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April...June, 1889.

THE
* OTTAWA NATURALIST *

VOLUME III. No. 1.

THE
TRANSACTIONS.

OF THE
* Ottawa Field-Naturalists' Club *

(Organized March, 1879. Incorporated March, 1884.)

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THE
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BEING VOL. V OF THE

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(Organized March, 1879: Incorporated March, 1884.)

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EDITORIAL.

The present number is the first Quarterly part of Vol. III of the OTTAWA NATURALIST.

After careful consideration the council has decided to publish the magazine, for this year at any rate, in quarterly parts of not less than 48 pages. The scope of the publication has also been widened so as to include papers by members of the club upon the General Natural History of Canada, without being restricted as heretofore to this locality only.

It is hoped in this way largely to augment the usefulness of the Club, and at the same time to draw to our ranks naturalists from all parts of the Dominion.

It has been arranged by the leaders in the different branches to take charge of the weekly sub-excursions in the following rotation : the first Saturday in the month will be under the direction of the leaders in Geology; the second, of the Botanical leaders; the third, of those in Ornithology and Entomology ; and the fourth of Zoology and Conchology. The general Post Office will be as heretofore the rendezvous, and the start will be made every Saturday punctually at at 2 p.m.

When the General Monthly Excursion is held upon a Saturday it will take the place of the weekly sub-excursion.

The first General Excursion of the Club will be held this Spring on the 17th May, to Kingsmere in the Chelsea Mountains, and will be duly announced by circular.

The members are earnestly urged to consult with the leaders, without delay, as to the best means of carrying on effective study and useful investigation during the coming season.

We feel it our duty to call the attention of our readers to the advertisements, as we consider it incumbent upon the members of the club to patronize those firms which so materially assist us in carrying on our work.

J. FLETCHER,
Editor.

GEOLOGICAL SURVEY NOTES.

The arrangements are now being made for the field work of the Geological and Natural History Survey during the coming summer. Most of the operations will be in continuation of work already begun or directed toward its completion in certain districts. The fields in which the various members of the staff will be, are we understand as follows :

In British Columbia, Dr. G. M. Dawson will be occupied in continuing and extending the work of previous years, with special reference to recent mining developments. He will be assisted by Mr. J. McEvoy. Mr. Bowman will, it is hoped, complete a preliminary examination of the coal-bearing rocks of the lower Fraser. Prof. Macoun and Mr. J. M. Macoun are already in the field in the Southern part of British Columbia, where they are vigorously prosecuting their botanical and zoological investigations. A letter to the Editor dated April 14, states that they had then secured all the flowering plants in blossom, and 27 skins of birds and small mammals, as well as many insects.

In Nova Scotia Mr. H. Fletcher, with Mr. Fairbault, will investigate Pictou and Colchester counties. Work will be continued in New Brunswick by Mr. McInnes and by Prof. Bailey. Mr. R. Chalmers will also extend his systematic mapping of the superficial deposits in this Province during the summer. Dr. R. W. Ells and Mr. Giroux are again to return to the Eastern Townships, in the Province of Quebec, while it is intended that Mr. F. D. Adams and Mr. Low will carry on work to the north of the St. Lawrence. The investigation of the phosphate region to the North of the Ottawa is to be continued by Mr. E. D. Ingall, assisted by Mr. J. White. Mr. A. S. Cochrane is to be engaged in Western Ontario in further checking and correcting the topography of certain sheets of the geological map. Dr. R. Bell, assisted by Mr. A. E. Barlow, will be occupied in the completion of that sheet of the Ontario map which comprises the Sudbury mining district, and Dr. Lawson will pursue his investigation of the older rocks between Thunder Bay and Rainy lake, with the assistance of Mr. Smith.

In Manitoba, Mr. J. B. Tyrrell, with Mr. Dowling, is to continue the examination of the county near Lake Manitoba. Mr. R. G. McCon-

nel has already left for the petroleum district of the lower Peace and Athabasca region, to the future importance of which so much attention has lately been drawn. Mr. T. C. Weston will continue to collect in the Cretaceous and Tertiary beds along the Red Deer River, N. W. T.

:o:

THE SASKATCHEWAN INSTITUTE.

We learn with pleasure that a new Literary, Historical and Scientific Society has been started at Prince Albert, N.W.T., under the above caption, "for the purpose of pursuing such literary studies as may be deemed interesting and instructive; of prosecuting original researches, within the District of Saskatchewan, of a historical and scientific nature; of collecting and preserving the early history, mythology, and folklore of the local Indian tribes; and of cultivating and encouraging the study of the Natural History and resources of the country." As stated in their circular, the Natural History and resources of that section of the Territories are practically untouched, and offer a large field of work for the Institute. We wish the Institute every success, and trust that it may grow rapidly, and succeed in the important work it has undertaken.

:o:

SHORT INSTRUCTIONS FOR COLLECTORS AWAY FROM HOME.

Frequently inquiries are received from members who are about to take a journey, as to the best way to collect specimens of insects and plants. The following short instructions have therefore been drawn up at the request of the Council :—

INSECTS—*Moths, Butterflies and Dragon-flies* may be killed in the ordinary "cyanide bottle" and then placed in three-cornered envelopes made by taking small squares of paper and folding them across, almost in the middle, so as to make a triangular form with one flap, a little smaller than the other, when the insect is placed between the two flaps, the two edges of the larger one are folded over the lesser, and the specimen is then ready to have the date and locality written on it and to be packed away, where it will not be disturbed. After a day or two the

specimens become very brittle and easily broken. They should therefore be stored in small firm boxes. Cigar boxes are very convenient.

Grasshoppers and other *Orthoptera* may be killed in the cyanide bottle and each one rolled up lightly in soft paper and then stored away in the same manner.

Beetles and *Bugs*—All *Coleoptera* and *Hemiptera* may be either placed at once in alcohol or in bottles containing sawdust dampened with alcohol.

Bees, *Ants* and *Wasps* may be collected for examination in alcohol but when possible they should be killed in the cyanide bottle and pinned in a cork-lined box.

Flies must be killed and pinned at once.

Spiders may be collected in alcohol.

Cyanide Bottle—This may be made either by placing a small quantity of Cyanide of Potassium in the bottom of a bottle and pouring in sufficient wet Plaster-of-Paris to cover it; or a hole can be hollowed out in the cork and a piece of cyanide inserted. This can be kept in place either with a plug of cotton wool, or a piece of chamois leather or linen may be tied over the cork. For beetles a few very small pieces of cyanide dropped into a bottle half filled with dry sawdust will answer.

It must be remembered that the active principle of Cyanide of Potassium being Prussic Acid it is intensely poisonous—any left on hand after the bottles are made should be at once destroyed.

Plants—Botanical specimens are made by pressing plants between sheets of dry paper and changing the papers every 12 or 24 hours until the specimens are dry. When staying for any length of time at one place a convenient press may be made as follows: Put down a few sheets of paper and on the top of these arrange a specimen, then a few more sheets of paper and another plant, and so on until all are arranged. Upon the top of the pile so formed put a box in which stones or sand to about the weight of twenty pounds may be placed. When travelling two boards held together with straps will answer all purposes. The quicker plants are dried the better the specimens will be. The papers for drying plants should never be left unchanged for more than 24 hours.

J. FLETCHER.

A NEW MOUSE. (*Evotomys Dawsoni*.)

In the *American Naturalist* for July, 1888, is a description, (with a figure of the molar teeth), of a new species of Red-backed Mouse, by our corresponding member, Dr. C. Hart Merriam. It was collected by Dr. George M. Dawson on the Finlayson River (Lat. 61.31 N. ; long. 129.30 W. ; altitude 3,000 feet), and the description also appears in the report upon the exploration in the Yukon district, and adjacent part of British Columbia, referred to on another page. Dr. Merriam finishes his description as follows:—"I take great pleasure in bestowing upon this handsome mouse the specific name *Dawsoni*, as a slight recognition of the indefatigable zeal of its discoverer, the distinguished explorer and geologist, Dr. George M. Dawson, who has added so much to the fund of knowledge relating to North-western Canada.

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ANOTHER STATE ENTOMOLOGIST.

It is with much pleasure that we notice the appointment of our esteemed corresponding member, Mr. J. B. Smith, as State Entomologist of New Jersey. Mr. Smith has been for some time past Assistant Curator of the National Museum at Washington. He is now State Entomologist, and Professor of Entomology at Rutgers' College and Scientific School, New Brunswick, N.J. We feel sure that this announcement will be read with great satisfaction by our members, many of whom have frequently experienced Mr. Smith's courtesy and kindness in naming entomological specimens, and we offer Mr. Smith our hearty congratulations. It is quite evident that Mr. Smith does not mean to let the grass grow under his feet. We have already received two bulletins from him since his appointment, (i.) "Entomological Suggestions and Enquiries," (ii.) "Memoranda about Cranberry Insects."

THE ANNUAL MEETING—1889.

The eleventh annual meeting of the Club was held on the 19th March, 1889, at 4.30 p.m. Present: The President, Mr. R. B. Whyte, in the chair; Messrs. Ami, Ballantyne, A. E. Barlow, Lt.-Col. Anderson, J. Fletcher, Hugh Fletcher, Prof. Macoun, Dr. R. W. Ells, W. H. Harrington, Dr. H. B. Small, T. J. MacLaughlin, Rev. G. W. Taylor, Dr. Thorburn, W. P. Lett, J. B. Tyrrell, W. A. D. Lees, F. T. Shutt, A. Bowman, N. Ballantyne, J. M. Macoun, A. P. Low, W. McInnes, J. McEvoy, W. R. Wright, A. C. Lawson, R. G. McConnell, E. R. Faribault, and some others.

The minutes of the last annual meeting were read, and confirmed.

The Secretary read the annual report of the Council.

There was a discussion as to the advisability of publishing the OTTAWA NATURALIST as a quarterly, instead of a monthly magazine. It was agreed to leave this to the decision of the incoming Council.

It was moved by Dr. Ells, seconded by Prof. Macoun, and carried, "That the scope of the publication of the Ottawa Field Naturalists' Club be extended so as to include papers, &c., on Geology and Natural History by members of the Club, from any portion of the Dominion of Canada (which may be read before the Society) instead of being confined to papers on purely local topics, as now understood by members of the Club."

The Treasurer read his annual statement, in which it was shown that a balance of \$30.69 remained in his hands after paying all demands.

The Librarian submitted a list of the additions to the library, which showed that many choice and valuable works had been received in exchange for the Transactions.

The election of officers was then proceeded with, and resulted as follows:

President—Dr. R. W. Ells.

1st Vice-President—Mr. J. Ballantyne.

2nd Vice-President—Mr. H. M. Ami.

Secretary—Mr. T. J. MacLaughlin.

Treasurer—Mr. James Fletcher.

Librarian—Mr. W. A. D. Lees.

Council—Rev. G. W. Taylor, Mr. R. B. Whyte, Mr. A. P. Low.

Auditors—Lt.-Col. W. P. Anderson, and Mr. W. R. Billings.

ANNUAL REPORT OF THE COUNCIL.

To the Members of the Ottawa Field-Naturalists' Club :

It again becomes the pleasing duty of the Council to report that the Club is in a very satisfactory condition, and that the success achieved during the tenth year of its existence has not been less marked than that noted in any of the previous annual reports.

Notwithstanding that the membership has not greatly increased—the number of new members being only 27—its strength and development in other directions have been gradual and satisfactory.

The number of corresponding members remains the same as last year, no change having been made.

His Excellency the Governor General, Lord Stanley of Preston, has graciously consented to become the patron of the Club in the place of the Marquis of Lansdowne.

The general excursions held during the summer were four in number, and the following places were visited : The first was to Kirk's Ferry on the Gatineau River. This was the most numerously attended excursion yet held under the auspices of the Club, there being present no less than 135 members and their friends. The second was to Aylmer; the third to Eastman's Springs, and the fourth to King's Mountain.

Saturday afternoon sub-excursions were held throughout the season as usual, except during the month of August, beginning the first Saturday in May, the attendance showing that the interest taken in them in former years had not abated.

By means of these sub-excursions the geology and natural history of the immediate surroundings are being well worked up, still the work may be said to have only begun, and the leaders could not adopt a more successful plan of carrying it out, than by continuing these afternoon working parties.

The winter course of meetings comprised six soirees, and nine afternoon lectures. At the soirees the following papers and reports were read: Dec. 13th, the President's Inaugural Address, by Mr. R. B. Whyte; Jan. 17th, "Contribution to the Geology and Palæontology of the Townships of Russell and Cambridge, in Russell, Ont.," (I, Physiography and general Geology, by Mr. W. Craig, Duncanville; II, Palæon-

tology by Mr. H. M. Ami); "Revision of the Post-tertiary Formations about Ottawa with their Fossils," by Mr. H. M. Ami; note on *Onoclea sensibilis* var. *obtusilobata*, by H. M. Ami. Jan. 13th, "Report of the Botanical Branch," "Notes on the Duration of the Leaves of some of the Coniferæ," by Mr. J. Ballantyne; "Notes on Bog Plants," by Mr. R. B. Whyte; "Poisonous Properties of the *Agaricus Rodmani*," by Prof. Macoun; "An account of the first Lectures delivered in America on Botany at Harvard University," by Dr. H. B. Small; February 14th, "Report of the Entomological Branch," "Notes on the *Ceranbycidae*," by Mr. W. H. Harrington; February 28th, "Notes on Ornithology, with special reference to birds observed in the vicinity of Renfrew," by Rev. C. J. Young; "Bird Calls," by Mr. J. M. Macoun; "What you see when out without your gun," by Mr. W. A. D. Lees; "Report of the Conchological Branch;" March 14, "Notes on the Skunk" (*Mephitis mephitica*) by Mr. W. P. Lett; "Report of the Geological Branch."

The Monday afternoon Elementary Lectures or classes were given as follows: Two on Conchology—one by Mr. F. R. Latchford, and one by Rev. G. W. Taylor; two on Geology—one by Dr. R. W. Ells, and one by Mr. H. M. Ami; two on Entomology—one by Mr. J. Fletcher, the other by Mr. W. H. Harrington; two on Botany—one by Mr. James Fletcher, and one by Mr. R. B. Whyte; one on Zoology, by Rev. G. W. Taylor.

The lectures were commenced on the 7th January, and continued every Monday afternoon to the 11th March, and the attendance at them, as well as at the soirees, was very encouraging. One of the most gratifying features in connection with the past year's work—and one which affords a good illustration of the influence which the Club continues to exert amongst its members—is that of the nineteen papers and lectures above mentioned, no less than eight were given by members who had not, until this winter, appeared before the Club in that capacity.

From the Treasurer's report you will learn that, financially, the standing of the Club is perhaps better than at any previous time of balancing. Mr. Fletcher has succeeded in collecting most of the accounts due for advertisements, and the subscriptions from many members who were far in arrears. The percentage of outstanding subscriptions is at present smaller than it has been for years.

The Exchange list has undergone a complete revision, and the NATURALIST is now sent only to those societies and individuals who show their appreciation of it in a practical manner.

The Librarian's report will be submitted to you, from which it will be seen that the names of most of the leading scientific societies throughout the country are on the list, and exchange their publications for ours, and that, between exchanges and donations, the library is becoming large and valuable.

During the past year, owing to difficulties and delays, over which the Council had no control, the issue of the NATURALIST was somewhat irregular, but the last number is now out, and the work up to date.

Experience has shown that there are many serious difficulties in connection with the monthly publication of the Transactions. The amount of labor involved in the editing, and in obtaining the necessary matter at the proper time, in order to bring the journal out punctually, is so great, that it is almost impossible to find any one who is able to devote to it the time necessary to do the work.

The Council, therefore, having had under consideration these, and the many other disadvantages which attend the present plan of publication, are of opinion that the quarterly issue in the future would prove more advantageous. It is believed that the journal could be brought out punctually on the first of every third month, with much less work for the editor and publishing committee, and that the difficulty now experienced in obtaining matter in time for the printers would be, to a great extent, obviated, and that the result would be altogether more satisfactory to the members generally. They would, therefore, recommend that, in future, the NATURALIST be published quarterly. They would also suggest that it is now in order to consider the advisability of authorizing the Council to publish in the NATURALIST (at their discretion) such papers, etc, from members of the Club on original work in geology and natural history outside of the present range of the Club's operations, as may be read before it.

All of which is respectfully submitted.

Signed on behalf of the Council.

T. J. MACLAUGHLIN,

19th March, 1889.

Secretary.

TREASURER'S REPORT.

To the Council of the Ottawa Field-Naturalists' Club.

GENTLEMEN,—I have the honour to report that the finances of the club are in a satisfactory condition. Notwithstanding heavy and exceptional expenditures during the past year we still have a balance on hand of \$30.69, after clearing up all indebtedness. During the year many subscriptions which had fallen in arrear have been collected. A few members from various causes have left the club, but their place has been filled by new members. Our heaviest expenditure is the publication of the Transactions of the Club in the shape of the "Ottawa Naturalist." This during the year just ended cost \$220.95. Besides this a further sum of \$40.56 was expended in reprinting entirely the first thirteen pages of the Flora Ottawaensis, and in having 100 extra copies struck off of pages 14 to 45. This makes a total of \$261.51 expended upon transactions, against which there was received \$67 for advertisements and \$33.75 for transactions sold; in all \$100.95. A new item in the accounts is \$11.00 as rent for the room in which we hold our meetings. The balance sheet is submitted herewith.

TREASURER'S BALANCE SHEET—1889.

RECEIPTS.		EXPENDITURE.	
1888.		1889.	
Mar. 20—Balance	\$20 16	Mar. 20— <i>The Ottawa Naturalist</i> , Vol. II,	
1889		Nos. 1-12....	\$210 40
Mar. 19—Subscriptions,		Postage	10 95
1888-9	\$152 00		\$220 95
Arrears	21 00	Extras of " <i>Flora Ottawaensis</i> " and reprinting first 13 pages	40 50
	173 00	General postage	5 07
Transactions sold....	33 75	Stationery.....	1 05
Advertisements	67 00	Printing (circulars, postage, etc.)	10 99
Excursion receipts...	107 30	Rent of Lecture Room	11 00
		Excursion expenditures	80 90
		Balance on hand	30 69
	\$401 21		\$401 21

JAMES FLETCHER,
Treasurer,

Ottawa, March 19, 1889.

LIBRARIAN'S REPORT.

The following publications have been received during the year 1888-89, in exchange for the *Ottawa Naturalist*, or as donations: Some of them are exceedingly valuable additions to the Library of the Club.
 Geological and Natural History Survey of Canada: Annual Report, 1886.

Catalogue of Canadian Plants—Macoun.—Parts III and IV.

United States Geological Survey: Monograph XII, Geology and Mineral Resources of Leadville, with Atlas.

Mineral Resources of the United States, Day—1886.

Mineral Resources of the United States, 1887.

Bulletins Nos. 40-47.

United States Department of Agriculture: Insect Life, Vol. I.

Bulletin No. 6, Botanical Division.

Report No. 50 of Statistician.

American Association for the Advancement of Science: Proceedings, Vol. XXXVI, 1887.

Cincinnati Natural History Society: Journal, Vol. XI.

Essex Field Club: Essex Naturalist, Vol. II.

Kellerman, Dr. W. A.: Journal of Mycology, Vol. IV.

Torrey Botanical Club: Bulletin, Vols. XV, XVI, 1-3.

The Editors: Botanical Gazette, Vol. XIII.

“ Journal of Comparative Medicine and Surgery, Vol. IX,
 3, 4, X, 1.

Entomological Society of Ontario: Canadian Entomologist, Vol. XX,
 XXI, 1-3; and Annual Report, No. XVIII, 1887.

New York Microscopical Society: Journal, Vols. IV, V, 1.

American Ornithologists' Union: The Auk, Vols. V, VI, 1. Check
 List of North American Birds.

Montreal Natural History Society. Canadian Record of Science, Vol.
 III, 2-3.

Brooklyn Entomological Society: Entomologica Americana, Vols. IV,
 V, 1-2.

Webster, Frank B.: Ornithologist and Oologist, Vols. XIII, XIV, 1-2.

Cambridge Entomological Club: Psyche, Vol. V, 141-155.

- Nova Scotia Institute of Natural Sciences: Proceedings and Transactions, Vol. VII. 1-2.
- Laval University: Annuaire, 1888-89.
- Queen's College: Calendar, 1888-89.
- Elisha Mitchell Scientific Society: Journal, Vols. IV, V, 1.
- Illinois State Laboratory of Natural History: Bulletin, Vols. II, III, 1-4.
- Massachusetts Horticultural Society: Transactions, 1887-8, Part I.
- Middlesex Institute: Flora of Middlesex County, Mass.
- New York Academy of Sciences: Transactions, Vol. VII.
- Smith, John B. Monograph of Shpungidae of America North of Mexico.
Notes on Callimorpha.
The species of Eucrythra.
- American Museum of Natural History: Annual Report, 1887-88.
- Johns Hopkins' University: Circulars, Nos. 66-69.
- Farlow, Prof. W. G.: Memoir of Edward Tuckerman.
A Provisional Host Index of the Fungi of the United States,
Part I—Polypetalæ.
Supplemental list of works on North American Fungi.
- Burgess, Dr. T. J. W.: How to Study Botany.
- Manitoba Historical and Scientific Society: Annual Report, 1887.
- Winnipeg Board of Trade: Ninth Annual Report, 1888.
- Dolley, Dr. Chas. S.: Preliminary Abstract Report of Marine Laboratory stationed in 1887 at Nassau, New Providence.
- Ami, Henri M.: Flora Temiscouatensis.
- Königsberg—Physikalisch—Oekonomischen Gessellschaft: Schriften, 1887.
- Honeyman, Rev. D.: Glacial Geology of Nova Scotia.
- Liatner, Prof. J. A.: Fourth Report on the Injurious and other Insects of the State of New York.
- Blytt, Prof. A. (Norway): On Variations of Climates in the Course of Time.
The Probable Cause of the Displacement of Beach Lines (two papers).
- Meteorological Service of Canada: Monthly Weather Review, Mar.-Nov. Report, 1885.
- Department of Agriculture, Canada: Report, 1888.
Statistical Abstract and Record, 1886.

North Staffordshire Naturalists' Field Club: Report of Transactions,
1887-1888.

Ragonot, Prof. E. L.: Diagnoses of North American Phycitidæ and
Galleridæ.

Boston Society of Natural History: Transactions, Vol. XXIII, 3-4.

Chamberlain, Montague: Systematic Table of Canadian Birds

W. H. HARRINGTON,

OTTAWA, 15th March, 1889.

Librarian.

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THE AMERICAN SKUNK.

By WILLIAM PITTMAN LETT.

Comparatively speaking, the call of the president for my unexpected appearance before you this evening, was as sudden and as rapid as the flight of the blue-winged teal coming down the wind at the rate of ninety-five miles an hour. However, like an ardent votary of the double hammerless choke-bore, I have endeavored to exemplify the sportsman's motto—*nunquam non paratus*.

I am almost a stranger upon this platform, partly through my own neglect and in some measure on account of my not having sufficient leisure to devote to the valuable and important objects of the Field Naturalists' Club, which I have always considered one of the most useful and interesting public organizations in the city of Ottawa.

I have selected for a few minutes' consideration this evening an animal of great beauty, although of a malodorous character, the habits and peculiarities of which are perhaps as little known, generally speaking, as are those of any animal indigenous to this part of Canada. Having said so much, my hearers can readily conclude that I am going to deal with the skunk, a task much more pleasant to perform theoretically than practically.

The Skunk (*Mephitis mephitis*), is an animal about the size of a large cat, perhaps a little bulkier in body, but not quite so long. Its general colour is brownish black, with white longitudinal stripes on each side of the back, as well as on the head. It has a long bushy tail, white upon the upper and black upon the under surface. The head

is short, the nose somewhat projecting, and the snout is rather blunt. The feet have five toes on each, those upon the fore feet being armed with strong, curved claws indicating the powers of the animal in burrowing. The coarser hairs on the skin are unusually long, beneath which the body is covered with a thick undergrowth of fine, soft glossy fur of great beauty.

The Skunk belongs to the *Mustelidae*, and like the bear, the marten and the otter, ranks among the digitigrades. It is a very slow moving animal. Unless near its hole, when disturbed, it never attempts to make a hurried retreat, but rather stands upon its dignity, with its feet on the ground and its tail to the foe. I may say that the dignity of the Skunk is very generally respected by those who have had any previous acquaintance with its proclivities.

The anal glands of the Skunk secrete a yellow coloured transparent fluid, which is intolerably fetid and offensive; notwithstanding which, I have learned that recently a deodorizing method is being tested in France, by means of which it is hoped that the lasting qualities may be preserved, and the noxious character of the odour so greatly mitigated as to serve like Musk or Civet as the foundation for perfumes of a most agreeable and pleasant nature.

When irritated, the Skunk is capable of ejecting this fluid to a distance of six or eight feet, in the form of a fine yellow spray, which spreads and widens in volume after it leaves its source. Such is the diffusive and penetrating potency of this volatile agent that I have known it to be carried by a brisk wind upwards of four hundred feet from the spot where it was discharged, into a field where a herd of cattle was grazing, causing the startled animals to run bellowing in a frenzied state in all directions. The animal which caused this excitement was fast in a steel trap, which I had set some days before for foxes. At the time of the incident, I had never seen a skunk; although I had had previous personal experience that the Township of Huntly, in the neighborhood of the present Carp Village, had been by no means neglected or forgotten in the topographical distribution of this beautiful little animal. I closely examined the stranger, and became suspicious; and in order to solve my doubts, I cut down a pole about fifteen feet long and stirred up the unknown. I assure you I was not long left in

suspense or doubt as to its identity. It is enough to say that my caution saved me the trouble and necessity of burying my clothes. I carried the trap home and placed it in a running stream. I left it there for six months, and when I took it out at the end of that period, "the scent of *mephitica* hung round it still."

While speaking of this peculiar feature of the Skunk, it may interest, if it does not positively benefit some one, if I reveal, without charging anything for the prescription, a secret connected with the mephitic weapon of the Skunk. While out one day in September, 1878, shooting ducks and prairie chickens on the prairies of the State of Iowa, a Skunk was killed by one of the party. The incident brought on a talk about the animal in the evening; when I was assured by a number of the citizens of the town of Algona that the offensive liquid secreted in the anal sacs was one of the best and most effective remedies for that obstinate disease, asthma. The remedy is applied by means of inhalation, and, in that state, is universally considered a specific of great value. The effect of its application is similar to that produced by the pungent odour of coal gas upon the symptoms of the whooping cough. There may be strong grounds for believing that the exterminating perfume of the Skunk may be of great benefit as a powerful remedial agent in the mitigation, and perhaps cure of asthma. During the summer months the remedy can be easily obtained; and it is well worth while to give it a trial.

I have given this hint, not merely as a naturalist, but, I trust, as a public benefactor. I believe that in the vast, and as yet but partially explored and undeveloped laboratory of nature, a remedy will yet be found for every ailment incident to the human constitution; more simple, and perhaps more effective, than the mysterious and elaborate formulas of the pharmacopœia or *materia medica*. I mean no offence to the learned and skilful professors of modern medical science, for whom I have the highest respect; nor have I any desire to be made the victim of the, at present, sheathed lancets of the disciples of Galen and Hippocrates.

The fur of the skunk is a valuable article of commerce, the pelt being enduring, the coat beautiful and glossy. The better class of skunk skins made up in Canada are produced by the States of New

York and New Jersey; but why they should be superior to our own, while we have as good if not better climatic advantages, it is difficult to say.

The skunk is carnivorous, it might almost be said omnivorous. It feeds upon small birds, wild birds' eggs, frogs, mice, lizards, and insects, and is especially fond of grasshoppers, which it destroys in great numbers. It is a nocturnal animal, and it is charged with committing serious depredations amongst poultry.

The skunk is extremely cleanly in its habits, never allowing the smallest drop of the foetid matter to defile its own fur. When suddenly killed no disagreeable odour is perceptible about the dead body; and it is said that the flesh, when the animal is carefully skinned and properly cooked, is esteemed a great luxury by those who have tried it.

The den of the skunk is found more frequently upon flat ground than upon the sloping sides of hills. The holes extend from six to eight feet horizontally, then widen out into a cavity of considerable extent, the floor of which is covered with dry leaves and soft moss. The skunk being gregarious, in this habitation, in winter, may be found as many as fifteen or twenty of the animals. They retire to their dens in the early part of Autumn; and like the bear and raccoon, go through the process of hibernation, sustaining a semi-torpid existence upon the superabundance of fat accumulated during the summer. In the southern states they remain at large during the entire year, the climate being sufficiently warm in winter to suit their organization.

My old friend, that accomplished naturalist and distinguished paleontologist, the late Elkanah Billings, in relation to this animal says:

"In Dr. Lichtenstein's celebrated work, published in 1838, in Berlin, it is stated that there are seventeen species of the genus *Mephitis*; one of which is found at the Cape of Good Hope, two in North America and the remainder in Mexico and South America."

Mr. Billings further says: "This species of skunk—*i. e.* the skunk of the Ottawa Valley—is found all over the British American possessions, as high as 57° North, and ranges south to Kentucky, Carolina, and Alabama. It is common in Upper and Lower Canada. In the month

of April, 1856, we found a skunk in the Rideau canal, which apparently had been drowned in attempting to swim across; and a few days later another was shot by Mr. Lett, of Ottawa. We have the skulls of both." I have been told that the "Thousand Islands" in the River St. Lawrence, is an actual paradise for skunks.

Not being possessed of the agility of the fox, the weasel, the mink or the martin, the Skunk is not capable of doing much damage to game birds. It, however, reduces the number of those birds materially by the destruction of their eggs, which constitute one of its staple articles of food. But for this natural propensity, his comparatively trifling sin, robbing henroosts, is scarcely an indictment of sufficient gravity to warrant capital punishment, much less wanton and inhuman extermination. Humanity in the treatment of animals is closely allied to charity towards our fellow man. To use the beautiful and expressive language of the poet Cowper :

"I would not enter on my list of friends,
 (Though graced with polished manners and fine sense,
 Yet wanting sensibility) the man
 Who needlessly sets foot upon a worm.
 An inadvertent step may crush the snail
 That crawls at evening in the public path ;
 But he that has humanity, forewarned,
 Will tread aside, and let the reptile live."

Although one of the weakest and most insignificant of animals, the Skunk has been armed by nature with a means of defence as irresistible as it is often unexpected by an enemy attacking him with nature's weapons only. His appearance is innocent; his aspect is interesting and elegant, so much so that the stranger who is unacquainted with his nature and his habits is surprised by the realities surrounding a first antagonistic introduction to this gentle-looking child of the forest.

It has long been known that the oil from the fat of the Skunk is a valuable remedy for rheumatism, and upon consulting scientific authorities I have found that the fetid matter of this animal has long been

regarded as a remedy of singular effectiveness for asthma, as already stated.

The breeding and rearing of skunks, for their skins, has recently engaged the attention of enterprising speculators in the United States; who would make far more out of the other, far more useful and important, parts of the animal than they could from the fur, if they were thoroughly acquainted with its history and its qualities.

The lion, the tiger, the leopard, the hyena, the jaguar, the crocodile, the boa-constrictors and the anacondas, possess, respectively, mighty powers of offence and aggression. I venture, nevertheless, to say, that a skunk, single-handed, could put any one of those ferocious monsters to flight.

How wonderful and mysterious are the provisions of nature, which thus invests small and weak animals with defensive attributes sufficiently powerful to resist the attacks of the strongest, and protect them from aggression and the danger of extinction. Even the "fretful porcupine," with its bristling array of dangerous spines, would be obliged to flee in terror from the resistless armament of the skunk.

Every living thing has its peculiar province and its wisely assigned sphere of usefulness in the great economy of Nature; and as I have briefly endeavoured to prove, even the skunk—whose name is erroneously the popular synonyme of useless repulsiveness—is neither an uninteresting nor unimportant item in the grand and attractive volume of creation. Even the skunk is deserving of a commemorative and descriptive page in the beautiful and improving classics of Natural History—the investigation of which science, I may be permitted to say to an audience like the one before me—is one of the most delightful and instructive studies which can engage the attention of the human mind.

THE BIRDS OF RENFREW COUNTY, ONT.

By REV. C. J. YOUNG, M.A., (Renfrew.)

Having been a member of the O. F. N. Club for several years, and always taking considerable interest in the various pursuits and studies the society has done so much to popularize, yet never until this evening have I been able to be present at a meeting. I gather from the programme which was sent to me, that evenings have been set apart during the present winter for the discussion of various branches of natural history; and that on the present evening ornithology and conchology should be the subjects under discussion. I will take the subject of ornithology. To my mind there is no more delightful study than this. I have always taken an interest in birds and their doings, from the times when I used to admire the eggs strung on strings in the cottages of the village where I was brought up in England, emptied of their contents through immense holes at each end, and hung up regardless of size or species—to as recent a date as the beginning of the present month, when I watched two gray shrikes in pursuit of the common sparrow. To one fond of nature, and nature's surroundings, ornithology lends a hand in bringing him into the presence of some of nature's grandest handiwork, or leading him among the sublimest sylvan scenes. Not so many years ago I spent a holiday with a relative,—I was not in the ministry at that time—in hunting amid the recesses of Cairn Gorm in Invernesshire, for the nest of the snow-bunting "*Plectrophenax nivalis*." We had read somewhere that a few of these birds bred on or near the summit, and had determined to try to verify the statement. The weather was cold and the season backward, when we started for the scene of our search, though it was the beginning of June. It is scarcely necessary to add that the immediate object in view was not attained and we did not even see the birds we sought. But in another direction we gained more than we dreamed of when we started, thus exemplifying my former statement that ornithology lends a helping hand to a study of nature. We reached the summit of that well known mountain, and delighted in the view, which none except those who have been there or in similar scenes can realize; we found specimens of the often sought for "Cairn Gorm" stones and noted many plants. On our way down we encount-

ered a thunder shower, and were glad to find shelter under a huge boulder. We reached the wood at the foot known as "Rothiemurchus Forest," just as the daylight faded into gloom. We had ten miles to traverse, and losing our path for a while, were glad to pass the night in a barn. And we reached our stopping place in the morning, so weary and tired that for some days after we could hardly walk around. And the object of all this, which some might call wasted energy, was to try to learn something of the breeding habits of our familiar Canadian "Snow-Bird." But although on that occasion I learnt and saw other things than those I was in quest of, I did not fail to learn something of birds too, for we found the ptarmigan or white grouse, breeding at the very summit of the mountain. We watched the golden plover at a lesser altitude. At the foot we found that rare British bird, the greenshank, so similar except in size, to the solitary sandpiper "*Totanus solitarius*," of this country; and not only saw the bird, but identified a breeding locality. For though we did not find the nest or young, we found a portion of an egg shell, from which the young had very recently emerged. This bird has a curious habit of alighting on the tops of fir and other small trees after the manner of some of the herons. I must not omit to mention that on this occasion too we came across the very local, crested titmouse, as well as the common crossbill. But I have said sufficient of that particular occasion; a few years later in another part of the country a holiday ramble was more prolific from an ornithological point of view than that one. I came across what might be aptly termed "the last breeding haunt of the kite." Some of you perhaps know how familiar a bird this once was in Britain, with its sombre reddish plumage, its great stretch of wing, and its majestic soaring high in the air. But it is now all but extinct: if England were searched through I don't think a nest could be found; two or three pairs may remain in Scotland and Wales. On one occasion in the latter days of Summer I saw as many as eleven of these birds circling in the air at one time.

But you are more interested in ornithology in the abstract, or at any rate in Canadian ornithology. Now let me tell you, I think very little interest is taken in this branch of natural history here. I think, as far as my small experience goes, the girls and boys, and the grown

people who have spare time don't trouble themselves at all about the birds. Some of you may say this is a good thing, for by it, you may think, many a bird with its nest and eggs is left unmolested. But this is not exactly the result of my experience. I hear of nests being torn down and the eggs trampled on, or the young destroyed. I hear of birds being shot at all seasons for no earthly purpose whatever. In short, I notice a great scarcity of birds in the part of Ontario where I live, and am told they are yearly diminishing. The prejudice, if I may call it such, to ornithology, and ornithologists is this :—People think it is a cruel study, or a useless one. Certainly a practical ornithologist must be prepared to endure the charge of cruelty. But think of the many, more especially in Britain, who love the subject for its surroundings, and who while taking part in it, scarcely ever sacrifice a feathered life. In days now passed, when I devoted a considerable amount of my spare time to this study, I may say I never destroyed a bird for the purpose of identification, and there are very few British land birds that I cannot identify. I have made myself familiar too, with many of the local Canadian birds, and all this without destruction of life. My method, and the methods of others like myself, is to provide a pair of strong field glasses ; these assisted by a fondness for the pursuit, and a little reading, will generally accomplish the object, and make an amateur fairly proficient. I do not say I have never taken a bird's egg, perhaps I have taken too many, for in my time I have collected nearly 200 varieties of British eggs, and have added a few in Canada. Some lady may say: "How can you, who pretend to love the birds, boast of having destroyed in a sense the germ of life of so many ; you whose function it is to protect rather than to destroy ?" Yet to such a one I reply, that it is this very love which makes a naturalist and a collector sometimes cruel. To have reminders of former scenes, to look at some cherished specimen that in after years brings back to the mind's eye the sense of some former effort, some trial of strength, some anxious moment, the companionship of some dear friend, the thrill of excitement, the hardly earned trophy. There is no truer pleasure to a genuine lover of nature than that of watching the habits of birds in their free, wild state. I can scarcely say I approve of amateurs shooting the birds. I have been told by such that it is with feelings of

reluctance, and often of positive pain, that the fatal trigger is pressed, and thus is brought to a premature end a life full of joy and beauty. But yet for purposes of science or discussion a bird or an egg must sometimes be procured to be laid in the cabinet. It is occasionally impossible with the best glasses in the world for a naturalist to thoroughly know a bird, to learn the trifling points of difference which are often all that distinguish it from others of the same 'genus;' to understand its structure and other characteristics, unless he can handle and dissect it, as well as see it in the 'bush.' And again it is not to the one person alone, but to many, that the dead bird or the curiously marked egg brings the joy of the deeper knowledge of the Creator's love and wisdom. Look, for instance, at the collections in public places—at your own museum now forming here in Ottawa—to how many do and will the sight of these bring brief relaxation and recreation, among the many vicissitudes of every day life. Many a country lad and maiden will have their minds delighted by a visit to the collections, that individual effort, for the most part, is forming here. Therefore, do not set down every naturalist, every collector, as a cruel wretch, who takes life regardless of its value, but believe that many such feel from the heart the truth of the poet's words—

" He prayest best who lovest best
 All things both great and small,
 For the dear Lord that loveth us,
 He made and loveth all."

And speaking of the elder among us, the collections we may look at, when advancing years forbid us any longer to follow nature in her haunts; the cases our eyes still eagerly scan will recall memories of some pleasant holiday, some glorious excursion in the days that are no more. It is a sight which breaks in upon the monotony of many a long hour of tedious work; this case recalls to a past lover of nature the white sands or the grassy marsh far away in the distant North; that case carries him back in thought to a long summer day spent on some wild sea shore; another one wakes up in him the thrilling excitement in some long and successful stalk. Yes! by these objects we live once more in the happy past, and the soothing influence thus procured lingers with us through many a solitary hour.

But you will say I am sermonizing, and you will grow weary of me before I have well entered on my subject, so let me continue more to the point and say something of our Canadian birds. My observations are very limited both as to time and the ground I have traversed. I can only tell you a little about some birds in Eastern Ontario. Let me begin with the eagle.

The Bald-headed Eagle, *Haliaeetus leucocephalus*, seems to be almost unknown now in the County of Renfrew. I have seen one in the course of three years, and that was a straggler. A few years ago I believe they were not uncommon. A pair still breeds, I am told, in the upper reaches of the Madawaska river, and just outside the County, at the headwaters of the same river, in the Nipissing district, they are still met with. I have seen one nest of these birds, a high mass of sticks in an elm tree close to the Rideau lake. This was nearly four years ago. On the 12th of May the nest was not completed, for whilst I watched, one of the old birds flew over my head with a piece of straw or reed in its beak, evidently intended as lining for that nest. Whether they still nest there I cannot say, but probably not. The golden eagle (*Aquila chrysaetos*) used also, I think, to nest in some of the rocks in the remote parts of Renfrew county. There is a very fine stuffed specimen of this bird in the village of Renfrew which was shot near the Petawawa river. The next birds I shall speak of are the hawks. In the southern part of the county of Lanark these are more plentiful than in Renfaew. In the latter county, although we might expect the contrary, they are quite rare. The fish hawk (*Pandion haliaetus carolinensis*) is occasionally seen, and nests in the locality. The nest is as a rule placed upon the top of a rampike standing in the water. I have noticed the goshawk (*Accipiter atricapillus*), the red-tail (*Buteo borealis*), the broad-winged *Buteo latissimus* Cooper's (*Accipiter Cooperi*)—of this I am not quite sure; the marsh hawk (*Circus Hudsonius*), the sparrow hawk (*Falco sparverius*). Of the first of these I found a nest in the county of Lanark, containing three eggs, on the 2nd of May, slightly incubated. A very fine specimen was shot the winter before last just outside of the village of Renfrew, and was given to me. I now have it stuffed and set up in a case. But the two commonest hawks are the broad-winged and the sparrow; the former in the bush,

the latter more frequently in the open fields. I have met with the nest of the broad-winged three times. On each occasion it was built against the trunk of a birch tree, at no very great height, for my eldest boy was able to climb up to it. The first nest contained eggs on the 9th May; the other two not until the 24th. Most persons who have taken an interest in the subject are familiar with the nesting habits of the little sparrow hawk. With regard to the marsh hawk, it appears early in the spring, hovering over some marsh, but it does not commence to lay its eggs until towards the end of May. I met with the nest twice in the county of Lanark, but am not sure whether it breeds in Renfrew; probably it does in suitable places. The first nest I found was simply a little grass scraped together in a marshy place, under a low bush. The second was quite a mass of sticks, &c., in a somewhat drier spot, and on the 6th of June contained three young ones and two eggs. Of the owls I cannot say much. The only one I have seen is the great horned owl (*Bubo Virginianus*). It is not common in the woods. I once came across a nest on a stunted tamarac in a large secluded marsh—a most unlikely spot for this bird to breed in—and I have now a living specimen which was reared from this nest nearly three years ago. Though this bird does not know what liberty is, it does not get tame, but constantly exhibits its wild, savage nature. Without going into detail, I may give short particulars of some other birds. The northern shrike is not uncommon in the winter. I have only seen one in the summer, and never saw a nest, to the best of my knowledge, though it or its near congener, the white rumped (*Lanius excubitorides*) is a not uncommon resident in the adjoining County of Lanark. I have seen its nest four times in thorn-bushes newly built in the month of April. The Canada jay is another resident. This bird is quite plentiful in the fall, but I have seen it in the spring two or three times in the Opeongo district. The blue jay is of course plentiful and breeds. Of the thrushes we have the brown thrush, or thrasher, the hermit thrush, the tawny thrush, and I suppose the olive-backed. The first three of these breed plentifully, the first named sometimes placing its nest on the ground beside a stone. Of allied species the water thrush, and the golden-crowned, or oven bird, are both

to be met with. That interesting group of birds, the warblers, is well represented. The common yellow warbler is very common some years, as last summer, when they were extraordinarily numerous, their nests being met with everywhere. In other years scarcely a nest is to be seen. In the County of Lanark I found the black and yellow warbler breeding as late as July, and have also seen the bird in Renfrew. I met with a specimen of the chestnut-sided last summer by the Madawaska River, but this is the only time I have seen it. We have several others of this group, but they are hard to identify. The Arctic three-toed woodpecker has been unusually abundant during the past fall and winter. I saw eight or ten of them, but only one with the yellow stripe on the head. My first record is October 11th. Snow birds appeared very early last fall. I saw the first one on October 10th. The pine grosbeak has been common. I saw a number of small flocks, but have never seen any before in a period of five years in Lanark or Renfrew. There were also numbers of the American goldfinch or wild canary about in flocks during the winter, and the pine siskin has also been unusually numerous. My many engagements and other calls have not allowed me to give the time to this paper which I intended, and with regret I have to omit many items which I thought to bring in. However, I have, perhaps, well nigh succeeded in wearying you; yet I trust the little information I have given may not be thrown away, but that all of you who take the same interest in the subject as I have done may, whenever the opportunity occurs, turn once again to the scene of former labors, and strive, for the benefit and encouragement of others who will afterwards follow in his footsteps, to unravel some of the still hidden mysteries of the bird creation.

WHAT YOU SEE WHEN YOU GO OUT WITHOUT
YOUR GUN.

BY W. A. D. LEES,

Read February 28th, 1889.

When I was asked to read you a paper on the birds, I felt that I was very unfit for the task, never having had any more than a nodding acquaintance with the science of Ornithology, and having only begun a year ago to observe the birds with any degree of care. Still I could not make up my mind to lose the chance of telling you some of my first year's experiences so that you might be made aware how much wholesome enjoyment may be got from the study of birds, by any one who is willing to use his eyes and his ears, even though he be entirely without technical knowledge. And even here I feel that I shall fail, for no words of mine can adequately express the many and varied delights of a bird-hunt such as I was fortunate enough, almost weekly, last year, to share the enjoyment of with Mr. N. F. Ballantyne, a fellow-member of this Club, and such as I shall do my best to give you a brief outline sketch of. But before I begin, I should like to advise anyone who intends making a closer acquaintance with the birds, if possible to induce a friend to become his fellow-student. One will be enough, for the birds do not care to receive too many visitors at a time, but if this one be thoroughly in sympathy with you and with the birds, you will find that this arrangement will not only add a hundredfold to the charm of the work, (if such it may be called) but will be practically useful as well, for, apart from the pleasure of sharing newly acquired knowledge with one interested in the same subject, many cases of doubt arise in the identification of birds, where two heads are better than one. Even if you do get into a rather heated discussion, now and then, as to whether a given bird is a Bald Eagle or a Blackburnian Warbler, a Saw-whet Owl or a Wilson's Thrush, neither of you will be likely to carry away any very serious wounds from the fray, and each will determine to make sure of his bird next time.

But, say the orthodox ornithologists, "Why need there be any doubt of this kind? All you have to do is to shoot your bird, and carry it home, count its toes, and its primaries and secondaries (whatever they are), examine its beak and its other diagnostic marks, and you will then be able to say with confidence that it is either a woodpecker or something else." Well, I admit that all this is true, and for the systematic ornithologist it is the only way, but for one who merely wishes to know the birds in their native haunts, I submit in all humility it is not necessary, and when we went to work last Spring we decided not to do it. After long and sometimes warm discussions of the matter, we came to the conclusion that when we found ourselves in imminent danger of becoming great naturalists, there would still be time to shoot. Besides we had access to one of the finest public collections in Canada, supplemented by some very complete private ones, belonging to members of the club, which, we felt sure, the owners would be glad to let us see in case of need. Finally, what we most wished to study was the habits of the birds, and a dead bird has no habits in particular.

So we went out, armed with nothing more deadly than a double-barrelled field-glass, a note book, and a copy of McIlwraith's "Birds of Ontario," and, having mastered, to a certain extent, what a recent writer on "woodcraft" calls "the art of holding down a log," we made bags (I mean note-books) which were to us, at least, as satisfactory as if we had come home begrimed with powder, and reeking with the blood of slaughtered innocents.

From the bleak winter day when we first made out, against the dark background of spruce and cedar, the grey uniform with black facings worn by that arch-hypocrite the Northern Shrike, through all our varied experiences of musical thrushes and sparrows, nimble swifts and swallows, and gaily-clad orioles and warblers, till the climax of astonishment was reached when we got our first glimpse of the Scarlet Tanager in all his tropical brilliance, one new delight followed another, only leaving room for vain regrets that we had wasted so many years in ignorance of the wonders about us.

To give you some faint notion of what may be seen in a Spring day's walk, let me ask you to make with us, in imagination, what we

rather bombastically called "the grand tour," and for that purpose let us select, say, the 29th of April. Your imaginations will have to be early risers, for we are to start at 5 a.m., and even then the birds are ahead of us, for at ten minutes before that hour, while waiting for the start, a tiny Ruby-crowned Kinglet, hopping from branch to branch of a balsam fir, announces to the world at large, in one of the happiest little songs in nature, that he is taking his breakfast, and enjoying it too. A Black and White Warbler, creeping up the trunk of a cedar, is also up for the day, and catching, if not the early worm, at least something as toothsome to him. We go down the railway track, listening, by the way, to the White-throats at their matins, and, at the Rideau Bridge, we see first one, then a pair, of ducks, flying up the river. Instantly we level our glasses at them, but their speed is too great for such inexperienced shots, and "not identified" goes down in our notebooks. We make our way to Clarke's bush, which stands on the high ground to the South of the Rideau. Here, at the edge of the woods, we bring down our first Savanna Sparrow, a species which we find later in the summer to be tolerably common in the meadows and pastures, and here too we see, but alas! do not hear, our first Hermit Thrush. The woods are fairly ringing with the morning drum-taps of the Downy Woodpecker, the loud rattling call of the Flicker, and the incessant chatter and screech of Rusty, and Red-winged Blackbirds. As we proceed through the woods towards Billings' Bridge, we take time to look down as well as up, and find that the hepaticas and adderstongues have made the brown carpet of leaves beautiful, with their delicate blossoms, and that the buds of the wake-robins, and red trilliums are almost ready to open. In a piece of poplar swamp, we come upon the Myrtle Warblers, with their yellow crowns, and shoulder knots, hopping from branch to branch, catching the insects attracted by the blossoms of these trees. Then we come out into the open, and, in a wet pasture, we start up, (or should I say "flush?") a pair of Wilson's Snipe, at which we have several good shots with our glasses, as we follow them from one corner to another of the field, which they seem loth to quit, thus getting a very fair inventory of their markings. We come out at Billings' Bridge, and follow the road up the South side of the river, till we cross

the track of the St. L. & O. Branch of the C. P. R., between which and Hog's Back is a piece of mixed hardwood and evergreen bush, which, later in the season, we christened "Warbler's Paradise." It is a week too early for most of the warblers yet, and we see little but kinglets and nuthatches, creepers and chickadees, but within a month we saw, in this small resting-place of the Spring migrants, all or nearly all of the eighteen warblers we met with in our first year's investigations. Here I sat the whole of one afternoon in the beginning of May, and exclaimed to myself (for I was alone this time) as one after another, the Myrtle, Magnolia, Blackburnian, Black-throated Green, Yellow and Yellow Palm, Warblers, and the Redstarts, astonished me by the brightness and variety of their plumage and the sprightliness of their movements. Later still we found here such gems as the Black-throated Blue, the Chestnut-sided, the Bay-breasted, the Black-poll, and the Canadian. But to come back to April 29th, and resume our walk. Here it was that we saw a garter-snake and a copper-snake, (at least that is what we called them when we were boys), and here we note that the poplars, alders, and hazels shed pollen at the slightest touch. Here, too, we take the first swim of the season, at least one of us does, and it is a very short one, for the water is several degrees colder than the air, but evidently it is long enough to excite the wonder of the denizens of the deep, for while dressing after the bath, a muskrat pokes his nose up at the water's edge at the very feet of the bather, gives one look of astonishment at the demented human, who has thus early invaded his watery domain, then turns up his tail in evident disgust and "silently steals away." Later, as we lie resting among the pine bristles on the Hog's Back, we see a flock of ten ducks making all haste to reach some of the mountain lakes to the North of us, but this time they are out of range, and we turn homewards without having bagged any game bird but the snipe. Much worth telling occurred on the home journey, but I have already kept you long enough, and I should like to tell you before I finish of another kind of a tramp, and to show you that, though I have chosen a Spring walk to write about, almost as much enjoyment, though of a different kind, may be had from a tramp on snowshoes, in the depth of Winter.

To convince you that there is much to be seen in the woods in Winter, and that they are by no means deserted by the birds, it will be only necessary to mention that I have seen since the first of December, principally in Dow's Swamp (a perfect treasure-house for the naturalist at any time of year), sixteen different species of birds. Of these the first I think of, as he was the first I saw after beginning observations last February, is the Northern shrike, whom, earlier in this paper, I called an arch-hypocrite, and I did so advisedly, for at one moment you will hear him singing away on the topmost twig of some bare tree, proclaiming himself the most innocent and well-meaning of birds, and the next you will surprise him in the act of making a meal off some hapless goldfinch or siskin, which he has beforehand hung up in his butcher's shop in the thorn-bush. The White-winged Crossbill, when seen against a dark background of ever-greens, as he hangs in every conceivable attitude, feeding on the seeds of the tamarac, is one of the handsomest birds of any season, and his cousin, the Red, or American Crossbill, is not far behind him in good looks. Then there is the big, solemn, Pine Grosbeak, who either does not know or is not afraid of man, whom all the other birds seem to consider, and perhaps not without reason, their natural enemy. In seasons when he comes from the North in any considerable numbers, as he has this winter, he may be seen wherever there are rowan berries, but if these are not to be had he will content himself with cedar instead. Occasionally we see, or more often hear, the White breasted Nut-hatch, who defies the cold with his cheerful nasal "quank," and we rarely miss the Chickadee, a veritable little Canuck, with his black cap and muffler, often accompanied by his brown-capped and chestnut-sided cousin from the North, the Hudsonian. The Hairy and the Downy Woodpeckers are to be seen, too, the latter a smaller edition of the former in the same binding. That handsome fellow in the cedars, who is talking to himself in an undertone, and now and then laughing at your efforts to spy him out in his dark retreat, is the Blue Jay. An occasional crow is also seen flying to and from his meals at the slaughter house, and once in a while we get a glimpse of the Ruffed Grouse or Partridge, while Redpolls, Goldfinches, Pine Siskins and Snowflakes complete the list. With all these to study, one can readily see that the

winter need be no more a time of idleness to the student of birds than the summer.

One thing more occurs to me to mention, and that is that the study of birds is as well suited to the gentler sex as to the sterner, and, being a firm advocate of co-education, I see no reason why each of us should not have for his companion in his "bird-walks" a sister, a cousin, or even a more distant relation.

And now that I have come to the end of my ramblings, I give you the parting advice "Try it for yourselves."

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REPORT OF THE GEOLOGICAL BRANCH.

(READ MARCH 7TH, 1889.)

To the Council of the Ottawa Field Naturalists' Club:—

GENTLEMEN :

In presenting you with the annual summary report of the Geological branch of the Club's work, the leaders have much pleasure in announcing that the interest which has been manifest and increasing, from year to year, since the organization of the Club, a decade of years ago, bids fair to continue increasing, as the field of geological investigations is wide and far from being exhausted. Since early spring, (1888), and even before the sun's rays had caused the most recent formation of snow to disappear, work was begun, and collections were made by several members. Then came the excursions and sub-excursions, which were held at regular intervals during the Spring, Summer, and Autumn months. The excursions were very well attended, but the sub-excursions, with one or two conspicuous exceptions, were only fairly well attended. It is believed that more systematic work can be performed, and better results obtained, if small working parties are organized, and examine, carefully, definite areas.

Among interesting notes and specimens obtained, during the season of 1888 may be mentioned the following :

In the Post-Tertiary formations, Mr. Ami has continued taking observations, and making notes of sections, and of the fossil remains found in them. A detailed study of these formations, at the Central Experi-

mental Farm, was made, and interesting sections recorded. Special attention was given to ancient river channels, and many evidences were obtained respecting their course and extent. On both sides of the present Ottawa River, ancient river channels were discovered and noted.

Mr. C. B. Wright's brick yard was visited, by Mr. Ami in February, and he obtained the fine specimen of a young harp seal, which is now in the National Museum, Sussex street. It was embedded along with other species of marine organisms, in the "Leda clay" formation, at a depth of thirty-two feet. The specimen exhibits the lower left ramus, portion of skull, and most of the vertebræ, and costæ, with the scapula and other bones of the limbs, and is nearly entire. Mr. T. C. Weston has cleverly articulated the specimen, and it may be seen in the museum.

In the Utica formation two important discoveries were made by Mr. Ami, viz., a new sponge, and a new barnacle. The sponge consists of slender and simple spicules, arranged in a cyathiform or radiating manner, and occurs in the upper portion of the lower half of the Utica formation. The first specimens collected were obtained from the Utica shales drawn to the paths of Major's Hill park, from a lot on the Montreal Road near the St. L. & O. R. R. crossing. The best collection however, was made from a trench on Albert street, between O'Connor and Bank streets, at the same horizon. The best specimens were sent to Dr. Geo. J. Hinde, whose researches in fossil sponges are so well and favourably known that the Ottawa material could not be placed in better hands. Dr. Hinde has very kindly undertaken to describe this species, which seems to belong to a new generic type.

The other new form of interest, found in the Utica, last summer, is a remarkable example of a *Turrilepas*, which was found associated with *Siphonotreta Scotica*, and other forms already recorded in the OTTAWA NATURALIST, in the lower Utica at the Rideau River beds, opposite the rifle range. These cirripedes are of rare occurrence in Canada, only one or two other species having been noted from New Brunswick, in Silurian and Cambro-Silurian, (Ordovician), strata. This Ottawa *Turrilepas* was forwarded to Dr. Woodward, F.R.S., etc., Keeper of the British Museum, who has made a special study of this interesting group of fossils, and a paper on it will shortly appear in the *Geological Magazine*, London.

Notes on the mode of occurrence of these two forms, and the species found associated with them, were sent, along with the specimens, to Dr. Woodward and Dr. Hinde for publication.

Other notes on fossils and general geology were also obtained during the past season, which will add considerably to the material already on hand for the construction of a detailed geological map of Ottawa. At excursions and sub-excursions of the Club one of the leaders, as usual, gave addresses on the geology of the district visited.

In conclusion the leaders hope that the interest manifested in the study of geology of Ottawa shall continue, as in the past.

Leaders: { HENRY M. AMI.
R. W. ELLS.

Ottawa, March 7th, 1889.

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REPORT OF THE ENTOMOLOGICAL BRANCH FOR THE YEAR 1888-89.

To the President and Council of the Ottawa Field Naturalists' Club :

GENTLEMEN,—Although only a few of the members have taken an active part in the work of this branch of the club, a considerable amount of useful study has been prosecuted. Early in the Spring, before the snow had left the ground, several sub-excursions were made by the leaders on snow shoes. In all instances were they well repaid for their trouble, and they would draw the attention of members to this pleasant mode of collecting at a season of the year when it is supposed that little or nothing can be done in the way of collecting insects out of doors. The hibernating larvæ or pupæ of several moths, and a few butterflies may be found by those who know where to look for them. Many beetles pass the winter in moss or beneath flakes of bark upon standing trees. Again in running water many aquatic species of beetles are to be found even in mid-winter. These may be collected by cutting a hole in the ice and then watching till they come to the surface. At the bottom amongst stones and leaves many aquatic larvæ occur. In addition to this many kinds of galls on plants may be collected in winter, perhaps to better advantage than at any other time of the year. The study of galls will be found to be most interesting. The novice will be surprised to find that several different kinds of

insects frequently emerge from the same gall. These are first of all the gall-maker. Then what are known as "guests" or "inquilines," which do not make the galls, but which live in and upon them after they are formed, and lastly there are various kinds of parasites which prey upon the gall-makers and their guests. Trees and plants which will always supply the collector with material for study are the oaks, the roses, the various willows, and several kinds of composite plants as *Solidago*, *Aster* and *Lactuca*. Besides the galls which may be found on the stems during the winter, there are many more which are formed on the leaves, which must be collected during the summer.

A good deal of work was done last season in breeding insects, both from the egg and from larvæ and pupæ collected in the field. This is without doubt one of the most useful and absorbing branches of Entomology. Successful remedies for injurious species can only be arrived at by carefully working out their life histories, so that the stage in which they may be most advantageously attacked may be discovered. In order that this information may be complete it is necessary to breed the insects from the egg to maturity. The eggs of many kinds are readily obtained and easily reared. The leaders are of the opinion that if some of our members, who have never given any attention to the study of insects would only collect a single species of the many beautiful butterflies which appear early in the Spring, confine it over its food-plant until it laid its eggs, and then watch the caterpillars through their different stages till they changed to chrysalids, and then again come forth as the perfect butterflies, that they would find so much pleasure in the observations that many more would join in the work of this branch. It will always give them much pleasure to advise or instruct anyone who applies to them, as to the best means of capturing, confining and treating the female insects and the young caterpillars after they hatch, but the operation may be briefly described as follows. Having caught a female insect of which the food-plant is known, confine it by means of a bag of gauze tied over a small plant, or if the food-plant be a tree by drawing the bag over a branch, so that the insect may have fresh living leaves to lay upon. The cage so formed should be so placed that the direct rays of the sun cannot fall upon it. Eggs will generally be laid in

about 48 hours. If they are not, the female should be taken out and fed with weak sugar and water. In looking for the eggs the bag the leaves and the stems must all be examined carefully, because although it is necessary to have the food-plant present the insects will frequently lay their eggs all over the netting or on the stems. When the eggs are laid they should be removed at short intervals and put away in a cool place, as there are many enemies which would destroy them.

Eggs hatch in a period varying in different species from 4 to 21 days. The young caterpillars should at once be placed either upon a living plant of their food or in a tight vessel with some fresh leaves. Tin-covered jelly glasses or small tin canisters are very convenient for this purpose. The young caterpillars should not be touched with the hands, but in changing their food the leaf upon which they are resting should be put back with the fresh leaves. When about to moult their skins they should not be disturbed.

Amongst rare insects which have been collected during the year, mention may be made of *Chinobas Jutta*, (female), from which eggs were obtained, and the young larvæ are now being reared.

Peniseca Tarquinus. Several specimens bred from clusters of Aaphides, (*Schizoneura tessellata*), which occur upon the alder.

Lycana Comyntus. One specimen taken at Aylmer.

Amongst injurious insects Cutworms and Locusts attracted most attention by the enormous numbers in which they occurred.

Several specimens of the larvæ of the Grape-vine Sphinx (*Flitampelus Achemon*), were collected, and the large caterpillars of *Sphinx Chersis* were so numerous upon young Ash trees as in some places to almost strip them.

The local collections in all orders are being considerably increased every year, and Mr. Harrington hopes to have a list of the Hymenoptera ready for publication next month.

JAMES FLETCHER,
W. H. HARRINGTON, } *Louders.*
T. J. MacLAUGHLIN, }

BOOK NOTICES.

REPORT OF THE EXPEDITION IN THE YUKON DISTRICT, N. W. T., AND ADJACENT NORTHERN PORTION OF BRITISH COLUMBIA.—By Dr. G. M. Dawson, 1887.

The above report which is upon a portion of the work of the Yukon Expedition of 1887-88, by Dr. G. M. Dawson, forming Part B. of the Annual Report of the Geological Survey, (1887) has just been distributed. In this report Dr. Dawson details the results of that part of the exploration carried out by himself, adding thereto some portions of Mr. McConnell's work during 1887, which belong to the same general region. Further reports, dealing particularly with the country to the North and East of that covered by this publication, are stated to be in course of preparation by Mr. R. G. McConnell and Mr. W. Ogilvie.

The present report is a book of 277 pages, and is accompanied by an index map, while a detailed map with Geological indications, in three sheets, including the Strikine, Dease, Upper Liard, Frances, Pelly, and Lewes Rivers, with adjacent country, is promised in the course of a few days, under separate cover.

A comparison of the index map, with previous maps professing to represent the same regions, coupled with Dr. Dawson's well-known accuracy, shows what an important contribution this report is to our knowledge of the Geography of North Western Canada. The first part of the report is of a general character, and in this the ruling physical and geological features are described, and some facts given respecting the climate, flora, fauna, and resources of the country as a whole. In the following part the country examined is taken up by districts, and greater detail is entered into. Historical notes are also added, for each district, of the exploits of the few earlier explorers, who originally penetrated this country in the interests of the Hudson Bay Company, or for other objects.

The report includes seven appendices, of which the first is on the distribution of trees, the second on the Indian tribes of the regions, the third a list, by Professor Macoun, of the plants collected (201 species, of which three are new.) The fourth appendix is zoological, including

a list by Mr. James Fletcher, of diurnal lepidoptera, a short list of fishes by Dr. T. H. Bean, and a description of a new mouse by Dr. C. H. Merriam (see page 11 of this number.) In the fifth appendix Mr. F. D. Adams describes the microscopical characters of some of the rocks collected; the sixth contains meteorological observations, and the seventh is a survey of the astronomical observations taken along the route of travel, upon which the positions of places, as given on the map, depend.

It is, naturally, impossible here to do more than mention some of the main headings of this valuable report, which, constituting as it does, the first authentic or systematic account of a vast region, of which very little has up to the present time been known, cannot fail to be of great interest to all. This region, even that portion of it which lies to the North of the 60th parallel, appears to be possessed of considerable natural resources, and is by no means the sub-Artic waste, which some theorists have assumed it to be in advance of its exploration.

J. F.

CONTRIBUTIONS TO CANADIAN PALÆONTOLOGY.—PART 3.—ON SOME FOSSILS FROM THE TRIASSIC ROCKS OF BRITISH COLUMBIA.—By J. F. Whiteaves, F.G.S., F.R.S.C., &c.

Distributed advance copies of this contribution, published by the Geological and Natural History Survey of Canada, contain, besides a history of the discoveries of Triassic fossils in Canada, notes on and descriptions of nineteen species, of which the following are new to science:

- | | |
|---|--|
| 1. <i>Spiriferina borealis</i> . | 8. <i>Popanoceras</i> <i>McConnelli</i> . |
| 2. <i>Terebratula Liardensis</i> . | 9. <i>Acrochordiceras</i> ? <i>Carlottense</i> . |
| 3. <i>Monotis ovalis</i> . | 10. <i>Trachyceras Canadense</i> . |
| 4. <i>Halobia occidentalis</i> . | 11. <i>Arniotites Vancouverensis</i> . |
| 5. <i>Trigonodus</i> ? <i>productus</i> . | 12. " <i>sp. indt.</i> |
| 6. <i>Margarita Triassica</i> . | 13. " <i>or Celtites</i> . |
| 7. <i>Nautilus Liardensis</i> . | 14. <i>Badiotites Carlottensis</i> . |

The remaining *five* species have been "identified with previously described species." They are *Terebratula Humboldtensis*, *Monotis subcircularis*, *Halobia Lommelli*, *Arcestes Gabbi*, *Aulacoceras Carlottense*.

The specimens were for the most part collected by the director and officers of the Geological Survey during their explorations, and include the following collections: 1875, Dr. Selwyn, Peace River, lat. 56° 10', and long. 122° 10'; 1877, Mr. J. Hunter. Upper Pine River,

lat. 55° 30', and long. 122°; 1877, Dr. G. M. Dawson, Whipsaw Creek, Similkameen River, B.C. and "Nicola Series," Lake Nicola, B.C.; 1878 Dr. G. M. Dawson; Queen Charlotte Islands, several localities; 1887, Mr. R. G. McConnell, Liard River, lat. 59° 16' and long. 125° 35'.

The publication is timely and valuable, and the plates which are to accompany the text, prepared by Mr. L. M. Lambe, are all ready, and will be issued shortly in conjunction with part 2 on "Fossils of the Hamilton Formation of Ontario," by the same author.

H. M. A.

ON ARCHÆOCYATHUS, BILLINGS, AND ON OTHER GENERA, ALLIED TO OR ASSOCIATED WITH IT, FROM THE CAMBRIAN STRATA OF NORTH AMERICA, SPAIN, SARDINIA AND SCOTLAND.—BY Dr. George Jennings Hinde, F.G.S., &c., &c.

Quarterly Journal of the Geological Society of London. Vol. XLV, Part I, No. 177. P. 125, *et seq.* This paper is the result of an exhaustive and critical study of the genus *Archæocyathus*, described by Mr. Billings in 1861 from the Potsdam limestone of L'Anse au Loup, Labrador, and giving its history as well as that of the allied genera *Ethmophyllum*, Meek, *Archæocyathellus*, Ford, *Protocyathus*, Ford, *Protopharetra*, Bornemann, *Coscinocyathus*, B. and *Anthomorpha* B. Then follows an interesting chapter on the "Mineral nature of *Archæocyathus*, and its allies," after which their "mode of growth and structure" are fully described—the descriptions of Billings, Meek and Bornemann having been amended by the undoubtedly ablest authority on fossil sponges, so that their true nature and affinities are now revealed. The new genus *Spirocycathus* has also been created by Dr. Hinde, to receive Billings' *A. Atlanticus*.

Regarding the affinities of the *Archæocyathinae*, Dr. Hinde holds the view that they "belong to a special family of the *Zoantharia sclerodermata* (corals) with near relationship (leaving *Anthomorpha* out of account) to the "Perforata."

Dr. Hinde then describes two new Genera: *Archæoscyphia* (which is proposed to include *Archæocyathus Minganensis*, Billings) and *Nipterella*, to include *Calathium? paradoxicum*, Billings, followed by a dissertation on *Trichospongia*, Billings. *Archæocyathus* is thus considered to belong to the special family *Zoantharia sclerodermata*, *Archæoscyphia*, is shown to be a lithistid sponge; *Nipterella*, n.g., the same, and the genera *Calathium* and *Trichospongia*, to be undoubted siliceous sponges.

A double page plate (Plate V.), of illustrations of the Cambrian *Archæocyathinae* and sponges accompany the text and shew the microscopic as well as macroscopic characters of the species represented.

H. M. A.

GEOLOGICAL SURVEY OF THE STATE OF NEW YORK—PALÆONTOLOGY,
VOL. VII.—By Prof. James Hall, assisted by Mr. J. M. Clarke.

This handsome volume contains, figures and descriptions of the Crustacea belonging to the Upper Helderberg (Corniferous), Hamilton, Portage, Chemung and Catskill groups. Amongst the specimens described the following forms from Canada are noticed, ten of which are new to science and are referred to in the following list:—*Phacops cristata*, H. var., *pipa*, N. var. ; *P. rana*, Green ; *Dalmanites* (*Hausmannia*) *pleuroptyx*, Green ; *D. (H.) concinnus*, H., *D. (H.) concinnus*, H. var. *serrula*, N. var., *D. (H.) phacoptyx*, N. sp. ; *Dalmanites* (*Cryphaeus*) *comis*, N. sp. ; *Dalmanites* (*Chasmops*) *anchiops*, Green ; *Acidaspis cullicera*, N. sp. ; *Lichas* (*Terataspis*) *grandis*, Hall, (*Lichas superbus*, Billings) ; *Lichas* (*Hoplolichas*) *lylæus*, N. sp. *Proetus crassimarginatus*, Hall ; *P. stenopyge*, N. sp. ; *P. delphinulus*, N. sp. ; *P. tumidus*, N. sp. ; *P. Phocion*, Billings ; *Phathonides arenicolus*, N. sp. and *Cyphaspis minuscula*, N. sp.

The above species are all from Western Ontario, Canada, except *Proetus Phocion*, which occurs in Gaspé, Quebec, Port Colborne, Cayuga and Walpole are the principal localities from which the above species were obtained.

There is in addition, Pt. II of Vol. V, Pal., N.Y., (supplement) on Pteropoda, Cephalopoda and Annelida from the Niagara, Lower and Upper Helderberg, Hamilton and Waverly groups of New York State.

H. M. A.

THE ROYAL SOCIETY OF CANADA.

The next annual meeting of the above society will be held in this city upon the 7th, 8th, 9th and 10th of May.

The different sections will meet in the Committee Rooms of the House of Commons, and the members of the Club have been specially invited to attend.

Our President, Dr. Ells, will represent the Club, and if any members wish to submit papers they should at once communicate with him, so that the necessary arrangements may be made for their presentation before the proper section.

AUTHORS' EXTRAS.

It has been decided by the Council that authors of papers, which appear in the OTTAWA NATURALIST, may in future procure extras of their articles, by paying the actual cost of printing, and 25 cents for the Club funds. This will be \$1.25 for 100 copies of any article under 8 pages in length. Orders for extras must be sent in to the editor, at least one week before the issue of the quarterly parts.

1237. *S. AGREUS*, L.
Rocky woods and banks. Ju—2. (B.)
- ARCTIUM. Burdock.
1251. *A. Lappa*, L. Common Burdock.
Lappa officinalis All. var. *major*, Gray's Manual.
Introduced. Waysides. July—4. (B.)
- CNICUS, Vaill. Thistle.
1254. *C. lanceolatus*, Hoffm. (Scotch Thistle.)
Cirsium lanceolatum, Scop.
Naturalized. Roadsides, pastures and woods. July—2. (B.)
1259. *C. MUTICUS*, Pursh.
Cirsium muticum, Mx.
Swamps. Ange Gardien. (*Il. M. Ami.*) Templeton. Buckingham. (*J. P.*) July—4.
1262. *C. arvensis*, Pursh. ("Canada Thistle.")
Cirsium arvense, Scop.
Naturalized throughout the country. Ju—3. (B.)
- ONOPORDON, Vaill. (Scotch Thistle.)
1266. *O. acanthium*, L.
Introduced. Roadsides. Montreal Road. (*R. B. Whyte.*) July—4.
Called "Scotch Thistle," but not a native of Great Britain.
- CENTAUREA, L. Star Thistle.
1269. *C. Cyanus*, L. (Blue bottle. Corn-flower.)
Introduced. In wheat fields, Billings Bridge. July—1.
- CICHORIUM, Tourn. Succory, Endive.
1271. *C. Intybus*, L. (Chicory.)
Introduced. Abundant in ditches and by way-sides. Ju—3.
- LAMPSANA, Tourn. Nipple-wort.
1276. *L. communis*, L.
A weed in gardens and by way-sides. (*H. B. Small.*)
- HIERACIUM, L. Hawkweed.
1288. *H. CANADENSE*, N. s.
River banks and in thickets. Aug.—1.
1289. *H. SCABRUM*, Mx.
Sandy fields and woods. Aug.—1.
- TARAXACUM, Hall. Dandelion.
1308. *T. officinale*, Weber.
Taraxacum Dens-leonis, Desf.
Completely naturalized throughout Canada. May—2. (B.)
- LACTUCA, L. Lettuce.
1309. *L. CANADENSIS*, L.
Damp woods. A tall, wand-like plant. Stem thick, hollow and very leafy, smooth. Flowers generally pale yellow, in a long, narrow naked panicle. Aug.—1. (B.)
1310. *L. INTEGRIFOLIA*, Bigel.
L. Canadensis var. *integrifolia*, T. & G.
Parliament Hill. Leaves smooth, undivided, and generally entire.
Rare. Aug.—3.

It seems to me that neither this nor the next present sufficient characters to warrant their being separated from *L. Canadensis* as anything more than varieties.

1311. *L. HIRSUTA*, Muhl.

L. Canadensis var. *sanguinea*, T. & G.

Railway banks and rocky woods, not uncommon. Leaves all runcinate-pinnatifid, hirsute on the mid-ribs beneath. Flowers purplish-yellow. Aug.—2.

1314. *L. LEUCOPHÆA*, Gray.

Mulgedium leucophæum, D. C.

Low, rich woods. A tall plant much like *L. Canadensis*, but with brownish pappus. Aug.—2.

1315. *L. sativa*, L. (Garden Lettuce.)

Occasionally found on waste heaps; but never permanently established.

PRENANTHES, L. Rattlesnake-root.

1316. *P. ALBA*, L. (White Lettuce.)

Nabalus albus, Hook.

Rocky woods. An interesting plant with glaucous foliage and purplish-red stems, peduncles, and involucre. Flowers white and pappus deep brown. Aug.—2. (B.)

1318. *P. ALTISSIMA*, I.

Nabalus altissimus, Hook.

Woods. A tall, slender plant with yellow flowers and dusky pappus. Aug.—2. (B.)

SONCHUS, L. (Sow Thistle.)

1321. *S. oleraceus*, L. (Common Sow-thistle.)

Cultivated ground and waste places. Annual. Aug.—1. Leaves clasping by a heart-shaped base, the auricles acute.

1322. *S. asper*, Vill. (Prickly Sow-thistle.)

With the last, but commoner. Leaves more prickly, the auricles of the base rounded.

1323. *S. arvensis*, L. (Perennial Sow-thistle.)

At the base of Parliament Hill is a large and rapidly increasing patch of this plant, which is now becoming a troublesome weed in Canada. It has also been noticed at Chelsea and at Billings Bridge at the edges of fields. Aug.—1.

TRAGOPOGON, L. Goat's-beard.

1326. *T. pratensis*, L. (Yellow Goat's-beard.)

Along the railway near the St. Louis Dam. A few plants have been found at the above locality for the last 12 years. Flowers, large, yellow.

1327. *T. porrifolius*, L. (Salsify.)

An escape from cultivation. In a hay-field at Billings Bridge and occasional on waste heaps. Flowers purple.

LOBELIACEÆ.

LOBELIA, L.

1332. *L. CARDINALIS*, L. (Cardinal Flower.)
River-sides and along streams common. July—4. (B.) This is undoubtedly one of our finest Canadian wild flowers, and has been cultivated in Europe for many years.
1337. *L. INFLATA*, L. (Indian Tobacco.)
Sandy fields. July—4. (B.)

CAMPANULACEÆ—Bell-wort Family.

CAMPANULA.

1342. *C. rapunculoides*, L.
Waste ground. Introduced. For many years there was a large patch of this persistent plant on the vacant lot where the rooms of the Ottawa Literary and Scientific Society now stand.
1344. *C. ROTUNDIFOLIA*, L. (Hare-bell.)
Crevices of rocks. Not uncommon. June—2. (B.)
1345. *C. APARINOIDES*, Pursh. (Rough Bell-flower.)
Marshes and along streams. Common. A slender plant, the weak stems rough with short spines on the angles. Flowers nearly white. July—2. (B.)

VACCINIACEÆ.—Blueberry Family.

GAYLUSSACIA, HBK. Huckleberry.

1350. *G. RESINOSA*, T. & G.
Sandy fields and swamps. Race-course swamp. Aylmer. East Templeton. June—1. Whole plant covered with resinous globules. Fruit black.

VACCINIUM, L. Blue-berry.

1352. *V. PENNSYLVANICUM*, Lam. (Early Blueberry.)
Borders of swamps and hill-sides. Chelsea Mountains. Aylmer. Race course on Bank street road. May—2.
A smooth dwarf shrub with oblong, serrate, leaves, which are smooth on both sides. Flowers cylindrical bell-shaped, white tinged with red. Our earliest blue-berry ripe by the middle of July.
1353. *V. CANADENSE*, Kalm.
Swamps, sandy fields and hill-sides, with the last, not uncommon. May—2. A dwarf shrub, the whole plant downy. Flowers small, green tinged with red.
1355. *V. CORYMBOSUM*, L. (Swamp Blue-berry.)
Swamps and mossy rocks. May—2.
Under this name are grouped several very different varieties.
Var. *ATROCOCUM* is a high bush found in swamps with leaves entire and downy underneath, as also are the branchlets. Flowers white; berries black without bloom.

- Var. *PALLIDUM*, Gray, is a low shrub found growing in crevices of rocks along the Gatineau river and at Aylmer. The whole plant glaucous, leaves smooth and serrulate.
1358. *V. CÆSPITOSUM* Mx. (Dwarf Billberry.)
Mossy rocks. Kirk's Ferry. June.—1.
A dwarf shrub 2 or 3 inches in height with thin leaves and blue berries.
- OXYCOCCUS**, Pers. Cranberry.
1365. *O. VULGARIS*, Pursh. (Small Cranberry).
Vaccinium Oxycoccus, L. Peat-bogs. Common. June—2.
Easily distinguished from the next by its small revolute leaves and terminal fascicle of flowers.
1366. *O. MACROCARPUS*. Pursh. (Large American Cranberry).
Vaccinium macrocarpon, Ait.
Peat bogs, common. June—1. Larger than the last in all its parts.
Flowers lateral.
- CHIOGENES**, Salisb. Creeping Snowberry.
1367. *C. HISPIDULA*, T. & G. (Capillaire).
Creeping over decayed logs or hummocks in cedar swamps. May—2. (B). A beautiful little creeper with large, white, waxy aromatic berries.
- ARCTOSTAPHYLOS**.
1370. *A. UVA-URSI*, Spreng. (Bearberry. Kinnikinnick).
Rocky or sandy soil. May 2.
- GAULTHERIA**, L. Aromatic Wintergreen.
1374. *G., PROCUMBENS*. (Tea-berry).
Sandy fields and woods, July—4. A lovely little plant with beautiful white pendent flowers, beneath a rosette of shining leaves. The bright cherry-red berries (formed of the calyx), remain on the stems all the winter.
- CASSANDRA**, Don. Leather leaf.
1376. *C. CALYCVLATA*, Don.
Peat-bogs. Common. May—1.
The beautiful but rather inconspicuous white flowers are produced in great profusion beneath the many slender branches, from buds formed the previous summer.
- EPIGÆA**. Mayflower.
1382. *E. REPENS*, L. (Trailing Arbutus. Mayflower.)
Rocky islands and banks, sandy borders of swamps. Gilmour's Grove, Chelsea. Aylmer. May—1.
A most lovely flower with exquisite scent. This is the true Mayflower; altogether that name is applied to a great many other spring flowers in different localities.
- ANDRÔMEDA**, L.
1383. *A. POLIFOLIA* L.
Peat-bogs. Mer Lieue. Hull. Chelsea. May—3.
Leaves thick and white beneath with strongly revolute margins.



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* or *Petroleum*, shall not be more than 1500 feet in length, nor more than 800 feet in breadth. A location for mining *Iron* or *Petroleum* 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 19th, 1887.

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