually, more than one half of the total work force in the manufacturing industries is in establishments employing 200 or more persons.

There were 127 manufacturing establishments with more than 1,000 persons employed in 1971.

The proximity of the United States, the interest of foreign firms in fabricated materials for use in foreign industry, and the generally profitable character of Canadian manufacturing over many years have led to widespread investment in Canadian manufacturing by companies outside Canada. However, for 1970, a special analysis of the census of manufactures showed that Canadian-controlled firms none the less account for 55.8 per cent of all employees in the manufacturing industries; the proportion of value added is somewhat lower, 47.1 per cent.

The 1973 profits of incorporated companies classified as manufacturing industries amounted to 8.1 per cent of total revenue, before taxes and certain extraordinary items. Average weekly wages and salaries in Canadian manufacturing in a preliminary January 1974 figure were \$174.57.

Manufacturing Statistics, Selected Years, 1920 to 1973

Year	Employees	Salaries and Wages	Value Added by Manufacture	Value of Shipments of Goods of Own Manufacture ¹
	Number		Thousands of dollars	
1920	598,893	717,494	1,621,273	3,706,545
1929	666,531	777,291	1,755,387	3,883,446
1933	468,658	436,248	919,671	1,954,076
1939	658,114	737,811	1,531,052	3,474,784
1944	1,222,882	2,029,621	4,015,776	9,073,693
1949	1,171,207	2,591,891	5,330,566	12,479,593
1953	1,327,451	3,957,018	7,993,069	17,785,417
1954	1,267,966	3,896,688	7,902,124	17,554,528
1955	1,298,461	4,142,410	8,753,450	19,513,934
1956	1,353,020	4,570,692	9,605,425	21,636,749
1957	1,340,948	4,778,040	..	21,452,343
1958	1,272,686	4,758,614	9,454,954	21,434,815
1959	1,287,810	5,030,132	10,154,277	22,830,836
1960	1,275,476	5,150,503	10,380,148	23,279,804
1961	1,352,605	5,701,651	10,434,832	23,438,956
1962	1,389,516	6,096,174	11,429,644	25,790,087
1963	1,425,440	6,495,289	12,272,734	28,014,888
1964	1,491,257	7,080,939	13,535,991	30,856,099
1965	1,570,298	7,822,919	14,927,753	33,889,425
1966	1,646,024	8,695,890	16,351,740	37,303,455
1967	1,652,827	9,254,190	17,005,696	38,955,389
1968	1,642,352	9,905,504	18,332,204	42,061,555
1969	1,675,332	10,848,340	20,133,593	45,930,438
1970	1,637,001	11,363,712	20,047,801	46,380,935
1971	1,628,404	12,129,897	21,737,514	50,275,917
1972	1,657,000 ²	13,331,000 ³	24,350,000 ⁴	55,489,000 ⁵
1973	1,750,000 ²	15,053,000 ³	28,630,000 ⁴	65,360,000 ⁵

¹ Before 1952, data represent gross value of production.

² Based on indexes of employment published in *Employment, Earnings and Hours* (Statistics Canada Cat. No. 72-002).

³ Estimated from current data on earnings in manufacturing.

⁴ Estimated on the basis of the ratio of "value added by manufacture" to "manufacturing gross output" in earlier years.

⁵ Based on the monthly survey of shipments of manufacturers.

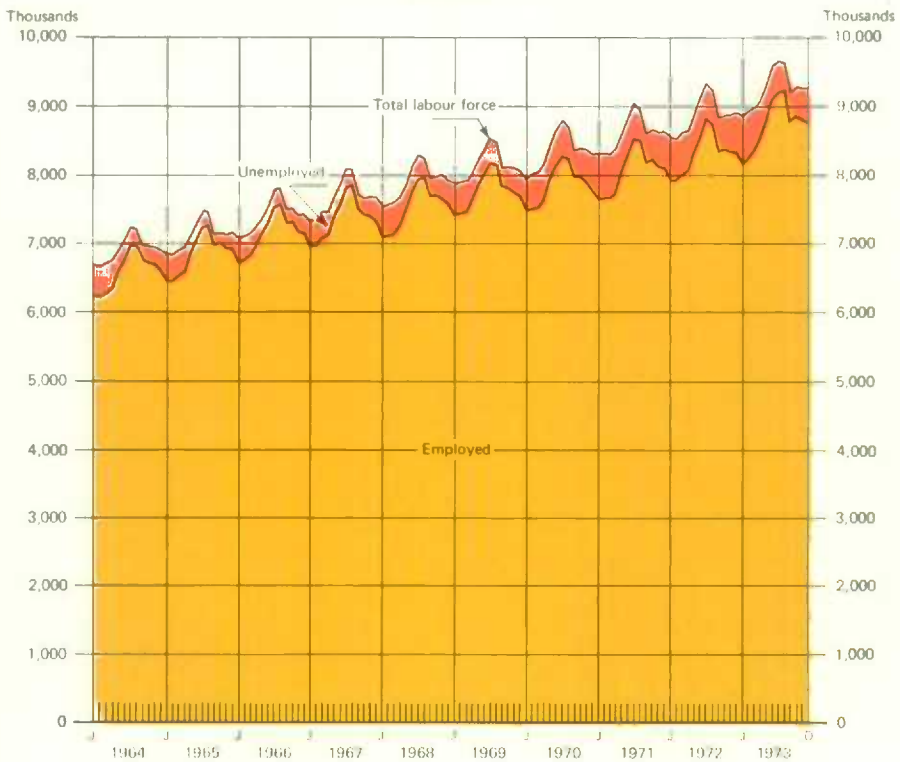
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Labour

The Labour Force

In 1973, an average of 57.5 per cent of the Canadian population 14 years of age and over, or a total of 9,279,000 persons, were considered to be in the labour force. Of this total, 8,759,000 were working and an additional 520,000 were seeking jobs. The chart below shows the growth of the labour force during the 1964-73 period.

The Labour Force, Employed and Unemployed, 1964-73, by Months



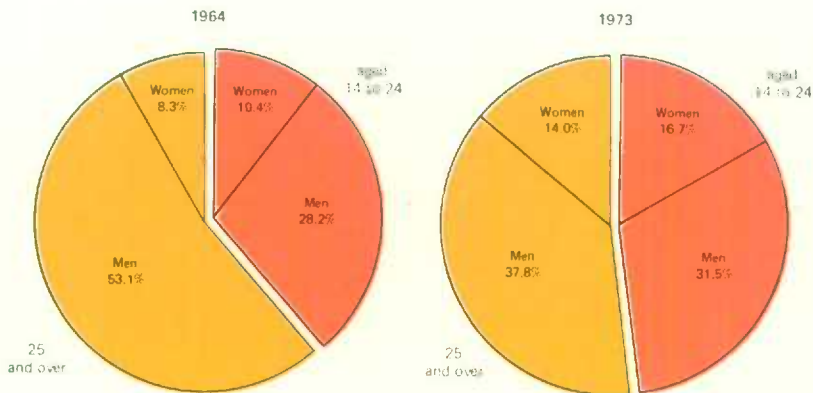
As the following table shows, the increase in the labour force in this ten-year period is attributable to two main factors: population growth (the population aged 14 years and over increased from 12,817,000 in 1964 to 16,125,000 in 1973) and a higher labour force participation rate in the group of young people 14 to 24 years of age and of women over 25. (During this ten-year period, the participation rate increased from 47.6 to 54.1 per cent for the 14-24 age group and from 27.8 to 35.7 per cent in the case of women 25 years of age and over.)

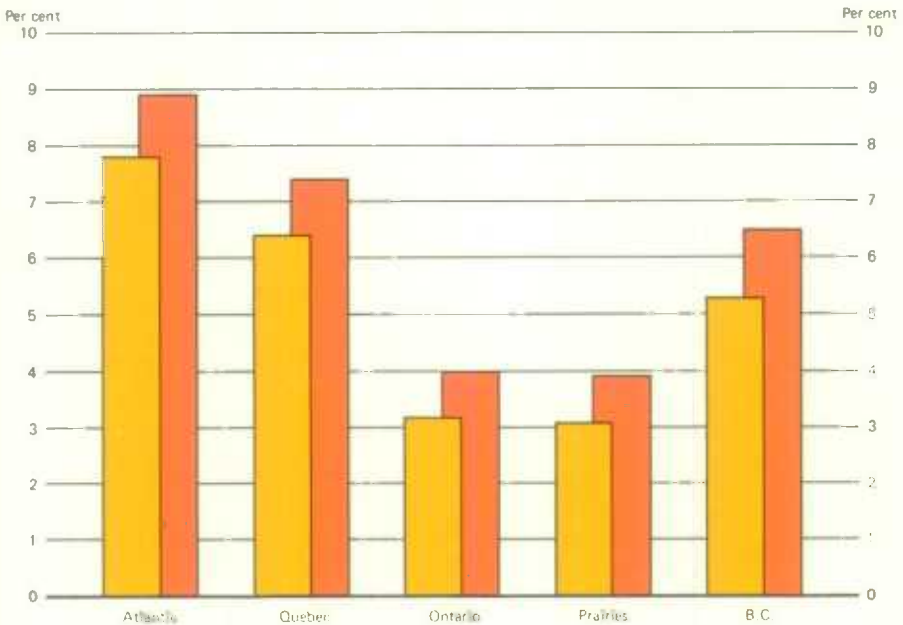
**Population and labour force by principal groups
by age and sex, Canada, annual averages 1964 and 1973**

Population and Labour Force	Total	14-24 years	25 years and over		
			Total	Male	Female
			(Thousands)		
Population 14 years and over					
1973.....	16,125	4,658	11,466	5,600	5,867
1964.....	12,817	3,313	9,504	4,694	4,810
Labour force					
1973.....	9,279	2,518	6,760	4,666	2,094
1964.....	6,933	1,578	5,356	4,016	1,339
Employed					
1973.....	8,759	2,268	6,491	4,470	2,021
1964.....	6,609	1,452	5,156	3,844	1,312
Unemployed					
1973.....	520	251	270	197	73
1964.....	324	125	199	172	27
Participation rate					
1973.....	57.5	54.1	59.0	83.3	35.7
1964.....	54.1	47.6	56.4	85.6	27.8
Unemployment rate					
1973.....	5.6	10.0	4.0	4.2	3.5
1964.....	4.7	7.9	3.7	4.3	2.0

The following chart traces the distribution of unemployment by principal age and sex groups over this ten-year period. For example, while the 14-24 age group

**Unemployment distribution by major age-sex groups, Canada
1964 and 1973**



Unemployment rate by region, 1964 and 1973

accounted for only 39 per cent of the unemployed in 1964, this same group represented almost half (48 per cent) of the total unemployed in 1973.

The chart above shows regional unemployment rates for 1964 and 1973. As indicated, the 1973 rates were higher but sharp differences from region to region still remained.

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, earnings, and hours in some 51,000 reporting units (usually establishments) in Canada having 20 or more employees in any month of the year. These reporting units 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 industries surveyed were \$160.24 in 1973; this was 7.4 per cent above the 1972 level. The increases ranged from 6.8 per cent in transportation, communication, and other utilities to 14.3 per cent in forestry. Among the provinces, gains ranging from 6.8 per cent in Manitoba and Saskatchewan to 10.8 per cent in Newfoundland were recorded.

**Average Weekly Earnings for all Employees, Specified Industries,
and Industrial Composite by Province,¹
Annual Averages, 1961, 1972, 1973**

Industry and Province	1961	1972 ²	1973 ²	1961	1972
				to 1973	to 1973
	Dollars			Per cent	
Industry					
Forestry.....	79.02	172.92	197.66	150.1	14.3
Mining, including Milling.....	95.57	190.29	211.51	121.3	11.2
Manufacturing.....	81.55	156.10	167.53	105.4	7.3
Durables.....	88.22	168.09	180.42	104.5	7.3
Non-Durables.....	76.17	144.64	154.79	103.2	7.0
Construction.....	86.93	209.90	225.67	159.6	7.5
Transportation, Communication, and Other Utilities.....	82.47	167.94	179.29	117.4	6.8
Trade.....	64.54	117.58	126.71	96.3	7.8
Finance, Insurance and Real Estate.....	72.82	140.95	154.43	112.1	9.6
Service.....	57.87	107.32	114.70	98.2	6.9
Industrial Composite ¹	78.24	149.22	160.24	104.8	7.4
Industrial Composite by Province					
Newfoundland.....	71.06	134.60	149.07	109.8	10.8
Prince Edward Island.....	54.91	101.02	111.14	102.4	10.0
Nova Scotia.....	63.72	123.20	135.46	112.6	10.0
New Brunswick.....	63.62	125.08	133.96	110.6	7.1
Quebec.....	75.67	142.86	153.11	102.3	7.2
Ontario.....	81.30	154.92	165.62	103.7	6.9
Manitoba.....	73.66	135.59	144.83	96.6	6.8
Saskatchewan.....	74.38	133.18	142.28	91.3	6.8
Alberta.....	80.29	149.94	161.27	100.9	7.6
British Columbia.....	84.99	165.08	178.28	109.8	8.0

¹"Industrial Composite" is the sum of all industries with the exception of agriculture, fishing and trapping, education and related services, health and welfare services, religious organizations, private households, and public administration and defence. All statistics are based on returns received from employers having 20 or more employees in any month of the year.

²Data for 1972 and 1973 are preliminary.

Average weekly earnings of all employees in all industries surveyed were \$180.24 in 1973.



**Average Hourly Earnings and Average Weekly Hours for
Hourly-Rated Wage-Earners, Annual Averages, 1961, 1972, 1973**

Industry and Province	Average Hourly Earnings			Average Weekly Hours			Changes in AHE		Changes in AWH	
	1961	1972 ¹	1973 ¹	1961	1972 ¹	1973 ¹	1961	1972	1961	1972
							to	to	to	to
							1973	1973	1973	1973
	Dollars			Number			Per cent			
Industry										
Mining, including milling.....	2.13	4.34	4.82	41.8	40.3	40.9	126.3	11.1	-2.2	1.5
Manufacturing	1.83	3.54	3.96	40.6	40.0	39.6	110.9	9.0	-2.5	-1.0
Durables.....	2.00	3.82	4.17	40.9	40.5	40.3	108.5	9.2	-1.5	-0.5
Non-Durables	1.69	3.25	3.52	40.3	39.4	38.9	108.3	8.3	-3.5	-1.3
Construction	2.06	5.15	5.67	40.9	40.1	39.5	175.2	10.1	-3.4	-1.5
Building.....	2.16	5.34	5.89	38.9	38.3	37.9	172.7	10.3	-2.6	-1.0
Engineering.....	1.90	4.83	5.33	44.8	43.9	42.7	180.5	10.4	-4.7	-2.7
Manufacturing by Province²										
Newfoundland	1.69	2.98	3.31	40.5	39.9	41.0	95.9	11.1	1.2	2.8
Nova Scotia.....	1.58	2.98	3.30	40.3	39.5	39.1	108.9	10.7	-3.0	-1.0
New Brunswick	1.55	2.92	3.23	40.9	40.1	39.3	108.4	10.6	-3.9	-2.0
Quebec	1.65	3.09	3.35	41.5	40.6	40.1	103.0	8.4	-3.4	-1.2
Ontario	1.94	3.74	4.06	40.5	40.2	40.0	109.3	8.6	-1.2	-0.5
Manitoba	1.67	3.15	3.45	39.7	38.7	38.4	106.6	9.5	-3.3	-0.8
Saskatchewan	1.98	3.68	3.94	39.0	38.7	38.6	99.0	7.1	-1.0	-0.3
Alberta.....	1.96	3.74	4.11	39.7	38.9	38.5	109.7	9.9	-3.0	-1.0
British Columbia	2.23	4.49	4.91	37.7	37.6	37.3	120.2	9.4	-1.1	-0.8

¹Data for 1972 and 1973 are preliminary.

²Data for P.E.I. are not available.

Labour Organizations in Canada

Membership in labour organizations active in Canada totalled approximately 2,370,600 at the beginning of 1972. Of the total labour force, 27.6 per cent were union members. About 72.8 per cent of the members were in unions affiliated with the Canadian Labour Congress (CLC); 9.2 per cent were affiliates of the Confederation of National Trade Unions (CNTU); one half of 1 per cent were affiliates of the Council of Canadian Unions (CCU); the remaining 17.5 per cent were members of unaffiliated national and international unions and independent local organizations.

Of the total union members, 59.6 per cent belonged to international unions, chiefly AFL-CIO/CLC unions. National unions accounted for 40.4 per cent of union membership in Canada.

Twenty unions reported a membership of 30,000 or more in the 1972 survey. The five largest unions are the United Steelworkers of America (165,100 members); the Canadian Union of Public Employees (158,000); the Public Service Alliance of Canada (129,700); the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (103,000); and the United Brotherhood of Carpenters and Joiners of America (74,400).

Finance

Public Finance

Powers and Responsibilities of the Various Levels of Government

Under the British North America Act the Parliament of Canada has the power to raise "money by any mode or system of taxation" while the provincial legislatures are restricted to "direct taxation within the province in order to the raising of a revenue for provincial purposes." Thus the provinces have access only to direct taxation while the federal government is not thus restricted. The British North America Act also empowered the provincial legislatures to make laws regarding "municipal institutions in the province." This means that municipalities derive their incorporation with its associated powers, fiscal and otherwise, from the provincial government concerned. Thus, municipalities are also limited to direct taxation.

A direct tax is generally recognized as one "which is demanded from the very person who it is intended or desired should pay it." As a result of court decisions, the concept enjoys fairly broad interpretation and allows the provinces to impose in addition to direct taxes on income, other taxes that are mainly indirect, and levies such as general sales, motive fuel, and tobacco taxes. Municipalities, acting under the guidance of provincial legislation, tax real property, water consumption, and places of business. The federal government imposes direct taxes on income and indirect taxes on customs duties and manufacturer's sales and excise levies.

National defence and postal services are the main areas of exclusive federal spending. In addition, the federal government spends large sums of money on transportation and communications, health, social welfare, education, and the

Railway yards in Winnipeg, Man.



protection of persons and property, where spending and administrative responsibility are shared to a greater or lesser extent with the provinces. Provincial government expenditure is particularly heavy in the areas of transportation and communications, health, social welfare, education, protection of persons and property, natural resources, and primary industries. Local government expenditure is concentrated on the protection of persons and property, education, public works and sanitation, and waterworks.

Organization of Governments

The organization of governments 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 and most suitable. The resulting differences in the organizational structures of the various governments raise problems if one seeks to compare one government with another.

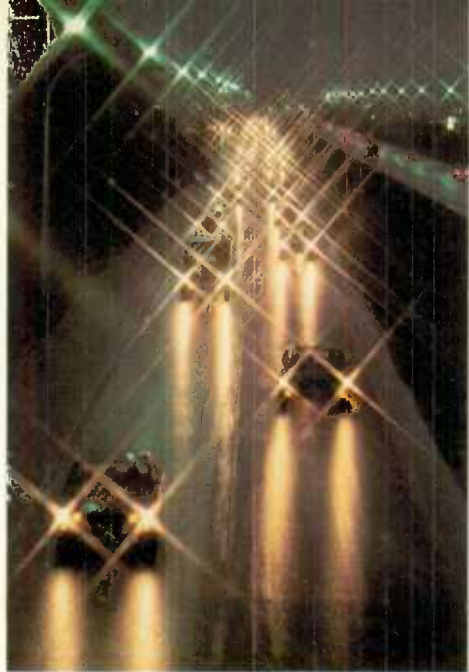
In consolidating the transactions of the various entities considered to belong to the governmental universe, care is taken to exclude those of bodies engaged in operations of a primarily commercial nature. These bodies produce and/or sell goods and services on the open market at a price related to cost. Consumers normally have the freedom to buy or ignore this product. Unless protected by monopoly arrangements, they usually operate in fields that bring them into competition with privately-owned concerns. Examples of entities of this kind that are excluded from the government universe are the Canadian National Railways, Air Canada, the Canadian Broadcasting Corporation, the Polymer Corporation, the St. Lawrence Seaway Authority, the provincial government liquor boards, and the provincial hydro-electric power and telephone companies.

Intergovernment Fiscal Management

The uneven distribution of income among the regions of Canada and the imbalance that has traditionally existed between the resources and responsibilities of

In 1973, 17.7 million passengers travelled by air.





View of traffic along the Queensway at night, headlights reflecting on the wet pavement, Ottawa, Ont.

provincial and local governments has led in time to the development of inter-government fiscal arrangements and the resulting transfers of important revenue between levels of government. Substantial amounts are transferred from the federal government to the provinces. Significant sums of monies flow from the provinces to local governments. Transfers are also made from the federal government to local governments.

The arrangements existing between the federal government and the provinces are quite complex. They relate to a large extent to transfers for general purposes such as statutory subsidies made under the British North America Act and other legislation; equalization payments made under the Federal-Provincial Fiscal Arrangements Act; and payments made in respect of shares of certain federal taxes that are turned over to the provinces. Special payments are also made to Quebec under the terms of the Established Programs (Interim Arrangements) Act which constitute part of the fiscal compensation to which Quebec is entitled for having assumed full responsibility for programs that in other provinces are shared federal-provincial ventures. The federal-provincial fiscal arrangements also provide for transfers for specific purposes which are often subject to prescribed requirements. These transfers are usually made for shared federal-provincial programs and are particularly evident in the areas of health (hospitalization and medicare) and social welfare (Canada Assistance Plan).

There are federal-provincial fiscal agreements by which the federal government collects certain provincial taxes. Under the present fiscal arrangements—which came into effect in April 1972 and will run until March 31, 1977—the federal government collects the provincial personal income taxes for all provinces except Quebec. In Quebec, the tax is imposed at graduated rates on taxable income and is collected by the provincial government. The federal government also collects corporation income tax for all provinces except Quebec and Ontario. It maintains the 10 per cent abatement of corporation income tax which prevailed under the 1967 to 1972 arrangements in order that provinces may levy their own corporation taxes.

The federal government withdrew completely from the death and gift tax fields as of December 31, 1971. Quebec, Ontario, and British Columbia which had been imposing and collecting succession duties have maintained their own systems and, in 1972, began to levy a gift tax. Ontario and British Columbia chose to have their gift tax collected by the federal government. The remaining provinces (with the exception of Alberta, which has no succession duties or gift taxes) enacted succession duty and gift tax legislation effective January 1, 1972. Subsequently, Prince Edward Island rescinded, retroactively to January 1, 1972, its related statutes; New Brunswick made its legislation ineffective on deaths and gifts occurring after December 31, 1973; and Nova Scotia and Newfoundland did likewise in April 1974. Thus the federal government currently acts as a collection agent only for Saskatchewan, Manitoba (succession duties and gift taxes), and British Columbia and Ontario (gift taxes only).

The present federal-provincial arrangements also maintain the 1967-72 agreement by which 95 per cent of federal revenue from corporation income tax on privately-owned power utilities is remitted to the provinces. A new feature of the present arrangements is that tax-sharing has been extended to the taxation of undistributed corporation income; 20 per cent of the federal revenue from this source is turned over to the provinces.

Local governments owe their existence, powers, and responsibilities to provincial governments. When the fiscal resources of municipalities, school boards, and other local government entities no longer suffice to carry their expenditure, assistance usually comes by way of transfers from provincial governments. Thus, by the

Grade 5 pupils in British Columbia examine a metre stick, the new yardstick of mathematics.





Canadian winters present snow-removal problems for municipal governments.

very nature of the relationship, provincial-local fiscal arrangements are not so much the result of agreements as of assumptions by provincial governments of ultimate responsibility for services traditionally provided by local governments. The provinces have to make sure that the services in question are furnished and, to this end, they transfer revenue to local governments. Some of these transfers are of a general nature; they are not tied to specific requirements and are subsidies for the broad operation of local government entities, especially municipal governments. The more substantial transfers made by provincial to local governments are, however, for specific purposes such as education, transportation and communications, and social welfare.

Financial Transactions of the Various Levels of Government in the Fiscal Year Ended Closest to December 31, 1971

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, 1971. The fiscal year concerned is the period April 1, 1971 to March 31, 1972 for the federal and provincial governments and January 1, 1971 to December 31, 1971 for most local governments.

The data are cast in the financial management statistical framework which makes use of the financial statements of the various governments as its main source of information but which also standardizes government operations in order to arrive at statistics that are comparable among governments and between levels of government. As a result, the data presented differ from the related transactions reported in the financial statements of the individual governments because the government universe of the financial management system is broader than the government universe of the individual governments.

Table 1. Revenue of Federal, Provincial, and Local Governments
(Fiscal Year Ended Closest to December 31, 1971)

Sources of Revenue	Federal Government		Provincial Governments		Local Governments ¹	
	Amount	Share of Total Revenue	Amount	Share of Total Revenue	Amount	Share of Total Revenue
	(\$000)	(%)	(\$000)	(%)	(\$000)	(%)
1. Taxes:						
(a) Personal income taxes	7,227,382	39.0	2,967,097	17.7	...	...
(b) Corporation income taxes	2,395,632	12.9	785,824	4.7	...	...
(c) General sales tax	2,653,240	14.3	2,009,048	12.0	...	...
(d) Real property taxes ² .....	...	...	50,130	0.3	3,374,271	38.2
(e) Custom duties	988,599	5.3	...	...	...	...
(f) Motive fuel taxes .....	...	...	1,167,748	7.0	...	...
(g) Health insurance premiums .....	...	...	763,996	4.5	...	...
(h) Social insurance levies ³	570,594	3.1	339,587	2.0	...	...
(i) Universal Pension Plans levies ⁴	826,230	4.5	300,242	1.8	...	...
(j) Other taxes	1,415,573	7.6	775,263	4.6	354,263	4.0
Sub-total	16,077,250	86.7	9,158,935	54.6	3,728,534	42.2
2. Natural resources	8,162	—	640,543	3.8	...	...
3. Privileges, licences, and permits	20,786	0.1	555,499	3.3	50,327	0.6
4. Other revenue from own sources	2,435,399	13.1	2,061,210	12.3	980,990	11.1
5. General purpose transfers from other levels of government	—	—	1,508,954	9.0	315,572	3.6
6. Specific purpose transfers from other levels of government	8,233	0.1	2,850,834	17.0	3,756,231	42.5
Total	18,549,830	100.0	16,775,975	100.0	8,831,654	100.0

¹Provisional figures.

²The revenue of local governments includes \$10,185,000 in personal property tax.

³Covers contributions for workmen's compensation, unemployment insurance, and vacation-with-pay schemes.

⁴Covers contributions to the Canada and Quebec Pension Plans.

... Not applicable.

Table 2. Expenditure of Federal, Provincial, and Local Governments

(Fiscal Year Closest to December 31, 1971)

Expenditures	Federal Government			Provincial Governments			Local Governments ¹		
	Amount	Share of Total Expenditure	(%)	Amount	Share of Total Expenditure	(%)	Amount	Share of Total Expenditure	(%)
	(\$000)			(\$000)			(\$000)		
1. General government	1,110,126	6.1		838,463	4.8		336,772	3.6	
2. Protection of persons and property ²	2,213,099	12.2		582,616	3.4		633,582	6.7	
3. Transportation and communications ³	1,163,053	6.4		1,422,126	8.2		1,116,452	11.8	
4. Health ⁴	133,632	0.7		4,588,329	26.5		465,641	4.9	
5. Social welfare	4,944,968	27.1		1,683,411	9.7		360,370	3.8	
6. Education	249,422	1.4		2,015,536	11.7		4,416,493	46.8	
7. Environment	22,651	0.1		60,885	0.4		667,687	7.1	
8. General purpose transfers to other levels of government	1,546,254	8.5		350,004	2.0		—	—	
9. Specific purpose transfers to other levels of government									
(a) for transportation and communications	44,160	0.2		300,960	1.7		—	—	
(b) for health	1,469,786	8.1		34,130	0.2		—	—	
(c) for social welfare	472,941	2.6		266,645	1.5		—	—	
(d) for education	614,749	3.4		2,623,721	15.2		—	—	
(e) for other purposes	242,733	1.3		140,041	0.8		—	—	
Sub-total—Specific purpose transfers	2,844,369	15.6		3,365,497	19.4		—	—	
10. Other expenditure	3,990,726	21.9		2,403,141	13.9		1,442,562	15.3	
Total expenditure	18,218,300	100.0		17,310,008	100.0		9,439,559	100.0	

¹Provisional figures.²Includes national defence.³Includes postal services.⁴The expenditure of provincial governments includes \$2,959,686,000 for hospital care.

—Nil.

Table 3. Financial Assets of Federal, Provincial, and Local Governments

(Fiscal Year Ended Closest to December 31, 1971)

Financial Assets	Federal Government			Provincial Governments			Local Governments		
	Share of Total Financial Assets		Amount	Share of Total Financial Assets		Amount	Share of Total Financial Assets		Amount
	(\$000)	(%)		(\$000)	(%)		(\$000)	(%)	
1. Cash on hand or on deposit.....	907 581	2.7	1,630,253	10.3	419,808	16.5	1,116,878	43.8	1,253
2. Receivables.....	285,351	0.8	895,927	5.6	2,780,842	17.5	8,557,531	53.9	—
3. Loans and advances.....	20,101,312	59.4	11,477,549	33.9	214,513	0.7	—	—	—
4. Investment (a) Canadian securities.....	—	—	—	—	—	—	—	—	—
(b) Foreign securities.....	—	—	—	—	—	—	—	—	—
Sub-total — Investments.....	11,892,062	34.6	8,557,531	53.9	830,965	32.6	2,025,439	12.7	181,213
5. Other financial assets.....	842,788	2.5	15,889,992	100.0	2,550,117	100.0	—	—	—
Total.....	33,829,094	100.0	15,889,992	100.0	2,550,117	100.0	—	—	—

Table 4. Liabilities of Federal, Provincial, and Local Governments

(Fiscal Year Ended Closest to December 31, 1971)

Financial Liabilities	Federal Government			Provincial Governments			Local Governments		
	Share of Total Liabilities		Amount	Share of Total Liabilities		Amount	Share of Total Liabilities		Amount
	(\$000)	(%)		(\$000)	(%)		(\$000)	(%)	
1. Borrowing from financial institutions.....	—	—	6,064,478	15.7	274,518	1.6	758,542	7.1	—
2. Payables.....	—	—	370,279	1.0	863,633	5.0	516,692	4.9	—
3. Loans and Advances.....	—	—	27,258,500	70.6	14,518,901	84.9	9,101,102	85.8	—
4. Bonds and debentures.....	—	—	4,924,312	12.7	578,384	3.4	232,654	2.2	—
5. Other Liabilities.....	—	—	—	—	—	—	—	—	—
Total.....	38,617,569	100.0	17,108,299	100.0	10,608,990	100.0	—	—	—

Banking and Savings

The Canadian monetary system is a decimal currency with 100 cents to the dollar. Currency in the form of bills is issued by the Bank of Canada. The coinage—nickel coins in denominations of one dollar, 50 cents, 25 cents, 10 cents and 5 cents and bronze 1-cent coins—is issued by the Royal Canadian Mint. At the end of 1973, Bank of Canada notes totalling \$4.620 million and coins totalling \$589 million were in circulation outside banks.

Although many economic transactions in Canada involve payments made in the form of Bank of Canada notes and coin, an increasing proportion of payments, and certainly virtually all large ones, are made by cheque. A cheque is an order addressed to a bank to pay a third person named in the cheque a specified amount out of the deposit account maintained at that bank by the person writing the cheque. Deposit liabilities held at the chartered banks are considered a convenient means of settling transactions and are usually thought of as money because they are generally accepted in the settlement of debts.

The banks offer three types of chequable accounts: current accounts and personal chequing accounts on which no interest is paid, and chequable personal savings accounts on which interest is paid. There are also non-chequable savings accounts on which the banks pay a higher rate of interest. The banks as a group operate extensive facilities for clearing cheques drawn on one bank and cashed in another. On April 30, 1974, the chartered banks had 26,156,325 deposit accounts with an average of \$1,881 in each account.

There are 10 chartered banks operating in Canada.



Banks

There are ten chartered banks operating in Canada, most of which are owned by a large number of individual Canadian shareholders. The majority of these banks have been in operation for many years but one new bank commenced operations in July 1968 and another in January 1973. All of the banks operate under charters granted by Parliament under the terms of the Bank Act. Each of the banks has a number of branches and in the largest banks the branch network extends throughout the country. As of December 1973, the banks operated a total of 6,701 branches in Canada. By the yardstick of total assets the two largest Canadian banks were among the top 30 banks in the world in 1972 and the three largest Canadian banks were among the 40 largest banks in the world.

The chartered banks are one of the major sources of financing in Canada. They also offer their customers a wide variety of other services, including facilities for obtaining foreign exchange, investing in stocks and bonds, and protecting valuables. Bank loans are made to businessmen and consumers for a variety of purposes and for varying periods of time. Most loans are relatively short-term but in recent years there has been a quite rapid increase in longer-term loans to businesses and in mortgage loans on residential property. The chartered banks are required by law to maintain cash reserves in the form of deposits with, or notes of, the Bank of Canada and may also be required to maintain secondary reserves. The Bank of Canada performs the function of a banker for the chartered banks and is empowered to make short-term advances to the banks.

Many of the chartered banks are also active in international business and provide domestic banking services in a number of other countries. The banks maintained 266 branches and agencies outside Canada, as of December 1973.

Non-bank Financial Institutions

In 1972, the assets of the banks accounted for some 60 per cent of the total assets of the major Canadian financial intermediaries. Their main competitors are trust companies, mortgage loan companies, *caisses populaires*, credit unions, the Quebec Savings Bank, and sales finance and consumer loan companies. Insurance companies and investment dealers and stockbrokers also play important roles in the Canadian financial system.

While the chartered banks remain the largest financial institutions in Canada, the postwar period has witnessed the rapid growth and development of competing institutions. Among the fastest growing in recent years have been the 100 or so trust companies and mortgage loan companies, which operate across Canada. Both institutions accept deposits and have networks of branches. Although they compete with the banks to attract personal savings deposits, most of their funds are raised through the sale of fixed term debentures and investment certificates. The bulk of the assets of both trust and mortgage loan companies is held in the form of mortgages. Trust companies, in addition, administer private and corporate pension funds and the estates of individuals, manage companies in receivership, and act as financial agents for municipalities and corporations. Trust and mortgage loan companies are licensed and supervised either by the federal Department of Insurance or by provincial authorities.

Another important type of financial intermediary in Canada is the credit union or *caisse populaire* as it is called in Quebec. The *caisses populaires* began operations around 1900 and acted mainly as savings institutions for lower income groups. Later, some also began lending to members at low cost. Unlike the chartered banks, the first of which were established in the early part of the 19th century, most of the credit unions and *caisses populaires* have been formed during the past 40 to 50 years. Their growth has been due in large measure to their co-operative foundation and to their local character—a striking contrast to the development of many other financial institutions.

The Bank of Canada

Canada's central bank, the Bank of Canada, is charged with the responsibility for regulating "credit and currency in the best interests of the economic life of the nation." The chartered banks are required to maintain on a half-monthly basis cash reserves in the form of Bank of Canada notes and deposits with the Bank of Canada equal to 12 per cent of demand deposits and 4 per cent of notice deposits. In addition, the Bank of Canada may also require the banks to maintain secondary reserves consisting of excess cash reserves, treasury bills, and day-to-day loans. The Bank of Canada implements its monetary policy primarily by varying the amount of cash reserves available to the banking system. An increase in cash reserves, relative to the requirement, will encourage the banks as a group to expand their loans and investments with a concomitant increase in their deposit liabilities, while a decrease in cash reserves will have the opposite effect of inhibiting the banks from expanding their activities or even of inducing a contraction in their total asset and deposit liabilities. The principal means used by the Bank of Canada to alter the level of chartered bank cash reserves over time is through changes in its portfolio of Government of Canada securities.

The Bank may make short-term advances to chartered banks and the Government

Stacking gold bullion.





The Winnipeg centennial silver dollar issued by the Canadian mint. The corner of Portage Avenue and Main Street as it was 100 years ago is depicted in the first zero and the corner today is in the second zero.

of Canada. The minimum rate at which the Bank is prepared to make advances is called the bank rate, and legislation requires that it be made public at all times. The Bank acts as fiscal agent for the Government of Canada; it operates the government's deposit account through which flow virtually all government receipts and expenditures, handles debt management and foreign exchange transactions for the government, and acts as an economic and financial adviser. The sole right to issue notes intended for circulation in Canada is vested in the Bank.

Insurance

At the end of 1972, Canadians owned over \$148,000 million of life insurance, with an average of \$23,000 in force per household in 1972. Canadians are well insured compared to people in other countries.

The Canadian life insurance business consists of about 240 companies and fraternal benefit societies, over half of which are federally registered companies. The latter group of companies has written more than 90 per cent of the total business of the industry and holds assets in Canada of over \$19,000 million. In addition to life insurance, most of the companies sell policies to cover expenses resulting from illness and to compensate policyholders for wages not received during illness. Insurance may be purchased from a licensed insurance salesman or through a "group" plan operated by an employer, a professional association, a union, and so on.

In addition to those companies selling life insurance, about 340 companies sell insurance for fire, theft, automobile damages, and other casualties. The federally registered companies selling such insurance have assets in Canada of almost \$3,000 million.

Trade

Domestic Trade

The means by which goods are transferred from the producer and from secondary sources (for example, importers) to the final consumer are usually referred to as the channels of distribution. The principal channels are wholesalers and retailers. Included with wholesalers are agents and distributors who, rather than selling goods on their own account, sell on commission. Manufacturers' sales branches may engage in either a wholesale or a retailing activity, or both. Besides retailing outlets, retailing functions are carried out through vending machines and through direct selling such as mail-order and door-to-door selling. In addition, there are co-operatives which carry out a variety of distributive and other functions. Finally there are avenues for the performance of services to consumers, industry, and business. This service trade includes accommodation; restaurants; recreational, amusement, and entertainment facilities; the rental of equipment; management research, advertising, consulting, data processing, and many other specialized service functions. The foregoing channels of distribution will be briefly discussed in this chapter, including consumer credit, which is an important adjunct to the entire marketing process.

The nature and activities of the channels of distribution are characterized by continuous change. In retailing and services, franchising operations appear to be multiplying. Planned shopping centres have sprung up in the suburbs of cities. In the central business district, merchants are locating their stores in newly constructed shopping malls and multi-store, multi-level building developments which house retail and service outlets. Independent store owners are forming voluntary groups that engage in joint advertising and centralized purchasing in order to compete more effectively with corporate retail chains. The gasoline industry engages in mail-order selling and the retailing of appliances and household and sporting goods. Businesses are making extensive use of specialized agencies, many types of which have come to prominence only in recent years, such as data processing services, market research agencies, public relations firms, mailing list houses, and marketing and management consultants.

Retail Trade

In 1973, retail sales through regular outlets reached an estimated total of \$38,239.2 million, an increase of 12.7 per cent over 1972. Retail sales data do not include vending machines, direct sales (mail-order, door-to-door, and so on), and campus bookstores. These three categories are estimated to account for another \$1,250 million.

Retail sales in 1973 were 68.6 per cent above those of 1966. In the period from 1966 to 1969 a rise of 20.8 per cent was recorded, but from 1970 to 1973 the rate of increase almost doubled: sales in 1973 rose 36.4 per cent above those of 1970. The sharpest increases were recorded in British Columbia and Alberta, while Quebec and Saskatchewan showed the lowest rates of increase over the last seven years. Ontario's rate of increase has slowed down since 1970, but was close to the national average between 1966 and 1973. That province now accounts for 38 per cent of all

retail sales in Canada; Quebec accounts for almost 25 per cent, and British Columbia for almost 12.5 per cent.

By kinds of business, the most dramatic increase in sales was recorded by department stores: 1973 sales were well over double those of 1966 (118 per cent). Department store sales account for 11.3 per cent of all retail sales in Canada. Still, the most important kind of business is grocery and combination stores; they account for 23.1 per cent of total retail sales. The rate of increase of sales of this kind of business is, however, below that of the national average. Motor vehicle dealers' sales (including their repair and maintenance business, and new and used car sales) have a 17.7 per cent share of total retail sales. In 1973, their sales were 19.2 per cent higher than in 1972—the second highest sales year on record. Nevertheless, this kind of business had a below average increase in sales over the last seven years. The lowest rates of increase were recorded for variety stores and for general stores.

Within the framework of retail trade, chain stores (four stores or more in the same kind of business) and independent retailers compete for a share of the retail market. In 1966, chains accounted for 33 per cent of retail sales, while in 1973 they commanded a share of almost 40 per cent. Some of this increase was due to the sharp rate of sales increase of department stores (all of which are classed as chains). Without department stores, the market share of chains in 1966 was 24.3 per cent, and that of 1973, 28.3 per cent. Total sales of independent stores in 1973 were estimated at \$23,101 million, and those of chains at \$15,138 million. Sales by chains in 1969 were 30.3 per cent above those of 1966, while the increase of independents was 16.1 per cent. From 1970 to 1973 independent stores held their own a little better but they were still outpaced: chains showed a sales increase of 42.8 per cent, independents of 32.5 per cent.

In 1966, grocery and combination store chains had a 45 per cent share of the total sales of that kind of business. By 1973, their share had increased to 56 per cent; grocery and combination store chains now command appreciably more business than independents. In most kinds of business, in fact, chains gained at the expense of independents. Exceptions were "all other" food stores, variety stores, furniture, T.V., and appliance stores, and fuel dealers.

Twenty-two per cent of all grocery and combination stores' sales in Canada now take place in shopping centres.



The rise of shopping centres probably constitutes the most important development in retailing. The first shopping centre in Canada was built in Vancouver in 1950. By 1956, 64 centres had been built and their aggregate sales of \$236 million represented 1.6 per cent of total retail trade. In 1966, there were 420 centres whose sales of \$2,100 million represented 9.3 per cent of all retail sales in Canada. Six years later, in 1972, there were almost 600 shopping centres, with 9,324 retail stores with sales of close to \$5,467 million—16.1 per cent of the total Canadian retail trade. (Excluding retail outlets which do not normally operate in shopping centres such as general stores, motor vehicle dealers, and fuel dealers, sales in shopping centres account for over 20 per cent of all Canadian retailing.) Furthermore, there were 2,990 service outlets such as movie theatres, laundromats, beauty parlours, and so on (excluding banks) with receipts of over \$226 million.

The most important outlet in shopping centres is now the department store, with sales of over \$1,844 million. Fifty per cent of all department store sales are now made in shopping centres. Grocery and combination stores, which until 1972 were the most important outlets, recorded sales of almost \$1,793 million. Twenty-two per cent of all grocery and combination stores' sales in Canada now take place in shopping centres. Other stores for which the shopping centre has become a location of great importance are women's clothing stores, whose shopping centre outlets account for 36 per cent; shoe stores, 30 per cent; men's clothing stores, 22 per cent; drug stores, 21 per cent; and jewellery stores, 20 per cent.

Direct Selling

Not included with retail trade data are direct sales, that is, door-to-door, mail-order, and other sales to private consumers not made through a store (although department store mail-order catalogue sales are included in the statistics for retail trade). In 1972, direct sales amounted to \$928 million, supplementing the estimated 1972 retail sales of \$38,239 million. Direct sales in 1972 were 34.2 per cent above the 1966 level, but although a steady increase was reported each year, direct selling is not keeping pace with over-all retail sales. The market share of two important categories, dairy and bakery products, has been declining steadily for some years, in spite of increased retail sales of these products. The share of direct selling of frozen food plans has also declined.

On the other hand, sales by vending machine operators, which are also excluded from retail trade statistics, have increased by 66.4 per cent since 1966, reaching \$177.3 million in 1972. In this category, cigarettes formed the most important component with sales of \$87.4 million, followed by cold beverages, \$29.1 million, and hot beverages, \$28.2 million.

Service Trades

Changes within the service sector can best be measured and analyzed through census results, since inter-censal surveys provide only partial coverage of this large and diverse field. From 1961 to 1966, the service trades developed at a faster rate than either personal disposable income or personal consumer expenditure. By 1966, the receipts of service trades amounted to \$4,587 million, of which the hotel,

tourist camp, and restaurant group accounted for \$2,397 million, the personal services group for \$596 million, the amusement and recreation group for \$442 million, and the business services group for \$492 million. Since 1966, restaurant receipts increased by 44.8 per cent to \$1,561.4 million in 1973; accommodation receipts reached \$1,380 million in 1970, of which hotel receipts amounted to \$1,128.4 million, a 42.7 per cent increase since 1966; power laundries and dry cleaners reported receipts of \$258 million in 1970, an increase of 1.9 per cent since 1966, and receipts from motion picture theatres reached \$150.4 million (including taxes), an increase of 52 per cent since 1966, surpassing the record high of \$113.6 million established in 1953 (although the number of paid admissions is still only about one third of what it was then).

Retail Trade by Province and Kind of Business, 1973 and Trends¹

Province and Kind of Business	Sales 1973 Millions of dollars	Percentage Change			Percent- age dis- tribution 1973	
		1973/72	1973/66	1973/70	1969/66	
Province						
Newfoundland	686.3	13.7	69.2	39.1	18.7	1.8
Prince Edward Island	177.5	14.9	65.0	35.0	14.8	0.5
Nova Scotia	1,268.7	12.0	68.5	36.4	17.4	3.3
New Brunswick	1,033.3	12.5	73.7	39.5	18.1	2.7
Quebec	9,538.7	12.4	62.2	34.8	18.4	24.9
Ontario	14,524.7	11.6	68.4	33.4	22.8	38.0
Manitoba	1,676.0	14.0	66.5	36.6	18.0	4.4
Saskatchewan	1,458.8	14.4	39.4	43.2	0.5	3.8
Alberta	3,139.4	12.9	78.6	38.1	28.3	8.2
British Columbia ²	4,735.8	15.6	88.9	45.3	26.3	12.4
Total	38,239.2	12.7	68.6	36.4	20.8	100.0
Kind of Business						
Grocery and combination stores	8,828.8	11.9	65.0	28.9	19.6	23.1
All other food stores	787.1	9.7	42.2	23.3	11.9	2.0
Department stores	4,306.8	16.0	118.2	51.0	38.7	11.3
General merchandise stores	1,140.5	10.1	76.0	34.4	28.0	3.0
General stores	757.3	11.7	35.7	31.7	1.7	2.0
Variety stores	642.8	4.8	30.1	16.3	9.6	1.7
Motor vehicle dealers	6,764.4	19.2	55.9	61.2	10.6	17.7
Service stations and garages	3,172.8	9.7	69.4	25.4	23.7	8.3
Men's clothing stores	539.9	6.2	51.1	21.1	18.6	1.4
Women's clothing stores	725.3	7.9	66.7	29.2	25.2	1.9
Family clothing stores	491.9	7.4	45.8	23.7	14.2	1.3
Shoe stores	393.3	8.2	56.1	20.1	26.1	1.0
Hardware stores	499.3	11.5	40.3	30.4	10.0	1.3
Furniture, TV, and appliance stores	1,195.2	11.8	61.8	41.0	17.4	3.1
Fuel dealers	618.1	6.8	30.1	30.6	-2.0	1.6
Drug stores	1,081.8	10.3	66.3	28.8	21.8	2.8
Jewellery stores	301.5	14.7	57.4	38.0	17.4	0.8
All other stores ³	5,992.3	10.5	93.0	33.4	34.7	15.7

¹All data relating to 1971, 1972, and 1973 are preliminary and subject to revision.

²Includes Yukon and Northwest Territories.

³Includes as a principal component, alcoholic beverage stores with sales totalling \$1,500 million.



Consumer Credit

Consumer credit refers to advances made for personal, non-commercial purposes, either in the form of cash, or as credit against specific purchases of consumer goods under contractual sales agreements. It does not include residential mortgages, home improvement loans, fully secured bank loans, fees owed to professionals such as doctors and lawyers, loans from stockbrokers and investment dealers, or interpersonal loans. The following table on national estimates of consumer credit, as measured by the outstanding balances in the hands of selected holders of such credit, illustrates the expanding use Canadians are making of this facility. Noteworthy is the shift observed over the period to a demand for "cash-credit" supplied by banks and other financial institutions. The chartered banks now play a major role in

Consumer Credit: Balances Outstanding, Year-Ends 1966-73

Year-End	Total ¹	Annual Change	Retail Dealers ²	Other Vendors ³	Cash Loans Banks ⁴	Other Cash Loans ⁵
	Millions of dollars	Percentage	Millions of dollars			
1966	7,778	...	1,353	1,476	2,474	2,476
1967	8,616	+ 10.8	1,385	1,429	2,997	2,805
1968	9,856	+ 14.4	1,440	1,504	3,694	3,217
1969	11,134	+ 13.0	1,529	1,688	4,181	3,736
1970	11,706	+ 5.1	1,551	1,503	4,685	3,967
1971	12,673	+ 8.3	1,606	1,315	5,802	3,950
1972	14,844	+ 17.1	1,747	1,489	7,174	4,415
1973	17,672	+ 19.1	1,985	1,642	8,914	5,131

¹Slight differences in totals are due to rounding.

²Includes both charge accounts and instalment credit of department stores, furniture and appliance stores, and other retailers.

³Includes instalment sales credit extended by sales finance and consumer loan companies, credit card issuers, and public utility companies.

⁴Personal cash loans (other than those fully secured and home improvement loans) extended by chartered banks and Quebec savings banks.

⁵Includes personal cash loans extended by consumer loan companies, credit unions and Caisses populaires, and policy loans of life insurance companies.

... Not applicable.

this field of economic activity, holding 50.5 per cent of all outstanding balances at the end of 1973. Their balances included, in 1973, \$2,436 million against motor vehicle purchases alone, compared with \$795 million held by sales finance companies which, until recently, dominated the financing of automobile purchases.



Pork cutting table at a St. Boniface, Man., meat packing plant.

Wholesale Trade

Wholesalers are primarily engaged in buying merchandise for resale to retailers, to industrial, institutional, and commercial users, and to other wholesalers, or in acting as agents in such transactions. For statistical purposes, wholesalers are classified into five types: wholesale merchants; agents and brokers; manufacturers' sales branches; assemblers of primary products; and petroleum bulk tank plants and truck distributors. Of these five types, wholesale merchants are by far the most important. They buy and sell goods on their own account. Included in this category are export and import merchants, cash and carry wholesalers, drop-shippers, truck distributors, mail-order wholesalers, desk jobbers, rack jobbers, or simply jobbers. They accounted for over 60 per cent of the total wholesale sales of \$31,172 million as measured by the 1966 census. The accompanying table shows sales by wholesale merchants according to the 1966 census and estimated sales for 1973 as measured by a panel of reporting establishments.

Sales in 1973 were 80 per cent greater than in 1966: consumer goods trades showed an increase of 86 per cent, and industrial goods trades of 75 per cent. The largest increases occurred in motor vehicle and automotive parts and accessories wholesaling: 1973 sales were about 2½ times greater than in 1966, that is, they showed increases of 156 per cent and 148 per cent. There was a decline in sales of only coal and coke.

Wholesale Trade (Merchants), 1966 and 1973

	Sales		Change
	1966	1973	1973/1966
	Millions of dollars		Percentage
Total, All Trades	18,922.4	34,081.2	80.1
Consumer goods trades.....	8,683.3	16,135.9	85.8
Automotive parts and accessories.....	829.1	2,060.4	148.5
Motor vehicles.....	328.7	841.8	156.1
Drugs and drug sundries.....	396.2	754.7	90.5
Clothing and furnishings.....	219.3	358.2	63.3
Footwear.....	69.5	83.3	19.9
Other textiles and clothing accessories.....	416.5	705.3	69.3
Household electrical appliances.....	378.8	801.6	111.6
Tobacco, confectionery, and soft drinks.....	668.1	1,182.5	77.0
Fresh fruits and vegetables.....	417.9	653.2	56.3
Meat and dairy products.....	589.0	1,060.7	80.1
Floor coverings.....	163.2	369.6	126.5
Groceries and food specialties.....	2,887.6	4,799.7	66.2
Hardware.....	526.4	754.7	43.4
Consumer goods residual.....	792.8	1,710.4	115.7
Industrial goods trades.....	10,239.1	17,945.3	75.3
Coal and coke.....	106.9	43.1	-60.4
Grain.....	1,701.7	2,098.9	23.3
Electrical wiring supplies, construction materials, apparatus, and equipment.....	338.5	626.3	85.0
Other construction materials and supplies, including lumber.....	2,257.9	4,719.7	109.0
Farm machinery.....	920.8	1,258.8	36.0
Industrial and transportation equipment and supplies.....	1,775.4	3,168.7	78.5
Commercial, institutional, and service equipment and supplies.....	413.5	789.1	90.8
Newsprint, paper, and paper products.....	366.3	518.9	41.7
Scientific and professional equipment and supplies.....	201.2	407.8	102.7
Iron and steel.....	757.4	1,758.2	132.1
Junk and scrap.....	368.7	619.6	68.1
Industrial goods residual.....	1,030.8	1,936.1	87.8

Co-operatives

The co-operative movement is active in all 10 provinces of Canada. It had its beginnings at a number of different places in the country in the latter half of the 19th century but was most readily adopted in the rural areas. Here, with a sparse population and in many instances sparse competition, a great many farmers were

dissatisfied with the treatment they received in their dealings with existing commercial trade channels. This applied both to the marketing of farm produce and to the purchase of farm supplies and consumer goods. Thus the movement evolved as largely agricultural and rural; it is only in the last decade or so that significant progress has been made in the urban sector with the establishment of co-operative supermarkets and shopping centres.

The gross business volume of 2,200 local (as distinguished from wholesale) co-operatives rose \$410 million or 17 per cent in 1972 to \$2,792 million on the strength of accelerated world demand and higher prices for wheat and most other agricultural commodities. Membership in co-operatives numbered about 1.8 million while assets at year-end amounted to \$1,334 million. Saskatchewan, where co-operatives are very involved in the province's huge grain and livestock economy, continued in 1972 as the province with the greatest co-operative activity. It had the most members, the largest business volume, and the most assets. Alberta again had the largest number of co-operatives, with rural electric associations composing more than half the total.

Co-operative business volume consists of four broad revenue categories and in 1972 these were: farm product marketings, \$1,786 million; sales of merchandise and supplies, \$913 million; revenue from services, \$72 million; and miscellaneous income, \$20 million. Farm products marketed by co-operatives include fruits and vegetables, dairy products, grains, livestock, poultry, eggs, honey, maple products, lumber, and other products. Revenue from the sale of grain was again the leader at \$812 million in 1972. A broad variety of consumer and farm supplies are retailed by co-operatives: food, feed, petroleum, fertilizer and spray materials, hardware, machinery, building materials, clothing, home furnishings, and so on. In services, rural electric and medical insurance co-operatives account for the greater part of business volume followed by housing, transportation, and seed-cleaning.

Sales of the wholesale co-operatives moved upward, following the general trend

Milk processing at the agricultural co-operative in Granby, Que.



in economic activity, by 17 per cent—as did the sales of local co-operatives—to \$838 million.

Sales of supplies were up in all categories for a composite increase of almost 20 per cent, while marketings, despite declines in grains, seeds, fruit, and vegetables, recorded a 13 per cent expansion. Grain and seeds declined somewhat in Ontario while in Quebec it was the second straight year of poorer fruit and vegetable volume. The value of livestock marketings soared in all areas: substantial price rises accompanied a higher physical volume. Poultry revenues rose an unusual 25 per cent based on better prices and more stable conditions in the industry. There was an upsurge in the sale of hardware, machinery, and building materials reflecting a catch-up in capital investment and in the purchase of consumer durables, both of which had lagged in the years of depressed farm incomes.

Two important national co-operative bodies work together to improve co-operative organization, education, and promotion. The Co-operative Union of Canada concentrates its efforts in English-speaking areas while the *Conseil canadien de la coopération* serves co-operatives in French-speaking areas.

A number of Canadian universities offer courses on co-operatives and some conduct extension work in this field. The most prominent is St. Francis Xavier University in Nova Scotia which since the early 1930's has carried on extension work in the Maritime Provinces to organize and assist co-operatives. In more recent years, short-term university courses on co-operative management and personnel have been instituted, and regular courses are part of the university curriculum. The Coady International Institute was established at St. Francis Xavier University in 1960. It has been providing instruction in co-operative principles and organization to non-Canadian students, mainly from developing countries, where the self-help nature of co-operative organizations has been found to be very appropriate.

Western Co-operative College in Saskatchewan provides short courses for the personnel of co-operatives as well as training courses for foreign students. The *Institut coopératif Desjardins* in Quebec specializes in adult education and social leadership for co-operative members and foreign students.

The Consumer Price Index

Commencing with the Consumer Price Index for May 1973, the index incorporated the latest in a series of periodic updatings. A feature of the latest revision is the inclusion of updated weights to reflect 1967 family expenditure patterns (and within the food component, 1969 spending habits) replacing the 1957 weights used before May 1973.

The rate of change in the Consumer Price Index (CPI)—measured by calculating the percentage difference between annual average indexes—accelerated between 1972 and 1973 when compared with the five previous year-to-year changes. This acceleration of price change was most marked in food, although notable increases were also recorded for housing and clothing.

Food prices, in rising over 14 per cent between 1972 and 1973, were responsible for almost half of the rise in the CPI between these two years. The major contributors to this largest year-to-year food price increase since 1951 were meat, fresh produce, and eggs.

**The Consumer Price Index and its Major Components
—Percentage Change between Annual Average Indexes**

	1968	1969	1970	1971	1972	5-Year	1973
	1967	1968	1969	1970	1971	Average	1972
All Items	4.1	4.5	3.3	2.9	4.8	3.9	7.6
Food	3.3	4.2	2.3	1.1	7.6	3.7	14.6
All Items excluding							
food.....	4.4	4.6	3.8	3.5	3.7	4.0	5.0
Housing	4.6	5.1	5.0	4.5	4.7	4.8	6.4
Clothing.....	3.0	2.8	1.8	1.5	2.6	2.3	5.0
Transportation.....	2.6	4.6	4.0	4.1	2.6	3.6	2.6
Health and							
personal care	4.0	4.9	4.4	2.1	4.8	4.0	4.8
Recreation, education							
and reading.....	4.9	5.9	3.5	3.4	2.8	4.1	4.2
Tobacco and alcohol.....	9.1	3.8	1.2	1.7	2.7	3.7	3.2

**Percentage Contribution of the Major Index Components
to the Year-to-Year Change in the Consumer Price Index**

	1968	1969	1970	1971	1972	5-Year	1973
	1967	1968	1969	1970	1971	Average	1972
All Items	100	100	100	100	100	100	100
Food	21	25	18	11	44	24	49
All Items excluding							
food.....	79	75	82	89	56	76	51
Housing	36	37	48	52	32	41	28
Clothing.....	8	7	6	6	6	7	8
Transportation.....	8	12	14	18	7	12	5
Health and							
personal care	6	7	6	3	4	5	3
Recreation, education,							
and reading.....	6	6	5	6	3	5	4
Tobacco and alcohol.....	15	6	3	4	4	6	3

Consumer price movements, when reclassified by commodities and services, offer another view of the incidence of price change. A notable acceleration was recorded in commodity prices between 1972 and 1973 when prices rose 8.8 per cent in contrast to a rise of 3.1 per cent on average, for the previous five year-to-year periods. This acceleration was mainly due to the impact of increases in the rate of change in food prices. Non-durable commodities other than food rose 5.3 per cent and the price of semi-durable and durable commodities advanced 6.5 per cent and 1.4 per cent respectively, between 1972 and 1973. Service prices, which have risen more sharply than commodity prices in recent years, increased by 6.1 per cent. Although this advance was greater than recent annual average changes for services, it was nonetheless smaller than the advance in commodity prices between 1972 and 1973.

The purchasing power of the consumer dollar declined from 72 cents in 1972 to 66 cents in 1973 relative to \$1.00 in 1961.

International Trade

A substantial improvement in Canada's trading position in 1973 raised the trade surplus by \$527 million to some \$2,000 million. This positive balance of trade was still well below the levels of \$2,900 million and \$2,200 million for 1970 and 1971 respectively. Exports reached \$25,301 million, a 25.5 per cent increase over 1972. Imports advanced 25 per cent to \$23,303 million. By comparison, exports and imports gained 13 and 19.5 per cent in 1972.

Foreign Trade of Canada, 1968-73

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Exports	Re-exports	Total Exports			
	Millions of dollars					
1968.....	13,325	354	13,679	12,360	26,039	1,319
1969.....	14,447	428	14,875	14,130	29,005	745
1970.....	16,401	419	16,820	13,952	30,772	2,868
1971.....	17,397	413	17,820	15,618	33,438	2,202
1972.....	19,661	479	20,140	18,669	38,809	1,471
1973.....	24,719	582	25,301	23,303	48,604	1,998

With export prices rising by over 15 per cent between 1972 and 1973 and import prices increasing by 12 per cent, the growth of exports was nearly 9 per cent in real terms, while that of imports was 11.4 per cent. The December year-over-year increases in export and import prices were 27 per cent and 155 per cent respectively.

Higher prices for food, oil, and most raw materials contributed to increasing the proportion of crude materials in both exports and imports, more significantly in the case of the former. While exports of fabricated materials maintained their level and imports declined, the portion of end products (finished goods) exported dropped, but that of imports held steady.

Percentages of Exports and Imports by Stage of Fabrication, 1972 and 1973

Stage of Fabrication	Exports		Imports	
	1972	1973	1972	1973
Crude materials.....	26.5	29.3	12.1	13.2
Fabricated materials.....	34.6	34.5	20.6	19.9
End products.....	38.9	36.2	67.3	66.9
Total.....	100.0	100.0	100.0	100.0

Exports

Canada's exports to the United States rose 22.3 per cent to \$17,070 million in 1973. Following a 16 per cent gain in 1972, exports to Japan rose 88 per cent to

\$1,811 million making that country the second most important destination of Canadian goods in 1973. Other important customers were the United Kingdom, the USSR, the People's Republic of China, and the original six members of the European Economic Community. The proportion of Canadian exports shipped to Japan rose from 4.7 to 7.2 per cent in 1973, and to EEC countries from 5.2 to 6.1 per cent. These were offset by decreases of exports to the United States from 69.3 to 67.5 per cent, and to the United Kingdom from 6.9 to 6.3 per cent.

Nearly two thirds of the expansion of exports to the United States was attributable to motor vehicles and parts, lumber, pulp, newsprint, oil and gas, metal ores and concentrates, and fabricated metals. It is notable that motor vehicles and parts, which in 1973 accounted for 30 per cent of exports, were responsible for only 20.5 per cent of the export increase to the United States. Deliveries of crude petroleum and natural gas made up 10.5 per cent of total exports and 16.5 per cent of the export gain in United States markets.

About three fifths of the rise in exports to overseas destinations was accounted for by metallic ores and fabricated metals, wheat, lumber, and pulp. Higher shipments to Japan included copper and other ores in addition to wheat, barley, flaxseed, coal, lumber, and pulp. The rise in exports to the EEC stemmed from an increase in sales of metal ores and non-ferrous metals, wheat, fish and flaxseed. Deliveries of wheat, rapeseed, lumber, and fabricated metals increased to Commonwealth countries other than Britain.

Containership Columbia Steved at Continental Pier, Vancouver, B.C.



Exports by Leading Countries, 1969-73

Country	1969	1970	1971	1972	1973
Millions of dollars					
United States.....	10,551	10,900	12,025	13,963	17,070
Japan.....	626	813	831	965	1,811
United Kingdom.....	1,113	1,501	1,395	1,385	1,599
Federal Republic of Germany.....	281	388	322	319	447
Italy.....	135	187	211	204	298
USSR.....	10	102	128	285	292
People's Republic of China.....	123	142	204	264	288
Netherlands.....	190	281	236	260	287
Belgium and Luxembourg.....	118	192	183	201	285
France.....	133	157	157	160	218
Australia.....	169	202	183	163	215
Norway.....	104	179	187	154	182
India.....	97	131	151	103	157
Venezuela.....	93	112	123	155	131
Mexico.....	77	96	80	100	120
Brazil.....	52	93	94	88	114
Cuba.....	41	59	59	59	82
Switzerland.....	37	41	39	45	69
Spain.....	57	67	66	57	68
South Korea.....	15	19	25	33	66

Commodity Exports, 1969-73

Commodity	1969	1970	1971	1972	1973
Millions of dollars					
Wheat.....	473	687	833	927	1,220
Animals and other edible products.....	992	1,181	1,271	1,428	1,933
Metal ores and concentrates.....	1,139	1,522	1,415	1,397	1,997
Crude petroleum.....	526	649	787	1,008	1,482
Natural gas.....	176	206	251	307	351
Other crude inedible materials.....	622	707	811	848	1,189
Lumber.....	696	664	829	1,174	1,598
Pulp.....	753	785	798	820	1,059
Newsprint.....	1,126	1,110	1,084	1,158	1,287
Fabricated metals.....	1,499	1,996	1,697	1,716	2,082
Other fabricated inedible materials.....	1,089	1,311	1,389	1,700	2,168
Motor vehicles and parts.....	3,514	3,499	4,171	4,718	5,338
Other machinery and equipment.....	1,459	1,665	1,659	2,014	2,454
Other domestic exports.....	383	418	393	445	561
Re-exports.....	428	419	423	479	582
Total exports.....	14,875	16,820	17,820¹	20,140	25,301

¹ Figures may not add, owing to rounding.

Imports

With the ranking unchanged in 1973, the principal sources of Canada's imports were the United States, Japan, the United Kingdom, Federal Republic of Germany, Venezuela, and France. Canadian purchases from the United States were up 28 per cent to \$16,484 million in 1973, and the proportion of all imports rose from 69 to 70.7 per cent. The share of purchases from the EEC was little changed at 6 per cent. However, the proportion of imports from Japan and the United Kingdom declined

respectively from 5.7 to 4.3 per cent, and from 5.1 to 4.3 per cent.

Over two thirds of the rise in imports from the United States was made up of motor vehicles and parts, other machinery and equipment, and food. Two thirds of the increase in imports from overseas countries reflected larger purchases of crude oil, non-automotive machinery and equipment, and food. Significantly, crude oil and food represented 24 per cent of all imports from overseas and over 42 per cent of the rise over 1972. Rising crude oil prices accounted for a major part of the higher import bill from Latin America. They made up a third of the higher bill from countries other than the United States, Japan, the EEC, the United Kingdom, other Commonwealth countries, and Latin America.

Imports by Leading Countries, 1969-73

Country	1969	1970	1971	1972	1973
Millions of dollars					
United States.....	10,243	9,917	10,951	12,878	16,484
Japan.....	496	582	803	1,071	1,011
United Kingdom.....	791	738	837	949	1,005
Federal Republic of Germany.....	355	371	429	513	607
Venezuela.....	346	339	388	411	522
France.....	152	158	213	251	327
Australia.....	96	146	126	197	241
Italy.....	141	145	157	204	237
Sweden.....	85	106	114	141	166
Taiwan.....	42	52	81	126	164
Iran.....	30	34	67	71	132
Switzerland.....	84	81	86	102	118
Netherlands.....	79	79	76	92	118
Hong Kong.....	73	78	80	105	110
Belgium and Luxembourg.....	61	52	59	90	104
South Korea.....	12	15	19	44	91
Brazil.....	42	49	51	62	87
Mexico.....	64	47	50	53	83
Nigeria.....	22	45	57	61	82
South Africa.....	46	46	55	59	81

Commodity Imports, 1969-73

Commodity	1969	1970	1971	1972	1973
Millions of dollars					
Food.....	933	974	995	1,216	1,625
Animals and other edible products.....	130	141	162	185	356
Metal ores and concentrates.....	193	244	242	239	330
Crude petroleum.....	393	415	541	681	941
Other crude inedible materials.....	499	513	539	620	745
Fabricated textiles.....	403	426	501	588	659
Chemical products.....	662	712	711	830	1,023
Fabricated metals.....	731	663	742	819	1,026
Other fabricated inedible materials.....	1,109	1,084	1,187	1,342	1,573
Motor vehicles and parts.....	3,546	3,252	4,110	4,934	6,063
Other machinery and equipment.....	4,031	3,992	4,237	5,183	6,474
Other imports.....	1,500	1,536	1,652	2,032	2,486
Total imports.....	14,130	13,952	15,618	18,669	23,303

Balance of International Payments

The balance of international payments is a statement of a country's sources and uses of foreign exchange in a given period. It can also be defined as a systematic record of all the flows of real resources between a country and the rest of the world which at the same time measures changes in a country's foreign assets and liabilities.

International transactions in goods, services, transfers, and capital have an important effect on the Canadian economy and the monetary system of the country. The balance of payments accounts form an integral part of the system of national accounts. Transactions in goods and services are an important constituent and determinant of the Gross National Product (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. Considerable information originates from annual, quarterly, and monthly surveys carried out by the balance of payments division of Statistics Canada. Because of the deadlines associated with the quarterly reports, quarterly surveys are more restricted and less comprehensive than annual surveys. Other government departments, other divisions of Statistics Canada, and the Bank of Canada all provide information concerned with transactions between residents of Canada and non-residents.

In 1973, Canada's current account deficit of \$425 million was \$230 million below the level of the previous year. Economic activity in Canada as measured by the growth in the GNP was strong throughout the year, particularly in the first and fourth quarters. The growth in merchandise imports and exports, on a seasonally adjusted basis, was also highest in these quarters. The pattern of economic activity in the year was affected in part by labour disputes, particularly that in the summer involving the railways. The decline in the current account deficit reflected an increase of almost \$600 million in the merchandise trade surplus which was partly offset by the continued increase in the deficit on non-merchandise transactions which rose in 1973 by \$356 million.

Capital movements led to a net outflow in the year of \$42 million, a swing of over \$900 million from the net inflow of about \$874 million recorded in 1972. Inflows of capital in long-term forms fell sharply by over \$1,100 million to \$659 million, mainly reflecting reduced sales both of Canadian new and outstanding issues abroad and of outstanding foreign securities, and increased direct investment abroad.

Short-term capital movements in 1973 led to a net capital outflow of \$701 million, a decline of almost \$200 million from 1972. Factors contributing to this change were increased non-resident holdings of Canadian dollar claims and Canadian money market paper and a decline in net outflows in the "other short-term capital transactions" account which principally reflects the balancing item. Largely offsetting these changes was a swing to a net outflow from transactions in Canadian holdings of foreign currencies as Canadians increased their holdings after having reduced them in the previous two years.

The current account deficit of \$425 million, together with the capital account outflow of \$42 million, led to a decrease in Canada's net official monetary assets of \$467 million—the first annual decline since 1966. The value of the Canadian dollar



Container port in Halifax, N.S., with Japanese ship New York Maru being unloaded.

in relation to the United States dollar changed very little in the course of the year, dropping marginally by the year end. The experience with major overseas currencies was, however, quite different as the value of the Canadian dollar fell sharply vis-à-vis these currencies in the spring and summer of 1973 and then recovered somewhat in the latter part of the year. The recovery against sterling in fact more than offset the earlier decline.

The international perspective in which the Canadian balance of payments should be viewed in 1973 was extremely volatile and dominated by developments in the energy field which may have pervasive effects on the level of economic activity throughout the world, international trade, and international monetary reform.

Early in 1973 the American dollar came under extreme pressure in foreign exchange markets. To alleviate this situation the United States authorities agreed to raise the price of gold 10 per cent to US \$42.22 for an ounce. This had an immediate effect on the exchange value of the American dollar, even though formal action to implement this decision was not completed until October, 1973. Further speculation against the United States dollar continued, however, forcing a closing of exchange markets in Europe and a change in the *modus operandi* of the joint float of major continental European currencies. The Canadian dollar maintained its relationship against the United States dollar, and therefore declined with it in relation to European currencies. Much of this depreciation was recovered in the latter part of the year as the United States current account improved significantly.

Canadian Balance of International Payments, 1970-73^P

Item	Between Canada and All Countries			Between Canada and U.S.		
	1971	1972	1973	1971	1972	1973
Millions of dollars						
Current account						
Current receipts:						
Merchandise exports ¹	17,961	20,222	25,500	12,082	14,025	17,253
Services:						
Travel expenditures	1,246	1,230	1,446	1,092	1,023	1,160
Interest and dividends	558	627	653	363	361	406
Freight and shipping	1,182	1,220	1,421	670	704	799
Other service receipts	1,324	1,309	1,471	660	700	750
Transfer receipts ²	875	906	1,039	300	297	256
Total current receipts	23,146	25,514	31,530	15,167	17,110	20,624
Current Payments:						
Merchandise imports	15,534	18,577	23,269	10,873	12,792	16,439
Services:						
Travel expenditures	1,448	1,464	1,742	898	919	1,073
Interest and dividends	1,699	1,701	1,997	1,444	1,417	1,653
Freight and shipping	1,204	1,346	1,591	602	726	860
Other service payments	2,076	2,178	2,355	1,472	1,562	1,704
Withholding tax	278	287	322	..	..	..
Transfer payments	601	616	679	160	148	152
Total current payments	22,840	26,169	31,955	15,449	17,564	21,881
Current account balance	+306	-655	-425	-282	-454	-1,257
Capital account						
Direct investment:						
In Canada	+880	+715	+720	+559	+569	+485
Abroad	-220	-385	-590	-111	-138	-366
Portfolio transactions:						
Canadian securities:						
Outstanding issues	-238	+231	+7	-113	-150	-7
New issues	+1,186	+1,756	+1,353	+885	+1,056	+990
Retirements	-826	-551	-663	-632	-415	-382
Foreign securities:						
Outstanding issues	+259	+304	+93	+221	+273	+73
New issues	-67	-58	-56	-25	-12	-4
Retirements	+12	+14	+15	+6	+7	+8
Other long-term capital transactions	-504	-264	-220	-69	+84	+176
Net long-term capital transactions	+482	+1,762	+659	+771	+1,274	+973
Net short-term capital transactions	-11	-888	-701	+764	-1,305	-770
Net capital balance	+471	+874	-42	+1,535	-31	+203
Balance settled by exchange transfers	—	—	—	-194	+776	..
Allocation of Special Drawing Rights	+119	+117	—	—	—	—
Net official monetary assets	+896	+336	-467	+1,059	+291	..

¹Including non-monetary gold.^PPreliminary.²Including withholding tax.

.. Not available.

Economic conditions in most of the developed nations were buoyant in 1973 although inflationary tendencies were apparent everywhere. Prices of food and raw materials were particularly susceptible to increases—a factor which, on balance, assisted significantly in the rise in the Canadian trade surplus.

Security of energy supplies also became more of an issue in 1973. In March, the United States relaxed its ceiling on imports of crude petroleum as gasoline short-

tages became evident in that country. In Canada a licensing system for exports of crude petroleum was introduced in February and authorized levels were reduced below those requested by exporting companies. This was followed in September by the institution of a two-price system for Canadian oil, as a tax of 40 cents a barrel was levied in October and raised to \$1.90 a barrel in December. This tax was linked to international oil prices and in particular those paid for imports into eastern Canada.

These developments were aggravated by the October war in the Middle East followed by the subsequent reduction in oil shipments and further price increases introduced as a result by all major exporters. The consequences of this major change in availability and price of a product on which modern industry depends will become more apparent in the future. Apart from questions relating to the level of economic activity, there will obviously be major balance of payments adjustment problems for non-oil producing countries matched by disequilibria in capital accounts as the rapidly increasing foreign exchange reserves of oil-producing countries are recycled.

Preliminary estimates produced on the basis of available data indicate that Canada's balance of international indebtedness reached a book value of more than \$32,500 million by the end of 1973. Long-term foreign investment at \$53,000 million had increased by about \$3,000 million reflecting both an inflow of long-term capital and an increase in earnings accruing to non-residents. Other long-term liabilities including non-resident equity in Canada's assets abroad brought the total of long-term liabilities to over \$56,500 million. Various short-term non-resident claims on Canadians increased the total of Canada's external liabilities to about \$63,000 million. Canadian long-term investment abroad increased by about \$1,000 million to over \$14,500 million at the end of 1973. The major elements in this increase were outflows of long-term direct investment capital, re-invested earnings accruing to Canadians from their investments abroad, export credits, and loans and subscriptions of the Government of Canada to foreign countries and international investment agencies. Short-term claims on non-residents including the resident holdings of foreign currencies and net official monetary assets brought the total of Canada's external assets to over \$30,000 million.

The deficit with the United States on current account rose from \$454 million in 1972 to \$1,257 million in 1973. This marked the largest deficit with the United States since 1967. Both merchandise and non-merchandise transactions contributed to the weakening in the balance. The stronger pace of imports resulted in a substantial decline in the merchandise trade surplus, which fell by 34 per cent to \$814 million. Exports to the United States of \$17,253 million were up by 23 per cent, reflecting the strong course of American business activity and demand over much of the year. The largest increase occurred in exports of automotive products, crude petroleum, lumber, wood pulp, newsprint, petroleum and coal products, zinc, iron ores, live animals, natural gas, and electricity. Energy materials, which accounted for about 14 per cent of shipments in 1973, contributed about 24 per cent to the growth in exports to the United States. This expansion was led by a \$526 million or 51 per cent increase in the value of crude petroleum shipments of which about 16 per cent was attributable to the export tax on crude petroleum.

Following a rise of about 18 per cent in 1972, the advance in imports from the United States continued at a strong pace, increasing by about 29 per cent to \$16,439

million in 1973. There was a strong demand for imports in Canada as the Canadian economy in 1973 expanded at above its average long-term growth rate. The growth in imports was paced with higher purchases of automotive products, aircraft, live animals, electronic computers, other telecommunications and related equipment, miscellaneous equipment and tools, and other transportation equipment. The turnaround from the \$285 million surplus in 1972 on automotive trade with the United States to a deficit of almost \$300 million resulted from a 29 per cent increase in automotive imports set against a 14 per cent gain in exports. In 1973 the United States increased its share in Canadian imports by almost 2 percentage points to about 71 per cent.

On non-merchandise transactions, the deficit with the United States widened by 20 per cent, reaching a level of over \$2,000 million. The expansion in the deficit was due to both services and transfers, as the deficit on services rose by \$339 million to \$2,175 million while the surplus of transfers fell by \$45 million to \$104 million. Among the services, movement on interest and dividends and "other services" accounted for over 80 per cent of the expansion in the deficit. Interest and dividend payments rose by \$236 million while receipts registered a gain of \$45 million to produce an increase in the deficit on this account to \$1,247 million. On "other services," the deficit widened to a level of nearly \$1,000 million. This was largely due to increased payments for business services and miscellaneous income. The decline in the transfers surplus was mainly due to a \$44 million decrease in inheritances and immigrant receipts.

The United States was the principal contributor of direct investment capital during 1973, mainly in the mining, manufacturing, and merchandising sectors. During 1973, American direct investment in Canada amounted to \$485 million, a decrease of \$84 million from the preceding year.

Net capital outflows to the United States for Canadian direct investment increased during the year to \$366 million from \$138 million during 1972. This movement was dominated by the fourth quarter acquisition of a substantial interest in Texasgulf Inc. of New York by the Canada Development Corporation.

Although total retirements of Canadian securities in 1973 increased by \$112 from 1972, transactions with American residents declined slightly from \$415 million in 1972 to \$382 million in 1973.

Transactions in foreign securities with the United States led to a net inflow of \$73 million for outstanding issues. Although the inflow was substantially less than the \$273 million inflow in 1972, the trend established in 1969 of sales exceeding purchases of foreign securities was maintained.

A substantial increase in other long-term capital transactions resulted in a net inflow of \$176 million in 1973. Transactions included in this United States account normally consist of bank loans, mortgages, and flows between the head offices and branch affiliates of insurance companies.

Transactions of the Canadian chartered banks in foreign currency assets and liabilities with American residents resulted in a net outflow of \$263 million. Non-bank holdings of foreign currencies led to a net outflow to the United States of \$234 million. Transactions in other short-term paper excluding finance company paper and obligations led to a net inflow of \$165 million from residents of the United States.

Transportation

Throughout Canadian history, transportation has been a key element in the economic and social development of the country. Settlement followed first the navigable waterways, then the railways, and to a growing extent, the highways. Passengers who once travelled to this land by ship and overland by rail now depend to an increasing extent on aircraft and bus transport, or the private automobile. Recent developments are best seen in the context of the several modes of transport—air, rail, road, and water.

Air Transport

From small beginnings in the 1920's the contribution of the aircraft to transportation in Canada has increased sharply. Most dramatic was the change that followed delivery of the first pure jet in 1960. This new type of aircraft, larger and capable of much greater speed and range, opened a new era not only for the passenger but for cargo as well. In 1958, 4.5 million passengers travelled on Canadian commercial air carriers; in 1973, 17.7 million went by air. For the year 1953 air cargo accounted for some 15 million goods-ton miles. The equivalent 1973 figure is estimated to approach 500 million.

DC8 take-off from Ottawa International Airport.



In Canada, commercial air services are licensed and regulated by the Canadian Transport Commission. Registration and inspection of aircraft, licensing of personnel, operation of a wide variety of airports, and the provision of air traffic control and other air navigation facilities are only some of the services provided to civil aviation by the Canadian Air Transportation Administration of the Ministry of Transport (MOT).

Although Canadian air carriers perform many varied services—including such specialty flying as crop dusting, forest fire patrol, pipeline inspection, aerial survey and photography, construction, and flight training—passenger and cargo transport is by far the most important activity. In 1973 some 611 air carriers licensed to operate in Canada transported an estimated 13.1 million passengers domestically and about 4.6 million on international routes. Of the grand total, Air Canada, CP Air, and the regional air carriers—Pacific Western Airlines, Transair, Nordair, Quebecair, and Eastern Provincial Airways—accounted for 86.4 per cent or 15.3 million passengers.

The international routes of Canada's air carriers have extended considerably during the past decade, and today the scheduled air services of Air Canada, CP Air, Pacific Western Airlines, and Nordair form a global network connecting Canada to the United States, the Caribbean, Western Europe, the Middle East, the Soviet Union, Central and South America, Hawaii, Fiji, Australia, Japan, China, and Hong Kong.

Another indication of the upward trend in air traffic activity in recent years is the increase in aircraft movements. During 1973 the 56 major airports with Ministry of Transport air traffic control towers handled 5,253,970 aircraft take-off and landings, including training flights. This represents an increase of nearly 30 per cent over 1968 when 42 towers reported 4,048,224 movements and of 128 per cent over 1963 when there were only 33 tower-controlled civil airports in Canada with a total traffic of 2,299,385 aircraft movements. An increase of 6 per cent or 308,625 over the 1972 figure of 4,945,345 reported by 55 towers showed evidence of continuing growth.

It is difficult to pinpoint shifts in air traffic activity, although a few changes are worth noting. It is apparent that satellite airports located near international airports are taking an increasing share of the total activity. For example, St. Hubert (Que.) Airport in 1973 ranked first in number of total movements for the fifth consecutive year. Pitt Meadows Airport near Vancouver B.C., and Edmonton (Alta.) Industrial placed second and third respectively for 1973. In general, the volume of air traffic at most airports operating west of the Manitoba-Ontario boundary was sizably heavier while the majority of airports in eastern Canada handled less traffic than in 1972.

An examination of the pattern of the itinerant movements, that is, of aircraft arriving from or departing to another airport (illustrated in the table on page 334), reveals that use of the pure jet has increased rapidly both in absolute and percentage terms, while activity by turbo-prop, fluctuating numerically, has continued to drop proportionately. In 1964, turbo-props accounted for 23 per cent of itinerant movements and jets for 9.5 per cent. By 1973 the pattern was more than reversed, with jets performing more than a quarter of the itinerant total, while turbo-props had dropped to 9 per cent.

Growth in civil aviation generally is reflected in the number of registrations for

both aircraft and aviation personnel. From March 31, 1965, to the same date in 1974 the number of civil aircraft in Canada more than doubled from 7,016 to 14,764. Licences for pilots of all types of aircraft, flight navigators, air traffic controllers, and for flight and maintenance engineers, totalled 46,941 in force as of March 31, 1974, an increase of 7,462 or 19 per cent over the number in force on the same date in 1971.

Operations, Revenue, Expenses, and Fuel Consumption, Canadian Commercial Aviation, 1972 and 1973¹

(in thousands)

	Transcontinental and Regional Air Carriers ²		All Other Air Carriers		Total All Air Carriers	
	1972	1973	1972	1973	1972	1973
Operations						
Passengers	12,600	15,300	1,800	2,400	14,440	17,700
Passenger-miles	12,660,900	14,948,200	838,700	1,432,300	13,499,600	16,380,500
Goods-ton-miles	408,000	454,600	29,200	41,500	437,200	496,100
Flight departures	310	370	560	650	870	1,000
Hours flown	490	530	1,400	1,700	1,800	2,200
Operating Revenues and Expenses						
Total Operating Revenues (\$)	875,600	1,033,600	180,000	241,700	1,055,600	1,275,300
Total Operating Expenses (\$)	806,500	968,600	171,200	183,900	977,700	1,152,500
Fuel Consumption						
Turbo fuel (Gallons)	514,800	558,800	26,600	38,600	541,400	597,400
Gasoline (Gallons)	2,600	130	18,300	19,300	21,000	20,600

¹Estimated. Final data available 1 July, 1974.

²Air Canada, CP Air, Pacific Western Airlines, Transair, Nordair, Quebecair, and Eastern Provincial Airways.

Distribution of Itinerant Movements¹ at MOT Tower-Controlled Airports by Type of Power Plant, 1964, 1970, 1972, and 1973

	1964		1970		1972		1973	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Piston	729,647	65.5	1,119,486	59.2	1,347,751	60.5	1,583,642	61.2
Turbo-prop	255,497	23.0	264,913	14.0	230,877	10.4	233,637	9.1
Jet	105,969	9.5	440,533	23.3	546,623	24.6	661,837	25.6
Helicopters	22,394	2.0	63,618	3.4	91,800	4.1	99,502	3.9
Glider	—	—	1,143	0.1	8,834	0.4	4,858	0.2
Total	1,113,507	100.0	1,889,693	100.0	2,225,885	100.0	2,583,478	100.0

¹A landing or take-off of an aircraft that is arriving from one airport or departing to another.



Cessna 183 plane at Prince Rupert, B.C.

Geologists use a helicopter to visit glacier of Victoria and Albert Range, Ellesmere Island.





Canadian National Railway yards at Maple, Ont.

Railways

Railways are the backbone of the Canadian transportation system. Two continent-wide railways span 4,000 miles from the Atlantic through vast stretches of rock, over barren muskeg, prairie lands, and rugged mountain ranges to the Pacific Ocean. In 1850 there were 66 miles of railway in all the British North American colonies. A hundred years later Canada alone had 57,997 miles of track in operation. By 1972, 60,037 miles of track were in use.

In the past, railways played a controlling role in the political integration and economic development of Canada. Today, they are innovative partners in integrated, multi-modal systems capable of moving the nation's production with speed, efficiency, and economy. Service improvements such as increased speeds in larger more specialized equipment will ensure for railways an important contribution to intercity transportation in the future.

Canadian National and Canadian Pacific continue to dominate the rail transport industry in Canada with their main-line transcontinental routes, feeder-service networks, and outside interests in the airline, trucking, coastal and oceanic shipping, hotel, and communication fields. The Canadian National Railways are federally operated. Through the Canadian National the federal government also has an interest in such lines as the Northern Alberta Railway, among others.

Provincially operated lines include the Ontario Northland, the British Columbia Railway, and the British Columbia Hydro's railway. The Government of Ontario has also been active in providing commuter service since May 23, 1967, when it set up the "GO" Transit to meet the needs of passengers commuting to Toronto and from it. The passenger services inaugurated in 1972 by U.S. National Railroad Passenger Corporations (AMTRAK) has two international lines. The "Pacific International" made its initial run July 17, 1972, between Seattle, Wash., and Vancouver,

B.C. The eastern route between Washington, D.C., and Montreal, Que., via New York City, Springfield, Mass., and resort areas in New Hampshire and Vermont began September 29, 1972.

The development of containerized shipments, requiring the co-operation of several modes of transportation and the design of smooth efficient interchange facilities, has been one of the most significant for rail freight in recent years. In 1969, 27,718 railway freight cars carried 517,292 tons of containerized freight. By 1973 this mode of transport had grown so rapidly that the amount of containerized freight carried had increased more than seven-fold to 3,886,810 tons on 138,479 cars. In other words, while fewer than one in every hundred cars in 1969 carried containers, this traffic accounted for 3.5 per cent of all cars loaded in 1973.

Revenue freight carried in 1972 increased to 237,909,761 unduplicated tons from the 1971 total of 236,410,148 tons, while the number of passengers carried decreased from 24,118,978 to 23,011,776. The number of employees needed to transport these people and goods decreased during this period from 131,092 to 130,814 persons. The average length of haul of revenue freight in Canada, or the average distance each ton was carried was 521 miles in 1972, an increase from 502 miles a year earlier.

The largest contributors to Canada's 1972 total railway revenue of \$1,941 million were Canadian National (52.4 per cent) and Canadian Pacific (36.6 per cent). The Quebec North Shore and Labrador Railway, built primarily to transport iron ore and concentrates from the Schefferville and Wabush areas of Labrador and Quebec to water transportation facilities on the St. Lawrence River, accounted for 1.8 per cent of the revenues. Other railways contributing 1 per cent or more to the total revenue figure were the British Columbia Railway (2.3 per cent) and the Ontario Northland (1.1 per cent). The remaining 5.8 per cent was earned by 29 of the 34 common carrier railways operating in Canada. These include branches of American networks crossing into Canada.

A mile-long container train crossing a trestle bridge near Drummond, N.B.



Road Transportation

Road transport accounts for the largest expenditure by governments on any mode of transportation in Canada. As recently as the 1971-72 fiscal year combined expenditure by federal, provincial, and local governments exceeded \$2,250 million for construction and maintenance of Canada's 518,318 miles of roads and streets. This expenditure for new and better roads and streets has been in response to the sharp increase in transportation requirements in recent years. During the decade from 1962 to 1972, passenger automobile registrations increased 64 per cent to 7,407,275; truck and road tractor registrations rose 50 per cent to 1,639,175; bus registrations went up 101 per cent to 42,802 and motorcycle registrations leaped 650 per cent to 248,501 from 33,101.

The passenger automobile remains the primary form of transportation for the majority of Canadians. More than 73 per cent of working Canadians use the private car with or without passengers as their means of transport to work. Recent studies indicate that 40 per cent of Canadian drivers travel between 7,500 and 12,500 miles per year by automobile and a further 33 per cent of drivers travel over 12,500 miles per year.

With more cars and people on the roads than ever before the number of accidents is also rising. Authorities are now working towards the establishment of new legislation on safety measures including the mandatory use of seat belts.

With the increased registration of vehicles during the decade 1962 to 1972, annual sales of gasoline rose 79 per cent to 5,934 million gallons; diesel fuel sales increased 28 per cent to 706 million gallons. A shortage of these fuels could have a crippling effect on this mode of transportation.

While most Canadians choose an automobile, the first choice of 16 per cent of working Canadians for travelling to and from their job is public transportation by



The Lion's Gate Bridge, Vancouver, B.C.



Truck and road tractor registrations rose 50 per cent to 1,639,175 during the decade from 1962 to 1972.

bus, streetcar, subway, or commuter train. Urban transit companies reported 1,023 million passengers in 1971. Road transportation is an important element in the daily work activities of the country but it is also basic to Canada's recreation, particularly for travel and tourism. At the beginning of the 1970's Canadians owned 72,000 pickup campers, 121,000 travel trailers, and 220,000 tent trailers and all indications point to a continued increase in sales of such vehicles.

Water Transport

Shipping is the oldest mode of transportation in Canada but the technology of the 20th century is rapidly changing the face of the industry. Modern ships are capable of carrying more cargo than ever before and a variety of new equipment and cargo-handling methods means an increase in trade tonnage every year. Canada registered 28,053 ships in 1973 of which 11,924 were freighters, tankers, ferries, yachts, and other vessels and 16,129 were fishing vessels. Over 170 million tons of cargo were handled at Canadian ports in 1972, an increase of 63.4 per cent in the last decade.

Canada's major ports include Halifax, N.S.; Saint John, N.B.; Quebec, and Montreal, Que.; Toronto, Hamilton, and Thunder Bay, Ont.; and Vancouver, B.C. Of Canada's total international trade, 45.3 per cent or 80 million tons were shipped from these ports. Vancouver ranked first in total tonnage handling, having loaded and unloaded 34.9 million tons. Montreal, the second busiest port, recorded handling 20.3 million tons.

Canada's exports by water to the United States included iron ore, fuel oil, lumber, and timber. Exports to Japan and the United Kingdom included wheat and iron ore as did exports to the Netherlands, China, and Italy. Mainly wheat and barley were exported to the USSR. Canada's imports by water included bituminous coal, iron

ore and concentrates, and limestone from the United States; crude petroleum from Venezuela, Iran, Saudi Arabia, and Angola; and alumina and bauxite ores from Jamaica, Trinidad and Tobago.

In 1972 Great Lakes shipping accounted for over 60 per cent of the shipping trade between Canada and the United States. The St. Lawrence Seaway has greatly increased the volume of traffic in the Great Lakes by extending the season and allowing larger ocean-going vessels to travel far inland. The seaway allows passage of vessels having a maximum draught of 26 feet. There were 8,284 transits up and down the Seaway in 1973 by ships carrying 75 million tons of cargo, mainly bulk commodities. In 1974 the Seaway opened on March 26 and closed on December 17.

Containerization as a method of shipping cargo by water is growing sharply as it is in rail and road transportation. Containerized cargo imported in 1972 totalled 1,980,576 tons, a 61 per cent increase over 1971. Containerized export trade rose 22.7 per cent to 2,039,710 tons.

The trend towards the use of larger ships in international trade has meant an increase in the volume of goods handled but a slight decrease in the arrivals and departures of ships in Canadian ports. In 1972 traffic declined to 49,738 arrivals and departures from 50,239 in 1971.

Crusted iron ore dust is air hosed from the hold of the *Baie St. Paul*, a St. Lawrence Seaway freighter.





The Voyageur 001, tested in Toronto, will serve locations which are usually inaccessible prior to winter freeze-up.

Technology

Technology has long been employed to overcome the special transportation problems that Canada has, because of its geography and climate. Great distances, land barriers, and soil conditions, including permafrost, have required special engineering methods to provide an efficient transportation system. More recently, social demand has ensured that transportation technology also takes account of the environment and various social costs in its development.

Government, industry, and educational institutions are all involved in the effort to bring new improved products to all forms of transport. Besides the National Research Council which conducts detailed, sophisticated studies on most phases of the transport industry, several Canadian universities now have centres for transportation research. Those at Queens, York, Toronto, Manitoba, and British Columbia focus both on the broad and long-range problems of transport and on specific technical solutions. Recent ideas developed through research have included a communications system in long trains to replace radio communications, which are not completely satisfactory in tunnels, winding terrain, and in proximity to other trains; guided radar for detection of snow and land slides around curves or over hills, using an electromagnetic surface wave-guide such as coaxial cable; control of multi-locomotive powered trains to reduce the incidence of coupler failure due to high drawbar pull in long trains. More futuristic research has continued on guided

ground transport using magnetic levitation. Such a high-speed system could provide a 300 m.p.h. ground transport link between city centres. It could thus compete effectively with air travel.

Technological advances in air transportation have always been spectacular. Recent advances, however, have been made in traffic handling by air traffic control. New advanced computerization allows air traffic controllers to maintain identification of flights and provides them with additional aids in handling the present mix of air traffic. Other advances have been in passenger baggage and cargo facilities, particularly for the present generation of jumbo-size jets. New baggage carousels and moving sidewalks are now familiar in Canadian airports.

While most technological developments in the field of water transportation have involved increased size of vessels, greater speeds, containerization, and the carriage of special commodities, there have been other developments in navigation and in safety specialized equipment. A special shallow-draft boat has recently been engineered, designed, and built on the West Coast. This boat, used for logging, has a draft of 39 inches rather than a normal six feet and yet it is able to utilize standard propulsion systems.

The prototype of the 120 m.p.h. Canadian LRC (Light-Rapid-Comfortable) passenger train is now undergoing tests.



Communications

Telecommunications

The existence of Canada as a political and social entity has always been heavily dependent upon effective systems of east-west communications. This is the historical reason for the successive development of the routes of the *voyageurs*, coast-to-coast railways, telegraph and telephone systems, broadcasting services, airlines, microwaves networks, the Trans-Canada Highway and, most recently, a domestic satellite communications system. These systems, counter-balancing the strong north-south pull of continentalism, have been essential for the economic development of Canada, for the transmission and dissemination of information, and for the expression and sharing of social and cultural values.

Federal and Provincial Authority

The division of legislative authority between the Parliament of Canada and the provincial legislatures is established by the British North America Act. The only

While experimenting with the phonautograph at Brantford in July 1874, Alexander Graham Bell conceived the idea of a speaking telephone.





The laying of the Cantat 2 telephone cable in Nova Scotia. This Canadian terminal of the 1,840-circuit transatlantic telephone cable is located 90 miles from Halifax.

form of telecommunication known to the Fathers of Confederation in 1867 was the electric telegraph, then still in its infancy, and accordingly the application of the Constitution to other modes of telecommunication has developed from a series of judicial decisions, each of the greatest importance although they are neither comprehensive nor in all respects conclusive.

Radiocommunications, including broadcasting transmitting and receiving undertakings, are federally regulated. Telecommunications carriers under federal jurisdiction include Bell Canada, British Columbia Telephone Company, CN-CP Telecommunications, Telesat Canada, the Canadian Overseas Telecommunication Corporation, and four relatively small telephone or telegraph companies. All other telecommunications common carriers, numbering more than 1,200, are provincially regulated.

The year 1973 marked the beginning of a more intensive dialogue between the federal and provincial governments. When the Green Paper on a communications policy for Canada was tabled on March 22, 1973, the federal government asked the provinces to participate in the development of a national communications policy to ensure the effective harmonization of federal and provincial aims and activities. The federal Minister of Communications also invited his colleagues to meet with him in Ottawa. This conference took place in November 1973. The ministers of

communications decided that a second conference would be held, but no dates were decided.

In early 1974, the federal government and the provinces of Nova Scotia and Alberta signed agreements to undertake an educational technology program. The aim of the program is to develop long-term plans for applying communication technology to enhance the educational process in those provinces.

The Canadian System

Telecommunications has become a complex field of activity with an increasing influence on the lives of all Canadians. By the end of 1973, the number of telephones in service in Canada reached 11,665,336 (about one phone for every two people). Ninety-six per cent of households now have television sets. And cable television, a medium that may provide a variety of services in the future, including two-way communications, is now wired into more than 2.1 million Canadian households, carrying TV and FM radio signals.

Television, radio, telephone, telegraph, teletype, facsimile, and other means of communications are part of our daily life. These services are provided by a mixture of investor-owned companies and government agencies. The total number of radio operating licences in force in Canada at the end of the fiscal year 1973-74 was 334,571.

There were more than 1,200 telephone common carriers operating in 1974, ranging from big corporations serving hundreds of thousands of telephones to small co-operatives, mainly in Saskatchewan, some of which serve as few as 25

The Logic 10, a mini-PBX with 10 push-buttons, is the core of a new modular concept in telephone terminals, with additional elements available.



customers. However, the eight member companies of the Trans-Canada Telephone System (TCTS) account for more than 90 per cent of the total subscribers. Through their two nation-wide microwave routes, they provide long distance communications in Canada.

Other telecommunications services are provided by a variety of carriers. CN-CP Telecommunications, specializing in business communications, offers services such as telegraph and telex. Telesat Canada, which is jointly owned by the Canadian government and the common carriers, operates the domestic satellite communications system. The Canadian Overseas Telecommunications Corporation, a Crown corporation, provides Canada with telecommunications to the rest of the world through cables and international telecommunications satellites.

Events in 1973-74

Telecommunications facilities in Canada continued to improve during the year. TCTS and CN-CP Telecommunications introduced their own data transmission networks. Called Dataroute (TCTS) and Infodat (CN-CP Telecommunications), both networks provide nation-wide highspeed data transmission using digital technology. Specially tailored to meet the needs of the business community, they have made possible the introduction of lower rates for data transmission.

During the year, Telesat Canada launched Anik II, which was designed primarily for in-space protection to Canadian customers of Anik I. The successful operation of the company's first satellite, however, permitted Telesat the opportunity of leasing channel capacity on Anik II in the interim. In early April 1973, Telesat agreed to lease to RCA Global Communications/RCA Alaska Communications one full channel and one for occasional use on Anik II to carry telecommunications traffic between Alaska and the 48 states to the south. Telesat then signed similar agreements with other American companies and is now preparing for the launch of Anik III scheduled for the first quarter of 1975.

The Canadian Overseas Telecommunications Corporation, in a joint project with the British Post Office, installed a new transatlantic telephone cable between Beaver Harbour, N.S., and Widemouth Bay, Cornwall, England, at a cost of \$70 million. With a capacity of 1,840 telephone circuits, Cantat II has more than doubled the capacity of all other transatlantic cables combined. Cantat II went into operation on April 1, 1974.

On the international scene, Canada participated in the plenipotentiary conference of the International Telecommunications Union (ITU) which took place September 14 to October 26, 1973, at Torremolinos, Spain, and the World Administrative Radio Conference on Maritime Mobile Telecommunications held in Geneva from April 22 to June 7, 1974. Canada and Sweden jointly presented a document to the fifth session of the United Nations Working Group on Direct Broadcast Satellites, which took place in Geneva from March 11 to 22. In May 1974, Canada signed a memorandum of understanding for the Aerosat experimental satellite program. This program is designed to improve air traffic over the north Atlantic. Apart from Canada, the United States and the European Space Research Organization (ESRO) are also participating in this program.



1

1. The 100-foot-diameter reflector at Lake Cowichan, B.C. beams messages toward a satellite.
2. Microwave tower outside Winnipeg, Man.
3. Maintenance of Mount Hayes microwave site near Prince Rupert, B.C.



2



3

The Challenge Today and in the Future

In recent years technological developments have been adding a new complexity to telecommunications. The vast expansion in the means of instantaneous transfer of information throughout the country not only helps to dispose of distance as an obstacle to national trade and commerce but provides new prospects for reducing regional disparities and developing the North. Multichannel coaxial cable systems will eventually make it possible to offer to the public a vast new range of information, cultural enrichment, and entertainment in the home from computerized databanks and libraries. Within the foreseeable future, direct home reception of satellite broadcasts may become feasible, adding a new dimension to the range of choice. At the other end of the scale, the rapid development of simple low-cost video, film-making, and broadcasting equipment offers increasing opportunity for members of the public to take an active part in the communications process. These are not separate isolated developments responding to particular business or consumer needs; they are the integral components of a technological revolution that will have profound and unmeasurable effects on social conditions.

Dataroute is the world's first nation-wide digital data network available commercially.



Thus today, more than ever before, it is clear that the technological and economic aspects of communications are intimately related to their social and cultural implications. Moreover, there is an evident and growing tendency for many formerly distinct systems of electronic communications to become interconnected, more integrated, and more powerful. One very important symptom of this development is the growing interaction of broadcasting with other forms of telecommunication. Another is the rapid integration of the technology of computers and communications, the economic benefits of which are already being vigorously exploited while little has been done to devise defences against the concomitant dangers and disadvantages that may develop. There is also a rapid growth in the consumer market for all kinds of electronic audio and visual equipment for direct use by the general public, who have increasing access to collective communications systems. The government is therefore concerned to ensure that the future communications environment foreshadowed by this huge range of new techniques and tools should not be allowed to develop without regard for its impact on Canadian social and cultural values and the quality of life in Canada as well as on the Canadian economy.

The Postal Service

Canada Post, which employs about 54,000 persons, is fully decentralized and is divided into four regions: Western, Ontario, Quebec, and Atlantic. These four regions contain a total of 14 districts, each of which is organized to provide local customers with a service tailored to their individual needs.

The Assured Mail Program, launched in Toronto in February 1971 and now operating in 66 cities, provides next-delivery-day service. The program was expanded in April 1973 with the addition of an early evening deadline for next-delivery-day service for local mail.

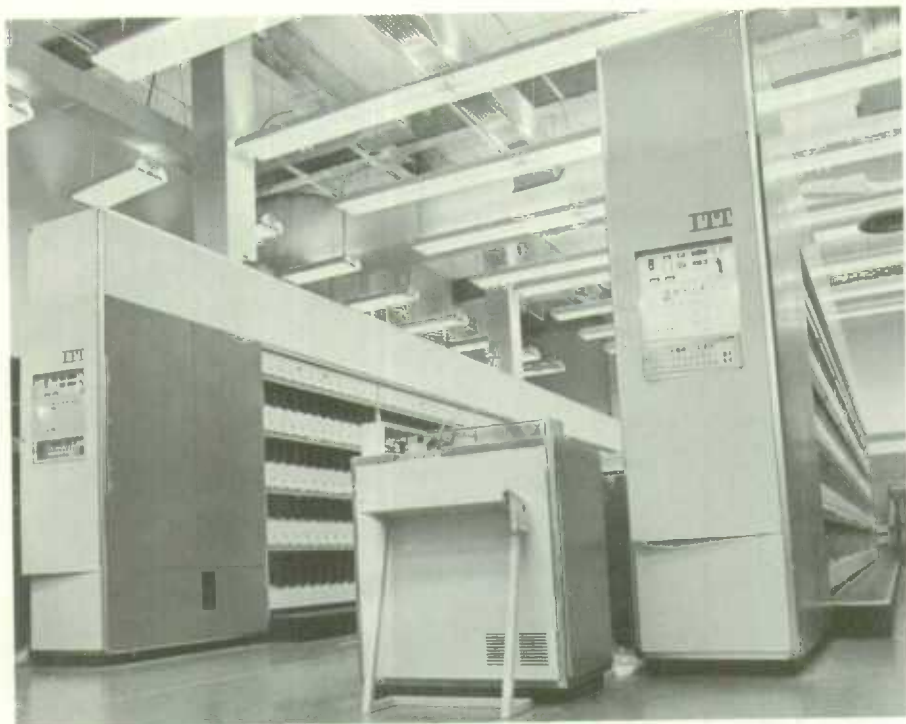
The Postal Code, which was first introduced in Ottawa in April 1971 and by the end of 1973 was expanded to include all of Canada, contains enough information to identify an address right down to a particular apartment or office building, or one side of a street.

The first electronic equipment, capable of sorting about 26,000 letters into 288 compartments in an hour using the Postal Code, is processing mail at high speed in Ottawa, Winnipeg, Regina, Saskatoon, Edmonton, Calgary, and Toronto, and by 1978 will have been installed in the 26 largest cities, which account for 85 per cent of the mail in Canada.

Since 1972 the Post Office has been engaged in the construction of large modernized postal plants for handling bulk mail and parcels, and for the mechanization of mail sorting. Two major units are under construction in Toronto and another two are well into the planning stage in Montreal. Major postal processing installations are either being planned or under construction in a number of other large centres.

The new mail processing plants are only part of the most far-reaching improvement program the Post Office has ever undertaken—a program that will eventually affect every Canadian who mails or receives a letter.

By the end of 1974, optical character reader equipment (OCR), capable of “reading” printed or typewritten postal codes that currently have to be identified by a human operator, was added to the sorting machines in Ottawa; by mid-1975 they



Letters are fed into these sorting machines, capable of processing up to 26,000 letters an hour.

will be in use in Vancouver and Toronto; and by early 1977 will have been installed in Montreal and Winnipeg.

In the marketing area, the Post Office is becoming increasingly responsive to its customers' needs by providing them with new products and services. In 1973, Certified Mail was introduced to provide written proof to the sender that mail has reached its destination. It is less expensive and more convenient than Registered Mail, which requires special security handling, although Certified Mail does not have the insurance factor associated with Registered Mail.

Telepost was first introduced to Telex subscribers in October, 1972; it combines the predictable delivery of first-class mail with the transmission speed of Telex.

Postpak, another customer service, enables the businessman to ship several articles in one container to a single destination, where it is picked up and delivered immediately. This saves time and cuts handling and processing costs.

In October 1973, the Post Office introduced the domestogramme—an addition to its postal stationery products. It is a convenient and attractive combination of stamp, envelope, and letter. Displaying the floral emblems of Canada's ten provinces and two territories, it offers the souvenir value of a postcard and the privacy of a letter. The domestogramme is available in packages of six for \$1.00.

A companion stationery item, the aerogramme, is a new-look, colourful successor to the old air mail letter. It is designed for overseas use and comes in packages of six for \$1.40.

acknowledgements

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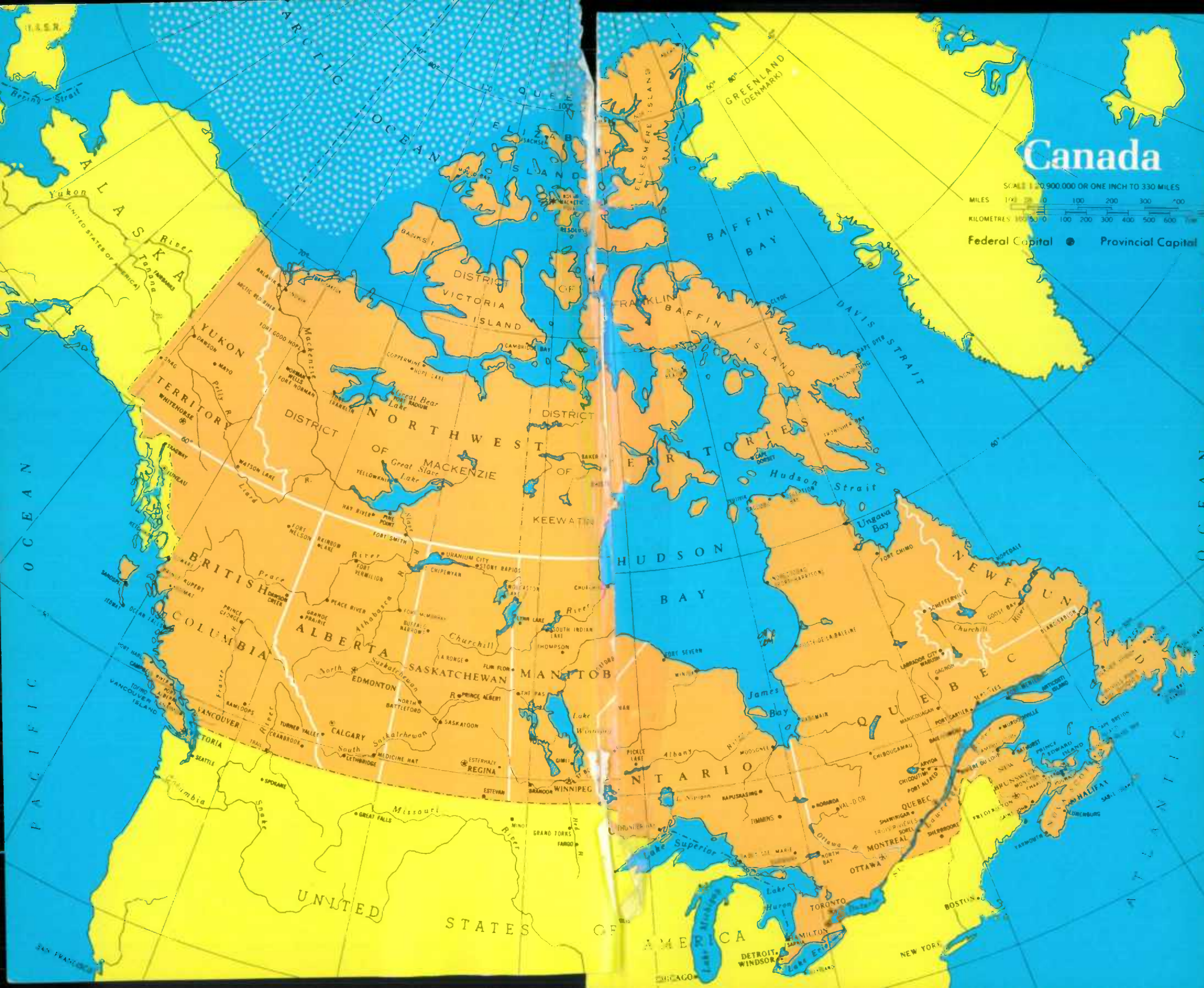
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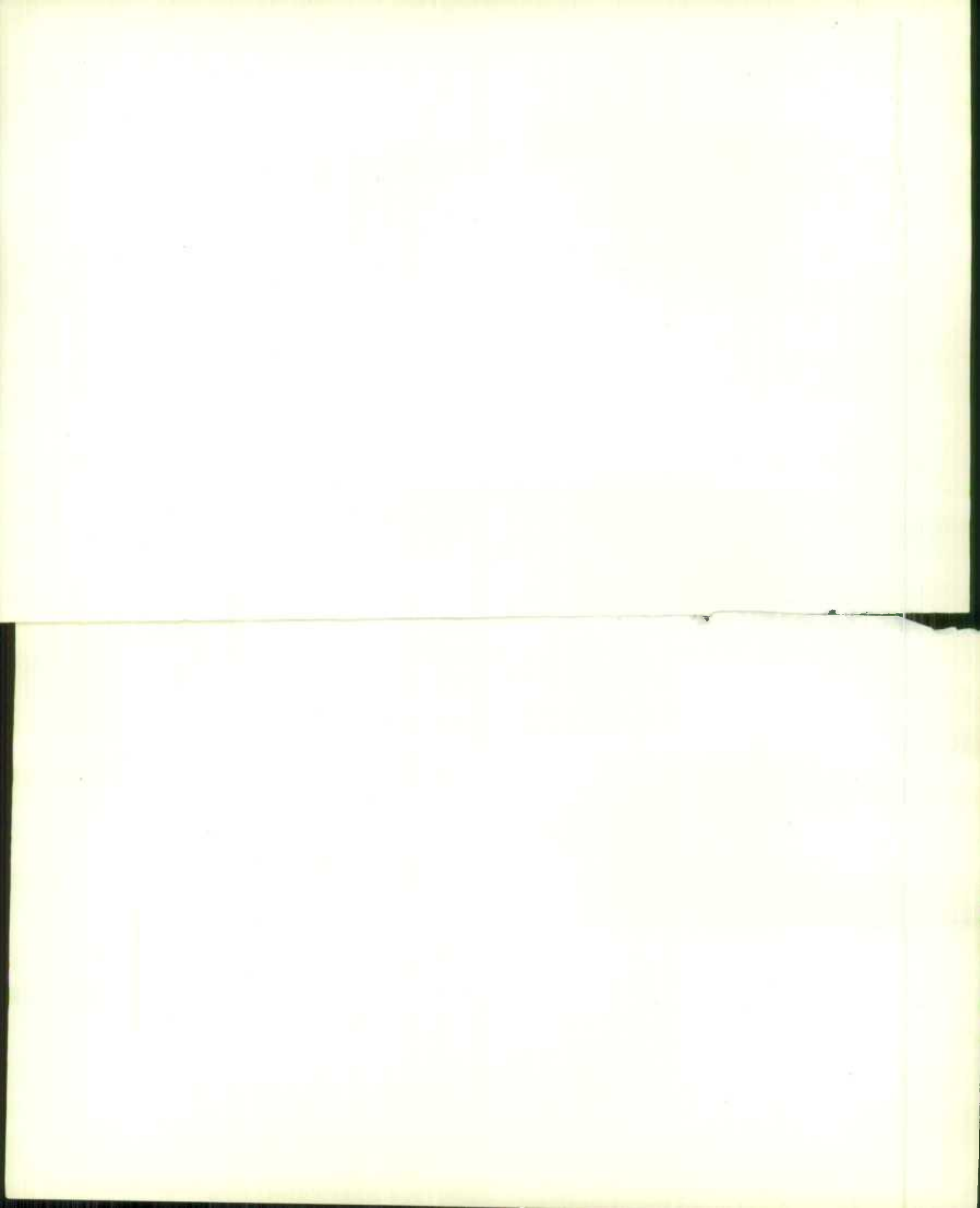
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