PROVINCE OF BRITISH COLUMBIA

REPORT

OF THE

PROVINCIAL MUSEUM

OF

NATURAL HISTORY

FOR THE YEAR 1926

PRINTED BY
AUTHORITY OF THE LEGISLATIVE ASSEMBLY.

VICTORIA, B.C.:
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1927.

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To His Honour ROBERT RANDOLPH BRUCE,

Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

The undersigned respectfully submits herewith the Annual Report of the Provincial Museum of Natural History for the year 1926.

WILLIAM SLOAN,

Provincial Secretary.

Provincial Secretary's Office,

Victoria, B.C., March, 1927.

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PROVINCIAL MUSEUM OF NATURAL HISTORY,

VICTORIA, B.C., March 1st, 1927.

The Honourable William Sloan,

Provincial Secretary, Victoria, B.C.

SIR,—I have the honour, as Director of the Provincial Museum of Natural History, to lay before you the Report for the year ended December 31st, 1926, 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 WILLIAM SLOAN, *Minister.*

J. L. WHITE, *Deputy Minister.*

PROVINCIAL MUSEUM OF NATURAL HISTORY.

Staff:

FRANCIS KERMODE, *Director.*

GEORGE A. HARDY, *Assistant Biologist.* WINIFRED V. REDFERN, *Recorder.*

NELLIE P. BITTANCOURT, *Stenographer.* EDWARD A. COOKE, *Attendant.*

WILFRED H. GIBSON, *Apprentice.*

REPORT *of the*
PROVINCIAL MUSEUM OF NATURAL HISTORY

FOR THE YEAR 1926.

By Francis Kermode, *Director*.

OBJECTS.

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

ADMISSION.

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

VISITORS.

The following figures show the difference between those who registered their names in the book and those who were checked by the attendants. While only 29,623 people registered, the total of the check was 45,648.

	Register.	Check.
January	1,445	2,016
February	1,307	1,774
March	1,131	1,733
April	1,178	1,927
May	1,700	2,773
June	2,753	4,477
July	7,412	10,899
August	6,689	10,012
September	2,982	4,563
October	1,397	2,183
November	757	1,324
December	872	1,967
Totals	29,623	45,648

The Museum was honoured on November 29th by a visit from the third son of His Majesty King George V., Prince George, who was returning home to London, England, from China.

Several times during the year His Honour Lieutenant-Governor Bruce, who is greatly interested in natural history, brought distinguished visitors from Government House to visit the collections.

ACTIVITIES.

A reorganization of the staff was put into effect during the early part of the year 1926, in order that the office-work, which has been steadily increasing from year to year, could be handled to better advantage. One attendant was transferred to another department and a stenographer appointed, also an assistant to be trained in various branches of science.

The students in our schools and colleges are constantly bringing in specimens for identification, while private collectors continue to send in material, particularly in the botanical and entomological branches of science.

Mr. W. B. Anderson, Dominion Inspector of Indian Orchards; Mr. G. V. Copley, of the Grazing Commission; and Mrs. J. P. MacFadden, of New Denver, B.C., have donated a large amount of botanical specimens; while the Alice Siding School, under the direction of Mr. Charles Lallemand; Mr. W. H. A. Preece, of Sidney, V.I.; and Mr. G. Stace Smith, of Creston, B.C.,

have aided materially in increasing the entomological collection. Specimens amounting to approximately 900, principally Coleoptera, were purchased from Mr. J. W. Cockle, of Kaslo, B.C.

One short field-trip of about three weeks' duration was made by the Assistant Biologist, Mr. G. A. Hardy, to Mount Garibaldi, where he was associated with the camp established by Mr. Bell-Irving, of Vancouver, and the B.C. Mountaineering Club. The Museum has not been in a position for some little time, on account of finances, to carry out any extensive field-work, but, as the opportunity arose, it was thought desirous that one of the staff should undertake a trip in the Mount Garibaldi Park, to work up the flora and fauna of that region. It is gratifying to note that Mr. Hardy's work in that locality during the three weeks' trip was of great value to the Museum, and several new species in botany and entomology were recorded for British Columbia. It is to be hoped that from time to time the finances of the Museum will permit further expeditions into some of these isolated localities where little collecting-work has been done.

In the conchological section the Univalves have received attention, and Mr. W. A. Newcombe has again kindly donated some specimens from the collection made by his father, the late Dr. C. F. Newcombe. The Museum Univalves, together with some from the Newcombe collection, were sent to Dr. Bartsch for identification, and will be arranged according to the latest changes in names and nomenclature. A detailed account of these will be found on page 28.

A number of new cases have been installed on the upper floor, including five wall-cases. In two of these the Reptilia and Amphibia are now displayed; the remainder are intended to be used for specimens of marine animals. Three dozen double-sided storage-boxes for insects were made for the accommodation of the fast-growing collection. Here, named material is being stored until such time as proper cabinet display may be provided.

Numerous requests are received from time to time for the loan of specimens for educational purposes, particularly in ornithology. These requests are complied with whenever possible, and it is gratifying to note that many of the older pupils of the city and rural schools are taking a much greater interest of late in natural history.

A perusal of the various sections of the report will indicate that much useful and valuable work has been done regarding the natural history of this Province. Special thanks are due to specialists in the various branches of science for the invaluable help, and due acknowledgments are made in the body of the report.

ANTHROPOLOGY.

The Museum has been offered the opportunity, through the offices of Mr. W. A. Newcombe, to purchase a large number of anthropological specimens collected by the late Dr. W. F. Tolmie and his son, John Tolmie, one of the earliest pioneers in the services of the Hudson's Bay Company in this Province. The collection contains a great many designs in large basketry-work, which cannot be obtained from the Indians of to-day as the art is fast disappearing. There are also many implements made of stone that were found on the old Cloverdale Farm in the early days of the Hudson's Bay Company, and it is hoped that in the next annual report we will be able to give an itemized list and description of these most desirable specimens.

PALÆONTOLOGY.

Reference was made on page 10, Mus. Rep., 1925, to a fine collecion of fossils presented by Mr. S. C. Burton, of Kamloops, B.C. These had been found in the fossiliferous sandstone of the Tranquille geological formations at the west end of Kamloops Lake. They were sent to the Smithsonian Institution for examination and have been returned with the following determinations by Dr. Bassler:—

Taxodium dubium Heer.
Populus obtrita Dawson.
Jugland sp.
Alnus carpinoides Lesquerowe.
Alnites curta Dawson.
Myrica sp.

Leg-bone of mammoth, taken in the Yukon, 1900. W. A. Newcombe.

BOTANY.

By G. A. Hardy.

The past season has resulted in the acquisition of many interesting records and specimens, thus steadily adding to our knowledge of the flora of this Province.

The number of additions to the collection total some 664 specimens, being an increase of nearly twice that of the previous year. Of these, eight are new to the Province and thirty-one to the Herbarium.

The collection of Mosses and Linchens has been further enriched by the enthusiasm and generosity of Mrs. J. P. MacFadden, of New Denver, B.C.; these are supplementary to a previous donation of Hepatics last year, and are as authoritatively named and are scientifically mounted, forming a model as to how such specimens should be treated. The Mosses are listed separately elsewhere in the report, on page 11.

We have much pleasure in acknowledging our indebtedness to those who have continued to benefit the Herbarium by their sustained zeal and consistency, Mr. W. B. Anderson, Inspector of Indian Orchards, and Mr. G. V. Copley, of the Grazing Commission. These two gentlemen have constantly, throughout a number of years, added much invaluable material, not otherwise acquired, and have made the most of their opportunities in connection with professional duties. The Rev. R. Connell, who has discovered several new and rare plants on Vancouver Island which he has generously presented to the Museum, deserves special recognition. To these and other contributors whose donations are of no less value, we heartily record our thanks and appreciation in thus helping to build up a public reference collection of plants of British Columbia that will be second to none, an end obtainable only by a wide and enthusiastic co-operation of all concerned.

An opportunity was afforded to make a short visit to Garibaldi Park in the interests of the Museum. A number of very acceptable additions were thus secured. As these are from a locality not previously represented in the Museum, they are listed under the Report for Garibaldi Park on page 15.

The following is a list of contributors, the number in brackets referring to the specimens donated: Miss Allen (27), J. R. Anderson (3), W. B. Anderson (32), W. B. Anderson and G. V. Copley (27), Miss N. P. Bittancourt (1), Rev. R. Connell (14), Miss E. Copley (2), G. V. Copley (102), H. R. Eldridge (1), Mrs. M. Hankin (1), G. A. Hardy (187), N. Harper (1), D. Munday (1), Mrs. J. P. MacFadden (251), T. P. McKenzie (1), W. A. Newcombe (4), F. Perry (1), W. H. A. Preece (1), Miss W. V. Redfern (1), N. Sanson (1), W. Shephard (1), A. Sherwood (2), Mrs. Thacker (1), and P. deNoe Walker (1).

To the following specialists we gratefully proffer our thanks for the invaluable assistance they have rendered in the naming and verification of a large number of species: Professor C. R. Ball (Salix) and A. S. Hitchcock (Graminæ) of the U.S. Nat. Mus., Washington, D.C.; Professor H. St. John (General), of Pullman, Wash.; Professor Piper Smith (Lupines), San Jose, Calif.; Mrs. R. Erlanson (Rosaceæ), Ann Arbor, Mich.; K. K. Mackenzie (Sedges), New York City; and Dr. J. W. Bailey (Mosses), Seattle, Wash.

Mr. W. A. Newcombe has always allowed access to his extensive herbarium and library, a privilege greatly appreciated.

Messrs. W. B. Anderson and G. V. Copley have taken a number of plants (48) on the Washington side of the boundary which may occur in British Columbia and therefore are welcome additions for purposes of comparison.

The living wild-flower display, exhibiting the local seasonal plants, has been maintained as usual throughout the season. It has a special appeal to visitors from other districts, as it shows at a glance the predominating species in the vicinity of Victoria in flower at the time.

Advantage is continued to be taken of the exhibit and Herbarium by students and others interested in the native flora, and fully justifies the time and effort expended in that direction.

A departure from the usual method of recording is made in this issue. In the following list only records of special interest are noted. Names of collectors are placed in brackets. Localities not followed by V.I. (Vancouver Island) are from the Mainland of British Columbia.

The following plants are new to British Columbia:—

LEGUMINOSÆ (PEA FAMILY).

Lupinus formosus Greene var. *bridgesi* (Wats.) Greene. Victoria, V.I. (G. A. Hardy).
Oxytropis luteolus (Greene) Piper. Trial Island, off east coast of V.I. (Rev. R. Connell).

CAMPANULACEÆ (BLUEBELL FAMILY).

Githopsis specularioides Nutt. var. *glabrata* Jepson. Sooke, V.I. (Rev. R. Connell).
Specularia speculum DC. Shawnigan Lake, V.I. (W. Shephard). Introduced.

COMPOSITÆ (COMPOSITE FAMILY).

Arnica cascadensis St. John nov. sp. (Anderson's Arnica), Mount McLean (W. B. Anderson).
Aster angustus (Lindl.) T. & G. Windermere (W. B. Anderson).
Grindelia integerrima Rydb. Windermere (W. B. Anderson).

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

LEGUMINOSÆ (PEA FAMILY).

Lupinus rivularis Dougl. Sooke, V.I. (Rev. R. Connell).
Lupinus formosus Greene var. bridgesi (Wats.) Greene. Victoria, V.I. (G. A. Hardy).
Oxytropis luteolus (Greene) Piper. Trial Island, off east coast of V.I. (Rev. R. Connell).

CAMPANULACEÆ (BLUEBELL FAMILY).

Githopsis specularioides Nutt. var. glabrata Jepson. Sooke, V.I. (Rev. R. Connell).
Specularia speculum DC. Shawnigan Lake, V.I. (W. Shephard).

COMPOSITÆ (COMPOSITE FAMILY).

Hemizonella minima Gray. (*Durandii* Gray). Sooke, V.I. (Rev. R. Connell).

We are indebted to Professor H. St. John, of Pullman, Wash., for the honour of kindly allowing us to publish the following description of his species new to science, collected by Mr. W. B. Anderson from Mount McLean, B.C. It is as follows:—

ARNICA CASCADENSIS ST. JOHN NOV. SP.

(By Harold St. John.)

Perennial, with an horizontal woody root-stock; stem slender, erect, simple, about 1 dm. high, clothed at the base with the shrivelled remnants of several pairs of leaves, their axils showing a tuft of white pilose hairs, bearing 3 or 4 pairs of leaves, which are gradually reduced upwards; basal leaves coriaceous oblanceolate, 5-nerved, glabrous on both sides, pilose-ciliate, especially towards the short petiolar base, more or less denticulate towards the tip, 2.5-4 cm. long, 5-9 mm. broad; cauline leaves similar but broader and shorter, the median pair lanceolate and about 2.5 cm. long, the upper pair ovate-lanceolate acuminate and about 1.5 cm. long; inflorescence of 1 terminal flower or commonly a 3-flowered cyme; peduncles slender, elongate, becoming densely pilose towards the tip, 2-7 cm. long, often as long as the true stem of the plant; heads turbinate, the disc about 1 cm. high; bracts equal, about 12 in number, oblong-elliptic, densely white-pilose at base above glabrate on the back, white hirsute-ciliate, not at all glandular; rays about 10, deep orange-yellow, the blades broadly elliptic, 12 mm. long, prominently veined; disc-flowers numerous, deep yellow; achenes linear, black, 5 mm. long, densely incanous; pappus white barbellate, slightly exceeding the achenes.

Perennis, foliis 3-4-jugis lanceolatis, floribus cymosis aurantiaciflavosis, achæneis incanis.

British Columbia: Mount McLean, July 11th, 1926, *W. B. Anderson* 8003 (type in Herb. State College of Washington), and a duplicate in the Provincial Museum of Natural History.

This extremely attractive little *Arnica* belongs in the section Alpinæ. Its closest relative is *A. aurantiaca* Greene, which was first described from the Wallowa Mountains of Eastern Oregon. It is now known to range from British Columbia to Oregon. Coulter & Nelson and Rydberg all refer this species to *A. Rydbergii* Greene. Judging by the original description, the writer is not satisfied that this is the proper disposition of these species. *A. aurantiaca* seems to be a good and distinct entity. It has glandular leaves, the peduncle glandular as well as hairy, is monocephalous or with weak and later axillary heads, the bracts narrowly lanceolate, very short ciliate towards the tip and glandular on the back. The new *A. cascadensis* has eglandular leaves, is usually crowned with a 3-headed cyme, has the bracts eglandular oblong-elliptic and long white hirsute-ciliate.

Hepatics.

The following Hepatics are additions to the list published in the Report for 1925, page 16, and were collected and kindly presented to the Museum by Mrs. J. P. MacFadden, of New Denver. They were determined by Dr. Geo. H. Conklin, of Superior, Wis.

Cephalozia bicuspidata (L.) Dumort.
Cephalozia Lammersiana (Huben.) Spruce.
Cephaloziella Hampeana (Nees.) Schiffn.
Cephaloziella byssacea (Roth.) Warnst.
Chiloscyphus polyanthos (L.) Corda.
Chiloscyphus rivularis (Schrad.) Loeske.
Harpanthus Flotowianus Nees.
Lophozia alpestris var. *gelida* (Tayl.) McVic.
Lophozia inflata (Huds.) M. A. Howe.
Pellia Fabroniana Raddi.
Pellia Neesiana (Gottsche.) Limpr.
Radula complanata (L.) Dumort.
Scapania undulata (L.) Dumort.
Scapania dentata var. *ambigua*.
Scapania dentata Dumort.
Scapania Bolanderi Aust.

Musci (Mosses).

(Presented by Mrs. J. P. MacFadden.)

We are much indebted to Mrs. J. P. MacFadden, of New Denver, for the Mosses listed below, collected in the south-eastern section of the Province. For the arrangement followed, and for the interest he has shown in this connection, our best thanks are due to Dr. John W. Bailey, of Seattle, Wash. The chief work used is Dixon & Jameson's "British Mosses," with Dr. Grout's modification in some cases.

CLASS MUSCI.

Subclass I. Sphagnales.

Order I. Sphagnaceæ.

Sphagnum acutifolium Ehrh.

Subclass II. Andreæales.

Order II. Andreæaceæ.

Andreæa obovata Thed.

Subclass III. Bryales.

Group A. *Nematodonteæ*.

Order III. Tetraphidaceæ.

Tetraphis pellucida Hedw.

Order IV. Polytrichaceæ.

Catharinea undulata (L.) W. & M.
Oligotrichum aligerum Mitt.
Oligotrichum parallelum (Mitt) Kindb.
Pogonatum alpinum (L.) Roehl.
Pogonatum urnigerum (L.) Beauv.
Polytrichium juniperinum Willd.
Polytrichium piliferum Screb.
Polytrichium strictum Banks.
Polytrichium sexangulare Floerk.

Order V. Buxbaumiaceæ.

Buxbaumia aphylla L.
Buxbaumia Piperi Best.

Group B. *Arthrodonteæ*.

Subgroup I. Aplolepideæ.

Order VI. Dicranaceæ.

Ditrichum flexicaule Hampe.
Ditrichum pallidum (Schreb.) Hampe.
Ditrichum tenuifolium (Schp.) Lindb.
Swartzia inclinata Hedw.
Swartzia montana (Lam.) Lindb.
Seligeria calcarea (Dicks) B. & S.
Seligeria recurvata (Dicks) B. & S.
Ceratodon purpureus (L.) Brid
Cynodontium polycarpum (Ehrh.) Schp.
Oncophorus virens (Sw.) Brid.
Oncophorus strumiferum (Ehrh.) DeNot.
Dichodontium flavescens (Dicks) Lindb.
Dichodontium pellucidum (L.) Schimp.
Dicranella crispa (Ehrh.) Schp.
Dicranella Grevilleana (Brid.) Schp.
Dicranella heteromalla (L.) Schp.
Dicranella varia (Hedw.) Schimp.
Dicranella rufescens (Dicks) Schp.
Dicranella subulata (Hedw.) Schp.
Dicranella rubra var. *tenella*.
Blindia acuta (Huds.) B. & S.
Dicranowesia crispula (Hedw.) Lindb.

Dicranoweesia crispula var. *nigrescens*.
Dicranodontium denudatum (Brid.) Hag.
Dicranum albicans B. & S.
Dicranum Bergeri Bland.
Dicranum Bonjeani DeNot.
Dicranum Drummondii Muell.
Dicranum elongatum Schleich.
Dicranum falcatum Hedw.
Dicranum fragilifolium Lindb.
Dicranum fuscescens Turn.
Dicranum fuscescens falcifolium Braith.
Dicranum Muhlenbeckii B. & S.
Dicranum Schisti Lindb.
Dicranum scoparium (L.) Hedw.
Dicranum Starkei W. & M.
Dicranum strictum Schleich.
Dicranum undulatum Ehrh.

Order VII. FISSIDENTACEÆ.

Fissidens adiantoides (L.) Hedw.
Fissidens grandifrons Brid.
Fissidens incurvus Web. & Mohr.
Fissidens taxifolius (L.) Hedw.

Order VIII. GRIMMIACEÆ.

Subgenus Scouleria.
Grimmia aquatica Hook.
Subgenus Schistidium.
Grimmia apocarpa (L.) Hedw.
Grimmia apocarpa var. *rivularis* W. & M.
Grimmia conferta (Funck) B. & S.
Grimmia brunnescens (Limpr.) Par.
Grimmia atricha C. M. & Kindb.
Grimmia Dupreti Ther.
Grimmia apocarpa var. *gravilis* Schleich.
Grimmia agassizii Lesq. & James.
Subgenus Eu-grimmia.
Grimmia alpestris Schleich.
Grimmia ambigua Sulliv.
Grimmia anomala Hampe.
Grimmia Californica Sulliv.
Grimmia pulvinata (L.) Smith.
Grimmia ovata (Lindb.) Schwaeg.
Grimmia pennsylvanica Schwaeg.
Grimmia tenerrima R. & C.
Grimmia torquata Grev.
Grimmia trichophylla Grev.
Rhacomitrium aciculare (L.) Brid.
Rhacomitrium affine (Schleich.)
Rhacomitrium canescens (Hedw.) Brid.
Rhacomitrium canescens var. *ericoides* B. & S.
Rhacomitrium depressum Lesq.
Rhacomitrium fasciculare (Schrad.) Brid.
Rhacomitrium heterostichum (Hedw.) Brid.
Rhacomitrium lanuginosum (Ehrh.) Brid.
Rhacomitrium microcarpum Brid.
Rhacomitrium patens (Dicks.) Hub.
Rhacomitrium sudeticum (Funk.) B. & S.
Hedwegia albicans (Web.) Lindb.

Order IX. TORTULACEÆ.

Pottia Heimii Fuernr.
Barbula cylindrica (Tayl.) Schimp.
Barbula fallax Hedw.
Barbula unguiculata (Huds.) Hedw.
Barbula vinealis Braun.
Tortula aciphylla Hartm.
Tortula brachyangia C. M. & Kindb.
Tortula mucronifolia Schwaeg.
Tortula ruralis (L.) Ehrh.
Desmatodon latifolius (Hedw.) Brid.
Desmatodon latifolius var. *muticus* (Hedw.) Brid.
Didymodon rubellus (Hoffm.) B. & S.
Tortella tortusa (L.) Limpr.
Gymnostomum curvirostre (Ehrh.) Hedw.
Gymnostomum rupestre Schleich.

Order X. ENCALYPTACEÆ.

Encalypta contorta (Wulf.) Lindb.
Encalypta ciliata Hedw.
Encalypta procera B. & S.
Encalypta rhabdocarpa Schwaeg.
Encalypta vulgaris Hedw.

Subgroup II. Diplolepideæ.

A. Diplolepideæ Acrocarpæ.

Order XI. ORTHOTRICHACEÆ.

Amphidium lapponicum (B. & S.) Schimp.
Orthotrichum anomalum var. *saxatile* Milde.
Orthotrichum lævigatum Zett.
Orthotrichum obstusifolium Schrad.
Orthotrichum rupestre Schleich.
Orthotrichum speciosum Nees.

Order XII. SPLACHNACEÆ.

Splachnum sphæricum L.
Tetraplodon angustatus (S.W.) B. & S.
Tetraplodon bryoides (Zoeg.) Lindb.
Tayloria lingulata Lindb.
Tayloria serrata (Hedw.) B. & S.

Order XIII. FUNARIACEÆ.

Funaria hygrometrica (L.) Sibth.

Order XIV. MEESIACEÆ.

Meesia trichodes (L.) Spruce.
Paludella squarrosa L. Brid.
Aulicomnium androgynum Schwaeg.
Aulicomnium palustre (L.) Schwaeg.

Order XV. TIMMIACEÆ.

Timmia austriaca Hedw.
Timmia austriaca brevifolia Ren. & Card.
Timmia megapolitana Hedw.

Order XVI. BARTRAMIACEÆ.

Catoscopium nigritum Brid.
Anacolia Menziesii (Turn.) Schimp.
Bartramia ithyphylla Brid.
Bartramia Oederi (Gunn) Swtz.
Bartramia Oederi var. *minor* Kindb.
Bartramia pomiformis (L.) Hedw.
Bartramia subulata B. & S.
Conostomum boreale Swartz.
Philonotis calcarea Schp.
Philonotis fallax Dism.
Philonotis fontana (L.) Brid.
Philonotis tomentella Mol.

Order XVII. BRYACEÆ.

Leptobryum pyriforme (L.) Wils.
Webera albicans Schp.
Webera annotina Schwaeg.
Webera canaliculata C. M. & Kindb.
Webera Columbica Kindb.
Webera gracilis DeNot.
Webera pulchella (Hedw.) Schimp.
Webera carnea (L.) Limpr.
Webera nutans (Schreb.) Hedw.
Webera cruda (L.) Lindb.
Bryum argenteum L.
Bryum Atwateriæ (Muell.) L. & J.
Bryum cæspiticium L.
Bryum crassirameum R. & C.
Bryum schleicheri var. *latifolium* Schimp.
Rœllia lucida (E. G. Britton) Kindb.
Leucolepis acanthoneura (Schwr.) Lindb.
Mnium affine Bland.
Mnium affine rugicum (Laur.) B. & S.
Mnium Blyttii B. & S.
Mnium glabrescens Kindb.
Mnium orthorrhynchum (Brid.) B. & S.
Mnium punctatum L.
Mnium punctatum elatum Schimp.
Mnium rostratum Schwaeg.
Mnium serratum Schrad.
Mnium spinulosum B. & S.
Mnium subglobosum B. & S.
Mnium venustrum Mitt.

B. Diplolepideæ Pleurocarpæ.

Order XVIII. FONTINALACEÆ.

Fontinalis crypheadelphis var. *robustus* (C. M.) Card.
Fontinalis nitida Kindb. & Card.
Dichelyma falcatum Myrin.

Order XIX. NECKERACEÆ.

Neckera Menziesii Hook.

Order XX. LEUCODONTACEÆ.

Leucodon sciuroides (L.) Schwaeg.
Antitrichia curtipendula var. *gigantea* Sulliv. & Lesq.
Antitrichia californica Sulliv.
Porotrichum alopecurum (L.) Mitt.

Order XXI. LESKEACEÆ.

Myurella careyana Sulliv.
Myurella julacea (Vill.) B. & S.
Leskea arenicola Best.
Pterigynandrum filiforme (Timm.) Hedw.
Pterigynandrum filiforme var. *minus* L. & J.
Heterocladium procurrens (Mitt.) Rau. & Herv.
Pseudoleskea atrovirens (Dicks) B. & S.
Pseudoleskea catenulata B. & S.
Pseudoleskea denudata Best.
Pseudoleskea oligoclada Kindb.
Pseudoleskea radicosa (Mitt.) L. & J.
Pseudoleskea rigescens (Wils.) Lindb.
Thudium abietinum (L.) B. & S.
Thudium Blandovii (W. & M.) B. & S.
Thudium delicatulum (L.) Mitt.
Thudium recognitum (Hedw.) Lindb.
Claopodium crispifolium (Hook.) R. & C.
Claopodium Whippleanum (Sulliv.) R. & C.

Order XXII. HYPNACEÆ.

Climacium Americanum Brid.
Climacium dendroides (L.) Web. & Mol.
Pylaisia intricata (Hedw.) Card.
Camptothecium lutescens (Hook.) B. & S.
Camptothecium nitens (Schreb.) Schimp.
Camptothecium pinnatifidium (S. & L.) Jaeg.
Brachythecium albicans (Neck.) B. & S.
Brachythecium asperrimum Mitt.
Brachythecium campestre B. & S.
Brachythecium collinum (Schleich.) B. & S.
Brachythecium flexicaule R. & C.
Brachythecium glaciale B. & S.
Brachythecium lamprochryseum C. M. & Kindb.
Brachythecium lamprochryseum var. *giganteum* Grout.
Brachythecium oxycladon (Brid.) J. & S.
Brachythecium plumosum (Sw.) B. & S.
Brachythecium plumosum var. *homomallum* B. & S.
Brachythecium populeum (Hedw.) B. & S.
Brachythecium reflexum (Starke.) B. & S.
Brachythecium rivulare B. & S.
Brachythecium rutabulum (L.) B. & S.
Brachythecium salebrosum (Hoffm.) B. & S.
Brachythecium Starkei (Brid.) B. & S.

Suborder Hypnum.

Campylium.
Hypnum chrysophyllum (Brid.) Bryhn.
Hypnum polyganum Schimp.
Hypnum stellatum (Schreb.) Bryhn.
Drepanocladus.
Drepanocladus aduncus (Hedw.) Warnst.
Drepanocladus aduncus (Hedw.) Warnst var. *Kneiffi* Schimp.
Drepanocladus aduncus var. *gracilescens forma teneus* Schimp.
Drepanocladus aduncus var. *aquaticus* Sanio.
Drepanocladus exannulatum Guemb.
Drepanocladus exannulatus brachydictyon Ren.
Drepanocladus fluitans var. *Jeanbernati* (Ren.).
Drepanocladus fluitans (Dill.) Warnst.
Drepanocladus fluitans var. *falcifolium* (Ren.).
Drepanocladus intermedius (Lindb.) Warnst.
Drepanocladus Sendtneri (Sch.) Warnst.
Drepanocladus revolvens (Sw.) Warnst.
Drepanocladus uncinatus (Hedw.) Warnst.
Drepanocladus uncinatus var. *symetricum* R. & C.
Drepanocladus uncinatus var. *plumulosus* (B. & S.) Roth.
Drepanocladus vernicosus (Lindb.) Warnst.
Drepanocladus vernicosus var. *majus* Lindb.
Eurynchium diversifolium (Schleich) B. & S.
Eurynchium fallax (R. & C.) Grout.
Eurynchium oregonum (Sulliv.) Jaeger & Sauerb.
Eurynchium prælongum (L.) Bryhn. var. *Stokesii* (Turn.) Dixon.
Plagiothecium denticulatum (L.) B. & S.
Plagiothecium piliferum (Sw.) B. & S.
Plagiothecium pulchellum (Dicks.) B. & S.
Plagiothecium roseanum (Hampe) B. & S.
Plagiothecium striatellum (Brid.) Lindb.
Amblystegiella confervoides (Brid.) Loeske.
Amblystegiella Sprucei (Bruch.) Loeske.
Amblystegiella subtilis (Hedw.) Loeske.
Amblystegium compactum (C. Muell.) Aust.
Amblystegium fluviatile (Sw.) B. & S.
Amblystegium Juratzkanum Schimp.
Amblystegium Kochii B. & S.
Amblystegium riparium longifolium (Schultz) B. & S.
Amblystegium noterophilum (Sulliv.) Warns.
Amblystegium riparium (Hedw.) B. & S.
Amblystegium serpens (L.) B. & S.
Amblystegium subtile (Hedw.) B. & S.
Amblystegium varium (Hedw.) Lindb.
Amblystegium filicinum (L.) DeNot.

Drepanium.
Hypnum arcuatus Lindb.
Hypnum circinale (Hook.) Broth.
Hypnum plicatulus.
Hypnum pratensis (Koch.) Warnst.
Hypnum subimponens Lesq.
Hynum callichroum Wils.
Hypnum revolutum (Mitt.) Lindb.
Hypnum crista-castrensis L.
Hygrophypnum.
Hypnum arcticum Sommerf.
Hypnum Bestii Ren. & Bryhn.
Hypnum dilatatum (Wils.) Loeske.
Hypnum molle (Dicks.) Broth.
Hypnum molle var. *Schimperianum* Schimp.
Hypnum ochraceum (Turn.) Loeske.
Hypnum palustre (Huds.) Loeske.
Hypnum scorpoides L.
Calligeron.
Calligeron giganteum (Schimp.) Kindb.
Calligeron sarmentosum (Wahlenb.) Kindb.
Calligeron Schreberi (Willd.) Grout.
Calligeron stramineum (Dicks.) Kindb.
Calligeron turgescens Schimp.
Hylocomium.
Hylocomium proliferum (L.) Lindb.
Hylocomium triquetrum (L.) B. & S.
Hylocomium loreum (L.) B. & S.
Hylocomium rugosum (Ehrh.) DeNot.
Hylocomium robustum (Hook.) Kindb.

REPORT ON A COLLECTING TRIP TO GARIBALDI PARK, B.C.

By G. A. Hardy.

A short visit was made to this district between July 24th and August 12th, 1926, for the purpose of obtaining material for the Museum; an excellent opportunity being afforded by the establishment of a camp there by Mr. Bell-Irving, of Vancouver, and the British Columbia Mountaineering Club. This arrangement proved very satisfactory in many ways, not the least being the minimum amount of expense.

Mount Garibaldi Park is an extensive tract of mountainous country, situate to the north and east of the head of Howe Sound, averaging from 3,000 to close on 9,000 feet altitude, forming part of the Coast Range. It takes its name from the dominant peak, Mount Garibaldi, 8,925 feet, which lies near the centre of the park.

Headquarters were situated on the eastern part of the famous Black Tusk Meadows, which lie at an approximate altitude of 5,200 feet. At this point the meadows consist of a gently sloping plateau some two miles by three-quarters of a mile, lying east and west. Several small creeks and rivulets intersect it, the chief of which, Parnassus Creek, lies towards the base of Black Tusk Ridge, from which it has its source. The banks of this creek are a veritable rock garden, the flora being of unsurpassed beauty and luxuriance. Clumps of *Abies lasiocarpa* (mountain fir) and *Tsuga mertensiana* (mountain hemlock) are dispersed about the surface of the meadows, giving a very park-like character; the open ground between is clothed with a carpet of *Phyllodoce* (false heather) and *Spiræa pectinata*. The lower or western end merges into the forest, which everywhere clothes the lower slopes descending into the valley of the Cheakamus River.

Black Tusk Ridge, 6,000 feet, rises steeply to the north of the meadows, forming its boundary in that direction, leading to Black Tusk itself (7,350 feet), a little beyond. On the summit of the ridge near the precipitous base of the peak are the glaciers and snow-patches referred to farther on.

The southern border of the meadows is marked by an abrupt drop to the shores of Lake Garibaldi, 4,840 feet, a deep glacial lake 3 miles long by 2 wide, with precipitous shores, its outlet leading to Lesser Garbaldi. The peak of Mount Garibaldi is seen rising above the surrounding snow-field to the south of the lake.

The eastern boundary (of the meadows) is formed by Mimulus Creek, which tumbles into the lake in a series of cascades; rising steeply from its eastern bank is Panorama Ridge, 6,700 feet, a fine entomological hunting-ground. It continues as a narrow ridge to the east, its northern face giving rise to a part of the extensive Helmit Glacier, in turn flowing into the Helmit Valley to the east of Black Tusk. Several hours' strenuous journeying to the east of Panorama Ridge brings one to Gentian and Polemonium Ridges, 7,500 feet.

The territory thus briefly outlined constituted the chief collecting-ground. Trips were made to other parts as opportunity offered.

Much rainfall and unsettled weather prevailed during the initial week, considerably retarding operations; advantage of which was taken by attending to a few traps set out for small mammals, and investigating fallen logs and under stones for insects, etc. The latter part of the period was ideal collecting weather, and partially compensated for the previous inclemency.

The itinerary was briefly as follows: Departure from Victoria on the evening of July 23rd; then by boat the following morning from Vancouver to Squamish, at the head of Howe Sound, reached about noon; thence by Pacific Great Eastern through the gorge of the Cheakamus to Daisy Lake, some 20 miles farther up. Here a stop-over was made for the rest of the day in order to make a few investigations. A start for camp at Black Tusk Meadows was made early the next day, arriving in the evening after a pleasant and instructive walk up the excellent trail recently constructed. The distance from Daisy Lake Station is about 13 miles, through continuous forest, rising from an altitude of 1,200 to 5,200 feet.

The main objective on this occasion was botanical and entomological, the latter especially, as no records are extant regarding it. In the former no material from this district was represented in the Herbarium.

Botany.

The region collected over, as judged by its flora, comes within the Hudsonian and Arctic zones, with a sprinkling of the Canadian on the lower or more sheltered portions. The various zones imperceptibly merge and can only be appreciated by making lists of the species at various

points and "averaging up." In typical locations they can easily be appreciated, but as much depends on exposure, slope, etc., in many cases it is hard to say where the one begins and the other leaves off.

No species below the Canadian zone (4,000-foot level) were collected, but it was instructive to note the change of flora from the Transition of Daisy Lake, up through the Canadian to the Hudsonian at camp. In the former the conifers included Douglas fir (*Pseudotsuga mucronata* Raf.), red cedar (*Thuja plicata* Donn.), hemlock (*Tsuga heterophylla* Sarg.), and lodgepole pine (*Pinus contorta* Dougl.), with deciduous trees of birch (*Betula occidentalis* Hook.), cottonwood (*Populus trichocarpa* T. & G.), and alder (*Alnus rubra* Bong.), the chief underbrush being devil's-club (*Fatsia horrida* B. & H.), elder (*Sambucus glauca* Nutt), and huckleberry (*Vaccinium parvifolium* Smith). These gradually dropped out with the increasing altitude and were replaced by yellow cedar (*Chymæcyparis nootkatensis* (Lamb) Spach), which predominated at 4,000 feet, with hemlock still abundant. The latter was soon usurped by the mountain hemlock (*Tsuga mertensiana* Carr.), while mountain fir (*Abies lasiocarpa* (Hook) Nutt.) was noticeably on the increase. Deciduous trees disappeared near the 3,000-foot level. At 4,000 to 5,000 feet the chief undershrub was *Vaccinium macrophyllum* Hook. and *Rhododendron albiflorum* Hook., while the dominant trees were mountain fir and mountain hemlock, with a sprinkling of stunted yellow cedar and an occasional white pine (*Pinus monticola* Dougl.). At the extreme limit of timber *Juniperus communis montana* Ait. occurred sparingly, forming dense mat-like growths.

From Daisy Lake to close on the 5,000-foot level the trail never leaves the dense forest until about 4,000 feet elevation, when the latter becomes interspersed with open spaces, finally dispersing into park-like clumps at the site of the camp, vanishing altogether near 6,000 feet.

Approximately 200 specimens of plants were obtained, consisting of about 100 species; of these, eleven are new to the Herbarium, while of the remainder, none hitherto existed from this region in our collection. Where not otherwise indicated, the majority of species have been determined by Harold St. John. Those marked with an asterisk are new to the Herbarium.

Polypodiaceæ (Fern Family).

Cryptogramma acrostichoides R.Br. (Parsley Fern).
Cystopteris fragilis (L.) Bernh. (Brittle Bladder Fern).
Phegopteris dryopteris (L.) Fee. (Oak Fern). Mouth of Mimulus Creek.
Polystichum lonchitis (L.) Roth. (Holly Fern). Black Tusk Ridge.
Woodsia oregona D. C. Eaton (Oregon Woodsia). Black Tusk Slopes and Ridge.

Ophioglossaceæ (Adder's Tongue Family).

**Botrychium lanceolatum* (Gmel.) Angstroem. Black Tusk Slopes.
Botrychium simplex E. Hitch. (Little Grape Fern). In grassy places by streams.

Pinaceæ (Pine Family).

Juniperus communis var. *montana* Ait. Frequent at 6,000 feet.

Gramineæ (Grass Family).

(Identified by A. S. Hitchcock.)

Aira atropurpurea Wahl. Shores of Lake Garibaldi.
Agrostis idahœnsis Nash. (Bent Grass). Gentian Ridge.
**Poa lettermanni* Vasey. Near the summit of Mount Garibaldi. Collected by Don Munday. This is the only recorded British Columbia locality for this species, one other record having been published. *See* Report of Botanical Office, 1915, J. Davidson.)
Poa arctica R.Br. Lake Garibaldi.
Poa alpina L. Black Tusk Ridge.
Trisetum spicatum (L.) Richter. Black Tusk Ridge.

Liliaceæ (Lily Family).

Tofieldia intermedia Rydb. (False Asphodel). Black Tusk Meadows.

Orchidaceæ (Orchid Family).

**Habenaria saccata* Greene.
Habenaria dilatata (Purch.) Gray (Tall White Bog Orchis).

Salicaceæ (Willow Family).

(Identified by C. R. Ball.)

Salix anglorum Cham. (Angled Willow). Black Tusk Slopes, in open grassy places.
**Salix commutata denudata* Bebb. Black Tusk Slopes. Thickets along Parnassus Creek.
Salix nivalis Hook. (Arctic Willow). Panorama Ridge, Black Tusk Ridge. Forming mat-like growth at 6,000 feet.

Polygonaceæ (Buckwheat Family).

Polygonum viviparum L. (Knotweed). Very local, shore of Lake Garbaldi.
Oxyria digyna (L.) Hill (Mountain Sorrel).

Caryophyllaceæ (Pink Family).

**Arenaria sajanensis* B. L. Robins. In silt pocket. Panorama Ridge; Black Tusk Ridge.
**Stellaria læta* (Richards) Rydb. Panorama Ridge.
Stellaria borealis Bigel. (Northern Stichwort). Along the sheltered stream-banks, Black Tusk Slopes, etc.
Silene Macounii S. Watson. Panorama Ridge. Only seen in this locality.
Sagina occidentalis S. Wats. Black Tusk Ridge.
Silene acaulis L.

Ranunculaceæ (Crowfoot or Buttercup Family).

Caltha leptosepala DC. (Alpine Marigold). In fruit, Black Tusk Meadows.
Ranunculus Eschscholtzi Schlecht. (Alpine Buttercup). Black Tusk Ridge.
Trollius albiflorus Rydb. (Globeflower). In fruit, Black Tusk Meadows.

Cruciferæ (Mustard Family).

Arabis Lyallii Wats.
Arabis Drummondii Gray (Drummond's Rock Cress).
**Cardamine kamtschatica* (Regel) Schulz. On banks of streams; Black Tusk Meadows.
Draba stenoloba Ledeb.

Crassulaceæ (Orpine Family).

Sedum divergens Wats. (Stonecrop). Panorama Ridge, Lake Garibaldi.

Saxifragaceæ (Saxifrage Family).

Leptarrhena amplexifolia (Sternb.) Ser. (Pear Leaf). Black Tusk Meadows.
Mitella Breweri Wats. Black Tusk Slopes.
Mitella pentandra Hook. Black Tusk Mountain and Slope. More common than the preceding.
Parnassus fimbriata Koenig. (Grass of Parnassus).
Ribes laxiflorum Pursh. (Mountain Currant).
Saxifraga Bongardi (Presl.) Pursh. Black Tusk Slope in moist places.
Saxifraga austromontana Weigand. (Mountain Saxifrage). In rock crevices at 6,000 feet and over.
Saxifraga Lyallii Engler. (Lyall's Saxifrage). Moist places on Black Tusk Slopes.
Saxifraga Mertensiana Bong. (Spotted Saxifrage). Black Tusk Slopes.
Saxifraga odontoloma Piper. (Toothed Saxifrage). Edge of stream, Black Tusk Meadows and Slopes.
Saxifraga rhomboidea L. (Alpine Saxifrage). By rivulets on Black Tusk Slopes.
Saxifraga Tolmei T. & G. On all the higher mounts above timber-limit.
Tiarella unifoliata Hook. (Simple-leaved Mitrewort).

Rosaceæ (Rose Family).

Lutkea pectinata (Pursh.) Kuntz. (Alpine Spiræa). Forms carpets in open woodland. Black Tusk Meadows, etc.
Potentilla dissecta Pursch. (Cinquefoil).
Potentilla flabellifolia Lehm. (Fan-leaved Cinquefoil).
Potentilla villosa Pall. (Hairy Cinquefoil).
Rubus parviflorus Nutt. (Thimbleberry). In wood, east shore of Lake Garibaldi.

Leguminosæ (Pea Family).

Lupinus subalpinus Piper (Alpine Lupine). Abundant in the Meadows.

Empetraceæ (Crowberry Family).

Empetrum nigrum L.

Onagraceæ (Evening Primrose Family).

Epilobium alpinum L. (Alpine Willow-herb).
Epilobium latifolium L.
Epilobium luteum Pursh. (Yellow Willow-herb). Flowers later than the others.

Umbelliferæ (Parsley Family).

Heracleum lanatum Michx. (Cow Parsnip). An excellent attraction to insect-life.
**Osmorrhiza obtusa* (C. & R.) Fernald.

Ericaceæ (Heath Family).

Cassiope Mertensiana (Bong.) D. Don.
Phyllodoce empetriformis Don.
Phyllodoce glanduliflorus (Hook.) Cov.
Kalmia polifolia Wang. (American Laurel). Black Tusk Mountain, Helmit Valley.
Rhododendron albiflorum Hook.
Gaultheria myrsinites Hook. (Mountain Teaberry). Black Tusk Slopes. Forms low, compact beds often associated with *Salix nivalis*, of similar habit.
Pyrola secunda L. (One-sided Wintergreen). Shore of Lake Garibaldi, on edge of wood.
Vaccinium cæspitosum Michx. (Dwarf Bilberry).
Vaccinium membranaceum (Hook.) Piper. A plant occasionally found with the fungus *Calyptospora columnaris* (Alb. & Schw.) Kuhn., growing on and enclosing the stem completely, with only the leaves showing. The fungus was identified by F. L. Heald, per H. St. John.
Vaccinium ovalifolium Sm. (Oval-leaved Bilberry).

Gentianaceæ (Gentian Family).

**Gentiana glauca* Pall. (Glaucous Gentian). Gentian Ridge, 7,800 feet, growing on grassy edge of dry snow-water pool.

Polemoniaceæ (Phlox Family).

**Polemonium confertum* Gray. Polemonium Ridge. In crevices of rocks.
Phlox Douglasii Hook.

Hydrophyllaceæ (Water-leaf Family).

Phacelia sericea Gray.

Scrophulariaceæ (Figwort Family).

Castilleja oreophila Greenman. Chiefly the pale form, common in damp places.
Castilleja angustifolia var. *Bradbury* Fernald.
Castilleja miniata Dougl.
Mimulus alpinus (Gray) Piper (Alpine Monkey Flower).
Mimulus Lewisii Pursh.
Pentstemon Menziesii Hook.
Pentstemon procerus Dougl.
Pedicularis bracteosa Benth. Locally known as "Ground-hog Weed."
Pedicularis racemosa Dougl. Black Tusk Slope.
Veronica alpina L. (Alpine Speedwell).

Valerianaceæ (Valerian Family).

Valeriana sitchensis Bong. One of the most abundant blooms in the mountain meadows.

Campanulaceæ (Bluebell Family).

Campanula rotundifolia L. (Harebell). Parnassus Ridge.

Compositæ (Composite Family).

Anaphalis margaritacea Benth.
Achillea millefolium L. (Yarrow).
Agoseris aurantiaca (Hook.) Greene.
**Agoseris carnea* Rydb.
Arnica latifolia Bong. Common in mountain meadows.
Arnica alpina L. Black Tusk Slopes.
Artemisia norvegica saxatilis (Besser) Hall & Clements.
Aster foliaceus Lindl.
Erigeron acris var. *debilis* Gray.
Erigeron compositus Pursh. Panorama and Gentian Ridges.
Erigeron compositus var. *discoideus* Gray. Black Tusk Ridge.
Erigeron salsuginosus (Rich.) Gray.
Hieracium gracile Hook. (Alpine Hawkweed).
Petasites frigida (L.) Fries. (Alpine Coltsfoot).
Senecio triangularis Hook. Abundant on the meadows.
Senecio Freemontii T. & G. Among loose rock and scree.
Solidago algida Piper. At high altitudes in pockets of silt in rock crevices.
Antennaria rosea Greene.
Antennaria Macounii Greene.
Senecio pauciflorus Pursh. Panorama Ridge and shore of Lake Garibaldi.

ENTOMOLOGY.

Very little is known concerning the insect fauna of the Garibaldi Park District, so that special attention was paid to this section.

The number of specimens obtained in all orders was about 700. At present the Macrolepidoptera and Coleoptera are the only orders which have been worked up to any degree, and are listed below under their separate headings, where due acknowledgment to the various authorities consulted is made.

Lepidoptera.

Rhopalocera (Butterflies).

Owing to the inclement weather experienced, the collections in this order were not as large as anticipated, nearly all the specimens being taken between August 1st and 10th, the latter part of July being quite unproductive.

Some twenty-one species and varieties of diurnals were taken. From the condition of many of the specimens it is evident that they had emerged sometime earlier and had consequently not been improved by the buffeting of the rain and wind.

For the identification of all material in this order our best thanks are due to Mr. E. H. Blackmore, of Victoria, and through him to Dr. J. McDunnough, of Ottawa, who determined a few of the more difficult species. The species submitted to the latter are preceded by an asterisk. We are also indebted to Mr. Blackmore for the annotations (in brackets) after each species. The list is as follows:—

Papilio zelicaon Lec. One specimen only obtained, flying near the top of Panorama Ridge at an altitude of 6,000 feet.

Parnassius smintheus Dbldy. & New. Several newly emerged individuals were taken on Black Tusk Slopes and Panorama Ridge. (This species occurs on all the mountain-tops of British Columbia from the Rocky Mountains to Lillooet and north to the Yukon Boundary.)

Pieris napi marginalis Scud. Black Tusk Slopes. (This is primarily a lowland form.)

Eurymus nastes streckeri Gr. Gr. One only, flying about *Valeriana sitchensis* on Panorama Ridge. (This is a high-altitude form and is rather rare in collections. It has been taken previously on Mount McLean (8,000 feet) and on Pearson Mountain (7,000 feet), 25 miles west of Penticton.)

Œneis beani Elwes. One taken in numbed condition on Black Tusk Glacier; one or two others seen on Panorama Ridge. Also recorded from Mount Luxor by C. Berkeley in "B.C. Mountaineer." This was taken by Mr. Hossie at about the same time. (This species, although

confined to high altitudes, is rather local. It has only been recorded previously from two other localities, the top of Mount McLean and on Big Bar Mountain, in the Cariboo District.)

Erebia vidleri Elwes. Two specimens, on flowers of *Valeriana sitchensis;* one in a perfectly fresh condition and probably newly emerged. Panorama Ridge. (This is a more or less common species throughout Southern British Columbia at elevations of 4,000 feet and up.)

Argynnis hydaspe sakuntula Skin. One worn specimen, Black Tusk Meadows. (This form is only distinguished from *rhodope* Edw. by the complete absence of silver spots on the underside; *rhodope*, although practically unsilvered, always has the marginal lunules of the hind wings silvered.)

Argynnis bischoffi opis Edw. and

Argynnis bischoffi washingtonia B. & McD. Both these forms occurred together, the latter, however, being much more plentiful. Black Tusk Meadows and Panorama Ridge. (These two forms occur on all the higher peaks of the Coast Range and are taken as far north as Atlin; they were recorded in the 1906 B.C. check-list under the name of *euryneme* Edw. and var. *clio* Edw. *Opis* was described in 1874 from specimens taken at Mount Rainier, Wn.)

Brenthis chariclea Schneid. Several specimens taken on Black Tusk Meadows.

Brenthis bellona Fabr. One specimen, Black Tusk Meadows.

Euphydryas anicia Dbldy. & Hew. Very common on the floral slopes and valleys.

Polygonia faunus rusticus Edw. One or two were observed.

Aglais milberti Godt. Four or five freshly emerged specimens.

Vanessa cardui L. Two somewhat worn, large females were taken on Black Tusk Ridge.

Heodes mariposa Beck.

Heodes helloides Bdv. These were of frequent occurrence, the latter being quite common.

Heodes cupreus Edw. Very scarce and only occurring at high altitudes. Panorama Ridge and Gentian Ridge (7,500 feet). (The first authentic record of this brilliant species was made by Mr. A. Phair in August, 1917, who took several specimens in poor condition on Mount McLean. Odd specimens have been recorded from Revelstoke and Kaslo.)

Plebeius melissa Edw. Very abundant on the lower slopes.

Plebeius aquilo rustica Edw. Scarce; three specimens, summit of Gentian Ridge and Panorama Ridge. (This high-altitude species occurs on all the high peaks throughout the various mountain ranges of the Province and has been recorded from a number of localities.)

Ochlodes sylvanoides Bdv. Two females in good condition were taken. (This is a lowland species, but the specimens taken are much larger and darker than those found at sea-level.)

The rich floral slopes and "draws" of Black Tusk and Panorama Ridge proved the best general habitat of the foregoing, the flowers of *Valeriana sitchensis* being particularly attractive.

Heterocera (Moths).

The Noctuidæ were by far the most in evidence of the larger moths, although at no time abundant. Nearly all listed below are very rare in collections, and one is new to the Province. They were all taken by day, flying erratically in the hot sunshine, about the beds of *Valeriana* before mentioned. Unless otherwise stated, they were obtained on the slopes of Panorama Ridge, which appeared to be the best locality in the neighbourhood of the camp.

In all, approximately 175 specimens of Heterocera were secured—75 Macros and 100 Micros. Only the former have been worked up at present.

Phragmatobia fuliginosa borealis Straud. Two specimens of this uncommon species were taken floating on water, Black Tusk Meadows. (This species is exceedingly scarce in the Province, although I have records from five different localities. Single specimens have been taken at Alberni, Vancouver, and Vernon. Some few years ago they were fairly plentiful one season at Fraser Mills, but since then have become practically extinct.)

Orosagrotis incognita Sm. Short series. One specimen, also taken at "light" at Daisy Lake Lodge (1,200 feet). (This is the most western record of this species. The only previous record for British Columbia was at Mount McLean, where Messrs. Day and Hanham took a nice series in 1921.)

Scotogramma oregonica Wlk. One specimen. (Although having a wide distribution, this is a very scarce species in collections, only one or two individuals having been taken in the various localities. Other records are from Cowichan Lake, V.I., Penticton, Lillooet, and Kaslo.)

PLATE I.

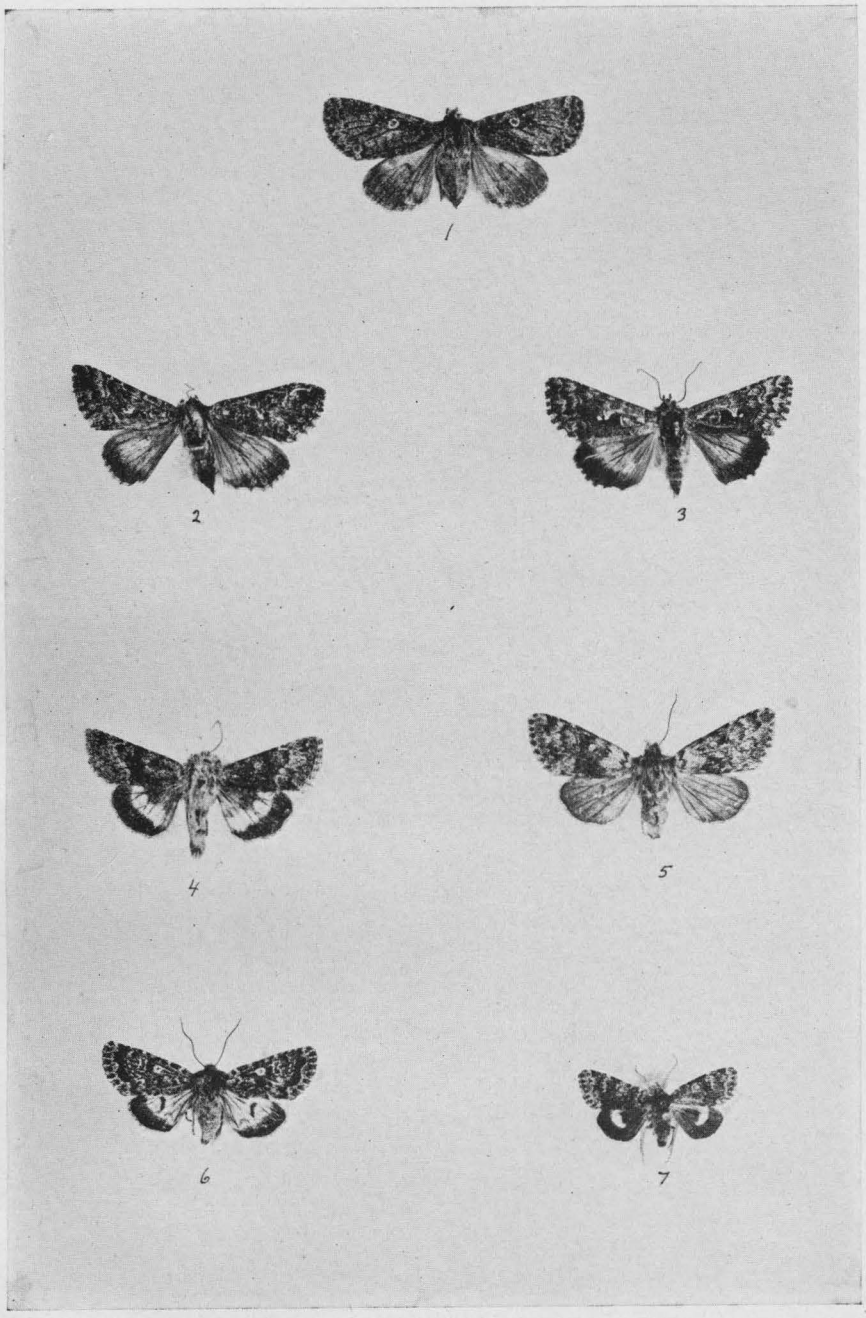
GARIBALDI LEPIDOPTERA.

($\times \frac{1}{1}$).

Fig.

1. *Lasionycta perplexa* Sm.
2. *Autographa excelsana* Straud.
3. *Autographa excelsana* f. *alta* Ottol.
4. *Onconemis pudorata* Sm.
5. *Lasiestra phoca luteola* Sm.
6. *Anarta poca* B. & B.
7. *Anarta wrta* Sm.

PLATE I.



Anarta poca B. & Benj. (Pl. I., Fig. 6.) Two specimens. (This is an exceedingly good capture and extends its westerly distribution. The species was described by Barnes and Benjamin (Cont. Lep. No. Amer., Vol. V., No. 2, March, 1923) from specimens taken at Pocahontas, Alberta. A pair of specimens taken on Mount Cheam and now in the Canadian National Museum and a single specimen taken by Mr. A. W. Hanham on Mount McLean are apparently all that represented this species hithertofore.)

Anarta lærta Sm. (Pl. I., Fig. 7.) One specimen on Gentian Ridge.

Lasiestra phoca luteola Sm. (Pl. I., Fig. 5.) Several specimens. (The only previous recorded capture of this form was made by Messrs. Day and Hanham, who took a nice series of this and the typical form *phoca* on Mount McLean (7,500 feet) in August, 1921.)

Lasiestra uniformis Sm. One specimen. (This is a very rare species in the Province, our only other record being from Kaslo.)

Lasionycta perplexa Sm. (Pl. I., Fig. 1.) Two specimens. (This is a new record for British Columbia. It is very close to *alberta* B. & Benj. in superficial appearance, but the latter is easily separated from *perplexa* by the more heavily serrate male antennæ. *Perplexa* was transferred from the genus *Lasiestra* by Barnes & Lindsey in 1921.)

Lasionycta rainieri Sm. One specimen. (This species is also rare in collections. Only three other British Columbia records are known to me—Taku River (Bryant), Mount McLean (Phair), and Kaslo (Cockle).)

Oncocnemis pudorata Sm. (Pl. I., Fig. 4.) Two specimens. (One of the most interesting captures. The only previous record is a specimen taken by Mrs. Bicholl at Hope Mountains some twenty years ago.)

Autographa excelsana Straud. (Pl. I., Fig. 2.) One specimen.

Autographa excelsana alta Ottol. (Pl. I., Fig. 3.) A short series of this high-altitude form. It was far more in evidence than any other noctuid. (In 1902 Ottolengui described this as a distinct species under the name *excelsa*, but owing to a rearrangement of genera in Barnes & McDunnough's Check-list of 1917, this name became a homonym, and in 1919 Ottolengui changed it to *alta*. According to Dr. McDunnough, in 1916 Straud gave the name *excelsana* to the form without the dot following the comma, and this name is therefore used for the species with the name *alta* as form norm. Specimens have also been taken at Mount McLean and Kaslo.)

Dysstroma citrata immanata Haw. One specimen in open fir forest at base of Panorama Ridge.

Eulype hastata subhastata Nolc. Quite common. (This race is taken at elevations in many localities in the Province, from Atlin to Kaslo, but so far has not been recorded from Vancouver Island.)

Eupithecia cretaceata Pack. One worn specimen.

Hepialus roseicaput N. & D. Three male specimens. (In the Pan Pacific Entomologist for October, 1925, Barnes and Benjamin, in revising the Hyperboreus group of Hepialus, resurrected *roseicaput* from the synonymy in which it had been placed by Barnes & McDunnough in 1917. The species was originally described in 1893 from a single specimen taken in the mountains near Lytton, B.C. It has been associated with *mathewi* Hy. Edw., but although similar in superficial appearance it is quite distinct; *roseicaput* is a high-altitude species occurring at elevations from 5,000 to 8,000 feet, while *mathewi* occurs at sea-level and is apparently restricted to Vancouver Island and the Lower Fraser Valley. Other records of *roseicaput* are Mount McLean (Hanham), Taku River (Bryant), and a single male specimen taken by Mr. Moilliet at Vavenby.)

Plecoptera.

Perlodes sp. A large species found on glacier and on shore of Lake Garibaldi.

Neuroptera.

Dranella sp.

Odonata.

(Identified by Dr. E. M. Walker.)

Enallagma boreale Selys. Daisy Lake.
Æschna eremita Scudder. Daisy Lake.
Somatochlora semicircularis Selys. Black Tusk Mountain.
Somatochlora ablicincta (Burm.) Black Tusk Mountain.

Coleoptera.

The small collection of Coleoptera has proved to be of some interest, either on account of the rarity or by increasing the known range of several of the species.

Two distinct faunal types exist here, the Hudsonian or northern element having wide northern distribution extending across the continent, and also in some cases into Siberia and Europe; and the Vancouveran, characterized by species having their range along the coastal area from California to Alaska; as an instance of the Hudsonian *Cryptohypnus hyperboreus* Gyll. has an extensive almost circumpolar distribution and has not previously been recorded south of Alaska. Of the Vancouveran, *Betamon californicus* Schaffer has not previously been recorded north of California.

As a matter of interest in this connection, a brief indication of the distribution is inserted in the majority of cases. It will be noticed that the family Elateridæ furnishes the most noteworthy material.

We are under a deep sense of obligation to Dr. E. C. Van Dyke, of Berkeley, Calif., for the determination of the majority of species and all notes of value relative to type localities and distribution; to Mr. R. Hopping, of Vernon, B.C., for identification and information on many species, and to Mr. W. J. Chamberlin, of Corvallis, Ore., who has kindly named the Buprestids; to each and all our best thanks are extended.

New to Canada.

Two species have not hitherto been recorded from Canada:—
Nebria meanyi Van Dyke. Black Tusk Meadows.
Betamon californicus Schaffer. Black Tusk Meadows.

New to British Columbia.

Cryptophyonus hyperboreus Gyll. Black Tusk Meadows.
Ludius decoratus Mann. Black Tusk Meadows.
Nebria meanyi Van Dyke. Black Tusk Meadows.
Betamon californicus Schaffer. Black Tusk Meadows.

The following is the complete list as identified to date:—

Dytiscidæ.

(Aquatic Coleoptera, identified by J. B. Wallis, Winnipeg.)

Agabus hypomelas Mann. Black Tusk Meadows.
Gyrinus picipes Aube. Black Tusk Meadows.

Carabidæ.

Carabus tædatus Fab. One specimen under decaying wood, Black Tusk Meadows. Alaska, and in its various forms to Hudson's Bay Territory and south to California.

Leistus ferruginosus Mann. Not uncommon; with the preceding, also under rotten logs. Parnassus Creek, Helmit Valley. Alaska to Oregon.

Nebria sahlbergi Fisch. Common under stones along stream-bank, Parnassus Creek. Labrador, Alaska, Newfoundland, Oregon, and the variety, Europe and Siberia.

Nebria meanyi Van Dyke. New to Canada; this species has only recently been described from Washington, Pan-Pac. Ent., Vol. 1, page 118. Not common; in the same situations as the foregoing. Parnassus Creek.

Bembidion incertum Mots. Occasional under stones, as preceding. Black Tusk Meadows. Alaska to Michigan, British Columbia.

Trechus chalybeus Dej. Frequent, same as preceding. Alaska to British Columbia, New Jersey, Indiana.

Pterostichus brunneus Dej. Occasional under stones, as previous species.

Amara erratica (*Celia*) Sturm. One specimen taken on glacier. Europe, Siberia, Alaska, British Columbia.

Amara (*Celia*) *subænea* Lec. Several, as preceding. British Columbia, Lake Superior, Newfoundland, Indiana, Colorado.

Harpalus somnulentus Dej. Under stones near bank of stream; scarce. Alaska, British Columbia, California.

Staphylinidæ.

Tilea cavicollis Fauv. On the glacier, Black Tusk Ridge. British Columbia to California.

Cantharidæ.

Silis difficilis Lec. One, on glacier, Black Tusk Ridge. Common in interior of British Columbia (Hopping).

Œdemeridæ.

Calopus angustus Lec. On the glacier, Black Tusk Ridge. This is a wood-borer, the larvæ mining in the heart-wood of dead coniferous trees. Widely distributed from east to west. British Columbia to Newfoundland, New Mexico.

Elateridæ.

Athous rufiventris var. *ferruginosus* Esch. California to Alaska.

Ludius volitans Esch. One specimen on glacier. "N. America" (Leng).

Ludius umbricola Esch. Alaska to British Columbia and Northern California.

Ludius lutescens Fall. Occasionally found on the glacier before mentioned. Originally described from near Banff, Alta., in 1910. This is not uncommon on the mountains near Lake Louise and in the mountains of Eastern British Columbia (Van Dyke).

Ludius angularis Lec. Three specimens on glacier. British Columbia and Oregon.

Ludius æreipennis (Kby.) Black Tusk Meadows.

Ludius weidti Angell. One or two specimens on the same glacier as above. Described from the "Cascade Mountains, British Columbia, altitude 7,000 feet" in 1892. A very rare species, known only from Paradise Valley, Mount Rainier, Wash. (Van Dyke), and the two localities in British Columbia mentioned here.

Ludius decoratus Mann. A single specimen was taken on the glacier on Black Tusk Ridge. A rare boreal species described from Kodiak, Alaska. "Habitat in insula Kadjak rarissime; D. Aolmberg," in 1853. Recorded by Van Dyke from Alaska and Yukon. It is chiefly an inhabitant of the north-westerly part of the continent, from Alaska along the coast to the higher mountains of British Columbia. No previous records from British Columbia are known to me.

Hemicrepidius oregonus (Lec.) Black Tusk Meadows.

Cryptohypnus hyperboreus Gyll. One under stone by stream, Black Tusk Slope. This is a new record for British Columbia. It inhabits Arctic, Europe, and America, Alaska, Yukon, and Hudson Bay Territory, and has never previously been taken so far south.

Cryptohypnus planatus Esch. Quite plentiful under stones on bank of Parnassus Creek, exceeding in numbers all other species. Roots of the grasses and other plants ramified among the stones near which they were found, upon which the larvæ possibly feed.

Cryoptohypnus grandicollis Lec. Occasionally under stones on bank of Parnassus Creek. Although originally described as from "Canada" in 1866, no further data are available as to the locality, though possibly British Columbia. Dr. Van Dyke has records from California. It would appear that the present record is the first recent one for Canada and British Columbia.

Cryptohypnus nocturnus var. *bicolor* Esch. Frequently found with the preceding. Not uncommon in the interior of British Columbia (Hopping). Alaska, Labrador, British Columbia.

Betamon californicus Schaffer. One specimen from the glacier. This is new to Canada. Previously known from California (Van Dyke).

Drasterius debilis Lec. One from the glacier. Another rare species. Known from British Columbia and "farther east," from whence it was originally described.

Elater nigrinus Payk. (Van Dyke). On the glacier. Europe, Siberia, Alaska, Vancouver, Labrador.

Buprestidæ.

Buprestis fasciata var. *langi* Fab. Several taken, resting on leaves of willows at Daisy Lake. Widely distributed across continent in its two forms.

Melanophila drummondi Kby. Abundant. Remains in hemlock-bark (*Tsuga heterophylla*). Flying about newly felled *Abies lasiocarpa*. Northern North America, south to New Mexico, east to Michigan.

Melanophila acuminata (DeG.) On glacier. Atlantic to Pacific, Europe and Asia.

Chrysobothris trinervia Kby. In numbers about newly cut *Abies lasiocarpa*, where they were very actively running or flying in the hot sunshine. They are remarkably agile and readily elude capture. Northern North America and south at higher elevations to Carolina and California.

Ostomidæ.

Ostoma ferruginea (L.) On glacier, Black Tusk Ridge; also found feeding on fungus under bark.

Cucujidæ.

Dendrophagus glaber Lec. One was taken under the bark of a fallen mountain hemlock (*Tsuga mertensiana*). Widely distributed through the northern forests across Canada.

Coccinellidæ.

Hippodamia sp. Several on the glacier. Also reported as abounding on the summit of Black Tusk, where they would probably hibernate.

Melandryidæ.

Serropalpus barbatus (Schall.). On the glacier, Black Tusk Ridge. The larva is a wood-borer. Of wide northern distribution. Circumpolar.

Scarabæidæ.

Aphodius aleutus Esch. As above. Siberia, Alaska, California.

Aphodius aleutus ursinus Mots. Common on the glacier and the meadows. Washington, Oregon, New Mexico.

Cerambycidæ.

Tetropium velutinum Lec. One taken on glacier, Black Tusk Ridge. British Columbia to California.

Rhagium lineatum Oliv. Two specimens, running over bark of newly felled *Abies lasiocarpa*, Black Tusk Meadows. Over the entire North American continent.

Strangalia obliterata Hald. One on glacier, Black Tusk Ridge. British Columbia to California.

Strangalia propinqua Lec. One on flower of *Hieracleum lanatum*, Black Tusk Meadow. British Columbia to California.

Xestoleptura crassipes Lec. Two on glacier, Black Tusk Ridge. British Columbia to California.

Xestoleptura tibialis Lec. Frequent. On flowers on *H. lanatum* and often drowned in bucket water near the tents; one taken under bark of fallen hemlock. British Columbia to California.

Pachyta armata Lec. This fine Longhorn occurred in larger numbers than any of the others, invariably on flowers of *H. lanatum*, occasionally could be taken flying, when it much resembled a bumblebee, both in appearance and action. Black Tusk Meadows. Only to be seen on hot, sunny days. British Columbia to California.

Xylotrechus undulatus Say. One on stump of newly felled *Abies lasiocarpa*. This is very protectingly coloured. It is exceedingly active when alarmed. Continental wide.

Atimia dorsalis Lec. No living examples were found, but many remains occurred in the bark of *Chamæcyparis nootkatensis*. The larvæ tunnel tortuous galleries in the substance of the bark, or immediately beneath, in the sapwood, depending on the thickness of the former. The pupal cell is the slightly enlarged termination of the gallery just beneath the outer surface, the exit being finally completed by the adult, emerging through an elliptical hole. The gallery is filled with tightly packed frass. The bark of some of the trees was quite riddled with their work. Dead or dying trees only were affected. British Columbia to California.

Monochamus oregonensis Lec. Quite abundant about newly felled *Abies lasiocarpa* in hot sunshine only. They were observed running over the bark or busily paired. The white tents proved some attraction, while they occasionally alighted on one's person in the vicinity of the cut wood. British Columbia to California.

Oberea quadricallosa Lec. One on willow-leaf, Daisy Lake. British Columbia to California.

It will be noted that nearly all the Cerambycidæ are essentially "Vancouveran" in distribution.

Chrysomelidæ.

Syneta carinata (Mann). Numerous dead specimens were picked up on the glacier of Black Tusk Ridge.

Adoxus obscurus L. One or two on the glacier; others crawling on herbage, Black Tusk Slopes.

Caligraphus californicus Linell. On the glacier.

Phytodecta artica Mann. Several on the glacier and on leaves of willow (*Salix commutata denudata*). The willows in some cases had numerous ova and young larvæ on the leaves, no pupæ could be found, and adults were very scarce; hence it is presumed that the latter were hibernating individuals. Evidences were that adults would be plentiful in late August.

Hymenoptera.

(Identified at Ottawa, per R. Hopping.)

Tenthredinidæ.

Tenthredo unicinctus Novt. On glacier.

Siricidæ.

Urocerus flavicornis Fab. (Horn-tail). Boring in stump of freshly felled *Abies lasiocarpus.*

Sirex juvencus var. *cyaneus* Fab. Boring in freshly felled stump of *Abies lasiocarpus.*

Ichneumonidæ.

Ephialtes pedalis Cress. On glacier.

Colcocentrus occidentalis Cress.

AMPHIBIA.

Bufo boreas boreas B. & G. (Northern Toad). This was frequently met with about the meadows and floral slopes; all of the specimens encountered were noticeably more brightly and lightly coloured than those of Daisy Lake. Nearly every little lochan had its toad inhabitant, while others were found on the stream-banks, near the old burrows of a chipmunk, into which they retreated when disturbed.

Rana pretiosa pretiosa B. & G. (Spotted Frog). Taken only at Daisy Lake, where it is common.

Ambystoma sp. (Salamander). A badly damaged Salamander, which may be *A. decorticata*, was taken in a mouse-trap on Black Tusk Meadow. Other specimens were reported by members of the camp.

ORNITHOLOGY.

Buffle-head (*Charitonetta albeola* L.). A half-grown bird was seen on Lake Garibaldi, indicating that they breed in the district. A very close view was obtained and no doubt remains as to its identity.

Least Sandpiper (*Actodroma minutilla* Vieill). A pair were observed on shore of Lake Garibaldi, presumably of this form.

Killdeer Plover (*Ægilitis vocifera* Linn.). One seen and heard near Mimulus Lake.

Sooty Grouse (*Dendragapus obscurus fuliginosus* Ridgway). Common; well-grown young observed also.

Rock Ptarmigan (*Lagopus rupestris rupestris* Gmelin). A hen with eight half-grown young, near Mimulus Lake.

Marsh Hawk (*Circus hudsonius* Linn.). One female, on Black Tusk Meadows.

North-western Flicker (*Colaptes cafer saturatior* Ridgway). On Black Tusk Meadows.

Rufous Hummingbird (*Selasphorus rufus* Gmelin). Repeatedly seen even above timber-line at 6,000 feet.

Olive-sided Flycatcher (*Nuttallornis borealis* Swainson). Occasionally heard calling near camp.

Horned Lark (*Octocoris alpestris arcticola* Ober.). Seen several times at high altitudes, among the snow patches.

Canada Jay (*Perisoreus c. canadensis* L.). Very common and obtrusive around camp.

Clarke's Nutcracker (*Nucifraga columbiana* Wilson). Occasionally seen and more often heard.

Hepburn's Leucosticte (*Leucosticte tephrocotis littoralis* Baird). One or two seen among the snow patches.

Oregon Junco (*Junco hyemalis oreganus* J. K. Townsend). Very common on the meadows.

Dipper (*Cinclus mexicanus* Swainson). Seen on every stream; well-grown young able to fly.

Winter Wren (*Nannus hiemalis pacificus* Baird). A flock seen; one with much white in secondaries.

Red-backed Nuthatch (*Sitta canadensis* Linn.). Heard occasionally near camp in the woods.

Golden-crowned Kinglet (*Regulus s. satrapa* Lich.).

Varied Thrush (*Idoreus nævius* Gmelin). Several pairs seen on Black Tusk Meadows.

Mountain Bluebird (*Sialis currucoides* Bechstein). A small flock seen on one occasion.

Mammals.

Little opportunity was available for the collection of mammals; a few traps, however, were set in the vicinity of the camp, resulting in the following species.

With the exception of the Marmot, they have been examined and determined by Mr. W. C. Henderson, U.S. Dept. of Agriculture, Washington, D.C., to whom we have very much pleasure in conveying our best thanks.

Arrangement followed is that of G. S. Miller, Bull. 128, U.S. Nat. Mus., 1923.

Sorex vagrans vagrans Baird (Shrew). Bank of Parnassus Creek; one specimen.

Marmota caligata cascadensis Howell (Hoary Marmot). Black Tusk Meadows, near Lake Garibaldi. A young specimen, probably of this subspecies. This species is to be found on all the higher slopes. It may often be seen lying motionless on a projecting rock. Their loud penetrating whistle is a characteristic feature of the mountains.

Eutamias amœnus ludibundus (Hollister) (Chipmunk). Black Tusk Meadows; four specimens. This little Chipmunk was abundant everywhere, whether in the sheltered valleys or high up among the screes, wherever a patch of grass could provide food.

Peromyscus maniculatus oreas (Bangs) (White-footed Mouse). Bank of Parnassus Creek; two specimens.

Evotomys gapperi saturatus Rhoads (Vole). Bank of Parnassus Creek; three specimens. One of these was fond of running over the sleepers in the tent. Two are young specimens and lack the rufous tinge of the mature animal.

Zapus trinotatus trinotatus Rhoads (Jumping Mouse). Black Tusk Meadows; one specimen. This had its burrow on flat ground among long grass, away from any bank or root.

In checking up the distribution of the foregoing, it is noted that several in their subspecific forms reach their northern limit in Southern British Columbia, being otherwise found along the coast to California; such are *Z. trinotatus*, *P. oreas*, and *Sorex. v. vagrans*.

Species seen or reported but not taken include the following:—

Black Bear (*Euarctos a. americanus* Pallas). Several times they were seen on the trail between camp and Daisy Lake.

The Puma and Wolves are also reported to occasionally occur in the district.

Little Chief Hare, Pika (*Ochotona f. fenisex* Osgood). Occasionally seen and more often heard among the larger rocks at the foot of the screes. One was observed to be contentedly munching the lichen on the rocks.

Coast Deer (*Odocoileus c. columbianus* Rich.). One individual was reported at various times in the vicinity of the meadow; the majority of the Deer descend to lower levels in the summer, frequently the "salt-licks."

Mountain-goat (*Oreamus a. americanus* (Blainville)). Reported from Corrie Ridge and also in a previous year in the Helmit Valley, north of Panorama Ridge.

MARINE ZOOLOGY.

The aquaria have been maintained throughout the season, but until it is possible to have running sea-water installed no specially attractive exhibit can be continued with the time at present available for such. A matter of this nature requires much detailed attention to obtain pleasing results.

The small aquaria in use at present have given no trouble in regard to maintaining the "balance" of plant and animal life. The *Vaucheria* used is part of an original piece sent from Essex, England, two years ago by Mr. F. J. Lambert. This has thriven exceedingly and is

PLATE II.

SCALY CRAB.

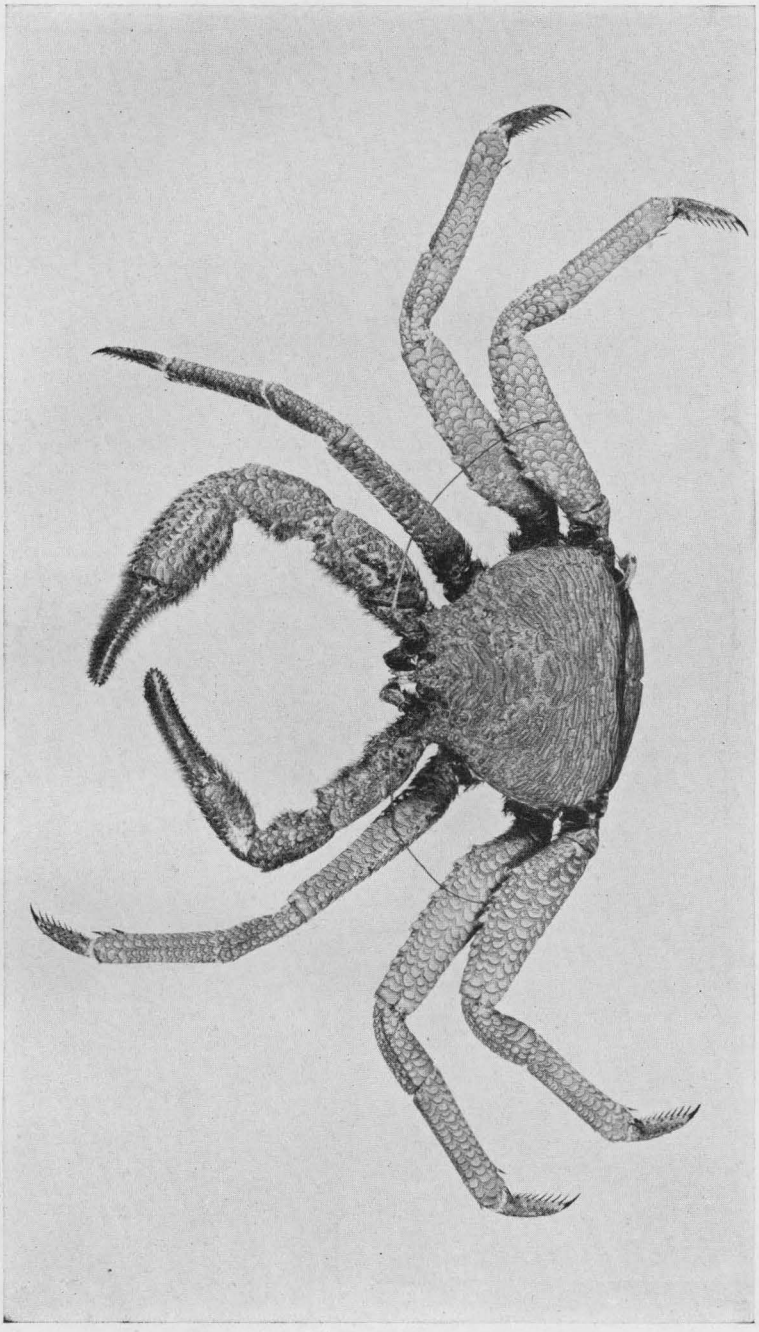
Placetron wosnessenskii Schalfeew.

(—½)

Breadth of carapace, 7 cm.

Length of carapace, 5 cm. 6 mm.

PLATE II.



superior to anything previously used; the chief advantage is its rapidity of growth, with a consequent plentiful output of oxygen, thus purifying the water and rendering constant changing—the bane of small stagnant marine aquaria—entirely unnecessary.

No new or striking species of fish have been installed, as it is found that the various "tween" tide varieties succeed with the minimum of attention. The clingfish (*Caularchus meandricus*) mentioned in the Museum Report for 1925 lived until August of the past season, being close on fourteen months in captivity. Various anemones, starfish, etc., have from time to time been on exhibit.

Marine accessions are due entirely to the interest and generosity of the public, no systematic field-work having been undertaken by the Museum, although the desirability of such cannot be overestimated, as it lacks anything like a representative marine fauna of the vicinity.

The marine shell-bearing mollusca contained in the Museum and the collection of Mr. W. A. Newcombe have now been completely revised by the kindness of Dr. Bartsch, of Washington, D.C., and the concluding portion, the Univalves, are listed on page 28. Mr. Newcombe has greatly enriched the collection by gifts of many species hitherto unrepresented.

Mr. F. J. Lambert, of Leigh-on-Sea, Essex, England, has manifested his interest by sending further living hydra-tuba stages of various Jelly-fish, *Aurellia*, *Chrysæra*, *Cyanea*, etc., including an excellent account of his observations on the development of certain of these species, and is of special merit. A copy is preserved in the Museum library for the perusal of any one interested. A detailed list of accessions in this section follows:—

Cœlenterata.

Further living and preserved specimens of the young stages of certain Jelly-fish from Leigh-on-Sea, Essex, from Mr. F. J. Lambert.

Annelida.

Serpula Tubes. Thurston Harbour, Q.C.I. (C. P. Johnston).

Arthropoda.

Crustacea.

Pennella balænoptera Koven & Danieleson. A large parasitic copepod taken from the Finback Whale (*Bälænoptera velifera* Cope). Cachalot, B.C. (I. E. Cornwall). This is 8 inches to 1 foot long. Mr. Cornwall informs me that it was so numerous on some parts of the whale, particularly under the lower lip, as to simulate a coat of coarse hair.

Coronula regina Darwin (Whale Barnacle). From lower lip and front of flippers of Sei Whale (*Balænoptera borealis* Lesson). Cachalot, B.C. (I. E. Cornwall).

Balanus tintinnabulum californicus Pilsbry. (Barnacle). From S.S. "Gertrude" at William Head, V.I. (I. E. Cornwall).

Lepas hilli (Leach) (Hill's Goose Barnacle). From S.S. "Gertrude," William Head, V.I. (I. E. Cornwall).

Placetron wosnessenskii Schalfeew. (Scaly Crab). (Plate II.). Presented by Rev. R. Connell. This interesting crab was collected by Mr. Sowerby in the inner harbour of Victoria. It constitutes the most southerly record, the nearest previous one being from Graham Island (Miss Mary Rathbun). The normal habitat is in northern waters. This is the first specimen of its kind to be represented in the Museum. A photographic reproduction faces pages 27.

Upogebia pugettensis Dana (Burrowing Crab). Saanich Spit, V.I. (S. Jones).

Prawns. Esquimalt Dry-dock (G. A. Hardy).

Mollusca.

Cryptochiton stelleri (Giant Armadilla Shell). Victoria (E. N. Renouf).

Lamellidoris bilamellata (Sea-slug). Some extra fine specimens taken from the dry-dock at Esquimalt, where they were busily spawning. February 22nd (G. A. Hardy).

Several fine specimens of local clams (G. J. French).

Two species of marine shells (H. Toms).

A selected collection of shells from Port Renfrew and Sooke, V.I., presented by the Star Construction Company. There are several very acceptable species among them; in all, twenty-six species are represented, including many interesting colour variations.

Nudibranch (Sea-slug). William Head, V.I. (I. E. Cornwall).

ECHINODERMATA.

Cucumaria japonica Semper. (Sea-cucumber). Victoria (R. Thomas).

REVISED LIST OF BRITISH COLUMBIA MARINE UNIVALVE MOLLUSCA IN THE MUSEUM AND NEWCOMBE COLLECTIONS.

(ARRANGED ACCORDING TO DALL'S LIST, 1921.)

This is a continuation of the List of Marine Mollusca, commenced in the Report for 1925, page 18, and completes to date the material concerning the marine shell-bearing mollusca in these collections.

For the determination and revision we are again under deep obligation to Dr. Paul Bartsch, of Washington, D.C., for his kindness in checking over most of the material, and also to Mrs. Oldroyd, of Seattle, Wash., who had named many of the smaller species for the late Dr. C. F. Newcombe. We have much pleasure in recording our thanks and appreciation for the invaluable services thus rendered.

As in the previous list, specimens in the Newcombe collection not represented in the Museum are preceded by an asterisk; this is done partly to direct attention to the whereabouts of the particular species, and partly to point out to friends those species which it is desired to obtain to complete the collection in the Museum.

Mr. W. A. Newcombe has generously donated additional species from his collection, while the Star Construction Company at Port Renfrew, V.I., has also kindly presented a small but very acceptable collection of Univalves recently collected on the west coast.

Class SCAPHOPODA.

Family DENTALIIDÆ.

Dentalium rectius Cpr.
Dentalium pretiosum Sowerby.
Cadulus hepburni Dall.
Cadulus tolmei Dall.
Cadulus aberrans Whiteaves.

Class GASTROPODA.

Family CAVOLINIIDÆ.

**Clio occidentalis* Dall.

Family ACTEONIDÆ.

Rictaxis punctocoelata Cpr.

Family ACTEOCINIDÆ.

Acteocina culcitella Gould.
Acteocina eximia Baird.
Retusa harpa Dall.
**Volvulella cylindrica* Cpr.

Family SCAPHANDRIDÆ.

**Diaphana debilis* Gould.
Bullinella alba Brown.
**Bullinella attonsa* Cpr.

Family AKERIDÆ.

Haminœa vesicula Gould.

Family AGLAJIDÆ.

**Aglaja adellæ* Dall.

Family SIPHONARIIDÆ.

Liriola thersites Cpr.

Family TURRITIDÆ.

Moniliopsis incisa Cpr.
Moniliopsis rhines Dall.
Antiplanes perversa Gabb.
Lora exarata Moller.
**Lora tabulata* Cpr.
Lora fidicula Gould.
**Lora turricula* Montagu.
**Lora violacea* Mighels & Adams.
Mangilia sculpturata Dall.
Mangilia crebricostata Cpr.
Mangilia levidensis Cpr.
**Cytharella victoriana* Dall.

Family CANCELLARIIDÆ.

**Sveltia modesta* Cpr.
Sveltia unalashkensis Dall.
**Sveltia circumcincta* Dall.
**Admete couthouyi* Jay.

Family OLIVIDÆ.

Olivella biplicata Sowerby.
Olivella bætica Cpr.

Family MARGINELLIDÆ.

Merovia pyriformis Cpr.

Family CHRYSODOMIDÆ.

Exilia rectirostris Cpr.
**Aulacofusus roseus* Dall.
Chrysodomus tabulatus Baird.
Chrysodomus smirnius Dall.
Chrysodomus liratus Martyn.
Searlesia dira Reeve.

Family BUCCINIDÆ.

Buccinum plectrum Stimpson.
Buccinum bæri morchianum Fischer.

Family ALECTRIONIDÆ.

Schizopyga fossata Gould.
Schizopyga mendica Gould.

Family COLUMBELLIDÆ.

**Alia tuberosa* Cpr.
Alia gausapata Gould.
**Alia carinata* Hinds.
**Alia carinata californiana* Gaskoin.
Astyris permodesta Dall.
Amphissa columbiana Dall.

Family MURICIDÆ.

Purpura foliata Martyn.
Tritonalia lurida Middendorff.
Tritonalia interfossa Cpr.
Neptunea dalli Kobelt.
Neptunea multicostata Eschscholtz.
Neptunea orpheus Gould.
Neptunea stuarti E. A. Smith.
Neptunea tenuisculpta Cpr.
Nucella lamellosa Gmelin.
Nucella canaliculata Duclos.
Nucella emarginata Deshayes.

Family EPITONIIDÆ.

Opalia wroblewskii Morch.
Acirsa borealis (Beck) Lyell.
Nitidoscala indianorum Cpr.

Family MELANELLIDÆ.

**Melanella columbiana* Bartsch.
Melanella comoxensis Bartsch.
Melanella macra Bartsch.
Melanella micans Cpr.
**Melanella rutila* Cpr.
**Melanella oldroydi* Bartsch.

Family PYRAMIDELLIDÆ.

Chemnitzia engbergi Bartsch.
Strioturbonilla vancouverensis Baird.
Strioturbonilla stylina Cpr.
**Strioturbonilla barkleyensis* Bartsch.
Pyrgolampros victoriana Dall & Bartsch.
**Pyrgolampros newcombei* Dall & Bartsch.
Pyroglampros taylori Dall & Bartsch.
**Pyrgolampros aurantia* Cpr.
**Mormula lordi* E. A. Smith.
**Mormula eschscholtzi* Dall & Bartsch.
**Chrysallida montereyensis* Dall & Bartsch.
Chrysallida oregonensis Dall & Bartsch.
**Menestho pharcida* Dall & Bartsch.
**Evalea quadræ* Dall & Bartsch.
**Evalea skidegatensis* Bartsch.
Evalea willetti Bartsch.
**Evalea inflata* Dall & Bartsch.
Evalea columbiana Dall & Bartsch.
Evalea angularis Dall & Bartsch.
**Evalea stephensæ* Dall & Bartsch.
**Evalea deliciosa* Dall & Bartsch.
**Amaura kennerlyi* Dall & Bartsch.
**Amaura engbergi* Bartsch.
**Amaura talpa* Dall & Bartsch.
**Amaura canfieldi* Dall.

Family CYMATIIDÆ.

Fusitriton oregonensis Redfield.

Family CERITHIOPSIDÆ.

**Cerithiopsis fraseri* Bartsch.
**Cerithiopsis onealensis* Bartsch.
**Cerithiopsis stejnegeri* Dall.
**Cerithiopsis stejnegeri dina* Bartsch.
**Cerithiopsis signa* Bartsch.
**Cerithiopsis willetti* Bartsch.
Cerithiopsis columna Cpr.
**Cerithiopsis stephensæ* Bartsch.

Family CERITHIIDÆ.

Stylidium eschrichtii Middendorff.
**Semibittium quadrifilatum* Cpr.

Family TRICHOTROPIDÆ.

Trichotropis borealis Sowerby.
Trichotropis cancellata Hinds.

Family CÆCIDÆ.

Micranellum oregonense Bartsch.

Family VERMETIDÆ.

Bivonia compacta Cpr.

Family TURRITELLIDÆ.

Tachyrhynchus reticulatus Mighels.
**Tachyrhynchus lactcolus* Cpr.

Family LITTORINIDÆ.

Littorina sitkana Philippi.
Melarhaphe scutulata Gould.

Family LACUNIDÆ.

Lacuna divaricata Fabricius.
**Lacuna solidula* Loven.
Lacuna variegata Cpr.
**Lacuna unifasciata* Cpr.
Lacuna carinata Gould.
Lacuna vincta Mont.

Family FOSSARIDÆ.

**Iselica fenestrata* Cpr.

Family LITIOPIDÆ.

Diala marmorea Cpr.
**Diala acuta* Cpr.
Barleeia haliotiphila Cpr.
**Barleeia subtenuis* Cpr.

Family RISSOIDÆ.

**Alvania burrardensis* Bartsch.
**Alvania sanjuanensis* Bartsch.
**Alvania montereyensis* Bartsch.
Alvania compacta Cpr.

Family RISSOINIDÆ.

Rissoina newcombei Dall.

Family SYNCERATIDÆ.

Syncera translucens Cpr.

Family HIPPONICIDÆ.

Hipponix antiquatus cranioides Cpr.

Family CREPIDULIDÆ.

Crepidula adunca Sowerby.
**Crepidula dorsata* Brod. var. *bilobata* Reeve.
Crepipatella lingulata Gould.
Ianacus nummarius Gould.

Family CALYPTRÆIDÆ.

Calyptræa fastigiata Gould.

Family NATICIDÆ.

Crytonatica clausa Broderip and Sowerby.
**Cryptonatica aleutica* Dall.
**Euspira gronlandica* (Beck) Moller.
Euspira lewisii Gould.

Family LAMELLARIIDÆ.

**Lamellaria stearnsii* Dall.

Family VELUTINIDÆ.

Velutina prolongata Cpr.
Velutina lævigata (Linnaeus) Muller.

Family LEPETIDÆ.

Cryptoctenidia cæcoides Cpr.

Family ACMÆIDÆ.

Acmæa mitra Eschscholtz.
Acmæa mitra funiculata Cpr.
Acmæa cassis pelta Eschscholtz.
Acmæa scutum Eschscholtz.
Acmæa scutum patina Eschscholtz.
Acmæa scutum pintadina Gould.
Acmæa scutum cribraria Cpr.
Acmæa scutum parallela Dall.
Acmæa digitalis Eschscholtz.
Acmæa instabilis Gould.

Family PHASIANELLIDÆ.

Tricolia pulloidea Cpr.
**Eulithidium luridum* Dall.

Family TURBINIDÆ.

Pachypoma inæquale Martyn.
Leptothyra carpenteri Pilsbry.
Leptothyra bacula Cpr.
**Leptothyra paucicostata* Dall.

Family LIOTIIDÆ.

**Molleria quadræ* Dall.

Family TROCHIDÆ.

Halistylus subpupoideus Tryon.
Chlorostoma funebrale A. Adams.
Promartynia pulligo Martyn.
Calliostoma costatum Martyn.
Calliostoma annulatum Martyn.
Calliostoma canaliculatum Martyn.
Calliostoma variegatum Cpr.
Cidarina cidaris A. Adams.
Machæroplax varicosus Mighels and Adams.
Pupillaria pupilla Gould.
Lirularia lirulata Cpr.
Margarites helicinus Phipps.
**Margarites albolineatus* E. A. Smith.
**Margarites lævior* Jeffr.

Family HALIOTIDÆ.

Haliotis kamtschatkana Jonas.

Family FISSURELLIDÆ.

**Megatebennus bimaculatus* Dall.
Diadora aspera Eschscholtz.
Puncturella galeata Gould.
Puncturella cucullata Gould.
**Puncturella multistriata* Dall.
**Puncturella cooperi* Cpr.

Family LEPIDOPLEURIDÆ.

Lepidopleurus cancellatus Sowerby.
**Lepidopleurus rugatus* Cpr.

Family LEPIDOCHITONIDÆ.

Lepidochitona submarmorea Middendorff.
Lepidochitona lineata Wood.
Lepidochitona flectens Cpr.
Lepidochitona raymondi Pilsbry.
**Nuttallina californica* Reeve.

Family ISCHNOCHITONIDÆ.

Ischnochiton retiporosus Cpr.
Ischnochiton interstinctus Gould.
Ischnochiton interstinctus var. *radians* Cpr.
Ischnochiton mertensii Middendorff.
**Ischnochiton trifidus* Cpr.

Family MOPALIIDÆ.

Mopalia ciliata Sowerby.
Mopalia ciliata wosnessenskii Middendorff.
Mopalia muscosa Gould.
**Mopalia muscosa hindsii* Reeve.
Mopalia muscosa lignosa Gould.
**Mopalia muscosa kennerlyi* Cpr.
**Mopalia muscosa swanii* Cpr.
Mopalia imporcata Cpr.
Mopalia sinuata Cpr.
Placiphorella velata Cpr.

Family ACANTHOCHITONIDÆ.

Katharina tunicata Wood.

Family CRYPTOCHITONIDÆ.

Cryptochiton stelleri Middendorff.

BUPRESTIDÆ OF VANCOUVER ISLAND.

(PRELIMINARY ANNOTATED LIST.)

BY G. A. HARDY.

The present article may be considered to be an extension of that in the previous report, dealing with the Coleoptera of this region, where the family Cerambycidæ was dealt with.

The territory worked over coincides with that therein outlined. Preference has been given to captures appertaining to the last three years, but no records that could be satisfactorily verified are omitted.

The Buprestidæ is a very large family, having its metropolis in the tropics, where they are noted for the brilliance and variety of colour of many species, and have a very metallic appearance, a character further enhanced by the strength and compactness of structure.

The early stages of their life are spent within the wood or bark of various trees and shrubs, occasionally being sufficiently abundant to be of serious economic importance.

The larvæ or "Flat-headed Borers" are of characteristic shape, the first two or three segments being so greatly enlarged as to give a club-like appearance to the whole. Their existence is usually spent within or under the bark or in the heart-wood, occasionally (*Chrysophana*) in the cones of *Pinus*. The pupal stage is passed within the end of the larval gallery.

The adults are essentially lovers of the hot sunshine, and may be found sunning themselves on the trunks of standing or newly felled trees; the incense emanating from the latter is especially attractive to them. Other species frequent flowers (*Anthaxia*), some rest on leaves or twigs (*Agrilus*). Some are quite sluggish (*Chalcophora* and *Buprestis*), while others, on the contrary, are exceedingly nimble (*Chrysobothris*), taking to the wing as readily as the blue-bottle fly.

Nomenclature followed is Leng's "Catalogue of Coleoptera of North America," 1920.

Reference is made in the list to the recently published work on the Buprestidæ of North America by W. J. Chamberlin, an indispensable book to any one engaged in the study of this family.

Popular names are added in recognition of the general demand for such.

Acknowledgments.—We have much pleasure in offering our cordial thanks to Dr. E. C. Van Dyke, of Berkeley, Calif., for his kindness and courtesy in identifying most of the difficult species, together with detailed notes on distribution, etc.; and also to Mr. W. J. Chamberlin, of Corvallis, Ore., Messrs. R. and G. R. Hopping, of Vernon, B.C., and W. S. Fisher, of Washington, D.C., for much valuable assistance in many ways. To the following gentlemen we tender our thanks for the opportunity of examining their collections and help in many other ways: Messrs. E. H. Blackmore, W. Downes, H. P. Eldridge, A. W. Hanham, A. Nichols, and W. H. A. Preece.

BUPRESTIDÆ (THE METALLIC WOOD-BORING BEETLES).

Chrysophana Lec.

C. placida (Lec.) (Emerald Midget).

A small elegant species, green with bronze sutural and marginal vittæ on elytra; occurs about new Douglas fir lumber and logs (Downes). May to July. Not common, breeds in Douglas fir, etc. Is recorded as feeding in cones of *Pinus attenuata* (Burke). Sidney (W. H. A. P.); Shawnigan (W. D.); Duncan (A. W. H.). Pacific Coast.

Chalcophora Sol.

C. angulicollis (Lec.) (Oregon Buprestid). (Pl. III., Fig. 5.)

The largest North American Buprestid, dark-brownish bronze. Found flying or usually sunning themselves on fallen logs, and rather sluggish. May and June. One record for September. Frequent. Breeds in *Pinus*, *Pseudotsuga*, and *Abies*. Victoria (E. H. B.); Sidney (W. H. A. P.); Goldstream (E. H. B.); Metchosin (J. Thompson); Saltspring Island (P. deN. Walker); Duncan (A. W. H.); Todd Inlet (A. N.); Esquimalt (A. N.). Widely distributed on continent.

PLATE III.

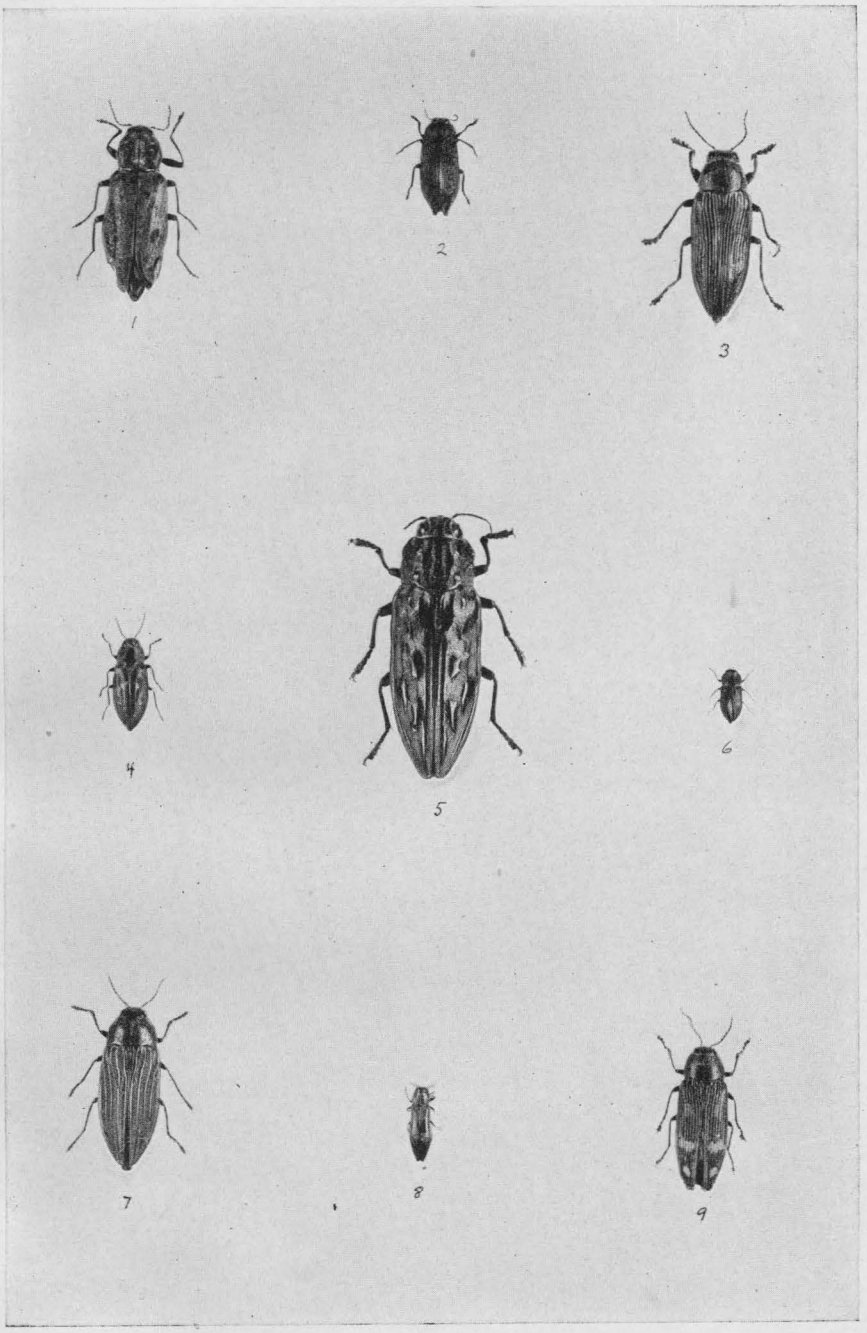
FAMILY BUPRESTIDÆ (METALLIC WOOD-BORING BEETLES).

(Slightly enlarged.)

Fig.

1. *Trachykele blondeli* Mars.
2. *Pœcilonota fraseri* Chamberlin.
3. *Buprestis maculativentris* var. *rusticorum* (Kby.).
4. *Melanophila fulvogutta* var. *drummondi* (Kby.).
5. *Chalcophora angulicollis* (Lec.).
6. *Anthaxia æneogaster* Cast.
7. *Buprestis aurulenta* L.
8. *Agrilus politus* Say.
9. *Buprestis fasciata* Fab. var. *langi* (Mann).

PLATE III.



Trachykele Mars.

T. opulenta Fall. (Pearly Beauty).

Recorded for Vancouver Island by W. J. Chamberlin (Bup. N.A., page 243).

T. blondeli Mars. (Powder Post Beetle). (Pl. III., Fig. 1.)

A magnificent brilliant green, with shagreen sculpture, ¾ inch long. Usually in the tops of living *Thuja plicata* (Hopping). Rare in collections. May and June. Breeds in *Thuja plicata;* in some localities of serious economic importance, as the larvæ weaken sound timber by their extensive burrows (Hopping). Goldstream (A. W. H.); Shawnigan (on fallen cedar log, G. A. H.). West Coast of North America.

Dicerca Esch.

D. sexualis Cr. (Grey Fork-wing).

About same size as *T. blondeli;* obscure, dark greyish; the tips of elytra bluntly produced. May and June. Pupæ taken under bark of *Abies grandis* (white fir) in August (W. H. A. P.). Not commonly met with. Sidney (W. H. A. P.); Duncan (A. W. H.); Nanaimo (G. W. T.). British Columbia to California.

Pœcilonota Esch.

P. fraseri Chamberlin. (Fraser Fork-wing). (Pl. III., Fig. 2.) First record for Vancouver Island.

Somewhat similar in shape to a very small *D. sexualis;* dull bronze. June, July, scarce. Gordon Head near Victoria (on leaves of *Salix Scouleri*, G. A. H.); British Columbia to California. Originally described from "Fraser River," B.C.

Buprestis L.

B. aurulenta L. (June-bug). (Pl. III., Fig. 7.)

About ¾ inch long; brilliant green with copper margin and sutural line to elytra. Usually found on newly felled timber (Douglas fir), April to August. Common. Breeds in Douglas fir (G. A. H.) and white fir (*A. grandis*) (W. H. A. P.). Imagines taken from Douglas fir stump in January. The larva bores in the heart-wood. The last 2 inches of burrow were free from frass and evidently used by the adult long before emergence. The adult gnaws its way out through the outer bark (G. A. H.). Victoria; Goldstream; Shawnigan; Tod Inlet; Sidney; Duncan. British Columbia to California.

B. adjecta (Lec.) (Lesser June-bug).

Very similar to the preceding, but smaller and with finer striations on elytra. June to August, rare. Breeds in *Pinus contorta* (Hopping); Douglas fir (Chamberlin). Shawnigan (R. V. H.); Tod Inlet (on new Douglas fir lumber, A. N.); Sidney (in flight, W. H. A. P.); Duncan (A. W. H.); Nanaimo (G. W. T.). British Columbia to California.

B. maculativentris var. *rusticorum* (Kby.) (Rustic Buprestid). (Pl. III., Fig. 3.)

Length averages ¾ inch; black with æneus reflections. On felled Douglas fir and balsam trunk, June to September. Most records for July and August. Common. Breeds in Douglas fir and balsam. Victoria (E. H. B.); Esquimalt (G. A. H.); Goldstream (G. A. H.); Tod Inlet (A. N.); Sidney (W. H. A. P.); Duncan (A. W H) Alberta and British Columbia to California.

B. fasciata Fab. var. *langi* (Mann) (Lang's Buprestid). (Pl. III., Fig. 9.)

Similar to *B. aurulenta*, but finer elytral striations and absence of coppery margin and more depressed form. The male has usually six well-marked whitish spots on elytra, nearly always absent in the female. June to August. Occasional. Breeds in poplar, maple, willow, and probably Douglas fir and true firs (Chamberlin). Goldstream (R. V. H.); Prospect Lake (W. H. A. P.); Tod Inlet (A. N.); Sidney (on new lumber, W. H. A. P.); Duncan (in flight, A. W. H.); Nanaimo (G. W. T.). Atlantic to Pacific in north, Alaska to California.

Melanophila Esch.

M. fulvogutta var. *drummondi* (Kby.) (Drummond's Buprestid). (Pl. III., Fig. 4.)

A small species, about ¼ inch long; dark bronze-brown, usually with yellow spots on elytra. Actively running or flying about newly felled lumber. April to July, very abundant everywhere. Breeds in Douglas fir and balsam (G. A. H. and W. H. A. P.) and is recorded from a great variety of other trees. Quebec to Alaska and south to California.

M. acuminata (DeG.) (Pointed Buprestid).

Similar to preceding, but more elongate, never spotted, and apical apices of elytra ending in a point. Rare in local collections. August to September. Nanaimo (G. W. T.). A northern species extending across continent in north and south along the mountains, also Europe and Asia. Breeds in coniferous trees.

Anthaxia Esch.

A. æneogaster Cast. (Metallic-Fronted Buprestid). (Pl. III., Fig. 6.)

The smallest of our Buprestidæ; dark brown or black, with indistinct metallic reflections. Found on flowers, particularly yellow ones, such as dandelion and hawkweed. May to July. Not uncommon. Breeds in Douglas fir, Garry oak, and many other trees (*see* Chamberlin). Mount Douglas (G. A. H.); Goldstream (on newly cut Douglas fir, G. A. H.; Shawnigan (W. D.); Tod Inlet (A. N.); Sidney (W. H. A. P.); Duncan (A. W. H.). Transcontinental.

Chrysobothris Esch.

All species of this genus are very much alike and difficult to separate. They are similar in size to *M. drummondi* and are grey in colour, with bright-green under-surface in most cases. All are very active and readily take to flight.

C. pseudotsugæ Van D. (Douglas Fir Buprestid). First record for British Columbia and Canada. Occurs about freshly felled timber. June and July. Frequent. Breeds in Douglas fir, and firs. Lost Lake (taken from pupal cell in Douglas fir, G. A. H.); Sidney (W. H. A. P.). British Columbia, Oregon, and California.

C. carinipennis Lec. (Keeled Buprestid).

Taken about logs of newly cut Douglas fir. July, not common. Sidney (W. H. A. P. and G. A. H.). Recorded as breeding in Douglas fir and a variety of pines by Chamberlin; on V.I. Douglas fir most probably. British Columbia to California.

C. caurina Horn. (North-western Buprestid).

On newly cut Douglas fir. July, August, very scarce. Tod Inlet (A. N.); Highland District (G. A. H.); Sidney (W. H. A. P.). British Columbia to California, and adjoining States.

C. nixa Horn. (Cedar Buprestid). First record for British Columbia and Canada.

Very similar to *M. drummondi*, of unspotted phase. Specimens taken from pupal cell in *Thuja plicata*, Highland District (G. A. H.); Tod Inlet, on trunk of *T. plicata*, June 26th *Thuja plicata*, Highland District, in August (G. A. H.); Tod Inlet, on trunk of *T. plicata*, (W. H. A. P.). Breeds in the cupressine trees (Van Dyke).

C. sylvania Fall. (Woodland Buprestid). First record for British Columbia and Canada.

One of our largest species of this genus. Taken on newly cut Douglas fir. June to August. Rare. Highland District (G. A. H.); Sidney (W. H. A. P.). Breeds in Douglas fir. A Coast species following the Douglas fir from Sonoma County, California, to British Columbia (Van Dyke).

C. femorata Oliv. (Flat-headed Borer). First record for Vancouver Island.

Similar superficially to *C. sylvania*, but smoother and more coppery in colour. On newly felled Douglas fir. June. Sidney (W. H. A. P., G. A. H.); Tod Inlet (A. N.). Widely distributed through the United States and Canada.

Agrilus Steph.

A. politus Say. (Burnished Twig-borer). (Pl. III., Fig. 8.)

A small elongate beetle, bronze or dark steel-blue; found usually on the leaves of *Salix Scouleri* and rarely on flowers of *Rosa nutkana*. May to July. Local. Breeds in willow-stems. Gordon Head (G. A. H.); Shawnigan (E. H. B.); Tod Inlet (A. N.); Sidney (W. H. A. P.); Nanaimo (G. W. T.). Of wide occurrence throughout Canada and the United States. The typical colour of this species elsewhere is more inclined to bronze; the Vancouver Island specimens have the dark-blue form prevailing (W S. Fisher).

CERAMBYCIDÆ OF VANCOUVER ISLAND.

By G. A. Hardy.

This is supplementary to the list in the Mus. Rep., 1925, page 24. As might be expected, with increasing interest in a little-worked district, much new information has accrued during

the past year, and several additional species and varieties have resulted, one or two of which are new to science. In all, twenty new names appear here, including corrections and additions; of these, six are new to science, one species and five varieties.

We are again especially indebted to Dr. E. C. Van Dyke, of Berkeley, Calif., for determinations and much valuable information respecting distribution, etc.; to Messrs. R. and G. R. Hopping, of Vernon, who have freely given much helpful criticism; and to Mr. C. A. Frost, of Framingham, Mass., who has been good enough to furnish information respecting related eastern species. To each and all we have much pleasure in recording our grateful appreciation.

The initials in brackets after species, or information referring to such, are those of the collectors whose names are listed below. Additions to the list are preceded by an asterisk.

A. W. Hanham, G. A. Hardy, A. Nicholls, W. H. A. Preece, G. W. Taylor.

Criocephalus Muls.

C. asperatus Lec. (Rough Ram's-head).

Additional locality, Sidney, August 6th, 1926 (W. H. A. P.).

Eumichthus Lec.

E. œdipus Lec.

This species has turned up locally in considerable numbers at Sidney (W. H. A. P.), where they were frequenting the bloom of *Spiræa discolor* in the month of June. (Pan-Pac. Ent., Vol. III., page 188.)

**E. œdipus* var. *ater* Hardy & Preece.

A melanic form. New variety described in Pan-Pac. Ent., Vol. III., page 188.) Occurring frequently with the species, Sidney (W. H. A. P.).

**E. œdipus* var. *ruber* Hardy & Preece.

A reddish form. New variety, described in Pan-Pac. Ent., Vol. NNN., page 188.) One specimen, Sidney (W. H. A. P.).

Leptalia Lec.

**L. macilenta* (Mann).

Completely black, except a short basal indication of the yellow vittæ which characterized the var. *frankenhauseri* Mann. Mr. Hanham has a short series showing every gradation between the species and variety. On flowers of *Rosa nutkana*, May and June. Victoria (A. W. H.); Gordon Head (G. A. H.); Sidney (W. H. A. P.); Duncan (A. W. H.).

Ortholeptura Lec.

O. valida (Lec.) (Clouded-yellow Leptura).

Additional locality of this rare species, Beaver Lake, July (Jack Preece).

Stenocorus Fab.

S. vestitus Hald.

The red form has occurred as plentifully as the black, with no preponderance of the latter as previously stated.

Evodinus Lec.

E. vancouveri Csy. (Vancouver Longhorn).

Additional localities, Tod Inlet, on flowers of *Smilacina racemosa*, May 2nd, 1926 (A. N.); Sidney, on flowers of *Rosa nutkana*, May 27th, 1926 (W. H. A. P.).

Judolia Muls.

**J. sexmaculata* (L.) (Six-spotted Leptura).

A handsome little species, black with yellow blotches and bands, often in the form of six irregular spots on elytra. June. Tod Inlet (A. N.). On flowers of *Spiræa discolor* (W. H. A. P.). Widely distributed in Northern Europe and America.

Brachyleptura Csy.

**B. sanguinea* (Lec.) (Ruddy Leptura).

More elongate in proportion than *dehiscens*, and dull reddish. June 21st, 1926. Goldstream, on flowers of *Achillea millefolium* (G. A. H.); Victoria (A. W. H.). Across northern part of continent; Alaska to California.

Parallelina Csy.

**P. molybdica* Lec. (Emerald Leptura).

A small metallic green species, frequenting flowers of dogwood (*Cornus stolonifera*), April and May. Duncan (A. W. H.). British Columbia to California.

Strangalepta Csy.

**S.* (*Alosterna*) *rubida* (Lec.). (Flame Leptura).

One specimen in collection of E. H. Blackmore, from Koksilah, near Duncan (C. Livingston). June. Pacific Coast.

Strangalia (Serv.).

**S. propinqua* (Bland) (Dusky Halter).

Very similar to *S. soror*, but with legs and thorax black. July. On flowers of *Spiræa discolor*. Duncan (A. W. H.; G. A. H.).

Leptura (L.).

L. aspera Lec. (Rough Leptura).

The first recent record. One on leaf of *Rubus parviflorus*. Tod Inlet (A. N.).

Dcsmocerus Serv.

**D. cribipennis* Horn. (Shagreened Gem).

Similar to *piperi*, but elytra in both sexes green. These two species intergrade imperceptibly. Both forms occurred together on one elder-bush at Duncan (A. W. H.). April–June. Forming galls at base of elder (*Sambucus callicarpus*). Tod Inlet (G. A. H.). British Columbia to California.

Anocomis Csy.

A. (*Semanotus*) *lignea* var. *ampla* Csy.

This is the phase occurring on the West Coast, the species having its habitat in the eastern part of the continent. The data in reference to *lignea* in Mus. Rep., 1925, page 31, therefore applies to the form *ampla*.

**A.* (*Semanotus*) *lignea* var. *thujæ* Van Dyke.

Nearly to completely black. A new variety described in Pan-Pac. Ent., Vol. III. page 103. Found along with var. *ampla*, on and in *Thuja plicata*, April and May. Tod Inlet (G. A. H.); Goldstream (G. A. H.); Sidney (W. H. A. P.). Type locality, Tod Inlet (G. A. H.).

A. litigiosa Csy. (*Semanotus nicholas* White).

Additional locality, Sidney, April (W. H. A. P.).

Callidium Fab.

**C. vancouverense* Van Dyke (Western Azure Miner).

A new species, described in Pan-Pac. Ent., Vol. III., page 104. Listed in Mus. Rep., 1925, under *hesperum* Csy. Running about recently cut Douglas fir slash, Sidney, where Mr. Preece took it in series during April and May. Tod Inlet (G. A. H.). Type locality, Sidney (W. H. A. P.).

**C. vile* Lec. (The Insignificant).

A small elongate, black species. April. Gabriola Island, near Nanaimo (G. W. T.). Breeds in *Pinus ponderosa* on the Mainland (Hopping). British Columbia to California.

Phymatodes Muls.

**P. æneus* Lec. (Emerald Sheen). (Pl. IV., Fig. 8.)

Small, elongate, with æneus reflections. On Douglas fir trunks and slash, May and June. Probably breeds in Douglas fir, as has always been found associated with it. Victoria (H. P. Eldridge); Gordon Head (G. A. H.); Sidney (W. H. A. P.); Duncan (A. W. H.). British Columbia to California.

**P. obscurus* Lec. (Brown Oak). (Pl. IV., Fig. 4.)

Similar in size to the preceding, but uniform brown colour. This is the first record north of California (Van Dyke). Breeds in Garry oak (*Quercus Garryana*). June 30th, July, and one, September 25th, 1926. It thus emerges as its associates, *P. decussatus* and *obliquus*, disappear.

PLATE IV.

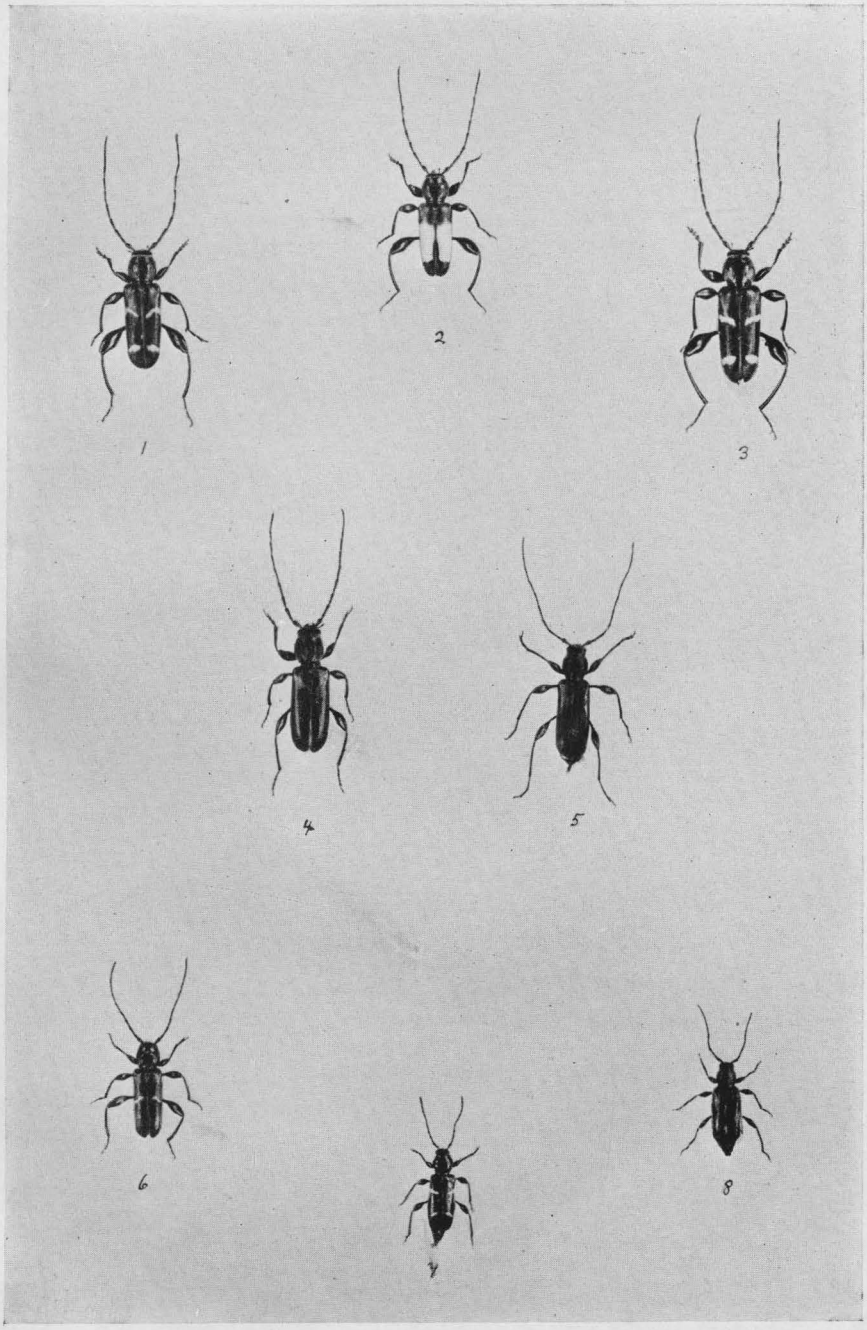
FAMILY CERAMBYCIDÆ (LONGHORN BEETLES).

(×⅓)

Fig.

1. *Phymatodes decussatus* Lec.
2. *Phymatodes decussatus* var. *latifasciatus* Hardy & Preece.
3. *Phymatodes obliquus* Csy.
4. *Phymatodes obscurus* Lec.
5. *Phymatodes dimidiatus* (Kby.).
6. *Phymatodes vulneratus* Lec.
7. *Phymatodes nitidus* Lec.
8. *Phymatodes æneus* Lec.

PLATE IV.



P. dimidiatus (Kby.) (Pl. IV., Fig. 5.)

Additional locality, Sidney, May (W. H. A. P.).

**P. vulneratus* var. *nigrescens* Hardy & Preece.

Nearly black. A new variety described in Pan-Pac. Ent., Vol. III., page 190, April, 1927. Occurring with the species, Sidney (W. H. A. P.), which is the type locality.

**P. decussatus* var. *latifasciatus* Hardy & Preece. (Pl. IV., Fig. 2).

The two white fasciæ merge, forming a broad white band across elytra. A new variety, described in Pan-Pac. Ent., Vol. III., page 191, April, 1927. Taken with the species at Mount Tolmie and Uplands (G. A. H.). Type locality, Mount Tolmie (G. A. H.).

P. nitidus Lec. (Pl. IV., Fig. 7.)

Additional locality, Sidney, May (W. H. A. P.).

Xylotrechus Lec.

X. obliteratus Lec.

This is the species hitherto labelled in local collections *X. mormonus*. The latter has so far not been recorded from British Columbia (G. R. Hopping). Additional localities: Gordon Head, July (G. A. H.); Sidney (W. H. A. P.).

Clytus Laich.

C. planifrons Lec. (Velvet Beauty).

This has occurred in numbers at Sidney, May and June (W. H. A. P.); also taken Mount Douglas (G. A. H.) and Todd Inlet (A. N.).

Saperda Fab.

S. calcarata Say.

Victoria (J. Noble). The first recent record for Vancouver Island. Infesting a small group of aspen (*Populus tremuloides*), resulting in the death of several trees which were completely riddled by their burrows. Larvæ of all stages of growth, suggesting a two- or three-year cycle, were obtained, mining in the living heart-wood. Adults just emerging, July 6th, 1927.

**S. populnea* L. (Speckled Saperda).

Elongate, subcylindrical; black with sparse white pubescence arranged in spots. One specimen, Duncan (A. W. H. and G. A. H.), July 4th, 1926, taken on *Populus trichocarpus*, in which it breeds, forming galls on the twigs and branches. Occurs in Europe and British Columbia to California.

Oberea Muls.

O. quadricallosa Lec.

Additional localities: Gordon Head, June (G. A. H.); Todd Inlet, July (A. N.).

Literature pertaining to the Cerambycidæ of Vancouver Island published since the last report:—

"Notes on Some Species of Cerambycidæ (Col.) from the Southern Portion of Vancouver Island." G. A. Hardy and W. H. A. Preece. Pan-Pac. Ent., Vol. III., page 34.

"New Species and Subspecies of West American Cerambycidæ." E. C. Van Dyke. Pan-Pac. Ent., Vol. III., page 99.

"Further Notes on Some Species of Cerambycidæ from the Southern Portion of Vancouver Island, B.C., with Descriptions of Some New Varieties." G. A. Hardy and W. H. A. Preece. Pan-Pac. Ent., Vol. III., page 187.

AMPHIBIA OF BRITISH COLUMBIA.

Additional Notes and Corrections.

By G. A. Hardy.

The following notes and additions are supplementary to the article under this heading in the Report for 1925, page 21.

We are gratefully indebted to Mr. J. R. Slevin, of the Academy of Sciences, San Francisco, for the determination and verification of all material of any value, and to whom we have much pleasure in extending our warmest appreciation and thanks.

Ambystoma macrodactylum Baird (Long-toed Salamander).

Eight specimens of this salamander were received from Creston, B.C., collected by the Alice Siding School under the direction of Mr. C. S. Lallemand.

Ensatina eschscholtzii Gray (Oregon Salamander).

The specimens referred to from Agassiz under this name in the Report for 1925 are *Ambystoma macrodactylum.*

Bufo boreas boreas Baird & Girard (Northwestern Toad).

This was frequently met with in Garibaldi Park, B.C., at an elevation of 5,600 feet. As compared with specimens taken at Daisy Lake (1,200 feet) during the same month, they were noticeably much lighter and brighter in coloration.

Rana pretiosa pretiosa Baird & Girard (Western Spotted Frog).

Several were seen and taken at Daisy Lake, B.C., near the head of Howe Sound, July, 1926, by G. A. Hardy. The following colour notes were made from a fresh specimen:—

Upper-side: Yellowish-brown very sparsely spotted with black—one small round spot on head and two U-shaped ones on back.

Under-side: Yellowish-white, shading into dull and obscure pink on the under-side of legs.

That they are distinctly sluggish was well shown by the comparative ease of capture. One was disturbed and dived to the bottom, where it crouched until taken up by the hand, making no marked attempted to escape.

Rana aurora aurora Baird & Girard (Oregon Red-legged Frog).

A specimen from Renfrew, Vancouver Island, was presented to the Museum by Mr. J. G. French.

ACCESSIONS.

The following additions have been received during the past year and cordial thanks are extended to the donors:—

Anthropology.

Skull, found at Turner Point, near Tod Inlet (A. R. Cross).
Collection of Indian spear-points (7) from Elizabeth and John Doole, Kuleets Reserve, V.I.
Scalper. Kuleets Reserve, V.I. (August Planchie).
Paint-dish, origin unknown (A. M. Johnson, K.C., Victoria).
Adze. Jordan River, V.I. (Dr. Felton).
Spear-point, Shoal Harbour, V.I. (W. H. A. Preece).
Arrow-head and scraper. Slocan, B.C. (W. J. Sheppard).
Bow and arrow. Neah Bay, B.C. (Ex-Lieutenant-Governor W. C. Nichol).
Arrow-head. Beacon Hill Park (Captain Pike, R.N.).
Stone maul. Skidegate, B.C., 1909 (Major Harold Nation).
Cast of face on totem-pole. Victoria Memorial Museum, per Harlan I. Smith.
Bone needle-point. Willows Beach, V.I., on shell-mound (G. A. Hardy).
Abalone pendant and core. Willows Beach, V.I. (T. Butcher).
Sinker. Qualicum Beach, V.I. (Colonel Noel Money).
Charm. Victoria (A. M. Johnson, K.C.).
Skull. Somenos Lake, V.I. (A. Colliard).
Pair of snowshoes (Mrs. A. W. Bridgman).
Pair of snowshoes (Mrs. H. K. Andrews).

Mammalogy.

Mule-deer antlers found in clay, 8 feet from the surface. Alexis Creek (H. P. S. Bayliff).
Vertebræ of Whale, found on the beach in James Bay, Victoria (Charles Bright).
For other Mammals *see* Garibaldi Report, page 26.

Ornithology.

Western Robin (*Planesticus migratorius propinquus* Ridgway). Sidney, V.I. (W. H. A. Preece).

Rufous Hummingbird (*Selasphorus rufus* Gmelin). Victoria (Mrs. Birney).

Lewis' Woodpecker (*Asyndesmus lewisi* Riley). Departure Bay, V.I. (Eric Keighley).

Band-tailed Pigeon (*Columba fasciata fasciata* Say.). Gordon Head, V.I. (F. Kermode).

Dusky Horned Owl (*Bufo virginianus saturatus* Ridgway). Metchosin, V.I. (per Dr. K. White).

PLATE V.

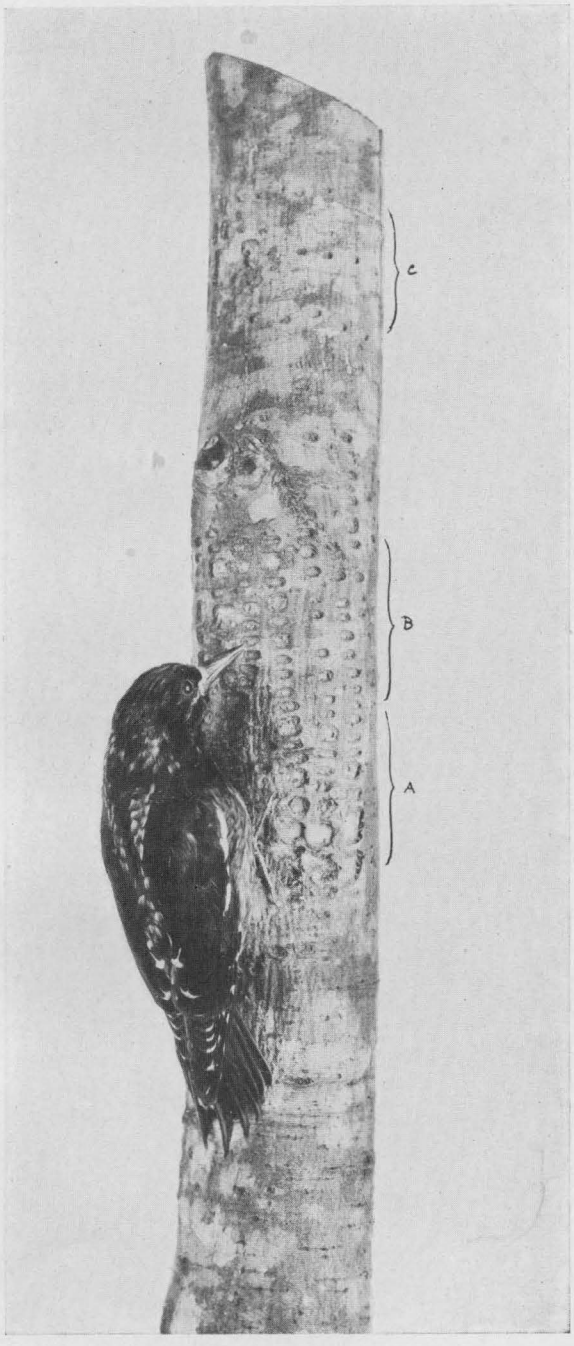


PLATE V.

WORK OF RED-BREASTED SAPSUCKER.

Sphyrapicus ruber (Gmel.).

On Alder—

A. 1st day's work, 4.50 p.m. to 6.30 p.m.

B. 2nd day's work, 6 a.m. to 6.30 p.m.

C. 3rd day's work, 6 a.m. to 6.30 p.m.

The larger holes within the limits of each day's work are the feeding-troughs for the day.

The above notes and observations, together with the specimen of wood illustrated, were contributed by Mr. G. D. Sprot, Cobble Hill, V.I., September 18th, 1926.

The following collection of birds was received from W. B. Johnstone, Edgewood, B.C. These were all taken at Edgewood, and are listed with the dates upon which the birds were obtained.

Pipit (*Anthus rubescens* Tunstall). May 8th, 1920. Two specimens.

Nevada Savannah Sparrow (*Passerculus s. nevadensis* Grinn.). May 2nd, 1920.

Nevada Savannah Sparrow (*Passerculus s. nevadensis* Grinn.). July 16th, 1919.

Fox-sparrow (*Passerella iliaca altivagans* Riley). July 5th, 1919.

Merrill's Song-sparrow (*Melospiza m. merrilli* Brewster). Three specimens. November 13th, 1919; June 8th, 1922; June 11th, 1922.

Sooty Song-sparrow (*Melospiza melodia rufina* Bonaparte). September 9th, 1918.

White-winged Crossbill (*Loxia leucoptera* Gmelin). July 5th, 1919.

Shufeldt's Junco (*Junco hyemalis connectens* Cous.). September 14th, 1919.

Willow-thrush (*Hylocichla fuscescens salicicola* Ridgway). September 9th, 1919.

Olive-backed Thrush (*Hylocichla ustulata swainsoni* Tschudi). May 18th, 1920.

Sanderling (*Calidris leucophæa* Pallas). September 14th, 1919.

Black Swift (*Cypseloides niger borealis* Kennerly). September 15th, 1920.

Northwestern Red-wing (*Agelaius phœnicerus caurinus* Ridgway). February 25th, 1921.

Rusty Blackbird (*Euphagus carolinus* Muller). November 10th, 1917.

Brewer's Blackbird (*Euphagus cyanocephalus* Wagler). April 24th, 1920.

Lapland Longspur (*Calcarius lapponicus lapponicus* (Linnæus). September 9th, 1921.

Calaveras Warbler (*Vermivora rubricapilla gutturalis* Ridgway). May 13th, 1920.

Reptilia.

Garter-snake (*Thamnophis o. ordinoides* B. & G.). Two specimens. Gordon Head (Mrs. F. Kermode).

Alligator Lizard (*Gerrhonotus principis* B. & G.). One specimen from Victoria (H. L. S. Blake); five specimens from Creston (Alice Siding School).

Rubber Boa (*Charina bottæ* Blainville). Creston (Alice Siding School).

Amphibia.

Long-toed Salamander (*Ambystoma macrodactylum* Baird). Eight specimens. Creston (Alice Siding School).

Rusty Salamander (*Ancides ferreus* Cope). Sidney (Eric Graham, per W. H. A. Preece).

Western Toad (*Bufo b. boreas* B. & G.). Four specimens, Creston (Alice Siding School); three specimens, Garibaldi (G. A. Hardy).

Western Spotted Frog (*Rana p. pretiosa* B. & G.). Daisy Lake (G. A. Hardy).

Oregon Red-legged Frog (*Rana a. aurora* B. & G.). Port Renfrew (G. French).

Ichthyology.

Trout. Lost Lake, Highland District (E. A. Cooke).

Sand-launce (*Ammododytes personatus* Girard). Cordova Bay (Rev. R. Connell and G. A. Hardy).

Lepidoptera.

Several species of Moths. Victoria (E. A. Cooke).

Smerinthus cersyi Kirby. Victoria (E. Moyes).

Telea polyphemus Cram. Esquimalt (Captain O. R. Parker).

Telea polyphemus Cram. Kamloops (J. W. Hall).

For further Lepidoptera *see* Report on Mount Garibaldi Park, page 19.

Coleoptera.

Large-banded borer (*Rosalia funebris* Mots.). A living specimen taken on the beach at the Willows, Victoria, June 24th (Miss Askey).

California Prionus (*Prionus californicus* Mots.). Victoria, July 19th (K. Rots) and July 21st (T. Wood).

Phynatinus pardalinus Wick. A weevil affecting lily-bulbs. Duncan, October 23rd (W. Downes).

Helops pernitens Lec. Victoria, December 22nd (E. A. Cooke).

Collections representing various families were received as follows, by gift unless otherwise stated:—

J. W. Cockle, Kaslo, approximately 900 specimens (purchase).

G. Stace Smith, Creston, approximately 250 specimens.

W. H. A. Preece, Sidney, approximately 300 specimens.

G. A. Hardy, Garibaldi, approximately 300 specimens (collected for the Museum).

Alice Siding School, Creston, per C. S. Lallemande, approximately 200 specimens.

R. Hopping, Vernon, 32 specimens of 8 named species.

W. J. Chamberlin, Corvallis, Oregon, 4 specimens.

Of special interest are the following paratypes belonging to the family Cerambycidæ (Longhorns). These are described in the Pan-Pac. Ent., 1927, Vol. III.

Callidium vancouverense Van Dyke. Sidney, V.I. (W. H. A. Preece).

Phymatodes vulneratus var. *nigrescens* Hardy & Preece. Sidney, V.I. (W. H. A. Preece).

Eumichthus œdipus var. *ater* Hardy & Preece. Sidney, V.I. (W. H. A. Preece).

Phymatodes decussatus var. *latifasciatus* Hardy & Preece. Mount Tolmie, V.I. (G. A. Hardy).

Semanotus ligneus var. *thujæ* Van Dyke. Tod Inlet (G. A. Hardy).

In addition to the specimens noted above, Mr. G. Stace Smith sent in the following notes, accompanied by specimens, relative to the biology of the species and which are of sufficient interest to record:—

Trachykele nimbosa Fall (Buprestidæ). Living specimens taken from pupal cells in *Abies grandis* in November, 1926. Originally infected through an old axe-scar.

Callidium subopacum Swaine. (Cerambycidæ). From pupal cell in Douglas fir (*Pseudotsuga mucronata*), November, 1926.

Pogonocherus oregonus (Lec.) (Cerambycidæ). Living specimens from pupal cell in *Abies grandis*, November, 1926. The larvæ mine in the sapwood, dipping into the heart-wood prior to pupation, and then gnaw to within the outer bark. The adults remain quiescent until the following spring, finally gnawing their way out.

The specimens of the last were accompanied by larvæ, pupæ, and sections of the wood illustrating their work; these have now been added to the exhibit series of life-histories.

For other Coleoptera *see* Report of Mount Garibaldi Park, page 22.

Hymenoptera.

Six species of named "bumblebees" showing queen and workers, Vernon (Max E. Rhuman). Sixty-five specimens, Sidney (W. H. A. Preece).

Miscellaneous.

A number of large Spiders of several species were also received from the following: Dr. S. K. White, Messrs. A. R. Sherwood, N. H. Dickinson, Dr. J. E. H. Kelso, Miss M. George, and Mr. A. W. Esnouf.

PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS.

(Alphabetically arranged.)

Acadian Entomological Society, Nova Scotia	2
American Museum of Natural History, New York	5
Bernice Pauhai Bishop Museum, Honolulu, Hawaii	1
Boston Society of Natural History, Boston, Mass.	4
Bristol Museum and Art Gallery, Bristol, England	1
British Columbia Historical Association	1
British Museum, London, England	5
California Academy of Sciences, San Francisco, Calif.	36
Carnegie Institute, Pittsburgh, Pa.	1
Charleston Museum, Charleston, S.C.	1
Children's Museum, Boston, Mass.	1
Cincinnati Museum Association, Cincinnati, Ohio	1
City Art Museum, St. Louis, Mo.	4
Carried forward	63

PUBLICATIONS RECEIVED FROM OTHER INSTITUTIONS—*Continued.*

Brought forward	63
Cleveland Museum of Natural History	6
Colorado Museum of Natural History, Denver, Colo.	1
Cornell University, Ithaca, N.Y.	1
Dominion Government Publications, Ottawa	34
Field Museum, Chicago, Ill.	3
Grand Rapids Public Library, Mich.	1
Hudson's Bay Company, Winnipeg, Man.	1
Illinois State Natural History Survey, Urbana, Ill.	8
Instituto General Y Recnico de Valencia, Spain	1
Insular Experiment Station, Rio Piedras, P.R.	4
John Crerar Library, Chicago, Ill.	1
Library of Congress, Washington, D.C.	1
Lloyd Library, Cincinnati, Ohio	3
Manchester Museum, Manchester, England	5
Museum of Fine Arts, Boston, Mass.	7
Natural History Society of Manitoba, Winnipeg, Man.	2
Nebraska State Museum, Lincoln, Neb.	2
New York Botanical Garden, N.Y.	1
New York Zoological Society, N.Y.	8
Ohio Agricultural Experiment Station, Wooster, Ohio	7
Peabody Museum, Yale University, New Haven, Conn.	6
Pennsylvania Museum and University	12
Philadelphia Academy of Natural Sciences	1
Province of British Columbia	6
Public Museum, Milwaukee, Wis.	2
Puget Sound Biological Station, Seattle, Wash.	1
Royal Canadian Institute, Toronto, Ont.	1
San Diego Natural History Museum	1
San Diego Society of Natural History	1
Smithsonian Institution, Washington, D.C.	62
State College of Washington, Pullman, Wash.	1
Staten Island Institute of Arts & Sciences	4
St. Louis Public Library, Mo.	1
United States Department of Agriculture, Washington, D.C.	7
University of California, Berkeley, Calif.	43
University of Illinois, Urbana, Ill.	1
University of Michigan, Ann Arbor	1
University of Montreal, Montreal, P.Q.	3
University of Oklahoma, Neb.	1
University of Toronto, Ont.	1
University of Washington, Seattle, Wn.	5
Vancouver City Museum, B.C.	12
Total	333

We have pleasure in recording our thanks for receipt of the "Northern Cordilleran," published in 1913, from Mrs. L. A. Green, in acceding to a request made known for that purpose by the B.C. Mountaineering Club, per Mr. Neal M. Carter.

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