

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- Coloured covers/
Couverture de couleur
- Covers damaged/
Couverture endommagée
- Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- Cover title missing/
Le titre de couverture manque
- Coloured maps/
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- Bound with other material/
Relié avec d'autres documents
- Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- Additional comments: /
Commentaires supplémentaires:

- Coloured pages/
Pages de couleur
- Pages damaged/
Pages endommagées
- Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached/
Pages détachées
- Showthrough/
Transparence
- Quality of print varies/
Qualité inégale de l'impression
- Continuous pagination/
Pagination continue
- Includes index(es)/
Comprend un (des) index
- Title on header taken from: /
Le titre de l'en-tête provient:
- Title page of issue/
Page de titre de la livraison
- Caption of issue/
Titre de départ de la livraison
- Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>									

FEBRUARY, 1896.

VOL. IX, No. II.

THE

OTTAWA

NATURALIST.

Published by the Ottawa Field-Naturalists' Club.

CONTENTS.

	PAGE
1. Notes on the Flora of Ontario, II., Ranunculaceae. By Prof John Macoun, M.A., F.L.S., etc.	217
2. Some account of the Bushy-tailed Wood Rat of British Columbia, (<i>Neotoma cinerea</i> , Ord.) By C. De Blois Green.	225
3. Notes, Reviews and Comments: 1. <i>Geology</i> —On the Animal Nature of Eozoon, by Sir Wm. Dawson, F.R.S. 2. <i>Botany</i> —Canadian Wild Flowers, by Mrs. Agnes (Fitz-Gibbon) Chamberlin. 3. <i>Ornithology</i> —Notes on Arrival and Departure of Birds in Pictou, Nova Scotia, by W. A. Hickman. 4. <i>Zoology</i> —Canadian Shrews. Ex "Synopsis of the North American Shrews," by Dr. C. Hart Merriam and G. S. Miller. 5. <i>Entomology</i> —The Cambridge Natural History, Vol. V., McMillan & Co., London and New York, by W. Hague Harrington.	228
4. Lecture Course.	240

OTTAWA, CANADA.

PRINTED AT THE OFFICE OF PAYNTER & ABBOTT,
48 RIDEAU STREET.

Entered at the Ottawa Post Office as second-class matter.

February 6th.—Lecture by Dr. T. J. W. Burgess, on "BOTANY."
" 20th.— " " Dr. F. D. Adams, on "POMPEII."

Canada's
High
Grade

PIANOS

Mason & Risch,
Nordheimer,
Gerhard
Heintzman.

Estey & Dominion
Organs.

J. L. Orme & Son,

113-115 Sparks St.



Sole Agents for

STEINWAY,
KNABE,
CHICKERING.

A large assortment
of second-hand in-
struments. Terms
to suit all purchas-
ers.

J. L. Orme & Son,

113-115 Sparks St.

J. G. BUTTERWORTH & Co.,

All-Rail Scranton Coal.

36 SPARKS STREET.

A. ROSENTHAL,

Jeweller and Optician.

87 SPARKS ST.

WELCH, MARGETSON & CO'S
Shirts, Collars and Cuffs.

R. MCGIFFIN,

49 SPARKS STREET.

KENNY BROS.,

Tailors to
His Excellency
THE GOVERNOR GENERAL.

C. H. THORBURN,

Books and Stationery,
FOUNTAIN PENS.

Views of Ottawa. 80 Sparks St.

WM. HOWE,

Importer of Artists' Materials and Artistic
Interior Decorations. Manufacturer
of White Lead, Paints & Colors.

Howe's Block, - - OTTAWA.

TRY

BATE & CO'S

33 C.

English Blended Black Tea.

J. & T. BALLANTYNE,

Best Grades of Hard and Soft Coal.

OFFICE, COR. ELGIN & QUEEN STS.

Telephones 536 and 579.

A. J. STEPHENS,

FINE SHOES.

39 SPARKS ST.

Boots and Shoes Made to Measure.

Wm. ROBERTSON,

Bookseller and Stationer,

69 Rideau Street.

Natural History Works supplied to
order.

THE OTTAWA NATURALIST.*

A MONTHLY MAGAZINE DEVOTED TO THE NATURAL SCIENCES.†

VOL. I. 1887-1888.

- ON A NEW GENUS AND THREE NEW SPECIES OF CRINOIDS. By W. R. Billings, p. 49.
TESTIMONY OF THE OTTAWA CLAYS AND GRAVELS, &c. By Amos Bowman, p. 149.
THE GREAT ICE AGE AT OTTAWA. By H. M. Ami, pp. 65 and 81.
ON UTICA FOSSILS, FROM RIDEAU, OTTAWA, ONT. By H. M. Ami, p. 165-170.
NOTES ON SIPHONOTRETA SCOTICA, *ibid.*, p. 121.
THE COUGAR. By W. P. Lett, p. 127.
DEVELOPMENT OF MINES IN THE OTTAWA REGION. By John Stewart, p. 33.
ON MONOTROPA. By James Fletcher, p. 43; By Dr. Baptie, p. 40; By Wm. Brodie, p. 118.
SALAMANDERS. By F. R. Latchford, p. 105.

VOL. II. 1888-1889.

- DESCRIPTIONS OF NEW SPECIES OF MOSSES. By N. C. Kindberg, p. 154.
A NEW CRUSTACEAN—DIAPTOMUS TYRRELLII, POPPE. Notice of.
ON THE GEOLOGY AND PALEONTOLOGY OF RUSSELL AND CAMBRIDGE. H. M. Ami, p. 136.
ON THE CHAZY FORMATION AT AYLMER. By T. W. E. Sowter, pp. 7 and 11.
THE PHYSIOGRAPHY AND GEOLOGY OF RUSSELL AND CAMBRIDGE. By Wm. Craig, p. 136.
SEQUENCE OF GEOLOGICAL FORMATIONS AT OTTAWA WITH REFERENCE TO NATURAL GAS. H. M. Ami, p. 93.
OUR OTTAWA SQUIRRELS. By J. Ballantyne, pp. 7 and 33.
CAPRICORN BEETLES. By W. H. Harrington, p. 144.

VOL. III. 1889-1890.

- GEOLOGICAL PROGRESS IN CANADA. By R. W. Ells, p. 119-145.
LIST OF MOSSES COLLECTED IN THE NEIGHBORHOOD OF OTTAWA. By Prof. Macoun, pp. 149-152.
WHAT YOU SEE WHEN YOU GO OUT WITHOUT YOUR GUN, (Ornithological.) By W. A. D. Lees, p. 31-36.
THE AMERICAN SKUNK. By W. P. Lett, pp. 18-23.
THE BIRDS OF RENFREW COUNTY, ONT. By Rev. C. J. Young M.A. pp. 24-36.
THE LAND SHELLS OF VANCOUVER ISLAND. By Rev. G. W. Taylor.
DEVELOPMENT AND PROGRESS. By Mr. H. B. Small, pp. 95-105.

VOL. IV. 1890-1891.

- ON SOME OF THE LARGEST UNEXPLORED REGIONS OF CANADA. By G. M. Dawson, pp. 29-40, (Map)-1890.
THE MISTASSINI REGION. By A. P. Low, pp. 11-28.
ASBESTUS, ITS HISTORY, MODE OF OCCURRENCE AND USES. By R. W. Ells, pp. 11-28.
NEW CANADIAN MOSSES. By Dr. N. C. Kindberg, p. 61.
PALÆONTOLOGY—A Lecture on. By W. R. Billings, p. 41.
ON THE WOLF. By W. Pittman Lett, p. 75.
ON THE COMPOSITION OF APPLE LEAVES. By F. T. Shutt, p. 130.
SERPENTINES OF CANADA. By N. J. Giroux, pp. 95-116.
A NATURALIST IN THE GOLD RANGE. By J. M. Macoun, p. 139.
IDEAS ON THE BEGINNING OF LIFE. By J. Ballantyne, p. 127-127.

VOL. V. 1891-1892.

- ON THE SUDBURY NICKEL AND COPPER DEPOSITS. By Alfred E. Barlow, p. 51.
ON CANADIAN LAND AND FRESH-WATER MOLLUSCA. By Rev. G. W. Taylor, p. 204.
THE CHEMISTRY OF FOOD. By F. T. Shutt, p. 143.
CANADIAN GEMS AND PRECIOUS STONES. By C. W. Willinott, p. 117.

*Price \$1.00, per Vol. To Members: 60 cents.

† Some of the papers contained in the eight volumes already published.

ARE YOU IN ARREARS? Look at your label. The date on the address slip is that on which your subscription expired.

THE OTTAWA NATURALIST.*

A MONTHLY MAGAZINE DEVOTED TO THE NATURAL SCIENCES.

VOL. V. (Continued).

- "EXTINCT VERTEBRATES FROM THE MIOCENE OF CANADA." Synopsis of. By H. M. Ami, p. 74.
A BOTANICAL EXCURSION TO THE CHÂTS. By R. B. Whyte, p. 197.
SOME NEW MOSSES FROM THE PRINCE OF WELLES ISLANDS. By Jas. M. Macoun, p. 179.
DESCRIPTIONS OF NEW MOSSES. By Dr. N. C. Kindberg, p. 195-196.
ON DRINKING WATER. By Anthony McGill, p. 9.
LIST OF OTTAWA SPECIES OF SPHAGNUM. p. 83.
THE BIRDS OF OTTAWA. By the leaders of Ornithological section; Messrs Lees, Kingston and John Macoun.

VOL. VI. 1892-1893.

- FAUNA OTTAWAENSIS: HEMIPTERA OF OTTAWA. By W. Hague Harrington, p. 25.
THE WINTER HOME OF THE BARREN GROUND CARIBOU. By J. Burr Tyrrell, p. 121.
THE MINERAL WATERS OF CANADA. By H. P. H. Brunell, pp. 167-196.
THE COUNTRY NORTH OF THE OTTAWA. By R. W. Ellis, p. 157.
NOTES ON THE GEOLOGY AND PALEONTOLOGY OF OTTAWA. By H. M. Ami, p. 73.
THE QUEBEC GROUP. *ibid.* p. 41.
FOOD IN HEALTH AND DISEASE. By Dr. L. C. Prévost, p. 172.
OVIS CANADENSIS DALLII. By R. G. McConnell, p. 130.
CHECK-LIST OF CANADIAN MOLLUSCA, p. 33.
ANTHRACNOSE OF THE GRAPE. By J. Craig, p. 114.
SOME OF THE PROPERTIES OF WATER. By Adolf Lehmann, p. 57.

VOL. VII. 1893-1894.

- FAUNA OTTAWAENSIS: HYMENOPTERA PHYTOPHAGA. By W. H. Harrington, pp. 117-128.
NARRATIVE OF A JOURNEY IN 1890 FROM GREAT SLAVE LAKE TO BEECHY LAKE, ON THE GREAT FISH RIVER. By D. B. Dowling, pp. 85 to 92, and pp. 101 to p. 114.
FOOD AND ALIMENTATION. By Dr. L. C. Prévost, pp. 69-84.
NOTES ON SOME MARINE INVERTEBRATA FROM THE COAST OF BRITISH COLUMBIA. By J. F. Whiteaves, pp. 133-137.
NOTES ON THE GEOLOGY AND PALEONTOLOGY OF THE ROCKLAND QUARRIES AND VICINITY. By H. M. Ami, p. 138-47.
THE EXTINCT NORTHERN SEA COW AND EARLY RUSSIAN EXPLORATIONS IN THE NORTH PACIFIC. By George M. Dawson, pp. 151-161.
HYMENOPTERA PHYTOPHAGA, (1893). By W. H. Harrington, pp. 162-163.
NOTES ON CANADIAN BRYOLOGY. By Dr. N. C. Kindberg, p. 17.
CHEMICAL ANALYSIS OF MANITOBA SOIL. By F. T. Shutt, p. 94.
FOLLOWING A PLANET. By A. McGill, p. 167.

VOL. VIII. 1894-1895.

- FAUNA OTTAWAENSIS: HEMIPTERA. By W. Hague Harrington, pp. 132-136.
THE TRANSMUTATIONS OF NITROGEN. By Thomas Macfarlane, F.R.S.C., pp. 45-74.
MARVELS OF COLOUR IN THE ANIMAL WORLD. By Prof. E. E. Prince, B.A., F.L.S., p. 115.
RECENT DEPOSITS IN THE VALLEY OF THE OTTAWA RIVER. By R. W. Ellis, pp. 104-108.
I. NOTES ON THE QUEBEC GROUP; 2. NOTES ON FOSSILS FROM QUEBEC CITY. 1. By Mr. T. C. Weston; 2. By H. M. Ami. (Plate.)
ALASKA. By Otto J. Klotz, pp. 6-33.
FOSSILS FROM THE TRENTON LIMESTONES OF PORT HOPE, ONT. By H. M. Ami, p. 100.
FLORA OTTAWAENSIS. By J. FLETCHER, p. 67.

*Price \$1.00 per Vol. To Members: 60 cents.

THE OTTAWA NATURALIST.

VOL. IX.

OTTAWA, FEBRUARY, 1896.

No. 11.

NOTES ON THE FLORA OF ONTARIO.

BY JOHN MACOUN, M. A., F. L. S.

II

NOTES ON THE SPECIES OF RANUNCULACEÆ OCCURRING IN ONTARIO OR WESTERN QUEBEC.

Within the above limits we have fifteen genera and forty-four species. Many of these occur under diverse conditions and in peculiar habitats and are seldom observed except by botanical collectors. It is the purpose of these notes to enumerate them all and in this way enable members of the Club and others to look out for them when opportunity serves.

The genus *Clematis* has with us two representatives which are very unlike in appearance and habit. The more common species is *C. Virginiana* which grows along all our rivers and brooks and climbs over alders and other bushes where its fruits of long-tailed achenes make it a prominent object in the autumn. In July and August its greenish white flowers are quite attractive and when carefully examined it will be found that the staminate one is the more beautiful as the filaments of the numerous stamens really make up the flowers.

The *Atragene*, (*C. verticillaris*) is rather rare in the settled parts of the province but on the rocky slopes of the Laurentide hills it is not uncommon and when seen is not easily forgotten. its violet sepals, from one to two inches long, being seen early in the season when flowers are more attractive than they are later. Kingsmere mountain is the nearest station to Ottawa.

The genus *Anemone* is represented by six species though two of them do not occur in the settled parts of the area under consideration but have their homes along Lake Superior and northward.

The Small-flowered Anemone, (*A. parviflora*, Michx.), is found in the crevices of rocks around Lake Superior and will very likely be detected both westward and northward in the province, as well as at the sources of the Ottawa and Gatineau rivers. This species seldom grows more than six inches high and has a *single white* flower.

The other rare species, *A. multifida*, Poir., has been collected at Pic River, Lake Superior and it, too, may be looked for both northward and westward. It is easily distinguished from the preceding by its dull crimson to yellowish-white flowers, deeply cut leaves and one to three flowered stems.

Two species *A. cylindrica*, Gray, and *A. Virginiana*, Linn., are rather common throughout the province and by collectors are very often mistaken for each other. The former, however, always grows on dry ground, whereas the latter, which is much less common, is found in rich moist soil, in fence corners and borders of woods. The easiest way to distinguish these species is by the fruit, which in the former is cylindrical and an inch or more long and in the latter ovate or oblong; if young or in flower only, the involucreal leaves on the stem in the first are from 3—9, while in the second they are from 2—3.

Canadian Anemone (*A. Canadensis*, Linn. or *A. dichotoma* Linn.) grows in river bottoms throughout the province. It is seldom found over a foot high and grows in masses in low meadows where its white sepals are very conspicuous in June. In fruit, this species is easily recognised, as its achenes are nearly smooth and gathered into a round head.

Our species of Wind Flower, *A. quinquefolia*, L. or *A. nemorosa*, as it is generally named is a graceful little plant found in rich moist woods throughout the province but quite local. The little stem terminated by a single flower is seldom over eight inches high and has a whorl of 3—5 leaflets immediately under the flower. The sepals vary from white to violet and blue. The four last-mentioned species are common in the Ottawa district.

Following the Anemones we have Hepatica represented by two forms now admitted as species. These are *H. triloba* and *H. acutiloba*, so well known to all, young or old, as "Mayflowers." The former

has round-lobed leaves and the latter acute-lobed ones and these constitute the chief point of separation unless the fruit be examined.

The next genus *Anemonella* includes only one species *A. thalictroides*, the *Thalictrum anemonoides* of Gray's Manual. This is a lovely little plant, growing in clumps from fascicled tubiform roots, and is well worthy of a place in our gardens. It is common in open woods, in rocky places and in fence corners from Toronto westward and southward in the Niagara Peninsula.

Following this is the genus *Thalictrum* with three species, two of which are quite common, the third being rather obscure may also be common but being seldom collected is considered rare. The commonest species is *T. dioicum* found in all rich woods throughout the province. In the woods around Ottawa this is a lovely thing in early spring. As its name indicates the stamens are on one plant and the pistils on another. The panicles in the male plant are greenish purple. The stamens have long drooping filaments and fuscous anthers which when grouped make prominent objects in the bare spring woods.

Another species *T. polygamum*, Muhl. (*T. Cornuti*, L.) is found in river bottoms and around springs and by brooks throughout the country. In the neighbourhood of Ottawa, especially along the Rideau River above Billings' Bridge, it grows into a large bushy plant over five feet high. It flowers late and is seldom collected with ripe seeds.

Our other species is *T. purpurascens*, which has much the same general appearance but does not grow so tall nor in as damp soil. The stem of *T. polygamum*, is mostly green and glabrous and the flowers white, while that of *T. purpurascens* is purplish and a little glandular, and the flowers are purple or rarely whitish. These two species should be collected in fruit and carefully preserved as it is necessary to work out the distribution of the latter. The only authentic locality in Ontario known to the writer is on Dunning's farm, near Drummondville, Niagara Falls. Dr. Burgess has collected it near London. The specimens collected along the Ottawa by Dr. Ami are doubtful as they are without fruit.

Our next genus is *Myosurus*, (Mousetail), represented by one species *M. minimus*, L. This is a very remarkable and inconspicuous little plant but most interesting withal. It is a very small annual with entire, linear leaves in a radical tuft, and simple one-flowered scapes. After flowering the carpel-spike becomes elongated an inch or two which gives the name *Mousetail*. The only recorded localities in Ontario are in the vicinity of Belleville where it was found many years ago in damp places subject to overflow, on limestone shingle west of Albert College and at the Ferry House in Prince Edward County opposite Belleville.

Following this is the large genus *Ranunculus* which is represented by nineteen species, three of them introduced from Europe. This genus takes a multiplicity of forms and grows in all kinds of localities.

In our waters we have at least two species of White-flowered *Crowfoots*. One, *R. circinatus*, Sibth., is apparently uncommon in Ontario but very common in Manitoba and westward. The leaves of this species are sessile and are orbicular in outline and do not collapse in the least when taken from the water. We have this form from Patterson's Creek, Ottawa (Mr. Wm. Scott), and from Wingham (Mr. J. A. Morton).

The other, *R. aquatilis*, L. is very variable and takes many forms both in America and Europe. This species unlike *R. circinatus* has petioled leaves which collapse more or less when taken from the water. One form, var. *trichophyllus*, Gray, represents those specimens with rather short and slightly rigid leaves. We have this from Belleville, Owen Sound and Port Arthur. The second, var. *flaccidus*, Pers., has much longer, soft and capillary dissected leaves all collapsing when withdrawn from the water. This is the deep water form and is no doubt plentiful in many of our streams, yet in our herbarium we have no Ontario specimens.

R. Cymbalaria, Pursh, is a low glabrous species that is at home along the sea coast or on the margin of brackish pools in the prairie region but is occasionally found in mud along river margins where possibly there is saline ooze. Collected along the Ottawa at

Thurso, at Wingham, Ont., and at Fort William, near Port Arthur, Lake Superior.

The next is a water species with bright yellow flowers, *R. multifidus*, so named from its very much dissected leaves. Three forms were formerly included under this species but a better knowledge of their characters has been obtained and they are now easily separated. This species is always found in slow-flowing or stagnant water and when flowering has floating elongated fistulous stems and showy yellow flowers.

The var. *terrestris*, Gray, is a series of shallow water or wet soil forms which creep, rooting in the mud, with shorter stems and emerged coarsely dissected leaves and flowers and fruit smaller. Both the above are general throughout the province but seldom collected. This form is abundant in Malloch's Bay near the C. P. R. station, Ottawa.

A very peculiar species, *R. Lapponicus*, was described, as *Ancone nudicaulis* by Dr. Gray (see Manual, Page 38) from imperfect specimens, which were without flowers. Prior to that time it had been collected in a peat bog where Port Arthur now stands by the Rev. J. K. McMorine and in 1884 in peat bogs, Nipigon river by the writer.

A small and interesting species, *R. Flammula*, L. var. *reptans*, E. Meyer, is found creeping amongst gravel in, or close to, the water on the shores of all lakes and large streams throughout the country. It may be easily known by its creeping habit, linear or lanceolate leaves and small yellow flowers. Very common at Paugan Falls on the Gatineau.

Following this little species is a tall robust one, *R. ambigens*, Watson—nearly two feet high, rising from a decumbent base. Its leaves are lanceolate, acute, generally serrulate, 3 to 4 inches long and from one fourth to half an inch wide. This species has been gathered near Port Colborne and should be looked for in the marshy country on the Welland Canal.

Our next species, *R. rhomboideus*, Goldie, has had a variety of names as it begins to flower when hardly an inch above the ground, just as the snow disappears and continues in bloom for two months. This is a

common species in central and western Ontario, delighting in warm sandy soil.

A common species in rather damp woods and along old woodland roads is *R. abortivus* which might be taken for the above but it is quite smooth, more branching and has inconspicuous flowers. This has a var. *micranthus*, Gray—which may be found in our limits. It may be distinguished from the species by being more or less hairy, having a glabrous receptacle, or having some or most of its radical leaves three-parted.

An annual species—*R. sceleratus*, L. closely related to *R. abortivus* but with dissected leaves and succulent stems is a common species in boggy places or in the mud of ditches in many parts of the province but more especially west of Kingston. It has been found at Borthwick's Springs in the vicinity of Ottawa.

Another woodland species—*R. recurvatus*, Poir.—has no relatives on this side of the continent and being found in all rich woods is a common species. Easily distinguished by its reflexed sepals and petals, and in fruit by its round head and the long recurved beaks of the carpels.

Following this are two introduced species—*R. acris* L. and *R. bulbosus*, L. The former is very common by roadsides and in old damp pastures while the latter is either very rare or seldom distinguished from *acris*. Only two characters are necessary to distinguish these species. The latter has a globose, solid, bulbous base or corm, the former has not this base; in the former the sepals are merely spreading, in the latter they are reflexed.

R. Pennsylvanicus L.—is common in boggy places amongst weeds and grass. It is seldom over a foot high but is stout, and branching and has small flowers with reflexed calyx lobes and an oblong or almost cylindrical head.

Now follows a group of five species that require careful examination in the field, and good fruiting specimens for the herbarium. When Part I of my Catalogue was published, we had little information regarding them, but now they are easily separated. *R. repens* L., remains as I had it, and my var. *hispidus* becomes *R. Macounii*, Britton., but is still retained in Gray's Manual as *R. hispidus*, Hook. (page 43.)

R. repens being an introduced species is always found in the settled parts of the country, generally by ditches or in boggy pastures. It is perennial, and creeps extensively, lies prostrate on the ground or nearly so, forming mats; its leaves are often spotted, and usually very hairy.

R. Macounii grows in boggy places usually amongst grass, is ascending or declined, seldom or never rooting at the joints, and is not perennial. Our most eastern specimens are from Lake Nipigon, but it is certain to be found farther east.

The two following species are included in the *R. fascicularis* of Gray's Manual (page 43), but are separated in Dr. Britton's Revision and in Vol. I, Part I of the Synoptical Flora of North America just published. The species are *R. hispilus*, Michx. (not Hook.), and *R. fascicularis*, Muhl. Both grow in woods and flower early, but the former prefers the drier ground. Both have large flowers but the former is much the taller, and has fibrous roots, and the pubescence of the lower parts is spreading, while in the latter the roots are tuberous-thickened or fusiform, and the pubescence of the lower part of the stems is appressed. We have the former from Wesley Park, Niagara Falls, which is the only known locality but the latter species extends from the Bay of Quinte westward.

Closely related to these is *R. septentrionalis*, Poir., which has a wide range in the province, and seems to claim the alluvium along our rivers and smaller streams for its habitat. We have specimens from Manotick and Casselman and westward. This species is stouter than either of the others, is often stoloniferous, has large yellow flowers, and is seldom very hairy. It may be taken for *R. Macounii*, but is easily separated by its fruit, which is rather gradually contracted into a long flat beak. In *Macounii* the beak is short and straight, and formed of the whole flat, subulate style.

Following *Ranunculus* is the genus *Caltha* with one species—*C. palustris*, L. the well known "Cowslip" of the people or the Marsh Marigold of the books. This species is found by the margins of rivers and brooks and in wet places everywhere. Its early and bright yellow flowers make it an attractive object in spring.

Isopyrum is a genus of low perennials which is represented in the province by one species *I. biternatum*, Torr. and Gray. Our only record of it is from London where it was found by Mr. J. Dearness. In general appearance it resembles *Anemonella* but the fruit is a two to three seeded follicle, whereas in that genus it is an achene.

Gold-thread, (*Coptis*) is represented by one species *C. trifolia*, Salisb.—which is found in cedar swamps and on hummocks in wet woods throughout the province. The yellow rootstocks and white star-like flowers amply distinguish it from all other swamp flowers.

The Columbine (*Aquilegia Canadensis*, L.) is one of our lovely spring flowers and is found in dry places amongst broken rocks in all parts of the country. It is a curious circumstance that all the native Columbines, and we have six, grow amongst the debris of broken rocks.

No native species of *Delphinium* grows in the province but one. *D. Consolida* L., the common Larkspur of the gardens is often found by roadsides on waste-heaps or as a weed in gardens, and another species less branching—*D. Ajacis*—has been found at Lake Scugog by Mr. W. Scott of the Normal School, Toronto. The pods are the best character by which to separate them. In the first the follicle is smooth and in the latter, pubescent.

Black Snake Root or Black Cohosh, (*Cimicifuga racemosa*, Nutt.) is a rare species and is only found in the southwestern part of the province extending from Galt to the Niagara peninsula. It is a tall plant with straight and stiff racemes of flowers often over a foot long. We have nothing else like it and once seen, its general appearance will not be forgotten.

The Baneberry (*Actæa*) has two representatives in our rich woodlands which are difficult to separate when in flower. These are *A. spicata*, L. var. *rubra*, Ait. and *A. alba* Mill. In general terms, one is said to have red berries and the other white but this is not a fact as each species has berries of both kinds. Both grow in damp woods in rich soil and both have white flowers and very little difference in the form of the raceme. In fruit, however, they differ widely no matter what the colour of the berries, the pedicels in *A. spicata*

are long and slender, those of *A. alba* are short and stout and almost as thick as the peduncle.

Yellowroot (*Hydrastis Canadensis*, L.), is only occasionally met with and may be considered very rare. It grows in rich soil in woods and has been collected at Prescott and from Niagara westward to London. Owing to its large peltate leaves it might be taken at first sight for small specimens of *Podophyllum* but the situation of the flower dispels the illusion. In spring it sends up a stem and a single long-petioled peltate leaf. The stem has two leaves near its summit, one of these is petioled, the other sessile, and from this leaf rises a short peduncled white flower, followed by a red fruit resembling a raspberry.

SOME ACCOUNT OF THE BUSHY-TAILED WOOD RAT OF BRITISH COLUMBIA (*NEOTOMA CINEREA*, ORD.)

By C. DEBLOIS GREEN, Osoyoos, B. C.

In the interior of British Columbia there lives a small animal which is more destructive and more annoying than any other animal pest I know. It is the Bushy-tailed Wood-rat or Bush-rat, an animal rather heavier than the Norway Rat and having a tail not unlike that of a Flying Squirrel but not so well developed or silky. The whiskers are very long and coarse, the colour of the body is gray, and the hair is finer and longer than that of the Norway rat.

Its natural home is in the mountains among rock slides and broken rocky hillsides and where possible it protects its hole by collecting cactus and storing them in quantities all around its home, probably to keep coyotes and other enemies at bay. So long as it contents itself with this kind of life, it is hearable, but when it finds that a cabin is in the neighbourhood, the rock slide is not good enough for it.

The first warning one has of the objectionable presence of this animal in a house is hearing a series of heavy blows struck on some board as with a quilt. This is done with the tail which is kept going when-

ever this fiend is thinking of what deviltry it can be up to next ; it is evidently bent on finding a suitable place for a nest. That is the very first consideration, and it will probably choose a corner of the cellar or the attic. They will build their nest steadily for a week and make it of everything one would think utterly useless for the purpose. For instance, the first nest we discovered was made of old clothes as a foundation, plentifully mixed up with knives, forks and spoons, about a bushel of old corn cobs, three dried cow's tails, a few books and some lumps of mineral, quartz, etc, evidently this rat was a prospector. Having built their nest, which seems to be for living in as much as for rearing a family, they then proceed to make sleep at night utterly impossible for the inmates of the house. One would imagine that some large animal was making hay in the kitchen, bang ! and down goes the bread pan, then a tray, then thump, thump, thump, and over goes the stove—at least you think so—but it is only the stove pipe ; you sit up and throw a boot, and silence reigns for five minutes, by which time the boot is down in the cellar or up in the attic. At the end of that time one of the rats perhaps runs right across you face, and in striking at it you knock all the skin off your knuckles and then hear the same old thump, thump, thump, inside the wall.

The smell of this animal is vile, and very few cats will fight one ; those who do have a heavy contract in hand, for they are even stronger than they look,—or smell. A figure 4 trap, with a weight of about 60 pounds (not less ! !), will hold a Bush-rat down. There are only two baits that are sure, one is dried apple, but better by far is a bait of a looking glass or a tin toy of some sort. Even the cut-out top of a milk tin makes a good bait, while a silver spoon is simply irresistible, as they seem to think that the nest always needs a little more ornamenting. These rats are not so destructive in what they eat as in what they carry off, and the only case in which I have heard of *one being useful*, was that of a man who had lost a twenty dollar gold piece in his barn ; he knew that he had lost it somewhere in the stock yard, either in the stable, pigstye or barn, and some weeks afterwards went out prospecting for 6 months, next winter he returned to his cabin, and lo ! the \$20 piece was on the corner of the dining table ornamenting a Bush-rat's nest, together with

other things from the pigstye, and stable etc. which are carefully avoided by all but Esquimaux dogs and Bushy-tailed Wood-rats. Wood-rats object to being caught in the common spring traps, but I don't think it hurts them very much from the way in which they will drag a trap about with a ten pound weight attached to it and by another sign of their apparent insensibility to pain which has come under my notice.

I camped one stormy night forty miles from the nearest inhabited house, in a trapper's old deserted cabin; of course there was the inevitable rat to be considered and the first thing he did was to take my soap off the table and carry it off to his nest. I found it there and next day took it to the stream 100 yards away left it there for safety, but next day sure enough, there it was back again in the nest.

Well, this Bush-rat gave us no rest at all. He was like a devil turned loose all night, and I sat on my blanket in the middle of the floor trying to shoot him by the light of a flickering candle with a Lee-Metford rifle. A friend was trying to sleep in a bunk in the hut. At last I got a shot and made sure that I had hit him, but I could not find his body, as he seemed to fall down a hole. Fifteen minutes later my friend cried out that he had him between his knees. As you may very well believe, I lost no time in squaring our account and was not surprised to find that my shot had cut off one front leg high up at the shoulder. Yet that rat for five minutes before his capture was racketing round over every thing just as though nothing was the matter with him.

Every trapper and prospector in the mountains has many and extraordinary stories to tell of the Bushy-tailed rats and I find no difficulty in believing all I am told but perhaps some of the stories would not go down in the east.

This year I had to leave my house for a few months and four Bush-rats got into it. The state of that house after a month with them for tenants was indescribable on my return.

There were six four-gallon coal oil cans full of cactus taken out of the dining room; there were remains of hundreds of specimens of my butterflies which had been left neatly packed away in paper envelopes scattered all over the floor, down in the cellar, up in the attic, in fact

everywhere ; there were four nests in the house, constructed of white blankets cut up to suit—while huckaback towels cut into cotton rags, curtains, books, carpets, clothes, cartridges, pictures, work-baskets, groceries, wheat, cutlery, children's toys, cactus, bones of deer, dried cow dung, doils' tea-sets, about 100 empty tins and 5000 prunestones, carefully brought a distance of sixty yards from the rubbish hole. I have not enumerated half the things in those nests but only a few that occur to me. In conclusion, I may say that the Bushy-tailed rat evidently considers that he owns any house in which he takes up his abode ; for him any human intruder is the only part of the furniture to be avoided ; but if cornered and brought to bay, he will not avoid even man but will act on the defensive and die fighting like a tiger.

NOTES, REVIEWS AND COMMENTS.

Geology :—DAWSON, SIR WILLIAM.— *The animal nature of Eozoon*, Geological Magazine, Oct., Nov. and Dec. 1895. 17 pp. with eight illustrations.

This is a "review of the evidence for the animal nature of *Eozoon Canadense*." Few are the geological subjects which have attracted more attention or have been discussed more freely than the question as to the animal nature of Eozoön. The purport of the present paper is to correct "some misapprehensions" which as Sir William says "seem to have arisen in regard to points well established and which independently of any question as to the nature of Eozoön, belong to the certain data of geology." Protest is also made "against that mode of treating ancient fossils which regards the most obscured or defaced specimens as typical." This contribution is divided into three parts :—

1. Historical and stratigraphical.
2. Petrographical and chemical.
3. Structural and Biological.

In reviewing the evidence adduced during the last thirty seven years Sir William says: "I confess that in the intervening time I have seen no good reason to induce me to doubt the essential validity of the work

embodied in the paper entitled, "On the Occurrence of Organic Remains in the Laurentian Rocks of Canada," a paper published conjointly, but prepared independently by Sir William Logan, Dr T. Sterry Hunt and Principal (now Sir William) Dawson.

After pointing out the latest views held on the lowest Laurentian by Dr. G. M. Dawson, Dr. Ells and Dr. F. D. Adams, Sir William summarises the facts and states that "in the case of the Grenville limestone" we have "to deal with a formation which indicates that in the early period to which it belongs regular sedimentation was already in full operation."

Sir William then describes the mineralization of *Eozoön* and meets the objections raised by Moebius "that the canal-systems of *Eozoön* and its tubes present no regularity, "by alledging that "good specimens and decalcified specimens are required to understand the arrangement" of these tubes and canal systems.

Dr. Carpenter's views regarding the combined Rotaline and Nmmuline characters of *Eozoön* are again quoted by Sir William as practically unassailable.—H. M. A.

Botany.—*Canadian Wild Flowers*. Painted and lithographed by Agnes Fitz-Gibbon (Mrs. Chamberlin), Fourth Edition, 1895.

This new edition of a beautiful and well known book which first appeared in 1869 will be welcomed by ail lovers of Canadian wild flowers. It is rather remarkable that with the many lovely wild flowers we have in our Canadian woods there is no work, with the exception of the one under consideration and Mrs. Traill's "Plant Life in Canada," now out of print, where accurate figures and descriptions of the many charming denizens of our woods can be found. A noticeable feature of this work is that it is essentially Canadian, not only were the drawings all done from nature by the talented artist, but also the lithographing of the plates and their subsequent colouring by hand, an undertaking simply gigantic in its proportions. The title page and ten plates upon which groups of some of our more showy native flowering plants are displayed in a most tasteful and artistic manner, are by Mrs. Chamberlin, an honoured member of our Club. The literary part of

the work, in which all the plants figured are described in a delightful way, is by the well known Canadian authoress, Mrs. C. P. Traill, who, although now 94 years of age, still continues, unabated, her labour of love, collecting the floral treasures of the picturesque islands near her home in Rice Lake and Stony Lake, and charms her friends by writing delightful observations on her favourites.

The binding and printing of this new edition by William Briggs, of Toronto, are all that can be desired. The work is a well bound and handsome 4to. of 88 pages, and I think the only fault that will be found with it will be that it is all too short.

We trust that this edition may meet with so ready a sale that the authoresses will feel encouraged to issue a second and similar selection from Mrs. Chamberlin's large collection of water-colour paintings of the wild flowers of Ontario.—J. F.

Ornithology.—During the fall of 1895, the Editor of the OTTAWA NATURALIST had the good fortune to meet Mr W. A. Hickman, a most enthusiastic and ardent ornithologist as well as naturalist in the town of Pictou, Nova Scotia. Mr. Hickman's zeal can be more readily estimated when we take into consideration the fact that in the course of his preparation of the notes recording the migration, stay, dates when first and when last seen on bird-life in the Pictou district of Nova Scotia—he has walked the long distance of 2,600 miles and travelled 4,000 miles by steamer during the season of 1895.

In obtaining records of observations on bird life the year previous, 1894, Mr. Hickman travelled in all 3,500 miles. The number of birds seen, the time when first seen, when last seen, whether the bird breeds in the locality in question, together with interesting remarks on the scarcity or direction of migration, etc., form some of the questions which occupy his attention. To facilitate his observations, Mr. Hickman has a lovely yacht at his disposal, and is an expert rider on the bicycle.

We venture to hope that we may soon receive additional material for publication from Mr. Hickman on bird or animal life in Nova Scotia.

The following list of birds observed at Pictou for the first six months of 1895, gives an idea of the thoroughness in which Mr. Hickman does his work. This list has been submitted to our associate editor, Mr. A. G. Kingston, dept. of Ornithology, who has prepared the manuscript for the printer, and our best thanks are due to Mr. Hickman for this interesting contribution from the east.

LIST OF BIRDS OBSERVED AT PICTOU, NOVA SCOTIA,
FROM FIRST OF JANUARY TO FIRST OF JULY, 1895.

By W. A. HICKMAN, Pictou, N.S.

SPECIES.	FIRST SEEN.	WHEN COMMON	LAST SEEN.	REMARKS.
Northern shrike, <i>Lanius borealis</i>	Jan. 9	.....	Apr. 20	not common, northern migrant.
Arctic 3-toed woodpecker, <i>Picoides arcticus</i>	" 21	.....	Jan. 21	rare northern migrant.
American golden-eye, <i>Glaucionetta clangula americana</i>	Feb. 26	Mch. 16	May 7	very common n. and s. migrant.
Glaucous gull, <i>Larus glaucus</i>	" 26	.....	Feb. 26	rare n. migrant.
Canada goose, <i>Branta Canadensis</i>	Mch. 7	Mch. 30	Apr. 26	very common n. and s. migrant.
Dusky duck, <i>Anas obscura</i>	" 16	Apr. 13	.....	breeds, very common.
American scoter, <i>Oidemia americana</i>	" 18	" 13	.....	common, s. migrant.
Buffle head, <i>Charitonetta albeola</i>	" 21	.....	.....	common, n. and s. migrant.
Whitewinged scoter, <i>Oidemia deglandi</i>	" 23	" 11	Apr. 26	common, n. and s. migrant.
Ivory gull, <i>Gavia alba</i>	" 23	.....	Mch. 23	rare, n. migrant.
American surf duck, <i>Oidemia perspicillata</i>	" 23	Apr. 5	June 3	very common, n. and s. migrant.
Song sparrow, <i>Melospiza fasciata</i>	" 24	" 6	.....	breeds, very common, n. and s. migrant.
Eider duck, <i>Somateria dresseri</i>	" 24	" 20	.....	common, n. and s. migrant.
Brant, <i>Branta bernicla</i>	" 30	" 15	June 9	very common, n. and s. migrant.
Slate-coloured snowbird, <i>Junco hyemalis</i>	" 30	Mch. 30	.....	breeds, s. migrant.
Shore lark, <i>Otocoris alpestris</i> ..	Apr. 4	Apr. 8	Apr. 14	common, n. and s. migrant.
Common crossbill, <i>Loxia curvirostra minor</i>	" 5	.....	.....	not common, n. and s. migrant.
White-winged crossbill, <i>Loxia leucoptera</i>	" 5	.....	.....	rare, n. and s. migrant.

SPECIES.	FIRST SEEN.	WHEN COMMON	LAST SEEN.	REMARKS.
Red-breasted merganser, <i>Merganser serrator</i>	Apr. 6	Apr. 13	.....	breeds, very common, s. migrant.
Snow lark-hunting, <i>Plectrophenax nivalis</i> .....	.....	.....	Apr. 6	common, n. migrant.
American robin, <i>Merula migratoria</i>	" 8	Apr. 14	.....	breeds, very common.
Am. Herring gull, <i>Larus argentatus smithsonianus</i> .	" 8	" 18	.....	" " "
Am. Scaup Duck, <i>Aythya marila nevctica</i>	" 10	.....	Apr. 22	common, n. and s. migrant.
Pigeon hawk, <i>Falco Columbarius</i>	" 10	Apr. 2	.....	breeds, common.
Cormorant, <i>Phalacrocorax carbo</i>	" 10	" 21	.....	" "
Fox-coloured sparrow, <i>Passercella iliaca</i>	" 11	" 13	May 7	common, n. and s. migrant.
Marsh hawk, <i>Circus hudsonius</i>	" 11	" 19	.....	breeds, common.
Rusty grackle, <i>Scolecophagus caolinus</i>	Apr. 12	Apr. 21	.....	" very common.
Green-winged teal, <i>Anas carolinensis</i>	" 12	.....	.....	not common, n. and s. migrant.
Field sparrow, <i>Spizella pusilla</i> .	" 13	Apr. 27	.....	breeds, very common.
Great blue heron, <i>Ardea herodias</i>	" 13	" 20	.....	" " "
American Woodcock, <i>Philohela minor</i>	" 16	" 23	.....	" common.
Pine grosbeak, <i>Pinicola enucleator</i> .....	.....	.....	Apr. 16	very common, n. migrant.
Bronzed grackle, <i>Quiscalus quiscula cneus</i>	Apr. 19	May 1	.....	breeds, very common.
Wilson snipe, <i>Gallinago delicata</i>	" 19	Apr. 20	.....	" " "
Red-tailed buzzard, <i>Buteo borealis</i>	" 20	.....	.....	" not common.
Gannet, <i>Sula bassana</i>	" 20	.....	.....	not common.
White-bellied swallow, <i>Tachycineta bicolor</i>	" 20	Apr. 28	.....	breeds, very common.
Pied-billed grebe, <i>Podilymbus podiceps</i>	" 22	.....	Apr. 22	n. and s. migrant. not common in spring.
Am. bittern, <i>Botaurus lentiginosus</i>	" 22	May 6	.....	breeds, common.
Goosander, <i>Merganser americanus</i> .....	.....	.....	Apr. 22	very common, n. migrant.
Kingfisher, <i>Ceryle alcyon</i>	Apr. 24	" 1	.....	breeds, very common.
Purple finch, <i>Carpodacus purpureus</i>	" 24	" 5	.....	" " "
Savanna sparrow, <i>Ammodramus sandvicensis savanna</i>	" 25	.....	.....	" common.
Common tern, <i>Sterna hirundo</i> .	" 26	May 7	.....	" very common.
Arctic tern, <i>S. paradisæa</i>	" 26	" 2	.....	" common.
Golden-winged woodpecker, <i>Colaptes auratus</i>	" 26	Apr. 27	.....	" very common.

SPECIES.	FIRST SEEN.	WHEN COMMON	LAST SEFN.	REMARKS.
Olive-backed thrush, <i>Turdus ustulatus swainsonii</i>	Apr. 26	Apr. 28	.....	“ “ “
Swamp sparrow, <i>Melospiza georgiana</i>	“ 26	.....	.....	“ not common.
Great-northern diver, <i>Urinator imber</i>	“ 27	May 11	.....	“ very common
Yellow redpoll warbler, <i>Dendroica palmarum hypochrysea</i>	“ 28	“ 1	.....	“ “ “
Long-tailed duck, <i>Chauleula hvmalis</i> . . . . .	.....	.....	Apr. 28	very common, n. migrant.
Redpoll, <i>Acanthis linaria</i> . . . . .	.....	.....	“ 28	rare northern migrant.
White-throated sparrow, <i>Zonotrichia albicollis</i>	Apr. 29	May 4	.....	breeds, very common.
Yellow-rumped warbler, <i>Dendroica coronata</i>	“ 30	“ 7	.....	“ “ “
Solitary sandpiper, <i>Totanus solitarius</i>	May 1	“ 4	.....	“ “ “
Hermit thrush, <i>Turdus aonalaschkae pallasi</i>	“ 1	“ 5	.....	“ common.
Barn swallow, <i>Chelidon erythrogaster</i>	” 1	“ 8	.....	“ “
Chipping sparrow, <i>Spizella socialis</i>	“ 2	“ 5	.....	“ very common.
Red-throated diver, <i>Urinator lunme</i>	“ 3	May 20	May 30	very common, n. and s. migrant.
Spotted sandpiper, <i>Actitis macularia</i>	“ 1	“ 4	.....	breeds, very common.
Humming bird, <i>Trochilus colubris</i>	“ 7	“ 21	.....	breeds, very common, first appearance very early.
American coot, <i>Fulica americana</i>	“ 8	.....	.....	breeds (?), not common.
Semipalmated plover, <i>Egialitis semipalmata</i>	“ 9	May 15	May 28	very common, n. and s. migrant.
Cliff swallow, <i>Petrochelidon lunifrons</i>	“ 9	“ 25	.....	breeds, very common.
Sparrow hawk, <i>Falco sparverius</i>	“ 9	.....	.....	“ not common.
Yellow warbler, <i>Dendroica aestiva</i>	“ 10	May 24	.....	“ very common.
Chimney swift, <i>Chetura pelagica</i>	“ 11	“ 23	.....	“ common.
American osprey, <i>Pandion haliaetus carolinensis</i>	“ 11	“ 19	.....	“ “
Red-eyed viree, <i>Vireo olivaceus</i>	“ 11	“ 20	.....	“ very common.
Black-throated green warbler, <i>Dendroica virens</i>	“ 12	“ 20	.....	“ “ “
King bird, <i>Tyrannus tyrannus</i>	“ 12	“ 22	.....	“ “ “
Ruby-crowned kinglet, <i>Regulus calendula</i> . . . . .	.....	.....	May 12	rare, n. migrant

SPECIES.	FIRST SEEN.	WHEN COMMON	LAST SEEN.	REMARKS.
American goldfinch, <i>Spinus tristis</i>	May 13	May 24	.....	breeds, very common.
Blue-winged teal, <i>Anas discors</i>	" 15	.....	.....	not common, n. and s. migrant.
Pintail duck, <i>Dyfla acuta</i>	" 15	.....	.....	rare n. and s. migrant.
Leach's petrel, <i>Oceanodroma leucorhoa</i>	" 15	.....	.....	breeds, not common.
Least Sandpiper, <i>Tringa minutilla</i>	" 15	May 17	May 28	very common, n. and s. migrant.
Piping plover, <i>Agialitis meloda</i>	" 15	" 24	.....	breeds, very common.
Oven bird, <i>Seiurus aurocapillus</i>	" 17	" 26	.....	" quite common.
Golden plover, <i>Charadrius dominicus</i>	" 17	.....	May 17	rare, n. and s. migrant.
Black-bellied plover, <i>Charadrius squatarola</i>	" 17	.....	" 17	not common, n. and s. migrant.
American redstart, <i>Setophaga ruticilla</i>	" 18	May 25	.....	breeds, very common.
Wilson thrush, <i>Turdus fuscescens</i>	" 18	" 25	.....	" " "
Bobolink, <i>Dotichonyx orizivorus</i>	" 18	" 20	.....	" " "
Wood pewee, <i>Contopus virens</i>	" 19	" 25	.....	" common.
Bank swallow, <i>Chicocola riparia</i>	" 19	" 28	.....	" very common.
Black and white warbler, <i>Mniotilta varia</i>	" 19	.....	.....	breeds (?), not common.
Hudsonian titmouse, <i>Parus hudsonicus</i> .....	.....	.....	May 20	very common, n. migrant.
Yellow and black warbler, <i>Dendroica maculosa</i>	May 22	May 25	.....	breeds, very common.
Greater yellow-legs, <i>Totanus melanoleucus</i>	" 22	.....	May 24	very common in autumn, n. and s. migrant.
Lesser yellow-legs, <i>Totanus flavipes</i>	" 22	.....	" 24	very common in autumn, n. and s. migrant.
Little green-crested flycatcher, <i>Empidonax rivescens</i>	" 22	May 30	.....	breeds, common.
Golden-crowned kinglet, <i>Regulus satrapa</i>.....	.....	.....	May 22	very common, n. migrant.
Bay-breasted warbler, <i>Dendroica castanea</i>	May 23	.....	.....	breeds, not common.
Eskimo curlew, <i>Numenius borealis</i>	" 24	.....	May 24	n. and s. migrant, common in autumn not in spring.
Turnstone, <i>Arenaria interpres</i>	" 24	.....	.....	not common, n. and s. migrant.
Wood duck, <i>Aix sponsa</i>	" 25	.....	.....	breeds, rare.
Maryland yellowthroat, <i>Geothlypis trichas</i>	" 27	May 28	.....	" very common.
Purple martin, <i>Progne subis</i>	June 2	June 8	.....	" bec'ng common.

SPECIES.	FIRST SEEN.	WHEN COMMON	LAST SEEN.	REMARKS.
Cedar waxwing, <i>Ampelis cedrorum</i>	June 5	June 11	.....	" quite common.
Night hawk, <i>Chordeiles virginianus</i>	" 7	" 19	.....	" very common
Black-billed cuckoo, <i>Coccyzus erythrophthalmus</i>	" 10	" 18	.....	" common.
Louisiana water-thrush, <i>Seiurus motacilla</i>	" 12	" 26	.....	" not common.
Warbling vireo, <i>Vireo gilvus</i>	" 20		.....	" rare.
Worm-eating warbler, <i>Helmitherus vermicivorus</i>	" 20		.....	" rare.
Loggerhead shrike, <i>Lanius ludovicianus</i>	" 27		.....	rare, s. migrant.
Pine linnnet, <i>Spinus pinus</i>				generally common, not seen this spring.
Winter wren, <i>Troglodytes hyemalis</i>				sometimes seen in fall.
Great-black-backed gull, <i>Larus marinus</i>				resident, very common.
Canada grouse, <i>Dendragapus canadensis</i>				" becoming less common.
Ruffed grouse, <i>Bonasa umbellus</i>				" very common.
American goshawk, <i>Accipiter atricapillus</i>				" not common.
Barred owl, <i>Syrnium nebulosum</i>				" our commonest owl.
Acadian owl, <i>Nyctala acadica</i>				resident, rather rare.
Great-horned owl, <i>Bubo virginianus</i>				" very common.
Northern hairy woodpecker, <i>Dryobates villosus leucomelas</i>				" not common.
Hairy woodpecker, <i>Dryobates villosus</i>				" very common.
Downy woodpecker, <i>Dryobates pubescens</i>				" " "
Pileated woodpecker, <i>Geophelaus pileatus</i>				" rare.
Blue jay, <i>Cyanocitta cristata</i>				" very common.
Canada jay, <i>Perisoreus canadensis</i>				" " "
American Raven, <i>Corvus corax principalis</i>				" " "
American crow, <i>Corvus americanus</i>				" " "
European house sparrow, <i>Passer domesticus</i>				" " "
Brown Creeper, <i>Certhia familiaris americana</i>				" not common.
White-breasted nuthatch, <i>Sitta carolinensis</i>				" common.
Red-breasted nuthatch, <i>Sitta canadensis</i>				" very common.
Black-capped titmouse, <i>Parus atricapillus</i>				" " "

Zoology :—MERRIAM, C. HART.—1. *Revision of the American genera Blarina and Notiosorex.* 2. *The long-tailed shrews of the Eastern United States.* 3. *Synopsis of the American shrews* of the genus *Sorex* forming pt. No. 10 of "NORTH AMERICAN FAUNA," Dec. 1895.

The first and third papers are by our Corresponding member, Dr. C. Hart Merriam, and the second by Gilbert S. Miller, jr. Together, they contain 100 pages of letter press accompanied by twelve plates of illustrations. The history, non-enclature and descriptions of the genera and species of North American long-tailed and short-tailed shrews are given in the two first-named papers. Many of the species described or recorded are from Canada and these are noted for the sake of reference.

I. One Canadian Genus and Species of Short-Tailed Shrews.

1. *Blarina brevicauda*, Say, (*Sorex talpoides*, Gapper.) Vicinity of Lake Simcoe, Ontario. Rat Portage, Lake of the Woods, and Ottawa, Ont. are all given as Canadian localities, besides Digby, N.S.

II. Long-Tailed Shrews, from Canadian localities.

1. *Sorex Hoyi*, Baird. Belongs to the new sub-genus: *Microsorex*, Baird. Recorded from New Brunswick and Nova Scotia.

2. *Sorex palustris*, Richardson. Locality: between Hudson Bay and the Rocky Mts. precise loc., South Edmonton, Alberta. This species is referred to the sub-genus *Neosorex*, Baird.

3. *Sorex albibarhis*, (Cope.) Can. loc., Lac aux Sables, Quebec, and Nova Scotia.

4. *Sorex Richardsoni*, Bachman, Manitoba west to Alberta.

5. *Sorex fumus* Miller, N. Sp. Nova Scotia, New Brunswick and west to Ontario and the great lakes.

6. *Sorex personatus*, Saint-Hilaire. The male specimens recorded came from South Edmonton, Alberta.

III. *Canadian species from the Synopsis of 'the American shrews of the genus Sorex.**

In this synopsis by Dr. Merriam the following species of Canadian shrews are recorded by that author and the synonymy is also given besides the exact locality and the synonymy is also given besides the exact locality were the specimens thus recorded were found or captured. It will be seen that some of the species here recorded also occur in Mr. Miller's previous list (see above), but they are given as described by Dr. Merriam with the precise localities whence they were obtained.

1. *Sorex personatus*, Saint Hilaire. Loc : *Brit. Columbia* : Glacier, Field, Cariboo Lake, near Kamloops, Sicamous Mount Baker. *Assa* :—Indian Head. *Alberta* :—Sth. Edmonton, St. Albert, Island Lake, Banff, Canmore. *Manitoba* :—Carberry. *Ontario* :—Rat Portage, Ottawa, Parry Sound, Sand Lake. *New Brunswick* :—St. John. *Quebec* :—Godbout.

2. *Sorex personatus Stricatori*, (sub-species nov.)—*Brit. Columbia* :—Glacier. *Alberta* :—Sth. Edmonton. *Quebec* :—Godbout.

3. *Sorex Richardsoni*, Bachman. Recorded from four Canadian localities. *Alberta* :—Sth. Edmonton, St. Albert, Island Lake. *Assa* :—Indian Head. *Saskat.* :—Wingard. *Manitoba* :—Carberry.

4. *Sorex sphagnicola*, Coues. This is the so-called *Sorex Belli*, Dobson, and is interesting not only since the type came from Canada, near Ft. Liard, Brit. Columbia, but also because Dr. Dobson described the same species from a specimen collected by Dr. Bell from Hayes River, Hudson Bay, in 1885. Dr. Bell's specimen is said to have been the totem of an Indian chief, who, when he found out that he missed the totem, went on the war path. Precise locality :—Shamatawa River, Hayes R., Hudson Bay. Specimen in the Museum of the of the Geological Survey, Ottawa.

5. *Sorex vagrans*, Baird. Occurs in Brit. Columbia at Port Moody, Sumas, and on the Mt. Baker Range.

7. *Sorex Vancouverensis*, (Merriam) N. Sp. Type from Goldstream, Brit. Columbia, a species closely related to *Sorex vagrans*, Baird.

8. *Sorex obscurus*, Merriam, Abundant in Brit. Columbia. Occurs at the following localities :—Nelson, Ward, Field, Glacier, Golden, Kamloops (Cariboo Lake), Sicamous, Goldstream, V. I., Sumas, Comox, and Port Moody. In Alberta, at Henry House two specimens.

9. *Sorex Hoyi*, Baird. A *Microsorex*. Recorded from *Quebec* :—Godbout. *Nova Scotia* :—Digby. *Manitoba* :—Red River Settlement. *British Columbia* :—Stuart Lake.

Entomology.—THE CAMBRIDGE NATURAL HISTORY. Vol. V. Macmillan & Co., London and New York. 1895.

This is the second published volume (Vol. III treating of Mollusca having previously appeared) of a series now being issued under the able editorship of S. F. Harmer, M. A., Superintendent of the Cambridge University Museum of Zoology, and A. E. Shipley, M. A., University lecturer on the Morphology of Invertebrates. The series of ten volumes when completed will constitute a work indispensable to the library of any one interested in Natural History, and will form an authoritative condensation of the present knowledge of animals in all branches. The present volume contains in the first place a twenty-four page account of the genus *Peripatus*, a curious slug-like creature, which "stands absolutely alone as a kind of half-way animal between the Arthropoda and Annelida." The species are few in number, but have an extended distribution occurring, in South Africa, Australia, New Zealand, South and Central America and the West Indies. This interesting and complete account of their structure, development and habits is by Adam Sedgwick, M. A., F. R. S., who had previously monographed the group. (*Quart. Journ. of Mic. Science*, Vol. XXXVIII.) The Myriapoda are next treated of by F. G. Sinclair, M. A., whose article covers some fifty pages, and is an admirable sketch of these many-legged creatures, which are generally looked upon distrustfully because of the dread inspired by the section known as centipedes, and our innate aversion to any crawling, wriggling creature that delights in darkness and concealment.

The remaining five hundred pages of the volume are devoted to a discussion of the Insects by D. Sharp, M. A., who will require another volume to complete his account of this most prolific of all the classes of animal life. Nearly one hundred pages are occupied by a very complete, although necessarily concise description of the anatomy, embryology and development of insects in general. This is followed by an outline of the classification and it is noted with pleasure that Dr. Sharp has not followed the propensity of some authors to divide the insects into a large number of orders, but has limited them to nine; viz. Aptera, Orthoptera, Neuroptera, Hymenoptera, Coleoptera, Lepidoptera, Diptera, Thysanoptera and Hemiptera. The first order contains Thysanura and Collembola, the little creatures, mostly found in damp localities, known as "springtails." The chapters dealing with the Orthoptera will attract the attention of many readers from the numerous interesting forms which are mentioned, whose great diversity of structure and ornamentation are so well depicted by beautiful illustrations of many of the remarkable genera which inhabit tropical regions. The Neuroptera, though not yielding such strangely developed and fantastic insects, are perhaps more interesting from their greater variety of habit, arising partly from the fact that so many of the species are aquatic in their early stages. This order also contains the familiar Termites, or so-called white ants, in which the social life has developed great variations in the forms and functions of different individuals and results in the construction of sometimes really wonderful erections. Each of these two extensive orders requires about one hundred and fifty pages for its exposition, and the remaining eighty pages treat of the Hymenoptera, (in part), the most interesting in many ways of all the orders of insects.

The portion of the order dealt with in this volume, includes the Sessiliventres (Saw-flies and Horn-tails) and the parasitic families of the Petiolata. Fine illustrations are given of several species which occur at Ottawa such as *Oryssus Sayi*, *Tremex columba*, *Thalassa lunator* and *Pelocinus polyturator*. All the illustrations throughout the volume are most excellent, and the figures, of which there are 371, have been in great measure drawn especially for the work, which is beautifully printed,

and neatly bound in cloth. It is a work which cannot be too highly recommended to the students desiring to have an accurate general knowledge of the animal kingdom, and the appearance of the next volume will be awaited with great interest. Dr. Sharp has pointed out that in Fig. 333, p. 490, *f* is called a division of the metanotum, whereas it belongs to the mesonotum. This error in writing the description of the figure will be corrected in the next volume; which will commence with the aculeate hymenoptera.—W. HAGUE HARRINGTON.

LECTURE COURSE.

Judging by the attendance at the lectures this winter the Councils of both societies have reason to congratulate themselves. Owing to circumstances over which the Societies had no control the lecture which was to have been delivered by the Hon. Dr. Montague, M. P. &c. was indefinitely postponed.

Extinct Monsters.—On the 23rd of January Dr. H. M. Ami of the Geological Survey Department gave a very interesting and instructive lecture on "Extinct Monsters." The material with which Dr. Ami illustrated his lecture consisted of a series of very carefully prepared lantern slides which he had obtained in Europe last summer, together with others specially prepared for himself in Ottawa from works bearing on the subject. Upwards of sixty magnificent lantern slides were thrown on the screen by means of an excellent oxy-hydrogen lantern, skilfully handled by Mr. Dunn of the Inland Revenue Department, Ottawa. These views illustrated the works of Cuvier, Sir Richard Owen, Marsh, Cope, Huxley and others.

The most interesting and best known Amphibia, Reptilia, Dinosauria, extinct birds, Mammalia (including fossil elephants and horses), the sea-cow, and a large number of the most recently discovered specimens were described and shown to a large and appreciative audience.

Labrador.—On the 30th. of January Mr. A. P. Low of the same department gave a most graphic and charming description of his explorations in the Labrador peninsula. The various routes traversed, the character of the country, the trees, the inhabitants, the mineral resources of that region were all presented in such a manner as to elicit profound attention and frequent applause. Mr. Low's lecture was illustrated with numerous views of that little known yet very interesting Peninsula.

A very animated discussion followed the reading of this paper in which Dr. Selwyn, Dr. Thorburn, Prof. Macoun, Dr. Sandford Fleming, Mr. Tyrrell, Dr. Wicksteed and Mr. Anthony McGill took part.

Announcement.—The lectures for February under the joint auspices of the Club and of the Ottawa Literary and Scientific Society will be held in the Normal School as follows.

February 6th.—Dr. T. J. W. Burgess, of the Royal Society of Canada, Montreal, will lecture on: "How to study Botany."

February 20th.—Dr. F. D. Adams of McGill University, Montreal, will illustrate and describe "Pompeii." Dr. Adams has with him a very interesting series of lantern slides to illustrate that ancient city where such elaborate excavations have been carried on in recent years.

J. ROBERTS ALLAN, Chemist and Druggist,
76 Rideau Street, Ottawa.

If you want nice **PHOTOS**, go to **MR. JARVIS**, 117 Sparks Street.

NATIONAL MFG CO
160 SPARKS ST. OTTAWA



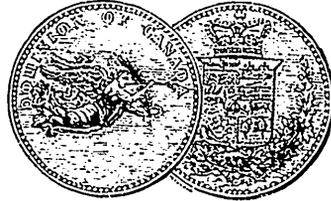
TENTS, FLAGS, CAMP FURNITURE,
SPORTING GOODS &c

SEND STAMP FOR ILLUSTRATED CATALOGUE

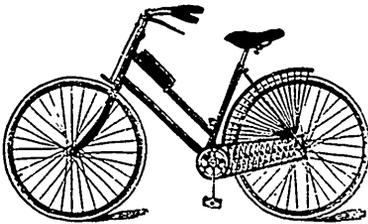
**Tents, Flags,
Camp Furniture,
Hammocks.**

We profess to manufac-
ture our goods in a superior

manner and of better material than any other house in the trade. In proof of this we may state that we have been awarded 203 gold and silver medals and first prizes at the leading exhibitions in Europe, America and Australia, and never had to take second place.



Our prices are as low as any on the continent. Send stamp for Catalogue.



Our line of bicycles are, we think, the largest in Canada, including Beeston Humber, Up-to-date, Rudge, Premier, Rambler, Crescent, Wanderer, Chainless, Whitworth, Hyslop,

Spartan, &c. Our prices run from \$45.00 upwards. You can save money by purchasing from us.

COLE'S NATIONAL MFG. CO.,
160 SPARKS STREET, OTTAWA.

JAMES HOPE & CO., Importing and Manufacturing Stationers, Booksellers and Bookbinders, Ottawa.
Depository Ottawa Auxiliary Bible Society.

PITTAWAY'S PHOTO STUDIO,
58 SPARKS STREET.

CANADA ATLANTIC RAILWAY.

OTTAWA, ARNPRIOR AND PARRY SOUND RAILWAY.

FAST SHORT LINE TO

Montreal, The Adirondacks,
 Quebec, Seaside Resorts,
 Halifax, Summer Resorts,
New York, Boston, Philadelphia.

NEW EQUIPMENT. PULLMAN PARLOR CARS.

Special inducements to Societies, Sunday Schools, etc., for excursions to a large number of pic-nic grounds, scenic resorts, etc., within a short distance of Ottawa.

For full information apply at City Ticket Office, Russell House Block, or to

E. J. CHAMBERLIN,

General Manager.

C. J. SMITH,

Agent.



THE
Russell House,

OTTAWA.

F. X. ST. JACQUES,

Proprietor.

Transactions of the Ottawa Field-Naturalists' Club, 1880-86.

Complete in Two Volumes, containing Parts 1, 2, 3, 4, 5, 6 and 7.

Vol. I, price \$1.00; to members 70 cents.

Vol. II, price \$1.00; to members 50 cents.

TRANSACTIONS.

VOL. I. {	Pt. 1, not sold singly.	VOL. II. {	Pt. 5, price 30 cts; members 20 cts.
" 2, price 25 cts; members 15 cts.		" 6, " 40 cts; " 25 "	
" 3, " " " "		" 7, " 30 " " 20 "	
" 4, " " " "			

THE OTTAWA NATURALIST, \$1.00 per annum. MONTHLY PARTS, 10 cts, to members, 5 cts. QUARTERLY PARTS, 25 cts; to members, 15 cts. EXTRAS—1. Lecture on Palaeontology. Walter R. Billings. Eleven pages. Price, 5 cents. 2. Asbestos; its History, Mode of Occurrence and Uses. Dr. R. W. ELLS. Twenty-four pages. Price 10 cts.

2011 31865

THE OTTAWA FIELD-NATURALISTS' CLUB, 1895-1896.

Patron:

THE RT. HONOURABLE THE EARL OF ABERDEEN
GOVERNOR-GENERAL OF CANADA.

President:

MR. F. T. SHUTT, M.A., F.I.C.

Vice-Presidents

Mr. A. G. Kingston. Dr. H. M. Ami, M.A., F.G.S.

Librarian:

Mr. S. B. Sinclair, B.A.
(Normal School.)

Secretary:

Mr. Andrew Halkett.
(Marine and Fisheries Dept.)

Treasurer:

Mr. D. B. Dowling, B.A.Sc.
(Geol. Survey Dept.)

Committee:

Prof. E. E. Prince, B.A., F.L.S.	Miss A. Shenick, B. Sc.
Mr. James Fletcher, F.L.S., F.R.S.C.	" G. Harmer.
Mr. W. F. Ferrier, B.A.Sc., F.G.S.	" A. M. Living.

Standing Committees of Council:

Publishing: Dr. Ami, Prof. Prince, Mr. Dowling, Mr. Kingston, Mr. Ferrier.
Excursions: Mr. Kingston, Mr. Dowling, Dr. Ami, Miss Shenick, Miss Living.
Soirees: Prof. Prince, Mr. Sinclair, Mr. Fletcher, Mr. Halkett.

Leaders:

Geology: Dr. Ells, Mr. Ferrier, Dr. Ami.
Botany: Mr. Whyte, Prof. Macoun, Mr. Craig.
Entomology: Mr. Fletcher, Mr. Harrington, Mr. MacLaughlin.
Conchology: Mr. Latchford, Mr. Halkett, Mr. O'Brien.
Ornithology: Mr. Kingston, Miss Harmer, Mr. Lees.
Zoology: Prof. Prince, Mr. Whiteaves, Mr. Small.

"THE OTTAWA NATURALIST."

Editor:

HENRY M. AMI, M.A., D.Sc., F.G.S.

Associate Editors:

DR. R. W. ELLS, F.R.S.C. — Geological Survey of Canada — Department of *Geology*.
 MR. W. F. FERRIER, B.A.Sc., F.G.S. — Geological Survey of Canada — Department of *Mineralogy*.
 PROF. JOHN MACOUN, M.A., F.L.S. — Dominion Botanist, Geological Survey of Canada — Department of *Botany*.
 MR. F. R. LATCHFORD, B.A. — Department of *Conchology*.
 MR. A. G. KINGSTON — Public Works Department — Department of *Ornithology*.
 MR. JAMES FLETCHER, F.L.S., F.R.S.C. — Botanist, etc., Central Experimental Farm — Department of *Entomology*.
 PROF. E. E. PRINCE, B.A., F.L.S. — Commissioner of Fisheries for Canada — Department of *Zoology*.

A Monthly Magazine devoted to the Natural Sciences.

Yearly Subscription, - - - - - \$1.00.

PRICE OF AUTHORS' EXTRAS.

Covers.	No. of Pages.	Price.	Covers without title.
Without	1 to 8	\$1.25 per C.	
Without	8 to 16	\$2.25 per C.	
With	1 to 8	\$2.25 per C.	\$2.00 per C.
With	8 to 16	\$3.25 per C.	\$3.00 per C.

SHOES SOLD BY RETAILLACK WEAR WELL. 63 SPARKS STREET.

Olmsted & Hurdman, Diamonds, Watches, Jewellery, 67 Sparks St., Ottawa. Telephone 75.

M. M. Pyke, Men's Outfitter and Proprietor of Pyke's Steam Laundry.

HENRY WATTERS,
Chemist and Druggist,
Corner of Sparks and Bank Streets,
OTTAWA.

JOHN MURPHY & CO.,
IMPORTERS
FANCY AND STAPLE DRY GOODS,
66 and 68 Sparks Street,
OTTAWA.

TOPLEY,
132 Sparks Street.
COME IN AND SEE LATEST PHOTOS.
Kodaks to Rent.

ESTABLISHED 1836.
J. DURIE & SON,
Booksellers Stationers,
Publishers.
SPARKS STREET, OTTAWA.

THOMAS LICGET
Has removed his Stock of
CARPETS, ETC.,
to new premises.
177 AND 179 SPARKS ST.

R. A. McCORMICK,
Prescription Druggist,
75 SPARKS STREET,
Phone 159. Ottawa.

G. M. HOLBROOK,
102 Sparks Street,
OTTAWA.

ALEX. SPITTAL & CO.,
PITTSTON COAL.
All Sizes. Lowest Prices.
161 SPARKS STREET,

Trouser Stretchers, 50c. per pair.

Telephone 971.

J. & R. CRAIG, Tailors, 105 Sparks St., Ottawa.