

PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1922



PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C. :

Printed by WILLIAM H. CULLIN, Printer to the King's Most Excellent Majesty.

1923.

To His Honour WALTER CAMERON NICHOL,
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 1922.

J. D. MACLEAN,
Provincial Secretary.

Provincial Secretary's Office,
Victoria, B.C., February, 1923.

PROVINCIAL MUSEUM OF NATURAL HISTORY,
VICTORIA, B.C., February 19th, 1923.

The Honourable J. D. MacLean, M.D.,
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, 1922, covering the activities of the Museum.

I have the honour to be,

Sir,

Your obedient servant,

FRANCIS KERMODE,
Director.

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DEPARTMENT OF THE PROVINCIAL SECRETARY.

The Honourable J. D. MacLEAN, *Minister.*

J. L. WHITE, *Deputy Minister.*

PROVINCIAL MUSEUM OF NATURAL HISTORY.

Staff:

FRANCIS KERMODE, *Director.*

WINIFRED V. REDFERN, *Recorder.*

WILLIAM R. CARTER, *Assistant Biologist.*

ERNEST H. BLACKMORE, *Associate Curator of Entomology.*

REGINALD W. PARK, *Attendant.*

EDWARD A. COOKE, *Attendant.*

6.



SILVER FOX. *VULPES FULVUS ARGENTATUS* (SHAW).
Group in Provincial Museum, Victoria, B. C.

REPORT of the
PROVINCIAL MUSEUM OF NATURAL HISTORY
FOR THE YEAR 1922.

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 actual number of visitors whose names are recorded on the register of the Museum is 21,307, against 22,550 in last year's report. This does not by any means give the total number of visitors throughout the year, as not only have more visitors been noticed, but the attendance of school classes has greatly increased, while the classes from the Normal School have used the collections considerably in regard to making drawings in connection with their nature-studies. I would recommend that a turnstile or some other way of recording the number of visitors accurately be installed. The following figures will give some idea of those who recorded their names during the months of: January, 698; February, 872; March, 945; April, 1,087; May, 1,231; June, 2,131; July, 4,561; August, 4,830; September, 2,377; October, 1,135; November, 780; December, 660.

ACTIVITIES.

In last year's report it was mentioned that the Public Works Department had completed the basement, and the carpenter having made four extra cases for the display of exhibits, all the anthropological material which had for a number of years been exhibited on the main floor in the northern section of the exhibition halls was transferred to its new quarters. Four other cases are in the course of preparation, and a temporary arrangement has been made to exhibit the specimens until the four cases are completed and the extra two rooms available for the display of exhibits, making a total of six rooms in the anthropological halls. It is hoped to have this completed early in the spring and the collection will then be labelled and arranged as a permanent exhibit, as there is no more space available in the present building.

A temporary arrangement of these specimens was made in the spring of 1922, and the formal opening of the exhibition halls to the public was inaugurated by a special meeting of the Natural History Society of British Columbia, held in the Provincial Museum on May 29th, 1922, when an illustrated lecture was given by the Director on the "Early Customs and Life of the Aboriginal Races of this Province," which was well attended by the members of the society and their friends. The lecture was given on the main floor, the mammals in cases and other specimens being moved to one side so as to give as much space as possible for those who attended. The Department is handicapped, as in the construction of the present building there is no room available for scientific lectures of this kind for the general public, although offers to give lectures have been received from different scientists who have visited the Department from time to time.

Mr. Harlan I. Smith, Anthropologist of the Dominion Government, Ottawa, also gave a lecture in the Museum on September 14th, 1922, upon his return from his explorations in the Bella Coola country, where he has been doing anthropological research-work for the last three summers. His lecture, "The Relationship of Museum Work to Education," was given on the

main floor of the Museum, but the space provided was barely sufficient for the accommodation of members of the Natural History Society and their friends, who displayed deep interest in the lantern-slides illustrating the work carried on by the larger museums in Eastern Canada and the United States. These slides Mr. Smith very kindly had his Department send from Ottawa for the occasion.

Two other lectures were given for the Natural History Society, one on "Bird Life of the Western Country," with illustrations, given by Miss ~~Elizabeth Racey~~, of Portland, Oregon, and the other by Dr. Franz Boas, of Columbia University, New York, on "Indians of British Columbia: their Customs, Folk-lore, and Habits." These lectures were held in the Girls' Central School and were attended by large and appreciative gatherings.

At the request of the Honourable John Oliver, Prime Minister, the Museum was open during the evening of September 21st, 1922, for the members of the Montreal Board of Trade, who were accompanied on their trip across Canada by a number of British Parliamentarians. They were conducted through the Department by the Honourable the Premier, and numbers of them expressed their gratitude, and were agreeably surprised at the showing this Province has made in the exhibit of natural-history specimens.

ANTHROPOLOGY.

In the early part of the year the Director took up with Mr. R. G. Cunningham, of Port Essington, the advisability of his loaning to the Department his very valuable collection of Indian stone carvings, which have been in his possession for many years. Mr. Cunningham willingly consented to place on exhibition for an indefinite time the whole of this collection, numbering approximately fifty-five specimens.

These carvings are exceptionally good pieces of work, above the average that is done by the Haida Indians, who are the expert carvers of the North Pacific Coast, and exceed all other tribes in their totem designs, both in workmanship and skill. Of these stone carvings, some were made by the late Henry Edensaw, a chief of the Masset Tribe of the Haida Indians of the Queen Charlotte Islands, who lived to be a very old man, dying a few years ago; others were carved by a man named Abraham, a cripple, born of slave parents who were taken slaves by the Haidas from another tribe many years ago.

The material these carvings are made of is a form of black slate which is rather soft when first taken from the deposits found at Skidegate Inlet, Queen Charlotte Islands. After being carved this material is polished with oil and takes a very brilliant finish.

This exhibition of totem-poles illustrates the stories and legends of the Haida Indians. The exhibit is in a plate-glass case on the main floor, and may be seen by all visitors entering the Department before visiting the anthropological halls in the basement.

In the early spring, when the anthropological collection was being transferred to the basement, three extra totem-poles were arranged in the main entrance. One is a large house-pole, No. 2309, collected by Dr. C. F. Newcombe, 1913, at Tallo, South Bentinck Arm, B.C. It is of cedar with a hollowed back, large doorway at bottom, painted yellow, blue, green, white, and black. The lower figure has a short beak and there are two smaller birds three-quarters of the way up the pole. Size, 17 feet 3 inches by 4 feet 2 inches by 2 feet 6 inches.

Two other house-poles were also placed in the entrance hall; No. 2355, used in the interior of the house, is of cedar, with the eagle carved on the top and the ancestor of the owner below. Size, 14 feet 7 inches by 22 inches. No. 2356 is the companion to No. 2355. These two poles stood inside a house, supporting the roof. Collected at Comox, B.C., 1912, by C. F. N.

At the time these poles were placed in position, the Director thought it advisable to remove the two oil paintings of Alert Bay Indian Village from the entrance hall to the hall where the stair-case leads to the anthropological section. A large totem-pole which had been in storage for a number of years was also erected near the stairway. This totem, No. 1863, is of cedar, carved, and painted red, black, and grey. The top is the copper which the chief or owner is holding up (holding up his tribe); then comes the chief's figure; then the raven (his crest), and the man underneath is the enemy chief of the chief who is holding the copper. He is treading on his enemy. Size of pole, 26 feet by 21 inches by 18 inches. Collected at Tsawadi Village by C. F. N.

A number of other totem-poles, house-poles, and canoes, with several more Indian antiquities too large for exhibition in the present halls, have still to remain in storage in another building



KERMODE'S WHITE BEAR. *URSUS KERMODEI* (HORNADAY).
(Type Specimen.) Group in Provincial Museum, Victoria, B. C.

indefinitely until space is provided by the erection of a new museum. This had been the intention for some time, but owing to financial conditions the matter has been left in abeyance, but it is to be hoped that the time will soon come when arrangements will be made for the erection of a building large enough to house this valuable anthropological material.

While undergoing these changes this year the Museum was visited by a number of the leading scientists and anthropologists of America who were in Victoria during the summer, among whom were: Dr. Franz Boas, Anthropologist, Columbia University, New York, U.S.A.; J. C. Bond, Curator, McMahon Museum, Quetta, Baluchistan, India; Professor J. K. Beattie, Bureau of Plant Industry, U.S. Department of Agriculture, Washington, D.C., U.S.A.; Lieut.-Colonel G. T. Emmons, Princeton, N.J., U.S.A.; Dr. Goddard, American Museum of Natural History, New York, U.S.A.; George Heye, Director, Museum of American Indian (Heye Foundation), New York, U.S.A.; M. Hall McAllister, California Academy of Sciences, San Francisco, Cal., U.S.A.; Dr. Leonhard Stejneger, Smithsonian Institution, U.S. National Museum, Washington, D.C., U.S.A.; Harlan I. Smith, Archæologist, Victoria Memorial Museum, Ottawa, Can.; Charles Piper Smith, Botanist, San Jose, Cal., U.S.A.

All these gentlemen were greatly impressed by the move the Department was making in displaying the anthropological material which had been secured many years ago, and were surprised that we had been able to gather so much of valuable material in regard to the aboriginal races of this Province, material which is now in safe-keeping and will be preserved for the education of the rising generation. It shows the stone age, industry, home life, customs, etc., of the Indians of this North-west Coast.

Dr. Franz Boas, of Columbia University, U.S.A., while in the city had arranged to have Mr. George Hunt, an Indian from the Fort Rupert Reservation, assist him on a revision of some of his writings on the Kwakiutl Indians, and as our anthropological collection was being arranged at the time, advantage was taken by the Department of Mr. Hunt's visit.

With the permission of the Deputy Provincial Secretary, the Department engaged Mr. Hunt for several days to go over the Kwakiutl specimens, in order to have reliable data and information at first hand for the labels on the specimens when finally arranged. Mr. Hunt, having spent all his life on a reserve with his own people, knows well their early customs. He also gave us the Indian names of many of the plants that are used by the Indians for food and medicine.

Dr. C. F. Newcombe, who is noted as one of the leading anthropologists of the North-west Coast, has offered to assist the Director to arrange the collection permanently during the coming year. This will necessitate an immense amount of work, as all specimens will have to be relabelled, and it is intended to give explanatory notes on their designs and uses by the natives, only temporary labels being attached at the present time.

The Department has been very fortunate this year in receiving collections of Indian relics as gifts. Mr. Victor B. Harrison, of Nanaimo, B.C., presented a collection which comprises the following:—

Salishan (Coast).

- | | |
|-------------------------|--|
| No. 3177. Stone pestle. | No. 3187. Copper bracelet, found on skeleton |
| „ 3178. Stone pestle. | of a woman. |
| „ 3179. Stone pestle. | „ 3188. Bone handle for stone knife. |

Salishan (Lillooet).

- No. 3183. Stone paint-dish of turtle design.

Salishan (Thompson).

- | | |
|------------------------------|--|
| No. 3184. Stone Indian pipe. | No. 3189-4006. Stone arrow-heads. |
| „ 3185. Bone needle. | „ 4007-4020. Stone spear-heads. |
| „ 3186. Stone needle. | „ 4021-4025. Fragments of arrow-heads. |

Salishan (Shuswap).

- | | |
|------------------------|------------------------|
| No. 3180. Jade chisel. | No. 4026. Whetstone. |
| „ 3181. Jade chisel. | „ 4027. Rubbing-stone. |
| „ 3182. Jade chisel. | |

In this collection, No. 3183, which is a soapstone dish, is of special interest, being a very fine piece of work.

Miss Alice Turner, Victoria, B.C., presented the Department with some very beautiful work done by the Blackfeet Indians, consisting of:—

- No. 3168. Chief's coat, deer-skin.
 „ 3169. Pair of chaps, deer-skin, beaded design.
 „ 3170. Large leather belt, buffalo-hide.
 „ 3171. Pair of leather leggings, beaded design.
 „ 3172. Pair of leather leggings, beaded design.
 „ 3173. Leather belt, beaded design.
 „ 3174. Leather belt, beaded design.
 „ 3175. Pair of leather moccasins, beaded design.
 „ 3176. Peace-pipe, bowl of stone and stem of alder.
 „ 4028. Pair of leather moccasins, beaded design.
 „ 4029. Pair of leather moccasins, beaded design.
 „ 4030. Pair of wristlets, beaded design.
 „ 4031. Peace-pipe, bowl of stone and stem of wood, with beads.
 „ 4032. Peace-pipe, bowl of stone and stem of wood.
 „ 4033. Peace-pipe, bowl of stone and stem of wood.
 „ 4034. Peace-pipe, bowl of stone with a hand on it. Stem of three-cornered wood with two red knobs.
 „ 4035. Peace-pipe, bowl of stone and stem of wood.
 „ 4036. Bowl of peace-pipe.
 „ 4037. Bowl of peace-pipe.
 „ 4038. Bowl of peace-pipe, carved.
 „ 4039. Bowl of peace-pipe, stone, carved in the shape of an animal.

Mr. Harlan I. Smith, Archæologist, Victoria Memorial Museum, Ottawa, very kindly sent to the Museum eight casts of prehistoric petroglyphs, or pictures on rocks near Bella Coola, B.C., with the following note:—

Casts of Prehistoric Petroglyphs, or Pictures on Rocks, near Bella Coola, B.C.

There are many of these pictures on top of the western edge of the canyon of the creek that empties into Bella Coola River some 3 miles above its mouth. They are at the top of the rise in the creek-valley immediately above the Bella Coola bottom lands, or about a mile from the river. The canyon is here about 70 feet deep. The pictures are on felsite rock, which is hard when freshly broken, but is decomposing into clay and is very soft where weathered. One petroglyph near by is on a granitic rock. Most of them were made by pecking, a very few by incising.

They must be ancient, as the moss with which they were overgrown in places reached a thickness of about a foot and some were covered by the roots of trees. Besides, only a few Indians knew of their existence and they only of the large southern group. They had never seen or heard of the several other exposures from which the casts here shown were made. They say that a family had "power" under a large rock near by. They pecked out the pictures in time to songs which were sung in connection with this "power." Not even the oldest Indians know what any of the pictures represent. This family had a ceremonial house immediately south of the largest exposure, and the hunting-trail up the valley passed over part of the petroglyphs and through the house.

Exploration and moulding	Cat. Nos. XII-B-1492c (1), XII-B-1498c (7), XII-B-1497c
by Harlan I. Smith, 1921.	(6), XII-B-1493c (2), XII-B-1495c (4), XII-B-1496c
Casting by Edward Perron.	(5), XII-B-1494c (3), XII-B-1499c (8).
Coloring by Claude E. Johnson.	

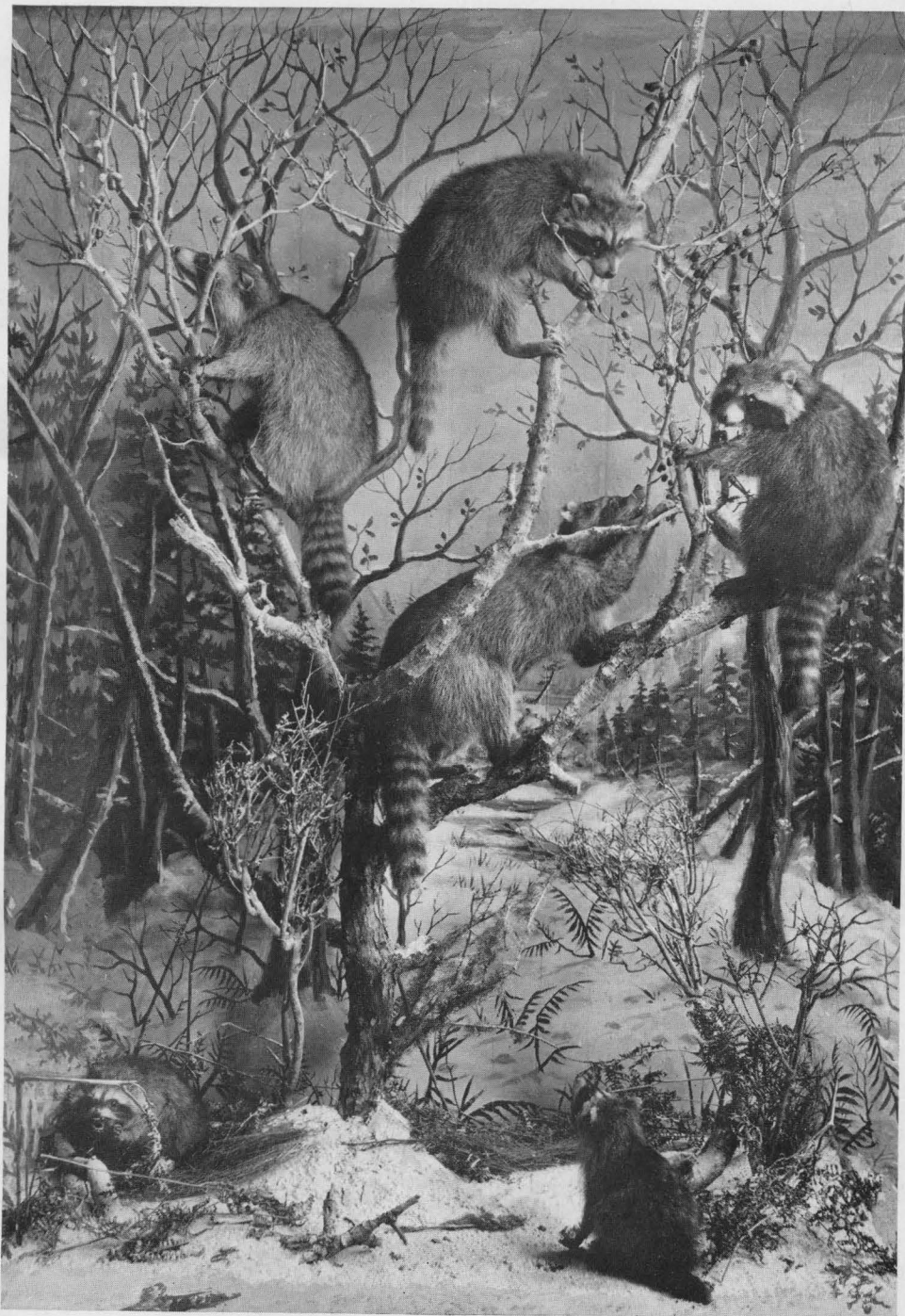
ACCESSIONS.

Long-eared Owl (*Asio wilsonianus*). Presented by Mr. W. Long, Victoria, B.C., January 24th, 1922.

American Coot (*Fulica americana*). Presented by Dr. White, Elk Lake, B.C., February 2nd, 1922.

American Crossbill (*Loxia curvirostra minor*). Presented by Mr. Dennis Ashby, Duncan, B.C., February 6th, 1922.

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RACCOON. PROCYON LOTOR (LINN.)
Group in Provincial Museum, Victoria, B. C.

Northern Shrike (*Lanius borealis*). Presented by Mr. W. Long, Victoria, B.C., February 26th, 1922.

Cooper's Hawk (*Accipiter cooperi*). Presented by Mr. W. Long, Victoria, B.C., February 13th, 1922.

Red-breasted Merganser (*Mergus serrator*). Presented by Mr. E. V. Blatstone, Victoria, B.C., March 4th, 1922.

Western Robin (albino) (*Merula migratoria propinqua*). Presented by Mr. Dennis Ashby, Duncan, B.C., April 1st, 1922.

Avocet (*Recurvirostra americana*). Presented by Mr. A. Brooks, Okanagan, B.C., April 22nd, 1922.

Blue-winged Teal (*Querquedula discors*). Presented by Mr. A. Brooks, Okanagan, B.C., April 22nd, 1922.

Western Robin (albino) (*Merula migratoria propinqua*). Presented by Mr. Dave Ferrier, Alberni, B.C., August 21st, 1922.

Clarke's Nutcracker (*Nucifraga columbiana*). Presented by Mrs. H. Rawlins, Errington, B.C., September 2nd, 1922.

Fox Sparrow (*Passerella iliaca iliaca*). Presented by Mr. E. G. Kermodé, Victoria, B.C., September 8th, 1922.

White Pelican (*Pelecanus erythrorhynchos*). Presented by Mr. J. Bessonette, Victoria, B.C., October 10th, 1922.

Western Robin (*Planesticus migratoria propinqua*). Presented by Dr. Knight, Victoria, B.C., October 10th, 1922.

Mourning Dove (*Zenaidura macroura*). Presented by Mrs. H. Rawlins, Errington, B.C., October 9th, 1922.

Nest and two eggs of Canada Jay (*Perisoreus canadensis canadensis*). Presented by Mr. V. Schjelderup, Burns Lake, B.C., May 4th, 1922.

Four eggs of Chinese Starling (*Acridotheras cristatellus*). Presented by Mr. R. A. Cumming, Vancouver, B.C., November, 1922.

Four eggs of Tule Wren (*Telmatodytes palustris paludicola*). Presented by Mr. R. A. Cumming, Vancouver, B.C., November, 1922.

Ratfish (*Hydrolagus collicii*). Presented by Mr. A. W. Stevenson, Victoria, B.C., September 25th, 1922.

Rock-boring Clam found on coal at Race Rocks, B.C. Presented by Captain W. E. Gardner, October, 1922.

Hair-worm (*Phreoryctes manheanus*) found at Salmon Arm, B.C., October, 1921. Presented by Dr. E. Buckell, January, 1922.

Fossil found at Lost Creek, B.C., and presented by Mr. A. Jenkins, September 1st, 1922.

Beetle, Giant Wood-borer (*Prionus californicus*). Presented by Mr. A. J. Marsh, Duncan, B.C., February 2nd, 1922.

Two Beetles (*Creocephalus obsoletus?*). Presented by Mr. H. R. Eldridge, Victoria, B.C., August, 1922.

Two specimens of Geometridæ (*Hydriomena nubilofasciata*) captured at Sluggett, B.C., and presented by Mr. W. Downes, March 2nd, 1922.

Moth (*Sphinx vancouverensis*). Presented by Miss Doreen Dodd, Telegraph Creek, B.C., July 13th, 1922.

Arrow-head found at Deer Park, Arrow Lake, B.C., 1909. Presented by Dr. Angus W. Kenning, Victoria, B.C., May 12th, 1922.

Stone pestle. Presented by Major Hodgins, Duncan, B.C., June 8th, 1922.

Stone paint-dish found in 1916 at Parson's Bridge, B.C. Presented by Mr. and Mrs. J. R. Hodgson, June 27th, 1922.

Collection of Indian curios. Presented by Miss Alice Turner, Victoria, B.C., November, 1922.

Collection of Indian curios. Presented by Mr. V. B. Harrison, Nanaimo, B.C., December, 1922.

Eight casts of prehistoric Petroglyphs near Bella Coola, B.C. Presented by Harlan I. Smith, Archaeologist, Ottawa, December, 1922.

Vertebra of a Bison found July, 1922, at McCulloch Station, B.C., in blue clay about 10 feet from the surface, while building a dam at an elevation of 4,000 feet. Presented by Mr. C. C. Fuller, Victoria, B.C.

Fragment of a Bison-horn collected by Dr. C. F. Newcombe in March, 1914, at the corner of Bay and Cook Streets, Victoria, B.C., where excavations were being carried on. Presented December, 1922.

PUBLICATIONS OF OTHER INSTITUTIONS.

(Alphabetically arranged.)

American Museum of Natural History, New York	3
Art Institute of Chicago, Illinois	5
Bernice Pauahi Bishop Museum, Honolulu, Hawaii	9
Boston Society of Natural History, Boston, Mass.	1
Bristol Museum and Art Gallery, Bristol, England	1
Brooklyn Institute of Arts and Sciences, Brooklyn, N.Y.	1
Bureau of Science, Manila, P.I.	4
California Academy of Sciences, San Francisco, Cal.	15
California University, Berkeley, Cal.	17
Cardiff Museum, Cardiff, Wales	1
Carnegie Museum, Pittsburgh, Pa.	1
Charleston Museum, Charleston, S.C.	1
Children's Museum of Boston, Boston, Mass.	2
Cincinnati Museum Association, Cincinnati, Ohio	1
City Art Museum, St. Louis, Mo.	2
Colorado Museum of Natural History, Denver, Col.	1
Cornell University, Ithaca, N.Y.	23
Detroit Institute of Arts, Detroit, Mich.	4
Dominion Government Publications, Ottawa	42
Erie Public Library, Erie, Pa.	1
Field Museum, Chicago, Ill.	9
Grand Rapids Public Library, Mich.	2
Gray Herbarium, Harvard University, Cambridge, Mass.	2
Illinois State Natural History Survey, Urbana, Ill.	5
Instituto General y Tecnico de Valencia, Valencia, Spain	4
John Crerar Library, Chicago, Ill.	1
Library of Congress, Washington, D.C.	1
Manchester Museum, Manchester, England	1
Manitoba University, Winnipeg, Man.	1
Minneapolis Institute of Arts, Minn.	7
Minnesota University, Minn.	4
Museum of the American Indian (Heye Foundation), New York	6
Museum of Fine Arts, Boston, Mass.	2
National Museum, Philadelphia, Pa.	1
National Museum, Melbourne, Australia	1
Newark Museum Association, Newark, N.J.	2
Nebraska University, Lincoln, Neb.	3
New South Wales Department of Agriculture, Australia	7
New York Botanical Garden, N.Y.	1
New York State College of Forestry, Syracuse, N.Y.	4
New York State Museum, Albany, N.Y.	2
Ohio Agricultural Experimental Station, Wooster, Ohio	3
Oklahoma University, Norman, Okla.	1
Peabody Museum, Salem, Mass.	1
Peabody Museum, Yale University, New Haven, Conn.	15
Pennsylvania Museum and University	6
Public Museum, Milwaukee, Wis.	1
Roger Williams Park Museum, Providence, R.I.	4
Royal Scottish Museum, Edinburgh, Scotland	1
Smithsonian Institution, Washington, D.C.	31
<i>Carried forward</i>	264

PUBLICATIONS OF OTHER INSTITUTIONS—*Continued.*

<i>Brought forward</i>	264
State Island Institute, New Brighton, N.Y.	10
Syracuse Museum of Fine Arts, Syracuse, N.Y.	2
United States Department of Agriculture, Washington, D.C.	12
University of Montreal, Montreal, Que.	1
University of Washington, Seattle, Wash.	2
Zoological Society, New York, N.Y.	9
Zoological Society, Philadelphia, Pa.	2

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BOTANY.

BY W. R. CARTER.

The past season cannot be looked upon as ideal from a collector's point of view, owing to the very long, dry spell which extended over a great portion of this Province, many areas becoming dried up early in the summer; this, coming after a late and bleak spring, had a marked effect on vegetation.

In some localities it was so dry many plants withered in bloom without going to seed, and noticeable instances of this were observed in the exposed portions of the Malahat, on Vancouver Island.

After heavy rains the latter part of August and beginning of September, warm weather with much sunshine continued late on in the fall, plant-growth took on a new lease of life, and many flowers were noticed in bloom long past their usual period.

With the exception of collections made by Mr. W. B. Anderson, Dominion Inspector of Indian Orchards, and Mr. G. V. Copley, of the Provincial Grazing Commission, very little material has been added to the Herbarium of the Provincial Museum from other sources. However, from the enterprise of these two gentlemen a considerable amount of very desirable material has been added to the collection, including several new records for this Province and a number of specimens not hitherto in the collection.

Mr. W. B. Anderson in his official capacity covered a very large area of the Province, and presented us with many specimens representing the flora of the Windermere District, Fort Steele, Mount McLean, Mount Cheam, Penticton, Keremeos, and adjacent localities in the south.

Mr. G. V. Copley's specimens were principally collected from the country surrounding Merritt, Kamloops, and a portion of the Chilcotin District; also a nice collection from the southern portion of Vancouver Island. His specimens include a few plants from the higher altitudes of the districts in which he collected, and some very desirable material from what may be called the alkaline marshes of the Interior.

Mr. R. Glendenning, Junior Entomologist, Dominion Experimental Farm, Agassiz, B.C., presented us with specimens of *Allium attenuifolium* Kellog, which he collected at Maple Bay, V.I., and listed in his 1918 "Check-list of the Flowering Plants and Ferns growing in the Cowichan District, V.I." These specimens were submitted to Professor C. V. Piper, of Washington, D.C., and Mr. Glendenning's determination has been verified.

Specimens from Alberni, V.I., referred to as *Allium Geyeri* Wats., have also been identified as *A. attenuifolium*; there appears now to be some doubt as to whether *A. Geyeri* occurs on Vancouver Island, although specimens from Sidney, V.I., collected by the late Professor Macoun are so named. It is to be hoped more material from this locality may be collected in the near future, in order that any existing doubt may be removed.

Dr. C. F. Newcombe, of Victoria, donated several specimens which he collected at Bella Coola, Skeena River, and Vancouver Island, several of which extend their range of distribution as previously recorded in this Department.

Professor George B. Rigg, of the University of Washington, reports collecting *Rubus Chamamorus* Linn. near Duncan, V.I., in the Cowichan District, its former station being near Comox Lake, Macoun; this record extends the distribution of the species much to the south on Vancouver Island.

One of the most interesting plants collected during the past season is *Myrica californica* Cham. near Tofino, on the west coast of Vancouver Island. Through the offices of Mr. George

Fraser, of Ucluelet, V.I., Captain J. W. Thompson sent us large fruiting specimens of this shrub-like tree, which was originally discovered on his property about 4 miles from Tofino by Mrs. T. B. McBey, of Cameron Lake, September 4th, 1920.

Captain Thompson reports having a straight, almost unbroken hedge of it nearly 200 feet in length, and, apart from this, has only been able to locate two isolated specimens outside and in the immediate vicinity of his property.

As no former record can be found of this species having been collected in British Columbia, this is the first authentic Canadian record, and has recently been recorded by Dr. C. F. Newcombe as such in the "Canadian Field Naturalist," Vol. XXXVI., No. 6, September, 1922.

During the year we have been honoured by a number of visitors seeking information on our native flora, and it is gratifying to report the Herbarium has been used as a source of reference by several specialists and students from the United States Department of Agriculture, and other institutions, in their particular research of different genera.

A number of duplicate specimens have also been distributed as follows: To Mr. C. P. Smith, of Los Angeles, California, who is monographing the Lupines of the Pacific States; Miss Helen Bergfried, Associate in Botany, University of California, studying the genus *Crepis*; a set of *Rubus* has been sent to Mr. C. E. Gustafsson, Tralleborg, Sweden, who is working on this genus; and a few specimens of *Carices* have been sent to Professor J. K. Henry, late of the University of British Columbia, who is continuing his research in this order.

The greater portion of the specimens received this year, not previously represented in the Herbarium, have been mounted and placed in the collection; others will be mounted showing range of distribution; and a few difficult species are as yet undetermined.

Throughout the season we have, as usual, been pleased to identify a large number of plants for school-children, teachers, and other collectors; there is still room for a great deal of improvement in the condition in which many of these plants are submitted for examination.

The thanks of this Department are cordially extended to the following gentlemen: Professor C. V. Piper, of Washington, D.C., for his kindness in determining a number of species, which has been of great assistance to this Department. Mr. C. P. Smith, of Los Angeles, California, who examined our collection of Lupines while here on a visit during the summer. Dr. C. F. Newcombe, Mr. W. B. Anderson, Mr. T. P. MacKenzie, Mr. G. V. Copley, Mr. R. Glendenning, and Mr. P. de Noe Walker, for the keen interest they have taken and for the material they have donated.

Among the most interesting plants collected by Mr. W. B. Anderson are the following:—

Juncus acuminatus Michx.

Juncus tenuis Willd.

Cypripedium passerinum Rich.

Salix cascadiensis Cockerell.

Corispermum hyssopifolium L.

Clematis columbiana Hornem.

Mitella nuda L. (in part).

Potentilla flabellifolia Hook.

Astragalus debilis (Nutt.) A. Gray.

Astragalus (glarcosus Hook.?).

Hedysarum Mackenzii Rich.

Oxytropis deflexus (Pall.) DC.

Epilobium luteum Pursh.

Hippuris montana Ledeb.

Sanicula marilandica L.

Gentiana propinqua Rich.

Cynoglossum officinale L.

Mertensia subcordata Greene.

Mr. G. V. Copley's contributions include:—

Triglochin palustris L.

Cynosurus echinatus L.

Carex disperma Dewey.

Eriophorum Chamissonis Mey.

Thelypodium laciniatum Endl.

Myosotis alpestris Schmidt.

Verbena bracteosa Michx.

Pentstemon attenuatus Dougl.

Pentstemon erianthera Pursh.

Pentstemon pruinosis Dougl.

Lonicera glaucescens Rydb.

Arnica arcana A. Nels.

Artemisia longepedunculata Rud.

Aster campestris Nutt.

Aster Geyeri (Gray) Howell.

Aster meritus A. Nels.

Bidens dentata (Nutt.) Wiegand.

Erigeron elatus (Hook.) Greene.

Euthamia occidentalis Nutt.

Helianthus Nuttallii T. & G.

Lactuca pulchella (Pursh) DC.

Petasites frigida (L.) Fries.

Senecio Howellii Greene.

Cryptantha Torreyana Greene.

Verbena hastata L.

Pentstemon Richardsonii Dougl.

Lonicera utahensis Wat.

Iva axillaris Pursh.



FANNIN'S MOUNTAIN SHEEP. *OVIS FANNINII* (HORNADAY).
(Type Specimen.) Provincial Museum, Victoria, B. C.

Cleome serrulata Pursh.

Boisduvalia stricta (A. Gray) Greene.

Angelica Lyallii Wats.

Senecio Burkei Greenman.

Stephanomeria minor Nutt.

The following plants were returned to the Provincial Grazing Commission, Department of Lands:—

Calamagrostis inexpansa Gray.

Elymus Macounii Casey.

Fluminea festucacea (Willd.) Hitchc.

Carex prægracilis W. Boott.

Bassia hyssopifolium (Pall.) O. Kuntze.

Orthocarpus (? *purpurascens* Benth.)

Plants presented by Dr. C. F. Newcombe, collected by him at Bella Coola, B.C., and other stations:—

Bella Coola.

Phegopteris polypodioides Fée.

Stellaria crispa C. & S.

Arabis ambigua DC.

Lupinus littoralis Dougl. Channel Islands off Oak Bay, Victoria, V.I., extending its distribution south; previous station for Vancouver Island being Comox; Macoun.

Sanicula marilandica L. Collected at Kitwanga, Skeena River, B.C., establishing a northern distribution for the occurrence of the plant in British Columbia.

As this Department has no previous record of the following plants having been collected in British Columbia, they are printed as additions to the Flora of this Province:—

Myrica californica Cham. Tofino, V.I. 1922. Collected by Captain J. W. Thompson.

Bassia hyssopifolium (Pall.) O. Kuntze. Kamloops, B.C., September 19th, 1920. Collected by G. V. Copley.

Boisduvalia stricta (A. Gray) Greene. Near Douglas Lake, B.C., August 19th, 1921. Collected by G. V. Copley.

Pentstemon attenuatus Dougl. Fort Steele, B.C., June 23rd, 1922. Collected by W. B. Anderson.

Mertensia subcordata Greene. Takla Lake, B.C., September 25th, 1921. Collected by W. B. Anderson.

Arnica arcana A. Nels. Fort George, B.C., August 14th, 1917. Collected by W. B. Anderson.

Senecio Howellii Greene. Windermere, B.C., June 16th, 1922. Collected by W. B. Anderson.

The following plants are supplementary additions to "The Flora of Vancouver and Queen Charlotte Islands, 1921" (introduced plants being printed in italics in conformity with the printing of the Check-list):—

Equisetum pratense Ehrh. Mountains, V.I. (Macoun's "Catalogue of Plants.")

Lycopodium sabinifolium Willd. Mount Arrowsmith, V.I.

Agrostis pallens foliosa (Trin.) Vasey. Vancouver Island, Macoun.

Polypogon Monspeliensis (L.) Desf. Victoria, V.I., Fletcher, Macoun.

Carex stipata Muhl. A common sedge along moist ditches, southern half of Vancouver Island.

Eriophorum Chamissonis albidum (Nyl.) Fernald. Vancouver Island. (Piper & Beattie's "Flora of the North-west Coast.")

Lazula Piperi Coville. Mount Arrowsmith, V.I.; previously listed as *L. glabrata*.

Allium attenuifolium Kellog. Maple Bay, Vancouver Island; (R. Glendenning) Alberni, Vancouver Island.

Myrica californica Cham. Near Tofino, west coast, Vancouver Island.

Papaver Rhoeas L. Vancouver Island, according to Britton & Brown.

Rhaphanus Rhaphanistrum L. Nanaimo, Vancouver Island, Macoun.

Mitella trifida Graham. Mount Arrowsmith, Vancouver Island.

Euphorbia Lathyrus L. Victoria. (Henry's "Flora of Southern B.C.")

Hydrocotyle umbellata L. Nanaimo, Vancouver Island, Macoun.

Datura Stramonium L. Saltspring Island (P. de Noe Walker), where it is becoming established in a wild state on old disused ground.

Hemizonella Durandi Gray. Vancouver Island. (Piper & Beattie's "Flora of the North-west Coast.")

Madia sativa capitata (Nutt.) Piper. Vancouver Island. (Piper & Beattie's "Flora of the North-west Coast.")

ORNITHOLOGY.

NOTES ON THE OCCURRENCE OF THE PLUMED EGRET (*MESOPHOYX INTERMEDIA*) IN BRITISH COLUMBIA, BY FRANCIS KERMODE.

In the year 1915 Mr. J. H. Fleming, of Toronto, visited the Museum and drew my attention to the snowy heron which we had labelled as *Egretta candidissima*, which had been secured by the late John Fannin at Burrard Inlet some years ago. Mr. Fleming kindly sent me in January, 1916, a skin of *Mesophoyx intermedia*, the Asiatic white heron, to compare with the one in this Department, as he was puzzled with regard to the exact species of our specimen.

Up to this time our specimen of this bird had always been acknowledged and looked upon as the American form *Egretta candidissima*, and, not having sufficient material for comparison, the matter had been left in abeyance for some time. However, in September, 1922, Mr. P. A. Taverner, the Dominion Government Ornithologist, visited the Museum and wished to see the specimen of snowy heron which had for so many years been recognized as *Egretta candidissima*. He took descriptions, measurements, and made drawings of the same to compare with the specimens in the Victoria Memorial Museum, Ottawa. Mr. Fleming had loaned me a skin of *Mesophoyx intermedia*, and in comparing with our bird they seemed identical. On October 17th, 1922, Mr. Taverner wrote me from Ottawa, as follows:—

"Regarding the Egret: Whatever this bird is, it is not one of our American species. As far as I can see, it is identical with Fleming's specimen, but I am not well enough up on Asiatic species to identify it as such with confidence. It should be sent somewhere where they have an ample foreign collection, and probably the United States National Museum would be the best place. Have compared the drawings and measurements I made in Victoria and am only convinced that we have nothing like it in our collection. The only question remains is just what it is and whether the data attached can be absolutely depended upon. Do you think it can? I understand that Mr. Fannin was not at his best during his later years and that errors may have crept in.—P. A. TAVERNER."

Mr. Allan Brooks also had correspondence with me in regard to this bird during the year 1922, and so as to have the identification of the specimen settled, I sent it on to the Biological Survey Department at Washington, D.C., asking Mr. W. C. Henderson, Acting-Chief, to have Dr. C. H. Oberholser examine the specimen and compare it with specimens in the National Museum. The reply which I received from Mr. Henderson, Acting-Chief, Bureau of Biological Survey, is as follows (dated January 16th, 1923):—

"The three specimens that you sent some time ago for examination by Dr. Oberholser have been duly identified, and are being returned to you by express collect. The names you will find on the labels of the specimens. The heron turns out to be *Mesophoyx intermedia* in full breeding plumage. If the data on this bird are authentic and there is no reasonable doubt of its being the specimen originally taken on Burrard Inlet, it would prove to be an interesting addition to North American birds. We should be glad to have your opinion regarding this, as it is a matter of considerable interest in our work on the distribution of North American birds.—W. C. HENDERSON."

In regard to the dispute which seems to have arisen with reference to this bird being the specimen secured by the late John Fannin at Burrard Inlet, May 29th, 1879, I have looked up all records that I can find and have found a list in his own hand-writing by John Fannin of "Birds collected prior to 1886." In this list he records the little white heron, May 29th, 1879, Burrard Inlet. I have known this bird since September 25th, 1890, as it was in a case in the Museum when I first entered the Provincial Government service in this Department; and, furthermore, I have since looked up photographs taken by Mr. Albert H. Maynard, of this city, in the years 1890-91, and this specimen appears in the case. It has been suggested that probably the late Mr. Fannin had taken and duplicated the record of this bird with a skin purchased from a commission agent in this city years ago. This idea has been proved incorrect, as this bird had been recorded in the late John Fannin's "Check-lists of B.C. Birds," also in Montague Brown's "List of the Birds of Canada in 1887." In speaking to me about this bird years ago, Mr. Fannin always informed me that it had been shot at Burrard Inlet by an Indian. I have also endeavoured to get in touch with people who knew Mr. Fannin at Burrard Inlet since 1862, when he first arrived in British Columbia. Besides getting the information in the "Check-lists of the Birds prior to 1886," and the fact that Mr. A. H. Maynard told me he remembered

this bird when he worked in the Department prior to my joining the service, I did not obtain any more information concerning it for some time.

However, on January 24th, 1922, Captain Oliver G. Harbell, an old personal friend of the late John Fannin, happened to call at my office, and knowing that he knew Mr. Fannin for many years, I asked him when they first became acquainted. Captain Harbell said that he arrived in Victoria on October 13th, 1875, from St. John, N.B., and after being here a few days he went over to Burrard Inlet and was living at Moodyville (opposite where the City of Vancouver is to-day), and about this time he made the acquaintance of Mr. Fannin. After a few more questions I asked him about the collection of birds Mr. Fannin had, and if he remembered what white birds were in the collection. He informed me that the only white bird he could remember was a white heron that had been killed by an Indian on the shores of Burrard Inlet in the latter part of May, 1879. He secured this bird from the Indian, and knowing that Mr. Fannin was desirous of obtaining all the specimens possible, he carried it over to Granville, on the southern side of Burrard Inlet (now the City of Vancouver), to Mr. Fannin, who mounted it and added it to his private collection.

The following is a copy of a letter that Captain Oliver G. Harbell has written me under his own signature, and I think this should settle, once and for all, any doubts concerning the occurrence of the plumed egret (*Mesophoyx intermedia*) as an accidental visitant in British Columbia, and not only is it an addition to the "List of British Columbia Birds," but also a record of an addition to the "Birds of North America":—

"VICTORIA, B.C., January 24th, 1923.

"F. Kermode, Esq.,

Director, Provincial Museum, Victoria, B.C.

"I, Oliver G. Harbell, of Victoria City, do hereby declare I am the person who secured the specimen of white heron (*Mesophoyx intermedia*) from an Indian at Burrard Inlet in the latter part of May, 1879. At the time I was living at Moodyville. The bird was freshly killed and I took it across the inlet to Granville and gave it to John Fannin, who skinned and mounted the specimen for his own private collection. This was prior to his becoming Curator of the Provincial Museum at Victoria, B.C.

"The late Mr. John Fannin, after being appointed Curator of the Provincial Museum at Victoria for the Provincial Government, moved all his private collection to Victoria, to form the nucleus of the Museum. The specimen in the Museum to-day is the same one that I gave the late John Fannin.

"(Signed) OLIVER G. HARBELL."

NOTES ON THE ICELAND GULL (LARUS (LEUCOPTERUS?).)

In the Annual Report for the year 1920 note was made of the capture of two specimens of the white-winged gull at Kildonan, on Barkley Sound, by William McKay. As some exceptions have been taken to the classification of these gulls, Mr. P. A. Taverner while here in September, 1922, examined these two specimens and made sketches for comparison with the birds in the Victoria Memorial Museum, Ottawa. Mr. Taverner wrote me from Ottawa on October 17th, 1922, as follows:—

"Your specimens are practically identical with two specimens we have from the Arctic Coast of Alaska that Dwight examined and pronounced *leucopterus*. However, he admits that his only distinction between *leucopterus* and *hyperboreus* is size, and these birds just come within the limits as laid down by him. He is assuming, therefore, that *hyperboreus* never gets smaller than his determined minimum and that anything smaller must of necessity be *leucopterus*. To admit anything else would make his position on the form *L. h. barrovianus*, on which he has stated himself very strongly, untenable.

"From my experience I do not think that ornithologists generally realize how great the size variation is in these large gulls. In the glaucous-winged especially the extremes are comparatively enormous, and considerably more than would account for the linking of these small and large *hyperboreus*. I see no reason for separating specifically these small white-winged gulls from the larger *hyperboreus*.—P. A. TAVERNER."

I sent these two birds to Mr. W. C. Henderson, Acting-Chief, Biological Survey, Washington, D.C., asking that Dr. C. H. Oberholser be given them for determination, who returned them labelled as *barrovianus*.

Upon looking up records, I find *barrovianus* is not now accepted by the A.O.U. and is not in their Check-list of 1910. Mr. Robert Ridgway, in his latest book on "Birds of North and Middle America," records the bird he describes as *L. barrovianus* in "The Auk," July, 1886, as a synonym of *L. hyperboreus*. He also lists the bird taken by Allan Brooks at Comox under *L. hyperboreus*, and has dropped *barrovianus*.

According to A. C. Bent, in the "Life Histories of North American Gulls and Terns," page 60: "Many years ago Mr. Ridgway (1886) described the glaucous gulls of the coasts of Alaska and adjacent waters as a new species under the name *Larus barrovianus*, the size and shape of the bill being the chief distinguishing character. Twenty years later Doctor Dwight (1906) argued that this species was untenable, and it was removed from the Check-list. Recently, however, Dr. H. C. Oberholser (1918) has resurrected *barrovianus*, as a subspecies of *hyperboreus*, on the claim that the Alaska bird is smaller and has a darker mantle than the birds from Greenland or from Europe. Whether this claim is well founded or not, it is apparently a fact that the characters he ascribes to the Alaska bird hold true in a large majority of the specimens, though there are some exceptions to the rule. Doctor Dwight, however, still maintains that the proposed race is unworthy of recognition in nomenclature."

Until some of these disputes are cleared up, as far as I can see this Department will have to recognize these birds as the Iceland gull (*Larus leucopterus*), as they do not come within the size of hyperboreas, and I cannot place them elsewhere.

NOTES ON THE OCCURRENCE OF THE WHITE PELICAN (*PELECANUS ERYTHORHYNCHOS*).

Pelicans are not very commonly found in British Columbia, although two species occur. A fine specimen of the white pelican (*Pelecanus erythrorhynchos*) was secured by Mr. Jack Bessonette at Macaulay Point, Rod Hill, Victoria, and presented to the Museum on October 10th, 1922.

A number of these white pelicans have been taken at different times in the Interior of the Province, but not many on the Coast, although we have had a specimen from Comox. The farthest northern record I have on the Coast is the specimen in the Museum taken at Port Essington, on the Skeena River.

NOTES ON THE OCCURRENCE OF THE BROWN PELICAN (*PELECANUS CALIFORNICUS*).

Several California brown pelicans (*Pelecanus californicus*) have been taken in this Province; two specimens in the vicinity of Victoria, one near Race Rocks, the other in Esquimalt Harbour, and both these specimens are now in the Provincial Museum. The farthest northern record of this bird in British Columbia was recorded at Burrard Inlet by the late John Fannin.

ENTOMOLOGY.

By E. H. BLACKMORE, F.E.S.

The past season has been the most remarkable one from a weather standpoint that we have had for over thirty years. With the exception of a few showery days, we practically had no rain from April to August, the actual precipitation for the five months being 1.94 inches, most of this being in the beginning of April and the end of August.

The sunshine for the year showed 134 hours above the average annual amount. During the five months, April to August, there were 1,425 hours of sunshine, giving an average of 9½ hours daily. The above figures are for Victoria and vicinity only, although similar conditions prevailed throughout the Province, varying according to the locality.

It is hard to determine exactly what effect this abnormally dry weather had on insect-life in general, but the one fact which stood out most clearly was the remarkable scarcity of noctuid moths throughout the whole season. Reports from many points in Southern British Columbia showed the same state of affairs. In the early spring insects of all kinds were very scarce, but as the season wore on geometers and micros were more plentiful, although many species which are usually common were apparently scarce.

A much greater interest has been shown in entomology during the past two years, especially among the younger collectors, and the Museum collections are in frequent demand for the purposes of identification.

ACKNOWLEDGMENTS.

We wish to thank the following specialists for their kindness in determining material submitted to them during the past season: Dr. W. Barnes, Foster H. Benjamin, August Busck, Carl Heinrich, Dr. J. McDunnough, W. Schaus, and L. W. Swett.

BRITISH COLUMBIA INSECTS NEW TO SCIENCE.

The following forty-six insects from British Columbia have been described as new to science since last year's Museum Report was written. They include fifteen species of Lepidoptera, four species of Coleoptera, three species of Hymenoptera, twenty-three species of Diptera, and one species of Hemiptera.

LEPIDOPTERA.

The fifteen species of Lepidoptera are distributed amongst the various families as follows: Noctuidæ, 2; Notodontidæ, 1; Geometridæ, 6; Cœcophoridæ, 1; Eucosmidæ, 1; Tortricidæ, 1; Glyphipterygidæ, 1; Yponomeutidæ, 1; and Cygnodoidea, 1.

Noctuidæ (Cucullinæ).

Oncocnemis youngi McDunnough. Described (Can. Ent., Vol. 54, page 236, Oct., 1922) from a single female specimen taken by Mr. C. H. Young at the Biological Station, Departure Bay, B.C.

Oncocnemis columbia McDunnough. Described (Can. Ent., Vol. 54, page 237, Oct., 1922) from a single male specimen taken by Dr. W. R. Buckell at Salmon Arm, B.C.

Notodontidæ.

Cerura occidentalis gigans McDunnough. Described (Can. Ent., Vol. 54, page 139, June, 1922) from specimens taken at Pine Creek, near Calgary, Alta., by the late F. H. Wolley Dod. A single specimen from Kaslo, B.C., is also apparently included in the paratypes. I have two specimens from Rossland, B.C., and one from Trail, B.C., taken by the late W. H. Danby, which agree perfectly with Dr. McDunnough's description of *gigans*. They were labelled in my collection as *occidentalis* Lint. I have two others also from Rossland which I cannot separate from Victoria specimens of *scolopendrina* Bdv.

Geometridæ.

Eupithecia stikineata Cassino & Swett. Described (The Lepidopterist, Vol. 3, Nos. 6-7, page 146, Feb., 1922) from two males and two females taken by Mr. Theodore Bryant at Stikine River, B.C., in June, 1905. This species belongs to the *vancouverata-grafl* group, but is quite distinct from the former. It differs from *vancouverata* in the more pointed wings, in its lighter coloration, and in the general arrangement of the transverse lines; *grafl* I do not know.

Eupithecia cenataria Cassino & Swett. Described (The Lepidopterist, Vol. 3, Nos. 6-7, page 147, Feb., 1922) from a series of rather worn specimens taken by the writer at Goldstream, B.C., on September 5th-7th, 1920.

Eupithecia scabrogata form *gilvipennata* Cassino & Swett. Described (The Lepidopterist, Vol. 3, Nos. 6-7, page 147, February, 1922) from a single male specimen taken by Mr. Theodore Bryant at Wellington, B.C., on May 9th, 1902.

Xanthorhœ incursata race *harveyata* Cassino & Swett. Described (The Lepidopterist, Vol. 3, No. 8, page 157, March, 1922) from specimens taken by the late Captain R. V. Harvey at Vancouver in July, 1904.

Xanthorhœ aquilonaria Cassino & Swett. Described (The Lepidopterist, Vol. 3, No. 8, page 158, March, 1922) from specimens taken by E. M. Anderson at Atlin, B.C., in June, 1914.

Xanthorhœ ramaria race *delectaria* Cassino & Swett. Described (The Lepidopterist, Vol. 3, No. 9, page 159, April, 1922) from specimens taken at Atlin, B.C., by E. M. Anderson in June, 1914. Further notes on these new species of Geometridæ will be found under the heading of "Illustrated Lepidoptera" and figures of the same are illustrated on Plate VI.

Cœcophoridæ.

Agonopteryx blackmori Busck. Described (Can. Ent., Vol. 53, page 277, Dec., 1921) from specimens bred by the writer at Victoria in June, 1918. A figure of one of the co-types will be found on Plate VI., and further remarks on the species under "Illustrated Lepidoptera."

Eucosmidæ.

Argyroploce buckellana McDunnough. Described (Can. Ent., Vol. 54, page 43, Feb., 1922) from a single male specimen taken by Dr. W. R. Buckell at Salmon Arm on May 28th. This species belongs to the *capreana-nimbatana* group of this genus.

Tortricidæ.

Cacæcia victoriana Busck. Described (Can. Ent., Vol. 53, page 278, Dec. 1921) from three specimens taken by the writer at Victoria and Goldstream, B.C. A note on this species will be found under "Illustrated Lepidoptera," together with a figure of the species on Plate VI.

Glyphipterygidæ.

Hilarographa youngiella Busck. Described (Can. Ent., Vol., 53, page 278, Dec., 1921) from two specimens, one taken by Mr. C. H. Young at Departure Bay, B.C., and the other by Mr. W. Downes at Victoria, B.C. During the present season Mr. W. R. Carter took a small series of this new species at Esquimalt, near Victoria, on August 7th-10th, and Mr. L. E. Marmont also took a few specimens at Maillardville in July. This species is interesting from the fact that it is the first record of the genus *Hilarographa* from North America. It is very similar in appearance to *Laspeyresia vancouverana* Kearf. (Eucosmidæ), but the venation of the wings and the antennal structure at once separate it from that family.

Yponomeutidæ.

Argyresthia monochromella Busck. Described (Can. Ent., Vol. 53, page 279, Dec., 1921) from four specimens taken by the writer at Victoria on April 20th-22nd, 1921.

Cygnodoidea.

Aphelosetia cygnodiella Busck. Described (Can. Ent., Vol. 53, page 280, Dec. 1921) from specimens taken by Mr. W. Downes at Victoria, B.C., on April 26th, 1920.

COLEOPTERA.

Cicindelidæ.

Cicindela wallisi Calder. Described (Can. Ent., Vol. 54, page 62, March, 1922) from two specimens taken by Mr. J. B. Wallis at Penticton, B.C., on August 13th, 1909. This new species was originally described under the name of *azurea*, but owing to this name being preoccupied it was changed (*ibidem* page 191, Aug., 1922) to *wallisi*.

Carabidæ.

Elaphus clairvillei form *frosti* Hippisley. Described (Can. Ent., Vol. 54, page 63, March, 1922) apparently from a single specimen taken by Mrs. W. W. Hippisley at Terrace, B.C.

Buprestidæ.

Pæcilonota fraseri Chamberlin. Described (Journ. N.Y. Ent. Soc., Vol. 30, page 64, March, 1922) from two male specimens, one of which was taken by a Mr. Weldt on the Fraser River, B.C., but without date or exact locality. The other specimen was taken on June 5th, 1909, but bears no locality label other than "Canada" and was received by the author through Dr. J. Swaine.

Cerambycidæ.

Leptura aspera form *parkeri* Hippisley. Described (Can. Ent., Vol. 54, page 66, March, 1922) from Terrace, B.C. Probably described from a single specimen taken presumably by the author, but neither date of capture, number of specimens, nor collector's name is given.

HYMENOPTERA.

Ichneumonidæ (Pimplinæ).

Phytodietus fumiferanæ Rohwer. Described (Can. Ent., Vol. 54, page 155, July, 1922) from one male and two females bred by Mr. A. B. Baird at Lillooet, B.C. This is a new parasite of the spruce-bud worm (*Harmoloba fumiferana*) and was reared from cocoons collected by Mr. Baird on July 11th, 1919.

Braconidae (Microgasterinae).

Apanteles caudatus Muesbeck. Described (Pro. U.S. Nat. Mus., Vol. 61, page 16, 1922) from eight specimens, three of which are from the type locality, Carbonate, B.C. These specimens were collected by Dr. J. C. Bradley on July 7th-12th, 1908, at an altitude of 2,600 feet. The other specimens are from Cheyenne, Wyoming (1); Mica, Washington (3); and Yellowstone Lake, Montana (1).

Apanteles olenidis Muesbeck. Described (Pro. U.S. Nat. Mus., Vol. 61, page 18, 1922) from nine male and fourteen female specimens bred from *Olene vagans* B. & McD. by Mr. E. P. Venables at Vernon, B.C. All the species of the genus *Apanteles* are parasitic on the larvæ of butterflies and moths and cover the infested caterpillar with their oval white cocoons.

DIPTERA.

Tipulidae.

Alexandriaria (gen. nov.) *suffusca* Garrett. Described (Pro. Ent. Soc., Wash., Vol. 24, page 60, Feb., 1922) from one male and one female specimen taken by Mr. C. B. Garrett at Cranbrook, B.C., on October 9th, 1920.

Alexandriaria intermedia Garrett. Described (Pro. Ent. Soc., Wash., Vol. 24, page 60, Feb., 1922) from two males and one female taken at Cranbrook, B.C., by Mr. Garrett in July, 1920.

Alexandriaria kooteniensis Garrett. Described (Pro. Ent. Soc., Wash., Vol. 24, page 61, Feb., 1922) from a single male taken by Mr. Garrett at Cranbrook on July 15th, 1920.

Chionea alexandriana Garrett. Described (Pro. Ent. Soc., Wash., Vol. 24, page 62, Feb., 1922) from one male and five female specimens. Five of the specimens were taken by Mr. Garrett at Cranbrook, B.C., in February, 1920 and 1921. The other was taken by a trapper on the hills near Canal Flats, Kootenay Valley.

Blepharoceridae.

Bibliocephala canadensis Garrett. Described (Ins. Ins. Mens., Vol. 10, page 89, April-June, 1922) from fifteen specimens taken at Wilson Creek near Michel, B.C., at an altitude of 5,000 feet, by Mr. Garrett in August and September.

Bibliocephala kellogi Garrett. Described (Ins. Ins. Mens., Vol. 10, page 91, April-June, 1922) from a single specimen taken by Mr. Garrett at Cranbrook, B.C., on July 13th, 1921.

Tabanidae.

Tabanus laniferus McDunnough. Described (Can. Ent., Vol. 54, page 239, Oct., 1922) from thirteen specimens taken at Banff, Alta., and various points in British Columbia. The type locality is Banff and the British Columbia localities are Hector, Mount Cheam, and Lillooet.

Syrphidae.

Melanostema squamulae Curran. Described (Can. Ent., Vol. 53, page 275, Dec., 1921) from five specimens taken at Victoria, B.C., in April and May. The collector's name is not given.

Toxomerus occidentalis Curran. Described (Can. Ent., Vol. 53, page 258, Nov., 1921) from forty-two specimens taken in California, Oregon, and British Columbia. The holotype male was taken by Mr. W. Downes at Victoria, B.C., on May 5th, 1919.

Cynorhina robusta Curran. Described (Can. Ent., Vol. 54, page 14, Jan., 1922) from a single female from British Columbia. No further data are given.

Cynorhinella (gen. nov.) *canadensis* Curran. Described (Can. Ent., Vol. 54, page 15, Jan., 1922) from a single male taken by the Rev. J. H. Keen at Inverness, B.C., in July, 1910.

Mallota columbiæ Curran. Described (Can. Ent., Vol. 54, page 16, Jan., 1922) from a single female taken by Mr. R. C. Treherne at Penticton, B.C., on June 5th, 1919.

Brachypalpus apicaudus Curran. Described (Can. Ent., Vol. 54, page 119, May, 1922) from a single male specimen taken by Mr. C. B. Garrett at Cranbrook, B.C.

Tachinidae.

Lydella hyphantriae Tothill. Described (Technical Bulletin No. 3, page 43, Dept. Agriculture, Ottawa, 1922) from four specimens bred at Agassiz, B.C.

It is a grey fly with clear wings and is a new parasite on the fall web-worm (*Hyphantria cunea* Drury). It may not be out of place to make a few remarks on this particular bulletin

of the Dominion Department of Agriculture, as it is an exceedingly valuable contribution to our economic literature.

The Bulletin is entitled "The Natural Control of the Fall Web-worm in Canada, together with an Account of its Several Parasites." It comprises 107 pages, with many text illustrations. In addition, there are six beautiful plates containing figures of the various adult parasites with their cocoons, and also several other plates showing the anatomical structure of the larvæ.

The work is written by Dr. John D. Tothill and is the result of eight years' intensive study, in which he was ably assisted by Mr. A. B. Baird. The control-work was carried on in three different Provinces—in New Brunswick from 1912 to 1918, in Nova Scotia from 1916 to 1918, and in Southern British Columbia from 1917 to 1919.

Ernestia frontalis Tothill. Described from two males, one taken by Mr. Harrington at Yukon River, Alaska, and the other by Mr. C. B. Garrett at Cranbrook, B.C.

Ernestia johnsoni Tothill. Described from four males, three from Massachusetts and one from Fry Creek, B.C. Dates of capture and collectors' names not given.

Ernestia nigropalpis Tothill. Described from eleven males taken at Stikine River, B.C. (type locality) (Mr. Wickham); Savary Island, B.C. (R. S. Sherman); and Franconia, N.H. (C. H. Townsend).

Ernestia platycarina Tothill. Described from ten males taken at Savary Island, B.C. (R. S. Sherman); Bear Lake, B.C. (A. N. Caudell); Franconia, N.H. (C. H. Townsend); and Virginia.

Ernestia sulcocarina Tothill. Described from ten males taken at Cranbrook, B.C. (C. B. Garrett); Lillooet, B.C. (A. B. Baird); and Husavick, Man. (J. B. Wallis).

Ernestia bicarina Tothill. Described from four males taken at Bear Lake, B.C.; Boseman, Mon.; and Tennessee Pass, Colo.

The above six species were described by Dr. Tothill in his "Revision of the Nearctic species of the genus *Ernestia*," which appeared in the Canadian Entomologist (Sept., Oct., Nov., and Dec., 1921).

Helomyzidæ.

Leria serrata form *nigricana* Garrett. Described (Ins. Ins. Mens., Vol. 10, page 176, Oct.-Dec., 1922) from a single female taken by Mr. C. B. Garrett at Cranbrook on June 4th, 1921.

Leria serrata form *vinus* Garrett. Described (Ins. Ins. Mens., Vol. 10, page 177, Oct.-Dec., 1922) from seven specimens taken by Mr. Garrett at Cranbrook and Michel.

Ephydridæ.

Trimerina adfnis Cresson. Described (Ent. News, Vol. 33, page 137, May, 1922) from a single female taken at Kaslo, B.C., by Mr. R. P. Currie.

HEMIPTERA (HETEROPTERA).

Miridæ.

Labops hirtus Knight. Described (Can. Ent., Vol. 54, page 258, Nov., 1922) from a large number of specimens taken in a wide range of localities throughout Canada and the United States, including three specimens from Chilcotin, B.C., captured by Mr. E. R. Buckell on July 25th, 1920.

Labops tumidifrons Knight. Described (Can. Ent., Vol. 54, page 259, Nov., 1922) from five specimens taken by Mr. R. C. Treherne at Chilcotin, B.C., on June 15th, 1920.

LEPIDOPTERA NOT PREVIOUSLY RECORDED FROM BRITISH COLUMBIA.

The following thirteen species are new records for the Province and were all taken by Dr. W. R. Buckell, of Salmon Arm, B.C., who has added considerably to our knowledge of British Columbia Lepidoptera by his persistent and careful collecting during the past few years. In a few days' vacation, spent with his nephew, Mr. E. R. Buckell, at Nicola Lake, he was successful in securing at least four new records. There are in his collection other apparently new species, but these have not as yet been definitely determined.

Noctuidæ.

1072. *Melicleptria perminuta* Hy. Edw. One specimen taken at Nicola Lake, B.C., June 18th, 1922. This is a good record and is very rare in collections. It was described by Hy. Edwards in 1881 from specimens taken in the Sierra Nevadas, Cal.

1275. *Euvoa infracta* Morr. Taken at Salmon Arm, B.C. Described in 1875 from Colorado and Texas.

1659. *Polia detracta* Wlk. Two specimens taken at Salmon Arm, one on July 9th, 1921, and the other on June 28th, 1922. This is the first authentic record of *detracta* that we have had. The specimens listed from Kaslo under that name are not typical *detracta*, but are nearer to the form *neoterica* Sm., the colours being darker and less diversified, although the insect is as large as *detracta*. *Neoterica* from Alberta and Saskatchewan is smaller. I have listed the Kaslo specimens under the latter name.

1665. *Polia purpurissata* Grt. Taken at Salmon Arm. We are glad to have this record, as although it was listed in the 1906 Check-list it was very doubtful if the typical form occurred in the Province. The specimen recorded as such from Atlin, B.C., was in the Bryant collection, and it is undoubtedly the form *crydina* described (Pro. U.S.N.M., Vol. 27, page 840, 1904) by Dyar from Kaslo, B.C. Our lists should now read:—

Polia purpurissata Grt. Salmon Arm.

Polia purpurissata form *juncimacula* Sm. Rossland.

Polia purpurissata form *crydina* Dyar. Kaslo, Atlin, Salmon Arm, and Vancouver Island.

The three forms are very close to each other, and although the difference can scarcely be put into words they are somewhat easily separated by their general habitus.

* *Polia subjuncta* race *eleonora* B. & McD. A single specimen taken at Nicola Lake on June 18th, 1922. This is another very interesting record, as it was described (Cont. Lep. No. Amer., Vol. 4, No. 2, page 95, May, 1918) from eight specimens taken at Nellie, Palomar Mountain, Southern California. It differs from typical *subjuncta* in the generally lighter and greyer colour and the almost entire absence of the caraneous shades. The typical form has a very wide distribution, ranging from the Atlantic States to British Columbia and then south to California.

1708. *Polia meodana* Sm. One specimen taken at Nicola Lake on June 17th, 1922. This is very close to *liquida* Grt., but lacks the latter's bright colours and is a rather dull-looking insect. Dr. McDunnough thinks that it is probably only a form of *liquida*.

1941b. *Cirphis insueta* race *dia* Grt. Taken at Nicola Lake on June 18th, 1922. This is very close to our common Vancouver Island form *heterodoxa* Sm. They are both races of the Eastern *insueta*. *Dia* was described as a good species from California.

2160. *Graptolitha tepida* Grt. Several specimens taken at Salmon Arm. It flies at the end of September and is an inhabitant of the Atlantic States.

2215, 1. *Conistra fringata* B. & McD. Taken at Salmon Arm on October 9th, 1921. Further remarks on this species will be found under the heading of "Illustrated Lepidoptera."

2223. *Parastictis decipiens* Grt. Three specimens taken at Salmon Arm. The type is in the British Museum and was described by Grote in 1881 from specimens taken in Northern Indiana.

3187. *Zale benesignata* Harv. Taken at Salmon Arm on May 24th, 1921. (See "Illustrated Lepidoptera.")

**Autographa interalia* Ottolengui. Taken at Salmon Arm. This is an interesting record as the species has only been described comparatively recently (Jour. N.Y. Ent. Soc., Vol. 27, page 123, June-Sept., 1919). It was described from two females taken by Mr. K. Bowman at Nordegg, Alta. A very-much-worn male specimen was also taken by Dr. Ottolengui at Banff, Alta. It is probably only a Western race of *alia* Ottol., the latter being a common species throughout the Atlantic States.

Geometridæ.

3802. *Synchlora rubrifrontaria* Pack. One specimen taken at Salmon Arm. This record brings our list of species in the subfamily Hemithinæ up to seven. It is the prettiest of our "greens," the white transverse lines being distinctly scalloped or wavy. The species was described by Packard in 1873 from four specimens taken in New York State and Central Missouri.

RARE AND UNCOMMON LEPIDOPTERA TAKEN IN BRITISH COLUMBIA DURING 1922.

Victoria.—It has been the worst year for Macrolepidoptera that I have known in my twelve years' collecting here. Scarcely anything of note has been captured in this vicinity. A specimen of *Annaphila decia* Grt. was taken by Master Lewis Clarke, and the writer took a specimen of *Hydriomena renunciata columbiata* Taylor on April 30th. This is not by any means a common species, as only occasional specimens are taken. I also captured a nice series of *Cosymbria dataria* Hulst. on Mount Tolmie in May.

Saanichton.—This year we have the pleasure in welcoming to our ranks two enthusiastic collectors in the persons of the Hon. J. G. Colville and Captain J. Wise. Commencing in April, these two gentlemen, with the assistance of the Hon. A. Colville, collected continuously every suitable evening until the middle of October. Their combined efforts have resulted in forming the nucleus of a fine collection. The majority of their captures were made at "light" and included a number of very desirable species, the most interesting of which are as follows: *Euxoa divergens abar* Streck. A single specimen taken on June 6th. This is a most interesting capture, as our only previous record of this form is a couple of specimens taken at Duncan many years ago by the late E. M. Skinner; *Aplectoides occidentis* Hamps. (see "Illustrated Lepidoptera"); *Acronycta illita* Sm.; *Arzama obliqua* Wlk.; a fine female specimen of this uncommon species was taken on July 5th; *Autographa speciosa* Ottol. Amongst the Geometridæ the best captures are *Lygris atrifasciata* Hulst; *Dysstroma sobria ochrofuscaria* Swett; several specimens were taken in June. It is rather an uncommon species, as with the exception of a worn specimen taken in 1920, these are the first records that I have had since it was described in 1917 (Can. Ent., Vol. 49, page 70). *Dysstroma walkercrata* Pears; this is one of the rarest of our species in this genus. Mr. Cockle has taken it at Kaslo and I have a single specimen taken on Mount Arrowsmith, Vancouver Island. *Caripeta equiliaria* Grt.; *Cleora latipennis* Hulst.; and a single male specimen of *Sabulodes cervinaria* Pack.

Duncan.—In this district noctuids have been scarce, but geometers have been fairly abundant, although they were mostly of the common kinds.

Mr. G. O. Day took three fine specimens of *Dysstroma ethela* Hulst. in July. A figure of this beautiful species was given in Report, Prov. Mus., 1921, Plate IV. Mr. A. W. Hanham's best captures were *Heliothis phloxiphaga* G. & R. (rare on Vancouver Island, but taken more frequently in the Interior); *Agrotis havilæ* Grt. (very rare); *Polia sutrina* Grt. (rare), the first specimen taken here for many years; *Polia pulverulenta* Sm. (uncommon); *Autographa brassicæ* Riley; two specimens taken on flower-blossoms on August 25th. Although this species is common throughout the continent, it is rare in British Columbia. Mr. Hanham's capture is the first record from Vancouver Island, and I believe Mr. Cockle, of Kaslo, has also taken one or two specimens.

Maillardville.—Mr. L. E. Marmont reports a very poor season on the whole, although he has taken a few very good things, chief amongst them being a single specimen of that very rare aretid *Aemilia roseata* Wlk. (see "Illustrated Lepidoptera"). *Papaipema insulidens* Bird; this is the first record from the Mainland (see "Illustrated Lepidoptera"); *Ercmobia claudens albertina* Hamp.; *Autographa metallica* Grt. (first record from this district). Amongst the Geometridæ were *Cleora albescens* Hulst. (two fine specimens); *Gabriola dyari* Taylor; and two specimens of *Plagodis approximaria* Dyar; this is rather a rare species and has only previously been recorded from Duncan, Kaslo, and Trail, but this year we have had it recorded from Agassiz and Vavenby as well. While spending a week with Mr. Marmont in June, the writer was successful in capturing a specimen of *Futhyatira semicircularis* Grt. (see "Illustrated Lepidoptera"), a fine specimen of *Eustroma nubilata macdunnoughi* Blackm., and a specimen in good condition of *Euphyia luctuata obductata* Moesch, the first that I have ever taken.

Nicola Lake.—During the past season Mr. E. R. Buckell, Assistant Entomologist of the Provincial Department of Agriculture, has been stationed in this locality investigating the grasshopper situation. In addition to his regular duties he has made a small collection of Lepidoptera, some of which are of more than ordinary interest. *Euxoa murdocki* Sm.; this rather handsome noctuid is exceedingly rare in British Columbia; in fact, the only other record of it that I have is a specimen taken some years ago by Mr. A. W. Phair at Lillooet. Dr. J. B. Smith (Bull. 44, U.S.N.M., Cat. Noctuidæ, 1893) gives Utah, North-west British Columbia, Oregon, and Colorado as localities for *murdocki*, but it is almost certain that his North-west British Columbia relates to Alberta. *Oncocemis umbrifascia* Sm.; this rather delicate species is also very rare. It is the third specimen that I have had recorded from the Province, the first being taken by Mr. Phair at Lillooet, and the second by Mr. W. B. Anderson at Fort Steele. *Xylena thoracia* Put-Cram; *Trachea inordinata montana* Sm.; a single specimen taken on June 13th. Our previous records are Chilcotin (E. R. Buckell) and Vernon (M. Ruhmann). *Gortyna obliqua* Harv.; a single specimen of this rather rare species was taken on August 29th. I have seen single specimens from Duncan (A. W. Hanham), Kaslo (J. W. Cockle), and Armstrong (W. Downes).

Marron Lake.—This locality is situated about 12 miles south-east of Penticton, and would doubtless yield rich returns if persistent collecting were carried on throughout the whole season. Mr. C. de Blois Green, who is now resident in this district, collected a little material in July. Amongst his captures were *Lampra placida* Grt., a beautiful red specimen, unlike any other that I have seen, but undoubtedly referable to this species, which is at present in a state of evolution; *Polia illaudabilis restora* Sm.; *Caradrina extima* Wlk.; and *Sarothrips revayana cinereana* N. & D. In the Geometridæ, *Acidalia ancillata* Hlst. and *Itame plumosata* B. & McD. were the best.

Vavenby.—Mr. T. A. Moilliet and his son Ted again collected a very large amount of material in this locality. Although a great deal of it was a duplication of species taken the year before, nevertheless a very fair percentage represented species not previously recorded from this district. We have one or two species not yet definitely determined, which may eventually turn out to be new to the Province. The following is a list of the most desirable species taken:—

Amongst the diurnals was a specimen of *Eurymus nastes streckeri* Grt. taken at an altitude of 6,000 feet; *Oeneis macouni* Edw., taken on June 5th; this is a very good record, as it is apparently a very rare species in British Columbia. I have only seen one other authentic specimen and that was taken at Armstrong (W. Downes), although I have a record of a specimen being taken at Enderby (J. Wynne), which is in the same general locality. *Hesperia centaureæ* Ramb.; two specimens of this rare skipper were taken on July 14th at an altitude of 6,000 feet, one of them being in beautiful condition. The only previous records for the Province are a single specimen captured at Atlin (E. M. Anderson) in 1914 and one or two specimens taken by the late Wolley Dod at Windermere. Owing to the poorness of the season the noctuids did not make as good a showing as last year. A short series of *Polia negussa* Sm. was taken, our previous records of this species being from Rossland and Vernon; *Polia segregata* Sm., a single specimen; it is quite possible that *negussa*, *segregata*, together with *gussata* Sm., are only varietal forms of the same species. Three specimens of *Perigrapha algula* Sm. and one *P. achsha* Dyar were taken. We are glad to get these as there has been some confusion in the determination of these rather uncommon species. A figure of each is given on Plate V. and further remarks will be found under "Illustrated Lepidoptera." In the Notodontidæ a single specimen each of *Gluphisia septentrionalis* Wlk. and *G. septentrionalis quinquelinea* Dyar was taken. These are both good records and are figured on Plate V., with additional remarks under "Illustrated Lepidoptera." Three specimens of *Gluphisia severa danbyi* Neum were taken between April 20th and 26th. Amongst the Geometridæ the following are worthy of note: *Itame epigenata* B. & McD., an uncommon species and previously recorded from Kaslo (Cockle) and Mount McLean (Day & Hanham). A figure of this species was given in the Report, Prov. Mus., 1920, Plate I. *Itame denticulodes* Hulst. (see "Illustrated Lepidoptera"); *Spodolepsis substriatana danbyi* Hulst.; a long series of this species was taken in the last week of April. It shows a very wide range of variation; in some specimens the transverse markings and median band stand out in striking contrast, while in others they are nearly obsolete and give the insect a nearly unicolorous appearance. *Lycia ursaria* Wlk.; a single specimen of this uncommon species was taken on April 25th. Mr. Cockle has taken it at Kaslo and our only other record is a specimen taken by the late W. H. Danby at Rossland in 1900. An illustration of this species was given in Report, Prov. Mus., 1918, Plate II. *Plagodis approximaria* Dyar; a good record and extends our knowledge of the distribution of this rather rare species in the Province. *Erannis vancouverensis* Hulst.; a single rather worn specimen taken in November. A rather unexpected record, as, with the exception of a few odd specimens taken at Kaslo, I have no record of its appearance outside of Vancouver Island and the Lower Fraser Valley.

Kaslo.—Mr. Cockle reports a very poor season and very little of anything has been taken. His best capture was a specimen of *Autographa bimaculata* Steph.; this species is rare in the Province and is the first record from this district. I have a specimen labelled Victoria, B.C., 1890, but cannot vouch for the authenticity of the label, and I have seen a specimen taken by Mr. W. B. Anderson at Fort Steele. These are all the records of this species that I have any knowledge of. Mr. Cockle also took specimens of *Euxoa catenula* Grt. and *Euxoa comosa* Morr. Kaslo is the only British Columbia locality from which the latter species has been recorded.

Mr. W. B. Anderson, Dominion Inspector of Indian Orchards, also reports the worst collecting season in his experience. His duties take him to many different parts of the Province, and as

he is a very keen naturalist his material always contains something worthy of note. The following are his most interesting captures:—

Agassiz.—*Plagodis approximaria* Dyar.; a single specimen taken on July 23rd. This is a very late date for this species, as our specimens from other localities were all taken in May.

Fort Steele.—*Macaria unipunctaria* Wright; *Phasiane orillata* Wlk.; and a single specimen of *Marmopteryx marmorata* Pack.; this is an unexpected locality for this species, as all our previous specimens have been taken between Penticton and Osoyoos.

Keremcos.—*Euxoa cinereopallida* Sm.; two specimens taken on September 16th. Our previous records are from Lillooet (A. W. Phair) and Penticton (W. B. Anderson). *Euxoa quadridentata flutea* Sm.; a single specimen taken on the same date. This capture extends the known range of this species in the Province, as we have only had it listed previously from Chilcotin (E. R. Buckell) and Fort Steele (W. B. Anderson).

Lytton.—*Oncocnemis cibalis* Grt. A rather worn specimen of this uncommon species was taken on September 24th.

MICROLEPIDOPTERA.

Although it has been such a poor season for Lepidoptera in general, we have been successful in getting together a large number of micros, of which I have set up something over 1,400 specimens. Many of these have not been previously recorded from this Province, a few are new to science, and our collections have been enriched by many desirable species which were previously unrepresented.

We are very much indebted to the Hon. J. G. Colville and to Captain J. Wise, who made large collections during the season at the beautiful home of the former, which is ideally situated on the Saanich Arm, some 16 miles north of Victoria. They collected persistently throughout the whole of the season and brought in hundreds of specimens, including many desirable species and several new records for the Province. Collections have also been made at Victoria, Fitzgerald, Duncan, Maillardville, Nicola Lake, Salmon Arm, Marron Lake, and Vavenby.

The following list of species are new to the Province and are additional to those previously published in the Annual Reports of the Provincial Museum for 1920 and 1921.

The greater part of this season's captures in the *Tineina* (*sens lat.*) have not yet been worked up and anything new or worthy of note will be included in next year's report.

The numbers and arrangement are in accord with Messrs. Barnes & McDunnough's Checklist. Those marked with a star have been described since the "List" was published.

Collectors: W. B. Anderson, E. H. Blackmore, E. R. Buckell, W. R. Buckell, W. R. Carter, Hon. J. G. Colville, C. deB. Green, A. W. Hanham, L. E. Marmont, T. A. Moilliet, A. W. Phair, and Captain J. Wise. The initials only are used in the following records.

Pyralidæ (*Phycitinæ*).

5562. *Diorctia auranticella* Grt. Lillooet (A. W. P.).
 5600. *Nephopteryx hypochalciella* Rag. Goldstream (E. H. B.).
 5613b. *Salebria virgatella inconditella* Rag. Duncan (A. W. H.).
 5662. *Pyla æneoviridella* Rag. Mount McLean (A. W. H.).
 * *Pyla sylphiella* Dyar. Mount McLean (A. W. H.).
 5676. *Megasis edwardsialis* Hlst. Chilcotin (E. R. B.).
 5680. *Megasis atrella* Hlst. Chilcotin (E. R. B.).
 5719. *Euzophera aglæella* Rag. Duncan (A. W. H.).
 5749. *Honora montinatatella* Hlst. Duncan (A. W. H.).

Cosmopterygiidæ.

- 6969, 1. *Chrysoclista villetta* Busck. Maillardville (E. H. B.; L. E. M.).
 6008. *Mompha cloisella* Clem. Ladysmith (T. Bryant).
 6018. *Mompha unifasciella* Cham. Maillardville (L. E. M.).

Gelechiidæ.

6069. *Chrysopora hermannella* Fabr. Vernon (E. P. Venables).
 * *Telphusa agrifolia* Braun. Victoria (E. H. B.).
 6278. *Gelechia mediofuscella* Clem. Victoria (E. H. B.).
 6283. *Gelechia conclusella* Wlk. Vavenby (T. A. M.).

6290. *Gelechia fuscotaniella* Cham. Maillardville (L. E. M.).
 6293. *Gelechia alternatella* Kearf. Duncan (A. W. H.); Vavenby (T. A. M.).

Cecophoridae.

6414. *Eumeyrickia trimaculella* Fitch. Vavenby (T. A. M.).
 * *Agonopteryx blackmori* Busck. Victoria (E. H. B.; W. R. C.); Saanichton (J. G. C.).

Ethmiidae.

6622. *Ethmia albistrigella* Wlsh. Lillooet (A. W. P.).
 6624. *Ethmia monticola* Wlsh. Chase (W. B. A.).

Egeriidae.

6654. *Aegeria tibialis* Harris. Marron Lake. (C. B. G.).

Eucosmidae.

6816. *Argyroploce albeolana* Zell. Vavenby (T. A. M.).
 6827. *Argyroploce hebesana* Wlk. Saanichton (J. G. C.).
 6838. *Argyroploce coronana* Kearf. Salmon Arm (W. R. B.).
 6844. *Argyroploce puncticostana* Wlk. Adams Lake (W. B. A.); Vavenby (T. A. M.).
 6861. *Argyroploce nubilana* Clem. Saanichton (J. W.); Agassiz (W. B. A.).
 6865. *Argyroploce fuscibana* Zell. Vavenby (T. A. M.).
 * *Argyroploce buckellana* McD. Salmon Arm (W. R. B.).
 6949. *Eucosma passerana* Wlsh. Wellington (T. Bryant).
 6956. *Eucosma nigralbana* Wlsh. Saanichton (J. W.).
 6959. *Eucosma lolana* Kearf. Chilcotin (E. R. B.).
 6965. *Eucosma terrococtana* Wlsh. Saanichton (J. G. C.); Powell River (W. B. A.).
 6970. *Eucosma abbreviatana* Wlsh. Chilcotin (E. R. B.).
 6986A. *Eucosma nisella criddleana* Kearf. Victoria (W. R. C.).
 6990. *Eucosma hirsutana* Wlsh. Vavenby (T. A. M.).
 7065. *Eucosma striatana* Clem. Mount McLean (A. W. H.).
 7082. *Eucosma columbiana* Wlsh. Kamloops (W. B. A.); Chilcotin (E. R. B.).
 7148. *Enarmonia haimbachiana* Kearf. Vavenby (T. A. M.).
 7175. *Ancylis subaequana* Zell. Goldstream (E. H. B.); Saanichton (J. W.).
 7176. *Ancylis discigerana* Wlk. Mount McLean (A. W. H.).
 7269. *Melissopus latiferreanus* Wlsh. Saanichton (E. H. B.); Maillardville (E. H. B.; L. E. M.).

Tortricidae.

7372. *Tortrix packardiana* Fern. Maillardville (L. E. M.).
 7443. *Peronea subnivana* Wlk. Hazelton (W. B. A.).
Peronea variegana Schiff. Victoria (W. R. C.; E. H. B.).

Phaloniidae.

7454. *Phalonia smeathmanniana* Fabr. Vavenby (T. A. M.).

Glyphipterygidae.

- * *Hilarographa youngiella* Busek. Victoria (W. Downes; W. R. C.); Maillardville (L. E. M.).

Plutellidae.

7664. *Cerostoma schwarziella* Busck. Powell River (W. B. A.); Salmon Arm (W. R. B.).

Yponomeutidae.

- * *Argyresthia monochromella* Busck. Victoria (E. H. B.).

Haploptiliidæ.

7762. *Haploptilia coruscipennella* Clem. Victoria (W. R. C.; E. H. B.); Duncan (A. W. H.); Maillardville (L. E. M.).
 7768. *Haploptilia fletcherella* Fern. Victoria (W. R. C.; E. H. B.); Maillardville (L. E. M.).
 * *Aphelosetia cygnodiella* Busck. Victoria (W. Downes).

Scythrididæ.

8080. *Scythris eboracensis* Zell. Victoria (E. H. B.).

Tineidæ.

8289. *Tinea granella* Linn. Victoria (E. H. B.; W. R. C.).

Incurvariidæ.

8436. *Incurvaria itoniella* Busck. Wellington (T. Bryant).

Adelidæ.

8448. *Nemotois bella* Wlk. Vavenby (T. A. M.).

Micropterygidæ.

8480. *Epimartyria pardella* Wlsh. Maillardville (L. E. M.; E. H. B.).

The following notes on some of the new and uncommon species taken during the last two seasons may be of interest to students of this group:—

5151. *Pyraustia borealis* Pack. A short series of this pretty black and yellow pyraustid was taken by Mr. T. A. Moilliet at Vavenby, B.C., on June 1st. These specimens are not quite typical and represent a small dark northern race which seems worthy of a varietal name. We have two similar specimens from Chilcotin taken by Mr. E. R. Buckell on June 2nd, 1920. We also have two specimens of the typical form taken at Lillooet several years ago.

5591. *Ambesa latella* Grt. This species with its purple and white markings is one of the most handsome of the phycitids and has, until recently, been represented in our collections by a single specimen taken at Rossland, B.C., by the late Mr. Danby. Mr. E. R. Buckell took one specimen at Chilcotin on June 30th, 1920, and the same collector was fortunate enough to capture three more this season between June 18th and the 25th at Nicola Lake, B.C. Mr. T. A. Moilliet also took a single specimen at Vavenby on July 14th.

5600. *Nephoptyx hypochalcicella* Rag. Two male specimens of this species, which is new to our list, have been taken by the writer at Goldstream, one on July 3rd, 1918, and the other on August 10th, 1921. It seems very uncommon.

5662. *Pyla ancoviridella* Rag. This genus has been hitherto poorly represented in British Columbia collections. Until quite recently we had only one representative recorded from the Province, which was listed in the 1906 Check-list as *scintillans* Grt., taken on Mount Cheam in 1903. This identification, however, has proved to be wrong, as I have two of the original specimens from the Harvey collection which were determined by Dr. McDunnough in 1919 as *rainierella* Dyar. More recently (April, 1921) Dr. Dyar described a new species taken by the writer at Mount Tzouhalem as *Pyla blackmorella*. An illustration of this species with notes thereon was given in last year's Museum Report.

When collecting on Mount McLean in July, 1919, and again in August, 1921, Mr. A. W. Hanham, of Duncan, succeeded in capturing a number of specimens of this genus. Upon examination I found that they were quite distinct from *rainierella* and involved at least two species. They were sent to Mr. W. Schaus, of the U.S. National Museum, who is an authority on this group. The one species taken in July, 1919, at 5,000 feet altitude proved to be *ancoviridella* Rag., and the other one taken in August, 1921, at 7,500 feet was determined as:—

**Pyla sylphiella* Dyar. This was described from Mount Rainier, near Tacoma, Wash., from specimens taken by Dyar & Caudell in August, 1906. This latter species is a trifle smaller and has purplish-coppery irrorations, while *ancoviridella* is irrorated with greenish-bronze. The majority of the species in this genus are brownish-black in colour, the fore wings being variously irrorated with either purplish, greenish, bronzy, or coppery metallic scales.

5676. *Megasia edwardsialis* Hulst. This is also a new record for the Province. A short series was taken by Mr. E. R. Buckell at Chilcotin the latter end of April, 1920. It is a long

narrow-winged species measuring $1\frac{1}{8}$ inches in expanse, with the primaries of a dull-grey colour and the secondaries a light fuscous. The females are much smaller than the males, being only $\frac{3}{4}$ inch when expanded, and having two black transverse lines on the primaries. Unless one was acquainted with this genus, one would never associate the two sexes as belonging to the same species.

5680. *Megasis atrella* Hulst. This is a very similar species to the last, but is a little smaller in expanse and the somewhat obscure markings are slightly different. A small series was taken by Mr. E. R. Buckell at the same time and place as the former species. In the 1906 Check-list *atrella* is recorded from Victoria, but I think this is a misidentification. The only specimen that I have seen from this district is one that I took on March 5th, 1921, and which is closer to *edwardsialis* than to *atrella*, but probably distinct from either.

5969, 1. *Crysoclista vellella* Busck. A nice series of this pretty black-and-orange micro was taken by Mr. Marmont and myself at Maillardville on June 19th. It is about $\frac{1}{4}$ inch in expanse and when in the air resembles a small black fly. We found it in a large patch of scrub willow and it was not beaten from any other tree. The willows were 8 to 9 feet high and the micro was found only on the topmost twigs. We observed none in flight excepting when they were disturbed. The method of capture was to touch the top twigs with the rim of the net, holding it at arm's length, and then one would see a small black speck fly off. A wild jump and a sweep with the net and *vellella* was secured. When once in the net, the micro remained perfectly quiet and was easily bottled. A couple of hours' hard work found us with about thirty specimens and a pair of very tired arms. The species was described (Pro. U.S.N.M., Vol. 27, page 768) from a single specimen taken at Seattle, Wash., in 1903. Mr. Busck informs me that this is the first record of this species since it was described in 1904, which makes this a very interesting capture.

5985. *Walshia amorphella* Clem. A single specimen in good condition was taken by Dr. W. R. Buckell at Salmon Arm on June 27th. This seems a somewhat rare insect, as we only have two specimens, both taken by Mr. T. Bryant at Wellington. It is also recorded from Kaslo.

6008. *Mompha eloisella* Clem. This is a new record for the Province and was taken by Mr. T. Bryant at Ladysmith on July 9th, 1909. It is a pretty little moth measuring about $\frac{1}{2}$ inch across the wings. The basal half of the primaries is pure white with two small black dots, while the outer half is golden-brown with a dark-brown longitudinal line through the centre.

6290. *Gelechia fuscoteniella* Cham. Mr. Marmont has taken three specimens of this new record at Maillardville. It is slightly smaller than the preceding species. The primaries are pure white with a small black basal area and a black spot on the costa and another at the apex of the wing. It flies in June.

**Telphusa agrifolia* Braun. This species was described in Ent. News, Vol. 32, page 9, Jan., 1921, from specimens bred from larvæ feeding on California live oak (*Quercus agrifolia*) in Alameda County, California. The writer took a short series of this species at Mount Tolmie in September, 1921, and a long series at the same place in August of this year. It was beaten from scrub oak (*Quercus Garryana*), on which the larvæ undoubtedly feed. It is a small species, measuring about 13 mm. In colour it is blackish-brown with patches of raised scales; in some specimens there is an oblique white band crossing the wing from about one-fourth out. It is very variable.

6156. *Recurvaria gibsonella* Kearf. A single specimen of this pretty little gelechid was taken by Mr. W. R. Carter on June 20th, 1921. This is the first record from British Columbia of this Eastern species. It was described (Can. Ent., Vol. 39, page 4, Jan., 1907) from three specimens bred from larvæ feeding on juniper (*Juniperus communis*) by Mr. Arthur Gibson at Ottawa, Ont.

6288. *Gelechia panella* Busck. Four specimens of this striking brick-red species were taken by the Hon. J. G. Colville at Saanichton on various dates in July and August. It was described (Pro. U.S.N.M., Vol. 25, page 889, 1903) from two specimens, one taken in Arizona and the other in California. Mr. Hanham has taken a few specimens at Duncan during the last few years, but it is not at all common. The larvæ feed on arbutus (*Arbutus Menziesii*). This species was listed in our old Check-list from Wellington, but this is an error, as the species listed under that name is *Gelechia mandella* Busck.

6803, 1. *Ewartema appendiceum* Zell. In the Can. Ent. for Feb., 1922, page 39, Dr. J. McDunnough resurrects this species from the synonymy. It had been placed as a synonym of *versicoloranum* Clem., but, although very similar in appearance, can be separated by *versicolor-*

anum having the costa white at the base, while *appendicium* has a dark basal area. The species occurring in British Columbia are the latter and the two specimens recorded in last year's Museum Report under the name of *versicoloranum* (taken by Mr. Marmont at Maillardville) should be changed accordingly. A nice series of this moth was taken this season by Captain J. Wise at Saanichton in June and July.

6820. *Argyroproce wellingtoniana* Kearf. This is a fine capture, as no specimens have been recorded since the species was described (Trans. Am. Ent. Socy., Vol. 33, page 13, Feb., 1907) from two specimens taken by the late Rev. G. W. Taylor at Wellington on May 19th, 1906. The writer took two specimens in fine condition on May 23rd of this year about 7 p.m., and although a careful search was made on following evenings no more were found. A single specimen was also taken by the Hon. J. G. Colville at Saanichton on June 5th. It expands about 18 mm. and the primaries are mottled with white, grey, dark fuscous, and black.

7028. *Eucosma similana* Hubn. Two nice specimens of this species were taken by Mr. T. A. Moilliet at Vavenby on September 16th and 20th. At first glance it is very similar to *lolana* Kearf., illustrated on Plate VI., but is slightly smaller and has pale hind wings instead of dark-brown ones. This species has been previously recorded from Kaslo; it occurs in the Atlantic States, is common in Great Britain, and also extends through Central Europe and Northern Asia.

7161. *Enarmonia medioplagata* Wlsh. This is another uncommon species, only previously reported from Kaslo. Mr. Moilliet took two specimens in good condition at Vavenby in July, and Mr. E. R. Buckell took a single rather worn specimen at Chilcotin on August 2nd, 1921.

7269. *Melissopus latiferreanus* Wlsh. This is another new record for the Province. It is represented in our collections by three specimens taken in June of this year. While visiting Mr. Marmont at Maillardville, I captured a beautiful specimen of this species on the last day of my stay, June 20th, and on the same morning Mr. Marmont captured another one. Two days later, while spending a day at the home of Viscount Colville at Saanichton, I captured a third specimen. Strange to say, although persistent collecting was carried on by both the Hon. Mr. Colville and Mr. Marmont, no more specimens of this species were captured. The fore wings are reddish-brown in colour with a purplish sheen and a small patch of burnished copper in the median area.

7532. *Commophila fuscodorsana* Kearf. This species has not been represented in our collections until this year. Mr. W. R. Carter took two specimens on June 15th in Pemberton Woods near Victoria. Mr. Marmont captured another one on May 31st at Maillardville, while the writer secured a freshly emerged specimen on Mount Tolmie on June 10th. The species was described (Can. Ent., May, 1904, page 137) from two male specimens, one taken at Fieldbrook, Cal., and the other taken by Mr. Cockle at Kaslo. This is a good record.

7623. *Choreutis leucobasis* Fern. This interesting capture was made by Mr. Marmont at Maillardville, who took two specimens on May 12th. This is the first record that we have had since Mr. T. Bryant captured a specimen at Wellington on May 3rd, 1903. The species was described (Can. Ent., Vol. 32, page 242, 1900) from specimens taken at London, Ont., and Massachusetts. It has also been recorded from Vermont.

7664. *Cerostoma schwarziella* Busck. This is a new record for the Province. Mr. W. B. Anderson took a single specimen in good condition at Powell River on August 4th, 1921. This season three specimens were taken by Dr. W. R. Buckell at Salmon Arm on May 16th.

8480. *Epimartyria pardella* Wlsh. This is one of the most interesting finds that we have yet had, and I believe that I am right in stating that this is the first record of this species being taken in Canada. It was first taken by Mr. Marmont at Maillardville in June, 1921. Mr. August Busck, to whom it was submitted for determination, was very anxious to get additional material, as it is somewhat of a rarity in collections, the U.S. National Museum only containing two specimens which were taken by Professor C. V. Piper at Seattle, Wash.

With this end in view the writer spent a week in June with Mr. Marmont at his home in Maillardville, which is ideally situated for collecting purposes. The second day I was there—June 15th, to be exact—we proceeded to the spot where Mr. Marmont had collected the species the previous year. This was an old disused lane, now very much overgrown. The sides were lined with small trees and shrubs of many kinds, while the undergrowth was very dense. We had not been there many minutes before we spotted one or two resting upon the leaves of various plants, and by careful and steady work we bottled some fifty-two specimens between us in a couple of hours. Bottling them off the plants was the only possible way to get them, as when in

PLATE V.

ARCTIIDÆ—NOCTUIDÆ—NOTODONTIDÆ—THYATIRIDÆ.

Emilia roseata Wlk.
Fraser Mills, B.C. (L. E. Marmont).
(Exceedingly rare.)

Papaipema insulidens Bird.
Fraser Mills, B.C. (L. E. Marmont).
(Rather rare.)

Gluphisia septentrionalis Wlk.
Vavenby, B.C. (T. A. Moilliet).
(New to British Columbia.)

Aplectoides occidentalis Hamps.
Saanichton, B.C. (J. G. Colville).
(Very rare.)

Oncocnemis cibalis Grt.
Lillooet, B.C. (A. W. Phair).
(Very rare.)

Oncocnemis levis Grt.
Fort Steele, B.C. (W. B. Anderson).
(New to British Columbia.)

Perigrapha algula Sm.
Vavenby, B.C. (T. A. Moilliet).
(Uncommon.)

Perigrapha achsha Dyar.
Vavenby, B.C. (T. A. Moilliet).
(Rather rare.)

Gluphisia septentrionalis quinquelinea Dyar.
Vavenby, B.C. (T. A. Moilliet).
(Rather rare.)

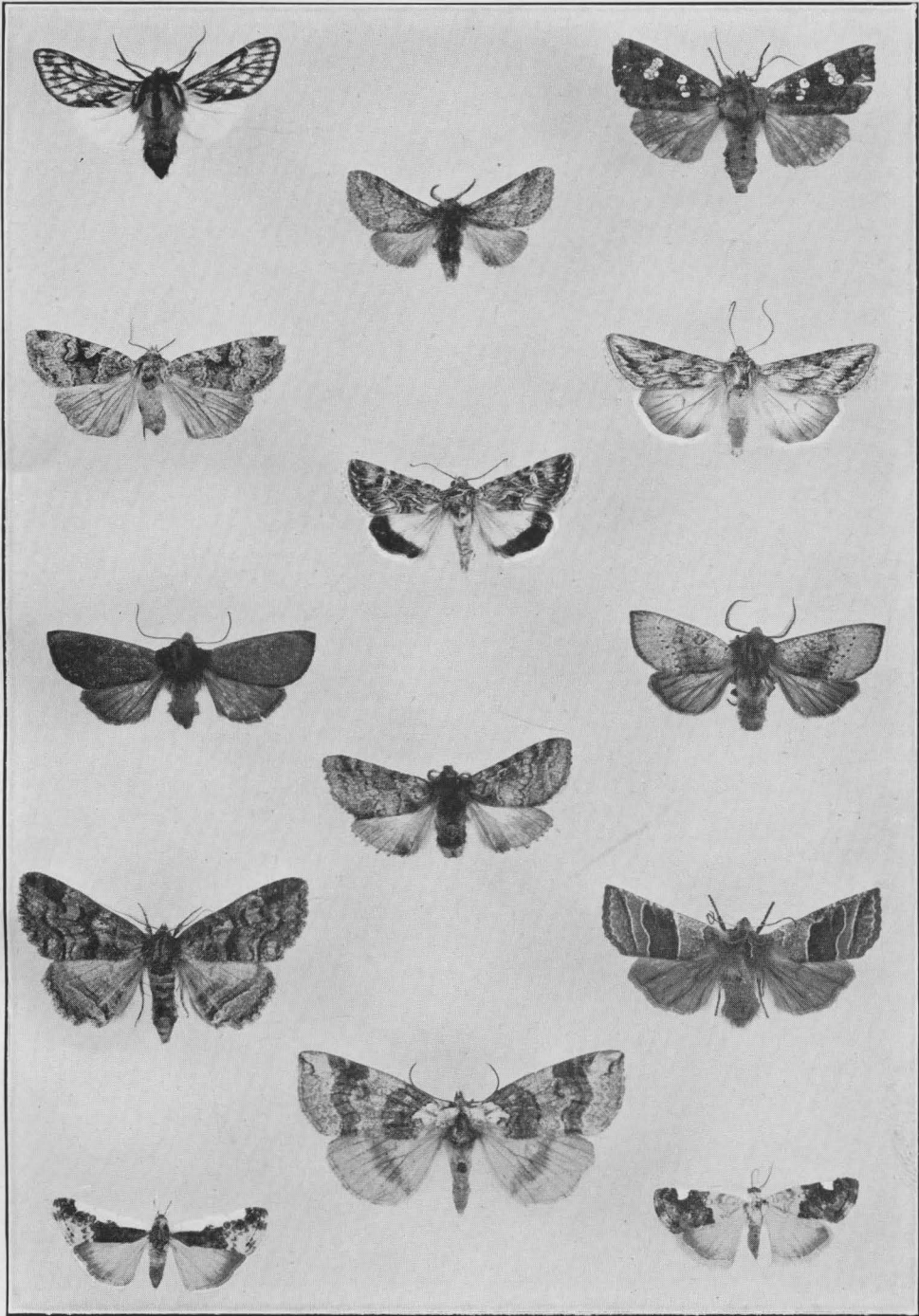
Zale benesignata Harvey.
Salmon Arm, B.C. (W. R. Buckell).
(New to British Columbia.)

Conistra fringata B. & McD.
Salmon Arm, B.C. (W. R. Buckell).
(New to British Columbia.)

Euthyatira semicircularis Grt.
Fraser Mills, B.C. (E. H. Blackmore).
(Rather uncommon.)

Tarache major Sm.
Rossland, B.C. (W. H. Danby).
(Very rare.)

Tarache areli Streck.
Rossland, B.C. (W. H. Danby).
(Rather rare.)



flight they are almost invisible. The species is rather small, expanding only 11 mm., and the wings are very narrow, the fore wings being about $\frac{1}{2}$ mm. broad and the hind wings about 1 mm. It is an extremely handsome insect when viewed under a lens, all the wings being of an iridescent purple with a large golden spot on the fore wings about two-thirds out from the base. We also took three or four specimens which were unspotted. At first these were thought to be a different species, but later on Mr. Busck made slides of the wings and genitalia, which disproved that idea. He considers them to be merely varieties of the typical form.

This species is interesting from the fact that it is a representative of the family Micropterygidae, which is the most primitive family of all the Lepidoptera. The fore and hind wings each contain twelve veins, and a jugum is developed at the base of the inner margin, which serves as a wing-coupling apparatus. This family is very closely allied to the order Trichoptera (caddice-flies), and it is from this latter order that the Lepidoptera have undoubtedly evolved.

ILLUSTRATED LEPIDOPTERA.

Arctiidae (Plate V.).

929. *Emilia rosca* Wlk. Taken by Mr. L. E. Marmont at Maillardville on July 2nd, 1922. This is one of the finest captures of the season, as it is the rarest of all our species in this family. The specimen illustrated is the first one taken since 1906 that I have any knowledge of. In the 1906 Check-list it is recorded from Goldstream and Mission. I have not been able to find any trace of the Goldstream specimen and I know nothing of the one from Mission. In the Bull. B.C. Ent. Socy., Sept., 1906, under the heading of "Notes on the Season of 1906," it says: "Mr. Harvey received from a friend a fine specimen of *Emilia rosca*, taken early in July on the Squamish River." This record is authentic, as I found the specimen referred to in the Harvey collection.

Noctuidae (Plate V.).

1507. *Aplectoides occidentis* Hamp. This is another very fine record, as very few specimens of this species have been taken in the Province. The specimen illustrated was taken by the Hon. J. G. Colville at Saanichton on August 15th, 1922, and is the first that I have seen since I discovered a specimen in the Bryant collection which was taken at Wellington on August 4th, 1902. This latter specimen was labelled "*Hadena mustelina* Sm." and was listed under that name in the 1906 Check-list. I had great difficulty in getting this species determined, as it was not represented either in the Canadian National Collection or the U.S. National Museum. Later Dr. J. McDunnough identified it from the co-type in the Wolley Dod collection, which was bequeathed to the Dominion Government by the late F. H. Wolley Dod. Dr. McDunnough also informed me that they have a specimen from Ucluelet, which is on the west-coast of Vancouver Island. In the Entomological Record for 1919 Gibson and Criddle record a specimen of *occidentis* taken by Mr. J. B. Wallis at Sicamous, B.C., on August 12th, 1915. I have also recently determined a specimen as this species for Mr. A. W. Hanham, taken at Quamichan Lake, V.I., on August 23rd, 1918. These five records are the only ones that I know of from this Province.

1900. *Perigrapha algula* Sm. Three specimens were taken by Mr. T. A. Moilliet at Vavenby on April 30th, 1922. We were glad to get these, as this species was not previously represented in our collections. I have seen specimens from Kaslo, where Mr. Cockle takes it occasionally, and Dr. W. R. Buckell also records it from Salmon Arm.

1901. *Perigrapha achsha* Dyar. A single specimen of this species was also taken by Mr. Moilliet on April 20th. This is a rather rare species, as I have only seen two other specimens in British Columbia collections; one was taken in the Penticton District by Mr. E. M. Anderson in 1913, and the other by Mr. G. O. Day at Quamichan Lake, near Duncan. This latter is rather an unexpected locality, but I do not think that there is any doubt about the determination, as it agrees with the Penticton specimen which was determined for me by Dr. A. W. Lindsey. In the Barnes collection at Decatur, Ill., is a specimen from Arrow Lake, B.C., which has been compared with the type, and the Penticton specimen agrees with this. *Algula* and *achsha* are closely allied and have been somewhat confused in collections, but can be differentiated by the fact that *achsha* is hoary grey powdered, except in the inner part of median and basal areas, while *algula* is evenly coloured and ranges from dark slaty grey to a purplish red.

2030. *Oncocnemis levis* Grt. This fine noctuid was captured by Mr. W. B. Anderson at Fort Steele on September 16th, 1918, and as far as I am aware has not previously been recorded from

British Columbia. It was described in 1880 from specimens taken in Arizona and Colorado, and it has also been recorded from Lethbridge, Alta.

2048. *Oncocnemis cibalis* Grt. The specimen illustrated was taken by Mr. A. W. Phair at Lillooet on September 15th, 1918. This species was also described (Can. Ent., Dec., 1880) from Colorado at the same time as the preceding. A rather worn specimen of this species was also taken by Mr. W. B. Anderson at Lytton on September 24th, 1922.

2215, 1. *Conistra fringata* B. & McD. This is a new record for the Province and was captured by Dr. W. R. Buckell at Salmon Arm on October 9th, 1921. It was described (Cont. Lepid. No. Amer., Nov., 1916, page 9) from a single male taken at Truckee, Cal. It is closely allied to *devia* Grt., but is a larger and prettier insect, the prevailing colour being a bright red-brown, although the maculation is practically the same.

2673. *Papaipema insulidens* Bird. A single specimen was taken by Mr. L. E. Marmont at Maillardville on September 9th, 1922. This capture extends its known range, as hitherto it has not been recorded outside of Vancouver Island. The species was described (Can. Ent., May, 1902, page 112) from three specimens from Vancouver Island. Mr. G. O. Day has taken it sparingly at Quamichan Lake for several years. Its food-plant unfortunately still remains undiscovered.

2977. *Tarache major* Sm. The specimen illustrated was taken by the late Mr. W. H. Danby at Rossland on July 20th, 1899. It is rather a striking-looking species and must be exceedingly rare in the Province, as this is the only example I have seen, although Mr. Cockle has taken it at Kaslo. It is evidently a mountainous species and was described from Colorado in 1900.

2982. *Tarache areli* Stkr. This specimen was also taken by Mr. Danby at Rossland and is the only other representative of the genus occurring in British Columbia. This species is nearly, if not quite, as rare as the preceding. It has been taken at Kaslo (Cockle) and a single specimen was recorded in last year's Museum Report as being taken by Mr. J. Wynne at Enderby, B.C.

3187. *Zale benesignata* Harvey. This is a fine record and is new to the Province. It was taken by Dr. W. R. Buckell at Salmon Arm on May 19th, 1921. The species was described (Bull. Buff. Soc. Nat. Sci., Vol. 3, page 14, 1875) from specimens taken at Webster, N.H., and Indian River, Fla. In the 1906 B.C. Check-list the three species, *lunata* Drury, *calycanthata* S. & A., and *duplicata* Bethune, listed under the generic name of Homoptera (=Zale) are all incorrect. I have seen a number of specimens from different collections labelled *lunata*, and these are all without a doubt *norda* Sm., which was described (Pro. U.S.N.M., Vol. 35, page 237, 1908) from specimens taken at Kaslo, Rossland, and Arrow Lake, B.C., and Cartwright, Man. *Calycanthata*, recorded by Dr. Dyar (Pro. U.S.N.M., Vol. 27, page 879, 1904) from Kaslo, is also this species. *Duplicata*, listed from Wellington (Taylor), is almost certain to be *largera* Sm., described (Pro. U.S.N.M., Vol. 35, page 257, 1918) from two specimens, one from Wellington, B.C., and one from Winnipeg, Man.; in fact, it is quite possible that the specimen listed in our Check-list was the identical specimen which Smith made the male type of his species. Our species in this genus will now stand as follows:—

Zale Hbn.

minera race *norda* Sm. Vancouver Island; Southern British Columbia.

benesignata Harv. Salmon Arm.

race *largera* Sm. Wellington; Princeton.

Nofoodontidae (Plate V.).

3680. *Gluphisia septentrionalis* Wlk. A single specimen taken by Mr. T. A. Moilliet at Vavenby on June 10th, 1922. We are glad to have this record, as it is the first authentic typical specimen of this species that we have seen. The species taken at Kaslo and listed under this name are of the form *quinquelinea* Dyar. *Septentrionalis* has a very wide range and should occur wherever aspen and cottonwood are found. It varies in colour a great deal according to the locality, and varietal names have been given to many of these geographical races.

3680b. *Gluphisia septentrionalis* race *quinquelinea* Dyar. A single specimen of this form was also taken at the same place and on the same date as the preceding. It was described by Dyar (Ent. News, Vol. 3, page 168, 1892) from one male taken at Portland, Ore.

Thyatiridae (Plate V.).

3695. *Euthyatira semicircularis* Grt. The specimen illustrated was taken by the writer at Maillardville on June 19th, 1922. Previous to this capture this species has only been taken at one locality in the Province—namely, Quamichan Lake, near Duncan. Both Mr. Day and

PLATE VI.
GEOMETRIDÆ.

Hame denticulodes Hulst.
Vavenby, B.C. (T. A. Moilliet).
(Very rare.)

Xanthorhœ incurvata harveyata C. & S.
(Female paratype.)
Vancouver, B.C. (R. V. Harvey).
(New to science.)

Eupithecia cenataria C. & S.
Goldstream, B.C. (E. H. Blackmore).
(New to science.)

Xanthorhœ ramaria delectaria C. & S.
(Male paratype.)
Atlin, B.C. (E. M. Anderson).
(New to science.)

Xanthorhœ aquilonaria C. & S.
(Male paratype.)
Atlin, B.C. (E. M. Anderson).
(New to science.)

Eupithecia scabrogata gilvipennata C. & S.
(Male holotype.)
(Wellington, B.C. (T. Bryant).
(New to science.)

MICROLEPIDOPTERA.

Nemotois bellula Wlk.
Vavenby, B.C. (T. A. Moilliet).
(New to British Columbia.)

Peronca variegana Schiff.
Victoria, B.C. (E. H. Blackmore).
(New to North America.)

Aegeria tibialis Harris.
Marron Lake, B.C. (C. deB. Green).
(Very local.)

Ethmia monticola Wlsh.
Chase, B.C. (W. B. Anderson).
(New to British Columbia.)

Amorbia cuneana Wlsh.
Saaniehton, B.C. (J. Wise).
(Somewhat local.)

Melitara dentata Grt.
Nicola Lake, B.C. (E. R. Buckell).
(New to British Columbia.)

Cacacia victoriana Busck.
Victoria, B.C. (E. H. Blackmore).
(New to science.)

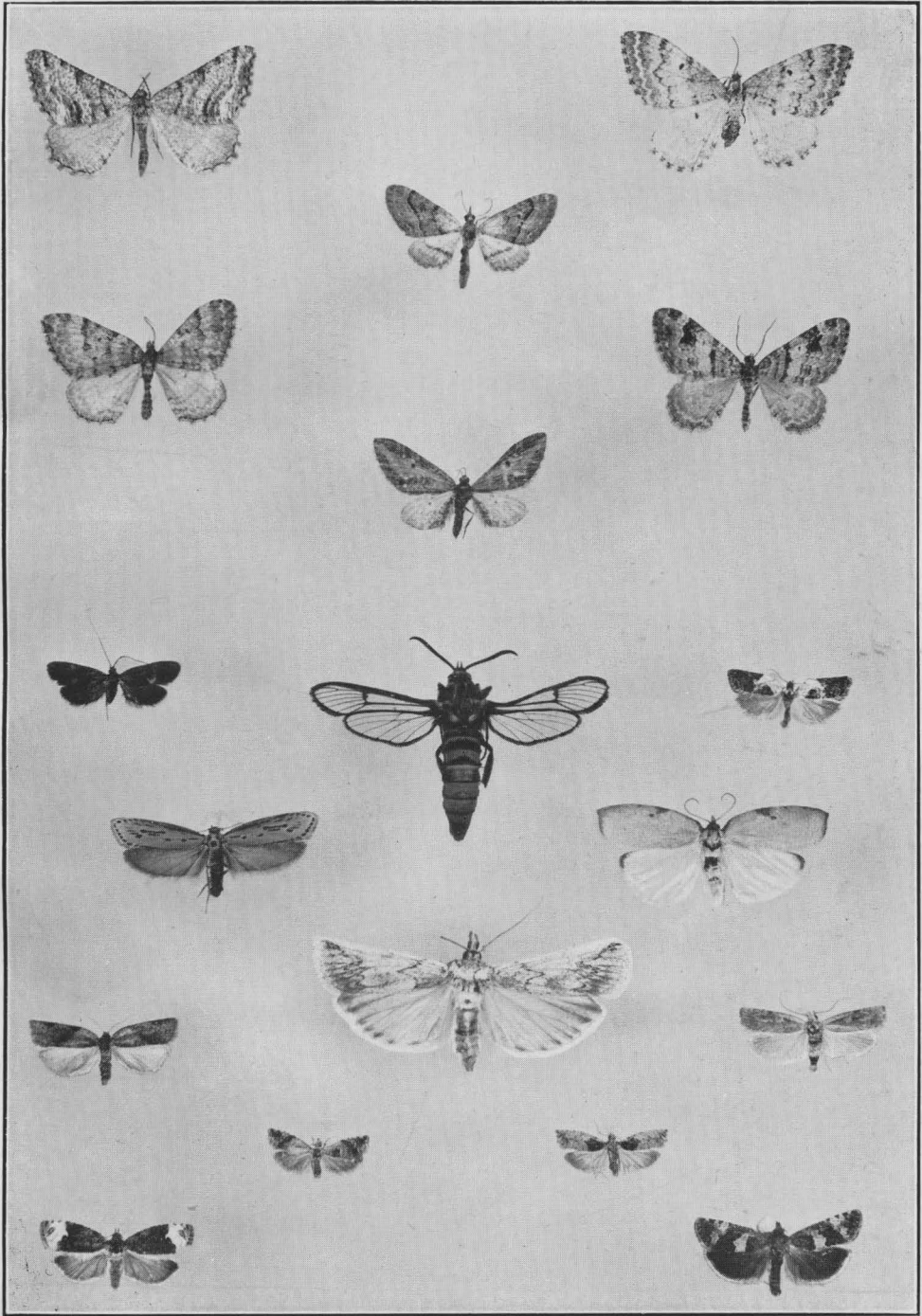
Agonopteryx blackmori Busck.
(Male co-type.)
Victoria, B.C. (E. H. Blackmore).
(New to science.)

Eucosma terrococtana Wlsh.
Saaniehton, B.C. (J. G. Colville).
(New to British Columbia.)

Eucosma nisella criadleana Kearft.
Victoria, B.C. (W. R. Carter).
(New to British Columbia.)

Argyroptero capreana Hbn.
Fraser Mills, B.C. (L. E. Marmont).
(Uncommon.)

Eucosma lolana Kearft.
Chilcotin, B.C. (E. R. Buckell).
(New to British Columbia.)



Mr. Hanham have taken it there occasionally during the past few years, but this season, for some unknown reason, it was more plentiful, Mr. Day taking four specimens and Mr. Hanham about seven or eight. It was described from the State of Washington in 1881.

Geometridæ (Plate VI.).

**Xanthorhæ incursata* race *harveyata* Cassino & Swett. This new race was described from specimens taken by the late Captain R. V. Harvey on July 2nd, 1904, at Vancouver, probably on Grouse Mountain. The types are in good condition, but the paratypes are rather worn. It is closely related to *lagganata* Swett.

**Xanthorhæ ramaria* race *delectaria* Cassino & Swett. Described from a short series in rather poor condition taken by E. M. Anderson at Atlin on various dates in June, 1914. It is superficially like the *incursata* group, but the genitalia prove it to be unrelated and show it to belong to *ramaria*, which was described from Labrador.

**Xanthorhæ aquilonaria* Cassino & Swett. This new species was taken by E. M. Anderson at Atlin in June, 1914. A few of the specimens (including the types) are in good condition, but the majority are rather rubbed. The species is closely allied to *congregata* Wlk. and *trilineata* Warr., both of which are North American races of the European *abrasaria* H.S. Slides have been made of the genitalia, which show it to be related to the above three forms, but enough differences are noted to warrant specific distinction. More recently I have seen specimens referable to this species, which were taken on Mount McLean by Messrs. Day and Hanham.

**Eupithecia cenataria* Cassino & Swett. This new species was described from a number of specimens taken "at light" by the writer at Goldstream in September, 1920. The specimens were in a somewhat rubbed condition, as it was rather late in the season for them. I have found out since that the species emerges about the last week in July. In 1921 I took two or three in fine condition during that period. Mr. Marmont also took a specimen at Maillardville on July 28th of this year. This is the same species that has been recorded from Wellington under the name of *unicolor* Hulst., but the latter, although having the same general appearance, is a larger insect. *Unicolor* was described (Trans. Am. Ent. Soc., Vol. 23, page 271, 1896) from specimens taken in California and Colorado.

**Eupithecia scabrogata* form *gilvipennata* Cassino & Swett. Described from a single male specimen taken by Mr. T. Bryant at Wellington on May 9th, 1902. This form differs from typical *scabrogata* Pears, by having the entire central portion of the primaries a deep yellow instead of a dark fuscous. A figure of *scabrogata* was given on Plate IV., Report, Prov. Mus., 1921.

4423. *Itame denticulodes* Hulst. The specimen illustrated was taken by Mr. T. A. Moilliet at Vavenby on June 28th, 1922. This is a rather uncommon species in this Province. I have a specimen taken by the late Captain Harvey on July 22nd, 1908, at Similkameen, and it has been recorded from Kaslo (Cockle). I do not know of any other records.

Pyralidæ (Phycitina) (Plate VI.).

5694. *Melitara dentata* Grt. This is a good capture and is in fine condition. It was taken by Mr. E. R. Buckell at Nicola Lake on August 29th, 1922. I have only seen one other specimen, and that was taken by Mr. A. W. Phair at Lillooet on August 30th, 1916. The species was originally described from Colorado.

Ecophoridæ.

**Agonopteryx blackmori* Busck. Described from specimens bred by the writer from larvae feeding upon broom. The date of the bred species is July 12th, 1918. Since then I have taken it commonly at the end of August and all through September wherever broom is growing. In a recent letter from Mr. Edward Meyrick, of Marlborough, Eng., who is a world authority on this group, he states his belief that this species is conspecific with the European *costosa* Haw. If this proves correct, *blackmori* will become a synonym of *costosa*, but will become a new record for North America.

Ethmiidæ.

6624. *Ethmia monticola* Wlsh. This fine specimen was taken by Mr. W. B. Anderson at Chase on May 27th, 1918, and is a new record for the Province. It is a beautiful species, being dove-grey in colour with a few fine black markings on the primaries; the abdomen is a bright golden-yellow. The species was described from Colorado by Lord Walsingham in 1880.

Egeriidae.

6654. *Egeria tibialis* Harris. This interesting clearwing was taken by Mr. C. de Blois Green at Marron Lake in July of this year. Several specimens were taken, but as Mr. Green did not have the proper means of killing them at hand, they were, with the exception of the one figured, in rather poor condition. We are very pleased to have this species, as although it has never been listed in any of our local lists, Mr. Wm. Beutenmuller, in his "Monograph of the Sesiidae of North America," published in 1901, gives, amongst other places, British Columbia and Vancouver as localities for this species. It has been taken in the New England States, Colorado, and California. The illustration is that of the female; the male is somewhat smaller, averaging 5 mm. less in alar expanse, and is not so robust. The larvæ bore into the trunks of willow and poplar. Mr. Green found the empty pupal cases on "cottonwood," probably *Populus trichocarpa*.

Eucosmidæ.

6818. *Argyroploce capreana* Hub. The specimen illustrated was taken by Mr. Marmont at Maillardville on July 7th, 1922. It is not a common insect by any means, as it only occurs sparingly in any given district. Captain J. Wise took a single specimen at Saanichton on July 1st. Mr. Cockle has taken a few specimens at Kaslo and Mr. T. Bryant has three specimens in his collection taken at Wellington. These latter are labelled *frigidana* Pack., but they are undoubtedly *capreana*. I have also seen a poor specimen from Lillooet (Phair) which is referable to this species. It is a European insect and feeds on *Salix* sp.

6959. *Eucosma lolana* Kearf. This interesting species was taken by Mr. E. R. Buckell at Chilcotin on July 16th, 1921, and is a new addition to our list. It was described (Trans. Am. Ent. Soc., Vol. 33, page 31, 1907) from two specimens taken at Colorado.

6965. *Eucosma terrococtana* Wlsh. A long series of this very pretty little micro, which is new to the Province, was taken by the Hon. J. G. Colville at Saanichton during June and July of this year. It was beaten from arbutus trees exclusively, and it is very probable that this is its food-plant. Mr. W. B. Anderson also took four specimens of this species at Powell River on July 14th. These were beaten from *Arctostaphylos tomentosa*. *Terrococtana* was described in 1879 by Lord Walsingham from specimens taken in California.

6986A. *Eucosma nisella* form *criddleana* Kearf. A long series of both *nisella* and the form *criddleana* was taken by Mr. W. R. Carter at Victoria on various dates during July of this year. The species is very variable; in colour it ranges from whitish-grey to cinereous-grey, with scattered black scales; in some specimens there is a red-brown, somewhat triangular blotch on the inner margin of the primaries; in others the basal area is solid black; this latter is the form *criddleana*. The typical form is common in England and Ireland and also occurs in Central Europe. The larvæ feed in catkins and on leaves of poplar and willow. *Criddleana* was described (Can. Ent., Vol. 39, page 58, 1907) as a distinct species from specimens taken at Aweme, Man. (Criddle), and Rounthwaite, Man. (Marmont). It was placed by Kearfott in the genus *Proteopteryx* Wlsh., but it has recently been removed from there and placed as a form of *nisella* by Mr. Carl Heinrich.

Tortricidæ.

7285. *Amorbia cuncana* Wlsh. Captain J. Wise took a long series of this species in fine condition at Saanichton from June 19th to July 2nd. This is the largest of our tortricids, the male averaging 32 mm., while the female measures 38 mm. when expanded. We are pleased to have this nice series, as we have previously only had a few odd specimens taken at Quamichan Lake (Hanham) and Wellington (Bryant). Mr. W. B. Anderson also took four male specimens at Powell River on July 14th. The females are very much scarcer than the males, the latter preponderating in the proportion of seven to one. The larvæ feed upon the leaves of arbutus (*Arbutus Menziesii*).

**Cacœcia victoriana* Busck. This species was described from three specimens taken by the writer at Victoria and Goldstream in July, 1920. I have since taken two more specimens, one on June 23rd and the other on June 30th, 1921, and as these are in better condition than the type series I am using one of them for illustration.

Peronea variegana Schiff. This is the first published record of this common European species having been taken in North America. A single specimen was taken by Mr. A. Meugens at Victoria on July 20th, 1920. This stood as unique in my collection until this fall, when I took

a nice series in my own garden during the second week of September. Mr. W. R. Carter also took a number of specimens at Esquimalt about the same time. It is a very variable insect, but the variation seems to run along two distinct lines. In the one form the outer area of the primaries is a dark slate and the inner area a clear pure cream; in the other the outer half is a reddish-brown, while the basal area is a chalky-white, with a small dark triangular blotch with its base resting on the inner margin. Meyrick (Hdbk. Brit. Lepid., 1895) gives its food-plant as hawthorn, blackthorn, rose, etc.

Adelida.

S448. *Nemotois bellela* Wlk. This new record was taken by Mr. T. A. Moilliet at Vavenby on May 28th, 1922. Only one specimen was taken, but that was in a beautifully fresh condition. It is rather a handsome insect, especially when viewed under a lens. The ground colour of the primaries is yellow, which is mostly obscured by overlying dark-brown scales which heavily outline the entire margin of the wing as well as the veins, thus giving it a general dark-brown effect. The narrow transverse band is bright yellow, bordered on both sides by light-blue scales. The secondaries are dark brown and when viewed in certain lights the whole insect has a strong purplish reflection.

The genus *Nemotois* Hub. is rather a large one, containing as it does something over eighty species, most of which occur in Europe, India, and Japan; *bellela*, however, being the only North American representative. The species was described by Walker in 1863 and the only locality then given was "Canada."

NOTES AND CORRECTIONS.

In the Entomological News for July, 1922 (Vol. 33, page 211), there is an article by Dr. A. W. Lindsey entitled "Notes on the Distribution and Synonymy of some Species of Pterophoridae." The greater part of the "notes on distribution" deal with British Columbia specimens sent by me to Dr. Lindsey for determination, and are included in my paper on "The Pterophoridae of British Columbia," which appeared in the Ann. Rept., Prov. Museum, 1921, page 34 *et seq.* Included in Dr. Lindsey's paper are "Notes on the Synonymy" communicated to him by Mr. Edward Meyrick, of Marlborough, Eng.

As two of the species mentioned occur in British Columbia, it is thought advisable to refer to them here, as corrections to my paper, noted above. Mr. Meyrick expresses the belief that *Platyptilia shastæ* Wlsh. and *fragilis* Wlsh. are synonyms of *albida* Wlsh. In this view Dr. Lindsey concurs, and the name *albida* Wlsh. should be substituted for *fragilis* on page 38 of the Ann. Rep., Prov. Mus., 1921.

Further, Mr. Meyrick says: "*Ornecodes* (Alucita) *montana* Ckrl. is in my opinion a synonym of *huebneri* Wall. (Europe, throughout Africa and Kashmir)." In his letter to Dr. Lindsey he also discusses the characters which lead him to this conclusion. As Mr. Meyrick is a world-wide authority on this group, it would be idle to dispute his dictum on the matter, and it would be well to substitute *huebneri* Wall. for *montana* Ckrl. on page 45, l.c.

In a letter received some time ago from Dr. J. McDunnough, of Ottawa, he states that specimens sent by me for the Canadian National Collection are not *Oidematophorus corvus* B. & L. as labelled, but are the closely allied species *stramineus* Wals. Dr. McDunnough has made a slide of the male genitalia, which conclusively proves this fact. The specimens in question were taken by me at Goldstream in July, 1920. This locality, together with that of Fraser Mills, must be removed from the list of localities given under *corvus* and placed under *stramineus* (see page 43, l.c.). *Corvus*, which occurs in the eastern portion of the Province, is a somewhat larger insect and has a much smokier appearance than *stramineus*.

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