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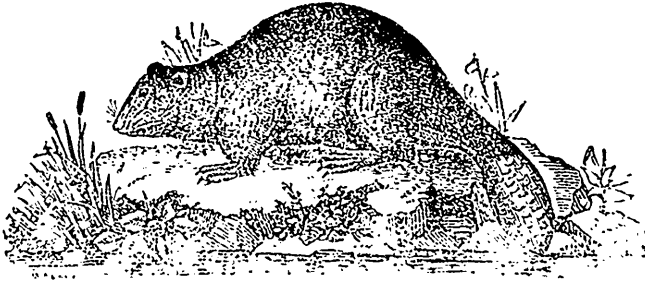
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December, 1894.

THE
* OTTAWA NATURALIST *

VOLUME VIII. No. 8.



THE BEAVER (*Castor Canadensis*, Kuhl).

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THE MAGNETIC NEEDLE.

By A. W. ELKINS, C.E., P.L.S., Lennoxville.

(Read at the Autumn Meeting of the General Mining Association of the Province of Quebec, at Sherbrooke, Que., September 27th, 1894.)

A slender bar of steel, charged with some of that mysterious, imponderable fluid or influence called magnetism, generally about five inches long and about one sixteenth of an inch thick, pointed or wedge-shaped at the ends, and provided at its centre with a cup shaped piece of very hard metal, or precious stone, so arranged that the bar may freely turn upon a pivot, is essentially the simple little instrument known to-day the world over as the Magnetic Needle, which possesses the wonderful property of remaining in a direction, or of turning upon its centre until it assumes a direction, nearly North and South, and this provides data from which the direction of the geographic poles of the earth can be inferred with a fair degree of accuracy.

Such is the essential part of the instrument, which, for at least seven centuries, has been the greatest boon to navigators, and of inestimable service to explorers of unknown territory.

The early history of this simple but invaluable contrivance is lost in antiquity. It is thought that the Chinese were its inventors; and one authority states that the Emperor of Ho-Ang-Ti, marching with his army against the enemy, finding himself embarrassed by fog, constructed a chariot which indicated the South. This was in the year 2634 B.C., and it is supposed that the Magnetic Needle was referred to; but the first time that it was explicitly mentioned was in a Chinese dictionary finished A.D. 121. However, its use to navigators was probably not generally known till the middle of the twelfth century.

In order to bring forcibly before you some of the wonderful properties of the instrument, I will arrange a needle so that its extremities will turn towards the poles.

I have here a common knitting needle about seven inches long, to which I have imparted some of that subtle, imponderable fluid or influence, generally described as magnetism.

Attached to the centre of this bar of steel is a fine silk thread by which I suspend the bar.

It will be noted that one end immediately turns towards the North and the other towards the South.

That end towards the North is called the North pole of the needle, or more properly speaking, the North Seeking Pole, for I will show you that the kind of magnetism that is at the North seeking end of the needle is different from the magnetism which attracts it towards the magnetic North pole of the earth.

I have here another needle, similar to the one suspended before you; this one has also the properties exhibited by the suspended one, that is, it is magnetized.

Now, upon bringing the North seeking pole of this needle towards the North seeking pole of that one which can turn freely, it is seen that the one I hold in my hand *repels* the other, and that the South end of one also repels the South end of the other; but the North end of *either* attracts the South end of the other. Therefore the magnetism of the so-called North end of the needle is not the same as the magnetism of the North pole of the earth.

An ordinary magnetic needle costs about two dollars, but there are circumstances under which it may, and often has suddenly risen from this trifling value to the enormous sum of three or four millions of dollars.

For instance, in the case of one of our costly modern ships of war. Imagine one of these giants of the ocean cruising in a storm on a dangerous coast, the sun, moon and stars obscured by clouds and rain; her commander unable to find anchorage must depend entirely upon that bar of steel for guidance, to save his ship and the lives of all on board.

Insignificant though the needle seems to be, there is no known substitute for it, under conditions such as I have named.

Though the value of the Magnetic Needle cannot be over-estimated, it is subject to changes, or influences, which are not perfectly understood and which at times cannot be successfully guarded against.

It is therefore necessary to use it, or to follow it, very cautiously, otherwise serious consequences might result.

The magnetic poles of the earth are not identical with its geographic

poles, and this difference which is indicated by the angle contained by the astronomic and magnetic meridians, is called the Declination of the Needle ; which difference is not everywhere the same.

In this Eastern part of America the direction of Magnetic North is about sixteen degrees *West* of true North ; whereas in British Columbia, it is about twenty degrees *East* of North ; and this declination is continually changing, to the extent of about five minutes in a year, the North end of the needle now gradually moving towards the West, in this Eastern part of America.

It is therefore of primary importance that, before using in any section of the country, its direction be ascertained by astronomic observation.

It is likewise subject to another change, known as the diurnal variation, which deflects it from its usual course about twelve minutes in twenty-four hours, and must be taken into consideration when using it : the maximum variation occurring about 2 p.m., after which it slowly returns to its former position.

In these northern latitudes the North end of the needle is drawn downwards, the extent of the inclination varying in different locations even in the same latitude.

It has been ascertained that the North magnetic pole is situated in about latitude seventy degrees North and longitude ninety-six degrees forty-six minutes West, which is a little North West of Hudson's Bay, and not far from Chesterfield's inlet.

The *magnetic equator*, does not correspond at all points with the earth's equator, but it is a curved line, in places a number of degrees from the equator proper.

On the magnetic equator the needle remains in a horizontal position ; but in southern magnetic latitudes the South end is drawn downwards in the same way that the North end inclines in northern magnetic latitude.

In order to counteract this dipping, and to keep the Needle in a horizontal position, a sliding counterpoise is placed upon most needles. *Sliding* because, as the instrument, from long use or any other circumstance, loses its magnetism, the North end dips less.

I have spoken of the changes that take place with a greater or lesser degree of regularity; there are others, sometimes very material, that cannot be accounted for and which require the constant watchfulness of the observer to detect. The greatest change of this unaccountable character, that has come under my personal observation, was a deflection of about forty-four minutes in eight or ten minutes of time. This was probably due to an electrical storm, which could not otherwise have been noticed.

The glass cover of the compass sometimes become charged with electricity, which causes the needle to *apparently stick* to the glass. This is of rather frequent occurrence. Wetting the glass immediately dispels the electricity.

Any state of the atmosphere in which electricity is an element, greatly effects the needle; electricity and magnetism being, it would seem, almost the same; the power of an electrical motor for mechanical purposes, being dependent on the magnetic force induced in iron by an electric coil surrounding it.

In many places a purely *local* attraction causes the needle to swerve from its general course, from five minutes to fourteen degrees, as noticed by myself during the twelve years I was actively engaged in surveying; and instances have been recorded where this local swerving exceeded twenty-five degrees.

These considerable deflections of the Magnetic Needle in certain localities are doubtless due to large deposits of magnetic substances. In the vicinity of Thetford and Coleraine the iron ore that is disseminated through the serpentine and so-called asbestos, attracts the needle very sensibly.

Navigators have to contend with another perplexing source of error in compass reading, which is not easily overcome, particularly in these days when iron enters so largely into the construction of ships and that iron so used sometimes effects the needle to a serious extent, and from causes that are not always apparent.

It is a well known fact that iron, remaining long in one position, sometimes becomes magnetic, and it has been found that portions of iron ships become magnetic. Now, the action of unmagnetised iron,

which at the beginning of a voyage attracted the North end of the needle, should it become magnetic, would *repel* the North end, under certain obvious conditions.

I believe it was recently discovered that the needle was influenced to a dangerous extent on a Man-of-war by the side arms of a sentry who passed near the compass and whose bayonet had become magnetised by having been stored near the ship's dynamo.

All of these irregularities of the needle may be successfully guarded against *in fair weather*, by frequent astronomic observations, but such observations require special instruments, which are not always obtainable.

In the absence of astronomic observations, the correctness of the work in hand depends upon the skill of the observer and his knowledge of the *capricious pranks*, so to speak, of this little instrument, which, with all its faults, is so marvelously useful.

With a view to increase the accuracy of compass surveys, I several years ago, invented and obtained a patent, in the United States, upon a little instrument which I called an Improvement on Transit Compasses, and it obtained considerable favor among surveyors: in fact, some of my confreres were kind enough to say that they thought that my instrument would supercede the plain sight compass.

The instrument consists mainly of a compass, rigidly attached to the upper side of a telescope turning upon trunions in a bitucated holder. It possesses many of the advantages of the heavy and expensive transit instrument, with the lightness and inexpensiveness of the compass, and it is therefore particularly desirable for surveys in places not easily accessible.

In ordinary so-called "line running" the surveyor would only use the needle at starting, after which required points in the great circle would be accurately determined by the use of the telescope, indicated in the cut of the instrument.

FAUNA OTTAWAENSIS.

HEMIPTERA.

By W. HAGUE HARRINGTON, F.R.S.C.

During the past season insects belonging to the Hemiptera appeared to be more than usually abundant, and this seemed especially to be the case with those belonging to the division Homoptera. Many species formerly scantily represented in my collections occurred in abundance. Altogether I collected one hundred species, of which about one-fourth prove to be additions to the lists previously published. Through the renewed kindness of Mr. Van Duzee I am able to furnish a list of these, although several of the species could not be named at present. In recording these species I take the liberty of adding, in some instances, Mr. Van Duzee's remarks on the specimens. I include also three additional species of *Aradus*, formerly sent to Mr. Van Duzee, and referred by him to Dr. Bergroth for determination.

HETEROPTERA.

Geocoris borealis, *Dall.* Aug. 25th, Kettle Island.

Melinna modesta, *Uhl.* July 23rd, Hull; 28th, Kettle Island.

Psallus sp. July 8th, Hull, common. "No. 9 is very common here (Buffalo). I have sent examples to Dr. Uhler, which have come back unnamed."

Plagiognathus obscurus, *Uhl.* July, 8th, Hull, two specimens.

Pilophorus amœmus, *Uhl?* July 21st.

CAPSIDÆ sp. July 29th, Hull. New to Mr. Van Duzee.

CAPSIDÆ sp. Aug. 18th, Kettle Island. Also new to Mr. Van Duzee.

CAPSIDÆ sp. Aug. 18th and 25th, Kettle Island; common. A pretty species with red markings, which has received from Dr. Uhler the ms. name of *Neoborus letus*. "No 7, I think, has never been described; the name was received from Dr. Uhler; it is common here on *Ligustrum*."

Triphleps latulus, *Reut?* Aug. 13th.

Tripleps insidiosus, *Say*. July 21st.

Aradus tuberculifera, *Say*. Two specimens.

Aradus similis, *Say*. Three specimens.

Aradus quadrilineatus, *Say*. Two specimens.

Brachyrhynchus sp. Two young individuals taken in May under a piece of wood on the island in the Mer Bleue.

HOMOPTERA.

Thelia acuminata, *Fab*. Aug. 14th. One specimen collected in the old race-course swamp. This interesting species is said by Mr. Van Duzee to be rare at Buffalo. It has also been recorded by him as occurring at Ridgeway, Ont.

Phypia? sp. near *nava* (*Flata*) *Say*. Aug. 5th, Russell's Grove, Hull. "No. 18 is a common form, but I cannot make it agree with any described species. It is certainly near *nava* *Say*."

Liburnia Osborni, *Van D*. Aug. 13th.

Pediopsis n. sp.? "No. 27, I think, is another new species."

Tettigonia bifida, *Say*. Aug. 1st, race-course; 12th, King's Mountain; 18th, Kettle Island. A very pretty insect striped with green and black.

Platymetopius frontalis, *Van D*? July 8th and 22nd, Hull. "No. 41 is in some doubt; it looks much larger and blacker than *frontalis* is here, but it doubtless belongs to that species."

Athysanus instabilis, *Van D*. Aug. 29th, Race-course.

Phelpsianus irroratus, *Say*. July 23rd, Kettle Island, two specimens.

Scaphoideus jucundus, *Prov*. July 18th, Kettle Island.

Thamnotettix r. sp.? July 18th, Hull. "No. 40 is a very interesting form, and is probably new; I have never seen anything like it before."

Typhlocyba sp. Aug. 5th and 19th, Hull. A pretty little yellow insect, with three transversal dark bands.

Typhlocyba sp. Aug. 14th, race-course; common. A pale green form.

Typhlocyba sp. Aug. 14th and 22nd, race-course; 18th and 25th, Kettle Island; common. Prettily marked with yellow and brown.

Typhlocyba sp. July 29th, Hull. A pale yellow species.

The following notes are added on species formerly recorded :—

Scolops sulcipes, *Say*. This species was recorded on the strength of an immature form, taken some years ago at Buckingham. A specimen was taken July 21st, while sweeping the small willows along the C. A. Ry. track, not far from Bank street. It is our most conspicuous example of the Fulgoridæ, and has the head produced in a long, up-curved horn.

Bruchomorpha oculata, *Newm.* This curious little insect was quite abundant during the last week of July and first week of August in borders of hay fields near Hull.

Idiocerus alternatus, *Fitch*. Very common, July and August.

Tettigonia hieroglyphica, *Say*. This pretty species was very abundant in the race-course, at Kettle Island, Hull and King's Mountain, in August.

Diedrocephala novæboracensis, *Fitch*. Very common in swamps.

Thamnotettix ruricola, *Fitch*. Also common in moist localities.

Phelpsianus incisus, *Van D.* Several examples of this fine species were taken at Hull in August.

Athysanus curtisii, *Fitch*. Taken at Hull, Kettle Island and in race-course in July and August.

Neurocolpus nubilus, *Say*. Very abundant upon the flowers of Sumach on July 8th.

Gargaphia tilie, *Walsh*. Abundant on basswood in August.

BOTANY.

Edited by John. Craig.

QUEBEC PLANTS. — In a collection of plants sent by Mr. N. K. Berg, who has spent the past season at Shipton in the Eastern Townships, the following interesting species were found — all of which were collected in the immediate neighbourhood of Danville, P.Q. *Vicia tetrasperma*, *Impatiens paleida*, *Heustonina cerulea*, *Sparganium minimum*, *Polygonum acre*, *Carex miliaris*, *C. torta*, *C. flava*, *Poa dubilis*, *Glyceria elongata*. — J. F.

NATIVE GRASSES. — I have received with much pleasure a beautiful collection of the native grasses of Central Ontario, from my nonoured and talented correspondent, Mrs. Catharine Parr Traill, well known as

the author of many valuable and entertaining works upon the history of pioneer life and the wild plants of Canada. This collection comprises about thirty species collected during the past summer near Lakefield, on the islands of Stony Lake, and along the shores of the Otonabee. This remarkable and untiring lover of nature is now in her ninety-third year; but her ardour seems to be still unabated, although she naively writes:

“I was only able to go over the more important islands, not being quite as strong for climbing the rugged dangerous rocks as formerly.”

Worthy of note in this collection are *Deschampsia flexuosa* from Hurricane Point and Fairy Lake, *Panicum xanthophyllum* from the islands of Minni-wa-wa, *Carex sychnocephala*, with *Carex tribuloides*, from the islands in Stony Lake.

We are also pleased to announce that Mrs. Traill is just about to issue another of her charming works on natural history under the attractive title of “Pearls and Pebbles,” which we feel sure will be read with pleasure and profit by many of her fellow members of this club.— J. F.

CUSCUTA EPITHYMUM, VAR. trifolii.—About the first of October of this year, I found this plant in a clover field belonging to Mr. Wm. Finley, at Ingleside, about 10 miles from St. John, N.B. Only a small patch of the field was infested with the parasite (a space not more than ten feet square), and this near the side of a road. So thick was it, however, that not only the clover stems, (*Trifolium pratense*), but every available stalk, even to the blades of grass, were thickly twined with it. I pointed out to Mr. Finley the dangerous nature of the parasite (the first appearance so far as I am aware in the Province of New Brunswick), and he has since ploughed it under.

St. John, Oct. 22, 1894.

G. U. Hay.

AN ARBORETUM FOR ST. JOHN, N.B.—In the St. John, N.B., *Globe*, under date Oct. 20, 1894, appears a letter by Mr. G. U. Hay, F.R.S.C., under the above heading. In this letter it is stated that the local Horticultural Association has been most successful during the past two years in decorating the public squares and, further, that land has been purchased for a public park. Mr. Hay then makes the following valu-

able suggestion : " Would it not be a good plan to set apart a portion of this park for an arboretum with the modest intention at first of planting there the trees and shrubs of New Brunswick ? " He estimates this could be accomplished in two or three years, and points out that part of the land secured is admirably adapted for the purpose, giving a fertile piece of meadow, a swamp and rocky ground. This plan would give the park a practical value in the eyes of manufacturers, and would interest all classes ; but its chief value would be from an educational standpoint. Students from the public schools could be taken there and receive practical instruction in forestry and botany. Mr. Hay concludes his letter as follows : " After the New Brunswick arboretum has become an accomplished fact, there might be added trees and shrubs from the same latitude in North America, Europe and Asia, such as may now be seen growing at the Experimental Farm, Ottawa. These would be valuable for comparison, and would serve to illustrate what trees valuable for industrial purposes could be transplanted with profit in this province.

We heartily approve of Mr. Hay's excellent suggestion and trust that he will be able to induce the local authorities to act upon it. We feel sure that the Botanical section of this Club will be pleased to do anything in their power in the way of helping with seeds and specimens, as many plants are common to both New Brunswick and Ontario.—J. F.

CONTRIBUTIONS FROM HERBARIUM OF GEOL. SURVEY OF CANADA. Can. Rec. Sc., Part I, January, 1894; Ibid, Part II, April, 1894. Montreal. (Extras.) James M. Macoun. We have just received the two parts of the above. They contain four and twelve pages, respectively, of printed matter giving interesting notes on the mode of occurrence and geographical distribution of the species which have been added to the " Flora of Canada " since the publication of Part V—" Catalogue of Canadian Plants " by Prof. John Macoun.

Not a few species and varieties have been discovered that have proved new to science. We are exceedingly pleased to see these and welcome their publication. The nature of these contributions is precisely in line with that which the members of the Council of the Ottawa Field Naturalists' Club have been desirous to publish in the Ottawa NATURALIST. More of such contributions to Natural Science field work are needed.—H. M. A

NEGLECTED POINTS.

Reprinted from the Austin, Texas, Naturalist,

If every naturalist were annually to keep a record of all that he sees, confining himself to the branch he most delights in, such proceedings would be of the greatest use both for reference in after years and for comparison with other records. All notes are useful sooner or later if properly kept, and many a little incident, trifling as it may seem at the time, might prove of great value in determining some question of the future. With the extension of settlement, animal life, in its natural state, rapidly disappears. Even is this manifest in the finny tribe, for certain species of fish which years ago abounded in some of our streams are now entirely extinct in those waters, owing to various causes attributable to man's encroachment on nature. Cutting down the forests has materially tended to cut off the old water supply, and creeks which half a century ago teemed with fish, have now dwindled to brooks with no facilities for their former inhabitants. The refuse of mills and factories has also contaminated the water, and indiscriminate slaughter, especially in spawning time, has done the rest. In the inland waters around Ottawa, Canada, several species of fish are recorded in lists published by the Natural History Society, of that place, in the year 1859, inhabiting streams which are now entirely dry, and if the records did not exist the idea of such fish having been there would be ridiculed. Records of annual observation would contribute to show the cause and the time of the extinction or driving away of certain fish. We all well know the causes to which the disappearance of land animals can be attributed, but it is not so in most cases with the denizens of the water, and I would call the attention of brother-naturalists to the importance of recording little facts for the enlightenment of those of the next generation.

The study of fish and of "animal life below the water," generally, is perhaps more neglected by the amateur naturalist than any other object, and yet it will be found, after once commencing it, most fascinating. I have often sat perfectly quiet beside a still pool or beside a shallow stream where at first no life appeared. Very soon an object darts out from under a stone or a log, either after its prey floating down,

or for sport on the gravelly bottom, or to bask in the sun. Presently others come out from out from their hiding places and a shoal of fish gather, which disappear as if by magic when a shadow is cast on the surface or a concussion by sound affects the water. Their habits and their pastimes (for fish apparently indulge in these) are very interesting. Chasing each other, darting to and fro, grubbing up the sand, rubbing against each other, and nest building (amongst some species) afford plenty of room for observation. Besides fish, other life is plentiful and affords scope for curiosity. It is astonishing what pleasure can be got out of even a shallow pool; and the writer hopes that calling attention to this will be the means of offering a new attraction in his brother-naturalists' outings.

H. B. SMALL, Ottawa, Canada.

MICROSCOPICAL SOIREE.

The winter course of lectures was opened by a very pleasant evening in the Convocation Hall of the Normal School, for the use of which the Club is indebted to Dr. McCabe. Arrangements had been made by the Soiree Committee, to illustrate, by a number of fine microscopes, some specially selected objects of interest. The President, Dr. Dawson, opened the meeting by a suitable address, and touched briefly on the present position of the club and the work it was performing. Prof. Saunders followed by a concise and interesting account of "A Grain of Wheat," giving a synopsis of the history, growth and structure of this very important seed. Prof. Prince introduced the subject of Zoology, and made some observations upon the development of the brain, especially in connection with that of fishes. At the close of these brief addresses, meant only to introduce the subjects which had been chosen for illustration by slides, an hour was pleasantly devoted to gazing upon the wonders revealed by the various microscopes. Besides the illustrations presided over by Prof. Saunders and Prof. Prince, the subject of entomology was taken up by Prof. Whiteaves, and was illustrated by a large series of preparations. The thanks of the Club were tendered to Mr. W. Scott, who kindly installed, for the illumination of the microscopes, a beautiful line of electric lamps.—Ed.

JUMPING BEANS; A CORRECTION.

The compositor in setting up my note on the Mexican jumping seeds unfortunately dropped three lines of the manuscript, and caused me to say "Well the exact name of the apple-worm is *Carpocapsa salitans*," and as the proof of this note (p. 125) was read hurriedly, after the rest of the November number had been revised, the error was overlooked. What I had written was as follows:—"Well the exact name of the apple-worm is *Carpocapsa pomonella*, and the motive power of the jumping bean is the grub of a near relative of the codling-moth, which has been christened "*Carpocapsa salitans*." The so-called "beans" also are not the seeds of the plant but the carpels. The ovary is three-celled, and each carpel contains but a single seed, which is entirely devoured by the grub, and the beans which we see are the empty carpels.—Ed.

GEOLOGY.

Edited by Dr. R. W. Ells.

The Cretaceous System in Canada. Presidential address, Section IV, Royal Society of Canada, by J. F. Whiteaves, Montreal, November, 1893. This paper gives a comprehensive resume, to date, of the various researches and results obtained in the palaeontological investigations of the Cretaceous System in Canada. The first part of the address deals with the bibliography of the subject, twelve papers having been published before 1867 by various writers: Meek, Newberry, Shumard, Hector, Bauerman, Heer, Etheridge and Gabb having contributed to the literature in question. Here Mr. Whiteaves adds that: "With the birth of the new Dominion, however, the conditions were changed, and the seventeen annual reports published since 1867, with many special publications not included therein, will abundantly show how far the new obligations imposed upon its staff have been met." Since 1867 the knowledge of the rocks and the fauna and flora entombed in them has increased from year to year, until now we find that the Cretaceous rocks of Canada are as well, if not better, described and known as the rocks of any other epoch in geology. The stratigraphical relations of the various subdivisions of the Cretaceous rocks to each other and to the overlying newer or underlying older rocks have been described by Drs.

Selwyn, G. M. Dawson, R. Bell and J. W. Spencer, also by Messrs. James Richardson, R. G. McConnell and J. B. Tyrrell. Sir William Dawson has described the flora of the Cretaceous in Canada. Mr. Tyrrell, Dr. Dawson and Dr. Rust have published papers on the Foraminifera and Radiolaria of the same rocks, whilst the great bulk of the fauna of the Cretaceous in Canada has been carefully described, figured and published by Mr. Whiteaves, Paleontologist and Zoologist to the Survey.

Without making a single reference to his own personal work in the elucidation and description of the fauna of the Cretaceous system of Canada, Mr. Whiteaves indicates the results thus far obtained, and sums them up as follows :--

FOSSIL PLANTS.

98	species from Manitoba and the N. W. Territories.
52	do the Rocky Mt. Region.
28	do British Columbia.
1	do the Yukon District.
<hr/>	
179	species.

OTHER FOSSIL REMAINS.

"Before Confederation," Mr. Whiteaves states, "only fifty-five species of fossils other than plant remains had been recognized or described from the Cretaceous of what we now call Canada, and of this number, thirty-two are from Vancouver Island and twenty-three from the North West Territories. We have now 358 species of animal remains from the undoubted Cretaceous rocks of the Dominion and 394 if we include the Laramie. They are summed up as follows :—

179	species from Manitoba and the N. W. Territories.
13	do the Rocky Mt. Region.
198	do British Columbia.
7	do the Yukon District.
<hr/>	
394	species as the total number from Canada.

In his work on the Cretaceous fossils of Canada, Mr. Whiteaves has described all the material brought to him by the various exploratory surveys in the great North West and the glass cases on the north side

of the National Museum on Sussex street where the type specimens are preserved, are filled with those forms of animal and vegetable life which characterized the Cretaceous epoch. These will ever be, even in themselves, a monument to the industry and perseverance of Canada's palæontologist and zoologist.

H. M. AHL.

ENTOMOLOGY.

Edited by J. Fletcher.

TABANUS ATRATUS, Fab.—A fine female of this large horse-fly has been handed to me by Mr. Stephen Bresee, who took it at Sutton, Province of Quebec. It has never yet been taken at Ottawa. J. F.

DEBIS PORTLANDIA, Fab.—A fresh specimen of this pretty and rare butter-fly was taken in the woods at Kirk's Ferry, P. Q., on the 9th July last by Mr. A. P. Saunders. Mr. Saunders did not notice particularly but thinks there were other specimens flying at the same time. J. F.

THE BEE MOTH.—Early in September I noticed just outside the entrance to one (the weakest) of my seven colonies of bees a dead grub, evidently one of the troublesome and injurious bee-moth grubs. I decided at once to examine the hive, out of which it had probably come, or had been carried by the bees, and on doing so soon found abundant evidence of where the intruder had been, which was almost in the centre of one of the brood frames. The bees, however, had proved equal to the emergency, and had succeeded in dislodging their natural enemy by cutting away the cells on both sides of the frame (which at this time held brood nearly ready to hatch), and had made an opening in the comb several inches in circumference. I may add that this took place shortly after I had very materially increased the strength of the hive by putting a number of young bees in it from another colony that was particularly strong. I think that perhaps the inference from this would be that so long as colonies of bees are in good condition as regards strength, even if attacked by the bee-moth, they will themselves as a rule get rid of their enemy, which they certainly do not appear to have sufficient energy to do when in a weak state.

PERCY H. SEI.WYN.

PROGRAMME

1894 -- OTTAWA FIELD-NATURALISTS' CLUB. -- 1895.

Free Lectures on Thursdays at 8 p.m. in Normal School.

1894.

Dec. 6th. MICROSCOPICAL SOIREE.

Inaugural Address. - - - - - Dr. Geo. Dawson, *F.R.S.*
A Grain of Wheat (*with illustrative sections*) - - - - -Prof. Wm. Saunders, *F.R.S.C.*Entomology " " " J. F. Whiteaves, *F.R.S.C.*Zoology " " " Prof. E. E. Prince, *B.A.*

Dec. 20th. GEOLOGY

How Rocks are Formed (*illustrated with microscopic sections*)Dr. R. W. Ellis, *F.R.S.C.*Crystals (*illustrated by models*) - - - - - W. F. Ferrier, *B. I. Sc.*

1895.

Jan. 17th. BOTANY.

From Flower to Fruit - - - - - J. Craig and R. B. Whyte

Jan. 31st. CONCHOLOGY.

The Present Condition of Canadian Conchology - - - - -

Rev. G. W. Taylor, *F.R.S.C.*Canadian Shells - - - - - F. R. Latchford, *B.A.*How to Collect Them - - - - - Prof. J. Macoun, *F.R.S.C.*

Feb. 14th. ENTOMOLOGY.

How Insects Grow - - - - - James Fletcher, *F.R.S.C.*Some Insect Works - - - - - W. H. Harrington, *F.R.S.C.*

Feb. 28th. ZOOLOGY.

The Cow and Her Milk - - - - - Prof. J. W. Robertson

Animal Commensalism, some features of exalted Parasitism (*with illustrations*) - - - - - Prof. E. E. Prince, *B.A.*

Mch. 14th. ORNITHOLOGY.

Feathers - - - - - W. A. D. Lees and A. G. Kingston

NOTE. -- The Reports for each Branch will precede the reading of papers for the evening, and each paper will be illustrated as far as possible by specimens, microscopic slides or lantern. Any member who may have specimens or notes relating to the subjects under consideration is particularly requested to bring them to the meetings for discussion.

Mch. 19th. ANNUAL MEETING at 4.15 p.m.



S U M M A R Y

— OF —

Canadian Mining Regulations.

N O T I C E .

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

1911 31866

HENRY WATTERS,

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