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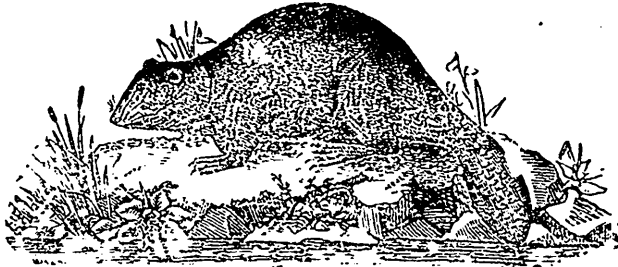
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NEXT EVENING LECTURE WILL BE ON FEB'Y 16th.

February, 1893.

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THE BEAVER (*Castor Canadensis*, Kuhl).

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## THE COUNTRY NORTH OF THE OTTAWA.

By ROBT. W. ELLS, LL.D., F.G.S.A.

Looking across the River Ottawa from the level terrace on which the Parliament Buildings are situated, we see rising to the north the series of hills known as the Chelsea Mountains, of which King's Mountain forms a prominent feature. Many of the readers of the *Naturalist* are familiar with these hills, since some of the pleasantest excursions of the Club have had them for their objective point. They rise out of the broad clay flat which extends for many miles along the course of the lower Ottawa, and consist, for the most part, of some variety of gneiss, with occasional bands of limestone. They constitute the oldest rock formation on the surface of our globe, and these rocks extend for many miles to the north, as well as to the east and west, presenting an exceedingly rugged landscape, densely clothed with forest. Where this has been removed by fires, the surface discloses great masses of rock, almost without a trace of vegetation or soil, on which such might grow. Valleys occur here and there among these hills, in which a certain amount of drift or decomposed rock has lodged, and here, for the space of several acres, conditions of soil and surrounding suitable for settlement exist. Large rivers traverse the district, and can be traced for hundreds of miles. Along these, and on many of their branches from either side, fertile areas extend, which have already been, to some extent, occupied by the hardy settler; but the area of these fertile lands, as compared with the great stretch of craggy hill and forest, is small. It was one of these settlers who, when told that his farm was situated upon the very backbone of the continent, replied with an air of disgust, that "it might very well be the backbone, but at any rate they had taken all the meat off it."

While, however, we have before our eyes daily the beautiful panorama of the Laurentian hills of the Ottawa District, it is surprising how very little is really known about the character and resources of the country lying immediately to our north. True it is that for many years the sound of the lumberman's axe, and the crash of the mighty pines have been heard; and the slash of the hunter in his lonely quest for furs, or the trail of the explorer in the search for mineral wealth, can be recognized in the heart of the most desolate wilderness. Yet beyond the narrow fringe of settlement, which skirts the northern bank of

the Ottawa, and extends upwards along its principal tributaries for nearly one hundred miles, we have, but little reliable information. It is possible, therefore, that a few notes, founded upon a somewhat extensive two years' wanderings through this territory, may possess some points of interest to the readers of our journal, more particularly in view of the fact that, by means of canoes, many charming holiday excursions can be made along the network of streams and lakes, which intersect this northern country, presenting not only beautiful bits of natural scenery, but, to the student of nature, excellent opportunities for extending our knowledge of the plants, insects, birds, etc., of our more immediate vicinity.

Among the more important of the streams which traverse the Laurentian area north of the Ottawa, are the St. Maurice, the Rouge, the North Nation, the Lièvre, the Gatineau, and the upper part of the Ottawa itself; to the west of Ottawa city, are the Black, the Coulonge, the Dumoine and the Kippewa, by means of which, and by crossing short portages, the great chain of lakes lying to the north, for thirty to one hundred miles, are rendered easily accessible. Most of these lakes abound with fish, such as pike, bass and trout, while the woods are alive with deer. The Gatineau itself can be traversed for over 200 miles to its source, whence, by a short carry, it is possible to reach the Ottawa on the west, and then descend to Lake Temiscamingue; or, if it is preferred, an equally short portage will enable one to launch his canoe on the head-waters of the St. Maurice, by descending which, after a journey of about 250 miles, through some of the grandest scenery of the Laurentides, he can reach the St. Lawrence at Three Rivers, half way between Quebec and Montreal; or a route can be taken northward which will reach the country of Lake St. John, from which a descent can be made by the Saguenay. Along the Gatineau and the Rouge well constructed roads extend for over 100 miles, and thus anyone desirous of investigating the botany and other branches of natural history in this section, can very easily and quickly place himself in an almost entirely unknown country in this respect.

While it must be admitted that much of the country occupied by Laurentian rocks is rough and unfitted for agricultural pursuits, there are a great many areas, often of considerable extent, to which this remark will by no means apply. On the Gatineau and Lièvre, after

passing the first fifty miles, the country becomes more level, the elevations are more isolated, and a greater extent of fertile land, underlaid by calcareous rocks, is found, excellently adapted for the raising of grains, such as wheat and oats, and all kinds of root crops. Flourishing farms and comfortable houses are seen at many places, and the generally received opinion that the Laurentian country is unfitted for settlement speedily disappears. The fauna and flora of a portion of the district, or rather that area along the River Rouge, was studied by Mr. W. F. M. D'Urban, an assistant to Sir Wm. Logan, in 1858, and a partial list, relating to the mammals, fishes, insects and molluscs will be found in the appendix to the Geological Survey report for that year, while during the last two years a still further study of the plants of the district was made by Mr. R. McDougal, over a much wider area. Among the most abundant of the early flowering plants observed, was the Trailing Arbutus, (*Epigaea repens*) found near Ottawa, at Aylmer and Chelsea, but whose bunches of thick leaves were observed at many points to the North and East. This beautiful and exquisitely scented flower blooms in Nova Scotia as early as March, and in Gaspé was found in blossom in the last week in June. The graceful and fragrant Twin Flower forms perfect carpets in various places in this area, and many of the lakes in August are starred with the beautiful White Water-lily, some of which have blossoms of very large size, their cup-shaped flower sometimes measuring three inches in diameter.

In these Laurentian hills also are hidden great stores of mineral wealth. Mines of mica, graphite, apatite and asbestos are worked extensively in the immediate neighborhood of Ottawa, while the presence of the rarer minerals, such as garnets, zircons, tourmalines, scapolites and feldspars, in beautiful crystals, have made the district well known among collectors all over this continent.

If the members of our Club will bear in mind, when looking out for a pleasant trip for their next holiday season, that in the Laurentian country at our doors, there is a rich field for research in natural history, as well as all the requisites for a profitable outing in every way, we may expect before long to see the waters of our beautiful inland lakes disturbed by the paddles of our canocists, while the cabinets of the students of plant and insect life will be enriched, and much additional material will be provided for the coming issues of the OTTAWA NATURALIST.

## THE MINERAL WATERS OF CANADA.

By H. PEARETH H. BRUMELL, F.G.S.A. (By permission of the Director of the Geological Survey Department.)

Though many mineral waters of high curative powers are known to occur in Canada, comparatively few of them have been as yet brought to the notice of the general public, the best known being undoubtedly those obtained from the springs at Wilmot, N.S.; Apohaqui and Havelock, N.B.; St. Leon, Ste. Genevieve and St. Hyacinthe, Que. Caledonia and Winchester Springs, Ont., and Banff, Alta. Regarding these, full particulars will be found in the following pages.

It is not the intention of the writer to touch in any manner upon therapeutics, but to confine himself in this case to the collection of analyses, which have been gleaned from many sources, including Dr. T. S. Hunt's article on Mineral Waters, constituting Chapter XVIII, Geology of Canada, 1863; Mineralogy of Nova Scotia, 1868, by Hy. How; Mineral Springs of the United States and Canada, 1874, by G. E. Walton, M.D.; various articles in the Canadian Naturalist and American Journal of Science, and the reports of the Geological Survey of Canada. The analyses marked thus (*a*) have been taken from Chap. XVIII, Geology of Canada, 1863.

Although by no means a complete list, it is considered amply sufficient to illustrate the fact that Canada has within her boundaries an almost endless variety of natural curative waters.

## MINERAL WATERS IN ONTARIO.

*Alfred, Prescott Co. (a)*—A Saline spring occurs on lot 9, range 10, of Alfred Township, which is said to contain 14.5 parts of solid matter in 1000 of water; and on lot 10, range 6, of the same township, two springs are said to occur, which yield saline, and somewhat alkaline waters, containing a small proportion of sulphates. These waters all rise from rocks of Cambro-Silurian age. No analyses are available.

*Ancaster, Wentworth Co. (a)*—About two miles east of the village of Ancaster is found a saline water, from which an attempt was, many years ago, made to obtain salt. Owing, however, to the low saturation

of the brine, and the great amount of earthy chlorides, the enterprise was unsuccessful. The analysis of a specimen, collected in September 1847, gave the following result :

Chloride sodium .....	17·8280
“ potassium .....	·0920
“ calcium .....	12·8037
“ magnesium .....	5·0737
Bromide sodium .....	·1178
Sulphate of lime .....	·7769
Carbonate of lime .....	traces

In 1000 parts of water .....	36·6911
Specific gravity .....	1029·1

About one mile and three quarters north-west of the above spring occurs a sulphurous water, which issues from rocks of the Niagara formation. This water was analyzed in 1854 by Dr. Geo. Wilson, of Edinburgh, with the following result :

Chloride sodium .....	3·5476
“ potassium .....	·0052
“ calcium .....	1·3528
“ magnesium .....	·4190
Sulphate of lime .....	·6500
Carbonate “ .....	·2035
“ magnesia .....	·0160
“ iron .....	·0274
Silica .....	·0097
Iodine .....	} traces.
Phosphoric acid .....	
Alumina .....	
Organic matter .....	

In 1000 parts of water .....	6·2312
Sulphuretted hydrogen per 1000 inches of water. 56 c. in.	

*Bothwell, Kent Co.*—In the “Thames Well,” which was drilled in search of oil, a heavy flow of bitter sulphurous water was struck at a depth of 475 feet, and probably near the base of the Corniferous limestone. The water had a natural temperature of 57° F., and would, in consequence, be slightly thermal, as the region is traversed by the isothermal line of 47° F. The analysis (Report Geological Survey 1866, p. 273) showed :



Chloride sodium .....	14.4460	
“ potassium .....	3.3350	
“ calcium .....	3.1830	
“ magnesium .....	5.7950	
Sulphate of lime .....	3.0580	
Sulphide of sodium .....	8.797	} 460 HS
“ hydrogen .....	0.767	

In 1000 parts of water .....	27.7734
Specific gravity .....	1.0209

The waters from many of the wells sunk for oil throughout the district, and further north, in the Enniskillen oil region, show very similar characters, and are in many instances highly sulphurous.

*Brampton, Peel Co. (a)*—A water having in solution a small proportion of the alkaline chlorides and sulphates, is reported from this place, though the amount of solid mineral contents, 0.38 parts in 1000 of water, hardly places it in the category of mineral waters.

*Brant, Brant Co. (a)*—On lot 53, township of Brant, is found a copious spring, known as the “Blue Spring,” from the intense blue colour of the water in the reservoir, which lies on a mound of calc tufa. The water both tastes and smells sulphurous, though no gas is evolved. A partial analysis afforded :

Sulphate of lime .....	1.240
“ magnesia .....	.207
Carbonate of lime .....	.198

In 1000 parts of water .....	1.645
------------------------------	-------

*Brechin, Ontario Co.*—A strongly saline water is found near this village, on the shore of Lake Simcoe, of which the following analysis has been made by Mr. Thos. Heys, of Toronto.

Chloride sodium .....	201.096
“ potassium .....	5.480
“ calcium .....	42.176
“ magnesium .....	35.344
Sulphate of potash .....	3.968
Bicarbonate of soda .....	35.000
Carbonate of iron .....	2.160
Silica and alumina .....	1.744
Free ammonia .....	.120
Organic ammonia .....	.008

Grains in imperial gallon .....	327.096
---------------------------------	---------

Sulphuretted hydrogen . . . . . 105 20 c. inches.  
 Carbonic acid gas . . . . . 5 728 " ;

This water is now aerated and bottled in Toronto, by the proprietor, Mr. L. Forrest, and placed upon the market under the name of "Eudo" water.

*Caledonia Springs, Prescott Co. (a)*—In the village of Caledonia Springs, in the township of Caledonia, are located the springs which give rise to the name, and which have for many years been visited by persons suffering from many maladies, though more especially rheumatism and derangements of the digestive organs. Besides the water annually used in the sanitarium, large quantities are shipped to points both in the United States and Canada. The springs, four in number, are known as the "Gas," "Saline," "White Sulphur," and "Intermittent," the waters of which were collected and analyzed in September, 1847, with the following result :

	Gas Spring.	Saline Spring.	White Sulphur Spring.	Intermittent Spring.
Chloride sodium . . . . .	6·9675	6·4409	3·8430	12·2500
"  potassium . . . . .	·0305	·0296	·0230	·0305
"  calcium . . . . .				·2870
"  magnesium . . . . .				1·0338
Bromide of sodium . . . . .	·0150	·0169	·0100	
"  magnesium . . . . .				·0238
Iodide sodium . . . . .	·0005	·0014	traces.	
"  magnesium . . . . .				·0021
Sulphate of potash . . . . .	·0053	·0048	·0183	
Carbonate soda . . . . .	·0485	·1762	·4558	
"  lime . . . . .	·1480	·175	·2100	·1264
"  magnesia . . . . .	·5262	·5172	·2940	·8632
"  iron . . . . .	traces.	traces.	traces.	traces.
Alumina . . . . .	·0044	undet.	·0026	"
Silica . . . . .	·0310	·0425	·0840	·0225
In 1000 parts of water . .	7·7773	7·3470	4·9407	14·6393
Specific gravity . . . . .	1006·2	1005·8	1003·7	1010·9

Accompanying the flow of water from the "Gas Well" there was in 1847 a discharge of about 300 cubic inches of carburetted hydrogen per minute. This has, however, been much lessened through operations at the spring, and it is doubtful if the flow of gas at the time of the visit of the writer, in July, 1888, was more than half that amount. About twenty-five yards distant from the above spring are situated the "Saline" and "White Sulphur" springs, the former evolving a small quantity of carburetted hydrogen, and the latter a small quantity of sulphuretted hydrogen, equal to less than a cubic inch per gallon. The temperature of the water in the Gas, Saline and White Sulphur Springs, was found to be, in September, 1847: 44·4°, 45° and 46° F. respectively,

*Charlottesville, Norfolk Co. (a)*—On lot 3, con. 12, township of Charlottesville, is found a somewhat remarkable spring of sulphurous water, issuing from the Corniferous limestone. The water rises through several openings in the mud, at the bottom of a natural basin of about 100 square yards in extent, and was found to have a flow of about sixteen gallons per minute. It has a strongly pungent taste, from the great amount of sulphuretted hydrogen which it contains. By experiment at the spring this was found to be equivalent to 11·6 cubic inches in 100 of water. The temperature of the water in the basin at the time of examination—some thirty-five years ago—was 45° F. The solid matter amounted to 2·495 parts in 1000 of water, specific gravity, 1002·7. The analysis gave the following result for 1000 parts of water:

Chloride magnesium .....	·0878
Sulphate soda.....	·4718
"    potash.....	·0510
"    lime.....	1·1267
"    magnesia.....	·4351
Carbonate lime .....	·3050
"    magnesia .....	·0179
"    iron .....	traces
Sulphuretted hydrogen .....	·1776

*Craigleith, Gray Co*—About midway between Collingwood and Meaford on the Georgian Bay are situated the "Blue Mountain Mineral Springs" in the village of Craigleith.

The water was examined by Mr. Thos. Heys of Toronto, who obtained the following results:

Chloride sodium .....	15.732
“ potassium .....	3.03
“ calcium .....	6.37
“ magnesium .....	3.125
Sulphate potassium .....	.983
Carbonate calcium .....	1.462
Volatile organic matter .....	5.625

Grains in imperial pint .....	34.167
Carbonic acid gas .....	.621 cubic inches
Sulphuretted hydrogen .....	.526 cubic inches
Temperature .....	45.5° F.

*Eastman's, Russell Co.*—The waters of the two springs at Eastman's Springs, and known as the “Sulphur” and “Saline” were examined by Mr. G. C. Hoffmann, Chemist to the Geological Survey (Geol. Sur. rep. 1874-75 p. 317), with the following results:

	Sulphur Sp.	Saline Sp.
Chloride sodium .....	2.1584	18.9812
“ potassium .....	.0400	.1577
“ calcium .....	.....	4.1692
“ magnesium .....	.....	1.9031
Sulphate potash .....	.0033	.....
“ lime .....	.....	.0199
Bicarbonate soda .....	.8365	.....
“ lime .....	.0549	.1773
“ magnesia .....	.1709	.....
“ iron .....	.0066	.0121
Ferric oxide .....	.....	.0311
Alumina .....	traces	.0022
Silica .....	.0124	.0090
Organic matter .....	.0917	.....
Copper .....	.....	minute trace
Lithia .....	undet	undet
Baryta .....	minute trace	“
Strontia .....	.....	“
Boracic acid .....	undet	.....
Bromine .....	.....	undet
Iodine .....	undet	undet
Phosphoric acid .....	undet	undet
	3.3747	
Less carbonic acid actually found .....	.0117	
	3.3630	25.4628
In 1000 parts of water .....	1001.95	1019.44
Specific gravity .....		

*Fitzroy, Lanark Co.(a)*— A saline water is found rising from rocks of the Chazy or Calciferous formation, on lot 10, range 2, Fitzroy township, at what is known as Gillan's spring. A specimen collected in July 1850, afforded the following results on analysis :

Chloride sodium .....	6.5325
“ potassium .....	.1160
Bromide sodium .....	.0217
Iodide “ .....	.0032
Phosphate soda .....	.0124
Carbonate “ .....	.5885
“ baryta .....	traces
“ strontia .....	“
“ lime .....	.1500
“ magnesia .....	.7860
“ iron .....	traces
Alumina .....	.0040
Silica .....	.1330

In 1000 parts of water .....	8.3473
Specific gravity .....	1006.24

Another water, which is feebly saline, and sulphurous to the taste, but which was not analyzed, occurs on lot 12, con. 6, of the same township.

*Hallowell, Prince Edward Co. (a)*—On lot 11, con. 2, township of Hallowell, a well twenty-seven feet in depth, and known as Hubb's well, afforded a water, of which the following analysis of a specimen collected in Oct., 1853, was obtained—Analysis I; while from a well about two miles distant, a specimen was obtained in the summer of 1854, affording the result shown in II. The waters of several wells in the vicinity were found to be very similar in character to these two.

	I	II
Chloride sodium .....	38.7315	17.4000
“ potassium .....	traces	.....
“ calcium .....	15.9235	9.2050
“ magnesium .....	12.9060	9.4843
Bromide sodium .....	.4685	undet
Iodine “ .....	.0133	“
In 1000 parts of water .....	68.0423	36.0893
Specific gravity .....	1053.11	.....

*Hamilton, Wentworth, Co. (a)*—In the Canadian Journal 1853. Prof. Henry Croft gives the the following analysis of a water said to be from Young's Spring at Hamilton:

Chloride sodium .....	5098
Sulphate soda .....	1'6985
“ lime .....	1'1246
“ Magnesia.....	4'7799
<hr/>	
In 1000 parts of water .....	8'1128
Specific gravity.....	1006.4

*Hawkesbury, Prescott Co. (a)*—A well reported to be on lot 9 con. 6 township of Hawkesbury afforded a water which gave the following result on partial analysis :

Chloride sodium.....	8'177
Sulphate soda.....	'083
Carbonate soda.....	1'200
“ lime.....	'076
“ magnesia .....	'063
<hr/>	

In 1000 parts of water..... 9'599

As well as some undetermined bromides, iodides, boracic acid, oxide of iron and silica.

*Kingston, Frontenac Co. (a)*—In two borings made for water at Morton's distillery in Kingston, mineral waters were encountered specimens of which were examined by the Rev. Prof. Williamson of Queen's College, Kingston, with the following results.

	Lower Well.	Upper Well.
Chloride sodium.....	5'215	29'864
“ calcium .....	4'010	12'894
“ magnesium .....	1'763	6'954
Sulphate soda .....	2'441	.....
“ lime.....	.....	'396
“ magnesia.....	.....	'492
Carbonate lime.....	'400	'370
“ magnesia.....	.....	1'287
<hr/>		<hr/>
In 1000 parts of water .....	13 830	52.257
Specific gravity.....	1010'0	1043'2

*London, Middlesex Co.*—Unfortunately no data are at hand giving an accurate analysis of the water of the Sulphur spring at London.

(To be continued.)

## BOOK NOTICE,

## THE BUTTERFLIES OF NORTH AMERICA, 3RD SERIES, PART XII.

The last part of Mr. W. H. Edwards's magnificent work has just appeared. For beauty of illustration and interest to Canadian Lepidopterists, it surpasses all previously issued parts. The first plate shows the type of *Chionobas Chryxus*, var. *Calais*, Scudder, from Hudson's Bay and a similar form which is found at Banff in the Rocky Mountains. The second plate shows in full all the different stages of the rare Canadian species, *C. fulta*. This insect has been twice taken at Ottawa. A special expedition having been arranged to visit the Mer Bleue in the end of June last. The day was very unpropitious, and only one specimen was seen. This was run down and captured after a hard chase. The species has been taken in restricted localities in Maine, at Quebec, Ottawa, Nepigon and in the Rocky Mountains. There are some interesting points in its life-history which need clearing up and we recommend the subject to our local members, as an opportunity for doing good scientific work. The third plate shows two more rare species of the same genus, *C. Crambis* from Labrador and *C. Brucei*, which is said to have been taken at Banff by Mr. T. E. Bean.

Mr. Edwards's great work is indispensable to all Lepidopterists, and we have lately learnt with great pleasure that \$500 has been granted from the "Bache Fund" of the American National Academy towards the publication of this important contribution to scientific knowledge.

J. F.

## ENTOMOLOGY.

EDITED BY W. HAGUE HARRINGTON.

Among the less common coleoptera taken during the past year may be mentioned the following species :

*Chlænium niger*, Rand, of which a specimen was taken near Dow's Swamp on April 30th. This is our rarest species of *Chlænium*, only two specimens having been taken by me previously, one in Stewart's bush, (now nearly disappeared), on May 6th, 1883, and one near Hull on May 17th, 1890.

*Chlænium tomentosus*, Say. This species is also not common, but a specimen was taken in the same locality, on the slope of the dam, between the canal and the swamp, on May 23rd. In shape it closely

resembles the former species, but it is larger, and the elytra are tomentose with a fine silky pubescence.

*Lacnocyrtus parallelus*, Say. One of these beetles was taken on the same date as the preceding and in the same locality, where two or three specimens had been collected by Rev. G. W. Taylor two years previously. The only other example I have from this district is one given to me by Mr. W. Simpson, and collected I believe at King's Mere.

*Dromius piceus*, Lec. was another interesting species taken the same day under the bark of a stump. This carabid, easily recognized by its truncated elytra is usually found either under bark, or under moss about the roots of trees, in such places as the damp woods in this swamp.

*Brachys ovata*, Web. An example of this pretty little buprestid was secured at Wakefield on August 7th upon oak. It may readily be distinguished, by its greater size and more purplish color, from our common *B. ærosa* which is taken upon basswood.

*Typocerus zebratus*, Fab. is a longicorn beetle which occurs in the latter part of July and in August upon the flowers of the golden-rod, and was taken last season at Wakefield and Aylmer. It is distinguished from our commoner species *T. velutinus* Oliv. by being smaller and by having the elytra black with four bright yellow bands, instead of red with the bands pale yellow. The members of the genus *Typocerus* are distinguished from the more numerous species of *Leptura* by the large poriferous spaces on the antennæ.

*Bruchus orientatus*, Horn. This pretty little beetle, marked with a bright-orange-red patch on each elytron, was taken at Aylmer on July 31st in the blossom of the wild convolvulus (upon which were many pupæ and beetles of the spotted tortoise-beetle, *Chelymorpha argus* Licht.) A second specimen was observed and taken with the sweeping net, but escaped with the nimbleness that characterises this species. The only specimens previously taken or seen, occurred several years ago in the city.

*Mycterus scaber*, Hald. Several of this species were taken upon flowers (compositæ) at Aylmer on 31st July. The only previous capture of this melandryid was on the occasion of a Club excursion to the Chats Falls some years ago, when it was somewhat abundant upon small willows.



*Calopus augustus*, Lec. This addition to the local list was made by Mr. Fletcher, who picked up a dead and badly mutilated female on one of our streets. The insect was recognized in the collection of Mr. Evans of Sudbury who has taken there two or three examples.

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### A GLACIAL EPOCH.

By W. HAGUE HARRINGTON.

At the dinner given by the Logan Club to the Geological Society of America, one of the learned speakers, in the course of a humorous speech, remarked that he and his fellow-scientists had come north to Ottawa to study the glaciers in their native land. At that date the "good old-fashioned winter" was just in its youth, but it has since been a subject of general interest, and of equally general-conversation. I have heard "the oldest inhabitants" going back for terrible instances to '59, and even to '37, at which ancient periods the glaciers had apparently hardly withdrawn from the Ottawa Valley to judge from the "cold waves" then experienced.

Through the courtesy of Prof. Carpmael, I have obtained for the benefit of those interested in the recent cold spell, the following table. It will be observed that there was no unusually low reading of the thermometer, the lowest being - 26.2 on January 4th. By reference to some yearly abstracts published in earlier transactions of the Club, it will be seen that there were lower readings in those years, viz: December, 1884, - 28.3; February, 1885, - 26.9; January, 1886, - 26.5, and January, 1887, - 31.6. The severity of the five weeks covered by the following table was due to the almost unbroken cold, the record showing that the temperature fell below zero on 28 days, that it averaged below zero on 16 days, and that on 6 days it was not above zero. The average for the 35 days was only 1.91 above zero. With this may be compared the very cold February of 1885, which averaged 4.40, and the January of 1887, when it averaged 4.33. A very severe day was Dec. 24th, when, with an average temperature of - 1.2, the average velocity of the wind was  $22\frac{1}{2}$  miles per hour. The coldest day was January 11th, when the average was - 17.8, and the maximum - 10.8; the wind averaging  $14\frac{1}{2}$  miles per hour.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS AT OTTAWA,  
for the period Dec. 18th, 1892, to Jan. 21st, 1893, inclusive.

DATE.	Max. Tp.	Min. Tem.	Mean. Tem.	Wind-Ms
Dec. 18. ....	14.9	-3.5	11.23	71
" 19. ....	34.0	13.0	21.92	182
" 20. ....	13.8	-7.5	3.95	157
" 21. ....	18.2	2.5	7.47	102
" 22. ....	3.8	-8.2	-4.25	198
" 23. ....	-4.1	-15.0	-5.77	191
" 24. ....	1.0	-8.2	-1.20	536
" 25. ....	2.5	-13.5	-4.05	236
" 26. ....	3.2	-18.3	-3.37	221
" 27. ....	8.0	-1.2	3.12	166
" 28. ....	10.0	-4.2	2.10	36
" 29. ....	10.0	-5.5	3.87	3
" 30. ....	20.1	-2.2	13.65	1
" 31. ....	34.6	12.8	21.25	73
Jan. 1. ....	29.8	18.2	26.35	212
" 2. ....	35.2	15.8	23.30	363
" 3. ....	17.5	-16.1	-10.35	289
" 4. ....	-6.2	-26.2	-13.70	4
" 5. ....	6.8	-19.6	2.47	92
" 6. ....	12.7	-1.2	5.13	101
" 7. ....	4.5	-5.5	-0.90	148
" 8. ....	0.9	-14.6	-8.50	123
" 9. ....	5.7	-16.3	2.00	161
" 10. ....	9.8	-12.5	-8.87	366
" 11. ....	-10.8	-21.6	-17.80	341
" 12. ....	-1.2	-24.1	-6.50	28
" 13. ....	3.0	-9.2	-3.75	61
" 14. ....	-0.5	-14.3	-7.75	5
" 15. ....	0.0	-22.2	-7.95	4
" 16. ....	5.5	10.5	0.92	49
" 17. ....	8.6	1.5	3.45	2
" 18. ....	5.3	-2.0	3.45	108
" 19. ....	11.8	3.2	9.10	110
" 20. ....	12.0	0.5	9.15	172
" 21. ....	8.8	-10.2	-1.15	80
Average .....	9.41	-7.11	1.91	142.6

## EVENING LECTURES.

During the past month two most successful meetings of the Club have been held. On January 5th, Prof. John Macoun, Botanist, and Naturalist of the Geological Survey Department, delivered a most entertaining lecture on the Fauna and the Flora of the Selkirk summits. The large audience listened attentively while the lecturer discoursed upon the many and varied features of that remarkable range of mountains, the natural history of which he has examined more critically than any other living man. At the conclusion of the lecture, many questions were asked as to the altitudes which certain trees reached. The discussion was joined in by Messrs. J. Craig, H. M. Ami, A. G. Kingston and J. Fletcher. A paper on the Mineral Waters of Canada by Mr. H. Pearse Brumell of the Geological Survey Department was read by title.

January 19th, Food in Health and Disease, was ably treated by Dr. L. C. Prévost, who kept the attention of one of the largest audiences which has ever honoured the club. The subject, which is necessarily of interest to every one, was rendered more than usually attractive by the Doctor's original manner of presenting it, and the only regret of those present was that they could not enjoy in a material sense the many tempting luxuries mentioned in the bill of fare, given by the lecturer as a *menu* for the dinner which he described so graphically, and at which he invited them to join him. A cordial vote of thanks was proposed by Mr. J. Fletcher and seconded by Mr. J. G. Whyte.

THE FOLLOWING ARE THE TITLES FOR THE FEBRUARY LECTURES.

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.

Feb. 16.—“The Development of Varieties and the Multiplication of Individuals in Horticulture.”—MR. JOHN CRAIG.

“My Aquarium.”—MR. H. B. SMALL.



## 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.

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

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