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January, 1893.

THE  
OTTAWA NATURALIST.

VOLUME VI. No. 9.



THE BEAVER (*Castor Canadensis*, Kuhl).

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## EVENING LECTURES, 1892-93.

First meeting held Dec. 15th, 1892. Mr. Frank T. Shutt, M.A., Vice-President, in the Chair.

There were two papers on the programme: An Address of Welcome by Dr. MacCabe, Principal of the Normal School, and the Inaugural Address, by Mr. Shutt.

The chairman, in introducing Dr. MacCabe, said: I have great pleasure in announcing that we have with us this evening, the gentleman through whose kindly offices the Field-Naturalists' Club has the gratuitous use of this Hall in which to hold their winter meetings, — Dr. MacCabe, Principal of the Normal School.

We owe him a great debt of gratitude for this privilege; for looked at merely from a monetary standpoint, this arrangement effects a considerable saving in the Club's funds. But this, I take it, is by no means the only, nor indeed the greatest, advantage in our meeting here. By so doing, the work of the Club is brought very prominently and forcibly before that large class of workers—the Normal School students—men and women who are here for a time, for the purpose of fitting themselves for the grand profession of teaching. May we not hope, nay rather may we not expect, that the attendance here, and on our field days, may have awakened in many, a love and an interest for Natural Science, in the animals, the plants and the rocks that are about us; and may we not further expect that they, in turn, will impart to their pupils the knowledge here gained—that love and interest in the things of nature that we have been the means of instilling. Thus it is, that through them the work and influence of the Club may be extended into fields otherwise impossible for us to occupy.

Upon the invitation of the Council, Dr. MacCabe has kindly consented to address a few words of welcome to the Club.

Dr. MacCabe, on coming forward, was warmly greeted. The following is an abstract of his address, which was listened to with great attention and pleasure. The points introduced were apt and strongly put. Dr. MacCabe is a dignified and easy speaker, and his distinct enunciation made it easy for everyone to hear what he said:

Dr. MacCabe said he had much pleasure in renewing the welcome

he extended to the Club and its friends on the occasion of its first meeting in the Normal School. The Club is welcome for two reasons :— First, because its work is part and parcel of the great work of aducation, to which this institution is dedicated ; secondly, because of the fact that many members of the staffs of the Normal and Model Schools, are active members of the Club ; and the Normal School students—to their profit and pleasure—are made welcome to the lectures and excursions.

The Ottawa Field-Naturalists' Club is one of those working bodies of Scientists, who in the language of Shakespeare, find “tongues in trees, books in the running brooks, sermons in stones, and good in everything.”

The study of natural science when prosecuted aright, cannot fail to be productive of immense benefit during all the future career of the student. It communicates knowledge of great practical value in almost every sphere and pursuit of life. It has been well said :—“ It will not be difficult to show that almost every new and valuable invention, from the spinning-jenny to the telephone, which has increased the control of man over nature, economised his time, or added to his comfort, is the product of scientific knowledge, and often of experiments and researches which had, at first, no merely utilitarian purpose, but were undertaken with the sole and simple object of discovering the secrets of nature, and of revealing truth. And there is not a single lesson by means of which you can convey to a learner a strong interest in any one department of physical science, which may not develop itself, as it works and germinates in his mind, into results and discoveries of unexpected value, and add enormously to the resources and to the enjoyments of mankind.

And, if the study of Natural Science is of inconceivable value in all the practical pursuits of life, it is equally advantageous, in the disciplining of mind. Prof. Huxley, in a lecture on scientific education, puts the matter clearly, thus :—“ If scientific training is to yield its most eminent results, it must be practical—that is to say, in explaining to a learner the general phenomena of nature you must, as far as possible, give reality to your teaching, by object lessons. In teaching him

botany, he must handle the plants, and dissect the flowers for himself ; in teaching him physics or chemistry, you must not be solicitous to fill him with information but you must be careful that what he learns, he knows of his own knowledge. Do not be satisfied with telling him that a magnet attracts iron ; let him feel for himself the pull of the one upon the other. In all other branches of Natural Science, pursue this discipline carefully and conscientiously, and you may be sure that, however scanty may be the measure of the information which you have poured into the learner's mind, you have created an intellectual habit of priceless value in practical life. If you are setting to work to teach science, you must teach it through his eyes, his hands and his other senses."

The work of the Field-Naturalists' Club is, thus, educational in the true sense of the term. The powers of observation are cultivated through the analytical process to which each object is subjected ; the tracing of relations, generalization, classification, the formation of principles and laws—all these processes which are among the highest of our mental activities are carried on in this practical work. And the mind will be led from the world of visibilities to that of invisibilities, from matter to mind, from finite to infinite, from Nature to Nature's God.

Dr. MacCabe wished the Club a very successful winter's course of lectures, and at the close of his most interesting address, which was loudly applauded, Mr. Shutt spoke as follows :

LADIES AND GENTLEMEN,

I am sure you are all of one mind with me when I express very sincere regret at the absence of our President to-night. For some months past, not only the members of the Club, but their friends also, have been anticipating the pleasure of listening to his Inaugural Address this evening—a pleasure which, I trust, is not lost but only postponed.

I counted the Club especially fortunate, when at our last annual meeting we prevailed upon Dr. Geo. M. Dawson to accept the Presidency of our Society. We were indeed, fortunate, in securing as our Chief Officer, a man of such high scientific standing ; of such eminent ability ; of such deep and thorough culture. A man so widely read and so widely travelled, and withal, so genial a gentleman as Dr. Dawson. As most of us are aware, the distinguished honour was con-

ferred upon him some time ago, of being appointed one of the Commissioners in the Behring Sea Arbitration, now pending between us and the United States. It was only three weeks ago, and after he himself had fixed upon this date on which to deliver his opening address, that he informed us that he was suddenly re-called to England in connection with his duties as Commissioner, and that consequently he would be unable to be with us this evening.

I do not pretend to fill his place. I merely, by reason of my office, and at the urgent request of the Council, take precedence on the programme.

Before entering upon the subject of my address, however, you will naturally expect me to say something regarding the growth, the welfare and the present standing of the Club. I propose, therefore, to bring before you very briefly, some of the more important facts and features in the Club's more immediate history. Such information should be of interest both to us, who are members, and to those who are with us for the first time to-night. It is the wish that every member should be a real, active, live member, doing *something* for his or her own educational good, and the furtherance of the interests of us all. Working members ought to know—must know—what the Club is doing and how it prospers, if the work is to be successful.

#### THE CLUB.

The Club is not composed, as some might imagine, of scientists. We make no such claim. The Club is made up of those who have some love for nature, in one or other of her phases; of those who are wishful to learn something more than they already know regarding animals and plants, and the "solid ground of nature;" of those who, thus learning, are willing to share with and impart to others such fragments of knowledge as they have been fortunate in adding to their store. As Dr. MacCabe rightly said, we are first and foremost, an educational society. Opportunities to learn and investigate are offered to our members, in winter and summer; let us see to it that we take advantage of them.

We have also another feature in our club life. I have been pleased to notice that we are a social Club, and to remark that there exists

between a large number of our members a great and enduring friendship. It is certainly worth recording that there is this feeling of fraternity among those banded together to study nature.

#### MEMBERSHIP.

Our membership roll now stands at 275, having gained 26 new members during the past year. This, I think, is a very creditable record. The prospects are that we shall still further increase in the near future, as there are unmistakable signs of increased vitality and activity. With much regret I announce the loss by death of four members. Of these, I might mention particularly, the Abbé Provencher, the well known entomologist of Quebec, and Mr. W. P. Lett, our respected citizen, who for so many years contributed towards our winter programmes, papers which were always listened to with great interest.

#### EXCURSIONS.

I must now refer briefly to our Excursions, which have become such a noted feature of our summer life. We have had three general excursions this year, two of which were to explore the enchanting district lately opened up by the Gatineau River R.R. The natural scenery of the Gatineau Valley, bold and romantic, has been enjoyed by all who accompanied us. Nearly five hundred took advantage of these opportunities to "naturalize," and the unanimous verdict was that these outings were a great success. The third general excursion was held to Casselman, on the Canada Atlantic Railway, but owing to the weather being unpropitious our attendance was small. The Saturday afternoon sub-excursions to points in the immediate neighborhood continued throughout the summer season.

#### JOURNAL.

During the past year, the OTTAWA NATURALIST appeared regularly and promptly, month by month. In it have been published many papers of more than passing interest and merit. The volume is one that reflects great credit upon the Club and its editor. For the arduous task of editing we owe our heartiest thanks to Mr. Fletcher, "the father of the Club," who has spared no pains in this, his labour of love, to produce the society journal of which we are deservedly proud.



## PROGRAMME,

The programme of the ensuing year is before you. Your Council have been at no little pains to prepare it. I believe it is one worthy of the Club, and I am sure it is one sufficiently varied to prove interesting to all. Our speakers are well known men in science, and they have selected subjects upon which they can speak as those in authority. I would earnestly invite such an attendance at our meetings as will show those who are thus working for us that we appreciate their efforts. I can confidently assure you that a regular attendance will not only give encouragement to those who address us, but also embue the listener, with that interest which results in benefit to themselves, and in the acquirement of much useful knowledge.

In conclusion, allow me to offer you four short rules for the coming year :

1. Attend the meetings regularly.
2. Read the Journal.
3. Go to the Excursions.
4. Pay your membership fee.

These are simple and easy to remember, and if faithfully carried out will make the Club still more successful than it has been in the past.

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Mr. Shutt's lecture on Ventilation, entitled "The Air of our Houses," which here followed, will be printed in a future number.

ED. O. N.

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### A GREAT ALMAMAC.

The *Star* Almanac of Montreal is just out. It is a splendid thing. Everybody should have it, if they can possibly get it. It is being sent abroad in large numbers.

REPORT OF THE ENTOMOLOGICAL BRANCH FOR  
THE YEAR 1891.

(Read February 25th, 1892).

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

GENTLEMEN,—The leaders appointed in the section of Entomology have to report that they were not able to devote to their allotted duties, as much time as in former years. The prolongation of the session of Parliament during the collecting season, absence from the city, and other causes made it impossible for them to do as much work as they looked forward to accomplishing.

During the early part of the season very good collections of Hymenoptera were made, including about seventy-five kinds of Sawflies, of which two or three are undescribed species. An interesting outbreak of an imported sawfly was that of *Fenusa varipes*, St. Farg. (= *melanopoda*, Cam.) upon European alders at the Experimental Farm. This insect has become a serious pest and produces two broods during the season; the larvæ mining between the upper and lower surfaces of the leaves, and giving the foliage a very blotched and unsightly appearance. The imported Larch Sawfly (*Nematus Erichsonii*, Hartig.) still commits serious injury to the tamaracs (*Larix Americana*), in the neighbourhood, and the trees over many acres of swamp have already been killed.

A very interesting lot of small Hemiptera, chiefly homoptera, was also collected, which is now in the hands of Mr. Van Duzee for determination, and he writes that the lot contains some choice species. This district seems to yield a large variety of hemiptera, and the list of species already known is quite extensive, although no member has given them the special attention which they deserve.

The collections in Coleoptera were inconsiderable, and added little to our knowledge of this order, although many of the families still require special attention, and a systematic search should be made for species which in all probability occur here, but which have so far been overlooked.

In Lepidoptera the season was particularly unproductive, although as usual a few rare species rewarded the persistent collector. An

expedition to Chelsea in search of *Thecla Niphon* only resulted in the capture of a single specimen, although all the circumstances seemed favourable: the weather was warm and clear and the meadow where it was taken in abundance in 1830 was copiously decked in every direction with the flowers of *Antennaria plantaginifolia*, its favourite plant. Early in the spring the Canker Worm (*Anisopteryx pommataria*) appeared in destructive numbers in some of the apple orchards near the city and also greatly defoliated basswoods, ashes, etc., in the neighbouring country. The Eye-spotted Bud-moth, another pest of the apple, was also exceedingly troublesome, destroying the forming bunches of blossoms, and also boring down into the heart of the fruit spurs. Two other small moths belonging to the *Tortricidae* also beset the apple trees to a serious degree. These were *Cacaesia rosaceana*, a leaf roller which feeds on various plants besides the apple, and *Lophoderus quadrifasciana*, Fern., a small apple-leaf roller. Experiments were tried for controlling all of these, and it was found that spraying with a weak mixture of Paris Green was the most successful treatment. Locally the Black Army Worm, *Noctua fennica*, appeared in destructive numbers and committed serious injury to crops, particularly peas and clover. A fine specimen of the large and rare moth *Erebus odora* was taken by Mr. Martin Griffin, jr., and presented to the Museum of the Geological Survey. This moth has upon a few occasions been taken in Canada, but it belongs to the West Indian fauna, and it is supposed that the specimens taken in Canada have flown here from the Southern States or the West Indies. *Acronycta funeralis*, a rare and very pretty species, was bred from white birch. The caterpillar is blackish-green, and is marked on each segment along the back with an orange blotch, which bears long flattened hairs of a quill-like consistency. The caterpillar was taken almost full grown in June, and the moth emerged in August.

W. H. HARRINGTON.	} <i>Leaders.</i>
JAMES FLETCHER.	
T. J. MACLAUGHLIN.	

## LIST OF COLEOPTERA.

COLLECTED IN 1883-84 BY MR. T. C. WESTON ON AND IN THE VICINITY  
OF THE CYPRESS HILLS, N.W.T.

BY W. HAGUE HARRINGTON.

1. *Calosoma calidum*, *Fab.*
2. " *cbsoletum*, *Say.*
3. " *Zimmermanni*, *Lec.*
4. *Pasimachus punctulatus*, *Hald.*
5. *Amara obesa*, *Sav.*
6. " *sp.*
7. *Anisodactylus semipunctatus*, *Lec.*
8. *Dytiscus dauricus*, *Gehl.*
9. *Necrophorus tomentosus*, *Web.*
10. *Silpha Americana*, *Linn.*
11. *Coccinella monticola*, *Muls.*
12. *Saprinus lugens*, *Er.*
13. *Buprestis fasciata*, *Fab.*
14. " *rusticorum*, *Kirby.*
15. *Pœcilonota ferrea*, *Melsh.*
16. *Aphodius occidentalis*, *Horn.*
17. " *sp.*
18. *Diplotaxis punctipennis*, *Lec.*
19. *Tragosoma Harrisii*, *Lec.*
20. *Criocephalus productus*, *Lec.*
21. *Monohammus maculosus*, *Hald.*
22. " *scutellatus*, *Say.*
23. *Chrysomela elegans*, *Oliv.*
24. " *multipunctata*, *Say.*
25. *Upis ceramhoides*, *Linn.*
26. *Asida sordida*, *Lec.*
27. *Eleodes tricostata*, *Say.*
28. " *extricata*, *Say.*
29. " *gentilis*, *Lec.*
30. " *hispidabris*, *Say.*
31. *Nemognatha lurida*, *Lec.*
32. *Epicauta maculata*, *Say.*
33. " *sericans*, *Lec.*
34. *Cantharis Nuttalli*, *Say.*

## ENTOMOLOGY.

EDITED BY W. HAGUE HARRINGTON.

The family Carabidæ contains a large number of species of beetles of predaceous habits, and consequently of importance to mankind in destroying the larvæ of obnoxious insects. The beetles are easily found, as they mostly hide during the day under stones or similar shelters, and many of the species are so abundant as to be seen hurrying off whenever any stone or piece of wood is turned over in a field or similar locality. The largest and most conspicuous of the Ottawa species of Carabidæ belong to the genus *Calosoma*, although they are nearly approached in size by *Harpalus coliginosus*, a large dull-black beetle, which inhabits sandy fields, but is not common.

*Calosoma calidum* is abundant in fields and gardens, where it does good work in destroying cutworms, and it is readily recognized by the three conspicuous rows of fiery spots, or foveæ, which ornament each elytron. Occasionally a specimen occurs in which the spots are bright green instead of coppery or golden red, and in the west such coloration is more common. Of a large number received from Rev. G. W. Taylor, of Victoria, about seventy-five per cent. have the green foveæ. This beetle has a wide distribution in Canada, extending from Nova Scotia to Vancouver Island.

The probable occurrence here of the large handsome green *Calosoma scrutator* has been noted in the present volume, and it is hoped that its presence at the capital may be verified. There is, however, a third species which combines some of the features of both the previous beetles, approaching *scrutator* in its shape and slender legs, but in colour resembling *calidum*, and also in the ornamentation of the elytra, except that the rows of foveæ, or punctures, are not so pronounced, and that they are green. This beetle is not often seen and may be classed with our rarer species of ground beetles. On 23rd May, 1883, a specimen was taken under a piece of driftwood on the lower end of Kettle Island, about three miles below the city, and it was several years before another was found, which was an accidental capture in the city on 28th June, 1891. Last year, on the 12th June, in a corner of the Hull beaver-meadow, on the margin of the woods, a large beetle was seen running in the grass, and on capture it proved to be the species in question: *Calosoma frigidum*.

Further search in the vicinity, among the grass and under some loosely-piled stones, resulted in the discovery of three more specimens, and subsequently, during an examination of the adjacent trees, which were almost defoliated by the caterpillars of the canker-worm moths, *Anisopteryx pomelaria*, another specimen was found in a tree evidently on a hunt for these larvæ. This local abundance of the beetles was doubtless due to the plentiful supply of food at hand. The caterpillars were continually falling in such numbers that the beetles would not have much occasion to ascend the trees to hunt for them. These devastating caterpillars had been almost equally numerous the previous year, especially upon the ashes which grow in the low moist ground under consideration, and *Calosoma frigidum* had evidently multiplied more than usually, since it had not previously been found in that neighbourhood. Any member desiring specimens of this handsome beetle is advised to search there for them next June. Two specimens of this beetle were also found in the city during the summer.

Some of the species of *Calosoma* are quite arboreal in their habits, searching aloft the larvæ upon whose succulent bodies they feed, but only on one occasion have I seen our common species *C. calidum* thus engaged.

On page 85 of this volume mention was made of a dipterous larva which feeds on the seeds of the so-called Canada thistle, and of a parasitic Calcid referred to as a Solenotus. This interesting parasite has been recently re-studied by Mr. Ashmead, who finds that it is really a Tetrastichid, and he has described it as *Cratopus Fletcheri* (Can. Ent. Vol. XXIV., p. 309). The only other recognized species of the genus is a European one, also reared from a species of thistle. The fly which thus attacks our thistle heads is widely distributed in Canada, and its parasites will doubtless be found accompanying it. In September, 1888, at Hillsborough, N.B., at the head of the Bay of Fundy, a large proportion of the heads had one or more larvæ or puparia, and the easily recognized parasite, *C. Fletcheri*, was abundant. Last September the fly was found to be present at all points examined along the Intercolonial Railway in Nova Scotia, and was so abundant at Sydney, C.B., that fully fifty per cent. of the heads were infested.

## THE GEOLOGICAL SOCIETY OF AMERICA.

The Fifth Annual and Winter Meeting of the Geological Society of America, as announced in the last issue of the *NATURALIST*, was held in Ottawa, Canada, beginning Wednesday, December 28th, 1892.

Through the kindness of Dr. J. G. Bourinot, C.M.G., of the Royal Society of Canada, and Clerk of the House of Commons, the ample and commodious Room of the Railway Committee of the House of Commons was placed at the disposal of the Society. There were about forty Fellows present—sixteen of whom came from various portions of the United States of America. The meeting was under the Presidency of Mr. G. K. Gilbert, Chief Geologist to the United States Geological Survey, Washington, whilst Prof. H. L. Fairchild, of the University of Rochester, was Secretary.

If we are to judge by the attendance and interest manifested at the meetings, as well as by the number and quality of the papers presented, there is no doubt that this meeting was a decided success.

A local committee composed of Fellows of the Royal Society, members of the Logan Club which comprise the scientific staff of the Geological Survey, etc., had made all necessary arrangements for the comfort and lodging of the members during the meeting. Dr. Selwyn as Chairman of the Committee, and Mr Smith as Secretary, spared no pains in giving the visiting Fellows of the Society a good reception.

The thanks of all are due to His Excellency the Governor General for the exceedingly kind and generous manner in which he devoted so much time and attention to the Society, besides furnishing the Fellows from a distance with an excellent opportunity of having a glimpse of social life at the Canadian capital by giving an "At Home" at Rideau Hall last Friday afternoon. To Dr. Ells, Mr. J. B. Tyrrell, Mr. Smith and others, much credit is also due for their exertions in making all necessary arrangements.

### THE MEETINGS.

Shortly after ten o'clock on Wednesday, the 28th ult., President Gilbert took the chair and called upon His Excellency the Governor General to give the address of welcome.

His Excellency delivered a very neat address which was received enthusiastically. To this the President replied and referred to the proverbial hospitality for which Canadians were noted.

The report from Council was then made and the result of the vote announced so far as conclusions were arrived at. The following leading officers were then declared elected:—

President . . . . .	Sir J. William Dawson.
Secretary . . . . .	Prof. H. L. Fairchild.
Treasurer . . . . .	Dr. I. C. White.

The Secretary's report, as well as that of the Treasurer, showed the Society to be in a flourishing condition.

Then followed obituary notices of three deceased Fellows: T. Sterry Hunt, J. S. Newberry, and J. H. Chapin. Prof. Raphael Pumpelly's notice of Dr. Hunt was read by Mr. Van Hise; that of Prof. Newberry, prepared by Dr. Kemp, was read by Prof. H. L. Fairchild; and Prof. Hitchcock read Mr. W. M. Davis's memorial of J. H. Chapin.

#### READING OF PAPERS.

The reading of papers or work proper of the Society began on Wednesday afternoon at 2 p.m. The following is a list of the papers, in the order in which they were taken up at the meetings. The whole time of the Society was taken up in reading and discussing papers until a late hour on Friday, the 30th December. Time and space do not allow us here to do justice to the interesting discussions on the papers presented. Both Glacial and Archæan Geology received a goodly share of animated discussion, whilst a few papers on palæontology also stimulated further enquiry. Dr. Willard Hayes's paper on "the new geology" was a splendid contribution to the geomorphology of the district examined by that author and described at the meeting.

#### LIST OF PAPERS.

- A. R. C. SELWYN—On the coals and petroleum of the Crow's Nest Pass, Rocky Mountains. (15 minutes).
- H. P. BRUMELL—On the geology of natural gas and petroleum in Ontario. (20 minutes).



- H. P. BRUMELL.—Note on the occurrence of petroleum in Gaspé, Quebec. (10 minutes).
- ELFRIC DREW INGALL—Some features of the phosphate bearing rocks of Ottawa. (15 minutes). (Read by title).
- SIR J. WILLIAM DAWSON—Note on sponges found in the Cambro-Silurian at Little Metis, Canada.  
(Read in the absence of the author by Mr. F. D. Adams.)
- J. F. WHITEAVES—Notes on the Devonian formation of Manitoba and the N. W. Territories. (5 minutes).
- HENRY M. AMI—Notes on Cambrian fossils from the Selkirks and Rocky Mountain Region of Canada. (15 minutes.)
- HENRY M. AMI—On the Potsdam and Calciferous terranes of the Ottawa Paleozoic basin. (10 minutes).
- R. D. SALISBURY—Distinct glacial epochs, and the criteria for their recognition.
- J. B. TYRRELL—Pleistocene phenomena in the region southeast and east of Lake Athabasca, Canada. (15 minutes).
- A. P. LOW—Notes on the glacial geology of the Northeast Territories. (20 minutes.)
- ROBERT CHALMERS—The height of the Bay of Fundy coast in the glacial period relative to sea level, as evidenced by marine fossils in the boulder clay at Saint John, New Brunswick. (20 minutes).
- W. J. MCGEE—The Pleistocene history of northeastern Iowa. (20 minutes).
- WARREN UPHAM—Eskers near Rochester, N.Y. (15 minutes).
- WARREN UPHAM—Comparison of Pleistocene and present ice sheets. (30 minutes.)
- G. FREDERICK WRIGHT—The post-glacial outlet of the Great Lakes through Lake Nipissing and the Mattawa River. (15 minutes.)
- N. H. DARTON—On certain features in the distribution of the Columbia formation on the middle Atlantic slope.

- GEORGE M. DAWSON—Note on the geology of Middleton Island, Alaska. (10 minutes). (Read by R. W. Ells.)
- WALDEMAR LINDGREN—Two Neocene Rivers of California.
- ROBERT W. ELLS—On the Laurentian of the Ottawa district. (20 minutes).
- ROBERT BELL—The contact of the Laurentian and Huronian north of Lake Huron. (20 minutes).
- W. H. C. SMITH—The Archæan Rocks west of Lake Superior. (15 minutes).
- ALFRED F. BARLOW—On the Archæan of the Sudbury mining district. (15 minutes).
- C. R. VAN HISE—The volcanics of the Huronian south of Lake Superior.
- CHARLES ROLLIN KEYES — Some Maryland granites and their origin. (10 minutes.) (Read by Mr. U. S. Grant).
- CHARLES ROLLIN KEYES — Epidote as a primary component in granites. (15 minutes). (Read by Mr. U. S. Grant).
- JAMES McEVOY—Notes on the gold range in British Columbia. (15 minutes).
- ISRAEL C. RUSSELL—A geological reconnoissance in the central part of the State of Washington. (25 minutes).
- R. W. ELLS—The importance of photography in illustrating geological structure. (10 minutes).
- J. W. POWELL—The work of the U. S. Geological Survey. (20 minutes). (Read by W. J. McGee.)
- J. S. DILLER—Cretaceous and Tertiary rocks of the Pacific States.
- T. W. STANTON—On the faunas of the Shasta and Chico formations.
- C. WILLARD HAYES and M. R. CAMPBELL — Geomorphology of the southern Appalachians. (25 minutes).
- N. H. DARTON—Overthrust faults in eastern New York (10 minutes) (Read by W. J. McGee).

The President's address on the "Problems of the Continents" was an admirable paper, which brings up and introduces a subject of paramount interest and importance. It serves as a preliminary basis for work in connection with the coming meeting of geologists at the International Congress, to be held in Chicago this summer.

Of Mr. W. J. McGee's public lecture, given in the new Auditorium of the Normal School, on the subject, "A Fossil Earthquake," seldom has an Ottawa audience listened to a clearer and more striking bit of inductive reasoning than this lecture. About 300 persons were present, and the lecture was illustrated by stereopticon views. Mr. H. N. Topley kindly assisted the lecturer in this matter.

After the reading of the last paper on the list and programme of Friday evening, three votes of thanks were unanimously passed by the Society.

The *first*, to the President and fellows of the Royal Society of Canada, for their invitation and attention during the Session of the Geological Society.

The *second*, to the Governor General, for his hospitality, and generous as well as the gracious interest he had taken in the meetings.

The *third*, to the Logan Club of Ottawa for its exertions in making the meeting a success.

One interesting feature of these meetings was the presence of the Premier of Canada, the Hon. Sir John Thompson, K.C.M.G., and of the Hon. T. M. Daly, Minister of the Interior and Geological Survey Departments, when Dr. McGee read the paper prepared by Major J. W. Powell, Director of the United States Geological Survey, on the work of that Survey. At the conclusion of the paper Sir John Thompson, Mr. Daly, M. P., and Dr. Selwyn took part in the discussion. The comparative work and usefulness of the Geological Surveys of Canada and the United States was an interesting as well as practical question to statesmen of both countries.

Altogether, the meetings were most successful and teeming with interest. They were brought to a close with hopes of having another similar gathering at no distant date.

H. M. AMI.



## SUMMARY

— OF —

# Canadian Mining Regulations.

## NOTICE.

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

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

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

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

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

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

**A. M. BURGESS,**

Deputy of the Minister of the Interior.

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

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