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November, 1893.

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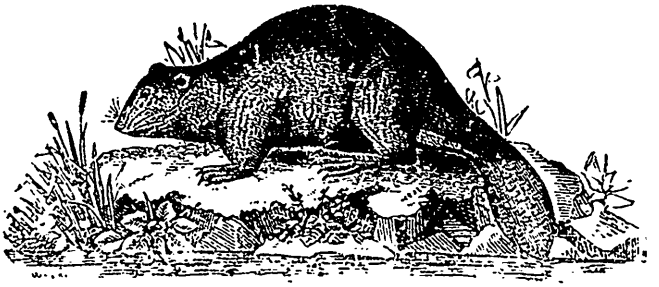
VOLUME VII. No. 8.



THE BEAVER (*Castor Canadensis*, Kuhl).

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FAUNA OTTAWAENSIS.

HYMENOPTERA PHYTOPHAGA.

By W. HAGUE HARRINGTON.

The subjoined list, of that important section of the Hymenoptera which is most injurious to plant life, is offered as a contribution to the knowledge of our local Fauna. The list was prepared last winter and the numbers given for each species are those of the insects then in my collection, irrespective of such specimens as may have been given away or exchanged. These numbers are an indication of the relative abundance of the species and of the sex or sexes represented. The captures of the season just closed have not been arranged, but it is improbable that any additions have been made to the species previously captured. When they have been carefully examined, any items of interest regarding them will be recorded. The dates quoted for each species are the earliest and latest shown on the labels attached to individuals of that species. All the specimens are not, however, dated, and so no dates can be given for several of the species. All the species have been collected since the organization of the OTTAWA FIELD NATURALISTS CLUB, in the city or adjacent country, and several of the rarer species have been contributed by Mr. Fletcher and Prof. Guignard. Several of the species collected seemed apparently new to science and have been described by Provancher (Faune Entomologique du Canada, Vol. ii, Additions) or by the author (Canadian Entomologist Vols. xvi, xxv) and are those in the list of which types are indicated as in the collection.

SUBSECTION PHYLLOPHAGA.

This division contains the species feeding upon the foliage of various plants, and consists of the family Tenthredinidæ, of which the adult insects are popularly, and appropriately known as Sawflies. The female has the ovipositor modified to form a more or less acutely toothed saw, with which a slit can be made in a leaf or twig for the reception of the egg. Some species have the saw feebly developed and make but a slight incision, or even (as the Gooseberry Sawfly) merely attach the egg

to the surface of the leaf. Other species have the instrument much stronger and are able to cut a groove even in the harder tissues, sufficient to entirely hide and protect the egg. The larvæ have a general resemblance to those of many Lepidoptera, and are often known as false-caterpillars. The greater number feed openly upon the leaves, but some produce galls, or are inquilinous in the galls of other insects, and others are leaf-miners, or infest buds, etc. The species feeding openly are protected from their enemies in many different ways: as by assimilating to the colour of the foliage, emitting disagreeable odours or secretions, raising and lashing the abdomen about, feeding at night or on the under surface of the leaves, constructing shelters, etc. The immediate neighborhood has already yielded about one hundred and fifty species of Sawflies, but the true value and affinities of many forms cannot be known until they have been determined by breeding, for the larvæ and food-plants of comparatively few species are yet known to us. A list of the species collected in 1889 is given in Canadian Entomologist Vol. xvii, p. 23.

TENTHREDINIDÆ.

Cimbex.

C. americana, Leach.—1 male, 1 female.

Var. *decemmaculata*, Leach.—2 males. May 11th.

Var. *alba*, Norton.—1 female.

Var. *LaPortei*, St. Farg.—3 males. June 16th.

This handsome and very variable insect is not common, but its larvæ are occasionally found on willow and elm.—They are yellow, with a black dorsal line, and a finely granulose apparence; when at rest they are coiled spirally on the leaf.

Trichiosoma.

T. triangulum, Kirby.—2 males and female. May 12th, July 28th.

Not a common insect, although the larvæ are not infrequent on willows. Seems to be more abundant farther north, as for instance at Sudbury.—Larvæ resemble those of Cimbex, but are green and without dorsal line.

ABIA.

A. Kennicotti, Norton.—2 females from Mr. Fletcher.

ZAREA.

Z. inflata, Norton (?)—1 female. May 11th.

This insect may be a var. of the preceding species, as the American genera and species are not well separated. It has the white band at base of abdomen which Cameron gives as distinguishing the British species of this genus from Abia.

ACORDULECERA.

I. dorsalis Say.—4 males, 13 females. May 16th, August 2nd.

Occurs on Hickory and Oak: the larvæ gregarious and rapidly skeletonizing the leaves.

HYLOTOMA.

H. McLeayi, Leach.—3 males, 8 females. May 10th, Aug. 2nd.
H. clavicornis, Fabr.—1 male, 5 females. June 13th, August 1st.
H. scapularis, Klug.—2 males, 3 females. June 10th, July 19th.

These species are found in the early part of the season on flowers of Service-berry, Choke-cherry, etc., and later on Spiræa and Goldenrod.

CLADIUS.

C. pectinicornis, Fourcr. (*C. ismera*, Harris.)—1 male, 8 females. May 24th, July 19th. This species (common in Europe) has been bred from larvæ feeding on roses and seems to be increasing in numbers. It is one of the three sawflies which are now well recognized as rose-pests.

PRIOPHORUS.

P. æqualis, Norton.—2 males, 7 females. July 24th.

Bred from larvæ, feeding on willows, and found also on poplar.

PRISTIPHORA.

P. scyophanta, Walsh.—1 male, 3 females. May 12th, June 26th.
P. grossulariæ, Walsh.—6 females. May 11th, June 28th.
P. identidem, Norton (?).—3 males. May 27th, July 12th.

These species are not separated very clearly and the last two should perhaps be combined

EUURA.

E. orbitalis, Norton.—6 males, 12 females. April, May.

These insects have been frequently bred from the galls on the stems of willows, and also from galls of *C. strobiloides*. Specimens vary considerably in size and coloration, but the differences do not seem to be great, or constant, enough to allow of separation, although following the descriptions they might be divided into almost as many species as have been erected by Walsh and Norton.

NEMATUS.

N. concolor, Norton.—2 females. April 23rd.
N. labradoris, Norton.—1 female.
N. malacus, Norton.—2 females. May 8th and 18th
N. extensicornis, Norton.—8 males. May 16th, June 5th.
N. monela, Norton?—1 female. June 6th, (from Mr. Guignard.)
N. subalbatus, Norton?—9 females. May 28th, June 5th.
N. corniger, Norton.—16 males, 15 females. May 17th, August 8th.
N. pallicornis, Norton.—13 males, 19 females. May 9th, June 13th.
N. ventralis, Say.—2 males, 7 females. May 24th, July 1st.
N. saskatchewan, Norton.—2 females. May 28th, June 6th.
N. militaris, Cress.—1 female.
N. latifasciatus, Cress.—1 male, 1 female. July 7th, Alder.
N. erythrogaster, Norton.—1 males, 7 females. June 5th, August 8th.
N. Erichsonii, Hartig.—1 male, 11 females. May 19th, June 23rd.

This imported species has devasted the larch forests of the Maritime Provinces and Quebec, and in Ontario has been also so abundant as to annually defoliate this tree. Its increase seems, however, to have been slightly checked, and during the past season the trees suffered less, apparently.

N. pallidiventris, Fallèn?—2 males, 5 females. August 26th.

This is apparently an imported species, and has been found infesting ornamental willows on the Central Experimental Farm. The females were ovipositing on the date given. It differs in some respects from *pallidiventris* as described by Cameron, and may be a distinct species.

N. rufocinctus, Harr.—1 female. (Type) June 26th, Alder.
N. bivittatus, Norton.—2 females. May 17th, June 10th.
N. thoracicus, Harr.—1 female. (Type,) May 11th.
N. similaris, Norton.—1 female. June 26th, Acacia.
N. lineatus, Harr.—1 female. (Type,) May 5th.
N. ribesii, Scop.—8 females. April 23rd, July 1st.

The larvæ of this species devour the foliage of the cultivated currants and gooseberry, and do serious damage when the plants are neglected. A simple treatment with hellebore proves very efficacious in staying their ravages, and a small parasite which has been found recently to attack the eggs, may perhaps aid in lessening the numbers of the pest.

N. suadus, Cress.—2 females.
N. aureopectus, Norton.—6 females. May 10th, 30th.
N. pleuricus, Norton.—1 female. May 9th.
N. lateralis, Norton.—1 female. May 9th.
N. mendicus, Walsh.—1 male, 9 females. May 9th, June 26th. Willow.
N. s. pomum, Walsh.—male and female. From Willow galls.
N. gallicola, Steph. (*Messa hyalina*, Norton?).—16 females. June and July. The galls of this species are very abundant on willows during the entire season.
N. inquilinus, Walsh?—1 female. August 15th.
N. ocreatus, Harr.—1 female. May 16th. (Type).

In addition to the 32 species (?) enumerated, there are a number of specimens not determined. The genus Nematus is so extensive that many of the species cannot be satisfactorily determined. When more of the species have been carefully bred, and when a thorough study is made of the genus, many of the species will doubtless prove to be but variations. Very many of the commoner species feed on willows, so that feeding is easy; the most difficult part of the breeding is the carrying through the pupæ when buried in the earth.

Fenusa.

F. varipes, St. Farg.—21 females. June 9th, August 26th.

Also a European species, which has badly infested alders at the

Experimental Farm, and has been found on native alders in Dows Swamp. The larvæ are miners and form brown blotches in the upper surface of the leaves.

EMPHYTUS.

E. apertus, Norton.—2 males, 20 females. May 17th, August 18th.

E. strameniepes, Cress?—1 female.

E. inornatus, Say.—1 male, *var.*

E. multicolor, Norton. (*Strongylogaster multicolor*, Norton; *E. Hullensis* Prov.)—3 males, 5 females. June 3rd, 28th. (2 Types of *E. Hullensis.*)

E. canadensis, Kirby. (*E. pallipes*, Prov.)—8 females. May 24th, June 9th. Violets and Pansies.

E. mellipes, Norton.—2 males, 3 females. May 11th, June 12th.

E. cinctus, Linn. (*E. cinctipes*, Norton).—1 male (from Mr. Fletcher.)

This species has probably been introduced from Europe, and during the present year the larvæ have been noticed upon our garden roses, of which they promise to be another serious past.

HARPIPHORUS.

H. tarsatus, Say.—4 females. June 7th, July 19th.

Var. *varianus*, Norton.—5 males, 10 females. June 6th, 28th.

This fine species (rufous, or black, with white markings) occurs upon Cornels, growing along the Beaver Meadow, Hull.

H. semicornis, Say.—1 female. May 31st.

DOLERUS.

D. unicolor, Beauv.—12 males. April 18th, May 12th

D. arvensis, Say.—10 females. May 6th, June 7th. (= *unicolor*?)

D. sericeus, Say.—8 males, 2 females. April 23rd, May 27th.

D. collaris, Say.—5 females. May 10th, 30th.

D. aprilus, Norton.—12 males, 23 females. May 22th, Aug. 26th.

D. albifrons, Norton.—10 males, 7 females. May 24th, June 29th.

D. apricus, Norton.—2 females. May 24th, June 13th.

D. similis, Norton.—9 females. May 19th, June 24th.

D. bicolor, Beauv.—5 females. May 24th, 27th.

abdominalis, Norton.—2 males. May 21th, June 18th. (= *bicolor*?)

Nearly all the species of Dolerus are abundant in Spring, and are attracted to the sap oozing from stumps, etc., and to the alder and willows when in bloom.

HEMICHROA.

H. americana, Prov. (*Dineura*)—1 female. June 26th. (Hull 1884.)

BLENNOCAMPA.

B. pauperа, Prov.—3 females. May 8th, 9th.

B. parva, Cress.—1 female. June 10th.

B. carbonaria, Cress (?)—1 female. June 19th.

MONOPHADNUS.

M. bardus, Say.—1 male, 6 females. May 25th, June 23th.

The white larvæ of this handsome red-shouldered sawfly, feed on the foliage of the ash, and have sometimes completely stripped trees in this city.

H. medius, Norton.—2 males, 12 females. May 11th, July 12th.

H. rubi, Harris.—5 males, 8 females. May 12th, 27th.

The pale green, spiny larvæ of this species defoliate the wild and cultivated raspberry.

PHYMATOCERA.

P. fumipennis, Norton.—8 males, 10 females. May 17th, June 14th.

P. nigra, Harr.—12 females. (5 Types) May 10th, 31st.

P. montivaga Cress. (?)— 1 female.

HOPLOCAMPA.

H. halcyon, Norton.—3 males, 15 females. May 11th, 17th. Shadbush.

MONOSTEGIA.

M. rosæ, Harris.—16 females. May 19th, June 9th.

The slug-like larvæ of this species are very injurious to roses, and are more generally known than the larvæ of the two species (*C. pectinicornis*, and *E. cinctus*) already noted as infesting these favorite plants. The small black fly is very abundant in June.

M. maculata, Norton (*Emphytus*)—25 males, 63 females. May 1st, June 28th.

This species is a well-known pest of the strawberry, and its wing venation is very irregular (Insect Life Vol. 2. p. 227.)

M. ignota, Norton (?)—2 males. 2 females. May 27th, 31st.

SELANDRIA.

S. flavipes, Norton.—14 males, 12 females. May 24th, Aug. 8th.

A common species upon ferns, on which the larvæ feed.

SCIAPTERYX.

S. punctum, Prov.—2 males, 2 females. June 27th, July 8th.

ALLANTUS.

A. robustus, Prov.—1 female. (Type.)

A. basilaris, Say.—4 males, 13 females. June 28th, Aug. 7th.

This species is abundant in July upon goldenrod and spiræa, and is partially predaceous in its habits.

MACROPHYA.

M. flavicoxæ, Norton.—8 males, 28 females. May 30th, July 8th.

M. albilabris, Harr.—1 male. (Type. var *flavicoxæ*?)

M. externa, Say.—2 females. June 26th.

M. tibiator, Norton.—1 male, 1 female. June 28th.

M. contaminator, Prov.—4 females. June 26th, July 12th.

M. propinqua, Harr.—4 females. (Types.) July 5th, 26th.

M. nigra, Norton.—5 females. June 24th, 28th.

M. albomaculata, Norton.—1 male, 8 females. June 4th, July 5th.

M. trisyllaba, Norton.—9 males, 36 females. June 6th, Aug. 1st.

This is the most common of our species of Macrophya, and occurs abundantly upon nettles growing in damp woods.

M. varia, Norton.—2 females. June 20th, 28th.

M. trosiula, Norton.—1 female. June 10th, (from Mr. Guignard 1885.)

M. fascialis, Norton.—2 females. June 26th, July 5th.

PACHYPROTASIS.

P. omega, Norton.—1 male, 4 females. June 28th, July 28th.

P. delta, Prov.—40 males, 24 females. May 31st, July 12th.

This species, abundant in swampy margins of woods, is very variable in wing venation, (Can. Ent. vol. XVIII, p. 32.)

P. varipicta, Harr.—2 males, 1 female. (Types.) June 7th, 10th.

TAXONUS.

T. nigrisoma, Norton —11 males, 2 females. May 24th, June 5th.

T. rufipes, Harr.—3 males. (2 Types.) May 8th, 18th.

T. dubitatus, Norton.—19 males, 14 females. May 28th, July 19th.

T. albidopictus, Norton.—4 males, 20 females. May 24th, Aug. 2nd.

T. unicinctus, Norton.—3 females. May 27th, 30th.

STRONGYLOGASTER.

S. pallicoxus, Prov.—1 male, 13 females. (2 Types.) May 30th, June 23rd.

S. proximus, Prov.—3 females. (1 Type,) July 25th.

S. rufocinctus, Norton.—6 males, 5 females. June 13th, July 11th.

S. epicera, Say.—2 males, 7 females. May 29th, June 27th.

S. terminalis, Say.— 2 females. June 23rd, 28th.

S. apicalis, Say.—4 males, 9 females. June 13th, July 28th.

S. pallidicornis, Norton.—1 male, 2 females. July 18th, 26th.

S. longulus, Norton.—4 males. May 24th, June 3rd.

S. luctuosus, Prov.—1 male, 2 females. (1 Type,) May 22nd, 28th.

S. distans, Norton (?)—1 female. (taken alive from an ant.)

S. soriculatus, Prov.—1 male, 2 females. May 24th, June 3rd.

S. annulosus, Norton.—4 females. May 24th, June 3rd.

S. tacitus, Say.—2 males, 3 females. May 24th, August 8th.

PŒCILOSTOMA.

P. albosecta, Prov.—1 female. June 10th, Dow's Swamp.

TENTHREDO.

T. grandis, Norton.—5 males, 9 females. June 13th, July 19th.

Var. *nigricollis*, Kirby (?)—1 female. June 15th.

T. rufipes, Say.—10 females. June 2nd, August 2nd.

T. rufopectus, Norton.—5 males. 11 females, June 5th, July 1st.

T. lineata, Prov.—3 females. June 21st.

T. ventralis, Say.—7 females. June 23rd, August 2nd.

T. verticalis, Say.—6 males. 18 females, June 4th, July 26th.
T. basilaris, Prov.—5 females. June 9th, August 2nd.
T. semirubra, Norton.—1 female.
T. signata, Norton.—2 males. June 27th.
T. rufopedibu, Norton.—3 males. June 23th, (= *signata* ?)
T. eximia, Norton.—1 male, 1 female. May 24th, June 28th.
T. semicornis, Harr.—1 male. June 9th, (Type from Mr. Guignard.)
T. mellina, Norton.—1 male, 5 females. June 12th, July 19th.
T. ruficolor, Norton.—2 females. May 24th, July 1st, (= *mellina* ?)

TENTHREDOPSIS.

T. atroviolacea, Norton.—9 males, 9 females. June 1st, June 30th.
T. 14-punctata, Norton.—2 males, 2 females. May 31st, June 7th.
T. Evansii, Harr.—1 female. (Mr. Fletcher.)(= *Tenthredo viridis*, Linn?
T. (?) *annulicornis*, Harr.—1 male, 1 female. (Types) May 28th, June 6th. Perhaps two species.

LOPHYRUS.

L. Lecontei, Fitch.—5 females. May 19th.

The larvæ of this species feed upon the red pine ; they are yellowish with black markings. Bred flies emerged in April.

L. abietis, Harris.—2 males, 8 females. June 12th, July 22nd.

This is a much commoner species, the larvæ feeding upon the spruce. They are greenish with darker longitudinal stripes. Cocoons much smaller and paler, frequently parasitized.

MONOCTENUS.

M. fulvus, Norton.—3 males, 6 females. May 7th, June 6th.

Larvæ larger and more yellowish, feeding upon cedar.

PAMPHILIUS. (Lyda.)

P. maculiventris, Norton.—3 males, 1 female. June 12th, 26th.
P. marginiventris, Cress.—2 females. May 7th, 24th. (= var. *maculiventris*. ?)
P. luteomaculatus, Cress.—3 females. May 24th. (= var. *maculiventris*?)
P. ruficeps, Harr.—1 female. May 31st. (Type ; = var. *brunniceps*, *Cr.*?)
P. perplexus, Cress.—4 males, 2 females. May 11th, 28th.

P. canadensis, Norton.—2 females. June 7th.
P. excavatus, Norton.—1 male.
P. quebecensis, Prov.—2 females. June 27th, 30th.
P. pallimaculus, Norton.—4 females. June 6th, 7th.
P. ocreatus, Say.—1 female.
P. rufofasciatus, Norton.—3 females. June 26th, July 26th.
P. cinctus, Harr.—1 female. June 28th. (Type.)
P. Harringtonii, Prov.—1 female. (Type.)
P. luteicornis, Norton.—1 male, 2 females. June 2nd, 12th.

Macroxyela.

M. infuscata, Norton.—1 female.

This specimen was taken near the city two years ago by my son then about nine years of age, and is the only one I have seen.

Xyela.

X. minor, Norton.—1 male, 10 females. June 8th, 16th. Spruce.

Subsection Xylophaga.

This limited division contains the few species which feed internally upon the pith, or woody tissues of the plants infested. The ovipositor of the female, instead of being saw-like, is more prolonged, and is so contructed that it forms a regular borer, which in the larger species can pierce even the solid wood of our forest trees, in which the eggs are deposited and in which the larvæ live. These larvæ are somewhat elongated white grubs, having only rudimentary legs and thus approaching more closely the ordinary footless grub of the Hymenoptera, than do saw-fly larvæ. The species of Xylophaga are all included in one family, the Uroceridæ, and only five genera are represented in Canada. The larvæ of Cephus infest the stems of grasses or the twigs and shoots of various shrubs; those of Oryssus and Xiphydria bore into the trunks of maple, willow, poplar, etc., those of Tremex inhabit chiefly old maples and beeches, while those of Urocerus confine their attacks to the conifers which they sometimes seriously injure.

UROCERIDÆ.

CEPHUS.

C. pygmæus, Linn.—1 female. (sent to, and identified by Mr. Ashmead.)
C. bimaculatus, Norton.—2 females. May 30th.

One of these was ovipositing in a twig of *Viburnum lentago*.

C. trimaculatus, Say.—1 female. June 16th.

ORYSSUS.

O. Sayi, Westwood.—1 male, 1 female. Maple..
var. *affinis*, Harris—6 males. May 29th. June 13th. Maple.
var. *terminalis*, Newm.—10 females. June 3rd, 23rd. Maple.
var. *occidentalis*, Cress.—1 male, 1 female. May 30th, 31st. Maple.

XIPHYDRIA.

X albicornis, Harris.—4 males, 15 females. June 16th, July 6.

This species frequently attacks maples planted in the city streets.

X. Provancheri, Cress.—1 female. June 15th. Maple. Hull.
X. rufiventris, Cress.—1 female. (from Mr. Fletcher.)
X. attenuata, Norton.—2 males. Basswood.

UROCERUS.

U. cyaneus, Fabr.—2 males, 9 females. Sept. 16th, Oct. 2nd.
U. albicornis, Fabr.—4 females. Aug. 22nd, 26th.
U. abdominalis, Harris.—12 males. June 22nd, Aug. 13th. Larch.

These are probably the males of *albicornis*, although so different.

U. flavicornis, Fabr.—1 female. (coll. Mr. Fletcher.)

TREMEX.

T. columba, Linn.—2 males, 17 females. July, Oct.

This is a common species which badly infests old maples and beeches, and frequently emerges from sticks of firewood. Females may often be found which have not been able to withdraw their ovipositors from the wood in which they were boring, and have been held there until they perished.

BOOK NOTICES.

Notes on the Gasteropoda of the Trenton limestone of Manitoba, with a description of one new species, by J. F. Whiteaves of the Geological Survey of Canada. *Canadian Record of Science*, April 1893, pp. 317-328.

This paper is one of a series on the Cambro-Silurian fossils of Manitoba. The author's reports on the Orthoceratites of the Winnipeg basin, published in the Royal Society's Transactions for 1891 and 1892, are well known, whilst the remainder of the fauna of these Palæozoic rocks will no doubt be shortly described.

Mr. Whiteaves has had access to all the collections made by officers of the Geological Survey; to specimens obtained during the Saskatchewan Exploring Expedition of 1858; to those collected by Hudson Bay officers and to notes on those of Sir John Richardson, and other Arctic explorers. The present report forms, therefore, an important contribution to the geological history of those interesting and important regions of Canada.

Amongst the collections received were those made by Prof. H. Y. Hind in 1858, by Dr. Selwyn in 1872, by Dr. Bell in 1879 and 1880, by Messrs MacCharles and Weston, in 1884; by Mr. Tyrell in 1889 and 1890, and by Messrs Dowling and Lambe in 1889-90. The collections are from the following localities:—East Selkirk, Lower Fort Garry and Nelson River (in Keewatin,) on the mainland and Big, Elk, Deer, Birch, Snake, Bereus, Jack Fish, Sturgeon, Black Bear and other islands in Lake Winnipeg. Sixteen species of Trenton Gasteropoda are recorded, as follows:—

Trenton Gasteropoda.

1. *Raphistoma lenticulare*, Hall.
2. *Pleurotomaria subconica*, Hall.
3. " *muralis*, D. D. Owen.
4. *Murchisonia Milleri*, Hall.
5. " *gracilis*, Hall.
6. " *bellicincta*, Hall, var. *teretiformis*, Billings.

7. *Bucania (Tremanotus?) Buelli*, Whitf
8. *Bucania sulcatina*, Emmons.
9. " *bidorsata*, Hall.
10. *Cyrtolites compressus*, Conrad.
11. *Eunema strigillatum*, Salter.
12. *Helicotoma planulata*, Salter.
13. *Trochonema umbilicatum*, Hall.
14. *Maclurea Manitobensis*, Whiteaves.
15. *Loxonema Winnipegense*, N. sp.
16. *Fusispira ventricosa*, Hall.

Of these, *Loxonema Winnipegense* is the only new form to Science, "The species is of considerable interest" Mr. Whiteaves remarks, "on account of its striking and close similarity to some of the most typical Jurassic species of *Pseudomelania*." The large operculum which was found associated with the *Maclurea Manitobensis*, Whiteaves, (Trans. Royal Society Canada, vol. VII., Sect 4., p. 75. pls., XII and XIII figs. 1 and 2.,) is of interest, in that it does not possess a muscular process such as is seen in the operculum of *Maclurea Logani*, Salter of this district. Of the sixteen species recorded, no less than eleven are forms which were more or less abundant in the old Cambro-Silurian seas about Ottawa, and whose remains we now find imbedded in the rocks of old Barrack Hill, of Hull and of the Black River and Trenton formations of the Ottawa Valley generally. The fauna as exemplified in the gasteropoda appears to be nearer Black River than Trenton, although the two belong to one and the same period in the history of this portion of the North American Continent.—H. M. Ami.

Report of the U. S. National Museum, under the Direction of the Smithsonian Institution, for the year ending June 30th, 1890.

This volume of 800 pages contains a most interesting collection of reports and scientific papers. In addition to the reports of the Assistant Secretary and of the Curators of the several departments of the Museum, there is a series of most valuable papers, discussing and illustrating the

collections therein. But brief mention can be made of a few of the papers, the first of which is by Robert Ridgeway on "The Humming Birds," covering 130 pages and illustrated by 46 plates of the many species enumerated. "The Methods of Fire Making," by Walter Hough gives the various ways in which primitive people secured the all essential fire. Prof. Romyn Hitchcock contributes two very interesting papers, one on the "Ainos of Japan," a race which at one time probably inhabited the whole empire, but which is now a scanty people in the island of Yezo; the other on the evidences of a race which may have preceeded the Ainos and which are designated as "The Ancient Pit Dwellers of Yezo. The first part of a "Handbook for the Department of Geology" appears and deals with Geognosy, or the materials of the earth's crust, by Geo. P. Merrill.—(Ed.)

Birds of Michigan.—Bulletin 94, Michigan Agricultural College. Prof. A. J. Cook.

The Michigan Experiment Station here furnishes to its supporters a very valuable catalogue of the birds recorded from the State, many of which are illustrated in part or in whole—The species recorded number 332, and as the fauna of Michigan agrees in general with that of Ontario the members of the club will find the work of Prof. Cook to be of much interest and value to them in the study of our own bird fauna.—(Ed.)

BOTANY.

Edited by W. Scott, B.A.

Veronica Buxbaumii at Quebec.—I have received from Miss Alice Bowen of Quebec, some nice specimens of the above pretty little Speedwell, which is such an attractive feature of the English hedgerows. "The plant was found in an old, neglected, garden flower-bed" at Quebec. This species is recorded by Macoun as a ballast plant from North Sydney, and Pictou, N. S., and by Burgess from Kingston and London, Ont.—J. F.

CONCHOLOGY.

Edited by F. R. LATCHFORD, B.A.

Several hundred *Helix rufescens* and *H. Cantiana*, collected at Quebec, with probably a thousand eggs of the latter species, have been set out on the Exhibition Grounds west of Machinery Hall. The place selected is quite undisturbed, even when other portions of the grounds are thronged with people ; and as it is easy of access frequent observations may be made of the success or failure of these shells to exist so far inland. Both species have made their way into Canada from England and are now as firmly established on Cape Diamond as the flag which they followed across the sea. *H. rufescens* abounds throughout the City of Quebec, at Levis, and on the Island of Orleans. *H. Cantiana* appears to be restricted to two localities on the escarpment of the Cape : and this may account for the fact that the shell escaped notice until 1885. It is not known to occur elsewhere in America, and its struggle for existence here will be watched with interest. -L.

Another shell, *H. harpa*, small but beautiful and a native of our northern clime, though not hitherto known to occur in this vicinity, has also been introduced on the peninsula, near Machinery Hall. More than a hundred mature individuals from Ste. Petronille, on the Island of Orleans, have been placed among just such bracken and poplars, as they had been taken from a few days before.--L

NOTICE TO MEMBERS.

The Soiree Committee is about to arrange the programme of evening meetings for the winter season, and desires that any member who may wish to read a paper, or to have one presented, will without delay furnish the title of his proposed paper, and the date on which it will be completed. The Leaders of the several Branches, will be glad to have notes of any objects of special interest which have been observed during the past season, to assist them in preparing the reports of the Branches. The Treasurer finds that many members have apparently forgotten that the annual subscription fee is payable in advance, and that money is needed monthly for the payment of printer's bills and postage. (Ed.)

SUMMARY

—OF—

Canadian Mining Regulations.

NOTICE.

THE following is a summary of the Regulations with respect to the manner of recording claims for *Mineral Lands*, other than Coal Lands, and the conditions governing the purchase of the same.

Any person may explore vacant Dominion Lands not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining a mining location for the same, but no mining location shall be granted until actual discovery has been made of the vein, lode or deposit of mineral or metal within the limits of the location of claim.

A location for mining, except for *Iron*, shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron*, shall not exceed 160 acres in area.

On discovering a mineral deposit any person may obtain a mining location, upon marking out his location on the ground, in accordance with the regulations in that behalf, and filing with the Agent of Dominion Lands for the district, within sixty days from discovery, an affidavit in form prescribed by Mining Regulations, and paying at the same time an office fee of five dollars, which will entitle the person so recording his claim to enter into possession of the location applied for.

At any time before the expiration of five years from the date of recording his claim, the claimant may, upon filing proof with the Local Agent that he has expended $500.00 in actual mining operations on the claim, by paying to the Local Agent therefor $5 per acre cash and a further sum of $50 to cover the cost of survey, obtain a patent for said claim as provided in the said Mining Regulations.

Copies of the Regulations may be obtained upon application to the Department of the Interior.

A. M. BURGESS,
Deputy of the Minister of the Interior.

DEPARTMENT OF THE INTERIOR,
Ottawa, Canada, December 1892.