PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1915.

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
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1916.

To His Honour FRANK STILLMAN BARNARD,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits the Annual Report of the Provincial Museum of Natural History for the year 1915.

THOMAS TAYLOR,
Provincial Secretary.

Provincial Secretary's Office,
March 17th, 1916.

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PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., March 17th, 1916.

The Honourable Thomas Taylor,
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 ending December 31st, 1915, covering the activities of the Museum.

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

John Cochrane, Sir Richard McBride, K.C.M.G., A. A. Freeman, Colonel Theodore Roosevelt, Hon. D. M. Eberts, K.C., and F. Kermode.

PROVINCIAL MUSEUM REPORT

FOR THE YEAR 1915.

Since the Report of 1914 considerable progress has been made in the gathering of specimens of natural history of the Province. Most of these specimens, like the material that has been secured in recent years, will have to be placed in storage, as it is impossible now to place any more material on exhibition owing to the fact that the collection has outgrown the present building. The subjects which are best represented and which have been as a whole most completely classified, and can therefore be most advantageously exhibited for the benefit of the public, are, namely: Anthropology, mammalogy, ornithology, oology, ichthyology, entomology, and botany. In the several branches of these subjects the collections are already important and extensive, including a number of type specimens, and arrangements are under way for valuable additions. While it is a primary duty of the Museum to preserve and exhibit specimens confided to its care, the importance of the collection does not rest there, nor upon the number of specimens assembled and their value in currency, but upon the use to which they are put. From an educational point of view the collections are of great value to those persons who are interested in studying the natural history of this Province. The specimens in the exhibition halls have been carefully labelled, and there is also a large study series in the several branches in the annex at the rear of the Museum Building. These study series are available, on application to the Director, to those persons who wish to consult them. This annex is only a frame building and not fire-proof, therefore every precaution is taken to ensure its safety, as it contains many valuable specimens that it would be impossible to replace, especially in the branch of anthropology. It also contains a large study series of bird-skins for which moth-proof drawer-cases were made during the summer. During the early part of the year the botanical collection which has been in the Department of Agriculture was transferred to the Museum, as it was thought that this collection would be more accessible to the general public for study were it placed in conjunction with the Museum collection which was started in the year 1898, and which has been greatly added to by the Department collectors in the last few years.

A great deal of attention was given during the past year to the proper labelling of specimens and the sorting of collections preparatory for storage. This work was principally carried on after the close of the collecting season and entails considerable work. A number of specimens in the several branches of natural history have to be sent to authorities on the different subjects to be identified and verified. This work is done gratis for the Province by larger institutions principally in the United States, who have a large staff of scientists with whom the Director keeps in touch. The collections of the Provincial Museum are developing so much that before long our scientific staff will have to be increased by having custodians in charge of some of the most important branches of natural history, more particularly if the Museum is to be expected to carry on educational work. A great deal more interest is being taken in the flora and the fauna of the Province by school-teachers, especially during the session of the summer school which is held in Victoria. The Museum is always ready to assist visiting teachers in any way possible, and from remarks that have been expressed, this seems to be thoroughly appreciated. It is gratifying to see that the number of teachers who bring their scholars to visit the Museum for nature-study is increasing, also the interest taken by the children, some coming from the surrounding districts near Victoria.

A larger number of persons visited the Museum this year than during the past year. This, no doubt, was due to the Panama-Pacific Exposition being held in San Francisco, California. Had it not been for the terrible European war at present in progress, no doubt the number of visitors would have been nearly doubled. One of the most notable visitors to the Museum this year was Colonel Theodore Roosevelt, who passed through Victoria on Sunday, July 18th, and visited the Museum accompanied by the Premier, Sir Richard McBride, K.C.M.G., the Honourable Thomas Taylor, and the Honourable D. M. Eberts, Speaker of the Legislative Assembly. The party was shown over the exhibits by the Director, and many complimentary remarks were made by Colonel Roosevelt, which were greatly appreciated.

The Provincial Museum wishes to extend grateful thanks to the following gentlemen who have greatly assisted with identifications in their respective branches of biology:—

Identification of Birds and Mammals.—The Biological Survey, United States National Museum, Smithsonian Institution, Washington, D.C., and personally the following scientists: Messrs. H. W. Henshaw, Chief of the Biological Survey; E. W. Nelson, Assistant Biologist, Vernon Bailey, E. A. Preble, A. H. Howell, and Jackson; also Mr. H. C. Oberholser, who kindly identified a large series of bird-skins.

Identification of Entomological Specimens.—The Biological Survey, United States National Museum, Smithsonian Institution, Washington, D.C., and personally the following: Messrs. C. H. Townsend, Curator of Entomology, J. C. Crawford, R. P. Currie, Nathan Banks, Knab, S. A. Rohwer, and E. A. Schwarz; also Doctors Barnes and McDunnough, of Decatur, Ill.; Professor Raymond C. Osburn, of Columbia University; Mr. F. H. Wolley Dod, of Calgary, Alberta; Mr. L. W. Swett, Boston, Mass.; and Mr. E. H. Blackmore, Victoria, B.C.

Thanks are due also to Professor John Macoun, Naturalist of the Geological Survey, Ottawa; Mr. J. M. Macoun, Curator of the Herbarium, Ottawa; Mr. Lawrence M. Lambe, Vertebrate Palæontologist, Ottawa, and C. F. Newcombe, M.D., Victoria.

Notes on bird migrations and observations have been received from the following: J. E. H. Kelso, M. D., and W. B. Johnson, Lower Arrow Lakes; A. H. Palmer, New Westminster; W. R. Carter, Deputy Game Warden, Alberni; Rev. A. C. Mackie, Vernon; J. A. Munro, Okanagan Landing; and W. A. Newcombe.

The Museum has been pleased to loan specimens and data in the different branches to authorities in the larger institutions throughout the East for the purpose of assisting specialists in their work of monographing several species of mammal and bird life. Ornithological specimens have been loaned to Mr. P. A. Taverner, Ottawa, and to Mr. J. H. Fleming, Toronto; also to the Biological Survey and Smithsonian Institute, Washington, birds and mammals; and a large collection of grizzly bear skulls to Dr. C. Hart Merriam for study and comparison, to assist him with his work on the "Grizzly Bears of North America," to be published under the Harriman Alaska Series of the Smithsonian Institution.

EXPLORATION.

During the year the Director arranged for three men to engage in field-work during the summer in widely separated districts, so as to cover as much territory as possible, and also to make the appropriation which is made by Legislature for this purpose go as far as possible, get results, and yet practise the strictest economy, which is necessary in the administration of this Department at the present time. These men were instructed to collect specimens in all branches of biology and in botany. Their respective reports show that they were successful, and I think the Museum has been more greatly benefited by this arrangement than by sending all the collectors out in one party.

Mr. E. M. Anderson, of the Museum staff, was stationed at Sahtlam, about eleven miles from Duncan, Vancouver Island, for the months of May, June, and July, and reports as follows:—

"Camp was established from May 8th to July 29th in an old log cabin built on a side-hill close to the Cowichan River and situated midway between the town of Duncan and Cowichan Lake. The latter is noted as a splendid fishing and hunting resort. The lake, being easily reached both by railway and stage, induces many sportsmen to spend a few days' sport during the open season; this fact also applies to the Cowichan River at certain times of the year. Sahtlam Valley varies from two to six miles in width, with thickly timbered mountains (chiefly Douglas fir with considerable cedar along its base), ranging from 2,000 to 3,000 feet above sea-level, whose general trend is to the north-west, forming a continuous chain the whole length of the Island, with a gradual decline at both ends; the highest snow-clad peaks attain an altitude of over 7,000 feet. The bottom lands, through which the Cowichan River flows, are mostly covered with willow, cottonwood, alder, fir, and cedar. Clearings and roads intercept many parts, which otherwise would have been difficult to collect in. Regarding weather conditions, considerable rain fell during May and the first week of June, after which the weather became more settled. From July 1st to the 6th it became very hot, the thermometer registering 86 degrees in the shade; however, the heat soon modified and most delightful weather was encountered until my departure from the district on July 29th. Most of my time afield was devoted chiefly to the collecting and preserving of birds and mammals, therefore allowing but

few hours daily for the collecting of botanical and entomological specimens and a few fishes, reptiles, and batrachians. The total number of specimens, including duplicates, are as follows: Mammals, 53; birds, 209; nests and eggs, 11; plants, 35 species; insects, 1,382; fishes, 17; reptiles, 29; batrachians, 11."

Mr. J. A. Munro, who collected in the Okanagan District, carried on excellent field-work, and reports as follows:—

"The field-work extended from May 1st to August 31st. With the exception of a week spent near Nahun, on the west side of Okanagan Lake, work was confined to a small area in the vicinity of Okanagan Landing. Okanagan Lake is at an altitude of 1,140 feet, and at this point is enclosed between low mountains. The timbered portions close to the lake are open and park-like, with yellow pine (*Pinus ponderosa*) predominating. Towards the summits the growth of timber is heavier, with Douglas fir (*Pseudotsuga taxifolia*) in the majority. Deciduous trees, principally quaking-aspen (*Populus tremuloides*), western birch (*Betula occidentalis*), black haw (*Crataegus douglasii*), bitter cherry (*Prunus emarginata*), etc., are confined to the creek-bottoms and to certain well-defined draws in the mountain-side. On both sides of the lake are large areas of open range land, with many alkaline lakes and sloughs, most of them surrounded by a heavy growth of deciduous trees. This section proved a very productive collecting-ground. The muddy shores of the lakes were frequented by numbers of migrating waders, and several species of ducks were found breeding, notably Barrow's golden-eye (*Clangula islandica*) and buffle-head (*Charitonetta albeola*). During the past fifteen years the greater part of the arable land has been brought under cultivation, and with the protection and the increased food-supply afforded, there has been a marked increase in the number of summer birds. This is somewhat offset by the lessening numbers of breeding water-fowl following the drainage of the sloughs and marshes. The district described lies entirely in the Transition Zone and can be taken as typical of the Okanagan country. The months of May and June and early part of July were unusually wet for this region, there being weeks of almost constant rain, which interfered with field-work to some extent. Birds were shy and inactive and many transient species were late in arriving. This period of wet weather was followed by six weeks of dry heat that parched the vegetation on the hills and dried up many of the small lakes and sloughs. The week from June 7th to 14th was spent near Nahun, on the west side of Okanagan Lake, eighteen miles south of Okanagan Landing. Here a settler's cabin was rented, on a wide flat 2,000 feet above the lake, at an approximate altitude of 3,200 feet. This district lies in the Canadian Zone, as characterized by the dense growth of lodge-pole pine (*Pinus murrayana*) and western larch (*Larix occidentalis*). Englemann's spruce (*Picea engelmanni*) and balsam fir (*Abies lasiocarpa*) occur in isolated clumps. Such typical Canadian forms as olive-sided flycatcher (*Nuttallornis borealis*) and Columbian chickadee (*Penthestes hudsonius columbianus*) were noted. In some places the line between the Transition and Canadian Zones is very sharply defined, the yellow pine and Douglas fir ending abruptly at the summit, to be succeeded on the level top by lodge-pole pine and western larch. The creek-bottoms are heavily wooded with quaking-aspen (*Populus tremuloides*) and mountain-birch (*Betula fontinalis*), both of which grow to great size. Following is a summary of the material collected during the four months of field-work: 471 birds, representing 130 species; 21 sets of eggs; 126 mammals; 1,900 insects; 17 batrachians; 9 reptiles; 40 fishes; and 430 plants. Particular attention was paid to the collecting of moulting birds and juvenals in their various plumages, much of this material being new to the Museum collection."

Mr. C. B. Garrett collected in East Kootenay District, in the vicinity of Cranbrook, and reports as follows:—

"Field-work was started on May 5th in the district surrounding Cranbrook, which is situated about the centre of the East and West Kootenays, but at the more southerly end. The district is hilly or mountainous and runs from 2,900 to 9,600 feet in altitude. Land is not at all highly cultivated, except in very small areas, and is chiefly covered with coniferous trees. Occasionally one runs across small patches of poplars which are found chiefly in the river and creek-bottoms, accompanied by willow and other smaller shrubs. Creeks are numerous from the mountain-slopes, and numbers of sloughs and small open lakes occur throughout the district. Owing to the fact that the land is uncultivated and therefore offers no special attraction to them, the birds occur in very small numbers to a species, although the number of species is fully up to the average of other districts. From a collector's standpoint the weather was most disappointing, for out of the ninety-two days (collecting was carried on

from May 5th to the end of July) it rained on forty-eight days. Material collected is as follows: Birds, 291 specimens, covering 81 varieties; mammals, 107 specimens, representing 16 species; 43 sets of eggs; 1,627 insects of various orders; also a collection of botanical specimens."

(NOTE.—It is proposed by the Director, at some future date, to publish separate pamphlets on the birds and mammals collected in these several districts.)

ANTHROPOLOGY.

Very little has been done in the way of collecting anthropological material during the past year, owing to the fact that no appropriation was made for expenditure in this department of the Museum. However, a few minor purchases were made, which, with a number of small donations, have increased the collection to a certain extent. Following is a short description of the several objects added to the anthropological collection:—

Salishan.

Cylindrical stone, pointed at both ends (? whetstone), Dallas Road, Victoria. Presented by Arthur Warren.

Perforated anchor-stone, Dallas Road, Victoria. Presented by Sir John Jackson Co., Ltd., per A. L. Elgee, C.E.

Perforated stone sinker, torpedo-shaped (? for salmon-trolling), Brentwood Bay, V.I. Presented by A. Shotbolt.

Dene.

Packing-basket, edged with quills. Purchased from F. D. Marriott.

Kwakiutl.

Skull, sugar-loaf shaped, from the beach, Cape Scott, V.I. Presented by C. J. Wilson.

Stone adze or slave-killer and child's toy of cedar-bark matting, Quatsino. Purchased from Jum Killchait.

Haida.

Carved stone maul of white quartzite, Graham Island, Q.C.I. Presented by Pte. G. S. Mayer, 48th Battalion, C.E.F.

Carved slate totem-poles (7) and carved slate dish. Purchased from D. Cochrane, Q.C.I. (NOTE.—Stories accompanying these slate carvings are appended to this list.)

Tsimshian.

Lynx-head mask, Metlakatla. Purchased from C. C. Perry.

Kootenaian.

Sling pouch, fringed, embroidered in beads in front, two-arrows design, blue on white ground.

Pair of moccasins, top beaded, native design.

Basket.

Pouch, front all beaded, two-hands design.

Large abalone, perforated.

Nez Perce bag.

Wampum necklace, white and green.

Head-scratcher.

Fish-hook.

Stone pipe.

Two eye-teeth of ? on skin string.

The above Kootenaian specimens purchased from Mrs. J. Gill.

Fig. 1. Carved sandstone medicine-dish, property of the Hon. Mr. Justice Martin. Museum cast, Catalogue No. 2875.

Fig. 2. Spindle whorl of maple, convex surface, 9½ inches diameter. Collected 1908, Beecher Bay (Salishan, Coast). Catalogue No. 1179.

Stories accompanying Slate Totem-poles from Queen Charlotte Islands.

No. 2866. Nahnasimgh was a mighty warrior; one day when his wife was on the beach, the King of the Whales saw her and carried her off. Nahnasimgh followed them to the whale country, where he succeeded in rescuing her, but was hotly pursued by the whales. The fugitives ran until they met the Giant Mud Crane, who hid them in his breast feathers. When the whales came to the crane they asked him if he had seen any one, and he said that he had not. So the whales went another way and Nahnasimgh and his wife went home and lived happily ever after. Moral: It is quite right to tell lies when your friends are in trouble. (Pole No. 2866 shows the Crane, Nahnasimgh, his wife, with the lip-jewel and bracelets of a lady of quality, and the Whale.)

No. 2867. Shows the wife of Nahnasimgh being carried off, holding the whale's back fin.

No. 2868. The Beaver's Lake. Once upon a time all the fish belonged to the Beaver, who kept them in a lake behind his house. The Raven (who made the world out of what he could steal and became the ancestor of the Haida Indians) wanted the fish, so one day he dressed up as a poor man, met the beaver one evening, and asked for a night's lodging. The Beaver had just come home from a gambling-feast, and was feeling pretty good, so he took him in. After supper the Beaver went to sleep and the Raven stole out of the back door, picked up the lake in his beak and flew off with it. He gave it to the Indians. Moral: It is quite right to steal for your friends. (No. 2868 shows the Raven dressed as a poor man, then the Raven carrying the lake with the fishes in it, and the Beaver.)

No. 2869. The Bear saw the above, and told it. The Beaver had to take to chewing a stick for a living, and has done so ever since. The face on the tail seems to indicate that the Beaver had human intelligence at that time.

No. 2870. The Raven and the Fisherman. The Raven when he was hungry used to dive down under the water and steal the bait off the Fisherman's hook. Once he got the hook caught in his beak, and the Fisherman, thinking he had caught a fish, pulled in the line so hard that the Raven's beak broke off. The Fisherman was much astonished to find the Raven's beak on his hook. As for the Raven, he had to go with his face hidden until his beak grew again. Moral: The best of us get into trouble sometimes.

No. 2871. Illustrates the story of the Raven's Midnight Feast. The Raven was visiting some Indians. In the night when all were asleep, except a half-human-half-whale creature who saw and told the story, he stole out and soon came back with something under his wing. He scraped the fire aside and dropped his burden in the hot ashes. When it went off with a "pop" he ate it. Then he went out again and did the same thing. This happened many times. In the morning it was found that all the other inhabitants of the village had lost one eye each. Moral: Feed your guests well so that they won't get hungry in the night.

No. 2872. The Raven in Disguise. One time the Raven disguised himself as a woman, and came to live with the Indians. After living with them for some time they saw him eating fish on the beach, so they recognized him and he flew away. (No. 2872 identifies the Raven as the great one, by showing his partner, the Eagle, who could eat a whale.)

No. 2873. Kholqu'haludi. Kholqu'haludi was a little boy who was always late for his meals. One day he came in too late for dinner and his mother would give him nothing but a piece of dried salmon. He went down to the beach to eat it, and dipped it into the water to soften it. The King of the Salmon saw him and carried him off and turned him into a salmon. The next year when the salmon began to run, Kholqu'haludi's father caught a fine big fish in the stream and took it home to eat. When he started to cut its head off, just inside the skin his knife struck copper. He remembered that the boy had worn a copper ring around his neck, so he took the salmon outside and laid it on the ground under the drip of the roof. As the water fell on it the salmon skin sloughed off, revealing Kholqu'haludi inside. The boy grew up to be a great medicine man, but he always had a sore neck where his father had started to cut the salmon's head off. (This plate shows Kholqu'haludi emerging from the salmon skin, holding in his hand the short wand used by Haida medicine men.)

MAMMALS.

The collection of mammals on the first floor is now so crowded that it is impossible to adequately display them. It has been the intention to carry on the work started several years ago, in grouping the different species and displaying them with painted backgrounds illustrating

the natural surroundings which they inhabit, but this has been postponed indefinitely until more space is acquired, as it takes considerable space to do this class of work. The Department already has in storage a large number of mammals for this work, namely: Moose (*Alce americanus*), three species of caribou (*Rangifer montanus*, *osborni*, and *dawsoni*), mule-deer (*Odocoileus hemionus*), white-tail deer (*Odocoileus virgultus*), panthers (*Felis oregonensis*), wild-cats (*Lynx fasciatus*), grizzly bear (*Ursus horribilis*), gray wolves (*Canis occidentalis*), sea-lions (*Eumetopias stelleri*), and many others. The Department was also successful in securing another specimen of the white bear (*Ursus kermodei*), a male in perfect fall pelage, killed on Gribble Island in L. 53, 129 W.L. A large collection of small mammals is being studied at present, and a number of specimens representing many species are being prepared for exhibition. This latter branch has not been very well represented until recently; it is difficult with a small staff to pay particular attention to all branches of museum-work, and the public does not take as keen an interest in small mammals as in the display of big game.

The Director had a very fine collection of heads of the big game of the Province mounted for exhibition in the offices of the Agent-General in the British Columbia Building, Regent Street, London, England.

INVESTIGATION OF REPORTED DISEASE IN THE BLACK-TAIL OR COLUMBIAN COAST DEER (*Odocoileus columbianus*).

For a number of years the deer of Texada Island have been reported by settlers and others in the vicinity of Vananda to be infested with some disease. The Director, accompanied by Drs. S. A. K. White and Ansen Knight, Veterinary Surgeons of the Live Stock Branch, Department of Agriculture, undertook to carry on an investigation in regard to this reported disease. In November, 1915, a trip was taken to Vananda, Texada Island, were three deer were secured for examination. Upon being dissected, two of these animals were found to be in a healthy condition; in the third, however, the liver was found to be badly affected by a fluke-worm. Settlers of this Island report that about every third deer is affected in this manner with what they term "hard or black livers." This term comes, of course, from the black fluid that is found in the parts affected by the fluke. They also advise that numbers of deer are killed and never taken from the bush, being considered unfit for food. Later, on November 22nd, the Director received from Mr. W. A. Embleton, of Vananda, another liver which was in a very bad condition; this was taken from a smaller deer than the one which we had dissected while there. This liver was forwarded to Dr. S. H. Hadwen, D.V.Sc., Dominion Pathologist at Agassiz, for examination. Dr. Hadwen reported on December 2nd that he had taken from this liver eighteen large flukes which he identified as *Fasciola magna*, two of which he sent to Dr. Ransom, of Washington, for further determination. This appears to be the first actual record of this parasite having been discovered in the Coast deer; the particular fluke being known in sheep raised on the Fraser River as *Fasciola hepatica*. Later, in January, 1916, another trip was arranged to Texada for further knowledge regarding this fluke. Drs. White, Hadwen, and Mr. Whittaker, of the Museum, composed the party which was taken to the island by the launch "R. V. Skinner," kindly loaned for the occasion by the Forestry Department. On this trip only one deer was secured, and this was found to be in a healthy condition, with the exception of three tapeworms. (These resembled *Cestoidea tenuicollis*. Dr. Hadwen is having this verified.)

It is impossible at the present time, until further investigation is carried on, to make any suggestions as to how to get rid of these parasites.

DESTRUCTION OF SEA-LION (*Eumetopias stelleri*).

On April 8th, 1915, the attention of this Department was called to the fact that the Fisheries Department of the Federal Government at Ottawa had set aside the amount of $6,500 for bounties of $2 each to be paid on the lips of sea-lions killed along the Coast of British Columbia. The Director of this Department immediately took the matter up with the Honourable J. D. Hazen, Minister of Fisheries at Ottawa, asking that the payment of bounties for the killing of sea-lions on this Coast be suspended, and suggested that, as there was a diversity of opinion on this matter, a thorough investigation be made in regard to the life-history of this mammal by the Ottawa Fisheries Department, not only having fisheries experts on the Board, but other biologists. Later Mr. F. J. Desbarat, Deputy Minister of Naval Service at Ottawa, wrote that it had been arranged to have the Biological Board of Canada investigate

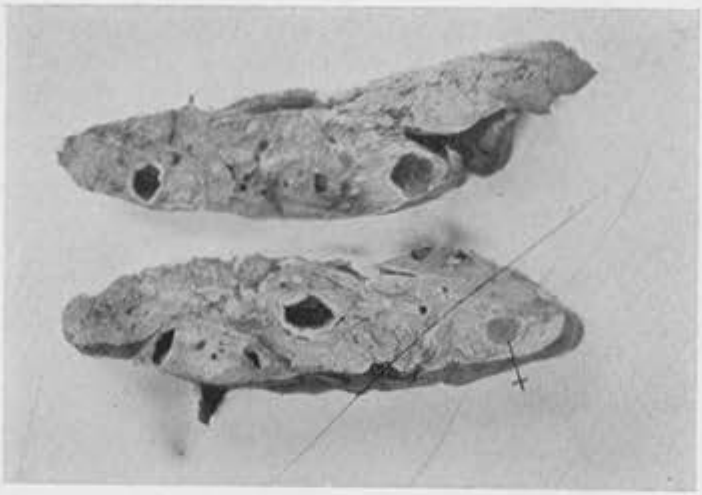


Fig. 1. Liver of Black-tail or Columbian Coast Deer (*Odocoileus columbianus*), showing the effect of liver-fluke (*Fasciola magna* Bassi). Note enlarged ducts, and fluke cut across at point "x."

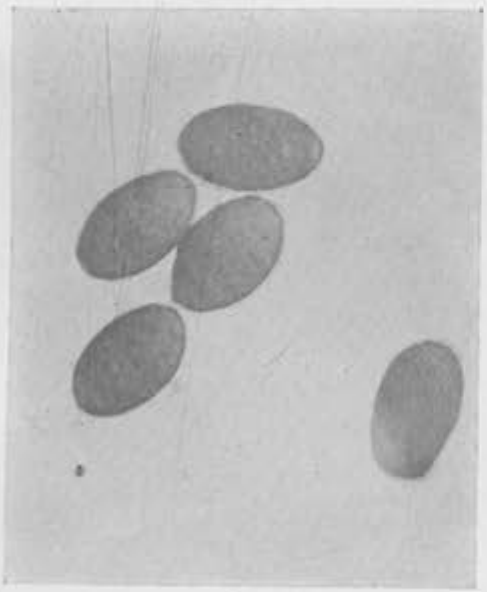


Fig. 2. Measurement of eggs of *Fasciola magna*. Length, 140 micro-mm.; width, 100 micro-mm.

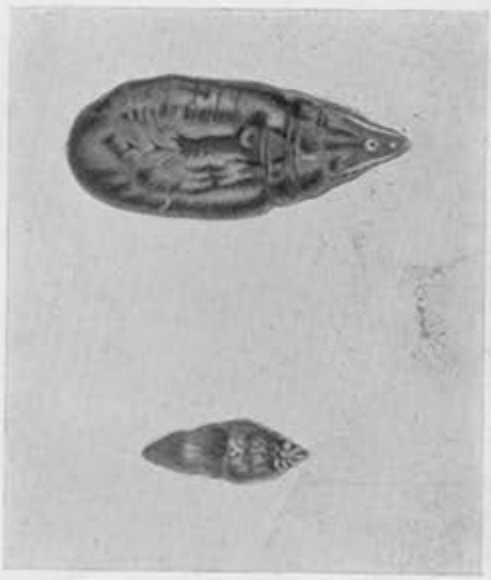


Fig. 3. Average length of *Fasciola magna*, 45.4 mm.; width, 18.5 mm.

(*See* page 12.)

this matter during the summer, and that to this end a special committee had been formed. Dr. A. B. McCallum, who is Secretary of the Board, arrived in Victoria towards the end of July to make arrangements for a meeting of this special committee, which is composed of C. F. Newcombe, M.D., Chairman; Dr. McLean Fraser, of the Biological Station at Departure Bay; and W. Hamar Greenwood, Esq., of Vancouver, Secretary; to carry on investigations for the Biological Board throughout the summer. Until this special committee hands in a report of their findings it is impossible to say what will be done in the matter.

It will be seen by the following data received from Mr. F. H. Cunningham, Chief Inspector of Dominion Fisheries, New Westminster, dated August 10th, the amount of damage and the ruthless destruction that has been carried on at the sea-lion rookeries on the Coast:—

Bounties paid.

Year.	Hair-seals.		Year.	Sea-lions.	
	No.	Amount.		No.	Amount.
1913	....	....	1913	....	....
1914	2,237	$7,829.50	1914	....	....
1915	750	750.00	1915	2,875	$5,750.00
Totals	2,978	$8,579.50	Totals	2,875	$5,750.00

Further information was received from Mr. J. A. Pauline at Bella Bella, to whom the Director wrote, having heard of certain persons in that vicinity killing large numbers for bounty. Quoting from Mr. Pauline's letter: "The largest lot we received here were shot by Jno. Wootten and Lorne Williams (the last man is an Indian), they shot three days and brought to Bella Bella over 1,600 noses, and killed easily half that amount to get on the islands, which were lost in deep sea and not recovered. Below is a list of those who worked seals and sea-lions this year:—

"*Sea-lions.*—Killed outside of Price Island, on rocks, Indian of China Hat killed to show noses 123, and half the number sunk.

"*Hair-seals.*—Bella Bella Indians were after hair-seals, and killed for money about 639; number killed would be easily 1,000.

"J. Wootten and Indian shot at Queen Charlotte Sound, in the groups you name (Sea Otter Group, Pearl Rocks, and Watch Reef), and in three trips, costing $78 in launch got cheques as follows: $40, $684, $98, $2,348; total $3,170."

On making further inquiries, I find that one man presented a claim for 1,173 sea-lions from one rookery; of this number, 800 representing about 75 per cent. were pups probably not more than a few days old. The pups are born about the middle of June. There are only three main rookeries along the Coast, all north of Vancouver Island and south of the southern end of the Queen Charlotte Islands—namely, Cape St. James Group, Sea Otter Group, and the Cape Scott Islands. (*See* Report of Commissioner of Fisheries of British Columbia, 1913, page 131, "Sea-lions on the Coast of British Columbia," by Dr. C. F. and W. A. Newcombe.)

I am thoroughly convinced that placing a bounty of $2 per lip on each sea-lion taken will in a very short time rid our Coast of this life entirely, as they are mammals which do not migrate far north and south along the Coast, but are to be found on hauling-out and feeding grounds not far distant from the main rookeries. I know from personal experience, having visited some of these rookeries, that if a man or men go there with the intention of killing these mammals for bounties, that for every matured specimen they shoot and secure they will lose at least six, as the animals when shot fall off the rocks and disappear almost immediately beneath the surface of the water and seldom float. Further, they are easily frightened off the rocks and come within 30 or 40 yards of the boat, roaring constantly, and are an easy mark for an ordinary shot. Landings can be made on almost all of the rookeries in moderate weather and the poor puppies slaughtered indiscriminately. If it is found that the sea-lions do the damage which the canners say, it would be far better for their numbers to be kept

down by the Government under Government supervision, so that there will be no unwarranted waste of life. True it is that at the present time they do not stand very high in commercial value, but there is a company in Vancouver which in the year 1914 undertook to go out to Pearl Rocks and Watch Reef, in the Sea Otter Group, about seven miles south-west of Cape Calvert, in Queen Charlotte Sound, with the object of starting a new industry on this Coast. It appears that this firm did not make a very great success of their venture on account of starting rather late in the year, and experiencing very heavy weather; but the leather made from the sea-lion skins has been pronounced by experts to be excellent glove material. It seems a pity to clear out these herds, which at some time, with a certain amount of protection and a little judgment, could possibly be made of great commercial value.

One further point in this matter I would like to mention is the fact that possibly the sea-lions of the Coast of British Columbia should really come under the jurisdiction of the Provincial Government, being not migratory in their habits, and being born and reared on the islands along our shores.

I might also state that this matter has been taken up by Mr. Madison Grant, Chairman of the New York Zoological Society, who happened to be visiting in Victoria last July, and made inquiries regarding a report in a New York press of the bounties paid on sea-lions along this Coast. Mr. Grant was surprised to hear of this being a fact, after the investigation which had been carried on some years ago by Professor L. D. Dyche, of the University of Kansas, under the Washington Biological Department, regarding the sea-lions of the California Coast. (*See* Report of the United States Fisheries Commission, 1902, part 28, page 111.) Mr. Grant also remarked that the matter of the Steller sea-lions would be taken up by the Zoological Society this winter.

Very little has been written with regard to the life-history of this mammal, and it is hoped that the investigation will be carried on until definite conclusions are formed.

BIRDS.

The bird collection displayed in the exhibition cases on the second floor of the Museum received attention during the early part of the year, being relabelled and brought up to date as nearly as possible, with the correct data on each label. A large number of specimens were added to fill in gaps in several of the families, particularly birds that had been collected in Atlin during the past two seasons, and which were new to the Museum collection. During the past collecting season Mr. E. M. Anderson, of the Museum staff, added 209 bird-skins, representing 76 species, collected on Vancouver Island; in the Okanagan District Mr. J. A. Munro collected 471 birds, representing 130 species; and in the East Kootenay, near Cranbrook, Mr. C. B. Garrett collected 291 birds, representing about 80 species. These skins have been added to the reserve series which is kept for study, and which is now a large representative collection of skins from all parts of the Province. This series shows the changes of moult in the different seasons, and also contains a large number of juvenals. The study collection represents a great deal of work, and considerable time has been spent in the systematic arrangement of the different families and species. Further work on the study collection will be done as soon as additional sectional storage cases are made. These cases are made of cedar throughout, with drawers and air-tight doors on the front, being moth- and dust-proof, and have been found very satisfactory and more economical as to space than the old cabinet drawers. The osteological series of sternum bones of birds has had to be taken from the exhibition cases and placed in storage, so as to provide space for the extension of the oological series, which seems to be more attractive to visitors, especially children, as many of the sets of eggs are exhibited in their nests, and therefore are instructing and educating both to young and old. This arrangement of the series of eggs was carried on in the early spring, the specimens being labelled, giving full data, number in set, incubation, material nest is composed of, locality, and date. This series now represents about 250 species.

BARE ISLAND BIRD RESERVE.—Following up the matter referred to in last year's report—namely, the obtaining of Bare Island (known as Indian Reserve No. 9, Saanich Tribe) to be kept as a permanent bird sanctuary for the preservation of bird-life on this Coast—arbitration has as yet been impossible owing to financial reasons. However, the Department is glad to report that the Honourable H. E. Young, M.D., at that time Provincial Secretary, on June 9th arranged through Mr. Duncan C. Scott, Deputy Superintendent-General of Indian Affairs at Ottawa, giving the Provincial Museum authority to place a guard on the island in charge

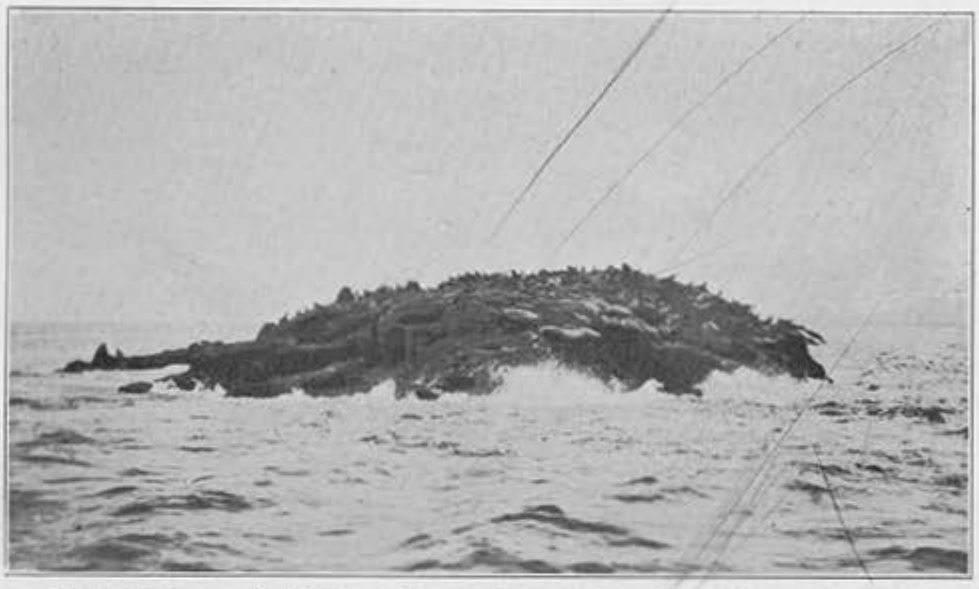


Fig. 1. Sea-lions on Pearl Rocks, south-west of Cape Calvert, Queen Charlotte Sound, B.C. June 21st, 1913.

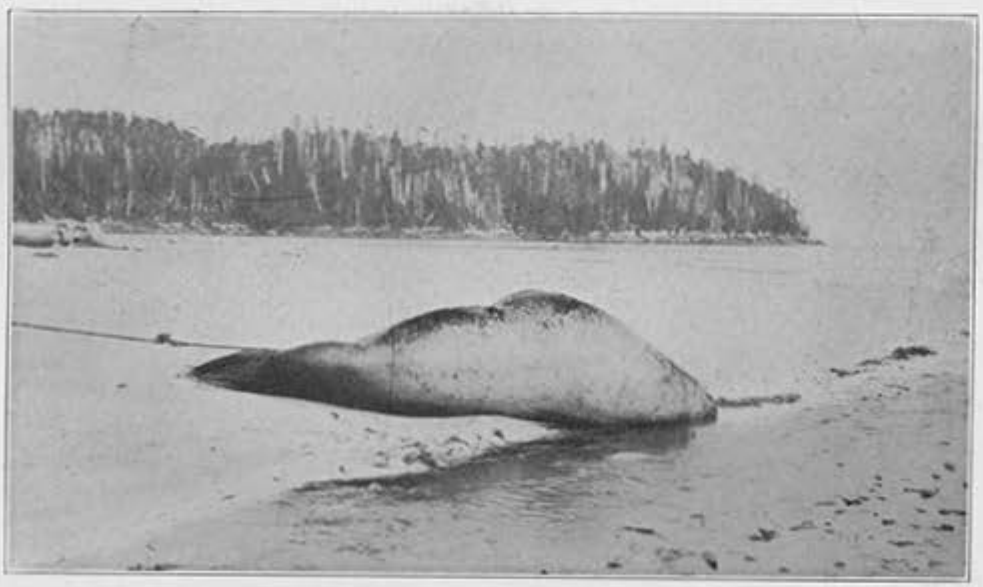


Fig. 2. Large Sea-lion killed on Pearl Rocks and towed to Grief Bay, back of Sorrow Island, June 21st, 1913. Approximate weight, 2,100 lb.
(*See* page 14.)

of the bird-life during the nesting season. Mr. W. B. Anderson was appointed warden of the island, and while stationed there also made a small collection of marine life and botanical specimens. Mr. Anderson reports as follows:—

"In accordance with instructions, on June 15th I proceeded to Bare Island, in the Haro Strait, to act as warden and collector in the interests of the Museum.

"The glaucous-winged gull, the only species which breeds on this island, had commenced to lay a few days before the date of my arrival, as of perhaps fifty-eight nests noted on the 16th and 17th a few had three eggs—the maximum number—and a very few birds had begun to sit on the 17th. The total number of nests noted up to July 10th was 352. Upon this date I stopped counting these nests on account of there being so many sitting birds which would be disturbed at a critical stage of incubation. From the number of birds congregated on the island and outlying rocks, I estimate that not less than 450 bred this year on the island, a small number compared with what bred there twenty years ago, but still enough for nucleus of a large breeding stock if afforded adequate protection. The incubation period of these birds I have estimated to be about twenty-five days; the first-sitting bird's eggs marked on June 16th hatching on July 10th and 11th.

"The pigeon guillemot breeds on the island in fair numbers; I judge there were 200 nests there this year, as well as some on outlying rocks and on Halibut Island, Jones, Gooch, and other rocky islands adjacent. Though laying but two eggs, these are deposited in such cunningly concealed positions among the broken rocks and deep crevices, without any nest, that their extinction will be harder than in the case of the gulls, who make a big nest, plainly visible, in most exposed places. The incubating period of the guillemot is practically the same as that of the gull, the young being jet-black when hatched, the feet even lacking the brilliant scarlet colouring showing in the old of these interesting little birds. To make up for the lack of colour, however, the young are possessed of most pugnacious tempers, kicking, squealing, and biting very vigorously when drawn from their nests.

"Fifty cormorants, I judge, nest on the high cliffs on the west side of the island, laying from three to five eggs. These birds get quite used to a human being moving about near the nests, provided one goes quietly and without unduly exciting movements. The young, which emerge in twenty-six days, are shiny black when first hatched, apparently sparsely covered with black bristles. In this stage they are very reptilian in suggestion.

"During my stay on the island I noticed but three pair of puffins. These birds used to be plentiful, but shooting and other causes have brought about their almost entire disappearance from these islands. It is said that they breed in fair numbers on Skipjack Island, over the International Boundary from Bare Island.

"The birds here mentioned comprise the entire breeding sea-colony of the area. The rare black or Bachman's oyster-catcher, in former years plentiful, has disappeared. The little auklet, said at one time to have made this island its breeding-ground, has also deserted it for other parts. The causes for these diminutions and desertions is plainly evident: human beings—whites, Indians, and Japanese—carrying away the birds' eggs and young.

"As a gull, after laying a first set of eggs and having them taken, lays only two the second time, it follows that the stock of young is diminished; and when the second laying is removed it is probable that no more will be laid, or if by chance there are, the hatching will be so late that it is doubtful if the young will be strong enough to survive the rigours of the autumn. The practice of shooting on the grounds cannot be too strongly condemned. To say nothing of shooting during nesting season, winter shooting should also be rigidly prohibited.

"During the autumn and winter months, even into late spring, the Canada goose and laughing goose frequent the rocky Gulf Islands, and, judging from the number of blinds built there, Bare Island seems to be a favourite haunt of these birds. In the interests of them alone a sanctuary should be provided, for the continual harrying of the flocks by sportsmen all over the Province leaves them scant opportunity to rest their weary wings and to glean a hasty meal. Apart from this, the strictly maritime birds of which I have already written are kept away from the island, and continual driving away, even outside of the nesting season, has a pronounced tendency to cause these birds to seek more secluded and therefore more distant spots in which to rear their young.

"Another reason for shooting on the island is that there are a number of rabbits there. Some years ago a very ill-advised person turned out some tame rabbits on several of the Straits islands, Bare Island being among them. The animals have increased and they are now an incentive to visiting hunters. A further evil in connection with these animals is their taking

possession of the holes and crevices formerly occupied by puffins and guillemots, and driving these birds from many of their old breeding-haunts entirely. No time should be lost to exterminate the pests so as to allow the puffins to regain possession.

"Of other mammals on the island, a species of deer-mouse seems to be the only one. It is apparently somewhat different from the Mainland and Vancouver Island forms. These mice are quite harmless in relation to bird-life.

"Many fine flowering plants and shrubs adorn the island, especially in the early spring; one of the most notable, because of its rarity on the Pacific Coast, being the choke-cherry, which grows out of the dry, earthless crevices of the rock.

"Marine life is well represented about the reefs and pinnacles adjacent. On South Reef there may be found fine specimens of the large rock-pecten, sea-urchins, and a variety of smaller mollusks and crustaceans. I do not doubt that a large and most interesting collection could be made of marine life with proper appliances.

"I left the island on July 28th, having stopped there continuously, except for short trips occasionally to outlying rocks and islands. During the six weeks' sojourn several parties of whites arrived seeking to explore the island, and as they had no permits to land, I refused them according to instructions. Two parties of Indians landed, and one of these began robbing the gulls' nests. They, however, desisted when I spoke to them, after surreptitiously concealing the eggs they had gathered. These I afterwards found and photographed."

REPTILES AND BATRACHIANS.

This branch of the collection has been practically at a standstill for a number of years. Quite a number of specimens have been secured during the last two years' field-work. It is hoped to be able to carry on this work through the coming year, and have a number of the specimens already on hand sent to authorities for proper identification.

FISHES.

A most unusual visitant to this Coast was a sunfish (*Mola mola*) which was captured at Ucluelet, on the west coast of Vancouver Island, by some Indians fishing about two miles off-shore on July 14th, and presented to the Museum by Second Officer E. F. Jordan, of the S.S. "Tees." This appears to be the first record of this species north of San Francisco, California.

Another straggler, a white sea-bass (*Cymoscion nobilis*), was taken in the salmon-nets off Port Alberni, Barkley Sound, on the west coast of Vancouver Island, by Messrs. Butterfield and Mackie, and presented to the Museum through Deputy Game Warden, W. R. Carter, of Alberni. This is the third record of this fish having been taken along this Coast; the first was taken some years ago in Sooke Harbour by Sir Clive Phillipps-Wolley, and the second in Todd's traps at Sherringham Point, Strait of Juan de Fuca.

A number of smaller fishes have been added to the collection by our field collectors. These specimens have not, up to the present time, been studied and systematically arranged.

ENTOMOLOGY.

During the past three years much greater attention has been paid to this branch of natural history, with the result that the Museum collections have been enriched by large numbers of desirable specimens, many new to British Columbia and several new to science. The trip to Atlin undertaken by Mr. E. M. Anderson, of the Museum staff, in 1914 was very successful in this respect. Naturally a practically virgin country and one so little traversed by the entomologist would be expected to produce good results, and these expectations were fully realized by the quantity and quality of the material collected, over 2,000 insects being taken during the three months.

Amongst the butterflies taken on this trip were several very rare ones, and many new to the Province. viz.: *Parnassius smintheus var. nanus*, Neu.; *Papilio machaon var. aliaska*, Scudder (this is a very interesting and rare capture; very little is known about this insect, and thus far it has been taken only in Alaska and is still very rare in collections); *Eurymus hecla var. glacialis*, McLachlan (this is an exceedingly rare species, its habitat being Arctic America and Arctic Europe); *Brenthis triclaris*, Hub., a high-altitude species; *Brenthis polaris*, Bdv., an inhabitant of Arctic America; *Brenthis frigga* varieties *saga*, Kallen, and *improba*, Butler, the latter being still very rare in collections; *Erebia disa var. mancinus*, Dby., a beautiful

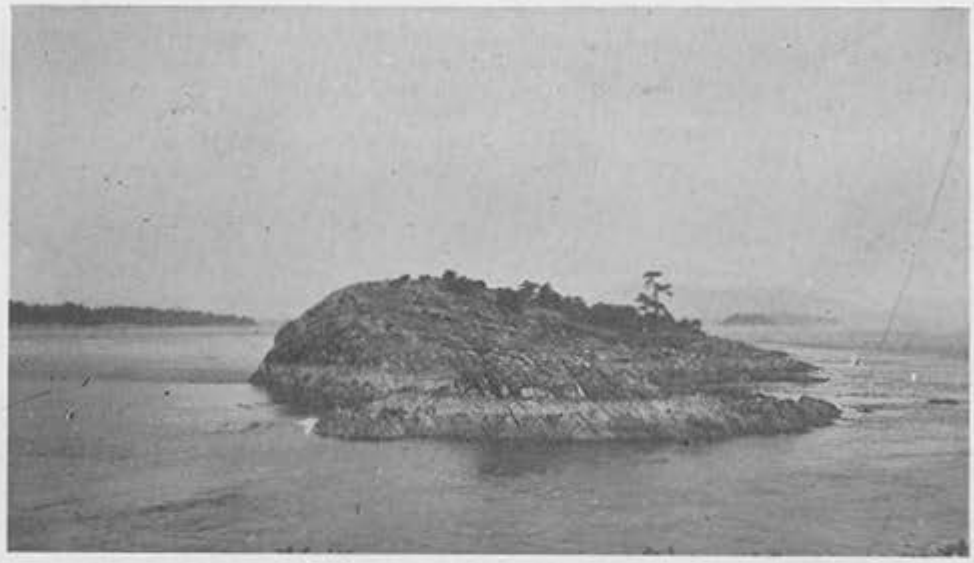


Fig. 1. Bare Island Bird Sanctuary, Haro Strait, near Sidney.

Fig. 2. Glaucous-winged Gulls nesting on Bare Island.

Fig. 1. Young Glaucous-winged Gulls on Bare Island, showing protective colouration.

Fig. 2. Mass of egg-shells of the Glaucous-winged Gull. These eggs were dropped by Indians when caught robbing the Gulls' nests.
(*See* page 15.)

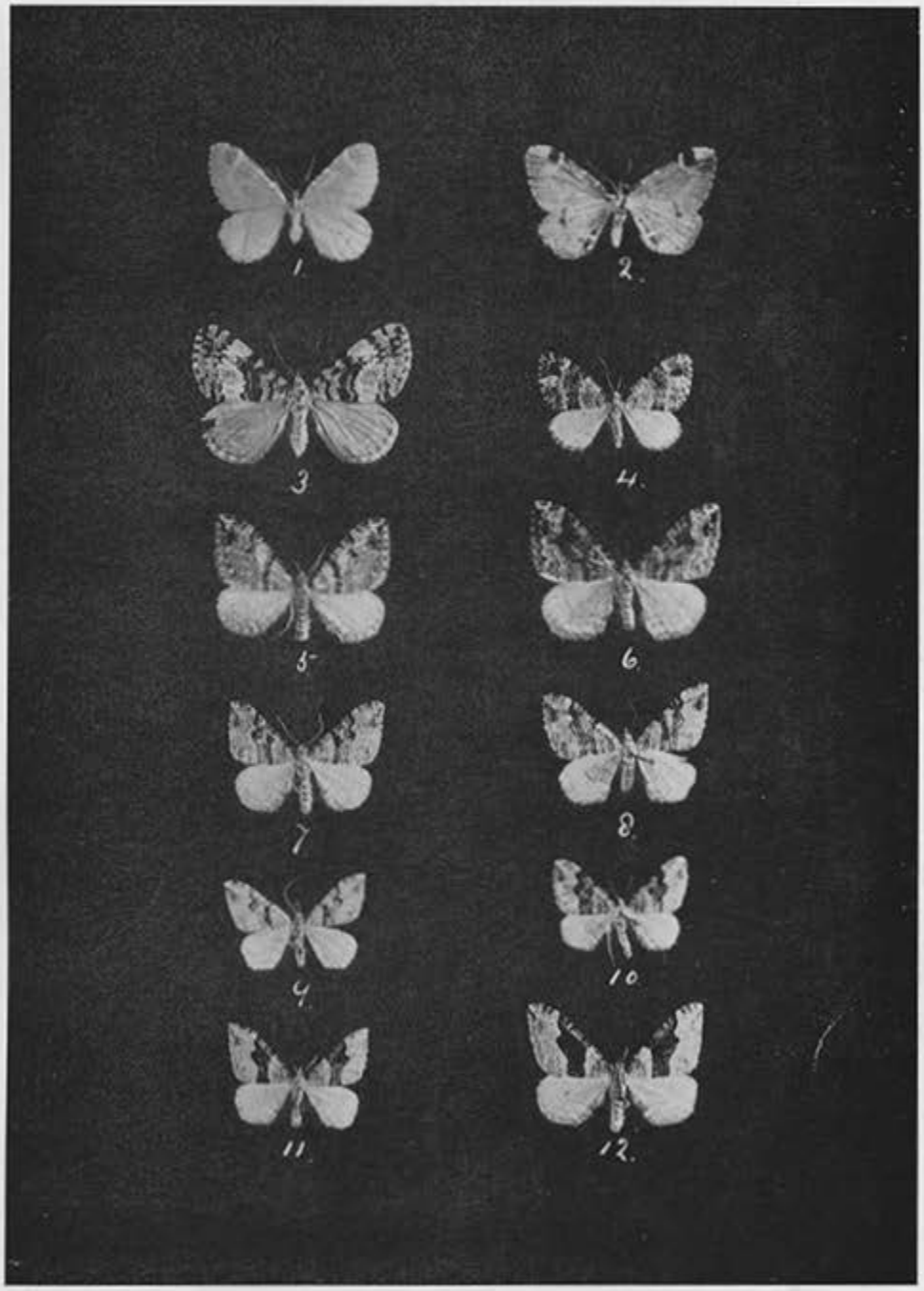
PLATE VII.

GEOMETRIDÆ NEW TO SCIENCE.

(Taken by E. H. Blackmore at Victoria, B.C.)

Fig. 1. *Stamnodes blackmorei* Swett. (Paratype male.)
Fig. 2. *Stamnodes blackmorei* Swett. (Under side.)
Fig. 3. *Hydriomena speciosata* var. *auxiliata* Swett. (Type female.)
Fig. 4. *Hydriomena grandis* var. *suanichata* Swett. (Paratype female.)
Fig. 5. *Petrophora defensaria* var. *giganticaria* Swett. (Paratype male.)
Fig. 6. *Petrophora defensaria* var. *giganticaria* Swett. (Allotype female.)
Fig. 7. *Petrophora defensaria* var. *conciliaria* Swett. (Paratype male.)
Fig. 8. *Petrophora defensaria* var. *conciliaria* Swett. (Allotype female.)
Fig. 9. *Petrophora defensaria* var. *thanataria* Swett. (Paratype male.)
Fig. 10. *Petrophora defensaria* var. *thanataria* Swett. (Paratype female.)
Fig. 11. *Petrophora defensaria* var. *mephistaria* Swett. (Paratype male.)
Fig. 12. *Petrophora defensaria* var. *suppuraria* Swett. (Paratype male.)

(*See* page 18.)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form which only occurs in high altitudes and in the extreme north; *Cœnonympha kodiak*, Edw., two specimens were taken (this I believe is new to Canada, its previously recorded locality being Alaska); *Œneis uhleri*, Rkrt., a Rocky Mountain species; *Œneis norna var. taygete*, Hub., a large series of this butterfly taken (this species was first recorded from Labrador in 1824); *Rusticus scudderi*, Edw. (this is closer to the typical form than the Eastern specimens going under this name); and *Hesperia centaurœ*, Rambur (this latter species occurs in the North Atlantic States and in Europe).

Moths were not so plentiful, noctuids being especially scarce; the long days with little or no darkness of this region in the summer-time making the usual attractions of "light" and "sugaring" of very little use. However, Mr. Anderson took several specimens of *Anomogyna lætabilis*, Zett., which is an exceedingly rare noctuid moth hitherto only recorded from Labrador. These are the only known North American specimens in Canada at the present time. The specimens were taken flying at dusk on dates ranging from July 6th to 15th. This species also occurs in Arctic Europe, where, however, it is still very rare. The following noctuids taken are also new to the Province: *Hadena morna*, Streck; *Mamestra sutrina*, Grote; *Anarta cordigera*, Thunb.; *Anarta richardsoni*, Curtis; and *Autographa orophila*, Hampson.

Amongst the Geometridæ a large number of very desirable species were captured, including the following which are new to British Columbia, viz.: *Eustroma destinata var. lugubrata*, Mosch., a very handsome insect and quite rare; *Rheumaptera hastata var. hastulata*, Hub.; *Rheumaptera luctuata*, D. & S.; *Petrophora circumvallaria*, Taylor (this species was described from specimens taken at Calgary, Alberta); and *Leptomeris frigidaria*, Mosch., an inhabitant of Arctic America.

Good collections in Coleoptera, Hymenoptera, and Diptera were made, many of which still await classification and identification.

During the past season a quantity of material in this branch has been collected by Mr. E. M. Anderson in the Sahtlam District, Vancouver Island (1,382 specimens), Mr. J. A. Munro at Okanagan Landing (1,900 specimens), and Mr. C. Garrett at Cranbrook (1,627 specimens).

Amongst the many good things taken by Mr. Anderson the following Noctuidæ are rare: *Feralia columbiana*, Smith; *Rhynchagrotis niger*, Smith; *Noctua calgary*, Smith; *Rancora solidaginis*, Behr.; *Euchalcia putnami*, Grote; and *Eosphoropteryx thyatiroides*, Gue. *Mamestra radix*, Walker, is new to Vancouver Island, and the following are new to British Columbia: *Autographa bimaculata*, Stephens; *Melalopha albosigma var. specifoca*, Dyar, belonging to the family Notodontidæ; and *Albuna pyramidalis var. montana*, Hy. Edw., a member of the Sesiid group. In the Geometridæ, whilst nothing new was taken, there nevertheless were some very desirable species, of which the following are worthy of mention: *Eupithecia perfusca*, Hulst; *Dysstroma occidentalis*, Taylor; *Hydriomena multiferata*, Walker; *Chlorosea nevadaria*, Pack.; *Aplodes darwiniata*, Dyar; *Euchlaena mollisaria*, Hulst; *E. pectinaria*, D. & S.; and *Metanema quercivoraria*, Gue. It is well to note that several specimens of that pretty little butterfly *Pamphila palaemon*, Pall., were taken, a species which is rapidly becoming extinct on the southern portion of Vancouver Island.

The material collected by Mr. Munro, while large in quantity, did not produce many rare species, the following Noctuidæ being most worthy of note: *Hadena allecto*, Smith; *Rhynchagrotis trigona*, Smith; *Agroperina pendrina*, Smith; *Euxoa obeliscoides*, Gue.; and *Graphiphora curtica*, Smith. However, one variety new to British Columbia was taken—*Platyprepia virginalis var. guttata*, Bdv., a moth belonging to the Arctiidæ family.

Mr. C. B. Garrett, of Cranbrook, also added four more species to the list, viz.: *Agroperina lincosa*, Smith; *Mamestra canadensis*, Smith, previously recorded from New Brunswick; *Syneda seposita*, Hy. Edw.; and *Ceryconis octus*. Amongst the Geometridæ taken by Mr. Garrett there were three species new to the Province, viz.: *Leptomeris ancellata*, Hulst; *Diastictis occiduaria*, Packard; and *Metanema determinata*, Walker (this latter an inhabitant of the Atlantic States). In addition to these, the following desirable species were taken: *Entrepia multivagata*, Hulst; *Marmopteryx marmorata*, Packard; *Euchlœna johnsonaria*, Fitch; and *E. astylusaria*, Walker.

Mr. W. A. Newcombe, of Victoria, B.C., while in the Chilcotin District this past summer took five specimens of *Basilarchia arthemis*, Drury. This is a very interesting record, as it definitely settles the fact that this butterfly does occur in British Columbia. Although this species has never been admitted to the list, it has been a debatable subject for some years as to whether it did or did not occur in the Province. Its habitat is the North Atlantic States, but it is also taken in the three Prairie Provinces.

During the past two years Mr. E. H. Blackmore, of Victoria, B.C., who has been specializing on the Geometridæ of British Columbia, has discovered one species and seven varieties new to science, viz.: *Stamnodes blackmorei*, Swett; *Hydriomena speciosata var. ameliata*, Swett; *Hydriomena grandis var. saawichata*, Swett; *Petrophora defensaria* varieties *mephistaria*, *giganticaria*, *conciliaria*, *thanataria*, and *suppuraria*, all described by Swett. Mr. Blackmore has generously donated to the Museum collection paratypes of *S. blackmorei*, *H. grandis v. saawichata*, *P. defensaria* varieties *giganticaria*, *conciliaria*, and *thanataria*, and typical specimens of *P. defensaria* varieties *mephistaria* and *suppuraria*.

Amongst a collection of Diptera sent to the Smithsonian Institution, Washington, D.C., for identification, three species were found to be new to science, which necessitated the erection of new genera by Mr. C. H. T. Townsend, who described them in the Canadian Entomologist, Vol. XLII., No. 9, page 285, *et seq.* They are as follows:—

Okanagania hirta, Townsend. This is a new genus with *hirta* as its genotype, and was described from a male taken by Mr. E. M. Anderson at Okanagan Falls on April 27th, 1913.

Rhachogaster kermodei, Townsend. This is also a new genus with *kermodei* for its genotype, and was described from two males taken at Penticton by Mr. Anderson on July 4th and 8th, 1913.

Another new genus, *Pseudodidyma*, was created by Mr. Townsend, having for its genotype a new species named *pullula*, described from a female taken at Farragut Bay, Alaska. Of a male taken by Mr. Anderson at Victoria on April 2nd, 1906, Mr. Townsend says: "It may be a new species, but seems congeneric with the above female."

During the present winter the two exhibition cases of Lepidoptera have been entirely overhauled by Mr. Anderson, who has rearranged and relabelled the entire collection of butterflies and moths down to the Geometridæ, the latter having been put in order by Mr. E. H. Blackmore, of this city, who has contributed many specimens in this group to make it more complete. The collection as it now stands is thoroughly up to date in nomenclature and scientific arrangement.

BOTANY.

In pursuance of the policy announced in the Museum Report for 1914, to devote more attention to the Botanical Branch, a request was made early in the year for the loan of the Herbarium formed by Mr. J. R. Anderson when Deputy Minister of the Department of Agriculture. This request was favourably considered and the transfer made to the Museum on April 28th. The collection of plants was made by Mr. J. R. Anderson in his leisure hours, both on Vancouver Island and in districts on the Mainland visited by him on his official tours. In some of these expeditions Mr. Anderson was assisted by the late Dr. James Fletcher, of the Dominion Experimental Farm at Ottawa, who was well known for his botanical zeal. It was, of course, impossible to cover more than a small portion of a Province of such a vast area as that of British Columbia, but a large number of rare and interesting plants were secured as occasion offered, and it is hoped that these may form the nucleus of a more fully representative collection, and also be more accessible to the general public than heretofore. To facilitate reference to these plants it is proposed to make a card catalogue of the collection, as unfortunately no record of the Herbarium accompanied it, except the data on the labels. By comparing these cards with the catalogues and supplementary lists published by Professor John Macoun in the Reports of the Geological and Natural History Survey of Canada and in numerous other papers, and also with the "Flora of Southern British Columbia," by Professor Henry, it will be possible to discover the species still absent from our collection and to set in motion certain agencies to fill the blanks.

Professor John Macoun and his son, Mr. J. M. Macoun, have both interested themselves in this Herbarium for years. Mr. J. M. Macoun spent some hours in the Museum in September looking over the new collections.

In the flowering season many inquiries are made as to the names of the more popular plants, and as to where their description can be found. To meet these demands it is intended that specimens of some of the most noticeable plants may be mounted and placed in wall-frames, also that some of the more useful books will be held available in the office of the Museum in charge of Miss W. A. Andrew, who has shown great interest in this branch of our work.

PLATE VIII.

Fig. 1. *Papilio machaon* var. *aliaska* Scudder.
Fig. 2. *Parnassius smintheus* var. *nanus* Neumoegen. (Male.)
Fig. 3. *Parnassius smintheus* var. *nanus* Neumoegen. (Female.)
Fig. 4. *Eurymus hecla* var. *glacialis* Maclachlan. (Male.)
Fig. 5. *Eurymus hecla* var. *glacialis* Maclachlan. (Female.)
Fig. 6. *Brenthis polaris* Boisduval. (Male.)
Fig. 7. *Brenthis frigga* var. *saga* Kaden. (Female.)
Fig. 8. *Brenthis frigga* var. *improba* Butler. (Under side.) (Female.)
Fig. 9. *Brenthis frigga* var. *improba* Butler. (Under side.) (Male.)

(*See* page 16.)

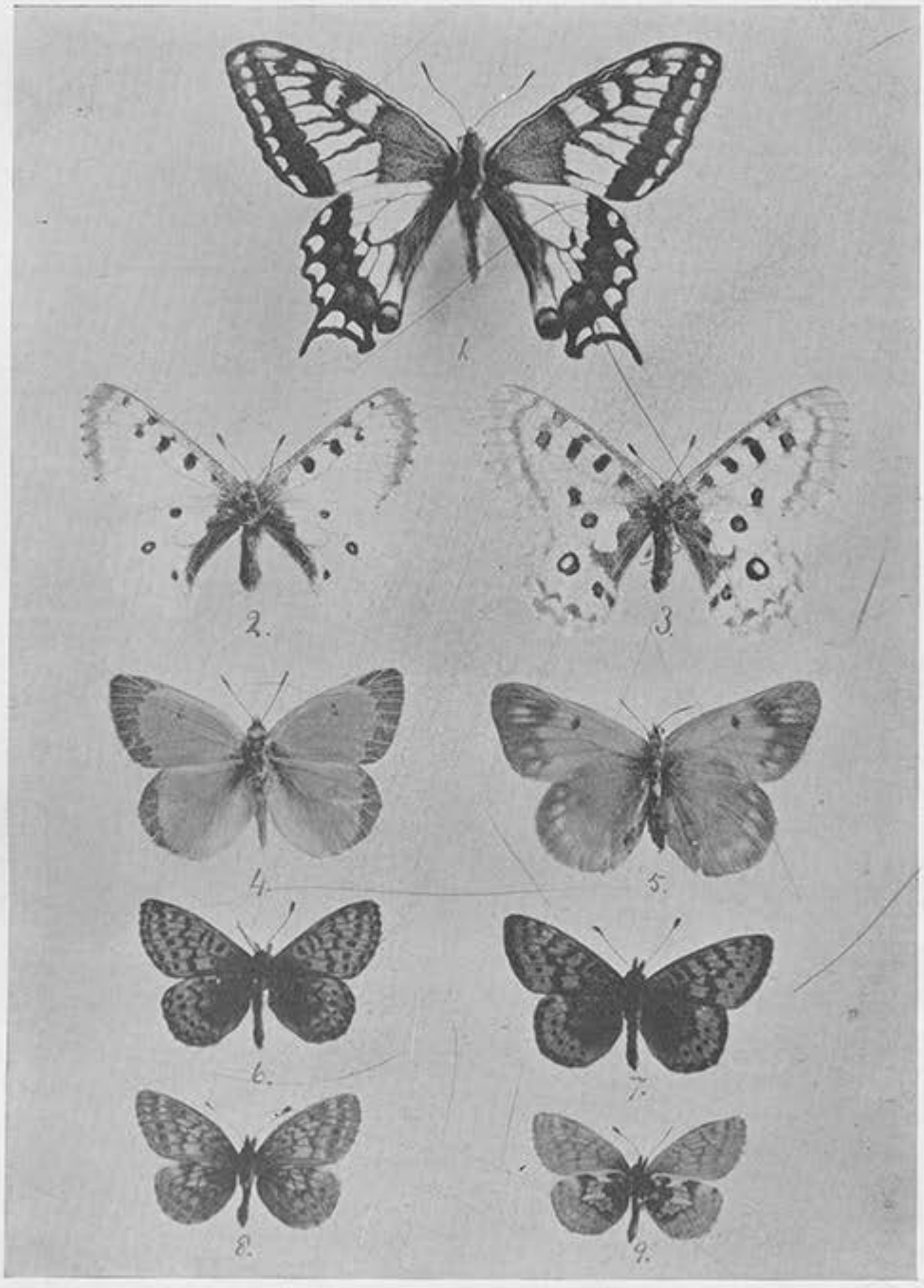
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PLATE IX.

Fig. 1. *Erebia disa* var. *mancinus* Doubleday. (Male.)
Fig. 2. *Erebia disa* var. *mancinus* Doubleday. (Female.)
Fig. 3. *Oeneis jutta* Hubner. (Male.)
Fig. 4. *Oeneis jutta* Hubner. (Female.)
Fig. 5. *Oeneis norna* var. *taygete* Hubner. (Male.)
Fig. 6. *Oeneis norna* var. *taygete* Hubner. (Female.)
Fig. 7. *Oeneis uhleri* Reakirt. (Male, northern form.)
Fig. 8. *Oeneis uhleri* Reakirt. (Female, northern form.)
Fig. 9. *Anomogyna lætabilis* Zett. (Male.)
Fig. 10. *Anomogyna lætabilis* Zett. (Female.)

(*See* page 16.)

PLATE IX.

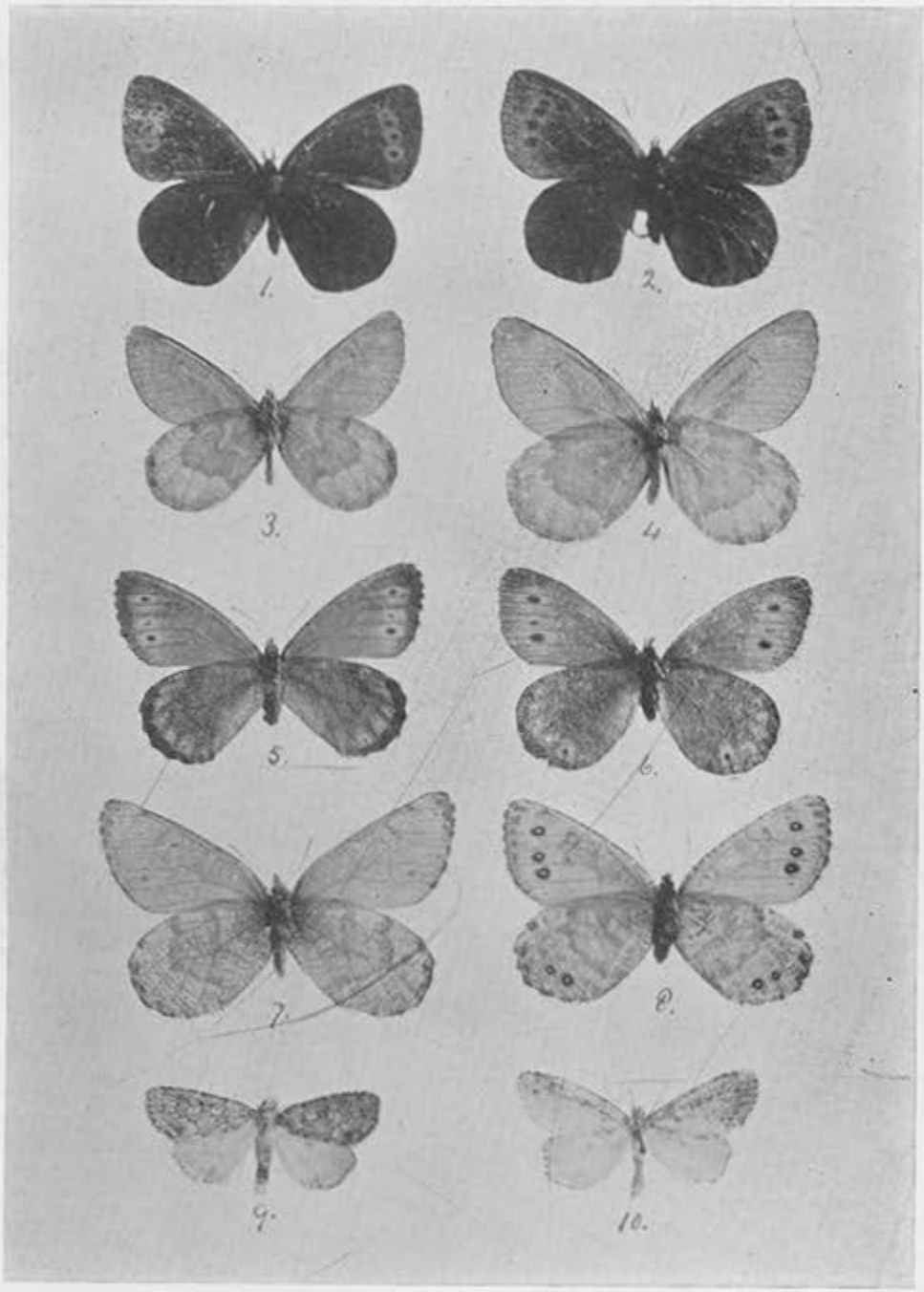

PLATE X.

NEW SPECIES OF DIPTERA.

Fig. 1. *Rhachogaster kermodei* Townsend. Penticton, B.C., July, 1913 (E. M. Anderson). Magnified 4¼ times.

Fig. 2. *Pseudodidyma pullula* Townsend. Victoria, B.C., April, 1906 (E. M. Anderson). Magnified 8½ times.

Fig. 3. *Okanagania hirta* Townsend. Okanagan Falls, B.C., April, 1913 (E. M. Anderson). Magnified 5½ times.

(*See* page 18.)

Fig. 1.

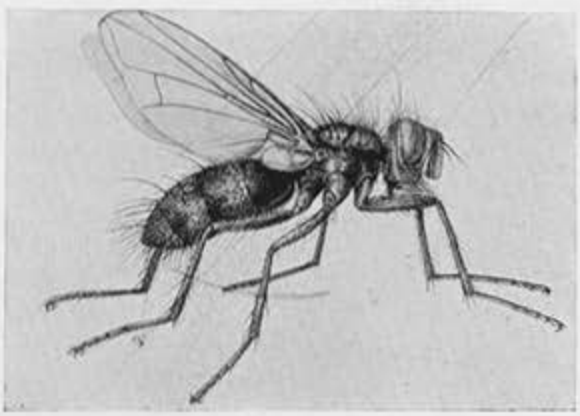

Fig. 2.

Fig. 3.

Amongst the accessions to the Herbarium are:—

(1.) A collection made by Mr. E. M. Anderson in the Atlin region in 1914, to which brief mention was made in last year's report. This contains a number of rare species, and the collection has been listed as follows by Professor John Macoun and his son, Mr. J. M. Macoun, mentioned above:—

Polypodium occidentale (Hook), Maxon.
Aspidium spinulosum, Swartz.
Aspidium fragrans, Swartz.
Cystopteris fragilis, Bernh.
Lycopodium annotinum, L.
Luzula spadicea melanocarpa, E. Meyer.
Eriophorum polystachion, L.
Veratrum viride, Ait.
Tofieldia glutinosa, Willd.
Tofieldia borealis, Wahl.
Zygadenus elegans, Pursh.
Cypripedium passerinum, Rich.
Habenaria dilatata, Pursh.
Habenaria hyperborea, R. Br.
Habenaria obtusata, Richards.
Smilacina sessifolia, Nutt.
Smilacina amplexicaulis, Nutt.
Orchis rotundifolia, Pursh.
Polygonum viviparum, L.
Silene acaulis, L.
Cerastium arvense, L.
Stellaria longipes, var.
Arenaria lateriflora, L.
Anemone multifida, Poir.
Anemone patens, L., var. *Wolfgangiana* (Bess), Koch.
Anemone parviflora, L.
Caltha leptosepala, DC.
Aquilegia formosa, Fisch.
Corydalis aurea, Willd.
Draba alpina, var. hebecarpa, Gray.
Arabis lyrata occidentalis, S. Wats.
Arabis drummondii, A. Gray.
Sedum stenopetalum, Pursh.
Saxifraga occidentalis, Wat.
Saxifraga tricuspidata, Retz.
Saxifraga oppositifolia, L.
Mitella trifida, Gray.
Parnassia palustris, L.
Rubus arcticus grandiflorus, Ledeb.
Potentilla dissecta, Pursh.
Potentilla nivea, L.
Potentilla fruticosa, L.
Potentilla palustris, L.
Dryas integrifolia, Ch. & Sch.
Lupinus arcticus, Wats.
Lupinus nootkatensis (?)
Hedysarum boreale, Nutt.
Oxtropis lamberti, Pursh.
Astragalus alpinus, L.
Geranium erianthum, DC.
Viola nephrophylla, Greene.
Viola langsdorfii, Fischer.
Epilobium latifolium, L.
Epilobium augustifolium, L.
Cornus canadensis, L.
Moneses uniflora, Gray.
Pyrola incarnata, DC.
Cassiope mertensiana, G. Don.
Kalmia glauca, Ait.
Ledum latifolium, Ait.
Vaccinium cæspitosum, Mx.
Primula sibirica, Jacq.
Androsace occidentalis, Pursh.
Polemonium cæruleum, L.
Polemonium elegans, Greene.
Polemonium pulchellum, Bunge.
Polemonium humile, R. & S.
Mertensia platyphylla, Heller.
Mertensia paniculata (Ait.) Don. (albino).
Myosotis sylvestris, L.
Myosotis sylvatica var. alpestris. Koch.
Myosotis alpestris, Lehm.
Pentstemon confertus cæruleo-purpureus, A. Gray.
Pentstemon confertus, Dougl.
Mimulus langsdorfii, Donn.
Pedicularis capitata, Adams.
Pedicularis euphrasioides, Stephen.
Pedicularis langsdorfii, Fisch.
Castilleja pallida, Kunth.
Pinguicula vulgaris, L.
Galium boreale, L.
Linnæa borealis, Gron.
Valeriana sitchensis, Bong.
Solidago multiradiata, Ait.
Solidago multiradiata, Ait., var. *scopulorum*, Gr.
Erigeron compositus, Pursh.
Aster sibiricus, L.
Achillæa borealis, Bong.
Arnica cordifolia, Hook.
Senecio lugens, Rich.
Senecio cymbalarioides, Nutt.
Antennaria microphylla var. rosea, Greene.

(2.) A collection from the Okanagan country by Mr. J. A. Munro (43 species).

(3.) A collection from Bare Island, in the Gulf of Georgia, by Mr. W. B. Anderson (25 species).

(4.) A collection from Uchucklesit, Barkley Sound, by W. B. Anderson.

(5.) A collection from Sahtlam District, Vancouver Island, by Mr. E. M. Anderson (35 species).

(6.) A collection from Cranbrook, East Kootenay, by Mr. C. Garrett, now in the hands of Mr. J. M. Macoun, Ottawa.

(7.) A collection from Chilcotin District by W. A. Newcombe (over 100 species).

Also minor accessions have been received from Professor Henry, of Vancouver, Dr. C. F. Newcombe, and several local specimens have been added by the Museum staff.

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Professor J. MACOUN.

Report Geological Survey of Canada, 1875-76—

Page 110: Professor Macoun reaches Victoria May 2nd, 1875.

Page 113: List of plants of Southern Vancouver Island for early part of May, 1875.

Page 118: List of plants of Yale.

Page 186: List of plants of Vancouver Island; British Columbia to base of Rockies; and Rocky Mountains.

Same Report, 1878-79, Appendix E—

Page 219B: List of Dr. G. M. Dawson's Queen Charlotte Islands plants.

Same Report, 1879-80—

Page 143B-146B: Dr. G. M. Dawson's plants from northern part of British Columbia.

Annual Report of Geological and Natural History Survey of Canada (New Series)—

Vol. II., 1886, Appendix II. to Part B: List of plants obtained by Dr. G. M. Dawson on Vancouver Island and adjacent coasts in 1885.

Vol. XI., page 86A: A collection of 525 species of flowering plants and some cryptogams made in the Yellowhead Pass country by Mr. Wm. Spreadborough.

Vol. XII., page 13B: Reference made to 79 species of plants collected in Atlin region in 1899-1900 by J. C. Gwillim.

Catalogue of Canadian plants, Parts 1-7.

J. M. MACOUN.

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Page 469-471: Mention of collections made along International Boundary.

These, with numerous alterations in nomenclature and additions to the flora of British Columbia, have for many years been listed by Mr. J. M. Macoun in his "Contributions to Canadian Botany," published from time to time in the Canadian Record of Science and the Ottawa Naturalist.

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Flett, J. B. Flora of the Olympian Mountains. The Mountaineer, Vol. 1, No. 4, Seattle, 1908.

PLATE XI.

Fig. 1. Mammoth tooth (*Elephas primigenius* Blum.), Shuswap Lake. Presented by the late Frederick Hussey.

Fig. 2. Mastodon tooth (*Mastodon americanus* Cuvier), found 1903, Dago Gulch, Hunker Creek, Y.T. Bequest: the late Mrs. C. A. Coulson.

Fig. 3. Mammoth tooth (*Elephas primigenius* Blum.), Cordova Bay, Victoria.

(*See* page 21.)

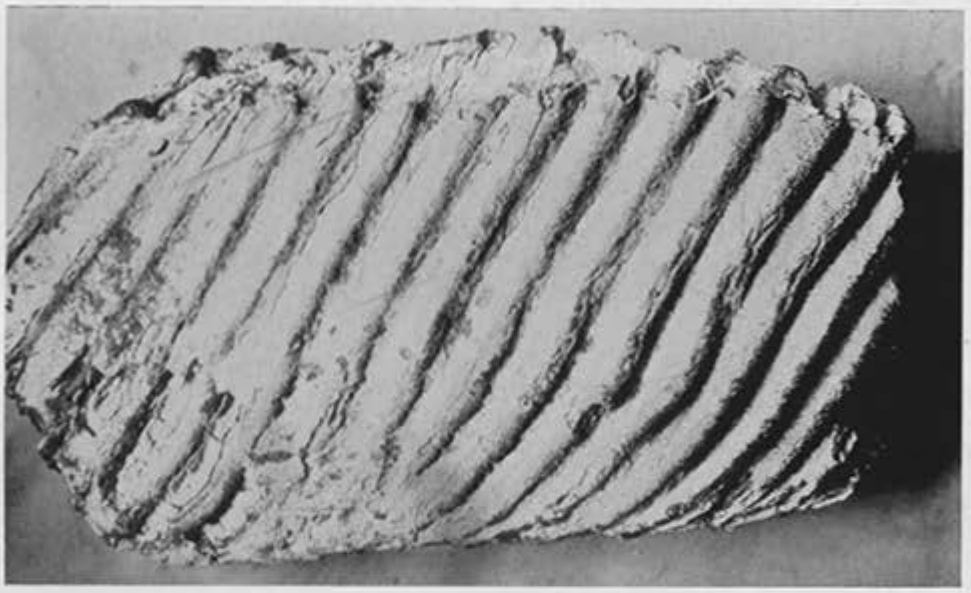

Fig. 1.

Fig. 2.

Fig. 3.

PALÆONTOLOGY.

Accessions to the palæontological collection have been of late years few and far between. Early in 1915, however, the finding of a tooth of a fossil elephant in the Mount Tolmie gravel aroused fresh interest in our small collection of mammalian remains. On comparing this specimen with fossil elephant-teeth from the Yukon country, it presented several marks of distinction. Photographs of two teeth from the Yukon and three from Vancouver Island and the neighbouring regions were sent to Dr. O. P. Hay, of Washington, who has written largely on the subject of Pleistocene fossils. He reported that, in his opinion, the northern specimens were true molars belonging to the hairy mammoth *Elephas primigenius*, while those from the south, which had fewer and wider plates, belonged to the Columbian elephant *E. columbi*.

Another specimen which has been in the Museum for many years was identified by Dr. O. P. Hay as the worn vertebra of some species of whale. This was found in Pleistocene gravels between Parson's Bridge and Langford Lake, Vancouver Island, when collecting ballast for the Esquimalt & Nanaimo Railway.

In the year 1913 remains of bison were recorded from two parts of the Province. In the Atlin country Mr. E. M. Anderson found a fine skull with horns. In the low-lying ground between George Jay Public School and the Protestant Orphanage, east of Cook Street, Victoria, Dr. C. F. Newcombe found a fragment of horn which the Director identified as belonging to a species of bison. Both of these specimens were forwarded for examination to Mr. Lawrence M. Lambe, Vertebrate Palæontologist of the Geological Survey, Ottawa. The Victoria fragment, in his opinion, belongs to *Bison bison*. His report on the Atlin specimen is given herewith in his own words:—

"The occiput with horn cores from the Atlin District is of *Bison bison* (L.), (*B. americanus*); that is, I regard it as such. It gives measurements which place it in this species. The range of the American bison extended up into the Mackenzie River District, and these animals are known to have passed well into the Rocky Mountains. It is probable that your specimen was a straggler toward the Coast in the Far North, or possibly the range of the buffalo extended well westward from the Mackenzie District, the animals taking advantage of the broad and comparatively low passes through the northern mountains. The specimen is light and not at all fossilized. Whether it belonged to a wood buffalo, which appears to be not more than a subspecies of the plains buffalo, it is difficult to say."

Mr. Lambe was also good enough to make a careful examination of a tooth of a mastodon which has been for many years in the Museum. His report upon it follows:—

"The tooth from Yukon is of *Mastodon americanus* (Cuvier), and is a lower third true molar of the left side. The front transverse ridge is broken off and with it the front root, which was slender and, in comparison with the hinder one, of small size. The specimen has been considerably shaken in transit and some fragments have become detached. These I have cemented back in place. Your tooth is an excellent one, although not complete. As you know, remains of mastodon are, in comparison with those of mammoth, rather rare in the extreme North-west."

Four casts of a scallop were presented by Mr. A. J. Dempster, found in a road-cut at Clo-oose, Vancouver Island. They seem to belong to *Pecten branneri*, Arnold, and to have come from the Monterey formation.

GENERAL ACCESSIONS.

Jan.	25.	White-tail Ptarmigan. Presented by W. B. Conroy, Atlin.
Feb.	15.	Indian stone sharpener (?), found on Dallas Road foreshore, Victoria, and presented by Arthur Warren.
"	24.	Indian basket. Purchased.
March	12.	Western Evening Grosbeak (3), Parksville, V.I. Presented by H. Rawlins.
"	17.	Marine specimens (16), Prince Rupert. Presented by M. L. Bird.
"	20.	Fossil pectens, Clo-oose. Presented by A. J. Dempster.
April	6.	Indian stone anchor, found while excavating for breakwater, Dallas Road, Victoria. Presented by A. J. Elgee, C. E.
"	18.	Sparrows (2). Presented by Dr. E. Hasell, Victoria.
"	26.	Crayfish, Victoria Harbour. Presented by A. Halkett through the Natural History Society of British Columbia.
May	24.	Slate totem-poles, Queen Charlotte Islands. Purchased.

June 5. Indian stone hammer, found on Graham Island. Presented by Pte. Geo. S. Mayer, 48th Battalion, C.E.F.

July 14. Sunfish, caught by Ucluelet Indians three miles off-shore. Presented by S.S. "Tees" through E. F. Jordan, second officer.

" 29. *Prionus californicus*. Presented by Geo. Nelm, Ganges, B.C.

Aug. 15. Silk-moth. Presented by Laura Carrington, Nicola.

Sept. 5. 1 nest and eggs, Mallard
2 " Willow Thrush
2 " Redstart
1 " Audubon's Warbler
2 " Shufeldt's Junco
2 Squirrel
1 Chipmunk
1 White-footed Mouse
1 Sparrow Hawk
1 Gambel's Sparrow
1 Shufeldt's Junco
1 Western Meadowlark
1 Ruby-crowned Kinglet
1 Willow Thrush
Miscellaneous collection of 300 papered insects
} Presented by W. A. Newcombe; collected in Chilcotin District.

Sept. 6. Jack-hare, White Lake. Presented by C. deB. Green.

" 14. Broad-finned Cod, Saanich Inlet. Presented by A. H. Maynard.

" 20. Painted Fish, Gulf of Georgia. Presented by P. Walker.

" 22. Sea Pen, Trial Island. Presented by B. Bonner.

" 30. White Sea Bass, Port Alberni. Presented by Messrs. Butterfield and Mackie.

Oct. 7. California Quail, Victoria. Presented by R. Powell.

" 20. Camp Robber's nest and set of three eggs. Purchased.

" —. Lynx. Presented by Beacon Hill Park.

Nov. 4. Indian Mask, Metlakatla. Purchased.

" 6. Small mammals, Okanagan District. Purchased.

" 15. Chipmunk (in alcohol). S. Hadwen. Experimental Farm, Agassiz.

Dec. 1. Stone sinker, found on Brentwood beach, V.I. Presented by A. Shotbolt.

" 1. 80 specimens of mounted Geometridæ. Presented by E. H. Blackmore, Victoria.

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