

**CANADA**



**Report of the**

**DEPARTMENT OF  
RESOURCES  
AND DEVELOPMENT**

**For the fiscal year ended  
MARCH 31, 1951**

# **Annual Report**

## **Department of Resources and Development**

**March 31, 1951**

A reorganization of branches was effected on December 1, 1950 by Order in Council (P.C. 81/99), which has linked related departmental services into more close-knit administrative units. The two branches affected by the re-alignment were the former Development Services Branch and the Special Projects Branch. These were replaced by three branches—the Northern Administration and Lands Branch, the National Parks Branch, and the Engineering and Water Resources Branch.

The Northern Administration and Lands Branch is composed of two divisions—the Northern Administration Division and the Lands Division. The former is responsible for the administration of affairs in the Yukon and Northwest Territories and the latter for the administration of all Federal lands not dealt with by any other branch of the Government.

The National Parks Branch comprises three divisions—the National Parks and Historic Sites Division, the Wildlife Division, and the National Museum. The National Parks and Historic Sites Division is responsible for the development and management of Canada's 27 national parks and national historic parks, and the marking of historic sites. The Wildlife Division conducts research into wildlife problems and advises respecting administrative problems concerning wildlife management in national parks and where the Federal Government has responsibility. The National Museum collects and displays natural history material of scientific or economic interest and publishes the results of the research it conducts in natural science.

The Engineering and Water Resources Branch comprises four divisions—the Water Resources Division, the Engineering and Architectural Division, the Projects Division, and the Trans-Canada Highway Division. The primary function of the Water Resources Division is the acquisition, analysis, and publication of stream-flow and run-off data covering the whole of Canada. The Engineering and Architectural Division functions as a general engineering and architectural unit, rendering advisory design and supervisory services, mainly on construction projects. The Projects Division is responsible for handling the details of public projects which are purely federal and originate either within the Department or are referred to the branch by other government departments and agencies; the division is also responsible for investigating and handling all joint projects (except the Trans-Canada Highway) which the Federal Government considers eligible for federal assistance and which come within the sphere of the Department. The Trans-Canada Highway Division administers the details of the Trans-Canada Highway Act and agreement and carries out the engineering work of the Federal Government relative to it.

A brief summary of the activities of the reorganized Department of Resources and Development during the period under review follows:

### **National Parks**

For the third successive year attendance at the National Parks established a new record when visitors numbered 1,945,028, an increase of 194,392 over the fiscal year 1949-50, or approximately six per cent. Substantial appropriations were provided by Parliament for new development and, as a result, highway improvement preparatory to hard-surfacing was continued on a wide scale. Additional progress was made in

extending available accommodation for visitors and augmenting existing facilities for camping and recreation. The outstanding events of the past year included the official opening of Fundy National Park in New Brunswick and the new recreation centre at Jasper National Park. During the year the title to several hundred acres of freehold land in Banff National Park was acquired by purchase.

Lower Fort Garry, on the west bank of the Red River 18 miles north of Winnipeg, became the property of the nation on January 26 to be preserved as a national historic park. Sir Patrick Ashley Cooper, Governor of the Hudson's Bay Company, announced that the Company had presented the fort as a gift to the people of Canada. In Nova Scotia, an area of 3.5 acres of land comprising the site of Champlain's Garden at Port Royal was acquired and incorporated in Port Royal National Historic Park. Restoration and improvements were carried out at many of the national historic parks and, on the recommendation of the Historic Sites and Monuments Board of Canada, a number of memorials commemorating historic events and the services of distinguished Canadians were erected.

The Wildlife Division continued scientific investigations of problems related to wildlife resources. Special studies included those of barren ground caribou, buffalo, elk, deer, bighorn sheep, wolves, beaver, muskrats, and migratory birds. Other activities included participation in federal-provincial and international wildlife conferences and co-operation with other scientific services in Canada and the United States. Fishery investigations were carried out in the waters in national parks and advice and assistance were given with respect to drafting of regulations and to fish culture and planting operations. A series of wildlife management bulletins were issued and other wildlife publications were revised and distributed.

The National Museum reported a considerable amount of material acquired as a result of donations, purchase, and collections by field officers. Field investigations were carried out during the summer months in areas extending from Newfoundland to British Columbia and in the Yukon and Northwest Territories. These investigations covered a wide variety of subjects. The annual series of National Museum lectures, arranged for adults and children, were well attended.

### **Engineering and Water Resources**

The routine hydrometric operations of the Engineering and Water Resources Branch were expanded during the year. More than 1,100 gauging stations were maintained and about 400 part-time observers were employed as gauge-readers. A total of 3,986 stream-discharge measurements and 1,908 inspections of gauging stations were made by the technical field staff.

Although extreme variations were experienced in some areas at certain seasons, the total run-off for Canada as a whole was well above normal. The average for 22 typical rivers across the country was 131 per cent of the median river flow.

The annual snow surveys, made to estimate the amount of Spring run-off which will result from the accumulated snow in certain important drainage basins, was completed. In the Bow River basin, snow coverage in 1951 was nearly twice the amount of the yearly average; in the Winnipeg River watershed, results showed 13 per cent above normal amounts of snow; in northern central Ontario there was 120 per cent of normal snow cover; and in the Rideau River system there was 87 per cent

# National Parks Branch

**James Smart, Director**

Departmental reorganization resulted in the formation of the National Parks Branch which embraces the services outlined below.

**National Parks and Historic Sites Division**—(J. R. B. COLEMAN, Chief)—is responsible for the development and management of 27 national parks and national historic parks and the marking of historic sites.

**Wildlife Division**—(DR. HARRISON F. LEWIS, Chief)—conducts research in wildlife problems and advises respecting administrative problems in wildlife management in National Parks and where the Federal Government has responsibility.

**National Museum of Canada**—(DR. F. J. ALCOCK, Chief Curator)—collects and displays natural history material of scientific or economic interest and conducts research in natural science, publishing the results.

## National Parks and Historic Sites Division

Canada's system of national parks now comprises 17 national parks and 10 national historic parks ranging in size from a few acres to hundreds of square miles. The total area included in the national parks is 29,146 square miles, and the total area of the national historic parks is now 757 acres. The parks are administered under the authority of the National Parks Act and regulations made thereunder. During the year under review the Hudson's Bay Company donated to the Crown the land and property known as Lower Fort Garry located 18 miles north of Winnipeg, Manitoba. By Order in Council of February 13, 1951, the site was established as a national historic park.

At the invitation of the Province of Newfoundland, the Director of the National Parks Branch investigated and reported on certain areas which the province had suggested might be suitable for the establishment of a National Park. Recommendations contained in the report are being studied by the Department and by the province.

Appropriations voted by Parliament permitted the continuation of highway reconstruction preparatory to hard-surfacing, and the replacement of bridges. Major projects completed included three low-rental tourist cabin developments in the Maritime Parks, a recreational centre in Jasper Park, and new bathing establishment at Radium Hot Springs in Kootenay Park. Additional administration buildings and recreational facilities were constructed in Fundy Park.

## Travel to the Parks

For the third successive year the record for attendance at the National Parks was broken. Attendance was 1,945,028 persons, an increase of 104,392, or approximately six per cent, over the previous fiscal year. Visitors to Fundy Park in New Brunswick, which was officially opened July 29, 1950, accounted for 62,844 of the total. The number of visitors to each park and comparative figures for the previous year will be found in the following table.



**Comparative Statement of Visitors to the National Parks, April 1 to March 31**

| <i>National Parks</i>          | <i>1950-51</i> | <i>1949-50</i> | <i>Increase or Decrease</i> |         |
|--------------------------------|----------------|----------------|-----------------------------|---------|
| Banff .....                    | 459,273        | 458,864        | +                           | 409     |
| Cape Breton                    |                |                |                             |         |
| Highlands ..                   | 29,060         | 31,508         | —                           | 2,448   |
| Elk Island .....               | 141,721        | 135,403        | +                           | 6,318   |
| *Fundy .....                   | 62,844         |                | +                           | 62,844  |
| Georgian Bay                   |                |                |                             |         |
| Islands .....                  | 7,821          | 6,420          | +                           | 1,401   |
| Glacier .....                  | 558            | 595            | —                           | 37      |
| Jasper .....                   | 85,658         | 84,538         | +                           | 1,120   |
| Kootenay .....                 | 87,622         | 80,112         | +                           | 7,510   |
| Mount Revelstoke               | 12,033         | 11,659         | +                           | 374     |
| Point Pelee .....              | 220,052        | 214,543        | +                           | 5,509   |
| Prince Albert ...              | 72,793         | 52,403         | +                           | 20,390  |
| Prince Edward                  |                |                |                             |         |
| Island .....                   | 87,851         | 95,623         | —                           | 7,772   |
| Riding Mountain                | 280,627        | 294,693        | —                           | 14,066  |
| St. Lawrence                   |                |                |                             |         |
| Islands .....                  | 35,623         | 34,927         | +                           | 696     |
| Waterton Lakes ..              | 172,405        | 148,926        | +                           | 23,479  |
| Yoho .....                     | 39,197         | 38,153         | +                           | 1,044   |
| Sub-total                      | 1,795,138      | 1,688,367      | +                           | 106,771 |
| <i>National Historic Parks</i> |                |                |                             |         |
| Fort Anne .....                | 17,716         | 16,283         | +                           | 1,433   |
| Fort Beausejour .              | 24,864         | 49,650         | —                           | 24,786  |
| Fort Chambly ...               | 55,491         | 43,488         | +                           | 12,003  |
| Fort Lennox .....              | 5,074          | 5,604          | —                           | 530     |
| Fortress of                    |                |                |                             |         |
| Louisbourg .                   | 14,059         | 8,236          | +                           | 5,823   |
| Fort Malden .....              | 14,716         | 11,835         | +                           | 2,881   |
| Fort Wellington .              | 6,821          | 6,650          | +                           | 171     |
| Port Royal .....               | 11,149         | 10,523         | +                           | 626     |
| Sub-total                      | 149,890        | 152,269        | —                           | 2,379   |
| Grand total                    | 1,945,028      | 1,840,636      | +                           | 104,392 |

\* Fundy National Park officially opened July 29, 1950.

**Special Events**

Events of special interest in the national parks during the year included the official opening of Fundy National Park, New Brunswick, and of the new Recreational Centre at Jasper, in Jasper National Park. The ceremonies covering the opening of Fundy Park on July 29 were attended by several hundred visitors. Those taking part included the Honourable D. L. MacLaren, Lieut.-Governor of New Brunswick; the Honourable Robert H. Winters, Minister of Resources and Development; the Honourable J. B. McNair, Premier of New Brunswick; and the Honourable Milton F. Gregg, then Minister of Veterans Affairs. The Recreational Centre at Jasper was formally opened by the Honourable Robert H. Winters, on July 8. Other events which occurred in the national parks included trail

riding, trail hiking and mountaineering expeditions, tennis and golf tournaments, regattas, Indian Days celebrations, winter carnivals, and ski meets.

The Trail Riders of the Canadian Rockies held two successive camps in the Bryant Creek area in Banff Park, and the Sky Line Trail Hikers held their annual outing in the same region. The Banff School of Fine Arts conducted its annual school at Banff during July and August, and the Alpine Club of Canada held its annual camp in the Maligne Lake region of Jasper Park.

A successful program of winter sports carried out in Banff Park included the annual Banff winter carnival, international collegiate ski meet, the Canadian Olympic ski trials in downhill and slalom events, and the annual bonspiel. Two well attended curling bonspiels were held in Jasper Park. Local and Olympic ski trials were held on the "Nels Nelson" hill in Mount Revelstoke Park.

### National Parks Information Services

An increased demand for information relating to Canada's national parks was experienced. Approximately 25,000 inquiries were received in Ottawa by mail and several thousand requests for information were dealt with by the park superintendents. A total of 1,113,322 pieces of literature describing the national parks and national historic sites were distributed representing an increase of more than 35 per cent over 1949-50. This figure included publications distributed from offices of superintendents and other park officers, as well as literature supplied to provincial tourist bureaus, transportation companies, and other travel agencies.

More than 50 separate publications, many in the form of illustrated booklets and folders in colour, were printed and made available for public distribution. Included was a souvenir booklet in full colour to mark the official opening of Fundy National Park in New Brunswick. Among other new publications produced was one containing detailed information about camp-grounds and trailer parks in the national parks, and another listing all tourist accommodation available within the parks.

Newspaper and magazine feature articles, press releases, exhibitions, film displays, radio broadcasts, public addresses, and various forms of pictorial representations were continued as a means of making better known the national parks. The still photo library was augmented by the purchase of 63 black and white negatives; 233 transparent colours; 271 coated film slides (35 mm.); and 6,722 black and white prints. The majority of these prints were used in newspapers and magazines throughout Canada and the United States and in illustrating publications issued by the National Parks Branch and the Canadian Government Travel Bureau.

National Parks media formed a section of the Canadian Government Travel Bureau exhibits at sportsmen's shows held in Boston, Chicago, New York, Washington, Minneapolis, Dallas, and Toronto. In co-operation with the Canadian Government Exhibition Commission, national parks exhibits were provided at exhibitions held in Charlottetown, Prince Edward Island; Truro, Nova Scotia; St. Stephen, New Brunswick; London and Toronto, Ontario; Brandon, Manitoba; and Vancouver, British Columbia.

Three new national parks sound films in colour were released. These included *Holiday at Waskesiu*, depicting the scenic and recreational

attractions of Prince Albert National Park; *Holiday in Manitoba*, describing Riding Mountain National Park; and *Canada's Historic Highway*, a two-reel film featuring historic parks and sites along the St. Lawrence River waterway. The distribution of National Park films throughout Canada was continued by the regional offices of the National Film Board and 12,260 showings were made to a total audience of 926,601 persons. Programs of film showings were provided in a number of the national parks for the benefit of summer visitors.

In the United States, prints of National Parks films are provided by the Canadian Government Travel Bureau for distribution by the National Film Board through two central libraries and 63 outlets. During the year 18,354 screenings to audiences totalling 1,564,786 were reported. In addition, 10 National Park film subjects were used on United States television networks and appeared on 77 programs.

Early in 1951 the responsibility for making known the attractions of national parks and historic sites was transferred to the Canadian Government Travel Bureau.

## Maintenance and Improvements

### Roads and Bridges

The improvement of main highways preparatory to hard surfacing was continued. In Jasper Park, an asphalt-bound gravel base was laid on the Jasper-Edmonton Highway from the vicinity of the Canadian National Railways underpass near Jasper to the eastern boundary of the park. Reconstruction of the remaining 3,000 feet of this road from the underpass to the townsite was completed except for gravelling. Reconstruction of sections of the Banff-Jasper Highway within Jasper Park continued, 13.76 miles being reconstructed and 23 miles gravelled. Maintenance and repairs were carried out on other roads in the park. The bridge at Mile 17 over the Miette River on the Jasper-Yellowhead Road was replaced, and the Astoria River bridge was replanked.

In Banff Park, 15 miles of the Banff-Lake Louise Highway north of Mount Eisenhower were seal-coated. The seven-mile section of the Banff-Windermere Highway within Banff Park was graded, gravelled, and treated with dust-layer oil. A new bridge was constructed over the Bow River on this highway. Reconstruction of the Banff-Windermere Highway within Kootenay Park was completed, except for certain improvements required in the vicinity of Radium Hot Springs. A bridge was constructed at the east end of Sinclair Canyon.

In Waterton Lakes Park, the Akamina, Main Entrance, and Pincher Creek Roads were further improved by the application of crushed gravel and asphalt dust-layer. Bridges over Crooked Creek and Indian Creek on the Chief Mountain Highway, and over Coppermine Creek on the Pass Creek Road, were replaced by large arch culverts. Despite a late start, good progress was made on the construction of a new steel and concrete bridge over Cameron Creek in Waterton Park Townsite.

Asphalt dust-layer was applied to the 18 miles of highway in Elk Island Park. In Riding Mountain Park, the grade of No. 10 Highway was further improved by the application of crushed gravel over its entire length of 30 miles. The main highway in Prince Albert Park was similarly improved, and asphalt dust-layer applied.

Fifteen and one-half miles of the Cabot Trail in Cape Breton Highlands Park were reconstructed, and an additional 11 miles of consolidated crushed gravel surfacing applied. Bridges were constructed over the Cheticamp and Grande Anse Rivers, and other bridges are in course of construction at Effie's Brook and Clyburn Brook. In Fundy Park, one and one-half miles of No. 14 Highway near Lake View were reconstructed, and an asphalt-bound crushed gravel base course was laid over the entire 12.2 miles of the highway within the park. Three miles of the Point Wolf Road were rebuilt and approximately one mile of this road leading to the swimming pool was given an asphalt-bound crushed gravel base course.

A small amount of reconstruction work and gravelling was carried out in Prince Edward Island Park, one bridge was reconstructed and a new bridge was placed in position at the entrance to "Green Gables", Cavendish. A re-survey of the proposed road from Covehead to Brackley was carried out and detailed plans of the bridge site and the road centre line were made.

### Trails

In Banff Park, a one-way trail was built from the Banff-Jasper Highway to Peyto Lookout and on to the new Bow Fire Lookout. On the Upper Spray River, three miles of new trail were built to replace an old route from Fortune Cabin to the new park boundary. A number of other trails were revised and improved. Several trails were cleared and a number of bridges and culverts built in Jasper Park. In Kootenay Park, the Kootenay River Valley Trail was improved and extended to the boundary. In Mount Revelstoke Park, the North Boundary Trail was extended by two miles and three miles of the Silver Creek Trail were reconstructed. A new bridge was constructed on Greely Trail. In Waterton Lakes Park, one and one-half miles of new trail were constructed between the North Fork of the Belly River and the International Boundary. Several bridges were renewed on trails in Yoho Park. The Glacier-Flat Creek fire road in Glacier Park was widened and improved and several culverts installed. A number of bridges and culverts were renewed on the Beaver Trail. In Prince Albert Park, the development of a number of riding trails out of Waskesiu was completed. In Cape Breton Highlands Park, two miles of trail were built up the Clyburn Valley, and one mile was built connecting the Franey Trail with the water line near Cann Lake. Five miles of fire trail were constructed.

### Communication Systems

In Banff Park, one mile of new forest telephone system copperweld line was built on trees and poles from the Lake Louise-Jasper line to the new Bow Fire Lookout. Twenty-five miles of the main line south of the northern boundary were rebuilt, and 25 miles of line were also rebuilt between the Ya-Ha-Tinda Ranch and Scotch Camp. On the Jasper Forest Telephone System, a total of 24 miles of copperweld line were constructed to replace line removed in 1949, and six miles of new iron wire were laid to Geraldine Lookout. On the Jasper Townsite system, approximately 18,000 linear feet of new type "HC" wire were installed to replace old type "B" wire which had deteriorated. In Prince Albert, the relocation

of long distance and Forest Service telephone lines along the Prince Albert Park Highway and through Waskesiu Townsite was completed. The receiving set for the radio control station at Waskesiu was relocated and provided greatly improved reception.

## Roads

| National Parks             | Motor | Secondary | Fire   | Trails   | Telephone Lines |
|----------------------------|-------|-----------|--------|----------|-----------------|
|                            | Miles | Miles     | Miles  | Miles    | Miles           |
| Banff.....                 | 180.9 | .....     | 107.75 | 727.75   | 307.15          |
| Cape Breton Highlands..... | 50.8  | 5.0       | 6.5    | 28.3     | .....           |
| Elk Island.....            | 17.0  | 10.0      | .....  | 5.0      | 17.0            |
| Fundy.....                 | 12.5  | 20.5      | 20.5   | 6.0      | 1.5             |
| Glacier.....               | ..... | .....     | 25.75  | 106.5    | 2.0             |
| Jasper.....                | 163.5 | 9.0       | 61.0   | 582.0    | 400.7           |
| Kootenay.....              | 61.1  | .....     | 15.5   | 150.5    | 60.0            |
| Mount Revelstoke.....      | 18.5  | .....     | .....  | 65.0     | 11.0            |
| Point Pelee.....           | 6.0   | 3.0       | .....  | .....    | .....           |
| Prince Albert.....         | 65.7  | 75.75     | .....  | 270.5    | 129.0           |
| Prince Edward Island.....  | 14.5  | 3.11      | .....  | .....    | .....           |
| Riding Mountain.....       | 53.6  | 50.9      | .....  | 119      | 227.5           |
| Waterton Lakes.....        | 47.3  | 13.5      | .....  | 151.9    | 76.0            |
| Yoho.....                  | 45.0  | .....     | 26.5   | 209.0    | 72.5            |
| Total.....                 | 736.4 | 190.76    | 263.50 | 2,421.45 | 1,304.35        |

## Buildings

In Banff Park, 115 building permits were issued authorizing new building construction by private enterprise. Major projects in Banff townsite included a church, garage-and-service-station office building, a new service station, and the removal and renovation of a large frame building for hotel purposes. The Banff Information Bureau was renovated, and a small building was moved to Lake Louise and equipped as an Information Bureau and Forest Telephone Exchange. Construction of the new warden lodge and garage at Bow Summit, commenced last year, was completed. Renovation of former prisoner of war buildings was completed at the Banff labour camp. Extensive renovations were carried out at the Upper Hot Springs and Cave and Basin bathing establishments. Gravity and disposal systems were installed at the Saskatchewan River Crossing and Mount Eisenhower warden lodges.

In Jasper Park, 62 building permits authorizing new construction and additions and alterations were issued. New construction completed outside the townsite included a warden's cabin, two warden's garages, and a 30-foot by 80-foot building erected over the sawmill. The industrial site project was completed. New work camps were built at Pocahontas and at Mile 61 on the Jasper-Banff Highway. In Kootenay Park, the new "aquacourt" at Radium Hot Springs, comprising a new bath-house and two outdoor swimming pools, was completed. Twenty-one building permits were issued to private enterprise in Waterton Lakes Park covering new construction and additions and repairs. The hatchery assistant's quarters were completed, and a new warden's cabin and stable were built at Crypt Landing. A new cabin was erected at Boundary Creek. New construction in Elk Island Park included a Police quarters building, a lumber and storage shed, and two dressing rooms for the convenience of

entertainers at bandshell concerts. In Prince Albert Park, a comfort station and a warehouse for golf course equipment were constructed. Work was commenced on a combined lumber-and-implement shed.

In St. Lawrence Islands Park, two bath-houses were constructed on Gordon Island. Other construction included a storehouse and workshop at Mallorytown Landing, a storage shed on Broder Island, and four small tool sheds on other islands.

In Fundy Park, community, central, and registration buildings, amphitheatre, carpenter shop, and camp-ground checking station were completed. A small lookout, two garages, and a "Pro's shop" were also built.

New buildings erected in Prince Edward Island Park included: a recreational building, a convenience station, 10 small convenience stations, a concession booth, two band stands, a pump-house, an open-type kitchen shelter, and two closed-type kitchen shelters.

### **Townsites**

In Banff Park, streets laid out to serve the new Squirrel Street subdivision were cleared and rough graded and water and sewer services were installed. The approach street to the Banff Springs Hotel was widened for a distance of 1,200 feet. Four thousand feet of sidewalk on Banff Avenue and Deer Street were built or rebuilt. New street lights were installed on Banff Avenue for a distance of three and one-half blocks north of the Bow River bridge. At Lake Louise, work was completed on the extension of the parking area, including replacement of the entrance bridge and provision of water and sewer connections for the new service building. This parking area now has a capacity of 250 cars. Development of the new cemetery north of Banff townsite was continued, access roads were established, paths laid, side and rear fence built, and footings poured for the ornamental fence across the front.

In Jasper Park, the water and sewer extension projects were completed, and the street extension project was 75 per cent completed. The reservoir project was practically completed, except for the venturi section. New street lights were installed in the business section of the townsite. Work continued in Kootenay Park on the new water supply system. The British Columbia Power Commission extended electric power to the area in the early summer, and underground distribution work is under way.

In Prince Albert Park, good progress was made in the development of the new residential subdivision north of Waskesiu Bungalows. A concrete sidewalk and gutter were constructed along Lakeview Drive and Balsam Street from the Administration Building to Pleasant Inn. Black-topping of the shore wharf was completed and overhead lights were installed. Construction of the breakwater was completed. In Fundy Park, a business subdivision and residential subdivision were surveyed.

### **Tourist Accommodation and Camp-grounds**

Additional accommodation was made available by private enterprise, including 36 bungalow units and 10 lodge rooms in Banff Park, five double bungalow units in Jasper Park, one motel comprising 11 suites in Prince Albert Park and two motels, one new bungalow camp of 21 units, and 11 cabins in Riding Mountain Park. Accommodation in bungalow camps in Elk Island Park was expanded by the addition of several units. A new central hotel building is under construction at Keltic Lodge in Cape Breton Highlands Park.



The low-rental tourist cabin development undertaken in the Maritime Parks was completed. A total of 78 cottages of chalet design, which are leased to concessionaires, have been constructed. Twenty-nine of these cottages are in Fundy Park, 25 in Cape Breton Highlands Park, and 24 in Prince Edward Island Park. In addition, central buildings have been erected to service these cottages in Fundy and Prince Edward Island Parks, and a similar building is in course of construction in Cape Breton Highlands Park.

New camp-grounds were developed, existing grounds were extended where possible, and facilities of all existing camp-grounds were augmented and improved. In Banff Park, the new Two-Jack Lake camp-ground was officially opened to the public on July 1st. Extensive improvements were made at the Johnston Canyon camp-ground in Banff Park, including the construction of a new service building, kitchen shelter, and incinerator. Two Canadian Youth Hostel units were completed on the Banff-Jasper Highway at Miles 77 and 98. Each of these units consists of one dining-kitchen and two bunk-houses. The parking area at Lake Louise was extended from 150- to 250-car capacity.

In Jasper Park, work continued on the extension and improvement of the Cottonwood Creek camp-ground. New kitchen, washroom, and laundry buildings were completed in the existing section. The enlarged camping area will comprise 232 numbered lots for tents and 55 lots with electrical plug-in facilities for trailers. In addition, a total of 11 kitchens and six washrooms will be available. Development of the new Pocahontas camp-ground neared completion with the construction of a kitchen and washroom. Improvements were effected at the Miette Hot Springs camp-grounds and the Icefields picnic grounds.

In Prince Albert Park, the area comprising 80 new lots surveyed in 1949 as an addition to the Waskesiu camp-grounds was cleared, levelled, and surfaced with clay, and roads were built. Two camp-kitchens and a toilet building were constructed, and a toilet building was constructed on the trailer park section. In Riding Mountain Park, an additional 26 lots on the camp-grounds were furnished with electrical plug-in facilities for trailers, bringing to 52 the number of lots so equipped.

At Balsam Lake camp-grounds in Mount Revelstoke Park, a field kitchen was built. Two service buildings were constructed at Summit camp-grounds. In Yoho Park, a service building was erected at Kicking Horse camp-grounds, and two kitchen shelters were built at Chancellor Peak camp-grounds. In Elk Island Park, two additional kitchens were constructed and water lines connected, and three service buildings completed. In Fundy Park, a combined camp-ground and picnic ground was constructed near the Administration Building. Picnic grounds were partially completed at Bennett Lake and Lake View.

## **Recreation**

Recreational facilities were extended and improved. In Jasper Park, the new recreational area, which includes a heated outdoor swimming pool with dressing rooms and showers, children's wading pool, and six new tennis courts, was completed and officially opened on July 8, 1950. The new "aquacourt" at Radium Hot Springs in Kootenay Park, comprising a new bath-house and two outdoor swimming pools, was completed. In Waterton Lakes Park, an outdoor theatre for screening motion pictures was almost completed. In Elk Island Park, a bowling green and tennis



courts were practically completed and improvements were made to the bandshell and baseball diamond. Further improvements were made to the ski hill in Mount Revelstoke Park. In Prince Albert Park, a practice golfing fairway was completed, and a practice putting green was seeded. Additional playground facilities were provided in Point Pelee Park. In Prince Edward Island Park, a recreational building was erected and two tennis courts were completed. In Fundy Park, a nine-hole golf course, swimming pool and bath-house, recreational club house, bowling green, and three double tennis courts were constructed.

## Conservation Services

### Forest Protection

A total of 35 fires occurred in the National Parks during the 1950 fire season and an area of 13½ acres was burned over. Damage to timber and other property was negligible, establishing a record for the National Parks and reflecting very favourably on the efficiency of the fire-protection organization. It is interesting to note that 73 per cent of the total area burned was confined to Prince Albert and Glacier Parks.

An analysis of the causes of fires showed that careless smokers were responsible for 31.4 per cent; lightning for 28.6 per cent; camp-fires and miscellaneous, each 14.3 per cent; and railways and incendiary, each 5.7 per cent.

#### Fire Losses in the National Parks, 1949 and 1950

| Park                       | Number of Fires |      | Area Burned Acres |      | Cost of Suppression |          |
|----------------------------|-----------------|------|-------------------|------|---------------------|----------|
|                            | 1949            | 1950 | 1949              | 1950 | 1949                | 1950     |
|                            |                 |      |                   |      | \$ cts.             | \$ cts.  |
| Banff.....                 | 17              | 11   | 12½               | ¾    | 332 35              | 1,042 32 |
| Jasper.....                | 10              | 3    | ¾                 | ¾    | 107 79              | 11 96    |
| Glacier.....               | 0               | 3    | 0                 | 4    | 0 00                | 480 61   |
| Kootenay.....              | 5               | 1    | 2                 | Spot | 781 55              | 1 75     |
| Yoho.....                  | 1               | 6    | Spot              | ¾    | 13 75               | 80 70    |
| Mount Revelstoke.....      | 1               | 1    | Spot              | ¼    | 12 15               | 135 47   |
| Waterton Lakes.....        | 2               | 2    | ¾                 | 1    | 76 25               | 20 00    |
| Elk Island.....            | 1               | 0    | 3                 | 0    | 6 00                | 0 00     |
| Prince Albert.....         | 6               | 2    | 10,495            | 6    | 9,679 24            | 243 98   |
| Riding Mountain.....       | 13              | 0    | 3,954½            | 0    | 1,040 10            | 0 00     |
| Georgian Bay.....          | 0               | 2    | 0                 | Spot | 0 00                | 1 55     |
| St. Lawrence Islands.....  | 2               | 1    | 1½                | Spot | 79 25               | 1 60     |
| Point Pelee.....           | 1               | 0    | Spot              | 0    | 0 00                | 0 00     |
| Fundy.....                 | 1               | 1    | 4                 | ¼    | 69 00               | 12 00    |
| Prince Edward Island.....  | 0               | 0    | 0                 | 0    | 0 00                | 0 00     |
| Cape Breton Highlands..... | 1               | 2    | ½                 | ¼    | 0 00                | 43 10    |
| Total.....                 | 61              | 35   | 14,474            | 13½  | 12,197 43           | 2,075 04 |

### Improvements in Fire Fighting Equipment

New fire fighting equipment purchased included 32 portable gasoline pumps, 21,000 feet of 1½-inch unlined linen fire hose, 300 feet of 2½-inch double jacket rubber lined hose, 24 dozen fire tools, eight dozen axes, 54 five-gallon metal fire packs with hand spray pumps, 10 adjustable 1½-inch nozzles, nine collapsible canvas relay tanks, five siamese couplings with valves, and two trailers equipped with 200-gallon water tanks. In addition many smaller items and repair parts were purchased as required.

New development in fire lookouts included the erection of four steel towers and one cabin. One 50-foot steel tower was erected on Geraldine Mountain in Jasper Park; one lookout cabin in the vicinity of Bow Summit in Banff Park; one 80-foot steel tower on Hastings Hill in Fundy Park; and two 40-foot steel towers, one on Franey Mountain and one on French Mountain in Cape Breton Highlands Park. In Kootenay Park, preliminary work has been carried out for the establishment of a lookout cabin on Vermilion Peak and a 30-foot wooden tower on Wardle Mountain.

### **Fire Weather Conditions**

In the mountain parks in British Columbia and Alberta, weather conditions were generally favourable, although short periods of extreme fire danger occurred from May to September. In the prairie parks, the usual high spring fire-hazard was present in May and June, and again in September periods of extreme danger occurred. In Ontario, cool weather which prevailed throughout most of the summer prevented any serious danger from developing. In the parks located in the Maritime Provinces, conditions were normal with the exception of Cape Breton Highlands Park where abnormally dry weather prevailed from the end of May until September, resulting in extreme danger conditions throughout the summer.

Fire danger stations in Banff, Jasper, and Yoho Parks were open from the beginning of May until the end of September. Stations were operated in Waterton Lakes Park from the first of June until the middle of October; in Prince Albert Park from May to the middle of October; and in Riding Mountain and Cape Breton Parks from the middle of May until the end of October. No new stations were established during the past year.

### **Insect Control**

A party of entomologists from the Division of Entomology, Department of Agriculture, was again stationed at Mount Eisenhower to investigate the infestations of the lodgepole pine needle miner and spruce budworm which were prevalent in the western mountain parks for the last few years. Fortunately the exceptionally low temperatures during the winter of 1949-50 caused heavy mortality and has greatly curtailed the destructive operations of both of these insects, although danger still exists in certain sections, particularly in Yoho Park. Plots have been laid out in young lodgepole pine stands near Mount Eisenhower on which various degrees of thinning will be carried out to see what effect this may have on the needle miner population in relation to increased growth and tree vigour. In Yoho Park, bark beetles are still present in the Ice River Valley area but appear to be on the decrease. The infested area on the Amiskwi River has shown considerable improvement. In Prince Albert Park, an investigation has now been carried out on an infestation of larch sawfly which some years ago practically killed all the existing larch in the Prairie Provinces. In Fundy Park, spraying operations were carried out in the vicinity of Park Headquarters to control a small infestation of mountain ash sawfly.

### **Disposal of Timber**

Cutting of green timber in the national parks is strictly limited to beneficial thinning. The only cutting operations of any extent were carried on in Riding Mountain Park where limited cutting is allowed under the control of a forest working plan for the purpose of supplying local settlers

in the surrounding agricultural areas with small quantities of lumber and fuelwood for their own use. During the winter period 666 timber permits were issued for 1,733,700 feet board measure of saw-timber, 2,798 cords of fuelwood, 10,607 posts and 15,537 trees. The total number of permits was considerably less than last year when a total of 1,300 were issued during the same period.

Timber operations on a more limited scale were also carried out in Prince Albert Park where 49 timber permits were issued for 171,000 feet board measure of dry saw-timber, 540 linear feet of fire-killed poles, 255 fence posts, and 1,150 cords of fuelwood.

Sanitation cuttings in Banff Park were carried out near Lake Louise where 130 cords of lodgepole pine were produced. In addition 115,000 feet board measure of lumber were sawn from logs cut from clearing operations on the Banff-Windermere Highway.

In Jasper Park, 15,000 feet board measure of coniferous saw-timber was cut for the use of the Park Administration, and in Yoho Park, approximately 800,000 feet board measure of coniferous saw-timber was cut from the approach road which is being opened up to allow access to Timber Berth No. 406.

As in previous years, with a few exceptions, the regulations governing the cutting of timber in national parks were well observed.

### National Historic Parks and Sites

The National Parks and Historic Sites Division is entrusted with the restoration, preservation, and administration of national historic parks and sites, and the commemoration of the public services of outstanding persons in Canadian history. In this phase of its work the Division is advised by the Historic Sites and Monuments Board of Canada, an honorary body of recognized historians, representing the various provinces of Canada.

The personnel of the Board is: Chairman, Professor Fred Landon, London, Ontario; Professor D. C. Harvey, Halifax, Nova Scotia; the Honourable E. Fabre-Surveyer, Montreal, Quebec; J. A. Gregory, North Battleford, Saskatchewan; the Reverend Antoine d'Eschambault, Genthon, Manitoba; Professor M. H. Long, Edmonton, Alberta; Professor Walter N. Sage, Vancouver, British Columbia; the Honourable Thane A. Campbell, Charlottetown, Prince Edward Island; Dr. Wm. Kaye Lamb, Dominion Archivist, Ottawa, Ontario; C. E. A. Jeffery, St. John's, Newfoundland; W. D. Cromarty, Ottawa, Ontario; and C. G. Childe, National Parks and Historic Sites Division, Ottawa, Ontario.

Lower Fort Garry, situated on the west bank of the Red River, 18 miles north of Winnipeg, Manitoba, was established as a national historic park on February 13, 1951. The property, comprising 12.75 acres of land, was donated to the Crown by the Hudson's Bay Company.

The annual meeting of the Board was held in Ottawa, May 31, and June 1 and 2, when a wide variety of matters relating to the historic background of Canada was reviewed. Of the many sites that have been considered by the Board to date, 407 have been marked or acquired and 192 others recommended for attention at a later date.

**National Historic Parks*****Fort Anne National Historic Park, Nova Scotia***

The sallyport and magazines were repointed and the wooden limbers of the guns on the King's or East Bastion were replaced by concrete ones. The exterior of the museum building and some of the interior woodwork were painted as well as the chain fences, cannon, wooden signs, and benches. Repairs were made to the entrance road, all tablets in the park were cleaned, and the hedges trimmed. The toilets were painted and tile flooring laid in part of the custodian's residence.

A total of 17,716 persons signed the museum register.

***Port Royal National Historic Park, Nova Scotia***

Preserving oil was applied to the shingle roofs and to some of the buildings, the parchment windows were repaired and grading and seeding carried out around the palisades. A new fence was erected around a portion of the park property, a cannon mounted on a suitable platform and painted, and all ironwork in the buildings cleaned and oiled. Additional furnishings were acquired for some of the rooms and further items of fire fighting equipment supplied for the protection of the property.

Visitors registered at the park numbered 11,149.

***Fortress of Louisbourg National Historic Park, Cape Breton Island, Nova Scotia***

Restoration work was carried out in the Governor's Gardens and on the site of the De Mezy house; the bridge over the moat at the Maurepas Gate was repaired and waterproofing carried out on the museum building to prevent seepage during heavy storms. The exterior woodwork of the museum and custodian's quarters was painted as well as the field signs, cannon, anchor, fences, pump-house, and railings of the wooden bridge in front of the remains of the Citadel. Repairs were made to the entrance road and the grass was trimmed along the paths and around the parking area.

A total of 14,059 persons signed the visitors' book.

***Fort Beausejour National Historic Park, New Brunswick***

Brushing and levelling was carried out on the area comprising the advance line of defence and directional signs were erected in and around the park property. The septic tank was repaired, additional articles of interest were obtained for the museum and the lawns trimmed. A new fence was erected to enclose the Butte a Roger area which is situated near the park.

Visitors registered numbered 24,864.

***Fort Chambly National Historic Park, Quebec***

Repairs were made to the walls of the fort and to the protection wall at the cemetery: the roofs of the museum and custodian's quarters were re-shingled and stained and the basement wall of the museum was sealed to prevent water seepage in the spring. A new steel picket fence was erected to enclose the picnic grounds and the interior of the museum, the main entrance doors, pavilion, picnic tables, toilets, and the fence adjacent to the fort were painted. The grounds were levelled and seeded, the paths raked and trimmed, and flowers planted.

During the year 55,491 persons signed the museum register.

**Fort Lennox National Historic Park, Quebec**

A permanent wharf was constructed on the west side of the island and the bridges over the moats at the north and south entrances to the fort were repaired and painted. Repairs were also made to the floor of the Guard House and to the windows in the Men's Barracks, Canteen building, and Guard House. The interior of the museum was painted together with the roof of the Men's Barracks, picnic tables, and toilets; the parade ground was levelled, the trees and grass along the embankment were trimmed, and the bronze tablets were cleaned.

Visitors registered at the park numbered 5,074.

**Fort Wellington National Historic Park, Ontario**

Considerable grading and levelling was carried out along the front of the park property, repairs were made to the inner and outer palisades and to the roof of the entrance to the caponier. The fort buildings were painted, brush in the moat was cut and removed, and the grass on the lawn and inner mounds was trimmed.

A total of 6,821 persons signed the museum register.

**Fort Malden National Historic Park, Ontario**

Considerable repairs were made to the retaining wall along the front of the fort property facing the Detroit River, a layer of crushed stone was spread on the driveway at the park, and levelling and sodding was carried out around the northwest bastion. The exterior woodwork of the stone museum was painted, some of the rooms in the "Old Fort" building were redecorated, and repairs were made to the flagpole near the old Mess Hall. The lawns were cut and sprayed, the trees and shrubs were trimmed, and additional items of interest were obtained for the museum.

During the year 14,716 persons signed the museum register.

**Fort Prince of Wales National Historic Park, Manitoba**

General supervision was carried out.

**National Historic Sites****Sir Robert Falconer, K.C.M.G., Charlottetown, P.E.I.**

A tablet was placed in Prince of Wales College to Sir Robert Falconer, educator, writer, and lecturer. He was Principal of Pine Hill College, Halifax, 1904-07; President of the University of Toronto, 1907-32, and author of many books and articles on educational and public questions. The tablet was unveiled on July 25, 1950.

**George Frederick Cameron, New Glasgow, N.S.**

A tablet was placed on the Post Office building to George Frederick Cameron, poet and journalist. He was the author of *Lyrics of Freedom, Love and Death*.

**William Wolseley and Philipps Cosby, Annapolis Royal, N.S.**

Tablets were placed on the museum building at Fort Anne National Historic Park to William Wolseley and Philipps Cosby who were born at Annapolis Royal and each rose to the rank of admiral in the Royal Navy. The tablets were unveiled on August 11, 1950, under the auspices of the Historical Association of Annapolis Royal.

***Ancient Indian Portage, Frosty Hollow, N.B.***

A cut-stone monument with tablet was erected adjacent to Highway No. 2 to mark the Ancient Indian Portage. This route connected Beau-bassin by way of Westcock and the valley now known as Frosty Hollow with the Memramcook and Petitcodiac Rivers and was an important link in the communication system between Acadia and Quebec.

***Sir Charles Carter Drury, K.C.B., G.C.V.O., Saint John, N.B.***

A tablet was placed in the Military Gallery of the New Brunswick Museum to Sir Charles Carter Drury, who was born at Rothesay, N.B. and rose to the rank of admiral in the Royal Navy.

***The Quebec Conferences, Quebec, P.Q.***

Two tablets were affixed to the stone piers flanking the stairway leading up to the inner Citadel to commemorate the conferences that were held there during World War II. On the invitation of the Prime Minister of Canada, W. L. Mackenzie King, the President of the United States, Franklin D. Roosevelt, and the Prime Minister of the United Kingdom, Winston S. Churchill, met there on two occasions (August 10 to 24, 1943; September 11 to 16, 1944) to discuss the strategy of allied victory. The tablets were unveiled by the Governor-General, Viscount Alexander, in the presence of a distinguished gathering on October 2, 1950.

***Craig's Road, Richmond, P.Q.***

A cut-stone monument with tablet was erected in a small park adjacent to Craig Street to commemorate the events connected with the construction of Craig's Road. This road, completed in 1810 from St. Giles to the township of Shipton, was for many years the principal line of communication between Levis and the Eastern Townships for the transportation of cattle and agricultural produce. The monument was unveiled on November 26, 1950.

***Frank Dawson Adams, Montreal, P.Q.***

A tablet was placed on the Redpath Museum building, on the grounds of McGill University to Frank Dawson Adams, eminent geologist of that University. He was President of the Royal Society of Canada, 1913-14, and of the Geological Society of America, 1916. He was awarded the Flavelle Medal, 1937.

***Michel Bibaud, Montreal, P.Q.***

A tablet affixed to an iron standard was erected on property facing Côte des Neiges Road to Michel Bibaud, journalist, historian, and poet. He was the first French-Canadian to publish a collection of poetry, 1830, and the history of Canada, 1837.

***Sir Mackenzie Bowell, K.C.M.G., Belleville, Ontario***

A cut-stone monument with tablet was erected in front of the Armoury to commemorate the public services of Sir Mackenzie Bowell, who for many years was editor and proprietor of the Belleville Intelligencer. First elected to the House of Commons in 1867, he subsequently held the portfolios of Customs (1878-92), Militia (1892), and Trade and Commerce (1892-94). He was Prime Minister of Canada from December 21, 1894, to



April 27, 1896. Appointed to the Senate in 1893, he was leader of the Opposition in that House, 1896-1906. The monument was unveiled by The Right Honourable L. S. St. Laurent, Prime Minister of Canada, on October 28, 1950.

***James Henry Coyne and George MacKinnon Wrong, St. Thomas, Ontario***

Tablets were placed in the main corridor of the Court House building to James Henry Coyne, historian and scholar, President of the Royal Society of Canada, 1926-27 and a Member of the Historic Sites and Monuments Board of Canada, 1919-31; and to George MacKinnon Wrong, Professor of History of the University of Toronto, 1892-1927. By his teachings and writings he greatly advanced the study of Canada's history in its schools and colleges. The tablets were unveiled on May 4, 1950.

***Sir William James Gage, Brampton, Ontario***

A tablet affixed to an iron standard was erected in Gage Park to Sir William James Gage, publisher and philanthropist. With broad vision and high idealism he gave leadership in Canada to the crusade against tuberculosis.

***William Kirby, Niagara-on-the-Lake, Ontario***

A tablet was placed on the Town Hall building to William Kirby, journalist, poet, novelist, and historian. He was the author of "The Golden Dog" (Le Chien d'Or) and other works. The tablet was unveiled under the auspices of the Niagara Historical Society on October 3, 1950.

***Sir John Carling, K.C.M.G., London, Ontario***

A tablet was placed in the Municipal Offices to Sir John Carling, industrialist and promoter of scientific agriculture. While Minister of Agriculture for Canada (1885-1892) he established the first Dominion Experimental Farm.

***First Eastward Crossing of the Northwest Passage, Regina, Sask.***

A cut-stone monument with tablet was erected on the grounds of the Royal Canadian Mounted Police Training Centre to commemorate the first eastward crossing of the Northwest Passage by the R.C.M.P. auxiliary schooner *St. Roch*. The *St. Roch*, under the command of Sergeant Henry A. Larsen, sailed from Vancouver, B.C. on June 23, 1940, and anchored in Sydney Harbour, Cape Breton Island, on October 8, 1942. The voyage, unique in the annals of Arctic exploration, was made in the regular course of duty. The monument was unveiled by the Honourable John M. Uhrich, Lieutenant Governor of Saskatchewan, on September 16, 1950.

***Duck Lake Battlefield, near Duck Lake, Saskatchewan***

A cut-stone monument with two tablets was erected in the Indian Reserve to commemorate the engagement which took place there on March 26, 1885, between the Canadian Government forces under Major L. N. F. Crozier, and the Metis and Indians under Gabriel Dumont.



***Stephan G. Stephansson, Markerville, Alberta***

A cut-stone monument with tablet was erected in the Community Grounds to Stephan G. Stephansson, Icelandic Canadian poet. Born in Skagafjord, Iceland, on October 3, 1853, he settled in the Markerville district in 1889 where he lived until his death on August 10, 1927. Ranked among the great poets of modern Scandinavian literature, he endured the hardships of the pioneer and in much of his work depicted the life and scenery of Western Canada which shared his affection with the land of his birth. The monument was unveiled on Labour Day, September 4, 1950, under the auspices of the local Park Advisory Committee.

***The Lumber Industry in British Columbia, Port Alberni, B.C.***

A cut-stone monument with tablet was erected at the intersection of 3rd Avenue North and Redford Street to commemorate the lumber industry in British Columbia. The opening of the Panama Canal greatly stimulated the export lumber trade. The monument was unveiled on July 22, 1950.

***British Columbia Becomes a Province of Canada, Victoria B.C.***

A tablet was placed at the entrance to the Legislative Chamber of the Parliament Buildings to commemorate the historic events connected with British Columbia becoming a province of Canada. During the middle years of the nineteenth century the colonies of Vancouver Island and British Columbia were founded and the Stikine Territory was organized. These colonies were united in 1866 as British Columbia, which became the sixth province of the Dominion on July 20, 1871. The tablet was unveiled on March 9, 1951, under the auspices of the British Columbia Historical Association.

## **Wildlife Division**

The Wildlife Division deals with most wildlife matters coming within the jurisdiction of the Federal Government of Canada. Its functions include the administration of the Migratory Birds Convention Act (in conjunction with the Royal Canadian Mounted Police and in co-operation with provincial game authorities); carrying on scientific research into wildlife problems in the Northwest Territories, Yukon Territory, and the National Parks of Canada; advising Northern Administration and the National Parks and Historic Sites Division on wildlife management and co-operating in the application of such advice; and co-ordination and advice in connection with the administration of the Game Export Act by the provinces. The Wildlife Division also deals with national and international problems relating to Canada's wildlife resources and co-operates with other agencies having similar interests and problems in Canada and elsewhere.

Under the provisions of P.C. 84/5955, dated December 9, 1950, responsibility for the conservation and management of wildlife resources in the Northwest Territories, including administration of the Game and Fur Export Ordinances, was transferred to Northern Administration and Lands Branch. Four members of the clerical staff of the Wildlife Division at Ottawa were concurrently transferred to the Northern Administration Division.

During the period under review, Dr. Harrison F. Lewis, the Chief of the Division, investigated conditions relating to Canada geese in the vicinity of Cobden, Ontario and inspected Port Joli Bird Sanctuary in Nova Scotia. The following public gatherings outside Ottawa were addressed: a meeting of the Smiths Falls Hunt Club, Smiths Falls, Ontario, in April; annual meeting of the Province of Quebec Association for the Protection of Fish and Game, Inc., at Montreal, in June; a meeting of the Migratory Waterfowl Committee of the Quebec Federation of Fish and Game Associations, at Montreal, in August; annual meeting of the International Association of Game, Fish, and Conservation Commissioners, at Memphis, Tennessee, in September; annual meeting of the Quebec Federation of Fish and Game Associations, at Quebec City, in November; 16th North American Wildlife Conference, at Milwaukee, Wisconsin, in March; annual convention of the Northern Ontario Outfitters' Association, at Toronto, in March 1951.

The Chief of the Division presided over the following meetings: as chairman, over the Fourteenth Conference of Provincial and Dominion Wildlife Officials, at Ottawa, June 16 and 17; as President, over the annual meeting of the International Association of Game, Fish and Conservation Commissioners, at Memphis, Tennessee, September 13-15; and as chairman, over the annual meeting of the Associate Committee on Wildlife Research of the National Research Council, at Ottawa, on March 1.

During the period under review, Dr. Victor E. F. Solman, Chief Biologist, supervised the annual counts of woodcock and Wilson's snipe in the Ottawa area, conducted waterfowl studies in the Shirley Bay section of the Ottawa River, and visited the goose concentration area at Muskrat Lake in April, May, and October. During July and August, he participated with officers of the Fisheries Department in a joint study of the control of mergansers on salmon waters of the Miramichi River in New Brunswick. He discussed arrangements for joint waterfowl studies in Canada with officials of the United States Fish and Wildlife Service. The following meetings outside Ottawa were addressed: the Smiths Falls Rotary Club in May; the annual meeting of the Northeastern Bird Banding Association at Boston in January; and the 16th North American Wildlife Conference in March. A paper was prepared for the Annual Meeting of the Ecologists' Union held in September and a radio address was delivered in the April series of the Canadian Broadcasting Corporation's program "The Voice of Canada", on the conservation of animals in the national parks.

The Division included, during 1950-51, seven Dominion Wildlife Officers with districts as follows: Newfoundland, the Maritime Provinces, Quebec, Ontario, Manitoba and Saskatchewan, Alberta and the Territories, and British Columbia.

The organization of the Division provides for the employment of scientific research workers in the field as follows: a mammalogist at Banff, Alberta, and one each at Fort Smith, Yellowknife, Aklavik, Simpson, and Frobisher Bay in the Northwest Territories. There are also four Wildlife Management Officers, with headquarters in Vancouver, Saskatoon, Ottawa, and Sackville, who carry on research into migratory bird problems.

Four volumes of a new series of publications known as Wildlife Management Bulletins, written by officers of the Wildlife Division, were issued. A number of articles on wildlife subjects were contributed by scientists of the Division to various publications. The names and authors of these items are listed below under the heading "Publications".

The standard educational pamphlet on bird-house construction was revised and largely re-written, and a new edition was issued in more attractive form. A new edition of the pamphlet *Attracting Birds with Food and Water* was published. A new leaflet, *Sparrow and Starling Control*, was mimeographed for distribution.

### Field Investigations

A. W. F. Banfield, Chief Mammalogist, completed his report on the status of the barren ground caribou. In late summer his headquarters were transferred to Banff, Alberta. During the remainder of the year he was engaged in studying food habits, diseases, range, predation, and other matters relating to wild mammals in the national parks. Field studies were made in Banff, Jasper, Prince Albert, Cape Breton Highlands, and Fundy Parks. He also delivered a series of lectures on wildlife management at the University of Alberta Short Course in Forest Conservation and Wildlife Management at Banff.

J. P. Kelsall, mammalogist, Yellowknife, N.W.T., continued the investigation of barren ground caribou begun in 1948. In April and early May, he made extensive flights from Yellowknife in a survey of caribou populations in the Great Bear Lake and Coppermine regions, Mackenzie District. From May to September, with E. H. McEwen, student assistant, his field station was a camp at Bathurst Inlet. More than 100,000 caribou were observed and much useful information concerning them and other fauna of that region was collected. From December to February he made five field trips, largely for the purpose of locating and surveying various herds of caribou, and studied winter range conditions on the ground. In March Mr. Kelsall and J. S. Tener, mammalogist for Keewatin and Franklin Districts, carried out an extensive joint survey of musk-oxen and caribou.

W. A. Fuller, mammalogist, investigated beaver colonies in the Buffalo Lake area, Wood Buffalo National Park, in July. From August to November, he carried on intensive studies of sex and age ratios and proportion of calves in the buffalo herds of the park. In November and January, when the annual slaughter of buffalo for Indian needs took place, he examined the slaughtered animals for signs of disease, particularly tuberculosis. In January he made an aerial census of the buffalo herds. He also investigated the status of various fur-bearers and the distribution and utilization of caribou in southern Mackenzie District and Wood Buffalo National Park.

During May, student assistants C. E. Law and C. R. Slater continued a study of the ecology of the muskrats of the Slave River Delta. Mr. Slater later made a detailed survey of sites in Wood Buffalo Park where beaver were planted in 1948 and 1949.

W. E. Stevens, mammalogist, Aklavik, N.W.T., assisted during part of the summer by C. E. Law, continued a study of muskrat in Mackenzie Delta. In April and May he directed an experiment to determine the most efficient method of harvesting beaver. He also made a survey of beaver and marten utilization in northern Mackenzie District.

J. D. Soper examined areas in southwestern Yukon Territory to determine the feasibility of planting buffalo and elk therein, and investigated the status of caribou along the Yukon-Alaska boundary and in northern Yukon. D. G. Colls studied damage by elk in areas adjacent to Riding Mountain National Park, Manitoba, and made a ground and aerial survey of the elk in the park.

Competition between elk and bighorn sheep in the Cascade Valley, Banff National Park, was investigated by student assistant H. C. Tanner.

Other field investigations are included in the section of this report relating to the Migratory Birds Convention Act.

### Mammals in National Parks

Eight buffalo were slaughtered in Banff National Park in order to keep the number of buffalo within the grazing capacity of the paddock. The meat resulting from this slaughter was given to the Banff Indian Days Committee for the celebration in 1951.

Reduction of the elk herd in Banff National Park was continued. The meat and the hides of the elk slaughtered were given to the Indian Affairs Branch, Department of Citizenship and Immigration, for distribution to needy Indians.

The herd of white-tailed deer on Beausoleil Island, in Georgian Bay Islands National Park, had increased and exceeded the carrying capacity of the local range. Severe over-browsing of the shrubs and trees on the island, as high as the deer could reach, resulted. To prevent further deterioration of the range it was found necessary to reduce the herd. The meat and hides thus obtained were turned over to the Indian Affairs Branch.

Shipments of wild animals from national parks to zoological gardens were made as follows: seven timber wolf pups from Prince Albert National Park and 14 chipmunks from Georgian Bay Islands National Park to the Dudley Zoological Society, Dudley, England; five timber wolf pups and four beaver from Banff National Park and 24 chipmunks and eight raccoons from Georgian Bay Islands National Park to the Royal Zoological Society of Scotland, Edinburgh, Scotland.

#### *Statement of Large Mammals in Fenced Enclosures in National Parks, March 31, 1951*

| Species                | Banff<br>Park<br>Paddock | Elk<br>Island<br>Park | Prince<br>Albert<br>Park<br>Paddock | Riding<br>Mountain<br>Park<br>Paddock | Total |
|------------------------|--------------------------|-----------------------|-------------------------------------|---------------------------------------|-------|
| Buffalo.....           | 11                       | 1,429                 | 11                                  | 69                                    | 1,520 |
| Elk.....               |                          | 582                   |                                     | 122                                   | 704   |
| Moose.....             |                          | 349                   |                                     |                                       | 349   |
| Mule deer.....         |                          | 96                    |                                     |                                       | 96    |
| White-tailed deer..... |                          |                       |                                     | 17                                    | 17    |
| Total.....             | 11                       | 2,456                 | 11                                  | 208                                   | 2,686 |

## Fishing and Fisheries Management in National Parks

J. P. Cuerrier, Chief Limnologist, assisted by W. M. Gilmour, carried out limnological investigations in national parks waters. Surveys and inspections of lakes and streams were made in Riding Mountain, Prince Albert, Elk Island, Jasper, Yoho, Kootenay, Banff, and Waterton Lakes National Parks. The Chief Limnologist studied fish populations in Fundy, Cape Breton Highlands, and Prince Edward Island National Parks during the autumn of 1950.

A. R. Murray, summer assistant, was stationed at Riding Mountain Park to carry out investigations on Clear Lake with particular reference to lake trout.

Material collected in the field was analysed in the Ottawa laboratory, and reports on field research were prepared. The limnologists participated in revision of the fishing regulations and Anglers Guides for the National Parks. They furnished advice regarding the fish-cultural operations of the three fish hatcheries maintained in the national parks, and regarding netting operations to take whitefish in Lake Waskesiu, Prince Albert Park, and goldeye in Lake Claire, Wood Buffalo Park.

Creel census cards completed voluntarily by anglers visiting national parks were analysed. Figures indicate a total catch of about 35,000 fish, taken by more than 10,500 reporting anglers from 180 lakes and streams in 11 national parks. Reports on creel census operations were prepared for distribution to interested anglers who completed creel census cards.

A shipment of 6,700 lake trout yearlings was made by railway and by truck from Jasper Hatchery to Clear Lake, Riding Mountain National Park, where the young fish, all fin-clipped, were released. This successful shipment was completed with the co-operation of Canadian National Railways.

A total of 182,923 fish, including rainbow, eastern brook, cutthroat, brown and lake trout, and hybrids obtained from a cross between eastern brook trout and lake trout, were transferred from hatcheries to prairie and mountain park waters. Of the fish stocked, 33 per cent were yearlings or larger fish, 57 per cent were fingerlings, and 10 per cent were fry or eggs. Yearlings and larger fish have comprised an increasingly large proportion of fish introductions during recent years, since survival of these groups has demonstrated the desirability of this policy. The program of stocking "marked" fish has been continued in order to collect more information regarding growth and survival of stocked fish. Out of the 117,083 advanced-fingerling, yearling and adult-sized fish, 89,053, or 76 per cent, were marked by removing a fin before the fish were planted.

The fish stocked in Glacier, Kootenay, Mount Revelstoke and Yoho National Parks were distributed from Banff Fish Hatchery.

The eastern parks are stocked by the Department of Fisheries. During 1950, 50,000 fry and 160,000 salmon fingerlings and 110,000 eastern brook trout fingerlings were planted in Cape Breton Highlands National Park waters.

Poisoning operations were carried out in Crandell and Linnet Lakes, Waterton Lakes National Park, and in Herbert Lake, Banff National Park, in order to eliminate the population of suckers and other coarse fish. These coarse fish, by competition for food with game species, had caused reduction

in the quality of angling. These lakes have now been restocked with eastern brook trout and fishing will probably be opened to anglers during the 1952 angling season.

Details regarding the distribution of hatchery products appear in the following table.

**Number of Eyed Eggs, Fingerling and Adult Trout distributed from National Parks Fish Hatcheries during 1950**

|  | Banff  | Glacier | Jasper <sup>1</sup> | Kootenay | Mount Revelstoke | Riding Mountain | Waterton Lakes | Yoho  | Total number of fish distributed |
|--|--------|---------|---------------------|----------|------------------|-----------------|----------------|-------|----------------------------------|
| <i>Rainbow trout—</i>  |        |         |                     |          |                  |                 |                |       |                                  |
| Fingerlings.....   | 5,000  |         |                     |          |                  |                 | 23,375         | 3,000 | 31,375                           |
| Yearlings.....   | 3,100  |         | 15,858              |          |                  |                 |                | 1,500 | 20,458                           |
| 2-year-old.....  |        |         | 11,230              |          |                  |                 |                |       | 11,230                           |
| <i>Eastern brook trout—</i>                                  |        |         |                     |          |                  |                 |                |       |                                  |
| Fingerlings.....   |        | 400     | 7,000               | 400      |                  |                 | 1,000          |       | 8,800                            |
| Yearlings.....   | 3,800  |         | 3,196               | 150      |                  |                 | 3,000          |       | 10,146                           |
| <i>Cutthroat trout—</i>                                      |        |         |                     |          |                  |                 |                |       |                                  |
| Eggs.....  | 9,920  |         |                     |          |                  |                 |                |       | 9,920                            |
| Fry.....   | 1,000  |         |                     |          |                  |                 | 5,000          | 2,000 | 8,000                            |
| Fingerlings.....   | 58,000 |         |                     | 2,500    | 3,000            |                 |                |       | 63,500                           |
| Yearlings.....   | 1,350  |         |                     |          |                  |                 | 9,794          |       | 11,144                           |
| <i>Lake trout—</i>   |        |         |                     |          |                  |                 |                |       |                                  |
| Yearlings.....   |        |         | 492                 |          |                  | 6,700           |                |       | 7,192                            |
| <i>Brown trout—</i>  |        |         |                     |          |                  |                 |                |       |                                  |
| Yearlings.....   |        |         | 603                 |          |                  |                 |                |       | 603                              |
| <b>HYBRIDS</b>   |        |         |                     |          |                  |                 |                |       |                                  |
| <i>Eastern brook trout</i><br><i>x</i><br><i>Lake trout—</i> | 555    |         |                     |          |                  |                 |                |       | 555                              |
| Total number of fish distributed.....                        | 82,725 | 400     | 38,379              | 3,050    | 3,000            | 6,700           | 42,169         | 6,500 | 182,923                          |

<sup>1</sup> In addition to the above, the following were transferred from Jasper National Park Fish Hatchery to the other fish hatcheries named: 20,000 eastern brook trout fingerlings and 2,250 lake trout fingerlings to Waterton Lakes; 731 adult cutthroat trout to Banff.

## Migratory Birds Convention Act

The Migratory Birds Treaty, signed in Washington, D.C., in 1916, and made effective in Canada in 1917 by an Act of Parliament known as the Migratory Birds Convention Act, provides protection for many valuable birds that migrate between Canada and the United States. In this conservation measure the Federal and Provincial Governments co-operate. Regulations in accordance with the statute are agreed upon by the Federal and Provincial Governments before being adopted by Federal Order in Council.

Responsibility for enforcement of the provisions of the Migratory Birds Convention Act and regulations thereunder was transferred to the Royal Canadian Mounted Police in 1932. Field administration of the Act was continued during the year under the supervision of Dominion Wildlife Officers.



Dominion Wildlife Officers and Wildlife Management Officers carried out waterfowl studies in their respective districts. The studies covered migration, nesting and brood-rearing and conditions affecting reproductive success, such as climate, food, shelter and predation.

R. H. Mackay studied migration, nesting, brood-survival, and kill statistics of waterfowl in the Cariboo and lower mainland districts of British Columbia. D. A. Munro co-operated in aerial surveys of the waterfowl breeding grounds in the Okanagan, Kamloops, and Nicola areas and in the upper Columbia Valley, and made a ground survey of those areas. R. I. Bowman, student assistant, investigated the effects on birds and other forms of wildlife of orchard sprays used for the control of insect pests at Summerland, British Columbia.

J. D. Soper made a spring waterfowl survey of southern Alberta and conducted investigations of the known nesting grounds of trumpeter swans. During the summer he investigated the status of waterfowl in Yukon Territory. Student assistant G. A. West assisted in the study of population trends of waterfowl in Alberta.

D. G. Colls took part in the survey of waterfowl breeding conditions in Saskatchewan carried out co-operatively by the Wildlife Division, the United States Fish and Wildlife Service, provincial game authorities, and private agencies. Aided by N. Neufeld, student assistant, he continued investigation of botulism among ducks at Whitewater Lake, Manitoba. He also investigated crop damage by sandhill cranes in Manitoba.

J. B. Gollop carried out experiments in the prevention of waterfowl damage to crops in Alberta and Manitoba by the use of lure crops and the planting of waterfowl food plant seeds, and participated in the breeding-ground survey in Manitoba. He later studied methods of preventing crop damage by ducks at the Lower Souris National Wildlife Refuge, North Dakota.

Dr. G. M. Stirrett, aided by G. North, student assistant, carried out a survey of breeding waterfowl on selected southern Ontario lakes.

J. S. Tener and F. G. Cooch, student assistant, carried out the annual waterfowl breeding-ground survey in Quebec and eastern Ontario, including an initial study of the waterfowl productivity of the Precambrian lakes of eastern Ontario.

L. Lemieux carried out in Quebec surveys of established and proposed bird sanctuaries and studies of hunting pressure on waterfowl.

H. R. Webster initiated a study of crow-waterfowl relationships in Prince Edward Island and investigated cases of oil pollution along the coasts of New Brunswick and Nova Scotia. G. F. Boyer studied merganser-salmon relationships on the Miramichi River, New Brunswick. R. Mosher, student assistant, studied summering concentrations of black ducks on the Grand Pré-Canard areas of Nova Scotia. Messrs. Webster, Boyer, and Mosher were the Canadian members of an international team that carried out the annual waterfowl breeding-ground survey in the Maritime Provinces.

The first annual summer waterfowl breeding-ground survey in Newfoundland was organized and carried out by L. M. Tuck.



The Wildlife Division is responsible for the establishment and administration of migratory bird sanctuaries under the Migratory Birds Convention Act. On March 31, 1951, there were 78 such sanctuaries, with an approximate total area of 1,807 square miles. Pine Lake Bird Sanctuary in Quebec and St. Joseph's Island Bird Sanctuary in Ontario were established during the year, and an adjustment of the boundaries of Port Joli Bird Sanctuary in Nova Scotia was effected.

Salaried wardens are employed to supervise important sanctuaries in remote areas where special protection is required, as in the breeding grounds of eider ducks and other seabirds on the north shore of the Gulf of St. Lawrence and in the breeding and wintering grounds of the rare trumpeter swan in Alberta and British Columbia. Thirty-two such officers were employed during 1950-51, 20 on an annual part-time basis and 12 on a seasonal basis.

Many public-spirited citizens are appointed honorary game officers without salary, to assist in enforcement of the Migratory Birds Convention Act and Regulations and to further the cause of wildlife conservation. There are 328 holders of such appointments. In addition, members of the Royal Canadian Mounted Police and game and fishery officers of the Provinces of Alberta, British Columbia, Manitoba, New Brunswick, Ontario, Quebec, and Saskatchewan were, in 1950, game officers *ex officio* under the Migratory Birds Convention Act.

In British Columbia weather conditions during the breeding season for waterfowl were favourable, but little change in population numbers of most species was indicated by data obtained. In Alberta drought conditions caused a continued serious decrease in waterfowl numbers. Improved water conditions in Saskatchewan resulted in some increase in the waterfowl population in that province. In Manitoba losses occurred from flooding and cold weather, with partial compensation in reduction of loss from disease. A satisfactory year for waterfowl was experienced in Ontario and Quebec, and in the Maritime Provinces there was little change in the general situation. The first general survey of waterfowl populations in Newfoundland was carried out; data for comparison were lacking, but it is believed that the general status of waterfowl in that province was little changed.

Woodcock showed a fair increase in Ontario, and a decided decrease in the Maritime Provinces.

Only minor changes in the open seasons for ducks and geese were made. These included extensions of three or four days in the various districts of Manitoba and abolition of the open season for geese in the Delta Waterfowl Control Area; a reduction of two days in Alberta; and an extension of 16 days in the Yukon Territory. The open season for Wilson's snipe was reduced by 14 days in Saskatchewan and by 26 days in Alberta. The open season for band-tailed pigeons in the Western District of British Columbia was reduced from 21 to 15 days.

Co-operation in matters concerning migratory bird conservation was maintained between the Division and provincial governments, game conservation societies, and other interested organizations.

## Bird Banding

In North America scientific bird banding is conducted co-operatively by the Wildlife Division and the United States Fish and Wildlife Service. Other agencies, including the Wildlife Management Institute, Ducks Unlimited (Canada), various Provincial Game Departments, and some universities also co-operate in the banding of waterfowl in Canada. In both countries valuable assistance is given by voluntary co-operators of recognized ornithological ability who are granted permits for the purpose and who furnish their own equipment and serve without remuneration. All permits to band birds in Canada are issued by the Wildlife Division on behalf of the Minister of Resources and Development.

Bird banding in Canada, which has been under Federal control since 1933, continued to progress favourably during the period under review. At the close of the calendar year 1950, bird-banding records maintained by the Wildlife Division contained more than 639,000 records of banded birds and approximately 56,700 records of recovered bands, including bands placed on birds in the United States and elsewhere and recovered in Canada. Bands that were placed on birds in Canada have been recovered in at least 18 other countries.

Official bird bands are inscribed with distinctive numbers for identification and a return address to which recovery should be reported. Much new and valuable information is obtained by bird banding and is made available to scientists and the general public. Of special importance is information about waterfowl, as these birds are important as a source of revenue, a tourist attraction, an object of sport, and the basis of healthful recreation and enjoyment.

## Miscellaneous

Under the provisions of the Migratory Bird Regulations there were issued by the Wildlife Division, 1,832 permits and licences. These comprised 477 for scientific collecting; three for collecting eiderdown; 440 for scaring or killing birds injuring agricultural or fishing interests; 14 for local control of the great black-backed gull by destruction of eggs and nests; 96 for local control of the herring gull by collection of its eggs; eight for taking migratory birds for propagation; 576 for possession of migratory birds for propagation; 147 bird banding permits; and 71 taxidermists' licences.

Printed material distributed was: Migratory Birds Convention Act and Regulations, 8,600; Abstracts of Migratory Bird Regulations, 33,072; posters, 52,750; and educational and instructive pamphlets, 15,045.

## Publications

### Wildlife Management Bulletins

Series 1, Number 1: *The Mammals of Waterton Lakes National Park*. A. W. F. Banfield.

Series 2, Number 1: *A Study of Bird Populations in the Apple Orchards of the Annapolis Valley, Nova Scotia*. John P. Kelsall.

Series 3, Number 1: *Prince Albert National Park Creel Census Analysis, Season 1948*. Victor E. F. Solman.

Series 3, Number 2: *Limnological Investigations of Fundy (New Brunswick) National Park, 1948*. Victor E. F. Solman.

**Magazine Articles**

- Aerial Census of Northern Bison in Wood Buffalo Park and Vicinity.* W. A. Fuller. *Journal of Wildlife Management*, October, 1950.
- Economic Status of Sandhill Cranes in Saskatchewan.* David A. Munro. *Journal of Wildlife Management*, July, 1950.
- History and Use of Fish Poisons in the United States.* Victor E. F. Solman. *Canadian Fish Culturist*, October, 1950.
- National Wildlife Week.* Victor E. F. Solman. *Forest and Outdoors*, April, 1950.
- National Parks Creel Census.* Victor E. F. Solman. *Canadian Fish Culturist*, March, 1950.
- Review of An Unusual Maskinonge from Little Vermilion Lake, Ontario.* Victor E. F. Solman. *Canadian Field-Naturalist*, March-April, 1950.
- Food Habits of the Marten (Martes americana) in the Rocky Mountain Region of Canada.* R. H. Mackay (collaboration). *Canadian Field-Naturalist*, May-June, 1950.
- A Further Note on the Longevity of the Big Brown Bat.* A. W. F. Banfield. *Journal of Mammalogy*, November 1950.
- The Scissor-tailed Flycatcher in New Brunswick.* George F. Boyer. *Canadian Field-Naturalist*, September-October, 1950.

**Technical Reports**

In *Waterfowl Populations and Breeding Ground Conditions, Summer, 1950—with notes on Woodcock and Wilson's Snipe.* Special Scientific Report: Wildlife No. 8, issued jointly by the Wildlife Division and the United States Fish and Wildlife Service:

- Waterfowl Breeding Conditions in British Columbia, Summer 1950.* David A. Munro and R. H. Mackay.
- Waterfowl Breeding Ground Survey in Saskatchewan, 1950.* D. G. Colls.
- Waterfowl Breeding Ground Survey in Quebec and Eastern Ontario, 1950.* John S. Tener.
- Waterfowl Breeding Ground Survey in Newfoundland, 1950.* Leslie M. Tuck.
- Observations of Summering Concentrations of Black Ducks on the Grand Pré-Canard Areas of Nova Scotia, 1950.* Ralph Mosher.
- Woodcock Singing Ground Counts in Eastern Canada, 1950.* Victor E. F. Solman.
- Wilson's Snipe Singing Ground Counts in Eastern Canada, 1950.* Victor E. F. Solman.
- Waterfowl Breeding Ground Surveys in Eastern Canada, 1950.* G. F. Boyer, H. R. Webster, and R. Mosher (collaboration).
- In *Proceedings of the Fifteenth North American Wildlife Conference: Aspects of Conservation Education in Canada.* H. F. Lewis.
- Review of Waterfowl Conditions in Canada.* David A. Munro.

**Miscellaneous**

- President's Opening Address.* H. F. Lewis. *Proceedings 40th Convention of the International Association of Game, Fish and Conservation Commissioners.*
- Game Fish in Canada's National Parks.* Victor E. F. Solman. National Parks Branch Publication.
- Bird Houses and their Occupants.* Standard educational pamphlet, sixth (revised) edition.
- Attracting Birds with Food and Water.* Standard educational pamphlet, fifth edition.
- Sparrow and Starling Control.* Compiled by J. M. Maclellan. Mimeographed leaflet.

## The National Museum of Canada

### General Activities

The year 1950-51 was expected to be one of considerable expansion for the Museum, as preparations were under way for moving the offices and laboratories of the Geological Survey from the National Museum building: this would permit opening new exhibition halls and bringing to the Museum a great mass of material now stored elsewhere. These plans have not as yet materialized and the need for more space still remains, the most pressing problem of the Museum.

The year was, nevertheless, one of activity and progress. A large amount of material was added to the Museum collections through donation, purchase, and collecting by field officers. Fourteen members of the Museum staff carried out field investigations during the summer months, and eight other persons were employed on special problems. The investigations covered a wide variety of subjects and took place in areas extending from Newfoundland in the east to British Columbia and the Yukon in the west, and from southern Ontario north to the Arctic. Botanical studies were carried out in Manitoba; mammalogical studies were made in Newfoundland and ornithological studies in Alberta; invertebrate zoological investigations were initiated in the Maritime Provinces, and vertebrate palaeontological work progressed in British Columbia, Alberta, Quebec, and Nova Scotia. Archaeological work on Indian sites was performed in British Columbia, in southern and northern Ontario, and in the Northwest Territories; the investigation of Eskimo sites on Cornwallis Island begun in the summer of 1949 by Dr. Henry B. Collins Jr., of the Smithsonian Institution of Washington, was continued. The collecting and study of folklore and folk songs proceeded in Nova Scotia, Quebec, Newfoundland, and the Yukon.

Repairs on the National Museum building were carried out. The auditorium was completely renovated. Additions were also made to the exhibits. In the hall of Vertebrate Palaeontology the skeleton of a dinosaur of the species *Leptoceratops gracilis* was installed; a fourth large painting representing a Mesozoic reptile and one of a mammoth were also added. In the habitat hall four murals over the large dioramas of Canadian mammals were completed. The policy of having changeable exhibits, the so-called "Exhibit of the Month" was continued. One of the latter that attracted particular attention was a Grecian vase, dating back to the 5th century B.C. and belonging to the Prime Minister of Canada, the Right Honourable Louis St. Laurent. A special exhibit of paintings of Arctic flowers by Mrs. J. A. Woolgar of Yellowknife, N.W.T., also drew considerable interest. National Museum photographs of animal and plant life were exhibited in the rotunda as was also an Indian head-dress presented by the Brotherhood of North American Indians to the late Rt. Hon. William Lyon Mackenzie King when he was Prime Minister of Canada.

Members of the Museum staff delivered 45 public lectures. In addition there was an autumn, a winter, and a spring series of lectures for adults on Wednesday evenings, and similar series for children on Saturday mornings. Such lectures have been given for adults at the Museum since 1922, and for children since 1912. The auditorium was also used for lectures by scientific societies on many other occasions. During July and August, a film program *Canada in Colour* was put on in conjunction with

the National Film Board every afternoon from Monday to Friday inclusive from 3 to 4 o'clock for the benefit of tourists and visitors. Another project carried out in conjunction with the Film Board was the production of a film strip on dinosaurs. The Macoun Field Club, composed of boys and girls interested in natural history and under the leadership of officers of the National Museum and of the Ottawa Field-Naturalists' Club, had an active year.

The following Museum Bulletins were published: *Annual Report of the National Museum for 1948-49*; *Flora of Bic and the Gaspé Peninsula, Quebec*, by H. J. Scoggan; *Folklore of Waterloo County, Ontario*, by W. J. Wintemberg; *Folklore of Lunenburg County, Nova Scotia*, by Helen Creighton; *Birds of the Cypress Hills and Flotten Lake Regions, Saskatchewan*, by W. Earl Godfrey; and *Totem Poles, Volume 1, Totem Poles According to Crests and Topics*, by Marius Barbeau. In addition the Museum was responsible for the April-June number of the *Journal of American Folklore*, Volume 63, No. 248. This number was a Canadian one, the articles having all been prepared either by members of the anthropological staff of the National Museum or by persons who have been associated recently with the Museum. The articles were solicited, proofread, and arranged for publication by Marcel Rioux and the number was dedicated to Marius Barbeau who for so many years was a member of the Museum Anthropological Division and who still is closely associated with it.

Within the period covered by this report, the scientific staff was strengthened by the addition of L. S. Russell, I. MacKenzie Lamb, E. L. Bousfield, and T. E. Lee. Dr. Russell, formerly Director of the Royal Ontario Museum of Palaeontology, became Chief of the Division of Zoology. Dr. Lamb, formerly of the British Museum, assumed the work of cryptogamic botany in the National Herbarium. Mr. Bousfield is a specialist in invertebrate zoology, and Mr. Lee in archaeology. On the other hand the Museum lost through superannuation the valuable services of C. M. Sternberg who had long been in charge of the work in vertebrate palaeontology. Miss Margaret Sargent, musicologist, and Miss Josephine Hambleton resigned.

The skeleton of a hooded dinosaur of the genus *Lambeosaurus*, a duplicate of one at the National Museum in Ottawa, was sent on permanent loan to the University of British Columbia. The specimen was assembled by C. M. Sternberg and was officially accepted and made available for inspection at a suitable ceremony at the University of British Columbia on November 4. At the request of the British Museum (Natural History) at South Kensington, London, a skeleton of a Trachodont dinosaur of the genus *Edmontosaurus* was shipped in 12 sections to that institution. The latter regards it as a very valuable addition to its collection of fossil reptiles, the first from Canada.

From the point of view of the number of visitors, the Museum had a busy and successful year. Conducted tours for groups of adults and children continued to be a feature. On August 10 a group of 50 British boys under the supervision of Field Marshal Sir Claude Auchinleck was conducted through the Museum and shown a special program of films illustrating Canada.

The National Museum was represented at the meeting of the Canadian Museums Association and at the Northeastern Conference of the American Association of Museums, October 5 to 7 at Montreal. On

June 17, the Wildlife Conference in Ottawa was addressed on "The Role of the National Museum of Canada with Regard to Wildlife Conservation". As Chairman of the Geology Division of the Canadian Institute of Mining and Metallurgy the Chief Curator attended the annual meeting of that society as the Museum representative.

### Educational Services

Museum educational activities were concerned with the interpretation of its collections to the public through various media. The value of the Museum as a source of scientific and educational information is demonstrated by the increase in the number of visitors, especially school groups. Educators have gradually been realizing the value of the Museum as an institution which can provide scientific information through well-arranged exhibits and loan material.

The Museum is also concerned with adult education. Its comprehensive collections have been arranged in as representative a manner as space will permit, and carry labels in non-technical wording. A study of this material is of considerable value in the broadening of a general education. In addition, qualified students are given access to the study collections. By publications and correspondence information on natural history subjects is supplied to all parts of Canada as well as to other countries.

A special exhibit representing the educational services of the National Museum was displayed at a Rural Schools Exhibition of Natural Sciences, St. Felicien, Quebec; photographs and educational publications were displayed in St. Johns, Newfoundland.

### National Museum Lectures

As part of its service to the public the National Museum presented its annual series of lectures for children and adults. The varied program was arranged by the Lecture Committee consisting of F. J. Alcock, Chairman, W. K. W. Baldwin, W. E. Godfrey, M. F. Goudge, J. F. Henderson, M. Rioux, H. J. Scoggan, and Miss M. Godwin, Secretary.

#### Adult Lectures

*Canada's Prairie Provinces*, by J. M. Humphrey, Vancouver, B.C.

*Atomic Energy*, by David A. Keys, M.A., Ph.D., D.Sc., F.R.S.C., Vice-President (Scientific) National Research Energy Project, Chalk River.

*Canada in Film* (Motion Pictures), shown through the courtesy of the National Film Board

*Wild Flowers in Art*, by W. K. W. Baldwin, M.B.E., M.A., Botanist, National Museum of Canada.

*British Columbia's Silver Horde*, by A. L. Pritchard, M.A., Ph.D., Director of Conservation and Development Service, Department of Fisheries.

*Africa and Around the World*, by J. Tuzo Wilson, O.B.E., M.A., Ph.D., Professor of Geophysics, University of Toronto.

*Titan Quest*, by L. S. Russell, M.A., Ph.D., F.R.S.C., Chief Zoologist, National Museum of Canada.

*South American Journey*, by Harold A. Senn, M.A., Ph.D., Chief Botanist, Department of Agriculture.

*Overlanders*,—(a motion picture).

*The Ceramic Family Tree*, by Ian F. Wright, B.Sc., Ceramic Engineer, Department of Mines and Technical Surveys.



**Children's Lectures****Motion Picture Program**

*Glass Blowing*, by George Ensell, National Research Council.

*Children of Other Lands—Sweden*, (in co-operation with the Citizens Committee on Children), Ottawa.

*Unseen Life in a Drop of Water*, by E. L. Bousfield, M.A., National Museum of Canada.

*Hunting Ancient Animals*, by L. S. Russell, Ph.D., National Museum of Canada.

*Adventures in the Andes*, by I. M. Lamb, Ph.D., National Museum of Canada.

**Motion Picture Program.**

*Animals of the Woods and Zoo*, by Herbert Marshall, B.A., Dominion Statistician.

**Group Visits**

There was an encouraging increase in the number of school groups that visited the Museum with their teachers for particular information on one or more of the exhibits, as well as those who were given a general guided tour of the various exhibition halls. Other groups numbering 7,200 held weekly classes in nature study and discussion of Indian and Eskimo cultures as part of their regular school curriculum. Besides the large number from Ottawa and vicinity, normal school students, teachers, and organized school groups came from Sudbury, Kingston, Granby, Belleville, North Bay, Chalk River, and other localities; several groups came from the United States and the United Kingdom.

**Photographs**

There was a continual demand for photographs on anthropological, biological, and palaeontological subjects from the National Museum collections to illustrate textbooks, scientific publications, magazine and newspaper articles, and for exhibitions of wildlife photography. Requests for this material were received from the United States, South America, European countries, and the United Kingdom, as well as from various parts of Canada. A representative collection of photographs was prepared for the Department of Lands and Forests, Toronto, as a contribution to the conservation program for rural schools.

**Lecture Hall**

As formerly, scientific and related organizations were granted the use of the lecture hall, and the public was thus given the opportunity of hearing significant lectures on a variety of subjects. Among the organizations using the hall were the Royal Society of Canada, the Royal Astronomical Society, the Ottawa Field Naturalists Club, the Canadian Geographical Society, the National Gallery of Canada, the Logan Geological Club, and the Scientific Film Group.

**Publications**

Besides the many requests from all parts of the world for scientific publications, there was a large demand from educational institutions for those of a less technical nature.



## Visual Aids

Museum loan material on anthropology, biology, palaeontology, and other phases of natural history went to teachers, students, and other persons in all parts of Canada. This material is lent free of charge to educational institutions in Canada, except for transportation charges one way.

## Archaeology

Douglas Leechman was in the field from May to September. He made a reconnaissance trip from Prince Rupert, B.C. to Prince George and south to Lytton. A number of archaeological sites and private collections were examined. He then proceeded to the southern Yukon and explored the middle reaches of the Yukon River with a small boat. A number of archaeological sites were investigated and the discoveries correlated with his previous work in that area.

In the office Dr. Leechman studied the material collected in the field by himself as well as specimens submitted by other people for examination and report. He began the preparation of a paper on the archaeology of the southern Yukon which will sum up his work in that area from 1945 to the present. He revised the section on the aborigines in anticipation of a new edition of the pamphlet issued by the Northern Administration and Lands Branch and wrote a number of papers. At the request of the Arctic Institute of North America he wrote a memorandum illustrating the problems in Arctic anthropology most urgently in need of investigation. In co-operation with the National Film Board he prepared a documentary film entitled "Making Primitive Stone Tools", started work on another film concerned with totem poles, and advised in the preparation of a film strip on the evolution of housing. He arranged a loan of West Coast Eskimo and Indian masks for the museum in London, Ontario, and a larger loan of West Coast Indian material for the Museum of Fine Arts in Montreal.

R. S. MacNeish conducted an archaeological survey in the Northwest Territories from Fort Providence to Fort Norman on the Mackenzie River and in the Liard and South Nahanni River areas. Sixteen archaeological sites were discovered, four of them of some importance. Minor field trips to Tillsonburg, Ontario, Lake Nipigon, Ontario, and Pine Falls, Manitoba, were also undertaken.

In the office Dr. MacNeish completed his report on the Iroquois Pottery Types (Bulletin 124) and submitted it for publication. The large archaeological collection from Panuco, Vera Cruz, Mexico was also studied, analysed, and described. The final manuscript of 240 pages and including 18 plates, 12 charts, and 14 figures was submitted to the American Museum of Natural History in New York for publication. During the winter quarter, the Brohm site material was written. A small exhibit showing the four main archaeological stages of Ontario pre-history was prepared in conjunction with Mr. Haldorsen.

Thomas E. Lee made an archaeological survey of southwestern Ontario. He found a large number of unrecorded archaeological sites and made extensive collections. He also studied the specimens collected during the summer and sorted and catalogued them. He did further work on a preliminary report and studied the files for information already available on the area to be surveyed in the summer of 1951.

Dr. Henry B. Collins of the Smithsonian Institution, Washington, D.C. spent the field season on Cornwallis Island where he excavated an Eskimo site and was successful in finding specimens of both the Thule and Dorset

cultures. This is the first occasion on which Dorset material has been found so far north, and it is a discovery of considerable importance, throwing light as it does on the movement of this culture from the western Arctic to the east.

### Ethnology

Marcel Rioux completed his survey on the nature and rhythm of acculturation of the Longhouse Iroquois group of the Six Nations Reserve. With Joseph Martin of Laval University as an assistant, he spent July, August, and September, on that reserve. Besides data pertaining to this social anthropological inquiry, some 200 native songs were recorded and some selected specimens were acquired. Rorschach tests were also administered to a sociological sample of the population under study.

In the office Mr. Rioux worked mainly on his Iroquois materials and has considerably advanced the writing of a monograph on this subject. He edited a special Canadian number of the *Journal of American Folklore* which appeared in August 1950; this issue was entirely devoted to Canadian materials which were presented by members of the staff of the National Museum. A paper was prepared for the *Journal of the Washington Academy of Sciences* on the subject of medicine and magic among the contemporary Longhouse Iroquois. Another paper was prepared on theoretical anthropology for the "*Revue de Psychologie des Peuples*." Much time was devoted to the classification and cataloguing of the data collected during the summer by seasonal workers.

Mr. Rioux was appointed as corresponding member for Canada of the "Institut de Psychologie des Peuples", of France.

Miss Margaret Sargent conducted a survey on the folk songs of Newfoundland from July 1 to the middle of September; she also obtained a considerable number of Acadian songs from Cape Breton Island.

In the office she transcribed Iroquois and Huron songs which had been collected earlier for the National Museum; she also transferred a number of songs from perishable wax cylinders to magnetic tape recordings.

Miss Josephine Hambleton worked on the preparation of a book on argillite carvings. She also classified and described about 800 photographs of specimens of Indian art.

Miss Helen Creighton continued her investigations on the folklore and folk songs of Nova Scotia.

Miss Carmen Roy continued her folklore research in the Gaspé area. She recorded on magnetic tape approximately 300 songs, a good number of folk tales, and various items of folklore.

Dr. Catharine McClellan continued her work in the southern Yukon after a summer's field work in the Alaska panhandle. In September she went to Carcross and stayed there until the end of the year when she moved to Teslin. Both these villages are occupied by Tlingit Indians with a certain mixture of interior Kutchin. It was most desirable that a competent anthropologist should spend a winter with these people since a summer visit can give only a distorted impression of their annual cycle and material culture.

Messrs. Luc Lacourcière and F. A. Savard collected folk songs and folk tales mainly in New Brunswick, on the island of Shippigan.

Miss Madeleine Doyon of Laval University worked in Portneuf, Charlevoix, Lévis, and Lotbinière Counties; she collected data on numerous

topics, particularly traditional games and costumes, folk technology, and literature; her work comprehends 394 descriptions of the folklore and technical culture of these counties.

The ethnological and folklore collections were greatly increased in 1950. Many photographs were taken, and others were secured by gift or purchase from various museums in Canada.

## Zoology

Dr. L. S. Russell spent the month of July searching for fossils in the Tertiary deposits in the Flathead Valley area of southeastern British Columbia. A large collection of fossil mollusks was obtained. Study of this collection formed a major part of Dr. Russell's research work during the remainder of the year. Other research projects were: fossil mollusks of the Bearpaw formation, Saskatchewan; recent land snails of the Cypress Hills; Devonian fishes of the Gaspé region; Triassic fishes of the Rocky Mountains; Cretaceous mammals from Alberta; and Tertiary mammals from Saskatchewan. With the retirement of Mr. Sternberg, Dr. Russell assumed curatorship of the collection of fossil vertebrates and the direction of the laboratory of vertebrate palaeontology.

W. Earl Godfrey, accompanied by Stuart D. MacDonald, spent three months studying and collecting the birds of the Peace River and Lesser Slave Lake regions of northern Alberta. He completed his report on the results of this work. Other investigations completed were: description of a new subspecies of yellowthroat (*Geothlypis*); revision of races of the boreal chickadee east of the Rockies; and taxonomic study of the Myrtle warbler.

C. M. Sternberg spent nearly two months in field work, collecting fossil fishes and eurypterids from the Devonian of Gaspé, amphibian tracks from the Mississippian of Parrsboro, Nova Scotia, and amphibian remains from the Pennsylvanian of Joggins, Nova Scotia. In September he went to Vancouver to supervise mounting of the skeleton of a duck-billed dinosaur at the University of British Columbia. Up to the date of his retirement he was responsible for the care of the collection of fossil vertebrates and for the direction of the laboratory of vertebrate palaeontology.

Austin W. Cameron carried on field work for three months in southern Labrador and northern Newfoundland, collecting mammal and bird specimens with special reference to the problem of the origin of the Newfoundland fauna. As a result of this work he was able to revise his manuscript on the terrestrial mammals of Newfoundland, and to make a taxonomic study of the terrestrial mammals of the islands of the Gulf of St. Lawrence. Other research projects were the taxonomic study of collections of mammals from the southern Yukon and from Prince Edward Island, and a study of the Nova Scotia wildcat (*Lynx gigas*) in collaboration with the Royal Ontario Museum of Zoology. Six semi-popular leaflets were prepared on the life histories of the large mammals exhibited in the Museum.

E. L. Bousfield, accompanied by Colin L. Thacker, carried out three and one-half months of field work along the Atlantic Coast of Canada, mostly in Nova Scotia and New Brunswick. Special attention was given to the estuary of Miramichi River. The object of this work was to obtain data on the relationships between environment and distribution of marine invertebrates, and to investigate factors controlling barnacle fouling. Subsequently much time was spent sorting and identifying the collections made, and assembling the data.

Claude E. Johnson, staff artist, painted murals in the habitat hall. He worked on a diorama representing the Huron Indian version of the Nativity, painting the background, and constructing many of the accessories.

Stuart D. MacDonald, assistant technician, was with Mr. Godfrey on field work in northern Alberta. During the remainder of the year he prepared numerous bird and mammal skins, and mounted specimens for the exhibition and school loan series.

Colin L. Thacker, assistant technician, was with Mr. Bousfield during the summer, assisting in the collection of marine invertebrates. Back in the Museum, he prepared bird and mammal skins and mounted some specimens. He prepared miniature dioramas of mammal habitat groups, accessioned mammal specimens, and rearranged parts of the study collections.

The skeleton of a crested duck-billed dinosaur was prepared for shipment to the University of British Columbia. Subsequently an unusually fine skull of a duck-billed dinosaur with associated skeletal parts was cleaned and mounted. The incomplete skull of a flesh-eating dinosaur, the first dinosaur skull found in Canada, was remounted. Some work was done on Devonian and Triassic fishes.

At the close of the year the zoological collections consisted of 20,643 mammal specimens, 37,319 bird specimens, 2,164 reptile and amphibian specimens, and 243 fish specimens. In the present state of the invertebrate collection an accurate estimate of numbers cannot be given, but there are more than 6,000 lots of specimens present.

### National Herbarium

A. E. Porsild, Chief Botanist, from July 6 to July 20, attended the Seventh International Botanical Congress at Stockholm, Sweden, to which he had been elected vice-president. Before and after the Congress he spent considerable time in the herbaria of the Royal Botanical Gardens at Kew and of the British Natural History Museum, both in London; of the University of Copenhagen, and of the National Museum of Sweden, Stockholm. He examined historical collections of plants made in the Canadian Arctic by early British expeditions in search of the Northwest Passage. He also studied methods of preservation and exhibition of plant material, and at Kew and in the British Natural History Museum consulted the curators with regard to their war experiences in emergency evacuation and preservation of irreplaceable plant material. From July 21 to July 30 he took part in a botanical excursion to Swedish Lapland organized by the International Botanical Congress. From November 9 to November 11, as Canadian delegate, he attended the Alaskan Science Conference held at

Washington, D.C. He prepared a 16-page report on the proceedings of the Stockholm Congress and several other reports and papers. He corrected the proofs of various reports, including those of his 400-page *Botany of Southeastern Yukon*, which is being published as National Museum Bulletin No. 121. He named a total of 1,760 plant specimens which were submitted for identification and report by various Government departments or by Canadian or foreign botanical institutions and continued the preparation of a paper dealing with the flora of the Western Arctic Archipelago.

H. J. Scoggan, accompanied by W. K. W. Baldwin, made a botanical survey of the prairie district of southwestern Manitoba, the wooded area between Riding Mountain and The Pas, and the barren ground region of Baralzon and Nejanilini Lakes northwest of Churchill. About 1,382 numbers of plant specimens resulted from this survey, each representing about six sheets of material. Comprehensive collections were made to show the composition of the more significant ecological habitats, and photographs were taken to illustrate general topography as well as vegetation types. Dr. Scoggan prepared a 33-page summary report on the 1950 field season besides several other reports and papers for publication, and, during the remainder of the year, continued the preparation of his *Manual on the Flora of Manitoba*.

Dr. I. Mackenzie Lamb joined the staff of the National Herbarium on April 26, and at once began the reorganization of the Cryptogamic section of the Herbarium, having first elaborated a modern taxonomic system by which to arrange the Lichen Herbarium.

W. K. W. Baldwin prepared two summary reports on the plants collected by him in James and Hudson Bays in 1948 and 1949, and spent considerable time on the preliminary sorting and cataloguing of the "Lawson Collection" which was recently acquired by the National Museum. He conducted the spring, autumn, and winter programs of the Macoun Field Club and also arranged several special exhibits and meetings.

Miss Hilda Harkness, assisted by Miss Barbara Schwartz and Miss Joan Yendall, was responsible for the mounting, labelling, cataloguing, and general care of specimens in the Herbarium and the loan and exchange service.

During the year 8,709 herbarium specimens were received by exchange or purchase, 1,505 by donation and approximately 6,609 were collected in field work or were obtained in return for determinations. A total of 1,027 specimens were loaned to and 1,576 specimens were borrowed for study from other botanical institutions. Duplicate specimens distributed to other herbaria in Canada and abroad numbered 6,736, and 11,093 specimens were mounted and inserted in the herbarium, bringing the total number of plants, exclusive of cryptogams, in the National Collection to 204,980.

The most important accession of the year was the private herbarium of Professor G. Lawson (1827-1895) which was presented to the National Museum by Mount Allison University in June. The historically important Lawson herbarium, after careful study and cataloguing will be mounted and incorporated into the National Collection.

# **Engineering and Water Resources Branch**

**J. M. Wardle, Director**

The Branch deals particularly with projects related to the development of natural resources or the provision of improved transportation facilities. It deals as well with joint Federal-Provincial projects, or with projects that may have international aspects, many of which are outside federal areas. The Branch also administers the Northwest Territories Power Commission established by Act of Parliament.

In the field of natural resources the Branch surveys water resources throughout Canada and through the Northwest Territories Power Commission develops electric power in the Northwest Territories and the Yukon. Concerning transportation facilities it administers the construction of roads and highways across Canada where there is a federal interest, exclusive of national park areas. The Branch also gives engineering advice to various departments of the Federal Government on water supply systems, bridge and building design and construction, sewage disposal, and electrical systems.

## **Water Resources Division**

The primary function of the Division is the acquisition, analysis, and publication of stream-flow and run-off data covering the whole of Canada; these basic data are used in connection with power development, storage, irrigation, drainage, flood warnings, flood control, fisheries research, navigation, domestic water supply, and various international water problems. The Division acts as the central repository for hydrometric and water-power information acquired from all available sources; it maintains gauging stations and carries out hydrometric investigations in the provinces in accordance with co-operative agreements under which provincial authorities contribute funds towards the cost. Administration of the Dominion Water-Power Regulations in the Yukon and Northwest Territories and on Crown lands is a further responsibility. The Division is also very actively concerned with international waterway problems; its engineers serve on numerous boards and Engineering Committees and act as technical advisers to the Department of External Affairs and to the International Joint Commission; special investigations and studies are carried out by the staff of the Division as required. Engineering assistance and advice are supplied to federal agencies, particularly on hydraulic problems.

The Division's activities are largely co-ordinated with those of other organizations, both public and private, which are interested in the use of water resources. Close co-operation is maintained with federal, provincial, and municipal authorities with respect to power and water-supply problems. Stream-flow data are furnished to many private companies which frequently reciprocate by supplying the Division with gauge records and with assistance in securing data of mutual interest. Cordial relations also are maintained with the Water Resources Branch of the United States Geological Survey in the operation of international gauging stations and in the exchange of stream-flow data.



Signals radio stations it appeared that central generating plants should be installed and operated by the federal departments most concerned in order to provide an adequate and reliable supply.

Owing to the relatively light loads available in the various communities a central plant operated by the Commission on a self-sustaining basis could be considered feasible for only Fort Simpson and Fort Resolution, and only on the basis of the major government consumers guaranteeing a minimum consumption.

Full details of the operations of the Northwest Territories Power Commission will be found in its Annual Report for the year ended March 31, 1951.

## **Trans-Canada Highway Division**

Subsequent to the passing of the Trans-Canada Highway Act on December 10, 1949 a Federal-Provincial conference under the chairmanship of the responsible Federal minister, the Honourable Robert H. Winters, was held in Ottawa on December 15 and 16, 1949. All 10 provinces were represented and the various interested Federal Departments and Commissions also had representatives in attendance. The discussions at this meeting were of a preliminary nature, dealing with the conditions under which the Federal Government would participate in this project.

A draft agreement was prepared, and, on April 24, 1950, at a meeting held in Ottawa, attended by representatives of all provinces, agreements were executed with six Provincial Governments. The Honourable Robert H. Winters, Minister of Resources and Development, under the authority of Order in Council, signed the agreements on behalf of the Government of Canada and the following provincial representatives signed for their respective governments:

ONTARIO: Honourable George H. Doucett, Minister of Highways;

MANITOBA: Honourable Errick F. Willis, Minister of Public Works;

BRITISH COLUMBIA: Honourable E. C. Carson, Minister of Public Works;

PRINCE EDWARD ISLAND: Honourable J. Walter Jones, Premier and Minister of Public Works;

SASKATCHEWAN: Honourable J. T. Douglas, Minister of Highways;

ALBERTA: Honourable D. B. MacMillan, Minister of Public Works.

Copies of the agreements were tabled in the House of Commons by the Hon. George Prudham, then Parliamentary Assistant to the Minister of Resources and Development, on April 25, 1950.

On May 27, the Honourable W. S. Anderson, Minister of Public Works, signed for the Province of New Brunswick, and on June 23, Newfoundland's Minister of Public Works, the Honourable E. S. Spencer signed an agreement on behalf of his province.

General specifications for the construction of the highway are included in the agreement. These define widths of right-of-way, type and dimensions of pavement, widths of shoulders, clearance distances from obstructions, load-bearing capacity of the roadway, curvature, alignment, gradients, sight distances, bridge loadings, horizontal and vertical bridge clearances and widths of bridges varying according to length of structure.

An engineering organization called the Trans-Canada Highway Division, was set up in the Special Projects Branch. This Branch on December 31, 1950, became the Engineering and Water Resources Branch of the Department of Resources and Development. The Trans-Canada Highway Division is responsible for administering details of the Trans-Canada Highway Act and agreement and carrying out the federal government's engineering work relative thereto. Responsibility for the design of the highway and its construction rests initially with the provincial departments concerned. The duties of the Federal Government engineers are to inspect, in co-operation with provincial engineers, all phases of construction of the highway and to ensure that the terms of the Federal-Provincial Agreement are carried out with respect to plans, specifications, and other matters.

The Trans-Canada Highway Division co-operates with the provincial government authorities in determining final cost figures of all phases of construction. This is necessary in fixing the amount of the federal contribution.

Payments by Canada to the provinces for construction costs of the Highway cover two periods: prior construction period, April 1, 1928, to December 9, 1949 and new construction period from December 10, 1949, the date the Act came into effect, until December 9, 1956, the expiry date of the seven-year Trans-Canada Highway Act.

The Act provides that where a province has constructed a highway during the prior construction period, that properly may be incorporated as part of the Trans-Canada Highway, the Governor in Council may authorize a federal contribution in respect of the cost to the province of the construction of the highway in such amount and payable at such times and in such manner as the Governor in Council may determine, but not to exceed 50 per cent of the cost of construction as determined by the Governor in Council. Where satisfactory cost data on prior construction are not available, the agreement under the Act provides for joint appraisals of the sections of the existing road concerned. Actual payment of prior costs is related to progress on new work and the ratio can be adjusted from time to time as more reliable data are forthcoming. Similarly, the Act provides for payment by the Federal Government to the provinces for amounts not exceeding 50 per cent of construction costs for approved new work done on the Trans-Canada Highway during the new construction period.

The agreement provides that federal contributions do not vest in Canada any proprietary interest in the Highway, nor shall Canada have any responsibility for its maintenance.

From the beginning of negotiations it has been envisaged, and it is accepted in principle by all parties to the agreement, that the Trans-Canada Highway is to follow the shortest practical east-west route.

The route selected by the participating provinces has received federal government approval as complying with the intent and purposes of a Trans-Canada Highway. Following is a general description of this route.

*Newfoundland:* from St. John's across the Avalon Peninsula by way of Holyrood north to Clarendville and Gander and thence via Bishop's Falls and Grand Falls to Corner Brook. From Corner Brook the route proceeds southward to the Port aux Basques ferry terminus.

*Prince Edward Island:* commencing at Wood Islands Ferry, the terminal of the Prince Edward Island-Nova Scotia ferry, thence through Millview, to the east boundary of the city of Charlottetown; again from the north boundary of the city of Charlottetown through the village of Cornwall, Bonshaw, and Tryon, to the town of Borden, the Prince Edward Island terminal of the ferry system to Cape Tormentine, New Brunswick.

*New Brunswick:* commencing at the Nova Scotia boundary near Aulac, a branch of the highway will extend to Cape Tormentine to provide a connecting link with the ferry to Prince Edward Island. From Aulac, the highway will run through Sackville to Moncton, Sussex, and Jemseg to Fredericton. From Fredericton, the route will proceed via Woodstock, Grand Falls, and Edmundston to the New Brunswick-Quebec interprovincial boundary.

*Ontario:* the general route is described as proceeding from Hawkesbury near the eastern boundary of Ontario, via Ottawa, Carleton Place, Perth, Peterborough, Lindsay, Orillia, Parry Sound, Sudbury, Thessalon, Chapleau, Schreiber, Nipigon, Port Arthur, Ignace, Dryden, and Kenora to the intersection of Provincial Highway No. 17 with the Manitoba boundary.

*Manitoba:* from the eastern interprovincial boundary the route leads westerly to St. Boniface and Winnipeg, thence via Portage La Prairie and Carberry to Brandon, thence from the west boundary of Brandon via Virden and Elkhorn to the intersection of Saskatchewan Highway No. 1 with the Manitoba-Saskatchewan boundary.

*Saskatchewan:* commencing at the Manitoba boundary the route follows generally Highway No. 1 through or near Moosomin, Wapella, Whitewood, Broadview, Wolseley, Sintaluta, and Indian Head to Regina. West of Regina the route goes via Belle Plaine to Moose Jaw and on to Swift Current, continuing to the interprovincial boundary one mile east of Walsh, Alberta.

*Alberta:* commencing at the Saskatchewan boundary the route designated by the Province of Alberta is generally the route of the present Alberta Highway No. 1, touching Walsh, Medicine Hat, Brooks, Bassano, Gleichen, and Strathmore on the way to Calgary. From Calgary the route goes to Cochrane and Canmore, thence to the intersection of the Alberta-National Park boundary at the Banff National Park East Gate.

*National Parks:* the Federal Government is wholly responsible for the construction and maintenance of the Trans-Canada Highway over the 83-mile route through Banff and Yoho National Parks. This route, leaving the east entrance of Banff National Park, follows the Bow River Valley westerly to Banff and enters Yoho National Park, B.C., at the Great Divide. From the latter point the route follows the Kicking Horse River Valley to Field and reaches the west boundary of Yoho National Park near Leancoil, B.C.

*British Columbia:* from the west boundary of Yoho National Park the Trans-Canada Highway route will follow British Columbia Highway No. 1 around the Big Bend of the Columbia River from Golden to Revelstoke, and thence westward through Malakwa, Sicamous, Salmon Arm, and Kamloops following the south Thompson River to Lytton and then the Fraser River Canyon and Valley route to New Westminster and Vancouver. Again, commencing in the city of Nanaimo on Vancouver Island, the route proceeds southward along British Columbia Highway No. 1 to Victoria, the western terminus of the Trans-Canada Highway.

In all of the foregoing, where the location of the route is not described in complete detail, the route shall follow the shortest, practical distances successively between the places mentioned. The route may follow the shortest practical diversion around any place mentioned.

The mileage of the Trans-Canada Highway route as designated by the eight presently participating provinces totals 4,270 miles. Of this total, 3,948 miles, or 92.4 per cent, is considered to be passable for vehicular traffic. However, only 1,741 miles, or approximately 40.9 per cent of the total is paved and this only to varying standards.

Table No. 1 gives details by provinces of the mileages that are considered passable for vehicular traffic and the number of miles that are now paved.

Table No. 1

| Participating<br>Provinces | Total<br>Mileage | Approximate<br>Passable<br>Mileage | Paved<br>Mileage |
|----------------------------|------------------|------------------------------------|------------------|
| Newfoundland .....         | 610              | 450                                | 40               |
| Prince Edward Island ..... | 74               | 74                                 | 30               |
| New Brunswick .....        | 388              | 388                                | 306              |
| *Ontario .....             | 1,412            | 1,250                              | 456              |
| Manitoba .....             | 305              | 305                                | 154              |
| Saskatchewan .....         | 414              | 414                                | 139              |
| Alberta .....              | 292              | 292                                | 142              |
| British Columbia .....     | 692              | 692                                | 427              |
| National Parks .....       | 83               | 83                                 | 47               |
| Totals .....               | 4,270            | 3,948                              | 1,741            |

\*A northern, east-west route is already available through Ontario via North Bay, Cochrane, Hearst, Geraldton, and Nipigon.

It is estimated that by March 31, 1951, the participating provinces will have completed some 78.2 per cent of the work initiated by them on federally approved grading contracts since entering into the agreement. Saskatchewan, Ontario, and Newfoundland, in that order, have together accounted for nearly three-quarters of the total.

Table No. 2 gives details of grading construction that has been under way during the period December 10, 1949 to March 31, 1951.

Table No. 2—Grading

| Province                   | Miles of<br>Grading<br>Contracts<br>Approved | Estimated<br>Per Cent<br>Completed<br>March 31, 1951 | Equivalent<br>Mileage<br>Completed |
|----------------------------|--|--|------------------------------------|
| Newfoundland .....         | 153  | 70   | 107.1                              |
| Prince Edward Island ..... | 19   | 90   | 17.1                               |
| New Brunswick .....        | 30   | 90   | 27.0                               |
| Ontario .....              | 145  | 80   | 116.0                              |
| Manitoba .....             | 30   | 100  | 30.0                               |
| Saskatchewan .....         | 151  | 80   | 120.8                              |
| Alberta .....              | 15   | 80   | 12.0                               |
| British Columbia .....     | 29   | 60   | 17.4                               |
| Totals .....               | 572  | 78.2   | 447.4                              |

Table No. 3 shows the position regarding paving contracts let between December 10, 1949 and March 31, 1951.

**Table No. 3—Paving**

| Province                   | Miles of<br>Paving<br>Contracts | Estimated<br>Per Cent<br>Completed<br>March 31, 1951 | Equivalent<br>Mileage<br>Completed |
|----------------------------|---------------------------------|--|------------------------------------|
| Newfoundland .....         | ..                              | ..   | ..                                 |
| Prince Edward Island ..... | ..                              | ..   | ..                                 |
| New Brunswick .....        | ..                              | ..   | ..                                 |
| Ontario .....              | 66                              | 70   | 46.2                               |
| Manitoba .....             | 44                              | 65   | 28.6                               |
| Saskatchewan .....         | ..                              | ..   | ..                                 |
| Alberta .....              | 42                              | Nil  | ..                                 |
| British Columbia .....     | 38                              | 90   | 34.2                               |
| Totals .....               | 190                             | 57   | 109.0                              |

Table No. 4 gives the Labour Report of the number of Man Days (8 hours) of "On Site" labour on the Trans-Canada Highway for the period beginning December 10, 1949 and ended March 31, 1951.

**Table No. 4—Labour**

| Province                  | Field<br>Engineering | Construction<br>Supervision | Construction<br>Work | Totals  |
|---------------------------|----------------------|-----------------------------|----------------------|---------|
| Newfoundland .....        | 11,868               | 16,630                      | 87,994               | 116,492 |
| Prince Edward Island .... | 1,760                | 1,258                       | 6,647                | 9,665   |
| New Brunswick .....       | 3,752                | 3,329                       | 17,367               | 24,448  |
| Ontario .....             | 23,820               | 63,343                      | 211,123              | 298,286 |
| Manitoba .....            | 3,851                | 1,722                       | 7,935                | 13,508  |
| Saskatchewan .....        | 9,248                | 2,379                       | 21,468               | 33,095  |
| Alberta .....             | 6,370                | 2,321                       | 7,334                | 16,025  |
| British Columbia .....    | 11,540               | 8,258                       | 51,011               | 70,809  |
| Totals .....              | 72,209               | 99,240                      | 410,879              | 582,328 |

NOTE:—The total number of Man Days (8 hours) of "Off Site" labour is estimated at 990,000 for the same period.

**Table No. 5**

**Summary of Contractual Commitments to March 31, 1951**

| Province                   | Approved Total<br>Commitments | Canada's<br>Share      |
|----------------------------|-------------------------------|------------------------|
| Newfoundland .....         | \$ 2,781,860.00               | \$ 1,390,930.00        |
| Prince Edward Island ..... | 597,540.00                    | 298,770.00             |
| New Brunswick .....        | 1,612,404.00                  | 806,202.00             |
| Ontario .....              | 9,567,265.76                  | 4,783,632.88           |
| Manitoba .....             | 1,203,119.50                  | 601,559.75             |
| Saskatchewan .....         | 1,375,487.02                  | 687,743.51             |
| Alberta .....              | 2,398,372.36                  | 1,199,186.18           |
| British Columbia .....     | 5,014,961.16                  | 2,507,480.58           |
|                            | <b>\$24,551,009.80</b>        | <b>\$12,275,504.90</b> |

Table No. 6 gives a Summary of Payments of Provincial Government claims under the Act, up to and including March 31, 1951.

**Table No. 6**

| Province                      | Prior<br>Construction | Interim<br>Construction | New<br>Construction | Total         |
|-------------------------------|-----------------------|-------------------------|---------------------|---------------|
| Newfoundland ..               |                       | \$ 132,241.19           | \$ 825,602.60       | \$ 957,843.79 |
| Prince Edward<br>Island ..... |                       |                         | 134,135.43          | 134,135.43    |
| *New Brunswick                |                       |                         |                     |               |
| Ontario .....                 |                       | 337,172.88              | 2,412,155.75        | 2,749,328.63  |
| Manitoba .....                | \$ 28,444.00          | 17,958.54               | 227,556.45          | 273,958.99    |
| Saskatchewan ..               |                       | 3,103.38                | 389,065.88          | 392,169.26    |
| Alberta .....                 |                       | 14,975.87               | 178,079.83          | 193,055.70    |
| British Columbia              | 267,805.35            | 830,605.45              | 1,405,981.59        | 2,504,392.39  |
| Totals .....                  | 296,249.35            | 1,336,057.31            | 5,572,577.53        | 7,204,884.19  |

\*New Brunswick had not submitted a claim up to and including March 31, 1951.

A great deal of the work of the departmental engineers during the year under review was related to the clarification of the terms of the agreements and their proper application to construction operations. Continual contact was maintained with provincial government authorities in regard to all matters affecting the highway.

Determination of the cost of existing road to be claimed by the provinces as "prior construction" was proceeded with and joint federal-provincial estimates prepared.

A large amount of inspection work was undertaken, some 4,000 miles of projected highway being jointly inspected by federal and provincial engineers.

On March 31, 1951, approximately 3,823 miles of grading and paving work were necessary to complete the highway to the standard agreed upon by the Federal Government and the eight provincial governments which signed the agreement.



The take of muskrat and beaver showed a considerable decrease while the take of lynx and otter declined slightly.

Substantial increases were noted in the take of marten, mink, and squirrel. The increased take of marten may reflect the benefits of the establishment of a close season for marten several years ago.

No change in the extent of the areas in which beaver or marten may be trapped was made during the year. Some change was made in the marten quotas. Where registration of trapping areas is in effect, the trappers have been allowed to take beaver in proportion to the number of colonies of beaver in their areas. This is being continued and it is hoped that trappers will be encouraged to conserve the beaver and thus assure future income.

### **The Game Ordinance**

The Game Ordinance was amended on May 6, 1950, and February 15, 1951, and a number of changes were made to make the Ordinance consistent with current conditions and requirements. The more important of these changes are:

1. The buying or selling of caribou meat by persons other than Indians or Eskimos within an area with a radius of 20 miles from the post offices at Yellowknife, Fort Smith, Resolution, Hay River, Norman Wells, or Port Radium was prohibited.
2. The basis of issue of marten and beaver licences was changed.
3. Provision was made for a special autumn trapping season in the Mackenzie Delta for muskrats.
4. Changes were made in the open and close seasons for muskrats.

### **Wood Buffalo National Park**

An aerial survey was made to determine the extent of the buffalo herds in this park. A similar survey had been made in 1949. The surveys indicate a buffalo population at the present time of between 10,000 and 12,000 animals. Each year a number of buffalo are slaughtered and the meat is made available to missions, schools, and hospitals and to the Indian Affairs Branch of the Department of Citizenship and Immigration, for general relief purposes.

Studies are continuing to determine the carrying capacity of the forage ranges, the number of buffalo available for slaughter, and the best method of using buffalo meat and hides. Means of increasing the use of buffalo meat are also being studied.

### **Fur Export Ordinance**

The revenue collected under this ordinance during the fiscal year totalled \$99,567.15. There were six prosecutions for infraction of the game laws and convictions were secured in all cases.