PROVINCE OF BRITISH COLUMBIA

# REPORT

OF THE

# PROVINCIAL MUSEUM

OF

# NATURAL HISTORY

FOR THE YEAR 1928

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
Printed by CHARLES F. BANFIELD, Printer to the King's Most Excellent Majesty.
1929.

*To His Honour* ROBERT RANDOLPH BRUCE,
*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 1928.

SAMUEL LYNESS HOWE,
*Provincial Secretary.*

*Provincial Secretary's Office,*
*Victoria, B.C., March, 1929.*

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., March 27th, 1929.

*The Honourable S. L. Howe,*
*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, 1928, covering the activities of the Museum.

I have the honour to be,
Sir,
Your obedient servant,

FRANCIS KERMODE,
*Director.*

# TABLE OF CONTENTS.


PAGE.

Staff of the Muesum ..... 6
Admission ..... 6
Inception and History of Provincial Museum ..... 7
Objects ..... 8
Visitors ..... 9
Activities ..... 9
Anthropology and Archæology ..... 10, 23
Palæontology ..... 22, 23
Botany ..... 15
Marine Zoology ..... 12, 25
Entomology ..... 24
Amphibians ..... 24
Ornithology ..... 24
Mammology ..... 23
Accessions ..... 23
Publications received from other Museums ..... 26

# DEPARTMENT *of the* PROVINCIAL SECRETARY.

The Honourable S. L. Howe, *Minister.*

P. de Noe Walker, *Deputy Minister.*

## PROVINCIAL MUSEUM OF NATURAL HISTORY.

*Staff:*

Francis Kermode, *Director.*

William A. Newcombe, *Assistant Biologist.* Winifred V. Redfern, *Recorder.*

Nancy Stark, *Stenographer.* Frank A. Risser, *Attendant.*

Wilfred H. Gibson, *Apprentice.*

---

### DAYS AND HOURS OF ADMISSION.

The Provincial Museum is open, free, to the public daily throughout the year from 9 a.m. to 5 p.m. (except New Year's Day, Good Friday, and Christmas Day) ; it is also open on Sunday afternoons from 1 p.m. to 5 p.m. from May 1st until the end of October.

PLATE I.

PROVINCIAL MUSEUM OF NATURAL HISTORY, VICTORIA, B.C.

# REPORT *of the*
# PROVINCIAL MUSEUM OF NATURAL HISTORY
## FOR THE YEAR 1928.

---

### INCEPTION AND HISTORY OF THE PROVINCIAL MUSEUM.

By Francis Kermode, *Director.*

PETITION.

January 14th, 1886.

*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.

| | |
|---|---|
| Matt. B. Begbie. | W. S. Gore. |
| G. Columbia. | D. W. Higgins. |
| I. W. Powell. | Joshua Davies. |
| R. P. Rithet. | Charles Wilson. |
| Edgar Crow Baker, M.P. | John Ash. |
| Noah Shakespeare, M.P. | Ashdown Greene. |
| Henry Pellew Crease, J.S.C. | W. F. Tolmie. |
| Charles E. Pearse. | Robt. Ward. |
| Robt. Harvey. | Austin Scriven. |
| James S. Fell. | F. W. Gray. |
| W. C. Ward. | R. L. T. Galbraith. |
| A. J. Langley. | J. A. Mara. |
| H. K. de Knevett. | C. A. Semlin. |
| Percival Jenns. | T. Harper. |
| Geo. W. Walkem, J.S.C. | P. J. W. Pearse. |

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.

Although the Provincial Museum had moneys voted for its maintenance since 1886, it was not made statutory until an Act of Legislation was passed at the Legislature, dated February 21st, 1913. Which reads as follows:—

## AN ACT RESPECTING THE PROVINCIAL MUSEUM OF NATURAL HISTORY AND ANTHROPOLOGY.

[*21st February, 1913.*]

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:—

*Short Title.*

1. This Act may be cited as the "Provincial Museum Act."

*Establishment.*

2. The buildings situated in the City of Victoria, and known as the "Provincial Museum," shall be the Provincial Museum for the purposes of this Act.

3. The Lieutenant-Governor in Council may from time to time arrange for the erection of such additional building or buildings and for the purchase of such property as may be deemed necessary for the better carrying-out of this Act: Provided always that the necessary expenditure shall have been sanctioned by the Legislative Assembly.

*Objects.*

4. The objects of the Provincial Museum shall be:—
   (*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 to increase and diffuse knowledge regarding the same.

The Provincial Museum was started in 1886 and was given a room about 15 by 20 feet next to that accupied by the Provincial Secretary, Hon. John Robson, in the main building of the old Capitol Buildings.

Here it remained for several years, the nucleus of the collection being twelve cases presented by John Fannin at the time of his appointment as Curator.

In 1890 the Museum was moved into the building previously occupied by the Supreme Court of the Province of British Columbia. As there was now more space for the exhibition of specimens, the work of building up the Museum began in earnest, and it was officially opened to the public on May 24th, 1890.

In 1893 the Government decided to build new Legislative Buildings, and, the Museum having outgrown its accommodation, arrangements were made whereby the new east wing was to be set aside for the Provincial Museum.

The Museum was moved into the present building in the spring of the year 1897, and was opened to the public on May 24th, 1897.

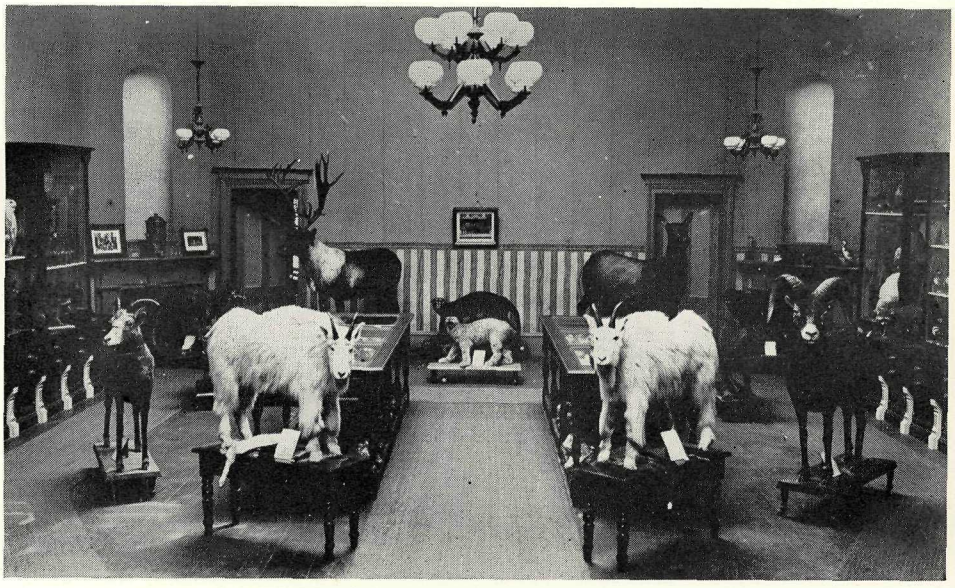
The present Director of the Provincial Museum joined the Provincial Service in the Museum Department, under the late John Fannin, on September 25th, 1890, and they worked together, building up the institution until February 23rd, 1904.

Upon the retirement of the late John Fannin, the present Director was sent for and asked to accept the position as head of the Museum Department. The collections in the Provincial Museum have grown considerably since that time, and the space allotted to the various branches of natural history is very limited, so that the specimens are now very crowded on all three exhibition floors. During the heavy tourist travel in the months of July, August, and September, visitors find very little room for the desired examination of the exhibits.

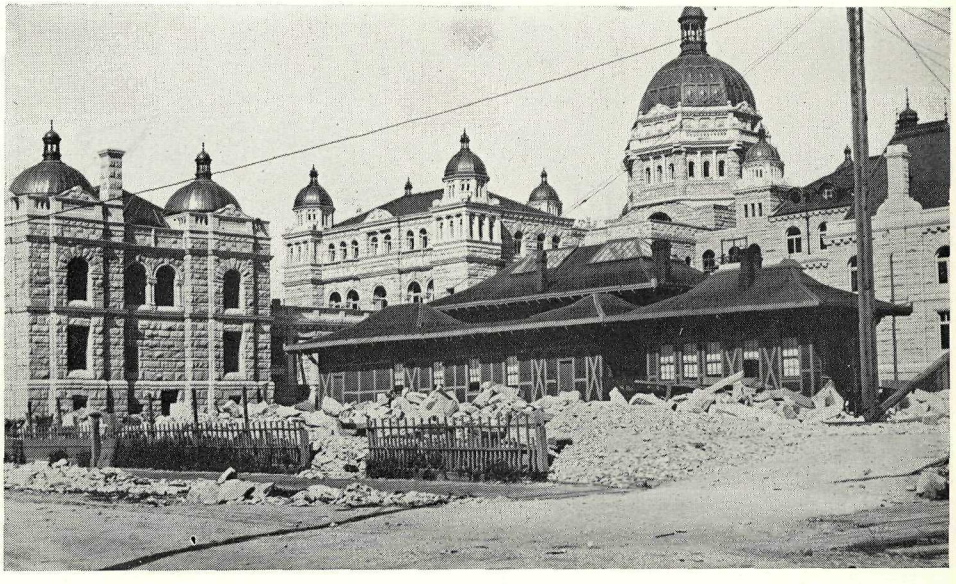
Therefore, it is not unreasonable to suggest that a new building should be provided in the near future, if the scientific work of the Museum is to be carried on to a greater extent, and groups of specimens exhibited in their natural surroundings.

During the year 1918 the Director prevailed upon the Government to excavate the basement in order to provide room for the display of the valuable anthropological specimens, which had been in storage for some time. I may say that this is one of the most valuable collections of anthropological material of the North-west Coast, showing the life-history of the aboriginal races of this Province, although prior to the Museum securing these specimens in 1905 and later years, many valuable specimens had been taken out of the country by collectors for American and European museums, which are now lost to this Province for ever.

PLATE II.

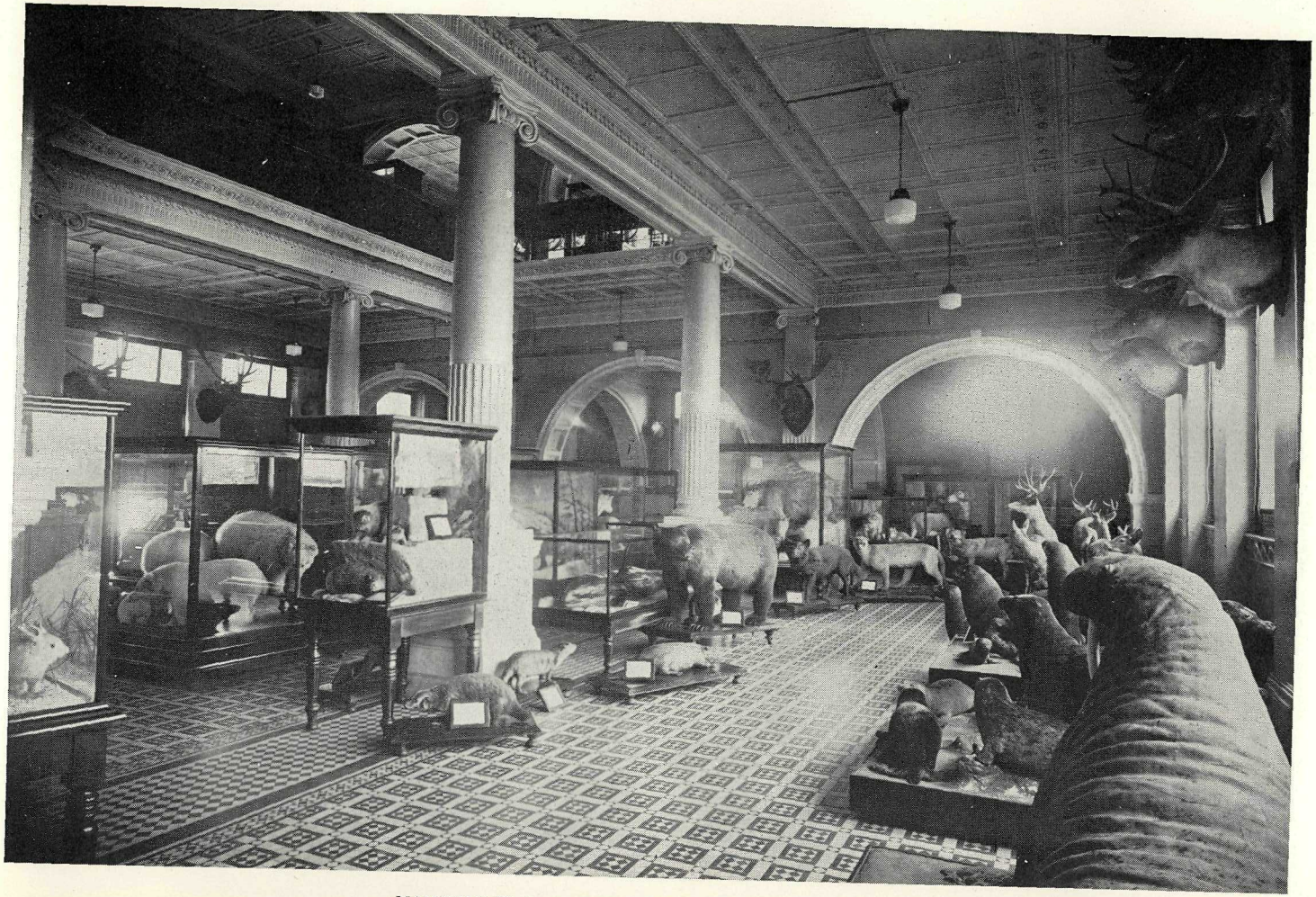


BIRDS AND MAMMALS IN PROVINCIAL MUSEUM, VICTORIA, B.C., IN THE YEAR 1889 (OLD SUPREME COURT BUILDING).



PROVINCIAL MUSEUM (OLD SUPREME COURT), 1896, SURROUNDED BY NEW LEGISLATIVE BUILDINGS.

PLATE III.



MAMMALS IN THE PROVINCIAL MUSEUM, VICTORIA, B.C.

If the Museum is to be of greater value to the general public it must be allowed to advance, as no museum collection is ever complete, and the scientific work should be carried on with sufficient accommodation for the purpose. The Provincial Museum is recognized throughout the world as a scientific institution; in it are a number of types that were first described from the North-west Coast of America, and its Annual Reports are mailed to every quarter of the globe.

The records of visitors during the last few years show with what interest the Museum is regarded, not only by local residents, but by people from all parts of the world. During one month alone, in the year 1928, over 14,000 have visited the collections; whereas our total for the year 1888, the first year in which we kept a record, was only 550; and without a doubt the Provincial Museum is one of the finest advertising assets in the Province with regard to the natural resources of British Columbia.

## VISITORS.

The following figures show the difference between those who registered their names in the book and those who were checked by the attendants. While only 31,485 people registered, the total of the check was 57,026.

| | Registered. | Checked. |
|---|---|---|
| January | 1,475 | 2,859 |
| February | 1,264 | 2,385 |
| March | 1,039 | 1,916 |
| April | 1,098 | 2,393 |
| May | 1,879 | 3,633 |
| June | 3,240 | 5,927 |
| July | 7,990 | 13,132 |
| August | 7,855 | 14,183 |
| September | 3,055 | 5,114 |
| October | 1,032 | 2,075 |
| November | 806 | 1,798 |
| December | 742 | 1,611 |
| Totals | 31,475 | 57,026 |

## ACTIVITIES.

During the year 1928 no field-work was carried on by the staff of the Museum, as Mr. Hardy, who had been the Assistant Biologist for the last four years, resigned to take up other activities, and no successor was appointed until the season was well advanced. Mr. Hardy's services will be greatly missed, especially to those interested in Coleoptera.

Collecting was done, when possible, on the southern end of Vancouver Island and the Herbarium was strengthened by securing many specimens of our Flora in their seeding and fruiting forms.

A great deal of time was given to students and amateur collectors in identifying their collections, which were sent in from many parts of the Province, during the spring and summer seasons. In order to do this it has often been necessary to set aside the installing and cataloguing of Museum collections, so that all members of the staff could assist in the necessary research-work.

However, the Museum progressed materially as will be noted by the number of specimens received during the past year. One collection worthy of special mention is the loan of sixty-eight anthropological specimens by Mr. A. W. Shiels, of Bellingham, Washington, which included a very fine Chilcat blanket from Northern British Columbia, also a number of very finely woven baskets, some of which were made by the Attu Indians inhabiting the outer islands of the Aleutian group, a tribe whose basketry is woven from a beach-grass. Specimens made by this tribe are getting very scarce owing to the younger generations not taking up this art. This collection is exhibited in a special case known as the "A. W. Shiels Collection" and is to be seen at the entrance to the anthropological rooms.

Mr. and Mrs. Don Munday have presented the Provincial Museum with many specimens, together with natural-history notes made during their expedition to Mount Waddington in 1928, which is given in detail in the Report on page 14.

Mrs. J. P. MacFadden has continued to show her kindly interest in the Museum, with additions to her previous donations of Mosses and Hepatics, which are listed on page 19.

Mr. Claude L. Harrison and Miss R. C. Jones, of the Vancouver Island Section of the Alpine Club of Canada, donated a collection of fossils, secured during a visit to "The Forbidden Plateau," Comox District, and our thanks are due to Mr. W. Harvey for giving a considerable amount of time in determining the species.

Another very interesting collection of small mammals was sent in by Mr. T. T. McCabe, of Indianpoint Lake, Cariboo District. It included shrews, mice, wood-rats, bats, ground-squirrels, etc.

Mr. M. E. Lohbrunner, of Victoria, presented the Museum with the skin of a young sea-otter and the skull of a mature animal. This is the first skin of this species to be exhibited in the Provincial Museum, and is of great interest not only from the natural-history standpoint, but also historically. It was the skins of the sea-otter which brought about the development of the North-west Coast of America, a brief history of which is published on page 12.

Other collections which should receive special mention are: One of 3,000 specimens of Coleoptera from Vancouver Island donated by Mr. G. A. Hardy, and one of 400 entomological specimens collected and donated by Mr. C. F. Lallemand, of Canford, B.C.

Mr. J. P. Forde, Dominion Government Engineer in this Division, has been making a particular study of the "ice recession" in Glacier Bay, which has now opened up a harbour within our boundaries. While in this locality he secured a section off a tree that had grown in this area before the present ice period, and must have been buried many thousands of years. It has been identified as the Sitka spruce (*Picea sitchensis* Carr.) and is on exhibition on the second floor, together with a map showing the location of the find and the retreat of the ice in this area.

The thanks of the Director are due to the above-mentioned ladies and gentlemen; to Mr. W. B. Anderson, who is ever on the alert to secure new or rare botanical specimens for the Museum; and to all others mentioned in the list of accessions.

A number of new cases for the anthropological section have been constructed and are at present being installed, which will enable us to place on exhibition many specimens we were compelled to keep in storage.

The Director wishes to extend his grateful thanks to the scientists mentioned under the various headings, who have always been ready and willing to assist the Museum in the identification and verification of specimens sent to them, and, as a small return, our Museum is always ready to loan specimens for comparative purposes to assist them in their scientific investigations of the Flora and Fauna of North America.

## ANTHROPOLOGY AND ARCHÆOLOGY.

By W. A. Newcombe.

### A Haida or Tsimshian Doll.

Doll. Made of white marble, 6 inches long. Carving representing the head and shoulders of a woman, the eyes inlaid with abalone. No. 4214. Haida or Tsimshian.

The following description and extracts are published with the hope of being able to get some definite information from readers as to how and at what period these little objects were used.

In the many collections made in Northern British Columbia during the last forty years I have seen no reference to similar specimens being secured.

They appear to me to have been more probably used as a "charm" rather than as a child's toy.

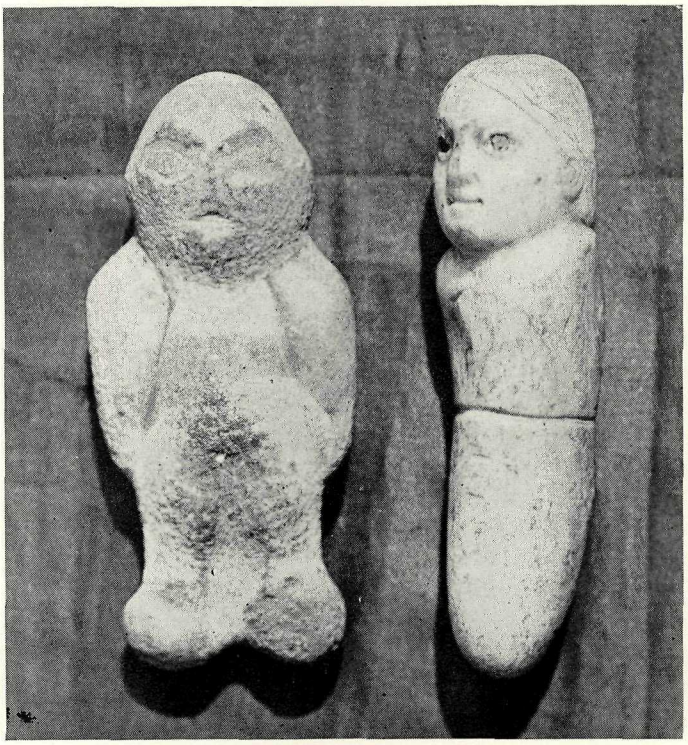
The specimen had been in the Dr. W. F. and J. W. Tolmie collection for seventy years, but no information as to the use or locality of collecting was secured, other than from Northern British Columbia.

The only references I have been able to find of similar objects are as follows:—

Extract from "Fray Juan Crespi Missionary Explorer on the Pacific, 1769–1774," by H. E. Botton, University of California Press, 1927, page 333.

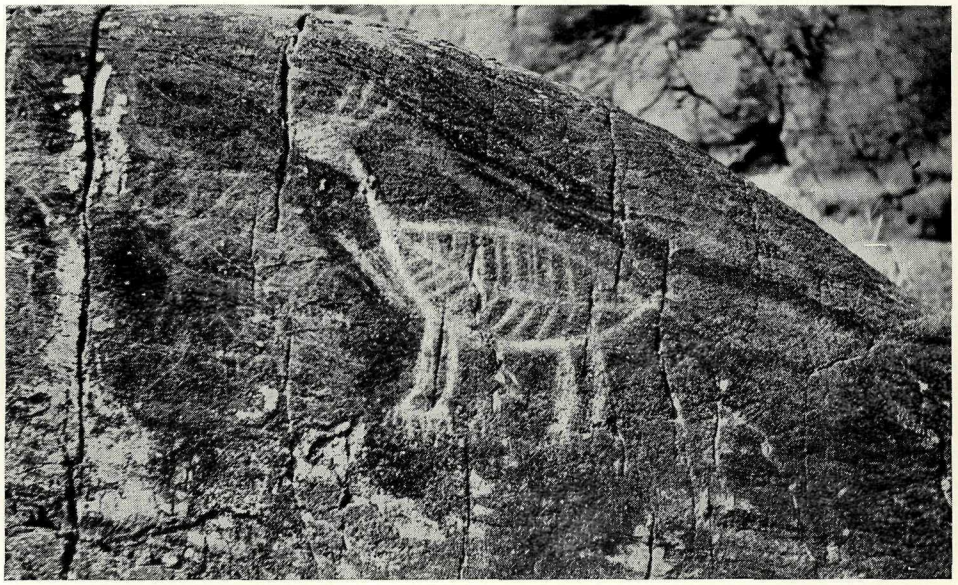
Writing of the Haidas off Langara Island while on Perez's expedition, he says: "They attracted our attention by their appearance, with their good-looking faces and their long hair well combed and made into a braid, and their clothing reaching almost to their heels; their well-woven cloth and the other objects that our men secured from them, of wood as well as of fibre and also of *marble*."

PLATE IV.



HAIDA DOLLS.

Left: A sandstone specimen excavated near Skidegate. Right: Marble Doll from the collection of the late W. F. and J. W. Tolmie.



PETROGLYPH REPRESENTING A DEER AT HOHAP POINT, ABOUT ONE MILE WEST OF BEECHY HEAD, SOOKE, VANCOUVER ISLAND.

The second reference is from the Transactions of the Royal Society of Canada, Section II for 1891, entitled "Descriptive Notes on Certain Implements, Weapons, etc., from Graham Island, Queen Charlotte Islands," by Alexander Mackenzie; edited by G. M. Dawson; page 55. Two small dolls or images (Haida Kwahkeet), Nos. 1294 and 1289. They are very old and their origin is unknown.

"Report says they were highly prized by the ancients, but they are not known to have been used otherwise than as children's toys. They are carved in white marble. One shows a labret; the other a peculiar incision in the lower lip." (Figured on Pl. VII. of the above work.)

Mr. Mackenzie was a Hudson's Bay representative and Justice of the Peace at Masset in the late seventies.

The writer understands that the United States National Museum has a similar specimen, but has been unable to find any reference to it in available publications.

### Loan Collection from A. W. Shiels, Bellingham, Wash.

The Museum takes this opportunity of thanking Mr. and Mrs. Shiels for a very attractive collection of Indian baskets and curios from Alaska and placed in the Museum as a permanent loan. The more important items being:—

A Chilcat blanket from Atlin, B.C.

Twenty Tlingit baskets, with old designs (chiefly from Yakutat and Kayak).

Eight Tlingit sifting-trays of basketry, Chilcat.

Four Kuskokwim baskets of beach-grass.

Three Attu baskets, very fine woven beach-grass.

One Eskimo belt of caribou-teeth.

### Archæology.

The only item of archæological interest in connection with the Museum during the year was a visit paid with Harlan I. Smith, Dominion Archæologist, National Museum, Ottawa, to some unrecorded petroglyphs between Beecher Bay and Sooke Harbour.

There are two groups, both to the westward of Beechy Head, the first on a small island lying inshore and the second on a point of the peninsula a short distance beyond.

They all have been made by rubbing with a hard implement, with the exception of one specimen in the farthest group, in which most of the design is "pecked." Only in one case were we able to get a suitable photograph, which is reproduced on Plate IV., they being on a rock-face overhanging the sea, which prevented one getting directly opposite the specimens with a camera.

The best specimen on the island is very like the Xoa-xoa masks of the Cowichans. There are two or three other faint rubbings here, but hard to decipher.

In the farther group on the point, known as Hohap (Deer) Point by the Beecher Bay Indians, the best specimen represents a deer—made by picking and rubbing; other specimens represent perhaps a whale or porpoise.

As far as I can find out from the Beecher Bay and Sooke Indians, only three of the Beecher Bay, Sooke Peninsula, petroglyphs are of any antiquity—the Aldridge Point "Sea-lion," figured in the 1925 Provincial Museum Report, Plate II., Fig. 2; the Xoa-xoa, on the island; and the Hohap, on the point of the same name. The rest of the markings are said to have been made within the last fifty or sixty years.

Henry Charles, of Beecher Bay, gave the following brief story of the Aldridge Point "sea-lion": "Long years ago a great supernatural animal like a sea-lion killed many of the Beecher Bay Indians when canoeing. The tribe became nearly extinct; the remaining members were afraid to go on the water until one day a mythical man caught the 'sea-lion' and turned him into the stone representation as seen on Aldridge Point."

To date I have been unable to get a connected story of the other two petroglyphs, but was told they were very old.

On our return home we visited the spring where the Beecher Bay Indians secure their fresh water. Immediately adjacent to its outlet from the ground is a peculiar cut (artificial) in the bed-rock and highly polished, as is often seen where celts have been made from boulders. Henry Charles had a story that the cut was made by salmon trying to get to fresh water in the days of mythical beings. I have had another version that it was made by the "claws of a seal."

The cut has the appearance of having been made many years ago by a man learning to make chisels or celts and practising cutting from the block.

Photographs of petroglyphs were also sent us by Wm. Cox, Esq., of Nanaimo, B.C. They were taken at Cape Commerell, near the old Nahwitte Village, and consist of four faces and some indistinct markings on a rock uncovered at half-tide.

## THE SEA-OTTER.

(*Enhydra lutris lutris* Linnæus.)

By W. A. Newcombe.

The Museum was very fortunate in being presented with a young sea-otter skin and the skull of a mature animal by Mr. M. E. Lohbrunner, of Victoria. The animals had been killed off Kodiak Island by crews engaged in fur-sealing in 1906.

Though the skin is not suitable for mounting, it is a valuable acquisition, being the only specimen we have of this "famous" animal. It is of little commercial value, as the pups of this species have a fur which is coarse and light coloured.

The "sea-otter" industry carried on in the latter part of the eighteenth century laid the foundation of the British claim to possessions on the North-west Coast and what is now British Columbia. And if the Province should ever want an emblem, the sea-otter should be considered, it having more to do with our early history than even the beaver.

The following brief résumé of the early "fur-traders," together with extracts from zoologies of that period, should be of general interest; the latter being taken from "little known" works, which are seldom found in Western libraries.

The Spanish up to the time of Cook's arrival on the North-west Coast had done nothing to develop the "trade," though the Russians on the Siberian Coast and the outer Aleutians were reaping a rich harvest with the skins in trade with the Northern Chinese. As to when the industry in this quarter originated, I have been unable to find out. Steller, the surgeon and naturalist of Bering's ill-fated expedition of 1741, knew of this market prior to sailing, as in his account of the voyage while on Bering Island he says: "Commodore Bering's crews killed the sea-otter for their fine skins, for which the Chinese would pay the Russians on the frontiers of Kiachta at the rate of 80 to 100 roubles each (£16 to £20); 900 skins were collected here on shore."

Captain Cook's crews were the founders of the trade which sprang up on the North-west Coast, with Nootka as the rendezvous for ships of all nationalities. They sold the skins gathered on the American Coast, when homeward bound, to the Chinese, getting unexpectedly high prices. They naturally told others on their arrival in England, but it was not until after the publication of the official journals that we find records of vessels outfitting for the North-west Coast. Hanna was in the van in 1785, but was quickly followed by James Strange from India; La Perouse, France; Portlock and Dixon and Barkley from England. By 1800 the Americans, though they did not arrive until three or four years later, controlled the industry in the southern section, with the Russians in the north.

The earlier vessels appear to have secured the majority of their skins from the Haida, of Queen Charlotte Islands; Tsimshians, in the vicinity of Banks Island; and the Kwakiutl, of Milbanke and Fitzhugh Sounds, showing that Hecate Strait, with its fairly shallow water and many outlying rocks, must have been an ideal locality for an animal with the habits of the sea-otter. The commanders of these vessels made sketch-plans and charts of a number of the inlets and anchorages visited, and many of these names are in use to-day.

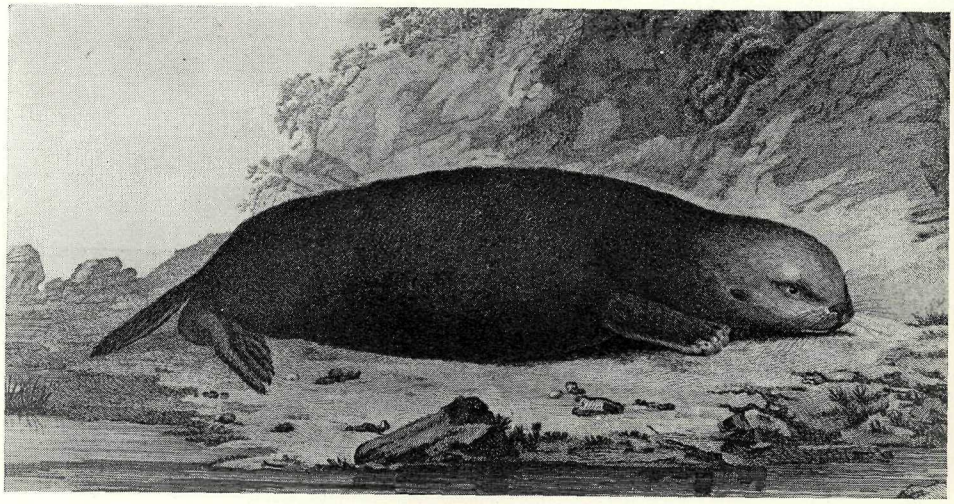
The "Nootka Controversy," which nearly led to a war between England and Spain, would never have happened but for the sea-otter, and it was in the treaty that followed that Spain recognized the rights of other nations on the North-west Coast.

The Americans, as mentioned above, controlled the trade for many years, most of the vessels hailing from Boston (which gave rise to the term "Boston man" for all Americans among the Indians), and it was not until the Hudson's Bay Company established posts in northern waters and sent out the "Beaver" that the British regained the remnants of the trade.

The sea-otter is practically extinct in British Columbia waters to-day, but a few are still found in the Gulf of Alaska and, I believe, on the Siberian Coast. I do not think it is commonly known that "sea-otter" were traded in at Fort Victoria in the early days of the establishment, no doubt some of which had been captured in the vicinity.

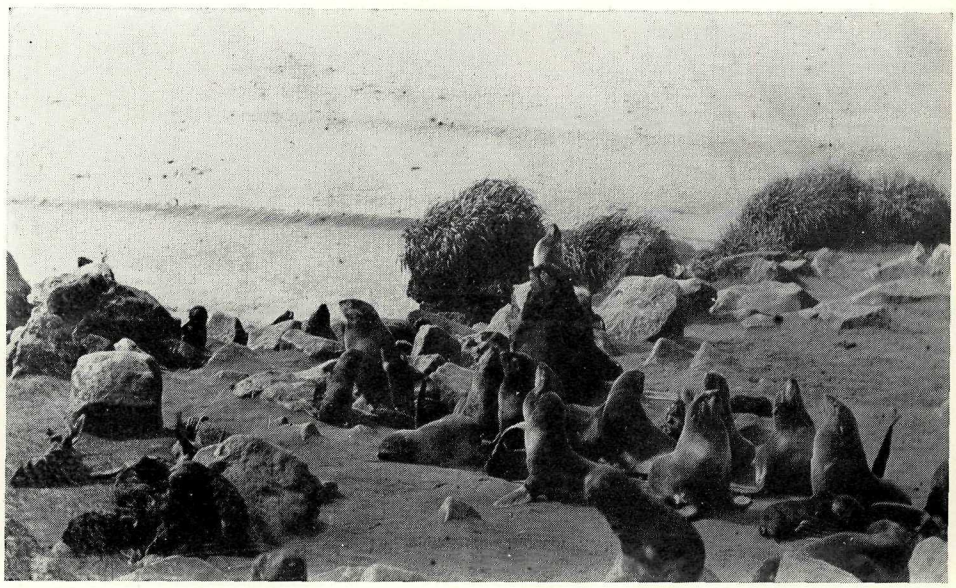
The following extracts on the habits and appearance of the sea-otter, written at the time of the "height of the trade" by eminent zoologists of the day, do not agree in all points with those

PLATE V.



SEA-OTTER.

The animal of international fame, which brought traders from all parts of the globe and led to the exploration of the North-west Coast of America. From a drawing by J. Webber, 1778. Published in the Folio Atlas of Cook's Third Voyage, 1784.



FUR-SEAL ON ST. PAUL ISLAND, BERING SEA.

After the practical extermination of the sea-otter, hunting the fur-seal became the main fur industry of the North-west Coast of America. Photo by R. Maynard.

of more recent writers on the subject, though Mr. Lohbrunner confirms most of that from the earlier works regarding their habits. Having been for many years engaged in the seal and sea-otter industry, he had many opportunities for studying them in life:—

*Steller, G .W.*, surgeon and naturalist with Bering, says *re* Bering Island: "Many sea-otter on the island (Loutres marines); of the marine animals which served as nourishment for the ship-wrecked crew, they had at first only the loutres already mentioned, the flesh of which, the males especially, was hard and so tough that it could scarcely be torn apart with the teeth, so that it was found necessary to chop it into small pieces. A loutre furnished from 40 to 50 lb. of flesh. The intestines were mostly used as food for the sick." Steller reckoned the flesh of the loutre as a specific against the scurvy.

"Sea Otter" left Bering Island in March, 1742.

Steller's Account of Bering's Voyage. (*See* Burney: History of N.E. Voyages of Discovery, etc. 1819.

*Cook's Third Voyage*, Vol. II., 1784, page 295. Sea-otter abound here (Nootka).

Webber's drawing made from a fresh specimen weighing about 25 lb. Notes changes of colour of the fur according to age. Young ones with brown hair, coarse, and little fur. Full-grown with a very fine fur, deep brown or sooty colour, and old animals chestnut-brown and a few that were a perfectly yellow colour.

*Thomas Pennant:* Arctic Zoology. 1784.

"They land on the Kurile Islands but are never seen in Bering Strait.

"They are most extremely harmless and most singularly affectionate to their young. They will never desert them, and will even pine to death on being robbed of them and strive to breathe their last on the spot where they experienced the misfortune. The young never quits its dam till it takes a mate. They are monogamous and very constant. They bring forth on land and often carry their young between their teeth, fondle them, and frequently fling them up and catch them again in their paws. Before the young can swim the old ones will taken them in their fore feet and swim about upon their backs.

"They run swiftly, swim sometimes on their sides, on their backs, and often in a perpendicular direction. They are very sportive, embrace each other and kiss.

"They never make any resistance, but endeavour when attacked to save themselves by flight; they are very dull-sighted but remarkably quick-scented.

"They are fond of those parts of the sea which abound most with weeds, where they feed on fish, sepiæ, lobsters, and shell-fish, which they comminute with their flat grinders.

"Sea-otters have much of the nature of seals, their constant residence in water, manner of swimming, fin-like legs, and number of fore teeth.

"In their ears they greatly resemble the little seal of my 'History of Quadrupeds' and seem the animal which connect the genera of otters and seals."

*Archibald Menzies:* Paper read before Royal Society, May 26th, 1796.

*Specimens examined* were secured from Indians off the west coast of Queen Charlotte Islands.

"*Range* everywhere from 30° to 62° north latitude and 100 leagues to sea."

*External Appearance, etc.*—"Full-grown male, 4 feet 4 inches, tip to tip. Circumference of body, 2 feet 4½ inches. Colour: Head and neck generally grey or silvery; back, sides, legs, and tail, black and glossy in some; longest hairs tipped with white, which gives them a beautiful greyish cast. Breast and belly vary from silver-grey to different shades of light brown. The long hairs shine with a brilliant gloss, but the short fur is exceedingly fine, soft, and thick-set, and its colour is either a light chestnut-brown, or it has a silver hue and a beautiful silky gloss.

"In the cub-state the hair is a long, coarse, shaggy fur of a brown colour, destitute of any gloss, but as the animal grows up the fur becomes finer and more beautiful.

"The head is somewhat compressed and small for the size of the animal. The nose and upper lip are very muscular and protrude about 1½ inches beyond the gums and lower lip. The eyes are small and placed directly over the angles of the mouth about half-way between the ears and the tip of the nose. The ears are nearly naked, black, slightly notched at the ends, and about 1 inch long and 6 inches from the tip of the nose.

"In the upper jaw there are six conical incisor teeth, regularly placed; of these the middle ones are smallest; two strong conical fangs ¾ inch long, measuring from the edge of the gums.

On each side there are two small obtuse-pointed teeth, of which that next the fang is the smallest, and two broad molars with very irregular grinding surface.

"In the lower jaw there are four incisors flatter than those of the upper, two fangs smaller, and on each side two small teeth and three molars similar in appearance to those of the upper jaw.

"The fore legs are short and strong, with palmated feet; each foot has five toes. They are covered with a thick black fur which has a fringe of the same colour round the edge of the sole of the foot, where the fur terminates.

"The hind legs when stretched backwards reach nearly to the end of the tail and are well adapted for swimming, having five long, widespreading, palmated toes with claws, of which the innermost is the shortest; they measure 8 inches across.

"The claws are a light colour; those on the front feet small, but the back ones projecting beyond the toes.

"The tail is flat and tapers to a sharp point; it is covered with a thicker, short fur than any other part of the animal."

*Fauna Boreali-Americana.* John Richardson. 1829.

Mr. Richardson gives a very good idea of the otter's range; i.e., "The sea-otter inhabits the northern parts of the Pacific from Kamskatcha to the Yellow Sea on the Asiatic side and from Alaska to California on the American Coast.

"Mentions that it frequents rocks washed by the sea, brings forth on land, but resides mostly in the water and is occasionally seen remote from shore."

NOTE.—Mr. Lohbrunner does not agree with Thomas Pennant in the "dull sight" of the otter; through tests made by the hunters they found them exceptionally "keen-sighted." With regard to their food, he had examined the contents of forty or fifty otter-stomachs and had never found remains of fish, but in every case remains of a crustacean, of what he took to be one of the deep-sea spider-crabs, and in some were shell-fish, with the general appearance of a mya.

I have quoted fully from the foregoing, because in the later works available, with the exception of the following, little has been written about their original habits, hauling out on rocks, etc., and one or two say the sea-otter bring forth their young on patches of floating "seaweed," a custom they probably adopted through fear of firearms and modern methods of hunting.

"*A Report on the Sea Otter Banks of Alaska.*" Captain C. L. Hooper. Washington, 1897, page 1.

The otter, which at the time of the discovery of the Pribilof Islands in 1786, were said to have "swarmed" the shores of St. George.

About the close of the eighteenth century the Russian American Company was organized. . . .

"At that time otter hauled out upon the land at feed on the sea-urchins and other shell-fish exposed at low water; to sleep and rest, etc."

I will close the paper with a few figures to show the rapid depletion in the latter part of the last century, again quoting from Captain Hooper.

"In 1873 the approximate catch of sea-otter in Alaska was 2,265; that of 1896, 724, though there had been an exceptionally large catch in 1885 of 4,152 skins."

## THE NATURAL HISTORY OF THE MOUNT WADDINGTON EXPEDITION, 1928, OF MR. AND MRS. DON MUNDAY.

EXTRACTS FROM AN ACCOUNT BY W. A. DON MUNDAY, F.R.G.S.

The expedition followed up the course of the Franklin River from the head of Knight Inlet. The Franklin River drains the southern slopes of Mount Waddington and is fed by the Franklin and its tributary glaciers. A base camp was erected at Yellow Creek at 5,400 feet, adjacent to which is Icefall Point, at which a few specimens were collected, as also at Fury Gap near Mount Spencer.

Mammals were not taken, but the following were noted: Tracks of deer and wolves. Black bear were seen as far as the Marvel Glacier as were grizzly. Goat were plentiful at the lower elevations.

PLATE VI.

TYPICAL SCENERY IN THE MOUNT WADDINGTON AREA.

SHALLOW POOL BORDERED WITH GRASSES AND SEDGES.

Confederation Glacier in the distance. Photo by Mrs. D. Munday.

A few "whistlers" were noticed and pikas heard at the 7,000-foot levels. Squirrels and chipmunks at Yellow Creek, 5,400 feet. A reddish-brown mouse or vole troubled the camp at the latter place.

Of birds, ptarmigan and grouse were rarely observed. Clarke's crows only along the Yellow Creek—Icefall Point slope—while at Yellow Creek Camp a varied thrush, a very dark sparrow, and wren, the species not determined, were noted, as were a humming-bird, juncos, chickadees, and a downy woodpecker. A small hawk worried the birds feeding on the dead or numbed insects, and appeared to be trying to keep them from the cover of the timbered slopes. In September, a week of storm, which brought the snow down to the 4,000-foot levels, was followed by the passage of many flocks of birds down the glacier, most of which passed in the fog and were not identified. Few dead birds were noted in 1928, though in 1927 they were numerous, leading us to believe that there is a migratory route across the mountains in this vicinity.

*Insect-life.*—In 1927 the ice and snow fields were dotted thickly with dead or numbed winged insects and a species of black spider hunted its food on the snow and ice.

In 1927 tent-caterpillars were numerous at the base camp, eating willows and lupine. Mosquitoes and stinging-flies were almost entirely absent at Yellow Creek Base Camp in 1928, but "bulldogs" were very plentiful at the mouth of the Franklin.

Ice-worms were noted as high as 10,500 feet, at which levels they were active throughout the day, but lower down showed dislike for sunshine.

*Vegetation.*—Two miles from tide-water Douglas fir practically ceases in the valley-bottom. Red cedar up to 1,500 feet and a mile past the glacier-snout. No yellow cedar was noted. Western hemlock, balsam-fir, and spruce, the predominant conifers; alders, willows, and poplars, the deciduous, though a small maple was also seen.

The undergrowth on the lower levels is similar to that found at the heads of other inlets on the British Columbia Coast.

Western hemlock gives way to the "mountain" at approximately the 3,000-foot level, where an occasional pine was observed.

There are beautiful examples of shallow pools bordered with grasses and sedges, which are to be found on most of the Coast Range at timber-line.

We missed the white rhododendron and the copper-bush, which is so plentiful on the higher levels near Vancouver. From 4,000 to 5,500 feet stunted specimens of the mountain-ash were common as well as a scanty growth of huckleberries.

The greatest height at which flowering plants were seen was about 9,500 feet on Mount Chris Spencer and Fireworks Peak of Mount Waddington, but a few mosses and lichens were taken above this, some of the latter as high as 11,500 feet.

"Red snow" was very noticeable along the glacier margin between 4,000 and 5,000 feet south of Yellow Creek, and at Icefall Point 6,300 feet, the latter seemingly the upper limit.

The following is a list of the more noteworthy natural-history material preserved and presented to the Provincial Museum, Victoria, B.C.

We have again to thank Professor H. St. John, of the State College of Washington, who has identified the majority of the specimens mentioned below.

The collection has been divided into three groups—the Franklin Valley; the Yellow Creek Base Camp to Icefall Point, an elevation of 4,000 to 5,500 feet; and those gathered at Fury Gap, 8,600 feet, and Mount Spencer, 10,000 feet.

In the first group appear flowers common in similar situations north of the Strait of Georgia, with the exceptions of *Polystichum Andersoni* (Anderson's Shield-fern) and *Lupinus nootkatensis* (Nootka Lupine), both of which are Mainland additions to the Herbarium, as well as *Pyrola minor* L.

From the Yellow Creek area the following additions to the Herbarium were found: *Poa rupicola* Nash (Timberline Bluegrass); *Juncus parryi* Engelm. (Parry's Rush); *Erythronium montanum* S. Wats. (Alpine Fawn Lily) and *Pedicularis ornithorhyncha* Benth. (Lousewort) (the first record I can trace for the Canadian Mainland); *Salix commutata* Bebb and *Antennaria chlorantha* Green.

The complete collection of the flowering plants of the third group is listed below:—

*Carex macrochæta* C. A. Meyer.

*Carex phæocephala* Piper.

*Luzula spicata* (L.) D.C.

*Juncus mertensianus* Bong.
*Oxyria digynia* (L.) Hill.
*Sagina saginoides* (L.) Dalla Torre var. *hesperia* Fernald.
*Silene acaulis* L. var. *excapa* (All.) D.C.
*Stellaria longipes* Goldie var *læta* (Richards) Wats.
*Ranunculus eschscholtzii* Schlecht.
*Cardamine bellidifolia* L.
*Draba* n. sp.
*Sedum integrifolium* (Raf.) Nels.
*Saxifraga cæspitosa* L.
*Saxifraga oppositifolia* L.
*Epilobium alpinum* L.
*Epilobium latifolium* L.
*Phacelia sericea* A. Gray.
*Erigeron compositus* Pursh. var. *multifidus* Rydb.
*Solidago bellidifolia* Greene.
*Taraxacum lyratum* (Ledeb.) D.C.

Of the three groups this proved the most interesting to us. Of the twenty species listed, six are additions to the Herbarium; i.e., *Sagina saginoides* var. *hesperia; Silene acaulis* var. *excapa; Cardamine bellidifolia; Solidago bellidifolia; Taraxacum lyratum;* and a *Draba* n. sp. The type of the Draba was taken by Mr. St. John on Glacier Peak, Washington, and Mrs. Munday's specimens are the second recorded. The description of the plant is being published in the University of Wyoming Publications in Botany.

Two Mosses were also taken at Fury Gap—*Rhacomitrium canescens* (Hedw.) Brid. and *R. lanuginosum* (Ehrh) Brid.—as well as the following Lichens: *Calophaca elegans* (Link.) Th. Fr., *Cladonia sylvatica* (L.) Roebuck, *Rhizocarpon geographicum* (L.) Lamb & D.C., *Thamnolia vernicularis* (Sn.) Arch., and an undetermined species of *Asnea*, and at Fireworks Peak, 10,000 feet, *Alectoria* sp. and *Gyrophora ? phœa* (Tuck) Herre.

Fungi of the expedition are represented by three species, two of which are undetermined, and the third is a growth on *Cassiope Mertensiana* (Bong.) D. Don, known as *Exobasidium cassiopes* Peck, which was found in the vicinity of Yellow Creek.

A small collection of entomological specimens was also made, all of which have not yet been determined. It consists chiefly of Coleoptera, Diptera, and Hymenoptera, though a few butterflies, moths, and dragon-flies were also taken, as were a few "ice-worms."

W. A. N.

## THE FERNS OF BRITISH COLUMBIA, WITH THE SYNONYMS USED IN POPULAR WESTERN FLORAS.

There having been some confusion as to the priority of the descriptions of many of our British Columbia Ferns, two or three different names have been used in Western Floras for the same plant.

A list of British Columbia records of species taken from the more popular Floras was sent to W. R. Maxon, of the Smithsonian Institution, the leading authority in America on this group, for revision and correction, and the following are the accepted names as used by that institution and in Abrams "Flora of the Pacific States":—

Adiantum capillus-veneris L. (Venus-hair Fern).

Adiantum pedatum aleuticum Rupr. (Western Maiden-hair).
*Adiantum pedatum* var. *rangiferinum* (Macoun).
(All A. pedatum of British Columbia belong to this variety.)

Asplenium trichomanes L. (Maidenhair Spleenwort).

Asplenium viride Huds. (Green Spleenwort).

Athyrium americanum (Butters) Maxon (Alpine Lady-fern).
*Phegopteris alpestris* (Hoppe) Mett. (Flora; Henry).

Athyrium filix-femina (L.) Roth. (Lady-fern).
*Athyrium cyclosorum* Rupr. (Rydberg; P. & B.).
*Asplenium cyclosorum* Rupr. (Henry).

Cheilanthes feei Moore (Slender Lip-fern).
*Cheilanthes lanuginosa* Nutt. (Macoun).

Cheilanthes gracillima D. C. Eaton (Lace-fern).

Cheilanthes siliquosa Maxon (Indian's Dream).
*Pellæa densa* (Brack.) Hook. (Henry; Macoun).
*Cryptogramma densa* Diels. (Rydberg; Flora).

Cryptogramma acrostichoides R. Br. (American Parsley-fern).

Cryptogramma stelleri (S. G. Gmel.) Prantl. (Slender Cliff-brake).

Dryopteris arguta (Kaulf) Watt. (Coastal Wood-fern).
*Aspidium rigidum* Swartz. (Flora; Macoun).
*Dryopteris rigida arguta* (Kaulf) Underw. (P. & B.).

Dryopteris cristata (L.) Gray. (Shield-fern).
*Aspidium cristatum* (L.) Sw. (Henry).
(No positive record for British Columbia.—J. R. M.)

Dryopteris dilatata (Hoffm.) A. Gray (Broad Prickly-toothed Fern).
*Aspidium spinulosum dilatatum* (Hoffm.) Hook. (Henry; P. & B.; Flora).
*Dryopteris spinulosa dilatata* (Hoffm.) Underw. (P. & B.).

Dryopteris dryopteris (L.) Christ. (Oak-fern.)
*Phegopteris dryopteris* (L.) Fee. (Henry; Flora).

Dryopteris filix-mas (L.) Schott (Male-fern).
*Aspidium filix-mas* (L.) Sw. (Henry).

Dryopteris fragrans (L.) Schott (Fragrant Shield-fern).
*Aspidium fragrans* Sw.

Dryopteris marginalis (L.) A. Gray (Evergreen Wood-fern).
*Aspidium marginale* Sw.

Dryopteris oregana C. Chr. (Sierra Wood-fern).
*Aspidium nevadense* D. C. Eaton.

*Dryopteris oreopteris* (Ehrh.) Maxon (Mountain Wood-fern).
*Aspidium oreopteris* Sw. (Flora; Henry).

Dryopteris phegopteris (L.) C. Chr. (Beech-fern).
*Phegopteris phegopteris* (L.) Underw. (Henry).
*Phegopteris polypodoides* Fee. (Flora).

Dryopteris robertiana (Hoffm.) C. Chr. (Scented Oak-fern).
NOTE.—This species has not been recorded from British Columbia, but has been taken in Alaska near the boundary.

Dryopteris spinulosa (Muell.) Kuntze (Spinulose Shield-fern).
*Aspidium spinulosum* Sw. (Flora; Henry).
Mr. Maxon questions if this species occurs in British Columbia.

Filix fragilis (L.) Gilib. (Brittle-fern).
*Cystopteris fragilis* (L.) Bernh. (Flora).

Filix montana (Lam.) Underw. (Mountain Bladder-fern).
*Cystopteris montana* (Lam.) Underw.
*Cystopteris montana* Bernh. (Flora; Henry).

Pellæa suksdorfiana Butters. (Suksdorf's Cliff-brake).
*Pellæa occidentalis* (Nels.) Rydb. (Henry).
*Pellæa atropurpurea* (L.) Link. (Henshaw; Rydberg; Macoun).

Pityrogramma triangularis (Kaulf.) Maxon (Gold-fern).
*Gymnogramme triangularis* Kaulf. (Flora; Henry).
*Ceropteris triangularis* (Kaulf.) Underw. (P. & B.).

Polypodium glycyrrhiza D. C. Eaton (Licorice-fern).
*Polypodium vulgare occidentale* Hook. (Flora; Henry).
*Polypodium falcatum* Kellog. (Macoun).

Polypodium hesperium Maxon (Western Polypody).

Polypodium scouleri Hook & Grev. (Coast Polypody).

Polystichum andersonii Hopkins (Anderson's Shield-fern).

Polystichum braunii (Spenner) Fee (Prickly Shield-fern).
*Aspidium braunii* Doell. (Macoun).

Polystichum munitum (Kaulf.) Presl. (Western Sword-fern).
*Aspidium munitum* Kaulf. (Macoun).

Polystichum munitum var. imbricans (D. C. Eaton) Maxon (Imbricated Sword-fern).

Polystichum munitum var. inciso serratum (D. C. Eaton) Maxon (Incised Sword-fern).

Polystichum scopulinum (D. C. Eaton) Maxon (Eaton's Shield-fern).
*Aspidium scopulinum* D. C. Eaton (Flora; Macoun).
(This species is recorded from Texada Island, but identity is questionable as specimen has not been located).

Pteretis nodulosa (Michx.) Nieuwland (Ostrich-fern).
*Onoclea struthiopteris* (L.) Hoffm. (Henry).

Pteridium aquilinum pubescens Underw. (Bracken).
*Pteris aquilina* L. var. *lanuginosa* Bong. (Henry; Macoun).
*Pteris aquilina* L. (Flora).

Struthiopteris spicant (L.) Weis. (Deer-fern).
*Lomaria spicant* Desv. (Macoun).

Woodsia glabella R. Brown (Smooth Woodsia).
(An Alaskan species which will no doubt be taken in British Columbia.)

Woodsia ilvensis (L.) R. Brown (Rusty Woodsia).

Woodsia obtusa (Spreng) Torrey (Blunt-lobed Woodsia).

Woodsia oregana D. C. Eaton (Oregon Woodsia).

Woodsia scopulina D. C. Eaton (Rocky Mountain Woodsia).

Woodwardia Chamissoi Brack. (Giant Chain-fern).
*Woodwardia spinulosa* Mart. & Gal. (Flora; Henry; P. & B.).

ABBREVIATIONS USED.

Flora = "Flora of Vancouver and Queen Charlotte Islands" and Supplements. Provincial Museum, 1921.
Henry = "Flora of Southern British Columbia." J. K. Henry, 1915.
Henshaw = "Wild Flowers of the North American Mountains." J. W. Henshaw, 1915.
Macoun = "Catalogue of Canadian Plants." John Macoun, 1888.
P. & B. = "The Flora of the North West Coast." C. V. Piper and R. K. Beattie, 1915.
Rydberg = "Flora of the Rocky Mountains & Adjacent Plains." P. A. Rydberg, 1917.

## BOTANY.

By W. A. Newcombe.

A great deal of time was again given to assisting teachers, students and collectors during the summer in determining their botanical finds. Many specimens of which we were doubtful were sent to "specialists" to identify.

We have again to thank Professor H. St. John for going over about one hundred species of various orders, and also for his generosity in forwarding information unavailable in Victoria; Professor W. R. Maxon, Smithsonian Institution, for reviewing the article on Ferns of British Columbia, etc., and determining specimens; Professor A. H. Hitchcock, also of the Smithsonian, Grasses; Mr. K. K. Mackenzie, New York City, Sedges; Professor C. P. Smith, San Jose, Calif., Lupines; and Dr. J. W. Bailey of Seattle, Wash., for classifying our Mosses.

Donations from many parts of the Province were received during the year, all of which are very acceptable. Outlying portions of the Province, especially north of the 55th parallel, are poorly represented at present, and we hope that "parties" going into this area will remember us by sending in any plants they can find time to collect.

We wish to thank the following ladies and gentlemen, in addition to Mrs. Don Munday, for sending in valuable botanical material: Mrs. MacFadden, of Kamloops; Mrs. Paul, Comox; Mrs. Butler, Saanich; Mrs. Crane, South Pender Island; Miss M. Kermode, Gordon Head; Miss Jenkins, Nanaimo; Mrs. Maitland-Dougall, Duncan; G. Fraser, Ucluelet; W. B. Anderson, specimens from many localities, both Coast and Interior; G. Stace Smith, Copper Mountain and Creston; T. H. Bond, Nicola; F. Perry, Vancouver; as well as the Rev. R. Connell, H. Toms, Miss W. Hayes, C. St. Barbe, A. E. Pickford, and members of the Museum staff, for specimens from the southern end of Vancouver Island.

### Additions to Herbarium.

The following species, determined this year, are new to the Herbarium:—

*Sparganium minimum* Fries. Sooke, V.I., 1918 (W. R. Carter); 1919, Shawnigan Lake, V.I. (C. F. Newcombe and W. R. Carter).

*Carex hindsii* C. B. Clarke. Royal Oak, Saanich, V.I., 1924 (C. F. Newcombe).

*Carex inops* Bailey. Observatory Hill, Saanich, V.I., 1923 (C. F. Newcombe).

*Carex lyngbyei* Hornem. Kitamat, B.C., 1910 (C. F. Newcombe).

*Carex macrochæta* C. A. Meyer. Kitamat, B.C., 1910 (C. F. Newcombe).

*Carex obnupta* Bailey. Lost Lake, Saanich, V.I., 1916 (C. F. Newcombe).

*Scirpus americanus* Pers. Stanley Park, Vancouver, 1917 (W. R. Carter).

*Lemna minor* L. Swan Lake, Saanich, V.I., 1928 (W. A. Newcombe).

*Montia asarifolia* (Bong) Howell. Sandon, B.C., 1928 (W. B. Anderson).

*Arabis Nuttallii* Rob. Nicola, B.C., 1928 (T. H. Bond).

*Astragalus campestris* var. *serotinus* (Gray) M. E. Jones. Fairmont, B.C., 1928 (W. B. Anderson).

*Erigeron drummondi* Greene. Fairmont, B.C., 1928 (W. B. Anderson).

*Grindelia nana* Nutt. var. *discoidea* Gray. Golden, B.C., 1928 (W. B. Anderson).

*Ptilocalais* (*Microseris*) *nutans* (Geyer) Greene. Nicola, B.C., 1928 (T. H. Bond).

*Townsendia excapa* (Rich.) Porter = *sericea* Hook. Invermere, B.C., 1926 (J. C. Heath); Windermere, B.C., 1928 (W. B. Anderson).

### Hepaticæ.

Additions to the Hepaticæ of the Selkirk and Rocky Mountains of Canada, published in the Annual Report for 1925, page 16, and a Supplementary List in the Annual Report 1926, page 11. Collected and presented by Mrs. MacFadden during the years 1927 and 1928.

*Calypogeia trichomanis* (L.) Corda.

*Cephaloziella elachista* (Jack.) Schiffn.

*Clevea hyalina* (Somm) Lindb.

*Lophozia attenuata* (Mart.) Dumort.

*Mentzgeria pubescens* (Schrank.) Raddi.

*Peltolepis grandis* Lindb.

*Riccardia latifrons* Lindb.

*Scapania cordifolia* K. Mull.
*Scapania paludosa* K. Mull.
*Splenolobus scitulus* (Tayl.) Steph.

MUSCI (MOSSES).

Additions to Mrs. MacFadden's collection listed in the Annual Report of 1926, page 11.

We again have to thank Mrs. MacFadden for her continued interest in the Museum and her donations of Mosses, Hepatics, and Lichens; also Dr. J. W. Bailey, of Seattle, Wash., for assistance in classifying the following species:—

*Sphagnaceæ.*

*Sphagnum capillaceum* (Weiss) Scharnk.
*Sphagnum tenellum* (Schimp) Ands.
*Sphagnum fimbriatum* Wils.
*Sphagnum subsecundum* Nees.
*Sphagnum warnstorfii* Russ.

*Andreaeaceæ.*

*Andreæa alpestris* B. & S.

*Polytrichaceæ.*

*Catharinea selwyni* Aust.
*Oligotrichum incurvum* (Huds.) Lindb.
*Pogonatum alpinum* var. *articum* (Sw.) Brid.
*Pogonatum capillare* Brid.
*Pogonatum macounii* Kindb.
*Polytrichum commune* L.
*Polytrichum commune* var. *perigoniale* (Michx.) Br. & G.
*Polytrichum formosum* Hedw.
*Polytrichum gracile* Dicks.
*Polytrichadelphus lyallii* Mitt.

*Dicranaceæ.*

*Ditrichum giganteum* R. S. Williams.
*Ceratodon dimorphum* Phil.
*Dichodontium pellucidum fagimontanum* Brid.
*Dicranella secunda* Lindb.
*Dicranella heteromalla* var. *stricta ?* (L.) Schimp.
*Dicranum brevifolium* Lindb.
*Dicranum hyperboreum* (Gunn) Smith.
*Dicranum flagellare* Hedw.

*Fissidentaceæ.*

*Fissidens osmundoides* Hedw.

*Grimmiaceæ.*

*Grimmia gracilis* Schleich.
*Grimmia commutata* Huebn.
*Grimmia rivularis* Nees & Hornsh.
*Grimmia anodon* B. & S.
*Grimmia anodon* form.
*Grimmia tenicaulis* R. S. Williams.

*Tortulaceæ.*

*Pterygoneurum cavifolium* (Ehrh.) Jur.
*Barbula convoluta* Hedw.
*Barbula marginata* (B. & S.) Spruce.
*Tortula muelleri ?*
*Tortula ruraliformis* Dixon.
*Tortula subulata* Hedw. forma.
*Desmatodon cernuus* B. & S.
*Eucladium verticellatum* B. & S.

*Eucalyptaceæ.*

*Encalypta leiomitra* Kindb.
*Encalypta macounii* Aust.
*Encalypta subspathulata* C.M. & Kindb.
*Encalypta vulgaris* var. *pilifera* Schimp.
*Encalypta ciliata* Hoffm. or Hedw. ?

*Orthotrichaceæ.*

*Orthotrichum alpestre* Hornsch.
*Orthotrichum anomalum* Hedw.
*Orthotrichum chryseum* B. & S.
*Orthotrichum cupulatum* Hoffm.
*Orthotrichum elegans* Schwaeg.
*Orthotrichum nudum* var. *rudolphianum* Limpr.
*Orthotrichum tenellum* Bruch.

*Meesiaceæ.*

*Aulacomnium pygmaeus* (Holz) Holz.
*Aulacomnium turgidum* Schwaeg.

*Bartramiaceæ.*

*Bartramia circinnatula* C. M. & Kindb.
*Bartramia glaucoviridis* C. M. & Kindb.
*Philonotis americana* Dism.
*Philonotis capillaris* Lindb.
*Philonotis marchica* (Willd.) Brid.

*Bryaceæ.*

*Leptobryum pyriforme* (L.) Sch. var. *flagellifera?*
*Webera* (*Pohlia*) *commutata* Lindl.
*Bryum cirrhatum* Hoppe & Hornsch.
*Bryum pallens* Sw.
*Bryum turbinatum* (Hedw.) Schwaeg.
*Bryum ventricosum* Dicks.
*Mnium cuspidatum* Hedw.
*Mnium hymenophylloides* Hub.
*Mnium medium* Bryoleur.
*Mnium spinosum* Schwaeg.

*Fontinalaceæ.*

*Fontinalis howellii* R. & C.
*Fontinalis neo-mexicana* Sulliv. & Lesq.

*Cryphaeceæ.*

*Alsia abietina* Sulliv.

*Neckeraceæ.*

*Neckera douglasii* Hook.
*Homalia jamesii* Schimp.

*Hookeriaceæ.*

*Pterygophyllum lucens* Brid.

*Leucodontaceæ.*

*Porotrichum neckeroides* (Hook.) Williams.
*Porothamnium bigelovii* (Sull.) Fleisch.

*Leskeaceæ.*

*Leskea polycarpa* Enrh.
*Leskea polycarpa paludosa* (Hedw.) Schimp.
*Leskea tectorum flagellifera* Best.
*Heterocladium dimorphum* B. & S.
*Pseudoleskea pallida* Best.
*Pseudoleskea radicosa compacta* Best.
*Thuidium paludosum* (Sulliv.) Rau & Herv.
*Claopodium bolanderi* Best.

*Hypnaceæ.*

*Pylaisia polyantha* B. & S.
*Homalothecium nevadense* var. *subulatum* R. & C.
*Camptothecium æneum* Mitt.
*Camptothecium* var. *robustum* Grout.
*Camptothecium amesiæ* R. & C.
*Camptothecium dolosum* Card.
*Camptothecium megaptilum* Sull.
*Brachythecium acutum* (Mitt.) Sull.
*Brachythecium albicans* var. *occidentale* R. & C.
*Brachythecium cyrtophyllum* Kindb.
*Brachythecium erythrorrhizon* var. *suberythrorrhizon* R. & C.
*Brachythecium pacificum* (R. & C.) Grout.
*Brachythecium pseudocollinum* Kindb.
*Brachythecium rutabulum flavescens* B. & S.
*Brachythecium velutinum* B. & S.
*Brachythecium washingtonianum* Eaton.
*Scleropodium illecebrum* L.
*Scleropodium colpophyllum* (Sulliv.) Grout.
*Eurynchium fallax* var. *barnesii* R. & C.
*Eurynchium prælongum* (Dill. L.) Bryhn.
*Eurynchium rusciforme* (Neck.) Milde forma *rotundifolia.*
*Eurynchium stoloniferum* Hook.
*Plagiothecium elegans* Sull.
*Plagiothecium sylvaticum* B. & S.
*Plagiothecium undulatum* B. & S.
*Amblystegium americanum* Grout.
*Hygroablystegium filicinum* (L.) Roth.
*Drepanocladus capillifolius* Warnst.
*Drepanocladus exannulatus* (Guemt) Warnst. var. *purpurescens?*
*Drepanocladus pseudofluitans* Saniv.
*Drepanocladus revolvens* (Sw.) Warnst. var. *intermedius* Lindb.
*Drepanocladus falcatum* Brid.
*Hypnum* (*Campylium*) *hispidulum* (Brid.) Mitt. forma *compacta* Grout.
*Hypnum* (*Campylium*) *hispidulum polygamum?*
*Cratoneuron commutatum* (Hedw.) Roth.
*Hypnum capressiforme* L.
*Hypnum pallescens* (Hedw.) B. & S.
*Stereodon vaucheri* (Lesq.) Lindb.
*Hygrohypnum articum sommerf* var. *eugyrium* (B. S. G.) Schimp.
*Hylocomium squarrosum* B. & S.

## PALÆONTOLOGY.

C. L. Harrison, Esq., and Miss R. C. Jones, of the Vancouver Island Section of the Alpine Club. presented the Museum with a small series of fossils, collected during their annual outing at "Forbidden Plateau," Comox District. W. Harvey, Esq., published an article describing Mr. Harrison's specimens in the *Colonist* of September 30th, 1928. Miss Jones's collection, in addition to species described by Mr. Harvey, contained a cast of a Crustacean's claw and one of a ? Nucula, besides three or four of undetermined species from the "Strata" mountain area. From the banks of the Puntledge River some fossil leaves in a glacial formation.

Miss Jones also presented the Museum with specimens from Millstream Creek, Nanaimo District, among which were a Nautilus and an Ammonite sp., different from any of which we have descriptions. They were sent to Dr. McLearn, National Museum, Ottawa, for determination, which we have not received to date.

BIG-HORN MOUNTAIN SHEEP. OVIS CANADENSIS (SHAW).
Group in Provincial Museum, Victoria, B. C.

## ACCESSIONS.

In addition to accessions mentioned in the foregoing articles, the following specimens have been received:—

### Anthropology.

Stone pestle. Gabriola Island (W. Fanthorpe).
Stone chisel. Mill Bay, V.I. (G. D. Sprot).
Spear-point. Somenos, V.I. (G. D. Sprot).
Adze. View Royal, Esquimalt, V.I. (Mrs. J. McTavish).
Bone needle or awl. View Royal, Esquimalt, V.I. (Mrs. J. McTavish).
Spoon. Friendly Cove, Nootka, B.C. (Thomas Baker).
Ceremonial paddle. Songhees Reserve, Victoria, B.C. (purchased).
Paint-dish. Big Qualicum, V.I. (C. Cotton per C. A. Pope).
Three bone points. Rocky Point, V.I. (W. B. Anderson).
Chisel. Fraser River, B.C. (L. D. Chetham)
Fish-club Sooke, V.I. (Leonard C. Johnson).

### Palæontology.

*Spisula* sp.
*Natica* sp. } From Sooke formation (C. Harrison).
*Agasoma* sp.
*Echini* (four species). Jamaica W. I. (B. W. Arnold, Albany N.Y.).
*Pseudomonotis subcircularis* Gabb. Provincial Mineral Museum.
*Picea sitchensis* Carr. Cut off a stump uncovered by receding ice from Torr Glacier, Glacier Bay, Alaska (J. P. Forde). (*See* account in *Daily Times*, November 21st, 1928.
Two Mammoth-teeth (*Elephas primigeneius* Blum.) Collected 54 feet below the surface in Fairbanks, Alaska. Presented by J. F. Risser.

### Mammalogy.

A valuable collection of small mammal-skins with skulls was presented by Mr. T. T. McCabe, Indian Point Lake, Cariboo District. Mr. McCabe's collections are being classified by specialists in California, and until their determinations are received the Museum is only listing the generic names, which are as follows:—

Six Shrews (*Sorex* sp.).
Two Bats (*Myotis* sp.).
One Ground-squirrel (*Callospermophilus* sp.).
Two Ground-squirrels (*Citellus* sp.).
Seven Chipmunks (*Eutamias* sp.).
Three Squirrels (*Sciurus* sp.).
One Flying Squirrel (*Glaucomys* sp.).
Four Mice (*Peromyscus* sp.).
Two Wood-rats (*Neotoma* sp.).
One Red-backed Mouse (*Evotomys* sp.).
Three Voles (*Microtus* sp.).
Nine Jumping Mice (*Zapus* sp.).
Two Conies (*Ochotona* sp.).
Two Rabbits (*Lepus* sp.).
One skeleton of a young Doe (*Odocoileus* sp.).

Besides the above, the following were also added to the collection during 1928:—
Four Brown Bats (*Vespertilio* sp.). Florence Lake, V.I. (W. H. Gibson).
One Racoon-skin (*Procyon psora pacifica* Merriam). Nanaimo, V.I. (V. B. Harrison).
One Squirrel (*Sciurus hudsonicus vancouverensis* Allen). Goldstream, V.I. (W. H. Gibson).
Two Flying Squirrels (*Glaucomys* sp.). Vedder Crossing, B.C. (Mrs. H. K. Leavens).
One White-footed Mouse (*Peromyscus* sp.). Uplands, Victoria (W. H. Gibson).
Seven Voles (*Microtus* sp.). Uplands, Victoria (W. H. Gibson).
One Muskrat (*Fiber zibethicus* Cuvier). Swan Lake, V.I. (J. J. Pendray).
Two Norwegian Rats (*Rattus norvegicus* Erxleben). Victoria (Dr. White and J. F. Risser).

One skin of young Sea-otter (*Enhydra lutris*) (M. E. Lohbrunner).
One skull of mature Sea-otter (*Enhydra lutris*) (M. E. Lohbrunner).
Mounted Moose-head. Presented by Mrs. J. M. Kellie.
Hoary Bat (Manitoba) (E. Holgate).
Sperm-whale Tooth. Kyuquot, V.I. (J. F. Risser).
Porpoise jaws and teeth. West Coast, V.I. (M. E. Lohbrunner).

### Ornithology.

Pied-billed Grebe (*Podilymbus podiceps* Linn.). Victoria (W. H. Gibson).
Marbled Murrelet (*Brachyramphus marmoratus* Gmel.). Shoal Bay, V.I. (Captain Tyler).
Long-tailed Jaeger (*Stercorarius longicaudis* Vieill). French's Beach, Renfrew District, V.I. (J. G. French).
Glaucus-winged Gull (*Larus glaucescens* Naumann). Sooke, V.I. (W. H. Gibson).
Scaup Duck (*Marila* (*Aythya*) *marila* Linn.). Esquimalt (F. Risser).
Harlequin Duck (*Histrionicus histrionicus* Linn.). Victoria (R. H. Smith).
Barnacle Goose (introduced) (*Branta leucopsis* Bechstein). Victoria (R. H. Smith).
Spotted Sandpiper (*Actitis macularia* Linn.). Florence Lake, V.I. (W. H. Gibson).
Short-eared Owl (*Asio flammeus* Linn.). Victoria (R. Gidley).
Dusky Horned Owl (*Bubo virginianus saturatus* Ridgw.). Sooke, V.I. (H. R. Roberson).
Harris' Woodpecker (*Dryobates villosus harrisi* Aud.). Cordova Bay, V.I. (W. H. Gibson).
Western Meadow-lark (*Sturnella neglecta* Aud.). Gordon Head, V.I. (F. Kermode).
Oregon Junco (*Junco hyemalis oreganus* Towns.). Esquimalt (W. H. Gibson).
Rusty Song-sparrow (*Melospiza m. morphna* Oberh.). Victoria (W. H. Gibson).
Sooty Fox-sparrow (*Passerella iliaca fuliginosa* Ridgw.). Victoria (A. H. Maynard).
Violet-green Swallow (*Tachycineta lepida* Mearns). Victoria (Miss Alice Turner).
Dipper (*Cinclus mexicanus unicolor* Bonaparte). Goldstream, V.I. (W. H. Gibson).
Western Winter Wren (*Nannus hyemalis pacificus* Baird). Victoria (W. H. Gibson).
Chestnut-backed Chickadee (*Penthestes r. rufescens* Towns.). Esquimalt (W. H. Gibson).

### Reptilia.

Northern Alligator Lizard (*Gerrohotus principis* B. & G.). Victoria (Earl Foster); Vedder Crossing, B.C. (Mrs. H. K. Leavens); Mount Tolmie, V.I. (W. H. Gibson).

### Amphibia.

Tree-frog (*Hyla regilla* B. & G.). Florence Lake, V.I. (W. H. Gibson); Mount Tolmie, V.I. (Miss A. Watson).
Salamander. Vedder Crossing, B.C. (Mrs. H. K. Leavens).

### Ichthyology.

Two Pipe-fish (*Siphostoma griscolineatum* Ayres). Victoria (R. Bowles and W. J. Henley).
Three Anchovy (*Engraulis mordax* Girhard). Esquimalt, V.I. (E. A. Cooke).
Note.—This little fish appeared in large schools in Esquimalt Harbour in the latter part of the summer. It is of value as a "food" fish, though seldom marketed under the above name.

### Entomology.

Very little has been done in this branch of natural history by the Museum during the past season, and only one specimen of note was properly identified to record, which is as follows:—
One specimen of a Firefly (*Photurus pennsylvanica* DeG.) collected at Windermere, B.C., by W. B. Anderson. This specimen was identified by Dr. E. C. Van Dyke and is the first record for British Columbia.
Specimens of "Water-beetle" (*Amphizoa lecontei* Matth.) were taken in the Kootenay District by F. S. Carr, of Medicine Hat, and the one donated by him is the first in the Museum.
Two Snowy Tree-crickets (*Œcanthus niveus* DeGeer) from Tranquille, per P. de Noe Walker from George Darling, were identified by R. Hopping, of Vernon, B.C.

BALD EAGLE. HALIÆETUS LEUCOCEPHALUS ALASCANUS (TOWNSEND).
Group in Provincial Museum, Victoria, B. C.

NOTES AND ADDITIONS TO CERAMBYCIDÆ OF VANCOUVER ISLAND.

(*See* Report, 1925, page 24.)

*Callidium hardyi* Van Dyke. Gordon Head, V.I. (G. A. Hardy).

One specimen, Gabriola Island, April 12th, 1897 (G. W. Taylor), in the collection of A. W. Hanham.

This new species is described in Vol. IV., No. 3, January, 1928, Pan Pacific Entomologist.

It is allied to *C. vile* Lec., but differs by being proportionally longer and larger in every way. Bred from Douglas fir (*Pseudotsuga mucronata* Raff.). Gordon Head, V.I., May 30th, 1927 (G. A. Hardy).

The following collections and specimens were donated during the season, but have only been given a preliminary classification:—

Three thousand specimens of Coleoptera from Vancouver Island (G. A. Hardy).

Four hundred specimens (general) from Nicola, B.C. (C. S. Lallemand).

Small general collection from Creston, B.C. (G. Stace Smith).

Small collections (general) from Victoria and Esquimalt (W. H. Gibson).

Three Lace-wing Flies, Victoria (E. A. Cooke).

Three California Prionus (*Prionus californicus* Mots.). Saanich, V.I. (David Orr and Mrs. Ivan Day); Victoria (J. de Macedo).

Three Laurel Borers (*Rosalla funebris* Mots.). Victoria J. H. Doughty-Davis); Metchosin (G. M. Johnson); Errington (H. Rawlins).

One Longhorn Beetle. Victoria (Miss I. Redfern).

Two Buprestid Beetles. Victoria (W. Wiren); Sooke (Miss N. Stark).

One Bee-fly (*Bombylius major* Linn.). Victoria (W. Harvey).

Two Eyed Hawk-moths (*Smerinthus cerisyi opthalmicus* Bdv.). Victoria (L. J. Johnson and F. Turrock).

One Moth (*Platysamia euralus kaslænsis* Ckll.) and Cocoon on twig. Cowichan Station (J. H. Frank).

Spruce Bud-worm Moth (*Harmologa* (*Tortrix*) *fumiferana*) Clem. Happy Valley, V.I. (A. E. Pickford).

Two Satin-moths (*Stilpnotis salicis* L.). Victoria (J F. Risser).

Two Tiger-moths (*Arctia americana* Harr.). Victoria (Miss Mabel Barr); Florence Lake (W. Gibson).

One Bumblebee. Victoria (Miss N. Stark).

Three Ichneumon Flies. Victoria (W. H. Gibson and Miss W. Redfern); Prince George (Miss I. Tucker).

Besides the above two large Wasp-nests (*Vespa maculata* Linn.) were presented by Captain H. Roberson, Sassenos, and J. W. Mawle, Metchosin.

Two pupæ of Buprestid (*Chalcophora angulicollis* Lec.) in bark of *Pinus ponderosa* at 3,800 feet, Copper Mountain, from G. Stace Smith.

Three pupæ of Harris' Pine-borer (*Tragosoma harrissi* Lec.) in decayed heartwood of *Pinus ponderosa*, Copper Mountain, from G. Stace Smith.

MARINE.

Two Valves, Giant Clam (*Panope generosa* Gould). Sidney, V.I. (H. D. Payne).

One Piddock (*Pholadidea penita* Conr.). Bamfield, V.I. (W. A. Roberts). (Illustrates its habitat in sandstone).

One Turtle Crab (*Cryptolithodes sitchensis* Brandt.) and two Sea-stars from Nootka (E. Scheretien).

Four Sea-stars (*Solaster stimpsoni* Verr.). Victoria (W. A. Newcombe).

Two Sea-stars (*Solaster dawsoni* Verr.). Victoria (W. Harvey and W. A. Newcombe).

Wood specimen showing twelve months' work of the Toredo (*Bankia setacea* Tyron). Nanoose, V.I. (H. K. Harrison).

Two Sponges, a large funnel-mouthed variety. West Coast of Q.C.I. (M. E. Lohbrunner).

Six Fresh-water Mussels (*Anodonta Nuttalliana* Lea). Green Lake, Nanaimo District (V. B. Harrison).

Land-snail Shell (*Helix* sp.). Mount Skirt, V.I. (Miss A. Watson).

## PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS.

(ALPHABETICALLY ARRANGED.)

| | |
|---|---|
| American Museum of Natural History, New York | 2 |
| Art Historical & Scientific Society, Vancouver | 1 |
| Augustana Library Publications, Ill. | 1 |
| Biological Society of Washington | 3 |
| Boston Society of Natural History | 5 |
| Bristol Museum and Art Gallery, England | 1 |
| British Columbia Government Publications | 10 |
| Buffalo Society of Natural Sciences, N.Y. | 1 |
| California Academy of Sciences, San Francisco | 7 |
| Cardiff Naturalists' Society | 2 |
| Carnegie Institute, Pittsburgh, Pa. | 1 |
| Cincinnati Museum Association | 1 |
| City Art Museum, St. Louis | 6 |
| Cleveland Museum of Natural History | 4 |
| Colorado Museum of Natural History, Denver, Colo. | 6 |
| Condor, Western Ornithology | 1 |
| Cornell University, Ithaca, N.Y. | 1 |
| Dominion Government Publications | 26 |
| Entomological Society of London | 2 |
| Field Museum of Natural History | 11 |
| Grand Rapids Public Library | 1 |
| Gray Herbarium, Harvard University, Mass. | 3 |
| Historical Art Journal | 2 |
| Illinois Natural History Survey | 13 |
| Instituto General Y Tecnico De Valencia, Spain | 1 |
| Insular Experimental Station, Rio Piedras, P.R. | 4 |
| John Crerar Library, Chicago, Ill. | 2 |
| Library of Congress, Washington, D.C. | 1 |
| Lloyd Library, Cincinnati, Ohio | 3 |
| Los Angeles Museum, Los Angeles, Calif. | 5 |
| Museum of Fine Arts, Boston, Mass. | 9 |
| Newark Museum Association, Newark, N.J. | 9 |
| New York Botanical Gardens | 1 |
| New York State College, Syracuse University | 1 |
| New York Zoological Society | 2 |
| Ohio Agricultural Experiment Station | 6 |
| Ontario Government Publications | 1 |
| Peabody Museum, Yale University | 10 |
| Pennsylvania Museum, Philadelphia, Pa., U.S.A. | 14 |
| Philadelphia Academy of Natural Sciences | 3 |
| Public Museum, Milwaukee, Wis., U.S.A. | 3 |
| Royal Ontario Museum, Toronto, Ont. | 1 |
| Royal Scottish Museum, Edinburgh | 1 |
| San Diego Natural History Museum | 13 |
| San Diego Society of Natural History | 1 |
| Scripps Institution of Oceanography of the University of California | 2 |
| Smithsonian Institution, Washington | 66 |
| State College of Washington, Pullman, Wash. | 4 |
| Staten Island Institute of Arts & Sciences | 6 |
| United States Department of Agriculture | 8 |
| University of California, Berkeley, Calif. | 32 |
| University of Colorado, Boulder, Col. | 1 |
| University of Illinois, Urbana, Ill. | 8 |
| *Carried forward* | 329 |

PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS—*Continued.*

| | |
|---|---|
| *Brought forward* | 329 |
| University of Minnesota Agricultural Experiment Station | 1 |
| University of Montreal, Montreal, Que. | 3 |
| University of Oklahoma | 2 |
| University of Toronto, Toronto, Ont. | 1 |
| University of Washington, Seattle, Wash. | 10 |
| Vancouver City Museum | 3 |
| Vermont Agricultural Experiment Station | 2 |
| Wagner Free Institute of Science, Philadelphia | 6 |
| Wales National Museum, Cardiff, Wales | 1 |
| Ward's Natural Science Establishment, Rochester | 8 |
| Zoological Society of Philadelphia | 4 |
| Total | 370 |

We are also indebted to Professor Harold St. John for pamphlets received during the year.

VICTORIA, B.C.:
Printed by CHARLES F. BANFIELD, Printer to the King's Most Excellent Majesty.
1929.

1825-629-5662