PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1938

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by CHARLES F. BANFIELD, Printer to the King's Most Excellent Majesty.
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To His Honour E. W. HAMBER,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits herewith the Annual Report of the Provincial Museum of Natural History for the year 1938.

G. M. WEIR,
Provincial Secretary.

Provincial Secretary's Office,
Victoria, B.C.

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., February 21st, 1939.

The Honourable Dr. G. M. Weir,
Provincial Secretary, Victoria, B.C.

SIR,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the Report for the year ended December 31st, 1938, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,
F. KERMODE,
Director.

DEPARTMENT *of the* PROVINCIAL SECRETARY.

The Honourable Dr. G. M. WEIR, *Minister.*

P. WALKER, *Deputy Minister.*

PROVINCIAL MUSEUM OF NATURAL HISTORY.

Staff:

FRANCIS KERMODE, *Director.*

I. MCTAGGART COWAN, Ph.D., *Assistant Director.* MARGARET CRUMMY, *Stenographer.*

WINIFRED V. HARDY, *Recorder Botanist.* LILLIAN C. SWEENEY, *Assistant Preparator.*

E. A. COOKE, *Laboratory Assistant and Attendant.* J. ANDREW, *Attendant.*

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JOHN FANNIN.
First Curator of Provincial Museum.

REPORT *of the*
PROVINCIAL MUSEUM OF NATURAL HISTORY
FOR THE YEAR 1938.

By Francis Kermode, Director.

OBJECTS.

(*a.*) To secure and preserve specimens illustrating the natural history of the Province.
(*b.*) To collect anthropological material relating to the aboriginal races of the Province.
(*c.*) To obtain information respecting the natural sciences, relating particularly to the natural history of the Province, and diffuse knowledge regarding the same.

ADMISSION.

The Provincial Museum is open to the public, free, week-days, 9 a.m. to 5 p.m.; May 1st to October 31st, Sunday afternoons, 1 p.m. to 5 p.m.

The Museum is closed on all statutory holidays, except on notification through the press.

VISITORS.

The following figures show the difference between those who registered and those who were checked by the staff. While only 33,837 registered, the total of the check was 59,040.

	Registered.	Checked.
January	940	1,706
February	938	1,872
March	921	1,877
April	1,588	2,816
May	1,815	3,642
June	3,139	5,197
July	8,644	14,172
August	9,077	16,231
September	4,016	6,033
October	1,401	2,567
November	758	1,496
December	600	1,431
Totals	33,837	59,040

This being the fiftieth anniversary of the opening on October 25th, 1887, of the Provincial Museum in Victoria, British Columbia, a short history of its foundation and progress would not be amiss.

In the year 1886 thirty prominent citizens prepared a petition to His Honour the Lieutenant-Governor, the late Clement F. Cornwall, praying for the establishment of a Provincial Museum for the preservation of the flora, fauna, ethnology, and minerals of this Province. This petition had the approval of the Lieutenant-Governor, and on January 29th, 1886, the following letter was sent to the Executive Council for attention:—

"*To His Honour the Lieutenant-Governor in Council:*

"*Re a Provincial Museum.*

"May it please Your Honour:

"It has long been felt desirable that a Provincial Museum should be established in order to preserve specimens of the natural products and Indian antiquities and manufactures of the Province and to classify and exhibit the same for the information of the public.

"It is a source of general regret that objects connected with the ethnology of the country are being yearly taken away in great numbers to the enrichment of other museums and private collections, while no adequate means are provided for their retention in the Province.

"Limited as such articles are in quantity, their loss is frequently irreparable, and when once removed from the locality of their production their scientific value and utility to the country are greatly lessened.

"There is no doubt that the recent opening-up of British Columbia by railway enterprise will stimulate the development of her mineral and other natural resources; hence, a museum where classified specimens of ores, etc., may be examined will prove of practical benefit to the Province at large.

"It is an acknowledged fact that the natural history of the country is by no means as yet perfectly understood, and it is trusted that, if a centre for investigation be afforded, the interests of that science will be advanced and the attention and co-operation of naturalists of other countries will be gained.

"There are at present in the Province many gentlemen interested in furthering this scheme who have signified their readiness to assist to the best of their powers.

"At a meeting held for the purpose of considering this subject upon Thursday, January 14th, it was resolved to memorialize Your Honour in Council, praying that such steps may be taken by the Government towards establishing the proposed institution as may be considered requisite.

"And your petitioners, as in duty bound, will ever pray, etc.

"GOVERNMENT HOUSE,
January 29th, 1886.

"In referring the accompanying petition on the subject of the establishment of a Provincial Museum to the Executive Council, the Lieutenant-Governor fully appreciates and can conscientiously emphasize the arguments and reasons therein set forth why such an institution is desirable, and confidently recommends it to the favourable consideration of the Council.

"CLEMENT F. CORNWALL.

"It will be observed that the petition has received the signatures of the most prominent persons, scholars, and otherwise, in the place.

"On a Memorandum from the Honourable the Provincial Secretary, dated October 23rd, 1886, recommending that John Fannin, Esquire, J.P., be appointed Curator of the Provincial Museum, as from the first of August last.

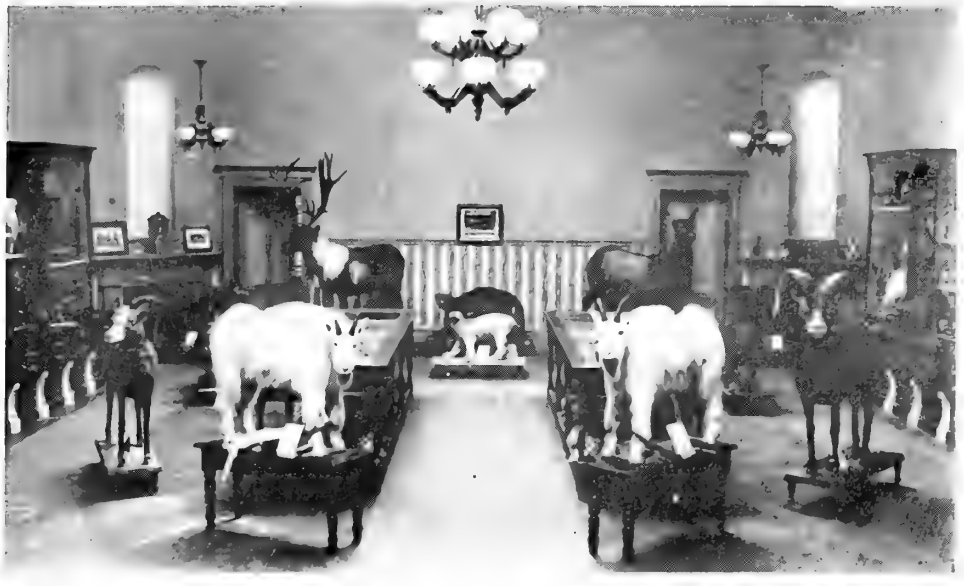
"The Committee advises approval.

"WM. SMITHE,
President, Executive Council.

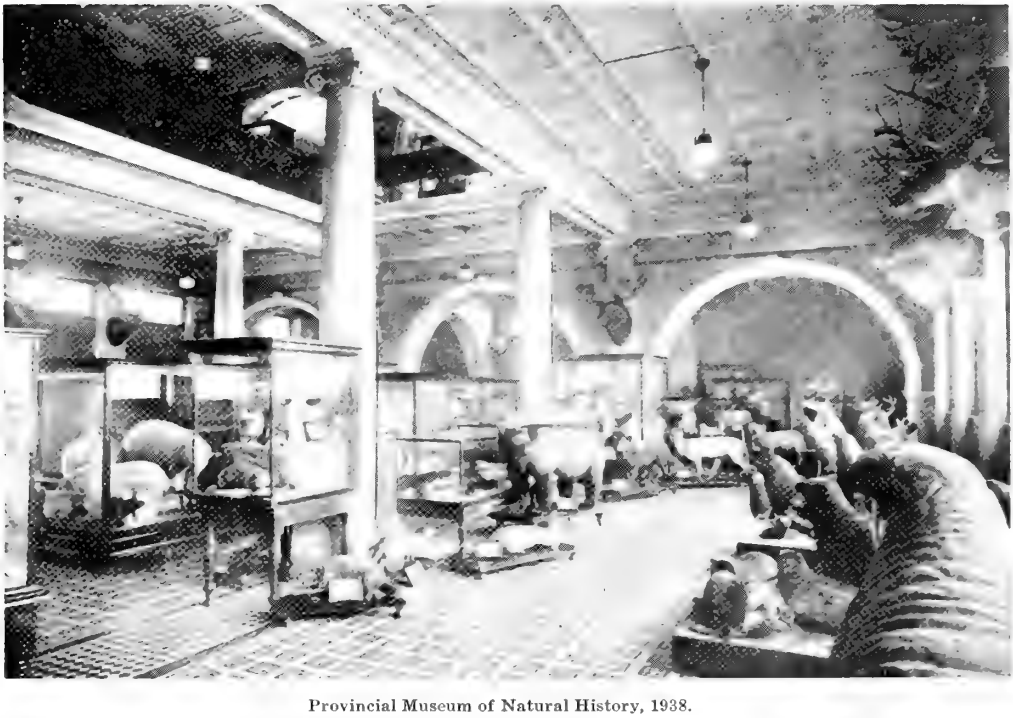
"Approved.—Clement F. Cornwall, October 25th, 1886."

John Fannin, upon accepting the appointment, presented the Government with twelve cases of birds and mammals to form a nucleus for the collections of the Natural History Museum. A room about 15 by 20 feet next to that occupied by the Provincial Secretary, the late Honourable John Robson, was given to the Museum, as it was to function under that department. This was in one of the old Capitol Buildings which were torn down in 1897 and replaced with the magnificent structure of to-day.

The Museum remained in these quarters for several years until in 1890 the Government built a new Supreme Court Building, and turned over the old building to this department. This was opened to the public on May 24th, 1890, and collections began to increase rapidly. In 1893 new Legislative Buildings were planned, and as the Museum had outgrown its accommodation, arrangements were made for the east wing to be set aside for the Provincial Museum. The new quarters were occupied in the spring of 1897 and opened to the public on May 24th. The mineral exhibit at this time was taken over by the Department of Mines and moved into the old Legislative Assembly Building which still stands at the rear of the present Legislative Buildings.



Provincial Museum of Natural History, 1889.



Provincial Museum of Natural History, 1938.

On the 23rd day of February, 1904, John Fannin, the Curator, was superannuated owing to ill-health, and he died on the 20th day of June of the same year.

Upon the retirement of John Fannin the present Director, F. Kermode, who had been Assistant Curator since September, 1890, was appointed to the vacancy. As the Museum collections continued to grow rapidly, it soon became cramped for space in which to display specimens. Particularly was this the case with the large collection of anthropological and ethnological material collected during the time when the Honourable Dr. Henry Esson Young was Provincial Secretary and Minister of the Department.

During the year 1918 the Director prevailed on the Government, through the Honourable Dr. J. D. MacLean, the Provincial Secretary, to have the Public Works Department excavate the basement under the present building. Exhibition-rooms were made for the display of this valuable material which illustrates the life-history of the aboriginal races of British Columbia. These specimens are now very crowded and require at least five times the space to be properly displayed.

The main exhibition-hall on the first floor displays the native animals of the Province, many of them habitat groups with painted backgrounds; the herbarium is also on this floor, in a room which at the time we came into this building was a work-shop for the mounting of specimens.

The second floor galleries comprise a large display of the native birds, eggs, fish, shells, fossils, reptiles, etc.; the offices of the Director, Assistant Director, general office, and library.

The Honourable Dr. G. M. Weir, Provincial Secretary and Minister of Education, in the summer of 1938 arranged for the Public Works Department to build a stairway to the attic in which a floor was placed, thus giving extra room for the large bird and mammal research collections, now more available for study by those who are particularly interested in these subjects. The study series of Lepidoptera and Coleoptera and part of the library are also on this floor. If the investigation of the fauna, flora, and prehistory of our Province is to be expanded to take care of the current demands, and if the results of these researches are to be adequately displayed to the public, means will have to be found to augment the resources currently available to the Museum.

At present the collections in the Provincial Museum of Natural History comprise approximately:—

	Specimens.
Botany	11,350
Anthropology	4,915
Ornithology	8,366
Mammals	3,502
Entomology	50,000
Shells, etc.	10,000
Fish	2,000
Reptiles and Amphibians	1,000
Palæontology, Fossils	1,000
Total	92,133

At the annual meeting of the Pacific North-west Bird and Mammal Society, held at the University of Washington, Seattle, Washington, the Director of the Provincial Museum, Victoria, B.C., invited the society to hold their April meeting at Victoria, on the occasion of the fiftieth anniversary of the Museum of Natural History. This invitation was graciously received and accepted.

This meeting took place on Saturday, April 23rd, in the Provincial Museum, members from Seattle, Port Angeles, Pulman, Everett, Vancouver, Comox, and Victoria attended, and the meeting was open to visitors.

An address of welcome was tendered to the society and visitors by the Director of the Museum, after which the regular meeting took place, during which a number of interesting papers were given by members. The meeting extended well into the afternoon, and an opportunity was then given to the members to go out in a body on a field excursion to hear and see the Skylarks in the vicinity of Victoria. Many birds were seen, also heard in song as they soared high in the air. As Victoria is the only place on North America where the English Skylark is to be found, the members returned to the city gratified to have been able to enjoy so unique an experience.

During the evening the Government of the Province of British Columbia gave a dinner in the Duke of Kent Room of the Empress Hotel to the members of the Bird and Mammal Society and other invited guests, numbering seventy-five persons.

The Honourable Dr. G. M. Weir presided, assisted by the Honourable Dr. K. C. MacDonald. After the dinner there were a number of short speeches by those particularly interested in Museum-work. Dr. R. C. Miller, University of Washington, represented the President of the Bird and Mammal Society; Dr. Erna Gunther, Director of the University of Washington Museum; Professor Trevor Kincaid, Department of Zoology, University of Washington; Dr. M. Y. Williams, University of British Columbia; T. P. O. Menzies, Curator of the Vancouver City Museum; Mr. W. N. Kelly, the Burrard Field Naturalists' Club; Dr. W. A. Clemens, Pacific Biological Station, Nanaimo; Dr. H. E. Young, Secretary of the Provincial Board of Health; F. Kermode, Director of the Provincial Museum of Natural History.

The seasonal wild-flower exhibit, which is near the main entrance, always maintains its attractiveness for the students of botany. This branch of the department is kept up wholly by the staff and a few friends who collect these specimens in their own time, which is greatly appreciated. This is an excellent educational display and it is continually referred to for the identification of specimens by local residents, school children, and tourists passing through the city.

The correspondence in the office has increased steadily; many letters having reference to zoological, botanical, and ethnological matters are received, and specimens sent in for identification from all parts of our Province. The department also has considerable correspondence with all the larger museums throughout the continent, and loans specimens in zoology and botany to these institutions for working out the distribution of species. They reciprocate by loaning us specimens from time to time for comparison with our western forms.

The early part of the year was thought an opportune time to carry on zoological and botanical explorations in the Peace River area. This portion of our Province lies east of the Rocky Mountains in the northern area, and to the best of our knowledge no zoological collecting had been done there. It was felt that if a trip could be arranged to include this area, a very valuable collection would be secured and that many species not recorded for British Columbia would be taken, as it is practically the same faunistic area as lies in northern Saskatchewan and Alberta.

Dr. I. McTaggart Cowan, Assistant Director, was detailed for this work and Mr. P. W. Martin was appointed field assistant. They left Victoria with the Museum collecting-van on April 28th and motored through Washington up to Alberta, and then west to the Peace River collecting district, arriving there at the beginning of the northern spring migration in this area. Here they remained for two months and many valuable zoological and botanical specimens were collected, a number of which were new to British Columbia. A full report of this trip will be published later in the Occasional Papers series.

It is the intention of the department this year to begin a new series of publications, separate from the annual reports, which hitherto have contained articles on the fauna, flora, and ethnology of the Province. It has been deemed advisable that in the future the report should contain only the account of the work of the institution during the year and the donations received, and that all scientific papers be published separately from time to time as funds permit. These will be known as " Occasional Papers of the Provincial Museum."

It is a pleasure to acknowledge our indebtedness to a number of biologists, botanists, and others who have during the course of the year contributed immeasurably to the work of the Museum:—

T. T. and E. B. McCabe, of Berkeley, California, while conducting biological exploration along the north coast of British Columbia in September and October collected several hundred small mammals from regions hitherto completely untouched. These they generously donated to the Museum to supplement their collections already there.

J. F. S. and T. C. Fletcher, of Toronto and Philadelphia, have spent the past year and a half in North Central British Columbia studying the fauna and flora. While there they secured and presented to the Museum invaluable collections covering the flora and vertebrate fauna of their district. The detailed notes accompanying their collections greatly augment the value of these.

During May and June P. W. Martin was employed in the capacity of field zoologist. Throughout the rest of the year Mr. Martin gave voluntary assistance on several field-studies and in the preparation of material for the research and display collections. His valued co-operation has been freely given when and where most needed.

T. W. S. Parsons, Assistant Commissioner of the Provincial Police, when travelling through the country in an official capacity receives the co-operation of his staff in securing particularly valuable anthropological specimens for this department. Among the many specimens secured by Mr. Parsons this year is a large piece of jade or nephrite, 20 by 11 by 8 inches, from the Lillooet area. This piece is especially interesting as it was taken from a ledge of rock. It shows how it had been broken off and worked by the Indians in making their tools, parts of it being highly polished where it had been cut into. Other specimens of this rock in the Museum have always been found in boulder form and have been taken from creeks.

Dr. L. Constance, Dr. H. L. Mason, and the staff of the University of California herbarium; Dr. H. Raup, of the Arnold Arboretum, Harvard University; Mr. J. W. Eastham, Plant Pathologist, Vancouver, B.C.; and Mr. A. H. Brinkman, Craigmyle, Alberta, have all given us valuable assistance in the identification of difficult botanical species and in exchanging specimens.

A detailed report of the work of the Museum and the specimens received follows.

REPORT OF THE ASSISTANT DIRECTOR.

The most noteworthy feature in the Museum's activities during the past year is the completion of structural changes giving access to the third floor. These changes have made available space for the study collections and for library purposes that has been urgently needed for several years. The addition of more shelving and of a number of storage-cabinets is required before the full advantage of the extended space can be realized.

With the completion of the stairway to the third floor the study collection of birds and part of the study collection of mammals were transported to their new quarters. The small basement-room formerly occupied by these has been fitted with shelving and is now in use as storage-quarters for the rapidly expanding collections of reptiles, amphibians, fish, and other alcoholic material. The sorting and installation of the collections in the new room has been partially completed. It is impossible to emphasize too highly the degree to which these changes facilitate the use of the research collections.

Routine curatorial work, the maintenance of bibliographies, and the extension of these into the older literature has occupied much time during the year but with encouraging results. The increasing influx of specimens for the study collections dealing with the vertebrate life of British Columbia has demanded a corresponding increase in time spent in the preparation of this material and its subsequent study.

During the year certain additions have been made to the display collections in the Museum galleries. With the assistance of Mrs. L. Sweeney and Mr. E. A. Cooke the preparation of casts of the fish of British Columbian waters has continued as suitable specimens became available. Eight casts have been completed and put on display, four others are in course of preparation. The skeleton of the Sharp-nosed Finner Whale obtained last year was degreased and mounted. It now hangs in the well between the first and second floors of the Museum.

Several specimens of birds and mammals have been mounted and put on display to replace time-worn material. It is most unfortunate that funds are not available to carry this replacement-work forward more rapidly. Many of the mammals, in particular, now on display convey an impression neither veracious nor artistic. From the standpoint of the utilization of the Museum by tourists alone, and quite apart from the use by local residents and school children, it is to be deplored that better examples of the many game and fur-bearing animals of our Province are not available at the Museum. A very small fraction of the funds annually expended on evanescent and doubtful "tourist attractions" would, if devoted to the installation of adequate exhibits of game and fur in the Provincial Museum, provide a great and lasting attraction, one possessing at the same time great educational value.

The first ten groups of life-replicas of our amphibians and reptiles, completed and put on display during the year, have occasioned much favourable comment. The twenty casts comprising this display represent ten species, others will be added as suitable material is obtained.

Several of the display-cases of invertebrate material have been rearranged and relabelled. The greater time spent before these cases by the museum visitors bears testimony to the efficacy of the new order.

The increased demands upon the Museum by other Government departments, institutions, private collectors, and the general public has at times drawn heavily upon the time of various members of the staff. This phase of museum activity is valuable and worthy of encouragement. There is a growing need for a staff member to undertake the educational work of the Museum outside its own walls.

Systematic work on the Museum study collections has been continued. Several special studies are in progress, and the following technical and popular papers have been prepared and published by the Assistant Director during 1938:—

What causes freak antlers. Angler and Hunter, January, 1938, pp. 7, 8, 14.

Fur cycles and the fur trade, 1827–1857. B.C. Historical Quarterly, January, 1938, *2:* 19–30.

Report on a study-trip to Eastern Museums. Ann. Rept., B.C. Prov. Museum, 1937 (1938): L 14–L 18.

Geographic distribution of color phases of the red fox and black bear in the Pacific Northwest. Journ. of Mammalogy, *19*, No. 2, May 14th, 1938: 202–206.

Notes on the hares of British Columbia, with the description of a new race. Journ. of Mammalogy, *19*, No. 2, May 14th, 1938: 240–243.

Distribution of the races of Williamson sapsucker in British Columbia. Condor, *40:* 128–129.

Mammals of the mountain tops. Game Trails in British Columbia, May, 1938: 12–13, 25.

Distribution of turtles in coastal British Columbia. Copeia, 1938, No. 2: 91.

Some fish records from the coast of British Columbia. Copeia, 1938, No. 2: 97.

Snakes of British Columbia. The Garden Beautiful, *7*, August, 1938, No. 5: 6–8.

Feathered midgets. *idem.* September, 1938: 14–15.

Southward. *idem.* October, 1938: 16–17.

Field mice. *idem.* November, 1938: 14–15.

The mountain sheep of British Columbia. Game Trails in British Columbia, December, 1938: 8–9.

Educational Work.

The Museum has continued to co-operate with teachers in the identification of material and in the demonstration of museum exhibits. There has been a notable increase in the demand for museum lectures. During the year the Director delivered three lectures and the Assistant Director twenty to schools, service clubs, scientific societies, and game associations.

Field-work.

In May and June a Museum field party, consisting of I. McT. Cowan and P. W. Martin, conducted zoological and botanical investigations in the Peace River district. The report on this region is in course of preparation and will be published shortly. The slightly augmented funds and improved equipment made available for exploratory work have served to facilitate this branch of the Museum's activity. It will be many years before the work will in any way approach completion, but satisfactory progress is now being made.

In the early autumn I. McT. Cowan, with the gratuitous assistance of P. W. Martin, made several short field-trips on Vancouver Island with the main object of continuing the study of the ecology of the Columbian black-tailed deer that the former has had in progress for several years.

ACCESSIONS TO THE MUSEUM.

To December 31st, 1938, the catalogued collections in the Museum number as follows: Anthropological and ethnological, 4,915; botanical, 11,337; ornithological, 8,366; mammals, 3,502.

Silver Fox.
(*Vulpes alascensis abietorum* (Merriam).)

Hoary Marmot or Whistler.
(*Marmota caligata cascadensis.*)

Botanical Collections.

Talbot Bond, 1; Dennis Ashby, 2; Mrs. H. C. Bridge, 1; E. A. Cooke, 2; J. W. Eastham (by exchange), 62; Mrs. J. F. S. Fletcher, 173; Mrs. G. A. Hardy, 12; Mrs. H. Hossack, 1; Mrs. Howard, 1; A. P. McBean, 92; W. H. A. Preece, 1; N. C. Stewart, 35; W. Robertson, 1; A. G. Slocomb, 8; A. H. Brinkman, 5; F. R. Cope, 16; I. McT. Cowan, 239; California Academy of Sciences (by exchange), 21; Miss J. Bostock, 3; A. Nichols, 1; Miss A. Galloway, 1; F. Kermode, 2.

Ethnological Collections.

By gift 25

Salishan (Vancouver Island).

P. Foster, Victoria, B.C. One human skull.
H. Holstein, Sooke, V.I. One fish-hook, 1 bone implement.
T. W. S. Parsons, Deputy Commissioner, B.C. Provincial Police. One gold encrusted copper bracelet, 3 spear-hafts.

Salishan (Mainland).

P. B. Freeland, Hope, B.C. One human skull.
T. W. S. Parsons. One large piece of jade showing sites of chisel cutting, 1 shallow paint-dish in large boulder, 1 stone implement.

Salishan (Bella Coola).

Constable M. J. Condon, B.C. Provincial Police, Bella Coola, B.C. One stone maul, 1 target stone, 1 stone mortar, 2 stone skin-scrapers, 1 arrow-shaper, 1 chisel, 1 wooden whistle, 2 birch-bark baskets.

Athapascan.

Constable J. Blakiston Gray, B.C. Provincial Police, Telegraph Creek, B.C. Two stone arrow-points, 1 obsidian arrow-point, 1 stone axe.

Zoological Collections.

Mammals received and catalogued	1,067
Birds received and catalogued	420
Amphibians and reptiles accessioned	26
Fish accessioned	123

Mammals.

By gift 651

G. C. Carl, Cowichan Lake, V.I. Two mink skulls.
Bruce Cash, Victoria, B.C. One deer skull.
E. A. Cooke, Victoria, B.C. Skeletons of 1 racoon, 1 muskrat.
W. Dalquest, Seattle, Washington. Twelve mammal skins and skulls, by exchange.
W. Durrand, Revelstoke. Four flying squirrels, skulls of 6 weasel, 4 marten, 1 mink, 1 mountain-goat.
J. F. S. and T. C. Fletcher. One hundred and six small mammals.
J. Hatter, Cowichan Lake, V.I. One marten skull, 1 mink skull.
J. W. Jones, Saanich, V.I. One deer skull.
S. Laing, Colwood, V.I. Two silver fox pups.
D. Leavens, Vedder Crossing, B.C. Two weasel, 1 mountain-beaver, 1 shrew.
T. T. and E. B. McCabe, Berkeley, Calif. Four hundred and nineteen small mammals.
R. A. Cumming, Vancouver, B.C. One hundred and fifty-two small mammals.
B. McLoughlin, Chilliwack, B.C. One mountain-beaver skull.
P. W. Martin, Victoria, B.C. Twenty-three small mammals.
A. Monks, Alberni, V.I. Skeletons of mink, racoon, otter, skin and skull of wolverine.

A. Peake, Quatsino, V.I. One sea lion, 2 dusky shrews, 1 water shrew, skulls of 2 beaver, 3 mink, 1 marten, 1 weasel, 5 bear.
K. Racey, Vancouver, B.C. One hoary marmot.
J. C. Shelford, Wistaria, B.C. Two bats, 2 long-tailed weasel, 5 rabbits, 1 *Synaptomys*, 1 water shrew, 2 muskrats; skulls of 4 mink, 5 marten, 1 coyote, 1 beaver, 6 muskrat, 2 lynx, 1 fisher.
F. P. Weir, Cowichan Lake, V.I. Three weasel, 3 marten skulls.

By purchase 3
By the staff—
I. McT. Cowan 160
P. W. Martin 82

Birds.

By gift 91
W. Durrand, Revelstoke. One redpoll.
J. F. S. and T. C. Fletcher, Tetana Lake. Seventy-four.
L. O. Howard, Victoria, B.C. One eared grebe.
J. D. Lines, Jordan River. One feral muskovy duck.
P. W. Martin and I. McT. Cowan. Ten white-tailed ptarmigan.
P. W. Martin, Victoria, B.C. One song-sparrow, 1 Arctic tern, 1 hooded merganser.
J. C. Shelford, Wistaria, B.C. One flycatcher.
By the staff—
I. McT. Cowan 228
P. W. Martin 158

Amphibians and Reptiles.

By gift 8
T. Brown, Ganges, B.C. One garter snake.
G. Marshall, Victoria, B.C. One rattlesnake.
A. Peake, Quatsino, V.I. Four Pacific newt, 1 rusty salamander, 1 red-backed salamander.
By the staff—
I. McT. Cowan and P. W. Martin 18

Fish.

By gift 3
Askey's Fish Market, Victoria, B.C. One alligator fish.
F. Radoslovich, Barkley Sound, V.I. One electric ray.
A. Peake, Quatsino, V.I. One wolf eel.
By the staff—
I. McT. Cowan and P. W. Martin 120

Insects.

C. Child, Vernon, B.C. One moth.
A. E. Collins, Victoria, B.C. Two Polyphemus moths.
M. Darnell, Victoria, B.C. One wasps' nest on window pane.
W. Downes, Victoria, B.C. Named collection of Hemiptera.
R. Grice, Esquimalt. One sphinx moth.
J. K. Nesbitt, Victoria. One specimen of *Plathemes lydia.*
S. O. Oliver, Vancouver, B.C. One wasps' nest.
Miss E. Rhuman, Port Alberni, V.I. One giant water-bug.
J. O. Smart, Victoria. One sphinx moth.

Invertebrates.

Don Buckland, New Westminster, B.C. One *Primnoa willeyi.*
D. R. Quayle, Nanaimo, V.I. Seven topotypes of *Paphia bifurcata.*

PALÆONTOLOGY.

G. M. Johnson, Vancouver, B.C. By purchase, 1 musk-ox skull.

C. A. Cornwall, Victoria, B.C. One fossil shell.

A. Corry, Vancouver, B.C. One trilobite.

Miss R. Jacino, Natal, B.C. One ammonite.

REPORT OF BOTANIST.

A total of 746 specimens were listed in the botanical collections for the year. Of these, 254 were collected by members of the staff, 83 received in exchange, 324 as gifts, and 85 comprised old material which was identified and catalogued.

The number of sheets filed in the Herbarium was 467, assistance in this and in the mounting of specimens being rendered by Mrs. L. Sweeney.

The seasonal wild-flower exhibit attracted many visitors and students throughout the year, 280 species being shown. The plants in the wild-flower stands in the Herbarium were relabelled, after the faded specimens had been skilfully treated by Mrs. L. Sweeney.

Plants identified for students in various parts of the Province and for visitors to the Museum amounted to 902.

The following species not hitherto contained in the Herbarium were added to it during the course of the year:—

Agropyron latiglume (Scribn. & Smith) Rydb. Mount Garibaldi, B.C., August 12th, 1938, J. W. Eastham.

Agrostis thurberiana Hitchc. Mount Garibaldi, B.C., August 12th, 1938, J. W. Eastham.

Corynephorus canescens (L.) Beauv. Locarno Park, Vancouver, B.C., July, 1938, J. W. Eastham.

Deschampsia flexuosa (L.) Trin. Point Grey, Vancouver, B.C., July, 1938, J. W. Eastham.

Leersia oryzoides (L.) Sw. Burnaby Lake, B.C., September 14th, 1938, J. W. Eastham.

Setaria lutescens (Weig.) Hubb. Duncan, V.I., August 23rd, 1938, Dennis Ashby.

Poa gracillima Vasey. Mount Garibaldi, B.C., August 12th, 1938, J. W. Eastham.

Poa paucispicula Scrib. & Men. Mount Garibaldi, B.C., August 9th, 1938, J. W. Eastham.

Carex aquatilis Wahl. Charlie Lake, June 16th, 1938, I. McT. Cowan.

Carex retrosa Schw. Big Bend, B.C., July 15th, 1937, Mrs. I. McT. Cowan.

Carex scoparia Schk. Dawson Creek, B.C., May 28th, 1938, I. McT. Cowan.

Carex Tracyii Mackenzie. Monashee Pass, B.C., June 26th, 1937, Mrs. I. McT. Cowan.

Scirpus microcarpus Presl. Tupper Creek, B.C., June 20th, 1938, I. McT. Cowan.

Listera nephrophylla Rydb. Mount Revelstoke Park, B.C., July 5th, 1937, Mrs. I. McT. Cowan.

Polyganum natans A. Eat. Bear Flat, B.C., September 16th, 1935, Percy Freer.

Actaea rubra (Ait.) Willd. Bear Flat, B.C., July 13th, 1935, Mildred Vause.

Ranunculus abortivus L. Bear Flat, B.C., July 13th, 1935, Mildred Vause.

Ranunculus pedatifidus var. *cardiophyllus* (Hook.) Britton. Peace River district, 1933, Miss Bertrand.

Berterosa incana L. Grand Forks, B.C., June 24th, 1938, J. W. Eastham.

Prunus pennsylvanica L. F. Bear Flat, B.C., May 29th, 1935, Irene Proctor.

Rubus ideaus var. *canadensis* Richards. Bear Flat, B.C., June 23rd, 1935, Melba Proctor.

Rubus viburnifolius (Greene) Rydb. Mount Revelstoke, B.C., July 19th, 1937, Mrs. I. McT. Cowan.

Hedysarum alpinum L. var. *americanum* Michx. Bear Flat, B.C., June 23rd, 1935, Violet Parchumchuck.

Oxytropis spicata Hook. Bear Flat, B.C., June 1st, 1935, Percy Freer.

Oxytropis splendens Dougl. Peace River, B.C., June 14th, 1935, Percy Freer.

Viola Selkirkii Pursh. Monashee Pass, B.C., June 27th, 1937, Mrs. I. McT. Cowan.

Ligusticum Leibergii Coult. & Rose. Mount Revelstoke, B.C., July 19th, 1937, Mrs. I. McT. Cowan.

Douglasia laevigata Gray var. *ciliolata* Constance. Strathcona Park, V.I., B.C., July, 1937, N. C. Stewart. (Record for British Columbia.)

Agastache urticifolia (Benth.) Rydb. Cascade, B.C., July 18th, 1938, J. W. Eastham.
Pentstemon gracilis Nutt. Bear Flat, B.C., June 29th, 1935, Percy Freer.
Rhinanthes Kyrollae Chab. Bear Flat, B.C., July 31st, 1935, Phyllis Freer.
Plantago eriopoda, Torr. Windermere, B.C., July 7th, 1938, J. W. Eastham.
Lonicera ebractulata Rydb. Monashee Pass, B.C., June 23rd, 1937, Mrs. I. McT. Cowan.
Sambucus melanocarpa Gray. Monashee Pass, B.C., June 25th, 1937, Mrs. I. McT. Cowan.
Valeriana septentrionalis Rydb. Bear Flat, B.C., June 10th, 1935, Phyllis Freer.
Arnica rhizomata A. Nels. Fort St. John, B.C., 1931, Miss A. Birley.
Senecio pauperculus Michx. Bear Flat, B.C., July 11th, 1935, Phyllis Freer.

THE LIBRARY.

Publications received during the year total 363. Of these sixty-eight were secured by subscription and purchase, twenty were presented, and the remainder from institutions on our exchange list.

We take this opportunity of acknowledging our indebtedness to the scientists from whom we received separates during the year.

NESTING OF THE WESTERN GREBE IN BRITISH COLUMBIA.

By J. A. Munro.

The first nesting of the Western Grebe, *Aechmophorus occidentalis*, in British Columbia to be established occurred at Swan Lake, in the Okanagan Valley, in July, 1933 (J. A. Munro, The Condor, Vol. 37, pp. 178, 179). This paper mentions also that the species is abundant on the British Columbia coast in winter and on the inland lakes of the Province during migration.

In 1935 Mr. O. J. Murie, of the United States Bureau of Biological Survey, discovered a nesting colony of this species in a *Scirpus* marsh at the east end of Williams Lake, in the Cariboo region. Mr. Murie counted seventy-six adults on June 17th; saw the first young on June 26th and on June 28th found a number of nests. (Personal letter from O. J. Murie, April 19th, 1938.) During the three summers succeeding Mr. Murie's discovery, the present writer visited this colony once or oftener during each of the three years; the following is an account of those visits.

On August 11th, 1936, a number of Western Grebe were associated in small groups on the open water; they were exceedingly wary and in a canoe it proved impossible to approach closer than 200 yards before they dived. It was estimated that the population comprised at least one hundred birds, of which more than half were adults.

In 1937 the nesting-ground was inspected on June 5th and August 2nd; on the first date fifty-one adults and on the second fifty-three adults and thirty young of various ages were counted.

On June 5th most of the birds acted as if paired and were assembled in a long, straggling flock on open water near the centre of the bay, along the shore of which the nesting-ground is located. The flock could not be approached closely, but a near view was obtained of eight birds which at different times swam out from the shore-line growth of rushes.

In this marsh the bullrushes are luxuriant and grow closely together, and in early June the old growth had not been disturbed nor had it broken down, so that ample nesting-cover was available. Along the margin of the marsh, pressing against its outermost fringe, detached rush stems had accumulated as a result of wind and wave action; in places the debris blanketed the surface to a width of 10 feet or more. The eight birds referred to glided along the narrow channels amongst the rush clumps and then dived beneath the blanket of floating rushes which intervened between the marsh channels and open water. Clear of this obstacle they partly emerged then quickly dived again with a swirl and splash, more like that made by a frightened muskrat than by a bird. After this momentary reappearance each bird vanished in the manner characteristic of the species. Such was the behaviour followed by all but one bird which swam a short distance through the floating debris and then, confused perhaps by the nearness of the canoe, remained there for several minutes—long enough for a camera to be adjusted and several exposures made. The bird was less than 10 feet away and the jewel-bright, red eye seemed the only vital thing in the motionless form. Finally, propelled by both wings and feet, it raced across the rushes to open water.

Williams Lake, B.C., site of the breeding colony of Western Grebe.

Nest of Western Grebe.

Adult Western Grebe in the barrier of floating debris.

The three nests found were solidly constructed mounds about two feet in diameter and with the upper surface 6 inches above the water. Except for a few pieces of green *Myriophyllum,* the dry stems and sodden black fragments of *Scirpus* was the only material used. Resting securely on firmly anchored rush-roots and well concealed in the old rush growth, they were quite different in these respects from the usual floating nests of other grebes.

One nest contained three eggs, another two, and a third one. After an hour's absence on other parts of the lake the writer returned to find that all the eggs were gone. Several crows had been flying over the marsh and walking on the floating mass of rushes where they picked up some kind of food; there seems little doubt that the destruction of the grebes' eggs can be attributed to these crows.

The clutches of two and three eggs were nest-stained and probably had been incubated for a week or so; the single egg, judging by the colour, was recently laid. Undoubtedly this was not the first occasion on which the birds had left their partly incubated eggs, but perhaps it was the first occasion on which they had left them uncovered. It would seem likely that, in these particular cases at least, the destruction of the eggs can be attributed to human interference. On other occasions the birds probably covered the eggs before leaving the nest and crows had not found them. To what extent crows ordinarily destroy eggs in this colony is not known, but it seems likely that a large percentage are taken each year. In this particular year it is known with certainty that the twenty-five pairs of Western Grebe were accompanied by thirty well-grown young on August 2nd. This would be a high survival in the case of Holboell's Grebe and is probably an adequate survival in the case of Western Grebe.

On August 2nd most of the Western Grebe again were in a long, scattered flock in the centre of the bay and, as usual, gradually vanished on being approached. Later from a distance under good conditions of visibility it was seen that the flock comprised an association of pairs accompanied by one or two, in some cases three, young. None was less than one-quarter grown. They were like silver shadows on the water and it was hard to detect their presence beside the larger black and white adults except when light conditions were favourable.

In 1938 the colony was first visited on July 4th, when fifty-one adults were counted. Most of these were on the open water; a smaller number swam along the edge of the *Scirpus* marsh and two were observed at close range through the open marsh as they left their nests.

Five nests were examined and photographed; two contained three eggs each and three contained two eggs each. With the exception of one clutch of two all the eggs were discoloured and probably had been incubated for some days. In all but one nest the eggs had been covered with pieces of the nest material.

The nest averaged 4 feet in diameter; the main structure being composed entirely of green *Scirpus* stems which formed a floating platform and in the centre a small amount of soft vegetation surrounded the eggs. In four nests this material was green *Myriophyllum spicatum,* in the other black rotted *Scirpus* debris. All were anchored in water 5 feet deep amongst open *Scirpus* growth; none was built on the matted roots of these plants as were those found the previous year. Four nests examined on July 12th were empty; three others contained one, two, and three eggs respectively; in two nests the eggs were uncovered. On this date the entire population of fifty adults, together with seven silvery young about one-third grown, were seen swimming out from the marsh to the open lake.

Crows were nesting in the poplars along shore and it is probable they had destroyed a number of grebes' eggs; one egg, from which the contents had been removed through a hole in the side, floated beside one of the grebe's nests. No young grebe were observed.

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