

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1929



PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

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1930.

THE
PROVINCE OF
NEW BRUNSWICK
MUSEUM

NATURAL HISTORY
DEPARTMENT



BY APPOINTMENT TO HER MAJESTY THE QUEEN
PRINTED BY THE GOVERNMENT PRINTER

1904

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 1929.

SAMUEL LYNESS HOWE,
Provincial Secretary.

Provincial Secretary's Office,
Victoria, B.C., April 16th, 1930.

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., April 16th, 1930.

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, 1929, 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 Museum.....	6
Object.....	7
Admission.....	7
Visitors.....	7
Activities.....	7
Anthropology and Archæology.....	8, 20
Botany.....	11
Entomology.....	12, 22
Ornithology.....	16, 24
Oology.....	19
Accessions.....	20
Palæontology.....	22
Amphibians.....	22
Marine Zoology.....	23
Mammalogy.....	24
Publications received from other Museums.....	25

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.*

NANCY STARK, *Recorder.*

JOHN F. CLARKE, *Associate Curator of Entomology.*

FRANK J. RISSER, *Attendant.*

REPORT of the PROVINCIAL MUSEUM OF NATURAL HISTORY FOR THE YEAR 1929.

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, 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.

VISITORS.

The following figures show the difference between those who registered and those who were checked by the attendants. While only 32,245 people registered, the total of the check was 63,111.

	Registered.	Checked.
January	1,277	2,659
February	1,085	2,211
March	1,018	2,307
April	1,129	2,391
May	1,777	3,784
June	3,408	6,199
July	7,959	14,520
August	8,428	16,384
September	3,069	5,986
October	1,294	2,787
November	1,008	2,262
December	793	1,621
Totals	32,245	63,111

ACTIVITIES.

We are greatly indebted again this year to His Honour Lieutenant-Governor Randolph Bruce for the great interest he takes in the Museum and its objects. Visitors to Government House he personally conducts over the Museum, bringing to their notice any exhibits peculiar to the Province. His Royal Highness Prince Henry, under the instructive guidance of His Honour, showed great interest in our western specimens.

He has also brought to the attention of the Government the number of totem-poles being removed from the Province and is endeavouring to have them retained where possible in the Province.

A very satisfactory increase in the number of visitors to the Museum will be noted, many having mentioned that they had been advised by friends to make a special trip to Victoria for this purpose. Organized parties of students from Washington and Oregon, as well as from British Columbia, visited Victoria to examine our exhibits of natural history and ethnology; one of the largest classes being from the University of Oregon Summer School, under the leadership of Professor Onthank.

On July 27th a joint meeting of the Pacific Northwest Bird and Mammal Society and the British Columbia Ornithological Union was held at the Museum; valuable papers on mammals and birds were read and discussed, after which a dinner was given by the Provincial Government, when the Honourable Mr. F. P. Burden, Minister of Lands, extended them a cordial welcome.

During the summer Mr. J. F. Clarke, of Pullman, Washington, a fellow-worker of the late Mr. E. H. Blackmore, was engaged to carry on the entomological work of the Department. He managed to classify and label our Lepidoptera and Coleoptera collections, and in his field-work added many species new to the Museum material.

The Department wishes to extend its greatest thanks to Mrs. E. H. Blackmore, who presented the Museum with over 10,000 entomological specimens, chiefly Coleoptera. This collection contained many additions to the Museum material and is from different sections of the Province. The Lepidoptera we were unable to purchase, but we are glad to see it has been obtained by the University of British Columbia and so saved to the Province.

A number of new cases have been installed in the Anthropological Department, making it possible to group this material tribally, lack of space not permitting us to give a more instructive division. To this branch a collection of over 100 specimens of Indian curios was donated by Mrs. William Fleet Robertson, to whom we are greatly indebted.

An interesting series of birds' eggs from the Rev. C. J. Young will be noted under Oology. These had been secured from many parts of Canada during the last sixty years. Rev. Mr. Young has also contributed to the report a study of the rhinoceros auklet, with notes on other birds recorded by him since residing in British Columbia.

Other sections of natural history have been rearranged and additions made to the collections, including mosses, lichens, and algæ from Mrs. F. S. Noble; and the crustaceans, in which branch the services of Miss J. Hart were secured, she having recently worked on this group.

In closing, the Director wishes to thank all who have contributed specimens to the Museum and also the specialists who have aided in the identification of difficult species.

ANTHROPOLOGY.

A DONATION BY MRS. WILLIAM FLEET ROBERTSON.

A donation containing over one hundred specimens in which are items from all the British Columbia linguistic divisions. Some of the pieces are exceptionally interesting as they fill in some notable blanks in our series, such as the papoose carrier and basket from the Kootenai; rattle from the Northern Déné; diagonal weave mat from the Kwakiutl; and the painted box from the Haida is the only one of this type in which I have seen the green stone-paint used. Another piece the carved ceremonial clapper is also a rarity, as is the seal-club, with the carving of a human face. The following is an annotated list, placing the items, where possible, in their linguistic group, no collecting data accompanying the material:—

KOOTENAIAN.

- 4289. Papoose carrier, hand-hewn board, covered with buckskin on the back.
- 4290. Bag or wallet, "Indian hemp" and wool.
- 4291. ? Basket, split twig, coiled weave (pear-shaped), imbricated design with bleached grass and ? cherry-bark.
- 4292. Pipe, dark steatite, used with a long stem.
- 4293. ? War-club, stone, oval-shaped, polished.

DÉNÉ.

- 4264. Rattle, twig frame wrapped with blue cloth, rattle of suspended ? caribou-toes. ? Tahltan.
- 4294. Basket, split twig, coiled weave, imbricated design in grass and cherry-bark, "deer." Chilcotin.
- 4295. Bag, babiche, net weave. ? Babine.
- 4296-4300. Baskets, birch-bark, splint rims, sewn with spruce-root.
- 4301. Snowshoes, sapling frame with raw-hide web, pointed type.
- 4302. Spoon, mountain-goat horn, two-piece, carved handle. ? Babine.
- 4303. Chisel, stone, sharpened from opposite sides, haft rough-chipped.

SALISH.

- 4304. Drum, circular, wood frame with leather-beating surface.
- 4305-4306. Gambling-bones. "Lehal," two pairs of.

4307. Snowshoes, splint frame, raw-hide web, small model pair.
 4308. Bailer, bent cedar-bark, mounted on cedar handle.
 4309. Creaser, used by rush-mat makers, carved to represent a bird.
 4310. Needle, spiræa, used by rush-mat makers.
 4311-4313. Baskets, split root, coiled weave, trunk shape, imbricated with straw and cherry-bark.
 4314-4322. Baskets, split root, coiled weave, pack type, assorted sizes, imbricated designs in straw and cherry-bark.
 4323-4324. Baskets, split root, coiled weave, pack type, oblong, imbricated designs in straw and cherry-bark.
 4325-4326. Baskets, split root, coiled weave, pack type, oblong, imbricated designs in straw and cherry-bark.
 4327. Hammer of stone, piece of.
 4328. Arrow-point, chipped make.

NOOTKAN.

4329. Bailer, canoe, of alder, inverted pyramid.
 4330. Needle or awl of whalebone.
 4331. Hook bag, cedar-bark.
 4332-4334. Baskets of split twig, open weave.
 4335-4338. Baskets, cedar-bark, rush and squaw grass, assorted.
 4339. Basketry-covered bottle.
 4340. Hat, cedar-bark and rush, conical shape.
 4341-4343. Mats, cedar-bark, checker weave, designs in black.

KWAKIUTL.

4344. Club for fish, globular type.
 4345. Spoon, sheep-horn.
 4346. Hat, spruce-root, painted design of a killer whale.
 4347. Mat, cedar-bark, diagonal weave, with narrow warp $\frac{1}{8}$ inch wide, design diamond pattern by reversal of weave. (Rare.)
 4348. Mat, cedar-bark, diagonal checker weave, design with dyed bark.
 4261. Basket, trinket, cedar-bark, open weave.
 4262. Basket, trinket, split root, open weave.

HAIDA.

4259. Basket, pack, spruce-root, twine weave.
 4260. Basket, trinket, spruce-root, twine weave, painted design of a raven, red, black, and green.
 4349-4352. Baskets, assorted sizes, spruce-root, twine weave.
 4353. Mat, cedar-bark, checker weave.
 4354. Dish, food, wood dug-out, carved ends, opercula on rim.
 4355. Dish, food, wood dug-out, carved ends.
 4356. Dish, food, wood dug-out, carved ends.
 4357. Box, storage, sides in one piece, painted design in red, black, and green (old paints).
 4358-4360. Hooks, halibut, assorted.
 4361. Hooks (6), black cod, made from the heart of a hemlock knot.
 4362. Clapper, yew, two-piece, carved to represent ? a sea-lion.
 4363. Hammer, stone, mounted on a long handle.
 4364. Totem, model, yellow cedar, carved and painted.
 4365. Totem, model, slate.
 4366. Slate, piece of, as used for carvings.

TSIMSHIAN.

- 4367-4371. Spoons, mountain-goat horn, carved.
 4372-4377. Spoons, mountain-goat horn, plain.
 4378. Dish, food, dug-out, canoe shape.
 4379. Club, seal, yew, carved human face.

TLINKIT.

4380. Basket, spruce-root, twine weave.
 4381. Spoon and fork, wood, carved.
 4257. Berry-cleaner or carrying-wallet, spruce-root, twine weave, saucer-shaped.
 4258. Berry-cleaner or carrying-wallet, spruce-root, twine weave, saucer-shaped.

ESKIMO.

4256. Basket, beach-grass, open twined-weave, a design in red and blue wood.

NOTE.—In addition to the above, Mrs. Robertson donated two mounted heads of caribou, a black-bear skin, and a number of photographs of British Columbia Indians.

THUNDER-BIRD AND WHALE.

By W. A. NEWCOMBE.

Indian traditions collected in the greater part of Canada and from among many tribes of the United States include stories of a mythical bird of great strength, the flapping of whose wings caused thunder and the flashing of his eyes lightning.

The first mention we have of this bird, in articles on what is now British Columbia, is made in Robert Haswell's "Log of the Columbia and Adventure, 1791-92," in which he states the Indians believed that "thunder" is caused by an "eagle" dropping a whale into the sea; Haswell evidently securing the information from the Clayoquots. From page 39 of "The Voyage of the Sutil and Mexicana" (a Spanish account of the explorations of Captains Galiano and Valdez), written in 1792, the following quotation, using a free translation, gives us a better impression of the bird as we know it from carvings and paintings preserved in Museums to-day: "'Tetacus' (a Nootka chief), having taken a pencil, which lay on a table, drew for us admirably an eagle in flight, among the sketches he made on a sheet of paper. It had a very large head with two horns on it; he represented it carrying a whale in its claws; and assured us that he had himself seen a bird of that kind descend rapidly from the sky to the sea close to his hut, seize a whale and rise up again."

Dr. W. F. Tolmie notes in his journal under date of November 15th, 1834, that he asked Boston (a Milbanke Sound chief) what occasioned thunder and lightning. He answered: "By a large bird which on awakening suddenly flaps its wings, thus causing thunder, and it flashes lightning from its eyes." Dr. Tolmie, commenting on this, says: "The idea held by the natives here, regarding thunder and lightning, corresponds with that which obtains amongst the aborigines east of the Rocky Mountains."

This tribe not being whalers and being divided by Queen Charlotte Sound from the main branch of the Kwakiutl (who were in touch with the Nootkans), apparently did not attach so much importance to the thunder-bird and whale stories as their southern division, and I know of no carving or painting from this area illustrating this tradition.

My next chronological note is one taken from Judge Swan's "Indians of Cape Flattery, 1869." Writing about the Makahs, a branch of the Nootkans, he says that the thunder-bird ceremonials took precedence over all others. The Makahs gave him to understand that the home of the thunder-bird was in the vicinity of the Clayoquots, from which tribe the myth is said to have originated.

The two or three quotations above are given to show that the thunder-bird and whale stories antedate the coming of our explorers and traders, and that the combination centres on the Nootkans, at whose villages the whites first established themselves on the Coast of British Columbia. There have been many stories published in various ethnological works on our North-west Coast Indians on this subject in recent years, as well as some of a lighter vein in newspapers and magazines. All those written on tribes having communication with the Nootkans credit the thunder-bird with supernatural powers, whose greatest feat is his fighting and carrying off whales. (Among some of the Interior tribes the whale is replaced by a giant snake or lizard.) The mythology connected with the thunder-bird and whale has led some ethnologists to believe that it quite possibly originated in ancient tribal warfare, in which the thunder-bird tribe finally enslaved the whale.

The finest representation in carving of this myth that I have come across was the grave monument to one of the Maquinnas at Friendly Cove, Nootka Sound, in which a large whale is surmounted by a thunder-bird with outspread wings, approximately 30 feet wide and 20 feet high.

PLATE I.

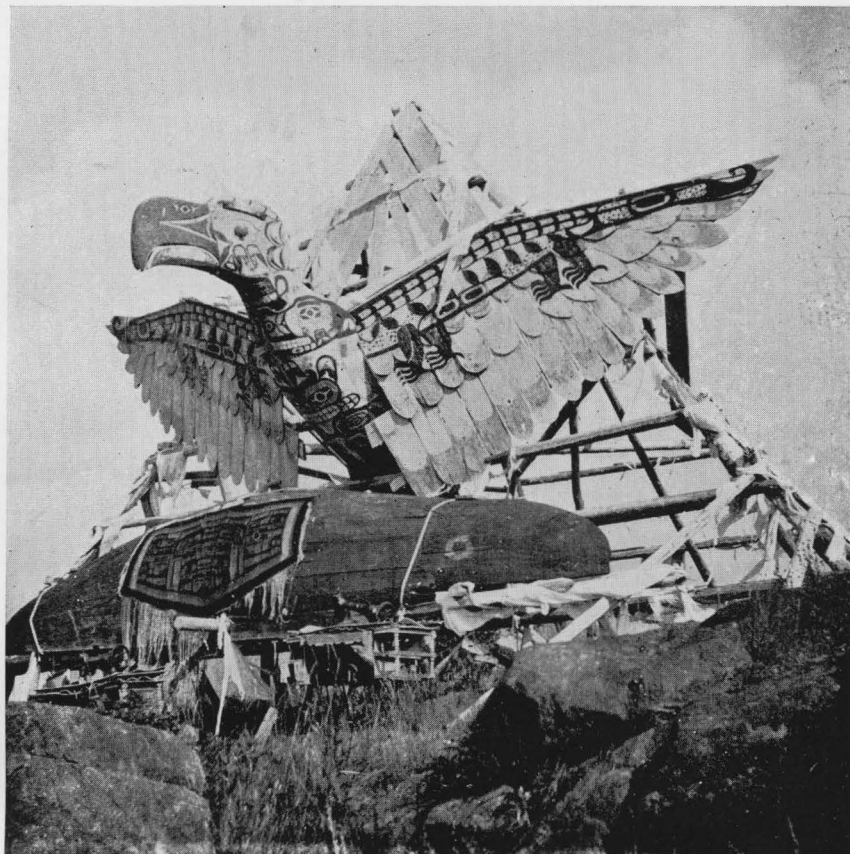


Fig. 1.



Fig. 2.

PLATE II.



Fig. 1.



Fig. 2.

A ceremonial screen from Barkley Sound, in the possession of the Provincial Museum, is painted with a similar scene. This type of screen, it might be mentioned, was recorded by the Spanish during their stay at Nootka. (Plate I., Figs. 1 and 2.)

On the east coast of Vancouver Island the best reproduction of this story was on a house-front at Alert Bay, the owner of which had migrated from Captain Vancouver's Cheslakee Village at the mouth of the Nimpkish River. This tribe is known to have had overland trade connections with the Nootkans, and it is quite possible the Cheslakee chief secured the story, and the permission to use it as a ? crest, from them. (Plate II., Fig. 1.)

Our Strait of Georgia Indians as well as those at the head of the Strait of Fuca were not renowned for their totemic paintings or carvings. The finest exhibits of the latter are on the whorls used in spinning mountain goat wool for domestic purposes, and about 50 per cent. of these that have come to my notice are that of the thunder-bird, with few exceptions accompanied by a whale, demonstrating that these tribes (who also had trade connections with the Nootkans) had a version of this story. (Plate II., Fig. 2.)

Among our Northern Coast Indians, both on the Mainland and on the Queen Charlotte Islands, in whose area the centre of the North-west Coast art was in painting and carving, though both the thunder-bird and whale are often represented, I know of no case where they may be seen in a similar situation as has been described in connection with the Vancouver Island and adjacent tribes.

Many designs, picturing the thunder-bird alone, have been secured from tribes east of the Rockies, but they in no way compare with the art displayed in the representations of this famous bird by our North-west Coast Indians.

In the foregoing account it appears that the thunder-bird and whale story probably originated on the west coast of Vancouver Island, whose tribes were known ethnologically as the Nootkans (of which the Makahs of Cape Flattery and vicinity are a branch). These tribes were the only whalers on the North-west Pacific Coast, whose daring I consider the finest display of courage shown by any of our British Columbia Indians. The Haida and other Northern Indians we know made periodical raids on the Coast tribes of the Inland Passage as far south as Puget Sound, but I do not know the story in which they tackled the Nootkans. These expeditions were generally in the nature of surprise attacks made by overwhelming numbers, and did not need the courage required to approach a whale within 15 or 20 feet to drive in the harpoon, and that in a vessel which, should it be struck by the whale, would split from end to end.

BOTANY.

Additions to the Herbarium were below the average of the last few years, though we had an increase of donors (who are listed under accessions). The only large collection received was that of the late James Noble, presented by Mrs. F. S. Noble, of Vancouver, B.C., consisting chiefly of Musci, Lichens, Hepatics, and Algæ, many of which had been collected in British Columbia.

Professor H. St. John, and latterly his successor, Mr. G. N. Jones, at State College, Pullman, Washington, determined a number of specimens of which we were in doubt; their co-operation at all times has been of great assistance to us in keeping our material in this branch up to date, and this opportunity is taken for expressing our appreciation.

Botanically it was a very disappointing season owing to the dryness, and the additions to the Herbarium were from collections made in 1928, but determined too late to include in the report of that year. The only exception to this being Mr. Perry's specimens of *Cassiope stelleriana*, taken on the Coquihalla Mountains this summer.

Specimens with interesting locality records were received as follows:—

Habenaria orbiculata. From Thetis Lake, Esquimalt District; collected by Mr. H. Toms.

Newberrya congesta. Goat Mountain, North Vancouver (Mrs. Don Munday).

Erigeron compositus. Dome Glacier, Comox District (Mrs. W. A. Paul).

Mr. Pool also sent in a number of specimens, chiefly *Saxifrages*, which were additions to our Mount Arrowsmith flora, and Major Nation a collection from the Olympic Mountains, Washington, which included some very welcome material.

The following species with abnormal flowers were received during the season:—

Fritillaria lanceolata Pursh. Oak Bay (Miss June Maynard).

Epilobium angustifolium L. Clustered flowers on one enlarged stem. Jordan River, V.I. (J. W. Thompson).

Dodecatheon latifolium (Hook.) Piper. With about forty flowers on a stem. Langford, V.I. (Mrs. Donald).

ADDITIONS TO THE HERBARIUM.

Cephalanthera oregana Reich. Cultus Lake, Chilliwack District, July, 1928 (F. Perry).

Callitriche hermaphroditica (L.) (*autumnalis* L.). Nicola Lake, September, 1928 (Mrs. MacFadden).

Cassiope stelleriana D.C. Coquihalla Mountain, July, 1929 (F. Perry).

OMISSIONS AND CORRECTIONS, 1928 REPORT.

Page 18. Ferns of British Columbia: Add *Polystichum lonchitis* (L.) Roth. (Holly-fern).

Page 19. Additions to Herbarium: *Carex obtusa* Bailey. Previously recorded under *Carex sitchensis* Boott.

ENTOMOLOGY.

BY J. F. CLARKE.

This past year has been a profitable one for the Museum from a standpoint of entomology. The Department has been fortunate in obtaining some good material and in receiving the help of specialists in its determinations.

ACKNOWLEDGMENTS.

To the following specialists the Department owes its sincere thanks for help in determining many species in their respective lines:—

To Mr. Busck and Mr. R. A. Cushman, of the United States National Museum, for their assistance with the Microlepidoptera and Hymenoptera respectively; Mr. E. C. Van Dyke, of the University of California, many species of various families of Coleoptera; Mr. J. B. Wallis, of Winnipeg, the Dytiscidæ and Hydrophilidæ; and Mr. W. H. A. Preece, of Victoria, the Cerambycidæ.

We are greatly indebted to Mrs. Florence Blackmore, of Victoria, for permitting us to use the Blackmore Collection for study and determining many species of Lepidoptera, as well as for the gift of fully 10,000 entomological specimens, the majority of which had been taken in British Columbia by early collectors, and for paratypes of *Lithonia napæa* Morr, race *umbrifasciata* Blackm. (Male, Victoria, March 31st, 1915; female, Victoria, April 10th, 1915.)

Mr. Stace Smith, of Copper Mountain, B.C., and Mr. G. H. Larnder, of North Vancouver, also donated welcome additions to our determined Coleoptera; and Mr. W. B. Anderson, a series, both male and female, of the Tussock-moth (*Hemerocampa pseudotsugata* McD.) from Chase, B.C.

We also take this opportunity to thank those mentioned in the list of Entomological Accessions for their various contributions, many of which were valuable acquisitions to our collections.

PROGRESS.

This past summer three more life-histories were placed on display and several others are being assembled to aid students in their study of insect pests. The collections of Coleoptera and Lepidoptera were rearranged and put in new cases. Any new material that has been brought in since the collections were last arranged was placed on display, and the entire collections were brought up to date and arranged to conform as nearly as possible to the latest classifications.

A special effort was made to build up the collections of Microlepidoptera, which were not well represented. With the co-operation of the Museum staff and outside collectors, the collection was enriched by approximately 150 species, most of which are from the southern end of Vancouver Island. Many of these species are common, but were collected to enlarge the series. However, a few very desirable species were obtained.

The field-trips were confined to the southern end of Vancouver Island, with one exception; that being a three-day expedition to Cameron Lake and Mount Arrowsmith. Unfortunately inclement weather prevailed during the Mount Arrowsmith ascent and consequently scarcely any insects were taken. Only one micro was captured on this mountain, and that under a rock sheltered from the weather. Specimens of the water-beetles *Agabus hypomelas*, *A. tristis*, and probably two new species—one a *Colymbetes*, the other a *Dytiscus* (near *D. fasciventris* Say.)—

PLATE III.

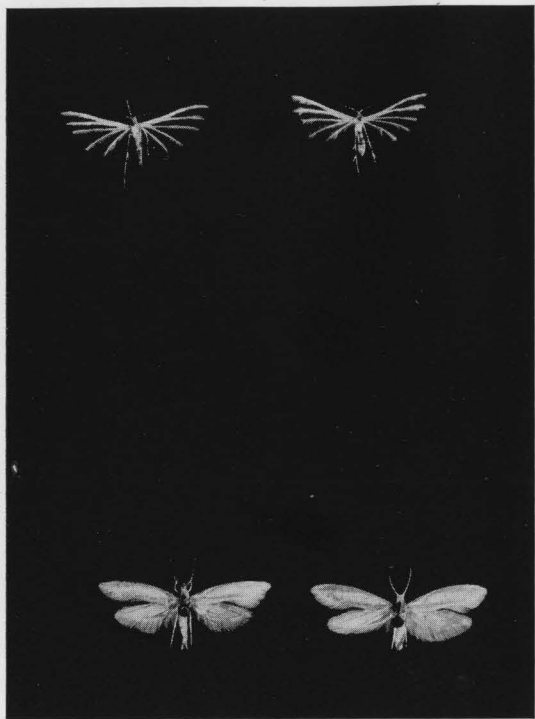


Fig. 1. *Trichoptilus pygmaeus* Wism.
Fig. 2. *Zelleria haimbachii* Busek.

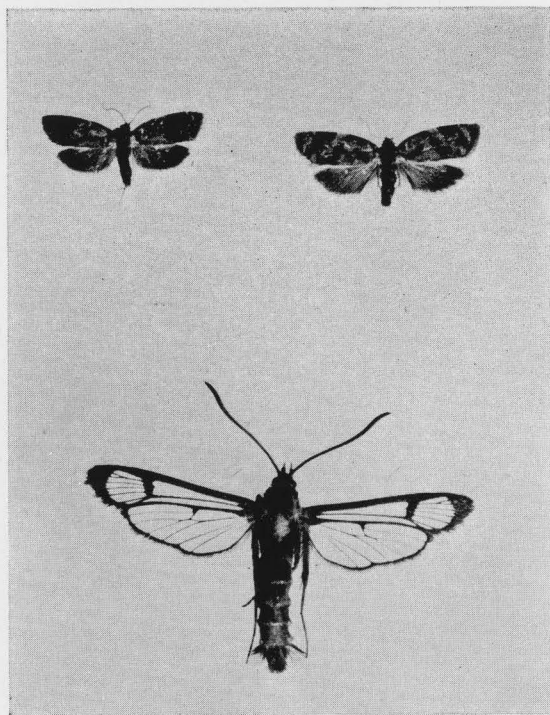


Fig. 3. *Batodes angustiorana* Haw.
Fig. 4. *Synanthedon novarænsis* Hy. Edw.

were also secured on this trip, as were a few Elateridæ and Carabidæ, but there was only one species, a Carabid, of any consequence. This species is *Athous scissus* Lec. and as far as I know is a new record for the Province.

Several trips were made to the Sooke River, which on two occasions yielded some desirable material.

On one visit the writer was able to obtain some live pupæ of *Trichoptilus pygmaeus* Walshm. on *Arctostaphylos columbiana* Piper, from which a short series emerged. (See Plate III. Fig. 1.) On another trip to the same place a series of fifty were taken and many more were seen. In 1923 the writer took a series of seventy-nine specimens on Little Malahat Mountain, V.I., on the same plant. Further notes of the complete life-history of this insect will appear at a later date.

Another insect rather rare in the Province, *Synanthedon novarænsis* Hy. Edw., was also taken at Sooke River. This specimen was a beautiful female taken at rest. Plate III. Fig. 4.

On the afternoon of August 10th Mr. W. A. Newcombe, Mrs. J. F. Clarke, and the writer paid a visit to Rithet's Swamp, on the outskirts of Victoria. Here an abundance of micros were found.

One of the best captures made was *Zelleria haimbachi* Busck, hitherto only recorded from Philadelphia and Nevada. It was found in fairly large numbers on *Pinus contorta*. Mr. Newcombe and Mrs. Clarke taking a nice series of this handsome micro. Upon approach the moths characteristically dropped straight downward and were easily secured by holding the killing-bottle directly below them. Plate III. Fig. 2.

Batodes angustiorana Haw. was recorded as new to the Province in the summer of 1928. It was first discovered by Mr. W. Downes, working on the yew-trees in the Provincial Government grounds. A fine series of both males and females were taken this last summer on holly-bushes, although none of the eggs, larvæ, or pupæ were found. Plate III. Fig. 3.

The following are some records of British Columbia insects described as new to science since the publication of the Report for 1928:—

THYSANOPTERA.

Lispthrips populi Moulton, described in Can. Ent., Vol. LXI., p. 287. Terrace (Mrs. W. W. Hipplesley).

HEMIPTERA.

Family SCUTELLERIDÆ.

Homæmus æneifrons extensis Walley, described in Can. Ent., Vol. LXI., Nov., 1929, p. 256. Vernon (D. G. Gillespie and Rendell); Crowsnest (Dennys); Oliver (Garrett).

Family ARADIDÆ.

Aradus paganicus Parshley, described in Can. Ent., Vol. LXI., Nov., 1929, p. 244.

Family LYGÆIDÆ.

Eremocoris canadensis Walley, described in Can. Ent., Vol. LXI., Feb., 1929, p. 41. This species is recorded from Keremeos, where it was taken by C. B. Garrett.

Eremocoris melanotus Walley, described in Can. Ent., Vol. LXI., Feb., 1929, p. 42. Recorded from Lillooet by E. R. Buckell.

Family MIRIDÆ.

Microphyellus adustus benatatus Knight, described in Ent. News, Vol. LXI., Feb., 1929, p. 40. This new variety is recorded from Saanich District and Victoria by W. Downes.

Family APHIDIDÆ.

Myzocallis pulchellus Glendenning, described in Can. Ent., Vol. LXI., Oct., 1929, p. 237. From specimens taken in Victoria by W. Downes, J. Stanley, and H. Hulbert.

COLEOPTERA.

Family CANTHARIDÆ.

Podabrus falli R. and G. R. Hopping, described in Can. Ent., Vol. LXI., Nov., 1929, p. 252. Otter Creek, Westbank, and Princeton (R. Hopping).

Family DASCILLIDÆ.

Macropogon dubius Brown, described in Can. Ent., Vol. LXI., Dec., 1929, p. 273, British Columbia.

Macropogon cribricollis Brown, described in Can. Ent., Vol. LXI., Dec., 1929, p. 274. Goldstream, V.I., and Victoria (W. Downes).

Family PTINIDÆ.

Plateros columbiensis Brown, described in Can. Ent., Vol. LXI., May, 1929, p. 108. This species is recorded from Brookmere by R. D. Bird.

Ptinus ocellus Brown, described in Can. Ent., Vol. LXI., May, 1929, p. 109. Recorded from Victoria by W. Downes.

Family SCARABÆIDÆ.

Aegialia crassa insularis Brown, described in Can. Ent., Vol. LXI., April, 1929, p. 87. Queen Charlotte Islands (J. H. Keen).

Aphodius corruptor Brown, described in Can. Ent., Vol. LXI., Sept., 1929, p. 206. Nelson (J. Fletcher).

Aphodius pingellus Brown, described in Can. Ent., Vol. LXI., Oct., 1929, p. 228. Shuswap Reservation (F. S. Carr).

DIPTERA.

Family ASILIDÆ.

Laphria milvina Bromley, described in Can. Ent., Vol. LXI., July, 1929, p. 160. Records: Revelstoke Mountain (P. N. Vroon); Aspen Grove (E. R. Buckell).

Family DOLICHOPODIDÆ.

Rhaphium ciliatum Curran, described in Can. Ent., Vol. LXI., Feb., 1929, p. 30. This species is recorded from Agassiz by H. H. Ross.

Family SYRPHIDÆ.

Syrphus venablesi Curran, described in Can. Ent., Vol. LXI., Feb., 1929, p. 45. Recorded from Vernon by E. P. Venables.

Family ANTHOMYIDÆ.

Hylemyia crucifera Hockett, described in Can. Ent., Vol. LXI., April, 1929. This species is recorded from two localities in the Province—from Armstrong by M. H. Ruhmann and from Inverness by A. A. Dennys.

Hylemyia pentafornis Hockett, described in Can. Ent., Vol. LXI., May, 1929, p. 110. Recorded from Rolla by P. N. Vroon; Crowsnest by A. A. Dennys; Lillooet by A. P. Macdougall; and from Chilcotin by E. R. Buckell.

Hylemyia garretti Hockett, described in Can. Ent., Vol. LXI., May, 1929, p. 117. Recorded by C. B. D. Garrett from Keremeos, Osoyoos, and Hedley; from Mount McLean, Lillooet District, by J. McDunnough; and Rolla, P. N. Vroon.

Hylemyia propinquina Hockett, described in Can. Ent., Vol. LXI., May, 1929, p. 117. Taken at Hedley by C. B. D. Garrett.

Hylemyia replicata Hockett, described in Can. Ent., Vol. LXI., June, 1929, p. 136. Keremeos (C. B. D. Garrett).

Hylemyia lobata Hockett, described in Can. Ent., Vol. LXI., June, 1929, p. 137. Recorded from Fort St. John by P. N. Vroon.

Hylemyia brunetta Hockett, described in Can. Ent., Vol. LXI., June, 1929, p. 139. Taken at Seton Lake, Lillooet District, by J. McDunnough.

Hylemyia pilicauda Hockett, described in Can. Ent., Vol. LXI., June, 1929, p. 141. Specimens taken at Oliver by C. B. D. Garrett.

Hylemyia scamansi Hockett, described in Can. Ent., Vol. LXI., June, 1929, p. 143. Recorded from Fort St. John by P. N. Vroon.

Hylemyia frontulenta Hockett, described in Can. Ent., Vol. LXI., July, 1929, p. 161. Specimens taken at Cranbrook by C. B. D. Garrett.

Hylemyia setisissima Hockett, described in Can. Ent., Vol. LXI., July, 1929, p. 164. From two localities, Keremeos and Hedley (C. B. D. Garrett).

Hylemyia oppidans Hockett; described in Can. Ent., Vol. LXI., July, 1929, p. 166. Specimens taken at Royal Oak and Victoria by W. Downes.

Family SCATOPHAGIDÆ.

Cordilura inversa Curran, described in Can. Ent., Vol. LXI., June, 1929, p. 131. Taken at Oliver by C. B. D. Garrett.

Cordilura criddlei Curran, described in Can. Ent., Vol. LXI., June, 1929, p. 131. Specimens taken at Nicola by N. Criddle.

LEPIDOPTERA.

Family GEOMETRIDÆ.

Eupithecia georgii McDunnough, described in Can. Ent., Vol. LXI., March, 1929, p. 67. Recorded from Kaslo; taken by J. Cockle.

Family PYRALIDÆ.

Phlyctania nordeggensis McDunnough, described in Can. Ent., Vol. LXI., Dec., 1929, p. 266. Windermere (Wooley-Dod).

HYMENOPTERA.

Family TENTHREDINIDÆ.

Zaschisomyx montana occidentalis Ross., described in Can. Ent., Vol. LXI., Dec., 1929, p. 272. Vernon (M. H. Ruhmann and E. R. Buckell); Okanagan Falls (E. R. Buckell).

COLEOPTERA NEW TO THE MUSEUM COLLECTION.

- Xanthochroa testacea* Horn. Englishman's River (G. H. Larnder).
Nacerda melanura (L.). Nanaimo (G. H. Larnder).
Calathus fuscipes Goeze. Introduced from Europe (G. H. Larnder).
Haliplus longulus Lec. Copper Mountain (G. Stace Smith).
Hydroporus sericeus Lec. Copper Mountain (G. Stace Smith).
Agabus nigroaeneus Er. Copper Mountain (G. Stace Smith).
Agabus tristis Aube. Copper Mountain (G. Stace Smith).
Hydnobius matthewsi Cr. Copper Mountain (G. Stace Smith).
Cryptohypnus nocturnus lucidulus Mann. Copper Mountain (G. Stace Smith).
Heterocerus brunneus Melsh. Copper Mountain (G. Stace Smith).
Adoxus villosulus Schrank. Copper Mountain (G. Stace Smith).
Gastroidea cyanea Melsh. Missezula Lake (G. Stace Smith).
Monoxia sordida (Lec.). Copper Mountain (G. Stace Smith).
Luperodes varipes Lec. Copper Mountain (G. Stace Smith).
Dorytomus brevicollis Lec. Copper Mountain (G. Stace Smith).
Proctorus (Encalus) decipiens (Lec.). Missezula Lake (G. Stace Smith).
Rhyncolus brunneus Mann. Copper Mountain (G. Stace Smith).
Pityogenes Knechteli Sw. Copper Mountain (G. Stace Smith).
Orthotomicus vicinus (Lec.). Copper Mountain (G. Stace Smith).

ADDITIONS AND CORRECTIONS TO THE CHECK-LIST OF THE MACROLEPIDOPTERA OF BRITISH COLUMBIA, 1927.

ADDITIONS.

- Page 10. After genus Callipsyche add *Satyrium fuliginosa* Edw. L.F.V.
 Page 12. Before *Hyloicus* add *Protoparce quinque maculata* Haw. So. Int.
 Page 18. Add *Agrotis sierræ* Harv. Marron Lake, B.C., 3, VII., 23. New record for B.C.

Family PHALÆNIDÆ.

Subfamily Apatelinæ.

- Page 27. Instead of *Caradrina extima* Wlk. read *Athetis extima* Wlk.

CORRECTIONS.

A recent revision of the Eupithecias of Canada, by Dr. J. McDunnough, places several of our British Columbia species in the synonymy. The revision up to the time of writing affecting our species is as follows:—

Eupithecia Curt.

- silenata* Standfs. So. Vanc. I.; Kaslo; Vancouver.
insignificata Tayl.
minorata Tayl.
scelestata Tayl.
pygmæata Hbn. So. Vanc. I.
obumbrata Tayl.
bryanti Tayl. Vancouver.
modesta Tayl.
castigata Hbn. Duncan; Rosedale; Kaslo.
latipennis Hulst.
luteata Pack. Kaslo.
bifasciata Dyar.
columbiata Dyar. Kaslo.
harlequinaria Dyar. Victoria; Wellington; Fraser Mills; Kaslo; Lillooet.
dyarata Tayl.
satyrata Hbn. Kaslo; Field.
dodata Tayl.
terminata Tayl. Kaslo.
slocanata Tayl.
nimbicolor Hlst. Kaslo.
obscurior Hlst.
adornata Tayl.
Kasloata Dyar. Kaslo.
casloata Dyar.
gelidata Moesch. Atlin; Windermere.
innotata Hufn. Kaslo; Lillooet.
cootenaiaata Dyar.
alberta Tayl.
georgii McD. (new species). Kaslo.
sobrinata Hbn. Duncan.
interruptofasciata Pack.

Until the completion of Dr. McDunnough's work the sequence of the remaining species, thus far not affected by the revision, will remain the same.

A STUDY OF THE RHINOCEROS AUKLET AND OTHER BIRDS IN
BRITISH COLUMBIA, 1929.

BY REV. C. J. YOUNG.

In the year 1924 I made my first trip to British Columbia, and with the exception of an occasional visit back to Ontario, I have been there ever since.

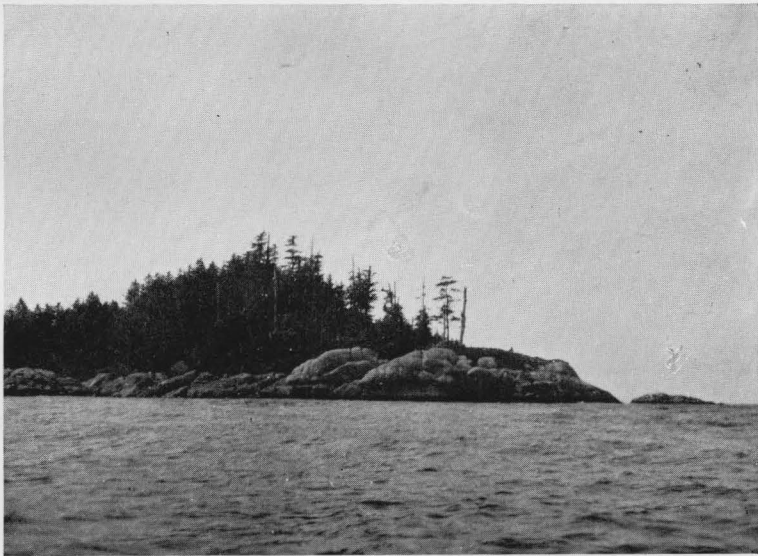
At my time of life I am not able to make many new records of birds, but being much interested in the divers and other sea-birds met with on the Pacific Coast, I undertook a trip to the north end of Vancouver Island and the Queen Charlotte Islands (the second one) in the late spring of 1929; my particular desire being to study the breeding habits of the rhinoceros auklet, which frequents Pine Island, in Queen Charlotte Sound, some 10 miles from the Vancouver Island shore.

Accordingly, on May 30th of last year I left Vancouver on the Union Steamship Company's steamer "Camosun," and after a smooth passage reached Queen Charlotte Sound, at the north end of Vancouver Island, where P. G. Pike, the lighthouse-keeper at Pine Island, came out in his gas-boat to meet the steamer and took me ashore to the island. The landing is only possible in calm weather, for there are no beaches, and the steps and cement-work that was recently put in was washed away by the storms of the previous winter. So with the aid of Mr. Pike

PLATE IV.



TRIANGLE ISLAND.



STORM ISLANDS. QUEEN CHARLOTTE SOUND.

I scrambled on to the rocks and made my way to the lighthouse. Here I was hospitably entertained by Mr. and Mrs. Pike. I much appreciated their kindness, and stayed for over a fortnight, a few days longer than intended, on account of strong winds and a heavy sea that prevented my reaching Shushartie Bay at Vancouver Island shore.

There are but few birds nesting on Pine Island. During the spring and fall migrations a number are attracted to the light, and some, striking the glass, are killed, though in no great quantity. Leach's petrel apparently is the greatest sufferer, as half a pailful of these have been picked up at times around the light.

Others I observed were: Bald eagles, duck-hawks (var. *Pealei*), ravens, glaucous-winged gulls, the rhinoceros auklet, Cassin's auklet, pigeon guillemot, the harlequin duck, and a scoter; violet-green cormorants and black oyster-catcher; of land birds—robins, russet-backed thrush, sooty song-sparrow, fox-sparrow (*Townsendi*), golden-crowned kinglet, goldfinch, and a rufous-backed humming-bird. No doubt there were a few more, but these were the only ones I actually saw; all of these breed except ravens, glaucous-winged gull, scoter, and humming-bird. The rhinoceros auklet (*Cerorhinca monocerata* (Pallas)) was to me the most interesting, both on account of its seclusive habits and its nocturnal movements. To the best of my knowledge it was first of all noted on the island by Messrs. W. Burton, of Victoria, and the late C. de B. Green, in 1909.

From P. G. Pike I learnt that the species arrives early in the spring in a large flock during the night; their arrival is at once evident; nothing is seen of them during the day. They dig their deep burrows in the black peaty earth and commence to lay between May 10th and 21st; by the end of the month some of the eggs are highly incubated; the young are hatched in June. Their burrows vary in depth from 6 feet to upwards of 20. In May, 1922, Vivian Hart, of Scarlett Point, who was relieving at the lighthouse, wishing to obtain an egg of this auklet, known here as the "guillemot," dug into a burrow for 25 feet before locating one; the average depth is 10 to 15 feet. At the end the hole widens; there is no actual nest; sometimes a little dry grass, but the egg is often stained and dirty through contact with the soil. Only one egg is laid; incubation appears to take one month, though from one cause or another the date of laying varies and is uncertain. If the first egg is lost, they appear to lay a second time, for we found almost fresh eggs as late as June 7th, whilst others were then ready to hatch. The egg much resembles the egg of the tufted puffin, white and having similar lilac shell markings, though noticeably smaller and not so pointed; the size varying from 73.50 by 47 to 63.70 by 44.60 millimetres; the average of ten eggs was 68.50 by 46.20 millimetres. The bird is quite nocturnal in its movements; the males go far out to sea in the daytime, returning at night. We caught several in their burrows; they are very vicious when handled, and use their beaks and claws freely, as I found out. The Indians (who have a fishing camp on Storm Islands, about 3 miles away) consider these birds and their eggs a delicacy, and collect both (birds and eggs) from the islands. It is a curious fact that none of these auklets breed on any other islands in the vicinity, or for miles around. There are none, as I investigated, on Tree Island, or on the Storm Islands, or within a radius of many miles. They are not found breeding on Triangle Island, or on the west coast of Graham Island, or Langara, though the bird is frequently seen there; but possibly may be found at Foresters Island across Dixon Entrance; whilst there is a known breeding resort on Destruction Island, off the coast of Washington. At the close of the summer they move away and are found far out at sea, and along the coast, southwards.

Cassin's auklet (*Ptychoramphus aleuticus* (Pallas)) also breeds on Pine Island. We found three of their eggs amongst the burrows of the other auklet. They arrive quite early in the spring, about April 25th, and by June 9th have well-fledged young. They are also nocturnal, but not to the same extent as the former, for in crossing from Pine Island to Shushartie on June 18th I noticed a large number swimming and diving after food. This bird is not so local; a number were breeding on Tree Island, and on June 13th we found there several young birds that appeared to have been hatched about three weeks and were nearly ready to take to the water. Eggs must have been laid in April. This bird breeds in numbers on the Queen Charlotte Islands; near the lighthouse on Langara Island, and elsewhere, in company with the ancient murrelet; also on Triangle Island, though on the islands in Queen Charlotte Sound there are no murrelets breeding, as far as I could ascertain. Both Cassin's and the rhinoceros auklet breed amongst the timber, some of their burrows being a distance from the sea; burrows of the latter, evidently occupied, I found many yards inland. (This also is true of the ancient murrelet (*Synthliboramphus antiquus* (Gmelin)), which is so abundant on Langara.) The single egg, which is white,

is laid from the middle of April to the first week in June. They breed in company with the rhinoceros auklet on the same grassy slope, also amongst a thick growth of lilies, but their burrows are not as deep. On Tree Island, half a mile distant, they frequent the same bank as Leach's petrel. On June 13th we crossed in the boat; while digging for petrels we found a young Cassin's auklet, which was well feathered and would have soon left its burrow; but Leach's petrel (*Oceanodroma leucorhoa* (Vieillot)) had not yet begun to lay. In each of the burrows of the latter we found two birds; on being handled they ejected a blackish liquid which had a strong, disagreeable odour. I was glad to put them away. Leach's is the last of the sea-birds to breed; up to June 18th we could find no eggs; the fork-tailed petrel, which has been noted on some of these islands, is two or three weeks earlier. I did not meet with it; the only petrels I saw were Leach's; they are abundant on Tree Island and on Storm Islands; whilst we found a few on Pine Island. They seem to keep close to the shore-line and not to penetrate inland like the auklets and murrelets.

On June 3rd, when digging for auklets on Pine Island, Pike's dog dug out two young birds about ten days old. At the time I thought they were the young of the rhinoceros auklet, and that was Pike's idea. They had light-blue legs and feet and blue eyes. Unfortunately I did not preserve them; on thinking the matter over later, I began to suspect they must be some other bird, as the auklets have dark legs and feet and blackish eyes, though the former may change with maturity.

The black oyster-catcher (*Hematopus bachmani* Audubon) was numerous on the islands. A number frequented the rocks at Pine Island, but I do not think they breed there; though on Tree Island, adjacent, we found two fresh eggs on June 7th. This was evidently a second laying, for on the 9th Pike found an egg nearly ready to hatch, and a few days later I found a nest from which the young had recently gone. They lay their eggs on the bare rocks, with merely a few pieces of bark or driftwood scratched together and small pieces of shell.

I did not observe the tufted puffin (*Lunda cirrhata* (Pallas)) at Pine Island or in Shushartie Bay, but towards the Mainland and on Storm Islands there were a few pairs. On June 1st I secured two of their eggs from the Indians on Storm Island, and a few days later another one. They were quite fresh at this date, so evidently are a fortnight later at least in laying than the rhinoceros auklet. They do not burrow as far into the earth; in fact, some of their eggs are not more than 3 or 4 feet in. We saw a few birds flying about at Storm Islands; while formerly common, they are becoming scarce. The Indians, roving from place to place during the fishing season, gather a large number of eggs and kill some of these birds; so that these, along with gulls and auklets, are decreasing in numbers yearly. But few gulls were breeding; on Tree Island there was one pair; two eggs were brought to me from Deserters Island, otherwise I saw but few; the glaucous-winged (*Larus glaucescens* Naumann) was the only variety. It commences to lay on some rocky islet about June 1st; at least a fortnight later than the herring-gull, which does not appear to nest in the vicinity, but prefers inland waters.

On June 2nd I found a sooty song-sparrow's (*Melospiza melodia ruffina* (Bonaparte)) nest near the lighthouse; the eggs were much incubated, and by the 5th the four eggs were hatched. At this date three young birds in a falcon's nest were well fledged and almost ready to fly; a few days later Pike shot one of them; the other two got away. They had apparently been hatched five or six weeks.

There were numbers of pigeon guillemots (*Cephus columba* Pallas) about the island and a few at Tree Island. They are by no means early breeders; laying their eggs in clefts of the rocks near the sea. On June 3rd we found three nesting-sites; they do not make a nest; one of these had two eggs; the others, one in each. They had only commenced to lay at this date; a week later, about the 8th, we could have secured a number of eggs, for many of them are within easy reach. A pair of harlequin ducks (*Histrionicus histrionicus* (Linnaeus)), evidently mated, were swimming about near the shore, and gave me the impression that they were nesting near by among the long grass and bushes; later I saw a flock of nine at Tree Island, but none of these were paired.

On the 7th I saw a humming-bird, but failed to see it again; on the 13th watched a kinglet feeding young ones, which had recently left the nest, which I could not locate. There are large hemlocks and spruce on the island, which is heavily timbered; also a few cedar. Considering its wind-swept situation, it is surprising how large and straight the trees have grown, exposed as they are to the "sweep" of the Pacific on the west and north-west.

I passed the time pleasantly, favoured with fair weather, and obtained a good insight into the habits of the birds I met with. Though the auklets were numerous, I failed to see any murrelets, though farther north at Langara Island these are plentiful.

With regard to the marbled murrelet (*Brachyramphus marmoratus* (Gmelin)), I picked one up on the shore of Burrard Inlet, near West Vancouver, in immature plumage. I saw another alive that had struck a wire on Granville Street, Vancouver, in the summer of 1926, and another was found on the Malahat Drive, near Cobble Hill, Vancouver Island, in full breeding plumage by G. D. Sprot, 1929; so I have no doubt that this bird is scattered during the summer in pairs all about the Strait of Georgia to Queen Charlotte Sound, and farther north to Prince of Wales Island across Dixon Entrance. I have seen a few at Clayoquot Sound and elsewhere; it is a most interesting bird to study, especially with regard to its nesting-habits, which are almost unknown. I have an idea that they usually breed in isolated pairs rather than in colonies; hence it has happened that the few single eggs, which no doubt belonged to them, have been occasionally found. I have records of nine eggs, most of which possibly belong to the species.

The first is the egg in the United States National Museum, taken from the oviduct of a bird shot in the Prince of Wales Island, Alaska. (See A. C. Bent, Part 1, "Life Histories of North American Diving Birds," Bulletin 107, page 142.) The next, an egg collected by the late Dr. C. F. Newcombe at Queen Charlotte Islands in 1901, doubtless of this species. The third, an egg picked up by a logger on the moss under the spruce and hemlock, 25 miles east of Bellingham, Washington, at a spot on the Nooksak River above the Saxon Camp, in 1925, in all probability of this species. One egg found by the late C. de B. Green at Banks Island, near Prince Rupert. Four eggs taken in a colony of some twenty birds by J. C. Darcus at Queen Charlotte Islands in 1927, and referred by him to this species. Two eggs brought from the same locality to C. J. Young, but considered by him quite doubtful.

In addition to this record, I may mention that from Mr. K. Racey, of Vancouver, I learnt that in the spring of 1927 a marbled murrelet was shot at Harrison Lake, nearly 100 miles east of Vancouver, by Ronald Stewart, of Chilliwack, B.C., which contained in its oviduct a fully developed egg. This is all I have been able to learn of, and whether the bird lays only one egg, or two, like its congener, the ancient murrelet, is still undetermined.

OOLOGY.

The Museum is indebted to the Rev. C. J. Young, Vancouver, for a donation of Canadian and British birds' eggs, containing 64 species and 284 specimens. These eggs had been saved from a fire which destroyed the greater part of Mr. Young's valuable collection—one that had been seventy years in the making.

The eggs listed below are those representing Western Canadian or closely allied species.

No. of Eggs in Set.	Common Name.	Species.	Locality.	Collector.
3	Western Grebe.....	<i>Aechmophorus occidentalis</i> (Lawrence)	Crane Lake, Alta.....	J. Macoun.
5	Holboell's Grebe.....	<i>Colymbus holboellii</i> (Reinhardt).....	Moose Mtn., Sask.....	C. J. Young.
3	Horned Grebe.....	<i>Colymbus auritus</i> (Linnæus).....	West Lake, Ont.....	C. J. Young.
1	Eared Grebe.....	<i>Colymbus nigricollis</i> (Brehm).....	Crane Lake, Alta.....	J. Macoun.
5	Pied-billed Grebe.....	<i>Podilymbus podiceps</i> (Linnæus).....	St. Lawrence River.....	C. J. Young.
2	Kittiwake.....	<i>Rissa tridactyla</i> (Linnæus).....	Newfoundland.....	Dr. Clarke.
3	Franklin's Gull.....	<i>Larus franklini</i> (Richardson).....	Crane Lake, Alta.....	J. Macoun.
3	Common Tern.....	<i>Sterna hirundo</i> (Linnæus).....	Quill Lake, Sask.....	C. J. Young.
2	Arctic Tern.....	<i>Sterna paradisæa</i> (Brunnich).....	Nairn, Scotland.....	C. J. Young.
3	Black Tern.....	<i>Chlidonias nigra</i> (Gmelin).....	Leeds County, Ont.....	C. J. Young.
4	American Bittern.....	<i>Botaurus lentiginosus</i> (Montagu).....	Leeds County, Ont.....	C. J. Young.
1	Least Bittern.....	<i>Ixobrychus exilis</i> (Gmelin).....	Escott Pond.....	C. J. Young.
1	Virginia Rail.....	<i>Rallus virginianus</i> (Linnæus).....	?	?
6	Sora.....	<i>Porzana carolina</i> (Linnæus).....	Madoc, Ont.....	C. J. Young.
4	American Coot.....	<i>Fulica americana</i> (Gmelin).....	Crane Lake, Alta.....	J. Macoun.
2	Wilson's Snipe.....	<i>Gallinago delicata</i> Ord.....	Madoc, Ont.....	C. J. Young.
4	Killdeer.....	<i>Oxyechus vociferus</i> Linnæus.....	Leeds County, Ont.....	C. J. Young.
3	Turnstone.....	<i>Arenaria interpres</i> Linnæus.....	?	?
1	Oyster-catcher.....	<i>Hamatopus bachmani</i> Audubon.....	?	?
3	Ruffed Grouse.....	<i>Bonasa umbellus</i> Linnæus.....	Leeds County, Ont.....	C. J. Young.

OOLOGY—Continued.

No. of Eggs in Set.	Common Name.	Species.	Locality.	Collector.
6	Willow-ptarmigan.....	<i>Lagopus lagopus</i> Linnæus.....	James Bay.....	Dr. Whiteaves.
5	Rock-ptarmigan.....	<i>Lagopus rupestris</i> Gmelin.....	Mackenzie Basin.....	Mr. Whittaker.
3	Prairie-hen.....	<i>Tympanuchus americanus</i> Reichenbach	Saskatchewan.....	Mr. Whittaker.
6	Marsh-hawk.....	<i>Circus hudsonius</i> (Linnæus).....	Saskatchewan.....	C. J. Young.
2	Cooper's Hawk.....	<i>Accipiter cooperi</i> (Bonaparte).....	Leeds County, Ont.....	C. J. Young.
2	Red-tailed Hawk.....	<i>Buteo borealis</i> (Gmelin).....	White Bear Lake, Sask..	C. J. Young.
1	Swainson's Hawk.....	<i>Buteo swainsoni</i> (Bonaparte).....	Lannigan, Sask.....	C. J. Young.
2	Rough-legged Hawk.....	<i>Archibuteo lagopus</i> (Brunnich).....	Old Wives Creek, Sask..	J. Macoun.
1	Short-eared Owl.....	<i>Asio flammeus</i> (Pontoppidan).....	Porcupine River, Mac- kenzie District	?
2	Great Horned Owl.....	<i>Bubo virginianus</i> (Gmelin).....	Leeds County, Ont.....	C. J. Young.
3	Belted Kingfisher.....	<i>Ceryle alcyon</i> (Linnæus).....	Leeds County, Ont.....	C. J. Young.
3	American Magpie.....	<i>Pica pica</i> (Linnæus).....	?	?
1	American Crow.....	<i>Corvus brachyrhynchos</i> (Brehm).....	Wolfe Island, Ont.....	?
3	Sooty Song-sparrow and nest	<i>Melospiza melodi rufina</i> (Bonaparte)...	Pine Island, Q.C. Sound, 1929	C. J. Young.
4	Russet-backed Thrush and nest	<i>Hylocichla u. ustulata</i> (Nuttall).....	Clayoquot Sound, 1926..	C. J. Young.

EXCHANGES AND ADDITIONS.

Mr. W. F. Burton replaced the set of three North-west Coast Heron eggs donated by him in 1919 with a set of four taken on Chatham Island, Haro Strait, May 1st, this year, as well as exchanging the single Band-tailed Pigeon egg with one taken on Pender Island in 1928.

Glaucous-winged Gull, very small specimen; length $1\frac{5}{8}$ inch, diameter $1\frac{1}{4}$ inch. Bare Island, Haro Strait (W. A. Newcombe).

? Chestnut-backed Chickadee, nest and 1 egg. Found in a hollow stump, Gonzales, Victoria (C. C. Pemberton).

Humming-bird nest, found on an outer branch of red cedar, Victoria District (John Southwell, Jr.).

ACCESSIONS.

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

ANTHROPOLOGY AND ARCHÆOLOGY.

Déné (Carrier).

Slush-scoop, used in clearing fishing-holes of ice. Tatelkuz Lake (F. Swannell).

Food-roots (*Lomatium* sp.), for winter use. McLeod's Lake (J. E. McIntyre per F. Swannell).

Déné (Tahltan).

Copper, native copper from the Vass & McAuley claim, Squaw Creek, Y.T. (presented, J. R. Alguire).

Déné (Slaves).

Belt, hat-band, pack-strap, braces, and moose-hide moccasins; all with geometric designs in quill-work. Fort Nelson (purchased, W. H. Cartwright).

Déné (Beaver).

Moccasins, 2 pairs, moose-hide, plain. Hay River (purchased, W. H. Cartwright).

Déné (Sekanais).

Moccasins, moose-hide with beaded design and babiche, showing method of cutting from a hide. Sikanni River (purchased, W. H. Cartwright).

Déné (Grand Laker) (Branch of the Sekanais).

Moccasins, caribou-hide, leather instep bordered with quill-work cord. Near the Liard River (purchased, W. H. Cartwright).

Kootenaiian.

Bag, Indian hemp (*Apocynum cannabinum*) and wool, design with diamond and vegetable-dyed wools (Mrs. L. A. Genge).

Stone club, globular stone, mounted on a wooden handle with raw hide when green. Yahk, B.C. (G. S. Baker).

Salish.

Basket, small, oblong coiled weave with design in "beaded" work. Douglas Landing (purchased, Miss W. V. Redfern).

Basket, pack type, coiled weave, ladder design in straw and cherry-bark. Fraser Canyon (purchased).

Canoe, model of travel-canoe, Nootkan type, totemic design on bow and stern (purchased, Miss Newton).

Clams, smoked, dried, and strung on cedar-bark; to be stored for winter food. Saanich (purchased).

Spear-point, chipped make. Douglas Landing (Miss Newton).

Spear-point, chipped make, obsidian. Victoria (R. Melville).

Spear-point, chipped make, obsidian. South Saanich (J. T. Hepburn).

Spear-point, chipped make, flint, very large, triangular, found in a cut when building the C.P.R. near Spuzzum, by Jas. Bell, 1882 (presented by J. Warren Bell).

Arrow-point, ground, slate. Duncan, V.I. (J. H. Prichard).

Dagger, mica-schist, perforated handle. Semiamo Bay (purchased, W. B. Anderson).

? Club, mica-schist, weathered. Adams Lake (purchased, W. B. Anderson).

Chisel, stone, small. Cobble Hill, V.I. (G. D. Sprot).

Chisel, stone, small. Cadboro Bay (A. H. Maynard).

Dressing-stones (5) and rubbing-stones (4), used for preparing skins and separating vegetable fibres. Victoria (E. A. Cooke).

Net-sinkers (3), ? for bird-nets. Victoria (E. A. Cooke).

Stones, use ? Victoria (E. A. Cooke).

NOTE.—This collection from Mr. Cooke is very interesting. The pieces, though of rough manufacture, were all found in one locality, on the outskirts of Victoria, at a possible site for the use of bird-nets, the type noted by Captain Vancouver, and also close to a "cedar stand" and where food-roots were plentiful.

Bone point, weathered. Beaver Creek, V.I. (Hilda L. Ford).

Spear-point, bone. Found by Mr. Charters, Sooke, V.I. Presented by Dr. W. D. Calvert.

Nootkan.

Chisel, stone. Port Renfrew (G. Mutter).

Bottle, basketry-covered, designs in native dyes (Miss Newton).

Basket, vase-shaped, made of cedar-bark and rush, mixed weaves (Mrs. L. A. Genge).

? Kwakiutl.

Hat, spruce-root, northern type, coarse weave, painted design (purchased, Miss Merrill).

Haida.

Dagger, stone, broken piece of. Masset (J. Bridden).

Spear-points (2), bone, fragments. Masset (J. Bridden).

Eskimo.

Coat, made from caribou-skins (Mrs. E. C. Hart).

OSTEOLOGY.

Salish.

Skull and part of skeleton, excavated at Work Point Barracks (Captain Underwood).

Skeleton, part of. Whiffen Spit, Sooke, V.I. (A. Kohout).

Nootkan.

Skulls (2). Port Renfrew (G. Mutter).

Kwakiutl.

Skull, Koskimo type (Mrs. E. Jones, Victoria).

NOTE.—This is the finest specimen of this type of deforming I have ever come across.

PALÆONTOLOGY.

Balanus gregarium (Conrad). Miocene of California (presented, I. E. Cornwall).

Inoceramus digitatus. Cowichan District (Mrs. G. D. Sprot).

Inoceramus sp. Nanaimo District (J. T. Hepburn).

Inoceramus sp. No. 1 Mine, Nanaimo District (R. Rallison).

Pachydiscus ? *haradai*. Nanaimo District (J. T. Hepburn).

Tapes staminea. Graham Island, Q.C.I. (Rev. C. J. Young).

Ammonite sp. Mount Douglas, V.I., gravel-pits (Rev. R. Connell).

Block containing *Mytilus* sp. 1,500 feet above Jordan River (M. E. Lohbrunner).

Aucella sp. and *Nassa* sp. 1,500 feet above Jordan River (M. E. Lohbrunner).

Tree, trunk species? Two specimens from Shoal Harbour, Saanich (Mrs. Barrow, Saanich, and R. W. Hunter, Victoria).

Sandstone cast with the appearance of a salmon. Cumberland (T. R. Jackson).

Casts of Mollusca. Stamp Falls, Alberni (M. L. Smith).

Nodule, shaped like a horse-hoof. Island, Strait of Georgia (Mr. Jenkins).

BOTANY.

Herbarium specimens were received from the following: Mrs. Donald, Mrs. Priestley, W. B. Anderson, W. F. Burton, Miss Wollaston, Miss J. Maynard, Miss H. Hinder, Major Nation, W. Preece, C. C. Pemberton, H. Toms, Mrs. Clarke, J. F. Clarke, Mrs. J. F. Clarke, H. P. Eldridge, Mrs. Dover, E. A. Cooke, and G. A. Gibson, of Victoria; Rev. C. J. Young, Mrs. Don Munday, F. Perry, Mrs. F. S. Noble, and J. W. Thompson, of Vancouver; G. Fraser, of Ucluelet, V.I.; T. H. Bond, of Nicola; G. Stace Smith, of Copper Mountain; G. Gaske, of Trail; Mrs. W. B. Paul, of Courtenay; Mrs. Whitwell, of Sooke; J. Pool, of Nanaimo.

Botany—Miscellaneous.

Root-graftings (*Thuja plicata* Donn.). Lake Cowichan (W. Baylis).

Stems of *Acer* sp. and *Salix* sp., showing deep impressions caused by the spiral twining of *Lonicera* sp. Lake Cowichan (W. Baylis).

Stems of *Spiræa discolor*, showing bark incisions made by sapsuckers (*Sphyrapicus* sp.). Victoria (C. C. Pemberton).

Stump of willow (*Salix* sp.), the walls of the hollow heart covered by a fungus growth.

REPTILIA.

Garter-snake (*Thamnophis o. ordinoides* B. & G.). Victoria District (J. F. Clarke).

Alligator Lizard (*Gerrhonotus principis* B. & G.). Vedder Crossing (Mrs. Leavens).

AMPHIBIA.

Two Pacific Tree-toads (*Hyla regilla* B. & G.). Florence Lake, V.I. (W. H. Gibson, Jr.).

Frog (*Rana* sp.). Vedder Crossing, B.C. (Mrs. Leavens).

Two Frogs (*Rana* sp.). Saskatchewan (W. H. Moore).

ICHTHYOLOGY.

Pipe-fish (*Siphostoma griseolineatum* Ayres). Loughborough Inlet (R. W. Hunter).

Dog-fish (*Squalus sucklii* Girard), two small specimens. Sooke, V.I. (E. A. Cooke).

ENTOMOLOGY.

Lepidoptera.

E. A. Cooke, W. H. Moore, N. C. McManus, L. C. Masfen, Mr. Gould, Violet Harrison, all from Victoria.

Coleoptera.

Peggy Ingledew, Pat Martin, W. H. Gibson, J. F. Risser, R. Milne, T. T. McBane, Miss Hinder, C. Prescott, A. H. Maynard, Mrs. Willard, specimens captured in the vicinity of Victoria. J. R. Forrester, Departure Bay; A. G. Dayton, Bamberton; R. Cumming, Vancouver; Mrs. Sweeney, Westholme; Miss Jones, Matsqui; H. S. Simpson, Sooke; Mrs. K. R. Napier, Saanich, species captured in their districts.

General Entomology.

C. A. Bramble, Victoria; W. R. Gibson, Victoria; Miss Hinder, Victoria; Reta Lemm, Victoria.

Miscellaneous.

Spiders from Rene Watson, Victoria; W. Gerrard, Alberni; Mrs. Janssen, Victoria.
Hairworm (*Cordiacea* sp.). J. C. Pearce, Fulford Harbour.

MARINE.

Echinoderms.

(Collected by W. A. Newcombe, Victoria, B.C.)

Astroidea.

Henricia leviuscula (Stim) Fish.

Leptasterias epichlora Ver.

Ophiuroidea.

Brittle Star (*Ophiura brevispina* Say.).

Echinoidea.

Strongylocentrotus franciscanus A. Agassiz.

Strongylocentrotus purpuratus Stimpson.

Strongylocentrotus drobachiensis A. Agassiz.

Mollusca.

Butter-clam (*Saxidomus giganteus* Deshayes). Saanich Inlet (W. A. Newcombe).

Bent-nosed Clam (*Macoma nasuta* Conrad). North Saanich (W. A. Newcombe).

Soft-shell Clam (*Mya arenaria* L.). North Saanich (W. A. Newcombe).

Purple Chrysolome (*Chrysodomus smirinus* Dall.). Victoria (W. A. Newcombe).

Red-lined Chiton (*Lepidochitona lineata* Wood.). Victoria (W. A. Newcombe).

Hairy Chiton (*Mopalia ciliata* Sowerby). Victoria (W. A. Newcombe).

Black Chiton (*Katherina tunicata* Wood). Victoria (W. A. Newcombe).

Giant Chiton (*Cryptochiton stelleri* Middendorff). Victoria (A. P. Cowan and W. A. Newcombe).

Mollusca—Land and Fresh Water.

Northern Selen (*Haplotrema vancouverensis* (Lea). Cowichan District (W. H. Moore).

Faithful Snail (*Epiphragmophora fidelis* Gray). Victoria (W. H. Moore).

Sphere Shell (*Sphaerium simile* Say). Cariboo District (W. A. Newcombe).

Crustacea.

Smooth Porcelain Crab (*Petrolisthes criomerus* Stimpson). Victoria (Miss Hart).

Rough Porcelain Crab (*Pachycheles rudis* Stimpson). Victoria (W. A. Newcombe).

Moss-back Crab (*Hapalogaster mertensii* Brandt.). Victoria (W. A. Newcombe).

Pinnixa (*Pinnixa littoralis* Holmes). Victoria (Miss J. Hart).

Pinnixa (*Pinnixa schmitti* Rathbun). Victoria (Miss J. Hart).

Pinnixa (*Pinnixa faba* Dana). Victoria (Miss J. Hart and S. Boys).

Helmet-crab (*Telmessus cheiragonus* (Tilesius) Rathbun). Victoria (S. Boys).

Hairy-cancer Crab (*Cancer oregonensis* (Dana) Rathbun). Victoria (W. A. Newcombe).

Black clawed Crab (*Lophopanopeus bellus* (Stimpson) Rathbun). Victoria (Miss Hart).

Big Kelp Crab (*Epialtus productus* Randall). Victoria (W. A. Newcombe).

Hairy Hermit-crab (*Paguristes turgidus* Stimpson). Victoria (W. A. Newcombe).

Stalked Barnacle (*Lepas anatifera* L.). West Coast, V.I. (Dr. Williamson).

Stalked Barnacle (*Lepas fascicularis* Ellis & Solander). West Coast. (Last 2 species per I. E. Cornwall.)

Miscellaneous Marine.

Sponge (*Halichondria panicea*). Victoria.

Annelid sp. Victoria.

Serpula sp. Victoria.

ORNITHOLOGY.

California Murre (*Uria troille californicus* H. Bryant). Ogden Point, Victoria, B.C. Killed by waste oil.

Glaucous-winged Gull (*Larus glaucescens* Naumann). Goldstream, V.I.; three specimens (W. H. Gibson, Jr.).

Herring-gull (*Larus argentatus* Pontoppidan). Victoria; found dead (W. H. Gibson, Sr.).

Blue-winged Teal (*Querquedula discors* (Linnæus)). Saanich District.

American Bittern (*Botaurus lentiginosus* (Montagu)). Found injured; Nanaimo, B.C. (per J. W. Graham).

Sora (*Porzana carolina* Linnæus). Found dead; Victoria (O. C. Bass).

Pectoral Sandpiper (*Pisobia maculata* (Vieillot)). Sea Island, Fraser River (R. A. Cumming).

Red-backed Sandpiper (*Pelidna alpina sakhalina* (Vieillot)), Sea Island, Fraser River (R. A. Cumming).

Western Sandpiper (*Ereunetes mauri* Cabanis). Sea Island, Fraser River (R. A. Cumming).

Spotted Sandpiper (*Actitis macularia* (Linnæus)). Vancouver (R. A. Cumming).

Cooper's Hawk (*Accipiter cooperi* (Bonaparte)). Esquimalt (W. H. Gibson, Jr.).

Rough-legged Hawk (*Archibuteo lagopus sancti-johannis* (Gmelin)). Gordon Head, Victoria, B.C. (F. Kermode).

Screech-owl (*Otus asio kennicotti* (Elliot)). Victoria; found dead (A. E. Pickford).

Northern Red-breasted Sapsucker (*Sphyrapicus ruber notkensis* (Suckow)). Goldstream District, V.I. (W. H. Gibson, Jr.).

Northwestern Flicker (*Colaptes cafer saturator* Ridgway=*Colaptes c. cafer*) (see Birds of Western Canada). Two specimens; Victoria and Esquimalt Districts (W. H. Gibson, Jr.).

Skylark (*Alauda arvensis* (Linnaeus)). Found frozen; Victoria District (A. J. H. Wootten).

Steller's Jay (*Cyanocitta stelleri stelleri* (Gmelin)). Esquimalt District (W. H. Gibson, Jr.).

Junco (*Junco hyemalis oregonus* (J. K. Townsend)). Esquimalt District (W. H. Gibson, Jr.).
Forbush's Sparrow (*Melospiza lincolni gracilis* (Kittlitz)). South Vancouver (R. A. Cumming).

Lutescent Warbler (*Vermivora celata lutescens* (Ridgway)). South Vancouver (R. A. Cumming).

Pipit (*Anthus rubescens* (Tunstall)). Sea Island, Fraser River (R. A. Cumming).

Varied Thrush (*Ixoreus naevius naevius* (Gmelin)). Esquimalt District (W. H. Gibson, Jr.).

MAMMOLOGY.

Bat (*Myotis* sp.). Victoria, B.C. (presented, J. Aaranson).

Sea-otter (*Enhydra l. lutris* (Linn.)) (tippet made from the skin of). This specimen, presented by Mrs. L. A. Genge, Victoria, is made from a skin which was among the first to be traded in at Fort Victoria.

Wolf, head of (*Canis occidentalis* (Richardson)), mounted; killed at Millarville, Alta. Loaned by Mrs. Bryce-Wright.

Squirrel (*Sciurus hudsonicus* sp.), grey skin of. Trapped on Level Mountain, Cassiar District (presented, H. W. Dodd, Telegraph Creek).

Black-tailed Deer (*Odocoileus c. columbianus* (Richardson)). Mounted specimen—albino—shot near "The Green Timbers" Pacific Highway, Fraser Valley, in 1913 (purchased, F. Shelley).

Mountain-sheep (*Ovis c. canadensis* Shaw.), skull of. Frontal bones of the skull are missing, having been eaten by rodents. Presented by F. L. Peterson, Greenwood, B.C. The specimen is a good illustration of why comparatively few remains of our larger mammals are discovered.

PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS.

American Museum of Natural History, New York	3
Art Historical & Scientific Society, Vancouver	2
Bernice Bishop Museum, Honolulu	2
Biological Society of Washington	1
Boston Society of Natural History	3
Bristol Museum and Art Gallery, England	1
Buffalo Society of Natural Sciences, Buffalo, N.Y.	2
California Academy of Sciences, San Francisco	21
California State, Sacramento	1
Cambridge University Library	2
Cardiff Naturalists' Society	1
Carnegie Institute, Pittsburgh, Pa.	1
City Art Museum, St. Louis	1
Cleveland Museum of Natural History	1
Cornell University, Ithaca, N.Y.	1
Detroit Institute of Arts, City of Detroit	1
Dominion Government Publications	35
Entomological Society of London	3
Field Museum of Natural History	14
Grand Rapids Public Library, Michigan	1
Illinois Natural History Survey	4
Insular Experiment Station, Rio Piedras, P.R.	9
John Crerar Library, Chicago, Ill.	1
Kansas Academy of Science, Manhattan, Kansas	1
Library of Congress, Washington, D.C.	1
Manchester Museum	1
Museum of Fine Arts, Boston, Mass.	6
National Museum, Melbourne, Australia	2
Nebraska State Museum, Lincoln, Nebraska	2
Newark Museum Association, Newark, N.J.	3
New York Botanical Garden	2
New York Zoological Society	13
Ohio Agricultural Experiment Station	6
Oxford University Press	4
Peabody Museum of Salem	1
Peabody Museum, Yale University	13
Pennsylvania Museum, Philadelphia, Pa.	12
Philadelphia Academy of Natural Sciences	2
Public Museum, Milwaukee, Wis., U.S.A.	6
Puget Sound Biological Station, Seattle, Wash.	3
Royal Canadian Institute, Toronto	1
Royal Ontario Museum, Toronto	5
San Diego Natural History Museum, Balboa Park	3
San Diego Society of Natural History	3
Scripps Institution of Oceanography of the University of California	4
Smithsonian Institution, Washington	74
State College of Washington, Pullman, Wash.	4
State Plant Board of Mississippi, Mississippi	1
Staten Island Institute of Arts & Sciences	4
U.S. Department of Agriculture	15
University of California, Berkeley, California	31
University of Colorado, Boulder, Colorado	1
University of Illinois, Urbana, Illinois	6
University of Montreal, Montreal, Quebec	3

Carried forward 344

PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS—*Continued.*

<i>Brought forward</i>	344
University of Oklahoma	2
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Wagner Free Institute of Science, Philadelphia	6
Wales National Museum, Cardiff, Wales	2
Wistar Institute Press	1
Zoological Society of Philadelphia	2
Total	374

We are indebted to the following for pamphlets received during the year: Professor Harold St. John, O. A. Stevens, and also The Academy of Natural Sciences of Philadelphia for a complete set of the available volumes of their Proceedings and Journals.

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