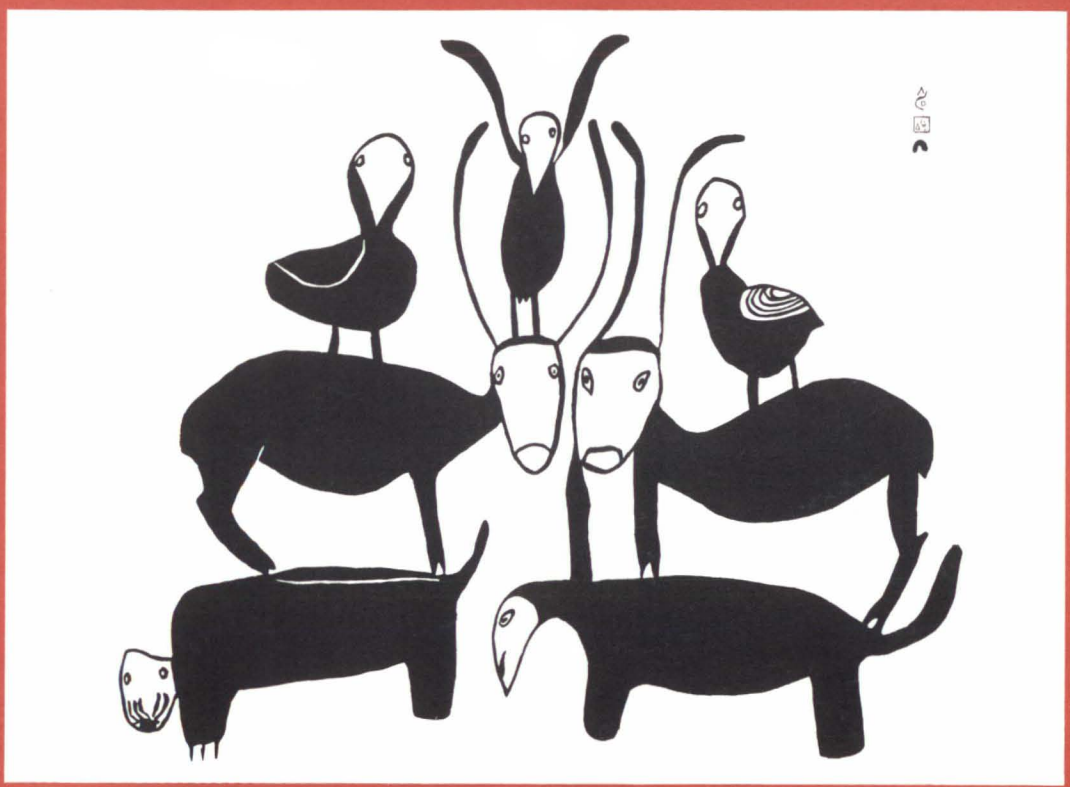
ANNUAL REPORT

Department of Northern Affairs and National Resources



FISCAL YEAR 1963-1964

With the Compliments of

Northern Affairs and National Resources

Ottawa

Department of Northern Affairs and National Resources

ANNUAL REPORT

FISCAL YEAR 1963-1964

ROGER DUHAMEL, F.R.S.C.
Queen's Printer and Controller of Stationery
Ottawa, Canada, 1965

THE COVER PHOTO: stone cut engraving "Caribou and Birds" by Pitseolak, outstanding Eskimo artist from Cape Dorset. "Caribou and Birds" is one of the three engravings by Pitseolak that were purchased by the National Gallery from the 1963 collection of Eskimo prints.

Cat. No. R1-1964

The Honourable Arthur Laing, P.C., M.P., B.S.A.,
Minister of Northern Affairs and
National Resources.

SIR:

I have the honour to submit the Eleventh Annual Report of the Department of Northern Affairs and National Resources, for the fiscal year ending March 31, 1964.

The new format used for the Annual Report last year was very well received and, as a result, it is being continued this year. It is well to recall that the Department will be pleased to provide, on request, additional information as was included in Annual Reports of the earlier type. The Department's other regular publications such as the monthly Oil and Gas Statements, the Wildlife Research Progress Reports, and the magazine "north" will continue to provide extensive factual information on the Department's activities.

The second decade of the existence of the Department has begun, and with it a host of new challenges and new tasks to be accomplished. As a result of this dynamic field of endeavour during the last year, modern techniques of management and administration were reviewed in the light of their possible implementation in the Department's operation. This review has produced interesting recommendations which will be evaluated during the months to come, and which are bound to achieve greater efficiency throughout the Department as we engage deeper into the 60's.

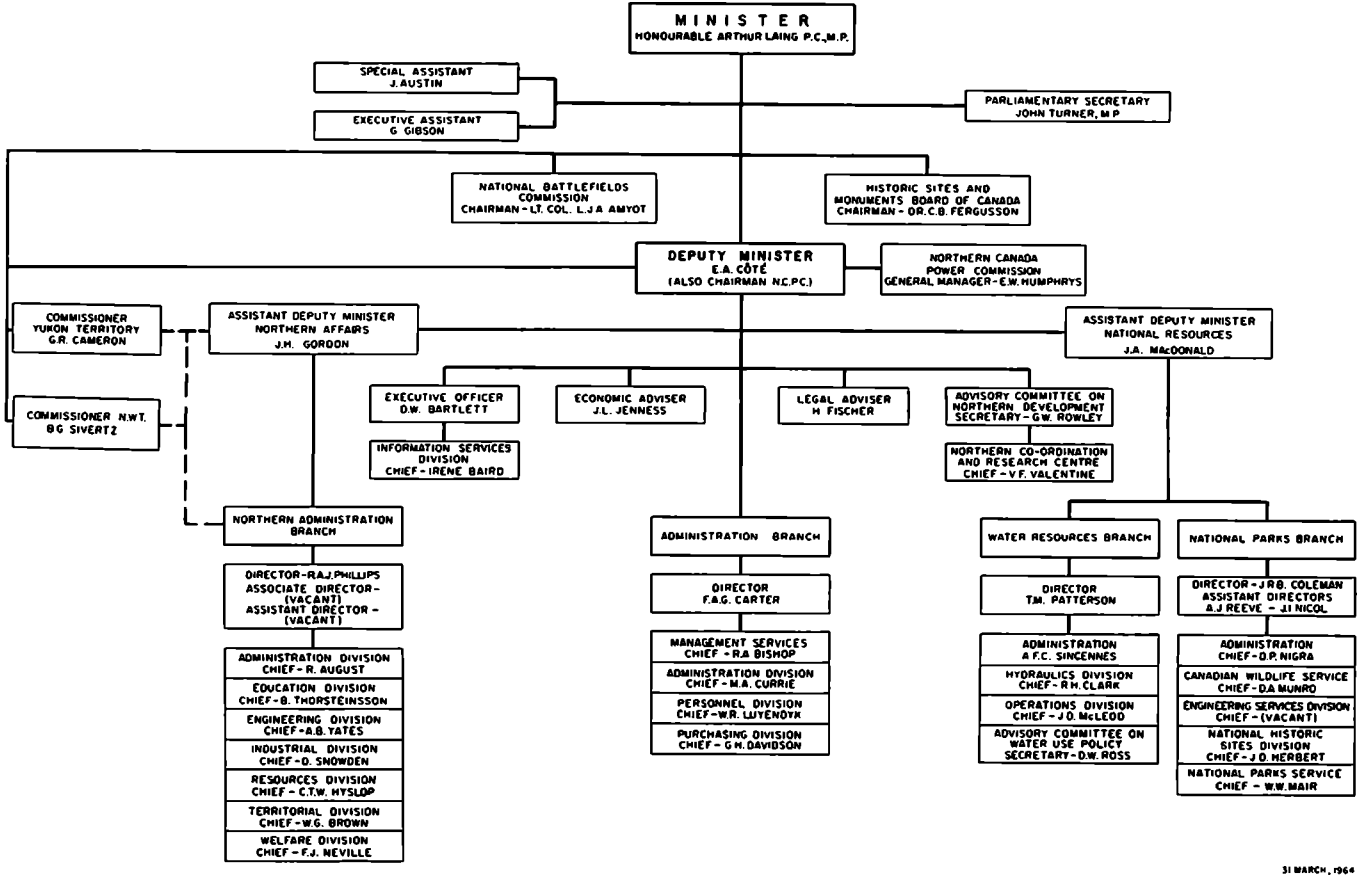
Respectfully submitted,

E. A. CÔTÉ,
Deputy Minister

CONTENTS

DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES

ORGANIZATION CHART



31 MARCH, 1964

The North

At Fort Chimo in Arctic Quebec, Mrs. Jeannie Snowball, designer of Ookpik, turns out hand-made seal skin owls to fill a back-log of orders for her whimsical creation. (*Photo by NFB*)

The North

The settlements that pin-point the Northwest Territories are gradually being developed by the addition of small prefabricated houses and co-operative buildings and the expansion of existing schools.

At Grise Fiord in the far northern Queen Elizabeth Islands, twenty-five children occupy the desks in the school room during the school day; in the evening, adult classes move in. The women and older girls learn how to use canned and prepared food, and the hunters and trappers study basic English and arithmetic.

In many of the small settlements throughout the Arctic, the pattern is repeated, for the school is the centre of community activity including the Saturday night dance.

A contrast in size to the one-room schools are the well-established secondary schools at Yellowknife and Inuvik in the Mackenzie. Students from every part of the north fly in to school once a year, live in modern pupil residences, take advanced courses (either academic or vocational) and return home in summer. During the year a hundred-bed wing was added to Akaitcho Hall at Yellowknife, doubling its capacity.

The schools have a variety of practical courses, especially designed for northern students. New units of study are being planned by northern teachers and the curriculum staff to preserve the culture and history of arctic settlements—as well as to introduce studies of the outside world.

During the year 25 northern students qualified for grants (totalling $15,080.95) from the territorial government to attend universities in the south; loans for board and lodging were made to eight other students.

Under the Apprentice Training Ordinance, territorial grants are available to residents over 16 who wish to become skilled tradesmen.

Trades range from auto mechanics to barbering; apprentices are paid for on-the-job work. Training costs, travelling, and living expenses for the theoretical parts of the course are paid by the territorial government.

Attendance in schools administered by Northern Affairs has reached the 6,200 mark; of this number 1,496 students live in residence. During the year twelve new eight-pupil residences were built; some of the 96 youngsters who move into them will be attending school regularly for the first time in their lives. Some of the vacated military facilities at Churchill will be used as a school and pupil residence beginning September 1964. About 100 youngsters will begin vocational education with academic up-grading courses, and 60 will take academic courses.

The opportunity to attend school regularly is the most significant change in the lives of Eskimo youngsters. For the parents, change is closely linked with the development of the Eskimo co-operatives. More than five hundred Eskimos—one in about every five families—belong to a co-operative. During the year, three new co-operatives were formed: a credit union was established in Yellowknife; at Fort Franklin, the first Indian Co-operative Association was formed; the third new co-operative was incorporated at Igloolik, N.W.T. The additions bring the total number of co-operatives to nineteen, with a total business turn-over of close to $1 million per annum.

Highlight of the handicrafts program was a whimsical sealskin owl with round moosehide eyes. "Ookpik" from Fort Chimo drew an immediate response from crowds at a major trade show in Philadelphia. The copyright on the "Ookpik" design was secured by the Department; designer Jeannie Snowball and the Fort Chimo Co-operative will receive long-term benefits as the rights to reproduce Ookpik in various forms were sold to commercial firms.

The people of Baker Lake earned a record $25,000 from the production of handicrafts and carvings during the year under a new program of arts and crafts development in Keewatin District.

On Victoria Island and the mainland facing it, an economic survey of natural resources was completed by the Industrial Division. In other areas where programs to harvest resources are well established, northern foods (frozen and fresh Arctic char, pickled herring, Beluga whale and seal) were produced in experimental quantities, for export as well as for local consumption. Seal and whale products were canned and put on

sale in Eskimo co-operative stores; processed herring and 'Delta' dog food (fish and whale) were prepared for a testing program.

Eskimo sea-hunters and fishermen were quick to take advantage of the new Eskimo Small Boat Assistance Plan to buy boats with a wider hunting and fishing range. The program allows a 40% grant towards the total cost of a boat, provided the fishermen, individually or in groups, can make a down payment of at least 20% of the total cost. The balance would be covered by a loan from the Eskimo Loan Fund, but in many cases Eskimo buyers did not require the additional credit.

The urgent need for permanent housing is being met under the Eskimo Low Cost Housing Program, developed and administered by the federal government. In the year under review, 148 small prefabricated houses were shipped to the Arctic for Eskimo buyers; a further 104 homes were provided for widows and the disabled.

Larger houses are available to residents of the Territories though the Northwest Territories Low Cost Housing Ordinance. The housing program allows a grant of $1,000, plus a first mortgage loan up to $6,000. In 1963, 37 applications were approved for a total of $245,000 in grants and loans.

To help develop a good working relationship between the Eskimos and Northern Affairs staff in the north, a course in the Eskimo language was developed by the Welfare Division. The course, prepared on a scientific basis by a trained linguist, may be made available to other agencies with interests in the north.

The Welfare Division also produced a distinctive Eskimo publication—the Q-Book, written in Eskimo syllabics, Roman orthography, and English side by side on each page. This is a sort of Eskimo book of knowledge with informative articles, well-illustrated by a variety of artists, covering topics that range from basic health laws to baking, the drawing up of wills and the care of hunting equipment. The Q-Book has been distributed free to Eskimos throughout the north and is on sale at the Queen's Printer in Ottawa.

At the Frobisher Bay Eskimo Rehabilitation Centre, emphasis shifted from commercial operations (staffed by patients physically unable to return to a life on the land) to individual treatment for rehabilitants.

A group a gifted sculptors has developed at the Centre. Their work was shown in an exhibit, *Canadian Sculptors of the Arctic,* held at the National Gallery of Canada in the summer of 1963. The collection received high praise from art critics and the visitors who flocked to see

it; the carvings have been retained by the Department as a permanent exhibit.

The development of natural and acquired skills has been closely related to the development of northern resources. Vocational training courses are being given with the emphasis on heavy duty equipment, mining processes, carpentry and general construction work.

When North Rankin Nickel Mine closed down in 1962 some of the Eskimo miners who worked there found jobs in Yellowknife. This novel venture, in which the Department was catalyst, was made possible by the co-operation of several of the mining companies in the Northwest Territories.

The government has established a new assay office in Yellowknife which not only provides an assay service for prospectors in the Northwest Territories, but also offers courses in assaying to students at the Sir John Franklin School. To spur mineral exploration, Northern Affairs reviewed the Prospectors' Assistance Program with representatives of industry and prospectors. As a result, a complete revision of the Program has been agreed to and the Department looks forward to a very successful year.

Other services to primary industry in the north include safety inspections on mining and oil and gas operations, and dust and ventilation surveys at all the mines in both Territories.

In the Northwest Territories, mineral prospecting ranged far and wide but concentrated in areas such as Contwoyto Lake, Coronation Gulf, along the Redstone River, and in the Mackenzie Mountains. On the northern tip of Baffin Island a promising iron deposit has been discovered and is being explored.

In the Yukon the number of recorded mineral claims increased; value of mineral production reached a total of over $14.5 million for the year. Prospecting and exploration were done in several parts of the Yukon; of the year's work, the Whitehorse copper belt, the asbestos properties near Dawson, the lode gold west of Carmacks, and a silver-lead-zinc deposit in the Mayo area, deserve a special mention. The most newsworthy event was the discovery of a huge deposit of iron ore on the Snake River in the northeast part of the Yukon. The discovery was made in 1962; during 1963, geological exploration was done around the whole area and the companies involved made thorough studies of the deposit, and transportation and shipping problems. It will prob-

ably take years to develop a deposit of this size but discoveries like the Snake River iron reaffirm the faith of those who believe that the future of the north lies in its mineral resources.

The other important facet of mineral exploration in the north is the search for oil and gas. The tempo of this exploration has increased steadily over the last decade and the geological map of the subsurface of the Arctic is being filled in. During 1963 two new wildcat oil wells were drilled in the Arctic Islands and four on the mainland of the Northwest Territories. Twenty-two geological parties ranged over the country—with emphasis on the Arctic Islands. For the first time, Hudson Bay was explored in the search for oil and gas.

During the year three important work-bonus oil and gas permit sales were held by the Department, with good results. The oil companies bidding in these sales undertook to spend an additional $15 million for exploration in both Territories.

The Oil and Gas Section of the Resources Division administered exploration permits for oil and gas off Canada's coasts. During 1963 there was considerable interest in the possibility of finding oil and gas on both sides of our Continental Shelf, and at the end of the year an all time high of over 42 million acres of land under water off the Maritimes and British Columbia were held under permit.

As the exploration for minerals and oil and gas proceeded in both Territories and the High Arctic, steady progress was made to develop and open the huge mine at Pine Point on the south shore of Great Slave Lake. This large deposit of lead and zinc has been under exploration for many years. Six years ago the Consolidated Mining and Smelting Company of Canada went ahead with definite plans to start a mine and erect a processing mill at the site.

The Canadian National Railway Company is building the Great Slave railway from Grimshaw, Alberta, to the shores of Great Slave Lake at Pine Point, a distance of 432 miles. By 1965 this mine will be in full operation, and will undoubtedly have profound effects on the regional economy.

An immediate result is the construction of roads to link the Hay River highway with Pine Point and Pine Point with Fort Smith. The first 24 miles of road were completed from Hay River during 1963; at the Fort Smith end winter clearing was carried out as a winter works project. The road from Hay River to Fort Smith will be about

161 miles long, and the access road from the Buffalo River turn-off to Pine Point, a distance of 18 miles.

Improved highways and air fields opened the Mackenzie District to an estimated 3,500 visitors who left behind a million vacation dollars during the summer season.

Lodges and fishing camps at Great Bear Lake and Tree River attracted a growing number of anglers with a taste for adventure and Arctic grayling. Fishermen from the United States are discovering Canada's far north and coming back for more.

In the Mackenzie Mountains a survey of sports hunting potential was completed with an eye to opening the area to sports hunters. A large cruise boat operating between Hay River and Tuktoyaktuk is expected to bring the first sightseeing visitors to settlements along the Mackenzie River.

The attraction of breaking new vacation ground in the north may develop a tourist industry that can give a healthy lift to the northern economy.

In these and other ways, the Department endeavoured to work toward solution of the social and economic problems facing the people of the Northwest Territories. High fur prices in some areas were bringing a temporary measure of affluence to some of the people living off the land. Nevertheless, this permitted no slackening of efforts in programs of education, economic development, and provision of minimal housing in order to provide training for employment or for living off the land, to provide means of subsistence, and even to provide basic shelter. The social problems of primitive peoples faced with overwhelming cultural change continued to absorb a considerable amount of attention of welfare, administration, and education officers. Real accomplishments were in evidence as mentioned above, but the job remaining to be done was still very great.

Nature and History

The partial restoration of the Fortress of Louisbourg on Cape Breton Island is the most extensive restoration project ever undertaken in Canada. Archaeologists do on-the-site research to confirm or reject the story revealed by the research of historians in the archives and libraries of France, Britain, Canada and the United States.

Nature and History

A race against time has developed in the management of the National Parks and National Historic Parks.

The preservation of wilderness areas and irreplaceable nature features must be combined with heavy current use. Long range planning and research programs are of increased importance to determine—and protect—fragile or significant areas for the enjoyment of future generations.

During the fiscal year, visitor attendance in the National Parks came close to the 9½ million mark; the increase was 26.9% over the previous year, and every trend points to heavier use of park lands in future years. Lightweight tents, comfortable camping equipment, smooth roads, more leisure time—all combine to make camping in a scenic national park a pleasant and beneficial holiday.

By 1966, the number of visitors to National Parks (excluding National Historic Parks) is expected to be about 12 million.

In the spacious western parks, a preliminary plan has been worked out to establish areas of use. Wilderness zones will be set aside for the few to whom recreation is a hike along solitary mountain trails and rest in primitive overnight shelters. Other visitors—the majority—will prefer to spend their holidays in "semi-wilderness zones" with a view of nature through a tent's gauze windows and the companionable voices of campers on adjoining sites.

Present developed areas are settled into the natural surroundings; services for campers (electricity, water, stoves, shelters, and possibly an outdoor theatre, and laundromats) are minutes away down the campground road. For the future, Visitor Service Centres are planned along major traffic arteries such as the Trans-Canada Highway and the Banff-Jasper Highway to concentrate the heaviest use of park land in carefully selected areas, which will be provided with essential services—water, sewers and electric power.

The conservation of park lands also depends on the understanding of irreplaceable nature features.

The lofty alpine meadows in the mountain parks will lose their masses of wild flowers if they are walked upon casually by hikers. Glacial kettles or depressions formed over the centuries by melting glacial ice, and other natural phenomena are carefully preserved in the planning of secondary park roads and trails.

In the spacious mountain parks, the new zoning concept will help to protect nature features and preserve wilderness areas. In small eastern parks, the problem is more acute.

During the year, Banff National Park (2,564 square miles with thirteen major development areas in various stages of completion) registered 1,650,257 visitors at the eastern gateway. The comparatively limited park lands of Prince Edward Island National Park were second in popularity; the coastal beaches (with a total area of seven square miles) were enjoyed by 1,019,104 visitors.

In the Prince Edward Island park, emphasis is on preservation as well as increased visitor accommodation and parking space. The beauty of the park lies in the vista of sea and sky, red sandstone cliffs and rolling sand dunes. To preserve the dunes, which are a rare feature of nature, access to the beach must be carefully controlled. Heavy traffic must be directed around them to protect the sand-binding grasses and to prevent the beginning of erosion.

On Rustico Island a new camp area (148 tent sites and a kitchen shelter) was laid out with careful consideration for the colony of blue herons that nest in the tall spruce trees on the island. The spectacular birds, often seen fishing along the sandy beaches are sensitive and easily disturbed by visitors walking beneath the trees. A tall fence was built to warn campers away from the nesting spot.

In the summer of 1967 long-range planners expect to accommodate 1,625,000 visitors at the sea-shore park. Water and an underground electrical system were installed at Brackley Beach, and a copious 500,000-gallon reservoir was built at Dalvay Beach.

In Nova Scotia an area surrounding Kejimkujik Lake about 150 miles south west of Halifax is under study as a valuable addition to the National Parks System.

The proposed tract of land is about 150 miles square and contains three major lakes and many smaller lakes and streams. Preliminary

studies suggest a large family park featuring leisurely canoe trips along the connecting waterways and fishing and swimming in the warm lake waters.

The Department and the Government of Nova Scotia have agreed in principle to the establishment of the park but a considerable amount of detailed work, including surveys, remains to be done before the area can be transferred by the Province to Canada and developed as a National Park for the use of visitors.

Throughout the parks, a record number of visitors (444,831) took part in the guided hikes, campfire talks, and outdoor movie programs prepared by park naturalists.

At Point Pelee National Park the completed boardwalk attracted many visitors to the marsh for the first time. The fresh-water marsh is a comparatively rare nature feature that occupies about three-quarters of the park area. The boardwalk which was opened for use during the year, stretches 3,200 feet into the marsh. Visitors who had come only for a swim or picnic found themselves enjoying a close-up view of marsh life. Attendance at Point Pelee increased by 102,000 over the year.

Recreation facilities—bowling greens, golf courses, tennis courts, outdoor bathing establishments and, in the winter, ski centres were widely patronized. The T-bar lift on Agassiz Hill in Riding Mountain National Park was completed, opening a major new ski centre for residents of Manitoba.

In an important step to meet the demands and problems of park administration, three field regions were established during the year. The Western Region comprises that part of Canada west of the Ontario-Manitoba border; the Central Region comprises Ontario and Quebec. The Atlantic Region covers the Atlantic provinces. Regional directors have been appointed and during 1964, staff will be engaged.

The growing need for outdoor recreation space and facilities has resulted in increased co-operation between federal, provincial and regional parks officials. The Federal-Provincial Parks Conference met in Ottawa for the first time in 1962, reconvened in 1963, and will reconvene every second year; annual meetings of parks administrators are held to examine management techniques and to exchange information.

In the National Historic Parks, emphasis is on research work to determine sites of national significance. The archaeological program of the Parks Branch is the largest of its kind in Canada; training programs are being established to give student archaeologists on-the-job training.

Plans were approved for the first summer field school for students to be located on the site of Ile-Aux-Noix in the Richelieu River near St. Paul, P.Q. The site has great historic potential. Champlain was believed to have visited the island in 1609; it later served the French as a defence position against Iroquois raids on the settlements of the Eastern townships and Montreal. Indian relics and artifacts left by French and British occupation have been found and more than seventy buildings were believed to have existed on the island. Fort Lennox, a stone fortress that occupies a quarter of the Island; was built by the British during the War of 1812.

A party of archaeological students will also work on investigations at Fort St. Joseph on St. Joseph's Island near Sault Ste. Marie. In the summer of 1963, archaeologists from the University of Toronto Anthropology Department studied the remains of the stone buildings and located walls, gates, one bastion and part of another. The old bakery of the fort was found and partially uncovered, and another building—which may be the powder magazine—was excavated.

The historic fort—the most westerly British fort in North America —was built in 1796 and served for years as a trading post for the Indians. In the war of 1812 it was the base for the military expedition that captured Michilimackinac, securing the north country for the British. The fort was destroyed by American troops in 1814 and never rebuilt.

The development of Fort Amherst National Park is planned along somewhat different lines than is usual for National Historic Parks. The park—comprising 222 acres of land—was deeded to the nation in 1959 by Prince Edward Island. The earthworks of an 18th century fort are located within the park, near the site of the old French town, Port La Joie. The remains of the fort and settlement are scant, and it is planned to develop them through historical research and archaeological investigation.

Another area of the extensive park will be used as a picnic and swimming area; a third project will take advantage of good farm land to raise native plants for use in the eastern National Parks and Historic Parks system.

Archaeological investigations were also carried out at Fort Latour, the early 17th century fur trading post near Saint John, N.B. The complex site has yielded aboriginal remains (including unusual "red paint" burials, with burnt human bones and stone implements deeply stained

with red ochre), but scant information has been found on the original structure of the Fort itself; its complete character is known to no one today.

Years of research in Canadian archives on the Signal Hill fortifications at St. John's, Newfoundland have produced little to date in the way of plans that can be applied to the proposed restoration of the original fortification. Research work is being continued in the United Kingdom.

At Louisbourg the massive program to reconstruct a cross-section of the fortifications and buildings of the 18th century French fortress has moved into the rebuilding stage.

The excavation of the main building, the Château St-Louis, is nearly complete; the site has yielded a wealth of objects—candle snuffers, glass bottles, clay pipe stems and every day pottery (some of it mended with rivets).

Stone masons—largely ex-miners trained on the job—have begun work on the escarp wall, facing it with reclaimed stone from the ruins.

Part of Louisbourg will remain in desolation to present a vivid picture of the history of the Fortress. Reconstruction will "fade" into ruins to mark the almost complete destruction of the fortress by British forces in 1758.

To meet the urgent need for historical information, a record number of specialists under contract are engaged in research on projects that range from "Bellevue", a former home of Sir John A. Macdonald at Kingston, Ontario, to the study of early Ontario furnishings and 19th century pottery in early Quebec and Ontario.

In some cases the assignments are part of the expanding museum program of National Historic Parks. The studies (including one of the furnishings and equipment of the Northwest Mounted Police, 1875-1900) will provide a valuable guide in preparing exhibits.

In December, 1963, a museologist was appointed; records in the fifteen Departmental museums are being brought up to date and new exhibits are planned.

During the year, preliminary work was undertaken to compile a national inventory of Canadian architecture.

In three historically rich areas, buildings that are representative of a period of Canadian life or economic development were researched in fascinating detail. As the study progressed, research officers and

architectural students soon became able to distinguish style details of the mouldings, doors and staircases of different decades.

The structural history of the buildings was gradually revealed and noted (in 1850, a Quebec City housewife banished an 1820 mantelpiece from her drawing room to a third-storey bedroom to replace it with another, more in the fashion of the day).

Any alterations to the buildings were recorded and supported with as much detail as possible—the dates, names of owners and contractors, before and after views of the street, newspaper advertisements, and copies of the work contract.

The style of early Canadian builders and craftsmen can now be recognized by research officers, and records are being compiled on the men themselves—their architectural training, educational background, their business partners and personal family lives.

Events of historic interest are noted in the inventory. The house occupied by General Montcalm in 1758-1759 still stands on the ramparts overlooking the St. Charles River. Measured drawings are made of the houses with notes on their present condition and complete details on title.

The architectural inventory, recommended by the Historic Sites and Monuments Board of Canada in 1958, and urged by the Royal Architectural Institute of Canada, will pinpoint buildings of national historic value and enable the government to act on short notice to save historic buildings from damage or possible demolition.

In the fields of human and natural history the Parks Branch is conducting an accelerated program to preserve the riches of the country for the enjoyment of future generations.

Wildlife

A young Eskimo girl makes friends with a baby snow goose on Baffin Island in the Northwest Territories. Young birds are banded to provide information on migration patterns. *(Photo by NFB)*

Wildlife

For centuries Canada has been known for the wealth and variety of its wildlife. Fur attracted the first traders and encouraged exploration and settlement; fur still provides a livelihood for hunters and trappers in vast regions where other resources are scarce or undeveloped.

Today there are more moose, deer, and certain kinds of grouse in Canada than there were in the days before European settlement. The mountain and forest regions still maintain good stocks of large mammals, including woodland caribou, mountain sheep, wolf, grizzly bear, and wolverine. The vastness of animal habitat in Canada—the stretches of arctic and alpine tundra, the sub-arctic and sub-alpine forests, and the forests of the southern belt—explains in part their survival. But man has made many changes in the face of the land; wildlife habitat has been altered and some species have been hunted more than others. Wildlife management programs have long been necessary to assist nature in protecting rare species and to keep range and animal populations in balance.

The Canadian Wildlife Service carries out research programs in the Yukon and Northwest Territories and the National Parks. The Service administers the Migratory Birds Convention Act (legislation to protect the large bird populations that shuttle seasonally across the national boundaries of North American countries), provides co-ordination and advice in the administration of the Game Export Act in the provinces, and works in close association with provincial game departments.

A critical problem being studied in co-operation with other agencies is the effect on wildlife of biocides used for pest control. This problem is of international concern. In the State of New York this year, DDT will no longer be used to control black flies and mosquitoes

in state camp-sites and for state forest-pest control programs. Fishery biologists have discovered that the poison enters the water and is picked up by lake trout through the aquatic food chain. Adult lake trout are not affected, but the fry die when they absorb the fatty—and contaminated—material from the yolk sac, which functions as a food reserve for the period following hatching.

In other countries, deer feeding in areas treated with chemical poisons have been found to accumulate DDT in their fatty tissues. Earthworms may absorb DDT from dead leaves into their tissues; a total of 50 milligrams of DDT, which can be carried by as few as eleven earthworms, will kill a robin. Woodcock also eat DDT-contaminated earthworms, and may accumulate enough DDT to cause woodcock hunters to worry about eating their kill. Wild duck eggs laid in the Northwest Territories and young ducks hatched there were found to contain DDT, picked up by the mother bird, and transmitted to her eggs and offspring.

The first detailed study of the impact of biocides on wildlife was started in Canada early in 1964, when the Canadian Wildlife Service, working with the Fish and Wildlife Branch of the New Brunswick Department of Lands and Mines, began an investigation into the effect on wildlife of spray operations against the spruce budworm in New Brunswick.

The development of persistent populations of budworms brought about a need for another method of control.

On an experimental basis, 200,000 acres were sprayed in 1964 with a systemic organo-phosphate, which is only 1/250 as toxic to fish as is DDT, because it hydrolyzes rapidly in water and leaves no residue.

The Service investigated the hazard this chemical presents to wildlife. For the study, ruffed grouse were supplied by the provincial government; the Department of Health and Welfare made a bio-chemical assessment of cholinesterase levels; and the Department of Forestry provided information on the amount of spray reaching the ground. The effects of the organo-phosphates on exposed humans were measured by studies on insecticide formulators, spray-plane pilots, and forestry and wildlife workers.

This year for the first time the Service hopes to have facilities available to determine the biocide residue in wildlife tissues. By 1965, it plans to begin monitoring wildlife species for pesticide residues on a nation-wide scale.

The bird hazard to aircraft at airports is a second major study. The biological aspects of the problem are being directed by the Canadian Wildlife Service; the co-ordinating agency for the Canadian work is the National Research Council of Canada.

The best long-term solution to the problem is to make airports as unattractive as possible to hazardous species of birds, and several hundred thousand dollars will be spent towards this goal.

Garbage dumps that provide plentiful food for scavenging crows and gulls (and these are located near several Canadian airports) will be relocated. Agricultural crops and various native plants that attract birds will be replaced where possible; earthworms that move onto airport runways in considerable numbers after a heavy rain may be controlled by using acid fertilizers or spray.

Another direct technique of bird control is local extermination. Doves at Toronto and Montreal International Airports are trapped using grain as bait; pheasants at Vancouver International Airport have been held in check by allowing shooting under a permit system.

The study of the bird hazard to aircraft will expand to include the tracing of bird movements on radar screens. Major bird migrations will be studied and pilots will be warned of the location of large flights of geese or swans that could cause serious damage to aircraft.

For the first time in September, 1963, farmers in the prairie provinces were paid to maintain a safe breeding place for ducks.

Under the Wetlands Agreements, a pilot project, eleven land owners guaranteed that they would not drain, fill or burn vegetation around the wetlands on their property for twenty years.

The program is expected to expand rapidly to save valuable pothole country for the breeding of waterfowl.

In the Baker Lake area, Northwest Territories, studies were continued on factors influencing the cycles of abundance of the Arctic fox. Many variables—including the size and fertility of the breeding population and the survival of healthy young—influence the success of the winter trapping effort. A summer count of lemmings at Aberdeen Lake is a related project; lemmings make up over 80 per cent of the diet of breeding Arctic foxes and their weanling cubs.

Polar bear denning was studied on Southampton Island in March and April of 1963. An interesting southwesterly movement pattern was noted for females and cubs which had abandoned dens in the Porsild

Highlands. During the summer the hunting and feeding behaviour of polar bears was observed on Banks Island, and a few specimens collected.

The rising kill of polar bears in Canada and the depletion in the polar bear population in the Soviet Union and Greenland prompted the Canadian Wildlife Service to begin a five-year polar bear project in 1961.

From 6,000 to 7,000 polar bears live in the Canadian Arctic; the annual kill is about 600 animals. Only Eskimos, Treaty Indians, and the few other holders of general hunting licences may legally hunt polar bears. The hides bring from $70 to $200; nearly 20 per cent of the skins are kept by the hunters for sled robes, to cover sleeping platforms and to make outer clothing.

When a confident estimate of the world's polar bear population is made, and major patterns of population movements traced, the nations concerned will be in a position to plan an enlightened management program to protect this valuable and impressive species from extinction.

The study of barren-ground caribou and caribou wolves was continued. Human kill—the hunting of caribou for food and hides—is the greatest factor in reducing the herds; others that may contribute are the effect of forest fires on winter range, predation, accidents, and poor calf survival.

In the Mackenzie District, studies of mink, beaver, and muskrat were continued. In the National Parks, big game mammals—mountain sheep and wapiti in particular—were studied.

In Wood Buffalo National Park the low reproductive rate among bison, and problems of disease were investigated. A second outbreak of anthrax in bison outside the Park was dealt with, and studies were begun on the epizootology of the disease.

Damage to cereal crops by wild ducks and sandhill cranes continued to be of concern; much time was also devoted to other species of birds small in numbers or in danger of extinction, notably Ross' goose, the trumpeter swan, and the whooping crane.

Water—A Great Natural Resource

Stream flow measurements are taken at regular intervals by the Water Resources Branch on major rivers and streams. *(Photo by Monty Alford)*

Water—A Great Natural Resource

Water covers seven per cent or 268,000 square miles of the surface of Canada. No other country in the world has such vast reserves of fresh water. Taken for granted—except in time of drought or flood—water is Canada's most vital natural resource.

For more than fifty years, the Water Resources Branch has collected and published basic information on streamflow and water levels on a national basis.

During the year under review 81 stations were added to the gauging system network, bringing the total to 1,846 stations from coast to coast. Sediment survey samples were collected and evaluated at an increasing number of stations. The tendency of a stream to carry silt and sand is now recognized as a key factor in its potential development.

The thorough understanding of the physical nature of the water resources of an area is essential to every development or control project.

Highlight of the year—and the culmination of 20 years of planning and negotiation in which Branch officers played a significant part—was the final approval by Parliament in June, 1964, of the Columbia River Treaty and Protocol.

In the fall of 1964, construction will begin on the vast storage and hydro-electric development which will provide over 4 million kilowatts of power (about one-fifth of Canada's present capacity) at very low cost.

When the first studies were begun by the International Joint Commission in 1944, Branch engineers made field investigations of many possible dam sites. Surveys, mapping, and drilling were required before preliminary designs and cost estimates could be made. Additional records of stream flow were needed for countless thousands of calculations to find the generation possible from the many alternatives that presented themselves. At the end of almost fifteen years, the engineering report was made to the International Joint Commission in 1959.

On the basis of the engineering data, negotiations began in 1959. Decisions had to be made on how the benefits of the undertaking would be shared by Canada and the United States and on the projects to be constructed by each. The Branch provided technical advice on all phases of the negotiations which ended in January, 1964.

The basic aim of the Treaty is to control the erratic flow of the Columbia to the advantage of both countries. The high summer runoff (recorded at Revelstoke as 99 times as great as the minimum flow) has caused damaging floods and loss of life, and results in a great waste of energy. The water that was wasted at time of high flow will now be controlled by three large dams in Canada and possibly a fourth in the United States. The Canadian dams—Mica, Arrow Lakes and Duncan Lake—will regulate the flow of the river and produce power benefits both in Canada and downstream in the United States.

Under the Treaty the extra generation in the United States will be shared equally by both countries. Canada's share of the power benefits over a thirty-year period will be sold to the United States for $274.8 million, payable in October, 1964. This payment, plus an additional payment of almost $70 million for flood control benefits in the United States, will cover the full capital costs of the three Treaty dams in Canada—as well as about half the cost of the 1.8 million kilowatts of generating capacity at Mica.

The Treaty gives the United States an option to build a dam on the Kootenay River at Libby, Montana. The project will flood an area that extends up the river into Canada. Canada will contribute 13,700 acres of land required for the reservoir; in return she will benefit from the regulated flow of the river through flood control and increased power generation when the river re-enters Canada downstream of Libby, on the way to its confluence with the Columbia.

The Columbia River Treaty calls for the development of the river in a manner designed to serve the best interests of the people of the regions and the common continental river basin.

The problem of controlling the massive water capacities of the Great Lakes contrasts with the problem of harnessing the turbulent and highly variable Columbia River.

The combined surface area of Lakes Superior, Michigan, Huron, St. Clair, Erie and Ontario, totals almost 100,000 square miles—a vast natural reservoir of fresh water which is used in many ways. These huge

reservoirs dampen out the variations caused by the changes in precipitation from season to season and year to year. The extent of this damping effect is clearly evident in the flow of the St. Lawrence River which drains the system where the range of flow is two to one. In the Columbia, by contrast, the range of flow at Revelstoke is 99 to one.

In the Great Lakes a single season of excessive rainfall or drought is reflected in lake levels for several years. In 1951 and 1952 the Great Lakes were exceedingly high and caused extensive flooding and erosion damage. Yet within a period of the next 12 years the levels were among the lowest on record. Lakes Michigan and Huron established a new low on levels in over a century.

Branch engineers departmentally and in association with others, have carried out a number of studies relating to the fluctuations and trends of the Great Lakes water levels. Records which go back for more than a century reveal variations due to natural as well as man-made causes. Natural variations fall into three groups. Short-period fluctuations are caused by strong winds and sudden changes in air pressures and tides; they last at most for many hours and range from a few inches to about eight feet. Seasonal fluctuations with high levels in the summer and low levels in winter range from about one to two feet. Long-term fluctuations result from the interaction of continuing above or below normal precipitation with the large storage capacity of the lakes.

After three years of sub-normal precipitation (about 80% of normal rate) water levels were critically low during the year under review. Even if precipitation were to increase heavily it would take several years for normal lake levels to be re-established because of the large storage volume that must be replaced.

Man-made influences have also had some bearing on lake levels. Works such as dredging in the St. Clair and Detroit Rivers to improve navigation, diversion of water out of Lake Michigan at Chicago, diversions into Lake Superior from the Albany River watershed which flows into James Bay, and the regulations of outflows of Lakes Superior and Ontario have affected water levels of some or all of the Great Lakes over the years. These effects have been much less than the variations through natural causes.

The whole problem of water levels in the Great Lakes basin is extremely complex.

Similar problems involving the optimum use of water resources are virtually world-wide.

By the end of this century the world's population is expected to double and water consumption to increase three-fold. In the near future an acute water resources problem will face the world.

This has led UNESCO (United Nations Educational, Scientific and Cultural Organization) to sponsor an International Hydrologic Decade, to begin in 1965. During the next ten-year period member nations will co-operate to increase knowledge of the world's water resources so that future planning will be most effective.

A high proportion of the world's fresh water supply lies within Canadian borders; the success of a global study of water resources requires Canada's active participation. The Canadian program will cover a wide range of situations, most of which must be dealt with on a long-term basis; many hydrologic factors cannot be correctly analyzed unless hydrologic data stretching over five to ten years at least are available.

Research and data collection required for the program in Canada will be carried out by the provinces, the universities and the federal government. The Water Resources Branch will contribute to studies such as water budgets of typical river basins, the influence of man on hydrologic systems, and stream-flow formation during winter periods. These will require the collection and analysis of data on streamflow, ice formation and sediment, both for projects initiated by the Branch and to support work being done by other agencies.

During the next five years approximately 150 positions will be added to the engineering, technical and support staff of the Water Resources Branch; this increase will double the existing manpower of the Branch. Water resource development and flood control programs will move rapidly ahead, requiring an expenditure of over $3 billion during the next ten years.

The knowledge gained and pooled by Canada and member countries during the International Hydrologic Decade will enable both Canada and the world to make better use of the limited supply of fresh water available to mankind.

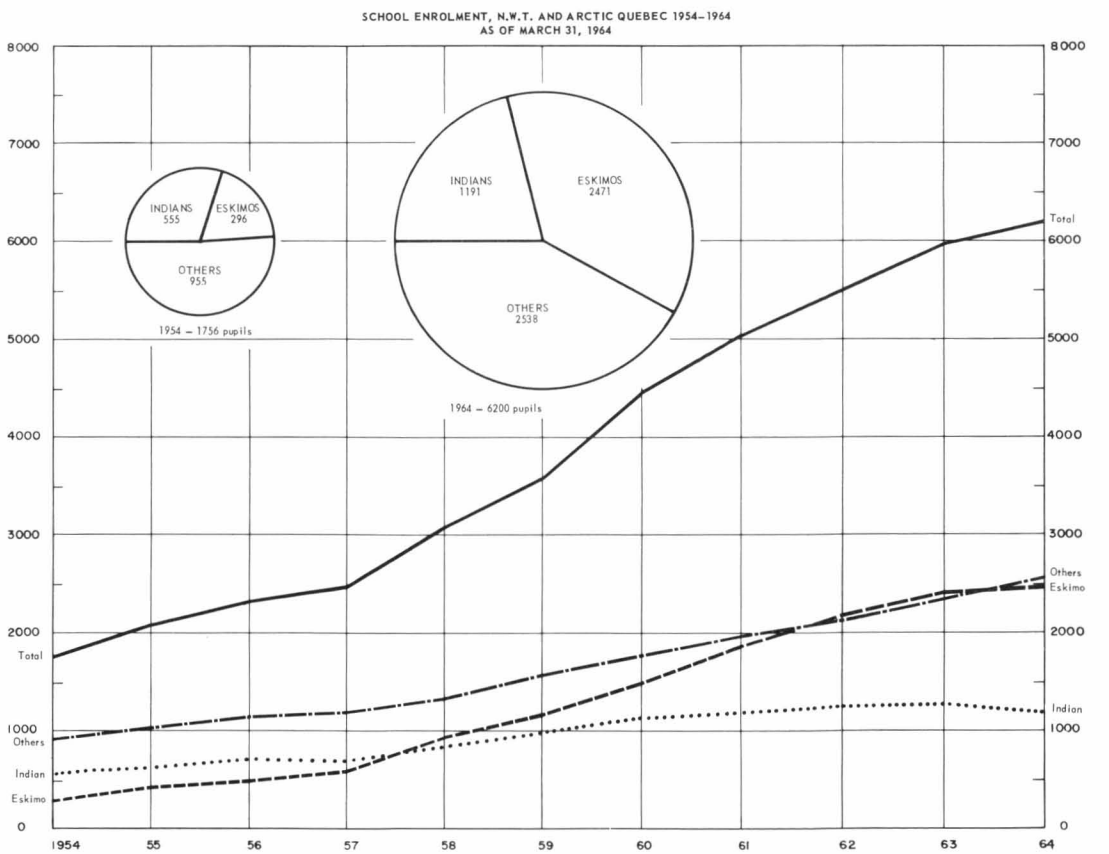
APPENDICES

1963-64 School Enrolment[1]

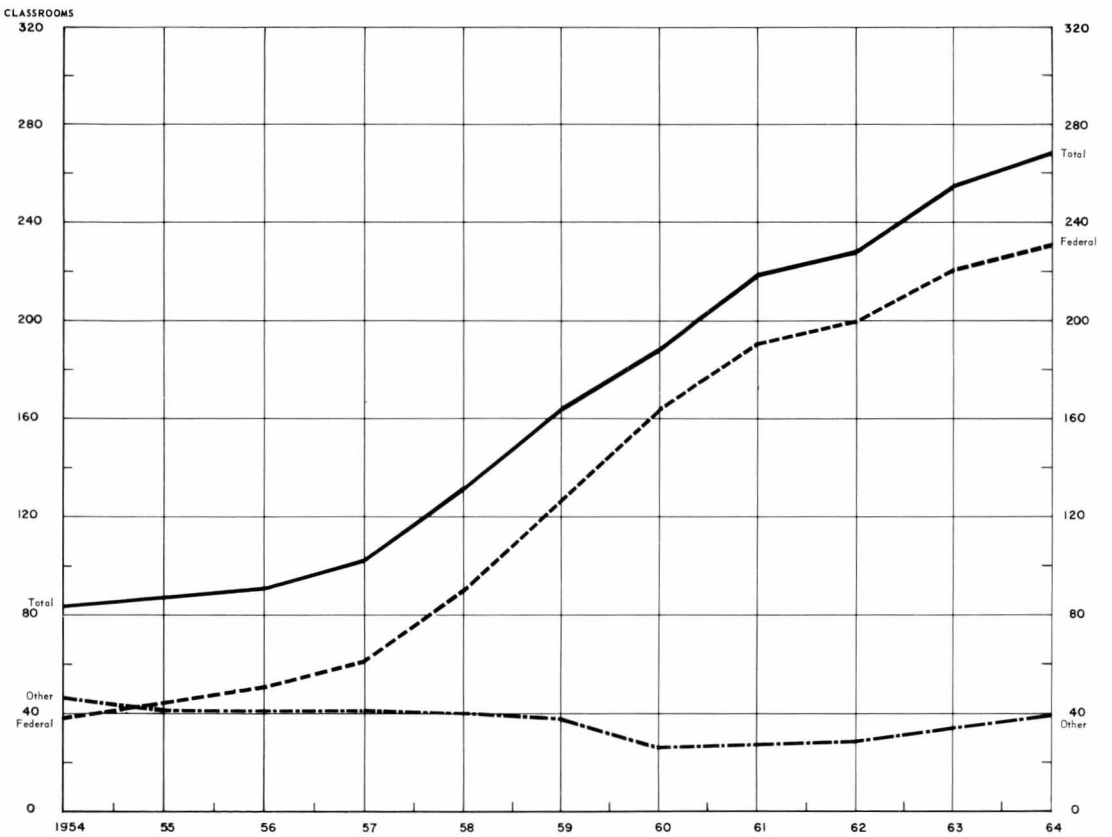
(Northwest Territories and Arctic Quebec)

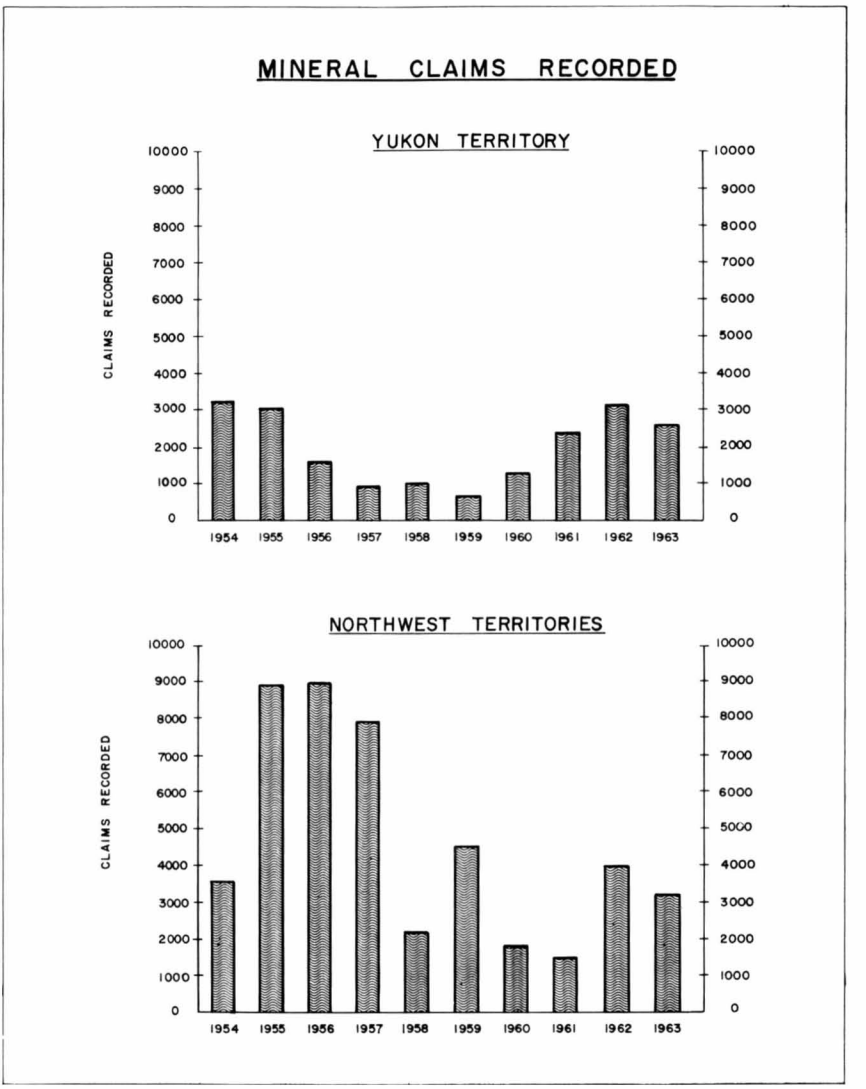
Origin	Enrolment	Compulsory School Age Enrolment	Estimated Total School Age Population	Percentage of children of compulsor school age enrolled
Eskimo	2,494	2,284	3,037	75%
Indian	1,187	1,039	1,440	72%
Other	2,555	2,270	2,299	99%
Total	6,236	5,593	6,776	82%

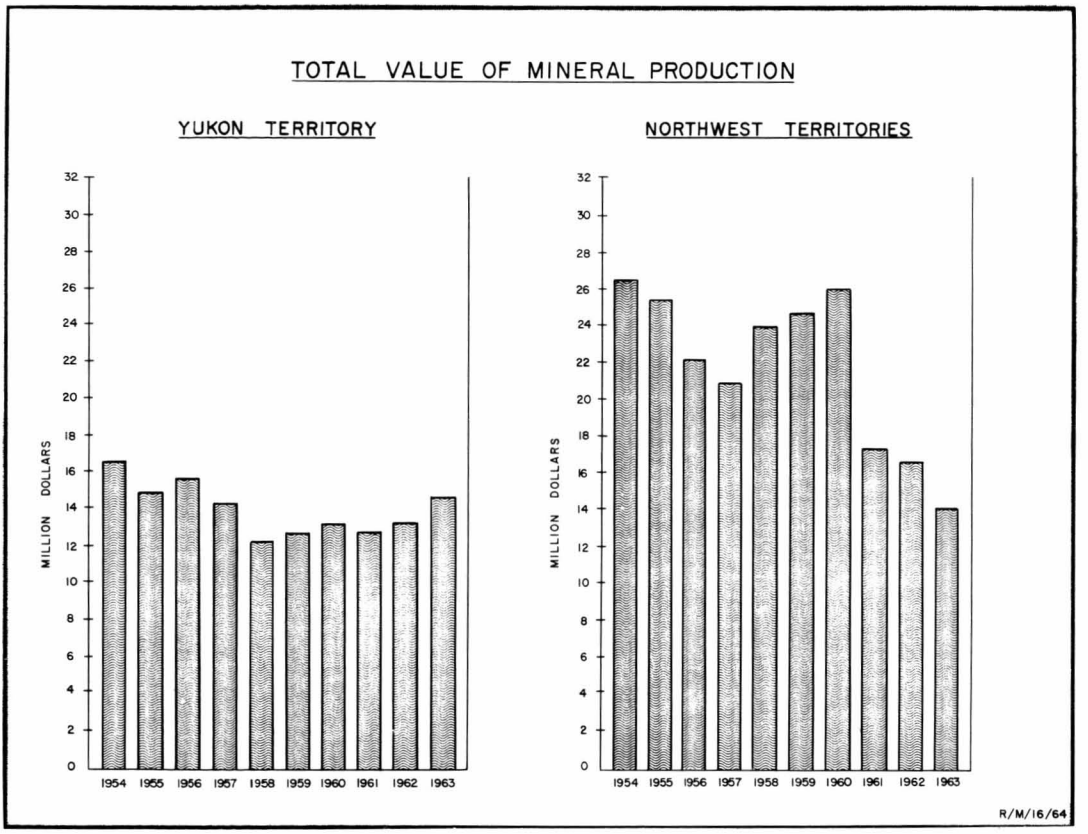
(1) As of January 31, 1964.

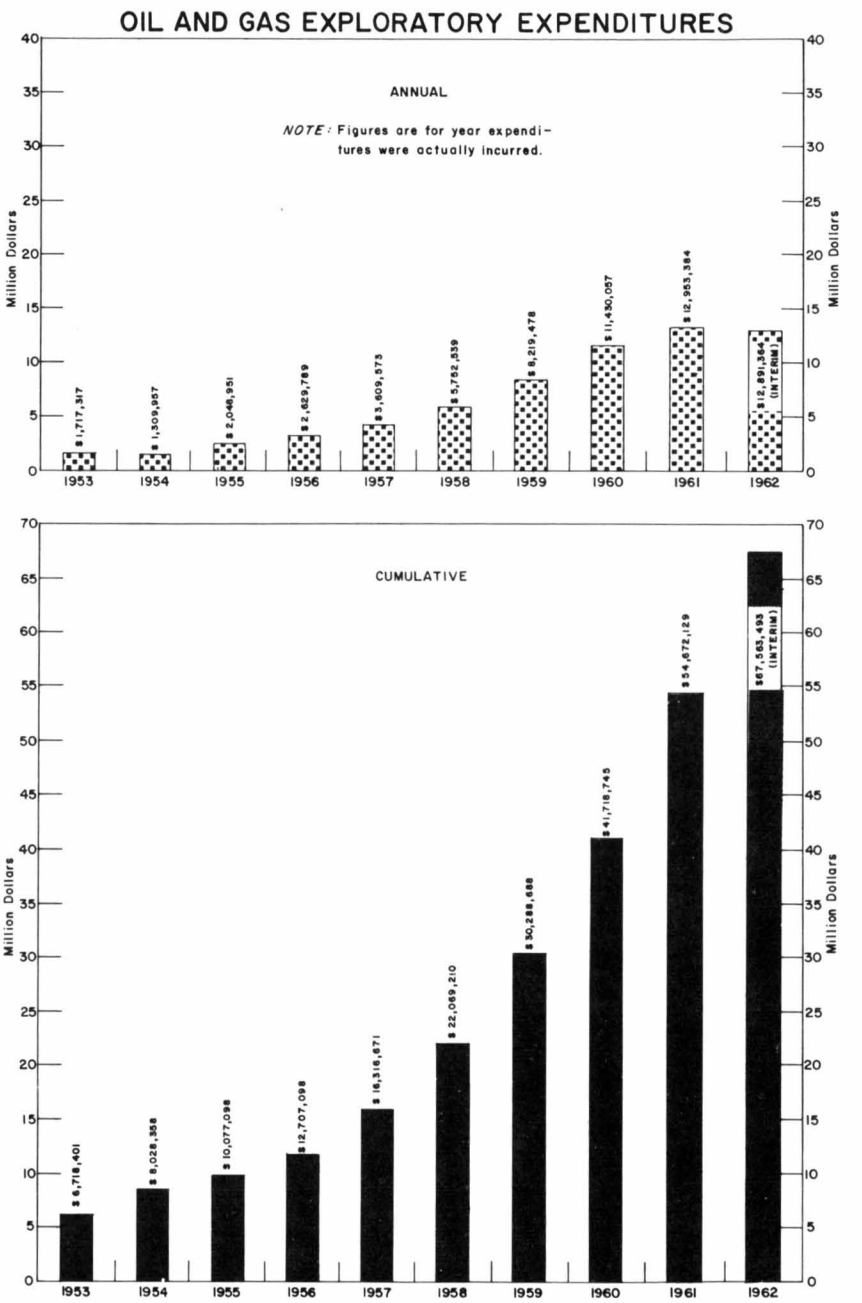


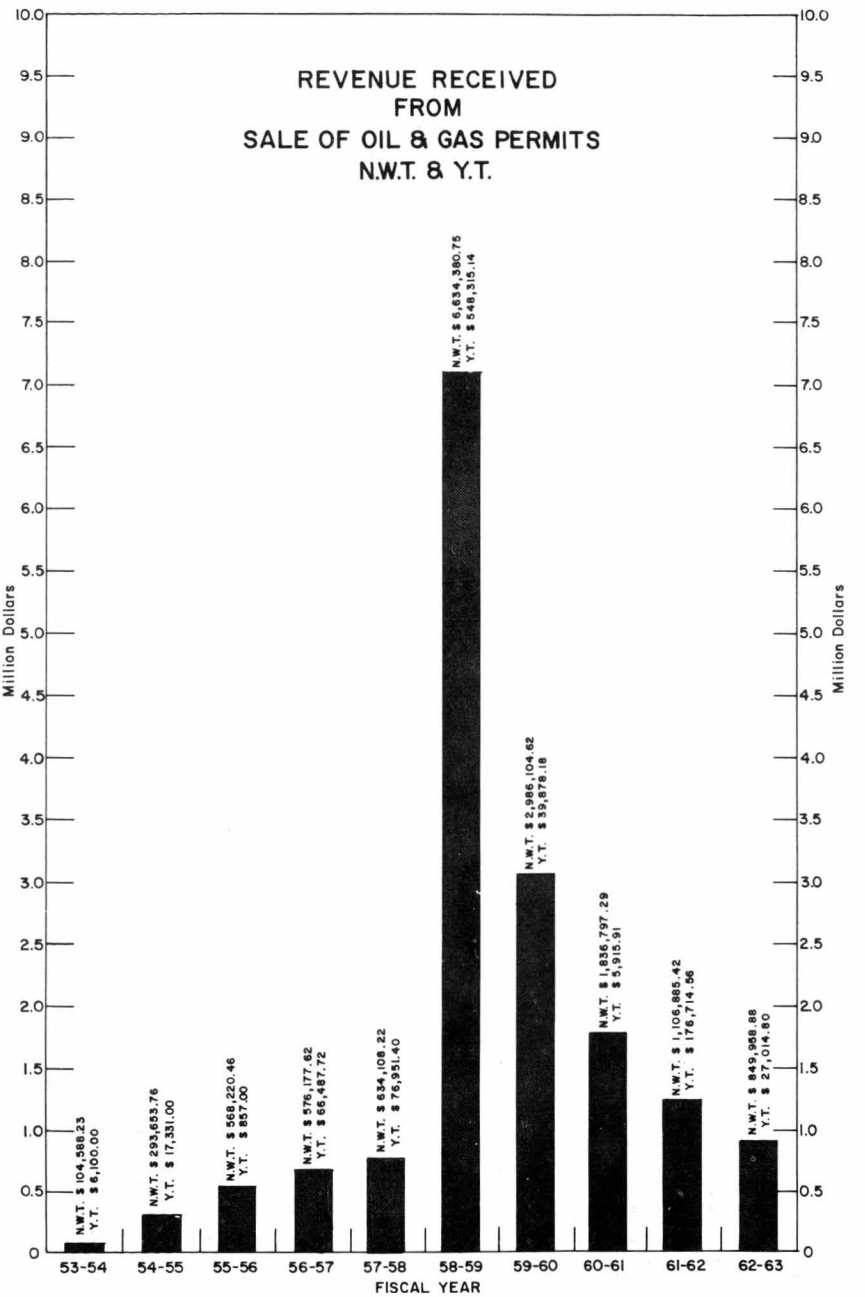
Classroom Growth 1954-1964

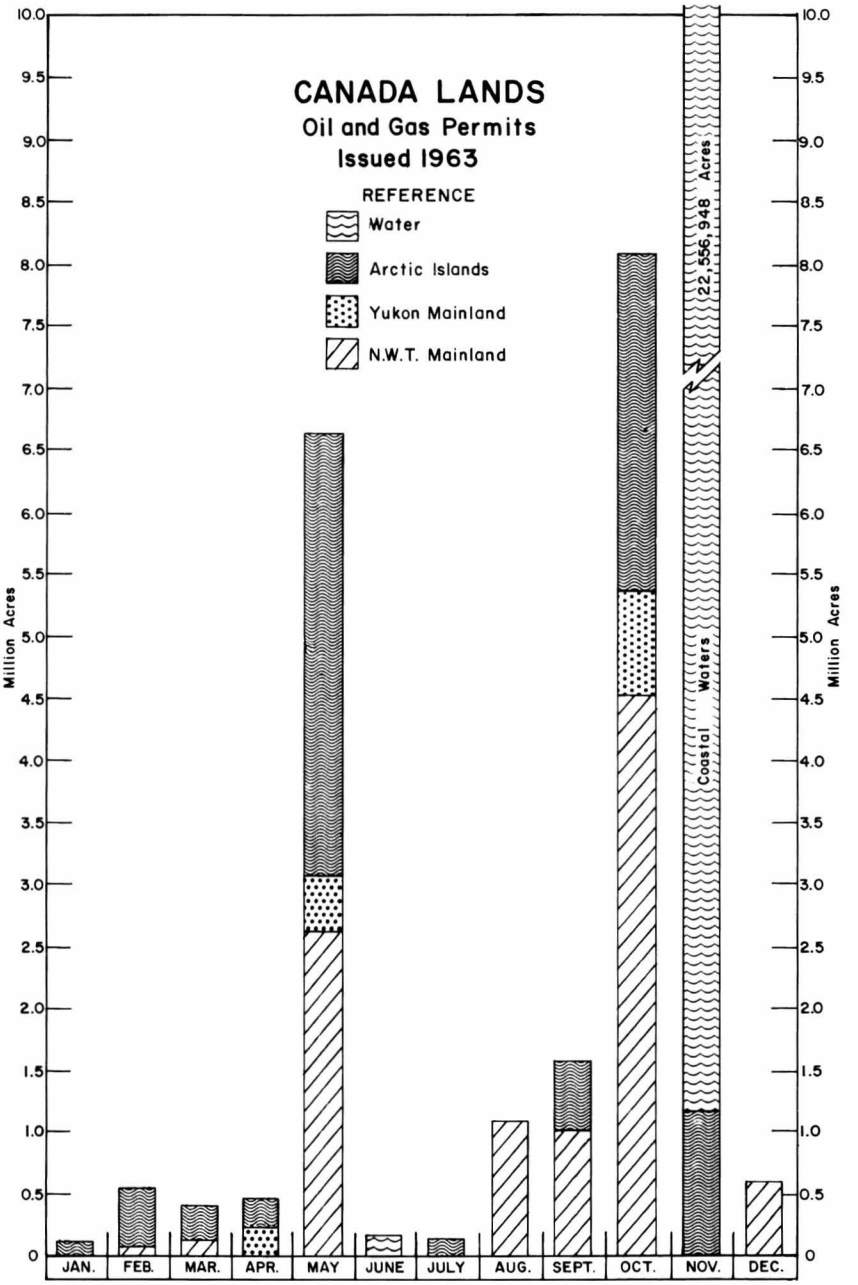


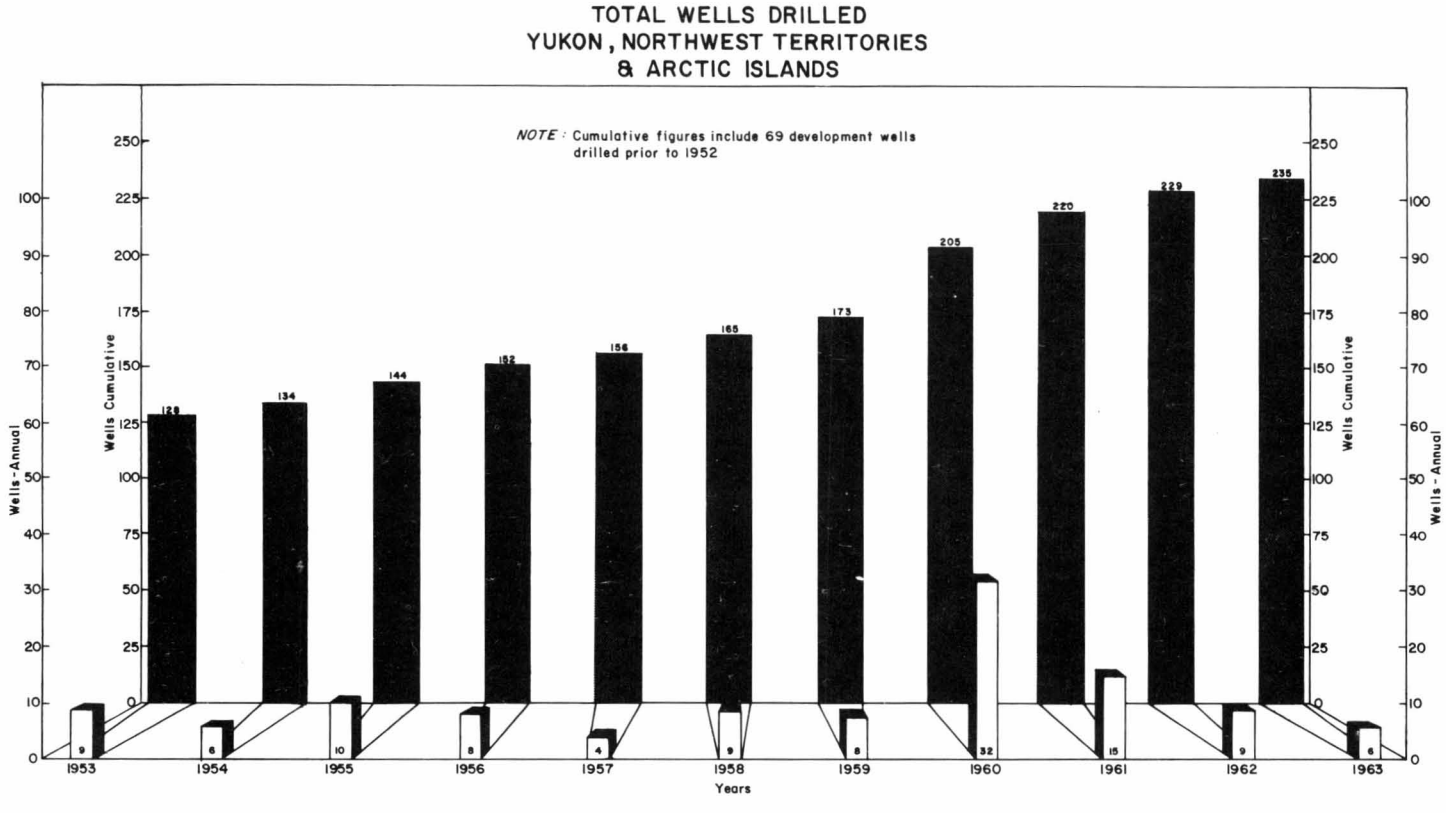

MINERAL CLAIMS RECORDED
YUKON TERRITORY
CLAIMS RECORDED
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
NORTHWEST TERRITORIES
CLAIMS RECORDED
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963


TOTAL VALUE OF MINERAL PRODUCTION
YUKON TERRITORY
NORTHWEST TERRITORIES
MILLION DOLLARS
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
R/M/16/64

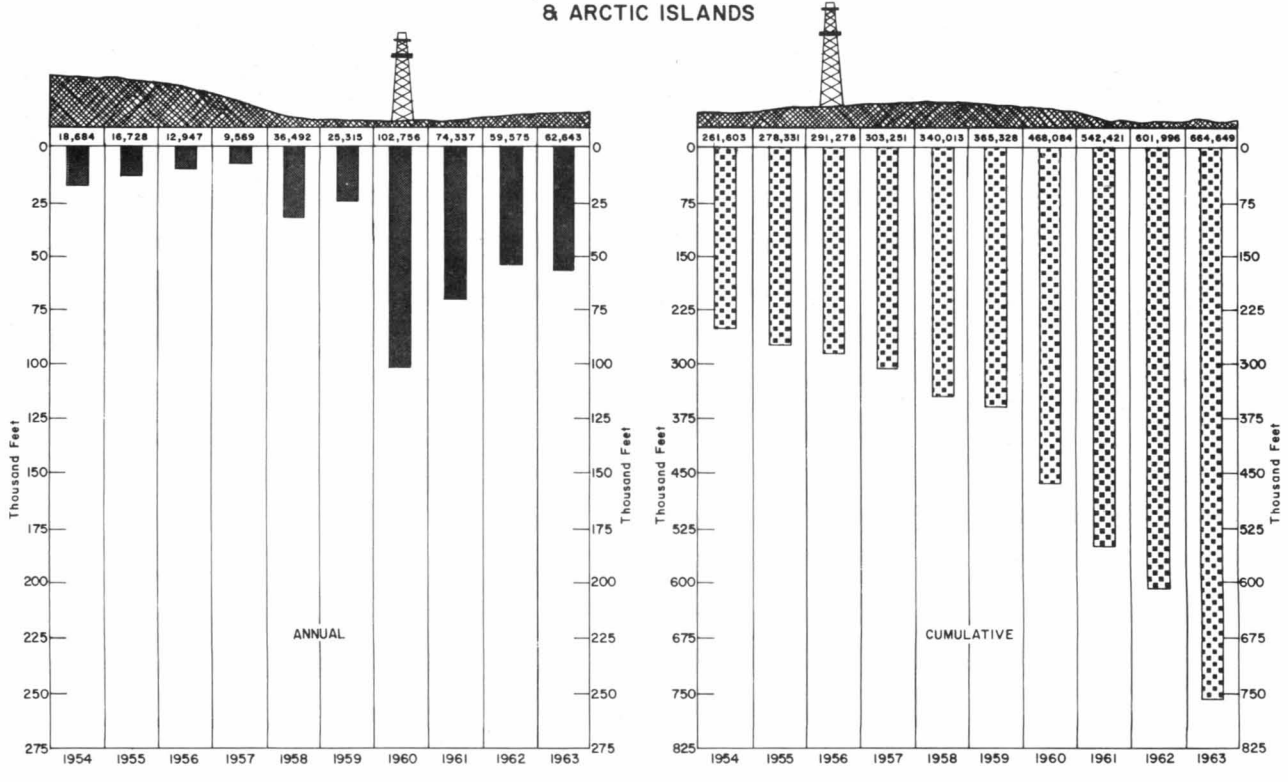

OIL AND GAS EXPLORATORY EXPENDITURES
ANNUAL
NOTE: Figures are for year expenditures were actually incurred.
Million Dollars
$1,717,317
$1,309,957
$2,048,951
$2,829,789
$3,609,573
$5,752,539
$8,219,478
$11,430,057
$12,953,384
$12,691,384* (INTERIM)
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
CUMULATIVE
Million Dollars
$6,718,401
$8,028,358
$10,077,098
$12,707,098
$16,316,671
$22,069,210
$30,288,688
$41,718,745
$54,672,129
$67,363,493 (INTERIM)
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962

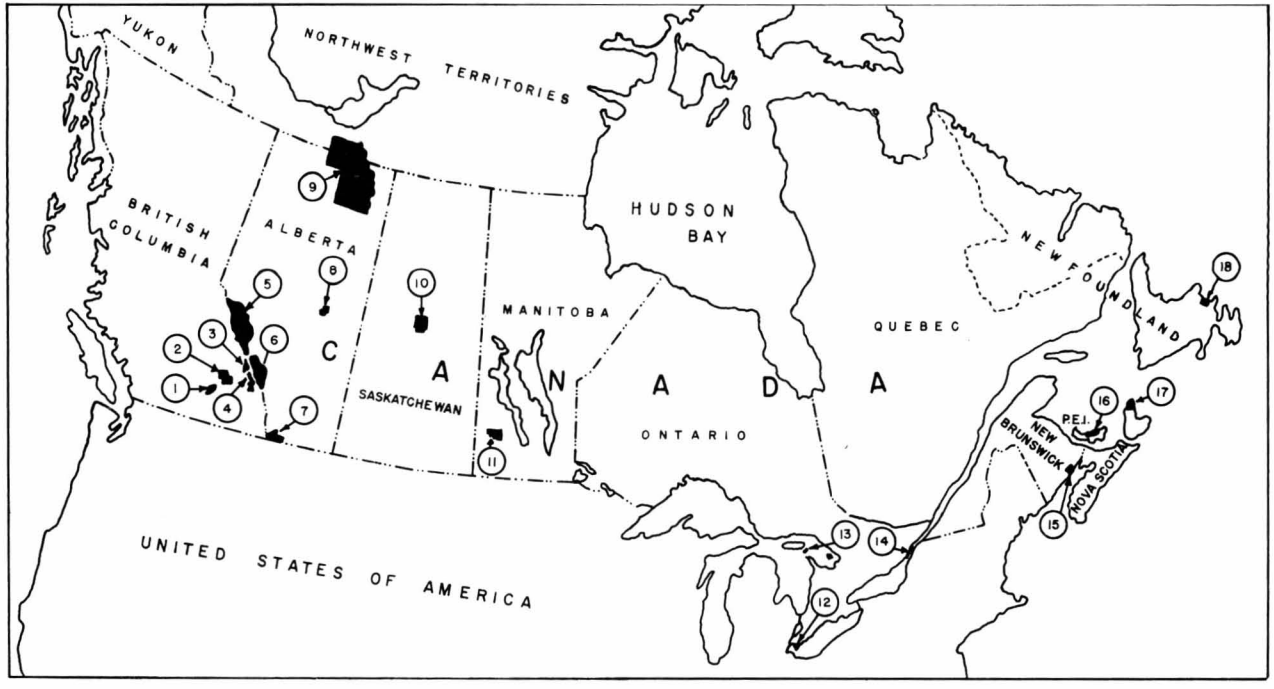

REVENUE RECEIVED
FROM
SALE OF OIL & GAS PERMITS
N.W.T. & Y.T.
Million Dollars
FISCAL YEAR
53-54
54-55
55-56
56-57
57-58
58-59
59-60
60-61
61-62
62-63
N.W.T. $ 104,588.23
Y.T. $ 6,100.00
N.W.T. $ 293,653.76
Y.T. $ 17,331.00
N.W.T. $ 568,220.46
Y.T. $ 857.00
N.W.T. $ 576,177.62
Y.T. $ 66,487.72
N.W.T. $ 634,108.22
Y.T. $ 76,951.40
N.W.T. $ 6,634,380.75
Y.T. $ 548,315.14
N.W.T. $ 2,986,104.62
Y.T. $ 39,878.18
N.W.T. $ 1,836,797.29
Y.T. $ 5,915.91
N.W.T. $ 1,106,885.42
Y.T. $ 178,714.56
N.W.T. $ 849,958.88
Y.T. $ 27,014.80


CANADA LANDS
Oil and Gas Permits
Issued 1963
REFERENCE
Water
Arctic Islands
Yukon Mainland
N.W.T. Mainland
Million Acres
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0
JAN.
FEB.
MAR.
APR.
MAY
JUNE
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
22,556,948 Acres
Coastal Waters


TOTAL WELLS DRILLED
YUKON, NORTHWEST TERRITORIES
& ARCTIC ISLANDS
NOTE: Cumulative figures include 69 development wells drilled prior to 1952
Wells - Annual
Wells Cumulative
Years
1953
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963
129
134
144
152
156
165
173
205
220
229
235
9
6
10
8
4
9
8
32
15
9
6

TOTAL FOOTAGE DRILLED
YUKON, NORTHWEST TERRITORIES
& ARCTIC ISLANDS



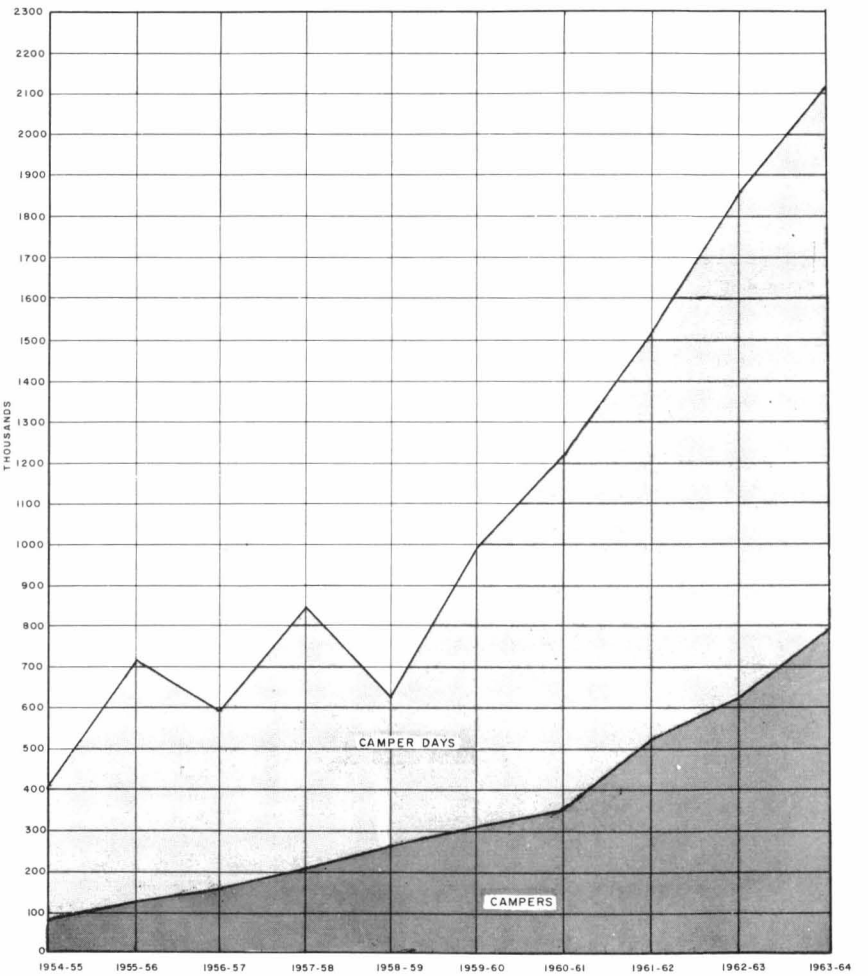


THE NATIONAL PARKS OF CANADA

1. Mount Revelstoke	(1914)	100	sq. mi.	7. Waterton Lakes	(1895)	203	sq. mi.	13. Georgian Bay Islands	(1929)	5.4	sq. mi
2. Glacier	(1886)	521	" "	8. Elk Island	(1913)	75	" "	14. St. Lawrence Islands	(1914)	260	acres (.4 sq. mi.)
3. Yoho	(1886)	507	" "	9. Wood Buffalo	(1922)	17,300	" "	15. Fundy	(1948)	79.5	sq.mi.
4. Kootenay	(1920)	543	" "	10. Prince Albert	(1927)	1,496	" "	16. Prince Edward Island	(1937)	7	" "
5. Jasper	(1907)	4,200	" "	11. Riding Mountain	(1929)	1,148	" "	17. Cape Breton Highlands	(1936)	367	" "
6. Banff	(1885)	2,564	" "	12. Point Pelee	(1918)	6	" "	18. Terra Nova	(1957)	153	" "

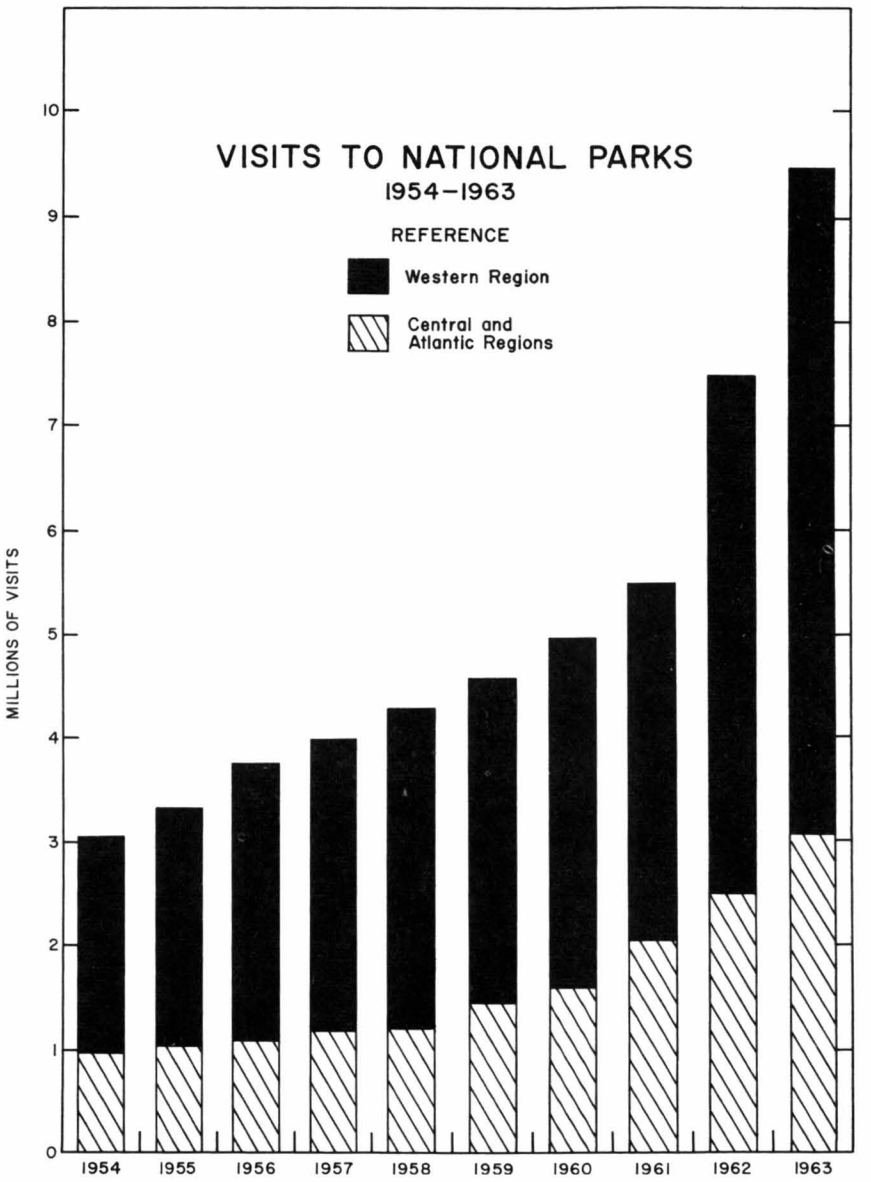
CAMPGROUND ATTENDANCE

1954-55 TO 1963-64



Campground Attendance

	Campers		Camper Days	
	1963	1962	1963	1962
Banff	279,191	202,925	456,500	391,957
Cape Breton Highlands	47,370	30,637	100,967	74,134
Elk Island	6,692	5,600	9,224	8,571
Fundy	77,097	67,814	147,074	116,620
Georgian Bay Islands	7,870	7,468	34,828	41,534
Glacier	11,420	4,459	12,954	5,636
Jasper	100,067	81,055	193,655	173,676
Kootenay	30,228	29,735	49,146	45,956
Mount Revelstoke	2,377	1,054	2,790	1,151
Point Pelee	20,630	20,071	73,725	73,758
Prince Albert	26,418	26,476	292,265	266,849
Prince Edward Island	39,069	39,021	135,713	156,006
Riding Mountain	38,350	31,892	412,424	350,182
St. Lawrence Islands	5,515	5,286	13,010	10,347
Terra Nova	8,185	6,211	25,880	14,861
Waterton	48,657	39,032	88,422	79,518
Yoho	41,639	35,103	57,415	53,387
TOTAL	790,775	633,839	2,105,992	1,864,143
	24.75% increase		12.97% increase	


VISITS TO NATIONAL PARKS
1954–1963
REFERENCE
Western Region
Central and Atlantic Regions
MILLIONS OF VISITS
0
1
2
3
4
5
6
7
8
9
10
1954
1955
1956
1957
1958
1959
1960
1961
1962
1963

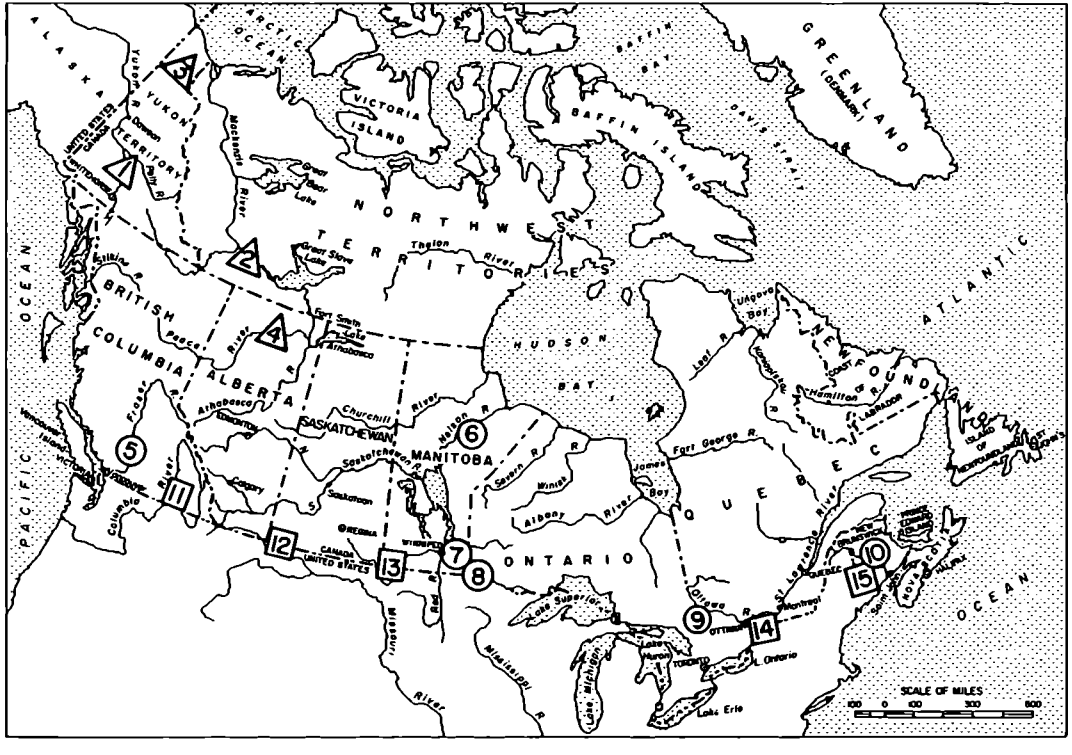
Comparative Statement of Visitors to the National Parks for the Period April 1 to March 31

National Parks	1963–64	1962–63	Increase or Decrease	%
Banff	1,650,257	1,374,576	+ 275,681	+ 20.05
Cape Breton Highlands	615,133	451,911	+ 163,222	+ 36.11
Elk Island	207,914	176,040	+ 31,874	+ 18.10
Fundy	494,157	302,340	+ 191,817	+ 63.44
Georgian Bay Islands	18,052	19,126	− 1,074	− 5.61
Glacier	752,512	345,961	+ 406,551	+117.51
Jasper	468,579	392,987	+ 75,592	+ 19.23
Kootenay	567,291	541,485	+ 25,806	+ 4.76
Mount Revelstoke	768,417	428,572	+ 339,845	+ 79.29
Point Pelee	780,795	667,554	+ 113,241	+ 16.96
Prince Albert	137,494	137,484	+ 10	N/C
Prince Edward Island	1,019,104	1,009,021	+ 10,083	+ .99
Riding Mountain	693,316	654,251	+ 39,065	+ 5.97
St. Lawrence Islands	77,368	75,239	+ 2,129	+ 2.82
Terra Nova	55,926	29,915	+ 26,011	+ 86.94
Waterton Lakes	441,803	444,752	− 2,949	− .66
Yoho	678,739	375,189	+ 303,550	+ 80.90
Total	9,426,857	7,426,403	+2,000,454	+ 26.93

Comparative Statement of Visitors to the National Historic Parks and Major Historic Sites for Period April 1 to March 31

	1963–64	1962–63	Increase or Decrease	%
*Alexander Graham Bell	91,392	79,659	+ 11,733	+ 14.72
*Batoche Rectory	7,069	15,350	− 8,281	− 53.94
Fort Amherst	3,851	1,764	+ 2,087	+118.31
Fort Anne	77,201	83,103	− 5,902	− 7.10
Fort Battleford	34,807	30,895	+ 3,912	+ 12.66
Fort Beausejour	43,346	51,454	− 8,108	− 15.75
Fort Chambly	85,569	71,053	+ 14,516	+ 20.42
Fort Langley	105,139	98,560	+ 6,579	+ 6.67
Fort Lennox	27,943	24,959	+ 2,984	+ 11.95
Fortress of Louisbourg	40,153	32,347	+ 7,806	+ 24.13
Fort Malden	41,023	42,254	− 1,231	− 2.91
Fort Rodd Hill	39,759	42,533	− 2,774	− 6.52
Fort Wellington	51,530	46,666	+ 4,864	+ 10.42
Grand Pre	63,395	47,871	+ 15,524	+ 32.42
Halifax Citadel	192,286	243,609	− 51,323	− 21.06
Lower Fort Garry	85,391	59,544*	+ 25,847	+ 43.40
Port Royal Habitation	35,947	31,579	+ 4,368	+ 13.86
Prince of Wales Fort	256	362	− 106	− 29.28
Signal Hill	195,208	239,554	− 44,346	− 18.51
*Sir Wilfrid Laurier's Birthplace	7,592	8,186	− 594	− 7.25
Woodside	12,564	10,738	+ 1,826	+ 17.00
National Historic Parks and Major Historic Sites Total	1,241,421	1,262,040	− 20,619	− 1.63
National Parks Total	9,426,857	7,426,403	+2,000,454	+ 26.93
Grand Total	10,668,278	8,688,443	+1,979,835	+ 22.70

*Major Historic Sites



CANADA

MAJOR INVESTIGATIONS AND STUDIES — 1963-1964

WATER RESOURCES BRANCH

LEGEND

RIVER SYSTEMS INVOLVED IN MAJO INVESTIGATION AND STUDY ASSIGNMENT DURING FISCAL YEAR 1963-1964

△ **FEDERAL**

1. YUKON
2. MACKENZIE
3. PORCUPINE-PEEL-RAT
4. PEACE

○ **FEDERAL-PROVINCIAL**

5. FRASER
6. NELSON
7. GREATER WINNIPEG FLOODWAY
8. LAKE OF THE WOODS-WINNIPEG
9. OTTAWA
10. SAINT JOHN

□ **INTERNATIONAL**

11. COLUMBIA
12. ST. MARY-MILK
13. SOURIS-RED-PEMBINA
14. GREAT LAKES-ST. LAWRENCE
15. ST. CROIX

Classified position strength as at April 1, 1964

Branch	*Ottawa*	*Provinces*	*Yukon*	*N.W.T.*	*Total*
Departmental Administration	214	—	—	8	222
National Parks	180	685	1	5	871
Northern Administration	349	10	45	658	1,062
Water Resources	103	167	4	7	281
TOTAL	846	862	50	678	2,436

Summary of Revenues and Expenditures 1963-64

	Revenues	*Expenditures*
ADMINISTRATION SERVICES	$	$ 1,153,329.86
Contributions to the Provinces for Campground and Picnic Area Developments		250,000.00
Roads to Resources		8,132,491.64
NORTHERN CO-ORDINATION AND RESEARCH CENTRE		237,789.30
NATIONAL PARKS BRANCH		
Branch Administration		286,823.50
National Parks and Historic Sites	2,890,892.04	21,382,271.21
Grant to Jack Miner Migratory Bird Foundation		5,000.00
Grant in aid of the development of the International Peace Garden in Manitoba		15,000.00
National Battlefields Commission		231,000.00
Canadian Wildlife Service	4,911.28	1,021,109.44
	2,895,803.32	22,941,204.15
WATER RESOURCES BRANCH		
Administration and Construction	138,362.34	2,170,920.20
Studies and Surveys of the Columbia River Watershed in Canada		37,196.95
Fraser River—federal expenditures in connection with investigations carried out by the Fraser River Board		64,981.95
Nelson River Study—Expenditures in connection with investigations to be carried out in accordance with an agreement entered into between Canada and Manitoba		450,000.00
Contributions to the Provinces towards the construction of dams and other works to assist in the conservation and control of water resources in accordance with agreements entered into between Canada and the Provinces		7,600,014.57
	138,362.34	10,323,113.67

	Revenues	*Expenditures*
NORTHERN ADMINISTRATION BRANCH		
Branch Administration	3,719.68	1,115,041.01
(Public Lands)	344,154.82	
Reduction in seed, grain and relief account		45,748.12
Education	262,200.38	7,238,271.27
Welfare and Industrial	444,113.50	4,040,703.80
Yukon Territory	881,747.21	5,237,263.28
Northwest Territories	2,000,911.73	16,583,544.31
	3,936,847.82	34,260,571.79
OTHERS		35,518.38
TOTALS FOR DEPARTMENT	6,971,013.48	77,334,018.79

DIRECTORY TO ADDITIONAL INFORMATION

General Information	Information Services Division, Department of Northern Affairs and National Resources, 85 Sparks Street, Ottawa.
Monthly oil and gas report	Resources Division, Northern Administration Branch, Department of Northern Affairs and National Resources, 150 Kent Street, Ottawa.
*north (a bi-monthly magazine)	The Editor, north, Northern Administration Branch, Department of Northern Affairs and National Resources, 150 Kent Street, Ottawa.
National Parks	National Parks Branch, Department of Northern Affairs and National Resources, 150 Wellington Street, Ottawa.
Canadian Wildlife	Canadian Wildlife Service, Department of Northern Affairs and National Resources, 150 Wellington Street, Ottawa.
Water Resources	Water Resources Branch, Department of Northern Affairs and National Resources, 150 Wellington Street, Ottawa.

*available from the Queen's Printer, Ottawa.

CANADA

DEPARTMENT OF
NORTHERN AFFAIRS AND NATIONAL RESOURCES

MAP SHOWING

CENTRES OF ACTIVITY

Scale of Miles

100 0 100 200 300

LEGEND

- Engineering Office (National Parks Branch)
- Game Reserve
- Major Historic Site
- Migratory Bird Sanctuary
- National Park
- Northern Administration Area Office
- Northern Administration Regional Office (including Engineering, Project, and Welfare Offices)
- Northern Canada Power Commission Power Station
- Pupil Residence
- Railroad
- Resources Activity Area
  - Lumbering Area
  - Mining Area
  - Oil and Gas Area
- Resources Division Field Office
- Road serving the Territories
- Road under construction
- R.C.M.P. Office (where Agent for Northern Administration Branch)
- School
- Water Resources Office
- Wildlife Office
- Wildlife Warden Post

NATIONAL PARKS

1 Terra Nova
2 Cape Breton Highlands
3 Prince Edward Island
4 Fundy
5 St Lawrence Islands
6 Point Pelee
7 Georgian Bay Islands
8 Riding Mountain
9 Prince Albert
10 Elk Island
11 Jasper
12 Banff
13 Waterton Lakes
14 Yoho
15 Kootenay
16 Glacier
17 Mount Revelstoke
18 Wood Buffalo

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