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December, 1892

THE  
\*OTTAWA NATURALIST\*

VOLUME VI. No. 8.



THE BEAVER (*Castor Canadensis*, Kuhl).

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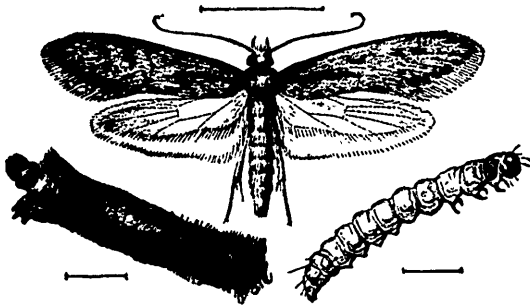
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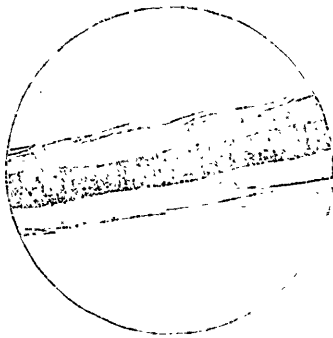
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## CLOTHES MOTHS.

FIG. 1.—Clothes Moth, *Tinca pellionella*, L.

A most remarkable specimen, due to the work of insects, has been sent to the Editor by Miss Lucy C. Eaton, of Truro, Nova Scotia. This consists of a piece of cotton ticking, which had been used for a pillow case, and the inside of which has been so completely covered with fragments of feathers as to have the appearance of gray velvet or plush. Without examining it under the microscope, it seems difficult to believe that the beautifully even surface can have been produced in the way described, but this is undoubtedly the case. Miss Eaton writes that the pillow was made in the fall of 1889, and not opened till two years afterwards. It was filled with turkey feathers, which are very soft and downy at the base. Miss Eaton noticed that when this pillow was placed on beds, although no one made any remarks, she more often than not found it on the floor in the morning. After a time, suspecting nothing, she put it on her own bed, when the mystery was solved, for she says "I could not sleep for the noise like something crawling slowly back and forth." She turned it over and over, but it was no use, she was at last obliged to serve it as it had been served on so many previous occasions, and once more it was thrown to the floor. Some months after, upon opening the pillow, the whole inner surface was found to be entirely covered with a coating of velvety pile, and the feathers, some specimens of which were forwarded, were entirely stripped of down, which was cut into morsels almost as fine as dust. From the extent

the damage Miss Eaton expected to find an insect of the size of a grasshopper, but found instead only the empty cocoons of the caterpillars of the small Clothes Moth (*Tinea pellionella*, Linn.) shown admirably in the excellent cut (Fig. 1) which has been kindly lent by Dr. C. V. Riley, the U. S. Entomologist. The felting of the ticking was due to the barbed nature of the morsels of feather. The plumules of feathers and the down of many animals when highly magnified are found to be invested with minute barbs, all pointing the same way. The feathers were cut up by the caterpillars of the moths feeding upon them, and the minute barbed portions of the feathers by the movement and shaking of the pillow were brought in contact with the pillow case.



Beaver fur. Magnified 250 diameters.  
From Martin's CASTOROLOGIA, p. 132.

These morsels, if short enough, had sufficient rigidity to work their way into the cotton cloth, and were at once fastened there by their own barbs. The value of these barbs in the making of felt is explained in a most interesting manner in Mr. Horace T. Martin's excellent work "Castorologia," where he describes the manufacture of felt from "beaver wool,"

for the shapes of hats, and shows the nature of the barbs or "staple" of this wool by the magnified illustration (Fig. 2), which he has been kind enough to lend us. In this illustration, a hair of beaver wool is shown magnified 250 diameters.

The Clothes Moth *Tinea pellionella*, as well as the other two species of Clothes Moths found in this country, *Tinea tapetzella* with black and white wings, and *Tineola biselliella*, with pale, silvery, fawn-coloured wings, is an immigrant from the old world.

1. *Tinea pellionella*, Linn., in the perfect state, is a small, gray moth, with three or four black spots on the wings. These lie flat over the back. The caterpillar lives in a short, muff-shaped case, which it carries about with it. (Fig. 1).

2. *Tinea tapetzella*, Linn. The moth has the base of the wings black and the tips white or gray. The caterpillar lives always in a tube which it spins through and over the article it is destroying, working into it particles of the cloth or other material attacked.
3. *Tineola biselliella*, Hum. The moth is silvery fawn-coloured with the wings sloping when at rest. The caterpillars pins only a slight tube or path of silk on its food or is frequently found uncovered. When full grown it spins a close cocoon something like the case of No. 1, but rounder at the ends and less regular.

These all pass the winter as caterpillars without feeding and change to chrysalides and a little later to moths in the spring.

No article, however short, upon these troublesome insects would be complete without some suggestions as to the best means of preventing their injuries. The whole damage is done by the caterpillars and none by the perfect moths.

The habits are as follows: The moths which lay the eggs from which the caterpillars hatch, appear in spring and through the summer. These fly to any object composed of suitable food for their young to feed upon, and lay eggs which hatch into minute caterpillars; these feed till winter and then remain torpid through the winter changing to moths the following spring. When possible all articles of clothing liable to attack should be well shaken, brushed and put away in tightly closed paper parcels before the moths appear in spring. The caterpillars only feed on animal substances, therefore articles wrapped in paper, cotton or linen are safe. Clothes which are not packed away before the moths show themselves should be hung in a conspicuous place where they will not be forgotten so that they may be frequently shaken or brushed.

Carpets, furniture, or furs which have become infested may be sprinkled or saturated with benzine or gasoline which will destroy all insect life. Care must, of course, be taken not to have a light near when these inflammable substances are being used.

Putting camphor, naphthaline, pepper and cedar amongst clothes, have the effect of keeping the moths from laying their eggs upon them to a large extent, but they are not sure remedies.—J.F.

THE WINTER HOME OF THE BARREN GROUND  
CARIBOU.

By J. B. TYRRELL, M.A., F.G.S., F.G.S.A.

Among the few large animals still found in great numbers on this continent, the Barren-ground Caribou (*Rangifer Grænlanicus*, Linn.) is probably the most interesting and important. It is the principal occupant of the great lonely wastes that extend southward from the shores of the Arctic Sea, not only in America but also in Europe and Asia. The Indians who people the northern part of Canada, including the Chipewyans, Yellow-knives and Dog-ribs, subsist very largely on its flesh, while its light warm skin with its thick covering of light grey hair furnishes them with beds and winter clothing, and the tanned hides, sewed with the sinews from the back, supply them with footgear and comfortable tents. In fact all their necessities, except their ammunition, tea and tobacco and a small amount of summer clothing, are supplied by the Caribou.

In size the Barren ground Caribou is much smaller than the woodland species, an adult female shot by the writer near Lake Athabasca being about as large as the common Virginia deer of this vicinity, and weighing about one hundred and fifty pounds; while an adult male of the woodland species, obtained in the rocky country east of Lake Winnipeg, the head of which is now in the Museum of the Geological Survey, weighed between three and four hundred pounds.

The horns are very large and irregular, very few of them being alike, and all being apparently unsuited to travel through the thick woods. The males are said to shed their horns in November, while the females retain theirs throughout the winter and shed them early in the following spring.

Their winter coat of long hair is shed early in July, and by August or the beginning of September the hide is in excellent condition, and the hair is soft and not too long, so that at this season the Indians endeavour to kill a sufficient number to furnish themselves with clothing for the winter. Later in the year the hair becomes harder and more brittle, and the hide is said to be riddled with holes made by the larvæ of a bot fly.

In summer these deer live on the great rocky wilderness that extends from a short distance north of Athabasca and Reindeer Lakes, between Great Slave Lake and Hudson's Bay, to the Arctic Ocean. In the autumn they collect together in large bands and move southwards into the wooded country where they spend the winter, leaving again for the Barrens in the early spring.

During the present year the writer spent the summer in one of their favourite wintering grounds in the hitherto unexplored region north of Churchill River and south-east of Lake Athabasca. Almost all of the deer were at the time away to the north, but a few stragglers had remained behind.

Our party entered the country by ascending the Caribou River, a stream about as large as the Rideau, flowing into Churchill River 225 miles north of Battleford. On the first of July it was found to be at its extreme high water level. Its banks were overhung with willows, and its bed was quicksand, so that we could neither track nor pole, but were obliged to ascend it with the paddle against a heavy and constant current. The river flows in a wide valley, with high granite ridges at some distance back on both sides.

As the river is ascended, poplar, white spruce, and all underbrush gradually disappear, and the country becomes generally wooded with Banksian Pine, with Black Spruce in the wet places, and great stony tracts devoid of timber of any kind. We have now reached the winter home of the Caribou which in this region stretches northward from about Lat  $56^{\circ} 45'$ . It consists of long almost bare hills of Archæan rocks, separated by wide valleys, the bottoms of which are filled with sand and ridges of boulders. In these valleys lie many small lakes, on the shore of one of which, near the head of Caribou River, the Hudson's Bay Company established a small trading post last autumn, and traded with the Indians throughout the winter, but in spite of the fact that meat is abundant the Indians are not going back there this winter and the post has been abandoned.

The Indians report that the deer collect on the frozen surface of these lakes during the day in immense herds, and are readily killed as long as the desire remains to shoot them, or till the whole herd is



exterminated. My informants stated that last winter the hunters killed from one to three hundred deer apiece. Besides deer a fairly successful hunt of fur-bearing animals was also made.

This region, so full of magnificent game every winter, is very easily accessible, and a party of hunters could spend a few weeks among the deer without the least discomfort and at the same time have glorious sport. The railroad runs to Prince Albert and from there the winter home of the Caribou is only 250 miles in a straight line, a distance that could readily be covered in a week with dogs, and three forts of the Hudson's Bay Company would furnish stopping places on the route—Isle à la Crosse, the most northerly of the three, is the home of Mr. H. G. Moberly, the officer in charge of the whole district, and a keener sportsman, a pleasanter host, and a more genial companion cannot be found in the west.

Farther to the north, at Fond du Lac, near the east end of Lake Athabasca, a venerable old half-breed named José Mercredi, a native of Red River, has kept one of the Trading Posts of the Hudson's Bay Company for the past forty-seven years, supplying a band of about 80 Chipewyans with ammunition, tea, tobacco and the few other products of civilization which they require, receiving in return a large amount of Caribou meat, in the form of dried meat and pemican, which is sent to assist in supporting the people at Fort Chipewyan and other less favoured posts on Athabasca and Slave Rivers. Fond du Lac itself is situated at a narrow part of the lake on one of the main paths used by the Caribou southward, and Mercredi informed me that for a week or more in the autumn the deer can be killed in great numbers from the door of the Post as they pass through the yard and among the houses. Several of the men were said to have killed as many as four hundred during the past year.

—————:O:—————

### OVIS CANADENSIS DALLI, *Nelson.*

By R. G. McCONNELL.

While crossing the Rocky Mountains, in 1888, from Fort Macpherson on Peel River to Lapierre House on the Porcupine, Lat. 67° 40' N., the writer was fortunate enough to come across the interesting

variety of the Mountain Sheep known as *Ovis Canadensis Dalli*, Nelson. The specimen seen was shot on a steep rocky slope near the summit of the range, and in rolling down, the skin and horns were injured so severely as to render them useless as specimens. This variety of the Mountain Sheep differs from the type of the species in its smaller size, in its uniform white colour, and in the slenderer build of the horns, but all these characters appear to be variable. The first information in regard to this animal is given in a short article by Mr E. W. Nelson in the proceedings of the U. S. National Museum, Vol. VII., p. 12, 1884. (See also Report upon Natural History collections made in Alaska between the years 1877 and 1881 by Edward W. Nelson, p. 282, issued in connection with the Signal Service U. S. Army, 1887. Mr. Nelson in this article describes the colour as a dingy white and states that the hairs are tipped with a speck of rusty colour. Lieut. H. T. Allen, U.S.A., on the other hand in a letter in "Science," Vol. VII., p. 57, 1886, states that the sheep seen by him on the head waters of Copper River, Alaska, were by no means dingy, but were, in fact nearly as white as their surroundings of snow. The latter statement agrees with my own observation, as the animal shot by my Indians was almost pure white. Another variation in colour was reported to me by some miners on the Yukon, who described some sheep shot by them on the upper part of this river as having a brown patch on both sides behind the fore shoulders, and referred to them as the "Saddle-backed Sheep." The latter probably mark a stage in a progressive change in coloration from the nearly uniform dull-brown of the normal species to the pure white of the northern variety.

The diminution in size of the northern sheep is even more remarkable than the change in coloration. Those shot in the southern part of the Canadian Rockies range in weight up to three hundred pounds, while the sheep brought into Fort Macpherson from the mountains west of Red River, according to Mr. Hodgson the officer in charge of that post, seldom exceed a hundred pounds in weight. Some of the specimens seen by Lieut. Allen, U.S.A., on the high snowy mountains at the head of Copper River, Alaska, are described by him as being as large as the ordinary Big-horn, while others met with only a

short distance away and at a lower elevation were very much smaller. It would appear from this that the decrease in size toward the north is not constant and cannot be altogether dependent on climatic conditions.

The light-coloured variety of the Mountain Sheep ranges along the Rocky Mountains from the Arctic Ocean southward, so I am informed, to the great break in the chain through which the Liard flows (Lat. 59° 30' N.). It is also found on all the higher mountain ranges of Alaska and the adjacent part of the North-Western Territory of Canada. It is not found east of the Rocky Mountains nor does it occur, according to the information I obtained from fur traders and others, in the continuation of the Rocky Mountains south of the Liard.

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#### NATURAL SCIENCE IN ILLINOIS.

The opening of the Natural History Hall of the University of Illinois, at Champaign, Ill., on 16th November last, shows the high appreciation of Economic Science in the Western States, where the "making of money" is supposed to be the sole consideration of all classes of society.

The building and equipment of such an Institution as is described below, proves that if even the most abstruse scientific investigations can only be shown to be of public utility, the necessary money will be forthcoming for their prosecution. This Natural History Hall may be considered to be a monument to Prof. S. A. Forbes, the eminent State Entomologist of Illinois, to whose unceasing and well directed efforts its completion is so largely due. Prof. Forbes is too well known as an accomplished investigator in various fields of Natural History, to make a detailed notice of his work necessary here. He was appointed to his present position in 1882, and, in addition to his official reports as State Entomologist, has issued many valuable papers in scientific publications. His studies of the food habits of birds and fishes are of the highest merit. He is now engaged in the preparation of the second volume of the Ornithology of Illinois. Part I, already issued, is a Descriptive Catalogue (520 pages, 33 plates), by Dr. Robert Ridgway; Part II, Economic Ornithology, will be the work of Prof. Forbes. These volumes are the first of a series on the Zoology and Cryptogamic Botany

of the State of Illinois, authorized and provided for by the Legislature in 1885, and will be prepared under the direction of the Illinois State Laboratory of Natural History.

In the autumn of 1890, the Editor had an opportunity of visiting Champaign, and was kindly shown over the entomological and botanical laboratories by Professors Forbes and Burrill, and is therefore able to form some idea of the excellent methods of work adopted at the University of Illinois, in the branches of research over which these gentlemen preside.

Having no doubt that some account of this splendid addition to the facilities for the prosecution of good natural history work in North America would be of interest to our readers, the editor wrote to Prof. Forbes, asking him to give some data concerning the Institution itself, and the dedicatory ceremonies. In reply to this request the following letter was received :

CHAMPAIGN, ILLINOIS, U.S.A., November 18th, 1892.

Your kind note and the copy of the "OTTAWA NATURALIST" were duly received and especially appreciated. I am pleased that you thought of making some mention of our new building, and take pleasure in giving you such particulars as it seems to me you are most likely to want to use.

The building was put up at an expense of \$70,000, exclusive of furnishing, appropriated by the State Legislature. It is 134 feet in length by 94 in width, and three stories in height above the basement. There is a spacious, well-lighted central hall, around which on all sides are situated laboratories, lecture rooms, closets, store rooms, and dark rooms, a full series for each department.

As an example of the arrangement and equipment of this building a general description may be given of the provision for zoology. The students' laboratories in this department are three in number on the first floor—for elementary, advanced, and postgraduate work respectively. In the first, table room is given for thirty students: in the second, for sixteen; and in the last, for ten. Adjoining the first is the private laboratory of the Assistant in Zoology, and next this the lecture room. Directly over the Assistant's laboratory is that of the Professor

of Zoology, and over the postgraduate laboratory is his private office. On this second floor are also the rooms of the State Laboratory of Natural History, consisting of an assistant's laboratory 21 x 36 feet, a collection room of the same size, a library 23 x 32, and a room for the artist of the establishment. In the basement of the building is a very large store room for the department, and an animal room to be fitted with aquaria, animal cages, and the like.

The zoological laboratories are furnished with an abundance of microscopes, and with microscopic apparatus, including first-class microtomes, an incubator, and an imbedding apparatus. A full equipment for field work in the various departments is at the service of the students, and the library and collections of the State Entomologist and the State Laboratory of Natural History are also made accessible to them under suitable restrictions.

On the third floor are the zoological collection rooms, containing the material required to illustrate the work of the department.

Intimately associated with the zoological department of the University, and practically merged with it since 1884, is the work of the Illinois State Laboratory of Natural History and that of the office of the State Entomologist of Illinois; the former consisting essentially of a systematic and thorough-going investigation of the zoology and cryptogamic botany of the State, the results of which are in process of publication by the legislature, and the latter of entomological investigations whose main end is economic, but whose product is largely scientific and educational. Both these departments of work, although supported by appropriations independent of those of the University, are directed by the head of the zoological department of University instruction, and provided with quarters and facilities in Natural History Hall.

Our dedicatory exercises were completely successful. Dr Jordan did us the very great kindness to come all the way from California for the express purpose of delivering the principal address, and Professors Trelease and Winchell also contributed very interesting papers. There was a considerable attendance of scientific men of this and adjoining States, and others would have been here had we been able to announce

our programme earlier. The dedicatory exercises proper were followed in the evening by a lecture by Dr. Jordan on "Agassiz and his Influence," and a Faculty reception to the invited guests.

The addresses and some accompanying papers will be published as soon as practicable, for general distribution, in a small illustrated book.

Sincerely yours,

S. A. FORBES.

The following is a list of some of the papers read on the above occasion :—

"Development of the Natural History Departments"—Prof. T. J. Burrill.

"Science and the American College"—Dr. D. S. Jordan.

"The Laboratory as a necessary part of the College equipment"—Prof. Wm. Trelease.

"The methods of Geology"—Prof. N. H. Winchell.

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### BOOK NOTICES.

#### I. GRASSES OF THE PACIFIC SLOPE, including Alaska and the adjacent Islands.

Part I. By DR. GEORGE VASEY.

The above volume, consisting of 52 exquisite plates, has just been issued as Bulletin 13 of the United States Division of Botany. In the introduction, Dr. Vasey says: "The grasses which are known to grow on the Pacific slope of the United States, including Alaska, number not far from 200 species. These are all specifically distinct from the grasses growing east of the Mississippi River, and also mainly distinct from the grasses of the plains and of the desert, except in that part of California which partakes of the desert flora. A considerable number of the grasses of the mountain regions of California, Oregon and Washington reappear in the mountains of Idaho, Montana, and the interior of the Rockies." In this Bulletin are figured for the first time, and described, several grasses conspicuous in size and apparent utility. This fact gives the work great value, not only to botanists, but also to the large number in the west, now interested in the raising of domestic animals.

It is of special value to Canadian botanists, from the comparatively large number of rare and little known species figured, which are mentioned in Professor Macoun's Catalogue; but which very few besides the Macoun's, father and son, have ever seen.

The following is a list of the species mentioned in Prof. Macoun's Catalogue which are figured in the present work:—

Agrostis æquivalvis, <i>Trin.</i> . . . . .	Macoun's Cat. No. 2778 (Deyeuxia.)
“ humilis, <i>Vasey</i> . . . . .	“ “ 3204
Alopecurus alpinus, <i>Smith.</i> . . . . .	“ “ 2729
“ geniculatus, <i>L.</i>	
<i>var. robustus, Vasey</i>	“ “ 2730
“ Howellii, <i>Vasey</i> . . . . .	“ under 2730
“ Macounii, <i>Vasey.</i> . . . . .	“ No. 2731
“ saccatus, <i>Vasey</i> . . . . .	“ under 2730
Calamagrostis Aleutica, <i>Trin.</i> . . . .	“ No. 2779 ( “ )
“ crassiglumis, <i>Thurb.</i> . . . .	“ “ 2783 ( “ )
“ deschampsoides, <i>Trin.</i> . . . .	“ “ 2784 ( “ )
“ purpurascens, <i>R. Br.</i> . . . .	“ “ 2791 ( “ )
Deschampsia cæspitosa, <i>Beauv.</i>	
<i>var. arctica, Vasey.</i>	“ “ 2804
Stipa occidentalis, <i>Bol.</i> . . . . .	“ under 2738
Trisetum canescens, <i>Buckley.</i> . . . .	“ No. 2809
“ cernuum, <i>Trin.</i> . . . . .	“ “ 2810

The descriptions of the species are stated to be almost wholly the work of Assistant Botanist, Prof. I. H. Dewey, and the beautiful figures are drawn chiefly by Messrs. T. Holm, W. R. Scholl and F. Muller.—J. F.

## 2. THE PORTLAND CATALOGUE OF MAINE PLANTS.

Under the auspices of the Portland Society of Natural History, Prof. Geo. L. Goodale, and the late Rev. Joseph Blake, published in 1868 the first edition of a “Catalogue of Maine Plants.” The second edition, just out, has been prepared by Mr. Merritt Lyndon Fernald, of Cambridge, Mass., and contains additions to the ‘old list,’ besides

the results of a careful examination of the herbaria of some twenty botanists of Maine, to whose collections the author had access. This new catalogue is intended to be an introduction to a much more annotated list of plants, which, it is hoped, may be published within a few years. The plants of Maine, and those of the Maritime Provinces and adjoining portions of the Province of Quebec, are very similar, and a careful comparison between the records obtained in these sections of North Eastern America, will soon reveal the vast amount of work—good work—that has been and is being done; also of the geographical distribution of certain forms in various conditions, such as these Atlantic provinces afford.

The Portland Society of Natural History deserves commendation for the neat and careful way in which the Catalogue has been published.

H. M. AMI.

#### ORNITHOLOGY.

EDITED BY A. G. KINGSTON.

A fine specimen of the White-headed Eagle (*Haliaeetus leucocephalus*) was shot by Mr. Edward White about the middle of November in a marsh near Rockland, about twenty miles east of the city. It was a young male, and measured 6 feet 9 inches across the extended wings. This bird is becoming exceedingly rare in the settled parts of Canada.

A curious instance of aberration from the usual nesting habit in the Chimney Swift (*Chætura pelagica*) came under the writer's observation in October last at Aylmer, Elgin Co., Ont. Instead of the seclusion of a hollow tree or disused chimney, the birds had chosen in this case to establish their home in a small outbuilding near the railway station. Despite the fact that persons were frequently passing through the building, the little cup of twigs had been glued against the wall about five feet from the floor. The marks of attachment and a few broken twigs still adhered to the wall when found, but the greater part of the nest had been torn down and laid upon a shelf close by.—A. G. K.

#### GEOLOGICAL SOCIETY OF AMERICA.

In response to an invitation from the ROYAL SOCIETY OF CANADA and the LOGAN CLUB, the Fifth Annual Meeting of the Geological



Society of America will this year be held in the City of Ottawa, beginning on Wednesday, December 28th, and lasting for three days.

Through the kindness of Dr. John G. Bourinot, C.M.G., the President of the Royal Society of Canada, the general meetings will be held in the Committee Rooms of the House of Commons. Addresses of welcome will be presented to the visitors by His Excellency the Governor General of Canada, and by the President of the Royal Society. It is also expected that a Popular Lecture, illustrated by lime light, will be given on the evening of the first day, and for this purpose Dr. MacCabe has kindly placed at the disposal of the Society, the large new Lecture Hall of the Normal School.

It is understood that all the meetings will be open to the public, and there is no doubt that many valuable and interesting papers will be submitted.

Prof. G. K. Gilbert, of the Geological Survey, Washington, is President of the Geological Society of America, and Prof. H. L. Fairchild, of Rochester, N.Y., is Secretary, both of whom will be present, and there are in Ottawa no less than 16 members of the staff of the Geological Survey Department, who are also members of the Society.

The programme is not yet completed, but the titles of several excellent papers have already been sent in, and doubtless many more will yet be received.

The annual Dinner of the Society will be held, conjointly with that of the Logan Club, on the evening of December 29th, at the Russell House, which will be the headquarters of the Society during their visit.

Among other papers to be read, the following are by Ottawa members :—

“The Coals and Petroleums of the Crow’s Nest Pass” . . . . Dr. Selwyn.

“The Devonian of Manitoba and the N. W. Territories”

Mr. J. F. Whiteaves.

“The Laurentian of the Ottawa District” . . . . . Dr. R. W. Ells.

“Glacial Phenomena of the Athabasca District” . . . . Mr. J. B. Tyrrell.

- "The Archæan of the Sudbury District" . . . . . Mr. A. E. Barlow.  
 "Cambrian Fossils from the Rockies and Selkirk" . . Dr. H. M. Ami.  
 "On the Relation of the Potsdam and Calciferous" . . Dr. H. M. Ami.  
 "Natural Gas and Petroleum in Ontario" . . . . . Mr. H. P. Brumell.  
 "Glacial Phenomena of the North East Territories" . . Mr. A. P. Low.  
 "Notes on the Geology of the Gold Range" . . . . . Mr. J. MacEvoy.  
 "Notes on the Glacial Geology of the Bay of Fundy" . Mr. R. Chalmers.  
 "Notes on the Geology of Middleton Island, Alaska" . .  
 . . . . . Dr. George M. Dawson.  
 "Glacial Pot-holes in Canada" . . . . . Dr. Robt. Bell.  
 "Phosphate bearing Rocks of Quebec" . . . . . E. D. Ingall.  
 "The Archæan Rocks west of Lake Superior" . . Mr. W. H. C. Smith.

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#### EVENING LECTURES.

The first meeting of the Course of Thursday evening Lectures will take place on Thursday evening, Dec 15th, at 8 o'clock p.m., in the Lecture Room of the Normal School, which has been again placed at the disposal of the Club, through the kindness of Dr. J. A. MacCabe, the Principal.

It will be seen by the programme submitted herewith, that the subjects to be presented are of particular interest.

The usual course of Monday Afternoon Popular Lectures will not be given this season, owing to the large number of similar classes and lectures, which, for the present, render the course unnecessary. Owing to the unavoidable absence of the President, Dr. George M. Dawson, who has been summoned to England in connection with the Behring Sea arbitration, the inaugural address will be delivered by the 1st Vice-President, Mr. Frank T. Shutt.

As in the past, all of the soirées will be held in the Lecture Room of the Normal School, and will begin punctually at 8 p.m. They will last about an hour and a quarter. The Council is anxious to have it made known as widely as possible that admission to all these instructive lectures is FREE. Anyone wishing to attend may always be sure of a hearty welcome.

## PROGRAMME

1892—OTTAWA FIELD-NATURALISTS' CLUB—1893.

EVENING LECTURES, 8 P.M.

1892.

Dec. 15—Address of Welcome.....Dr. J. A. MacCabe, M.A.

Inaugural Address : " The Air of our Houses "—

Mr. F. T. Shutt, M.A., F.I.C., F.C.S.

1893.

Jan. 5 —" The Fauna and the Flora of the Selkirk Summits "—

Prof. John Macoun, M.A., F.L.S., F.R.S.C.

" The Mineral Waters of Canada " .. Mr. H. Peareth Brumell.

Report of the Botanical Branch:

Jan. 19—" Food in Health and Disease "..... Dr. L. C. Prévost.

Reports of the Entomological and Ornithological branches.

Feb. 2—" Narrative of a Journey in 1890 from Great Slave Lake to

Beechy Lake, on the Great Fish River." From the

Journal of Mr. James McKinley, officer in charge at Fort  
Resolution, H. B. Co..... Mr. D. B. Dowling, B.A. Sc.

" The Chemistry of Soils "..... Mr. A. Lehmann, B.S.A.

Report of the Conchological Branch.

Feb. 16—" The Development of Varieties, and the Multiplication of

Individuals in Horticulture " ..... Mr. John Craig.

" Notes on Rainy Lake District " .. Mr. W. H. C. Smith, C.E.

Report of the Geological Branch.

Mch. 2—" The Progress of Metallurgy in Canada "—

Mr. N. J. Giroux, C.E., F.G.S.A.

" My Aquarium "..... Mr. H. B. Small.

Report of the Zoological Branch.



## SUMMARY

— OF —

# Canadian Mining Regulations.

## NOTICE.

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

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

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

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

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

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

**A. M. BURGESS,**

Deputy of the Minister of the Interior.

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