IMAGE EVALUATION TEST TARGET (MT-3)

6"

Technical and Bibliographic Notes/Notes techniques et bibliographiques

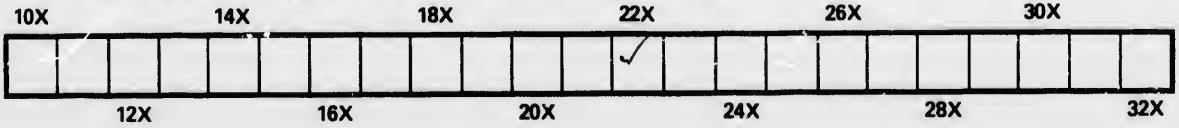
The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

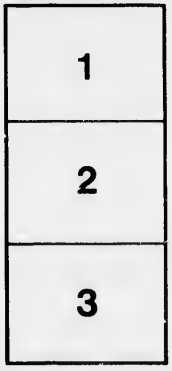
- ☐ Coloured covers/ Couverture de couleur
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☑ Bound with other material/ Relié avec d'autres documents
- ☑ Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distortion le long de la marge intérieure
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments:/ Commentaires supplémentaires:

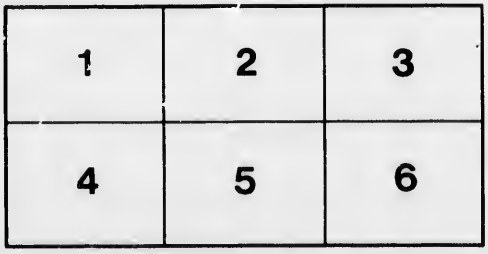
L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☐ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☐ Quality of print varies/ Qualité inégale de l'impression
- ☐ Includes supplementary material/ Comprend du matériel supplémentaire
- ☐ Only edition available/ Seule édition disponible
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/ Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

☑ This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.







GEOLOGIC

ALFRED R.

BY

BASIN

LAK

PUBLIS

GEOLOGICAL SURVEY OF CANADA.

ALFRED R. C. SELWYN, LL.D., F.R.S., F.G.S., DIRECTOR.

REPORTS

BY ROBERT BELL, LL.D., M.D., C.E.

ON THE GEOLOGY OF THE

BASIN OF MOOSE RIVER

AND OF THE

LAKE OF THE WOODS

AND ADJACENT COUNTRY.

1881.

PUBLISHED BY AUTHORITY OF PARLIAMENT.

Montreal:
DAWSON BROTHERS.
1883.

ALFRED R. C. SELWYN, ESQ., LL.D., F.R.S., &c.,

Director of the Geological and Natural History Survey.

SIR,

Herewith I have the honor to submit a report and map in regard to the geology of the Basin of Moose River and adjacent regions, and also a report and geological map in reference to the Lake of the Woods and the country lying to the eastward of it, in both of which districts I was engaged in pursuance of your instructions, in 1881. The maps, however, serve to illustrate, not only the field-work of this particular season, but also the results of the labours of some of the previous years in the areas which they cover, and which were described in the annual reports of the survey. A map of the Moose River, from the neighbourhood of Moose Factory to James' Bay, from a survey made by myself in 1877, is also herewith submitted.

I have the honor to be,

Sir,

Your obedient servant,

ROBERT BELL.

Ottawa, May, 1883.

VIEW UP THE VALLEY OF THE MICHIPICOTEN RIVER, FROM THE MOUTH.

VIEW UP THE VALLEY OF THE MICHIPICOTEN RIVER, FROM THE MOUTH.

I.

REPORT

ON THE GEOLOGY OF THE

BASIN OF MOOSE RIVER

AND ADJACENT COUNTRY,

BY

ROBERT BELL, LL.D., M.D., C.E.

Shortly after my return from making the geological examinations in the regions above indicated, a preliminary report was submitted and referred to in your summary report to the Minister of the Interior in February, 1882, pages 6 and 7. This work could not be fully described until proper maps of the surveys had been prepared, representing both the topography and geology of the regions indicated. The accompanying map of the basin of Moose River and the adjacent country shows, not only the results of the surveys and geological investigations made by the writer and his assistant in 1881, but also part of those made in 1870, 1875, 1876 and 1877, together with the results of a geological exploration of the upper Ottawa and Lake Abittibi region, made by the late Walter McOuat, of the Geological Survey, in 1872. These investigations are described in the Reports of the years indicated. The coast-line of Lake Superior is from Bayfield's chart. The topography of the interior is principally the result of the work of the Geological Survey, but a portion of it is derived from surveys made for the Canadian Pacific Railway; and I would here beg to acknowledge our obligations to Messrs. Smellie, Ramsey, Carry and Poulin, engineers of this line, for information and maps relating to these surveys.

Geological map of the region.

Results of labors of 1870-75-76-77 and 1881.

The object of the explorations in this region in 1881, was to ascertain, as nearly as possible, the distribution of the formations in the country to the northward and eastward of the mouth of the Michipicoten River, where it was more imperfectly known than in other parts of the area represented upon the map. The present report will refer more particu-

Map represents an area larger than England.

larly to the geology of this district. The country represented on the map is 344 miles in length from east to west, and 224 miles in breadth from north to south, and embraces an area greater than that of England.

Age and distribution of the rocks.

The distribution of the rock-formations, as shewn on this map, is only provisional, but it is considered worth publishing the map to show the present state of our knowledge both of the topography and the geology of this great region, and also that it may serve as a basis to be improved upon in the future. In some parts, both the topographical and the geological lines will be found tolerably accurate, while it is believed that none of the geographical features marked in continuous lines are very far out of position. The junctions of the formations were correctly ascertained along the rivers and lakes surveyed or explored. In the case of the boundaries between the Laurentian and Huronian rocks, as these formations appear to be conformable to each other in this region, the course of the lines dividing them could often be inferred, with some degree of accuracy, by the prevailing strike of the two sets of rocks throughout a great thickness of the strata on either side of the observed contacts.

It will be noticed that a large part of the country represented on the map is occupied by Huronian rocks, which are generally rich in economic minerals. The prospect for the discoveries of metallic ores is increased in some districts by disturbances, and by the frequent intrusion of diorites, syenites and granites. This is especially the case in the region extending from the sources of the Montreal River eastward to the Abittibi Lake.

The present map will no doubt prove useful in many ways, now that the Canadian Pacific Railway is about to be built through the south-western part of the territory represented and other railways are projected to traverse various parts of it.

The work of 1881.

A short account will now be given of the investigations made in 1881, in the region under consideration. Having, in 1875, mapped the canoe-route between Lake Superior and Moose Factory, by way of the Michipicoten and Missinaibi Lake and River, this was used as a base for the operations of the present season. At Lake Mattawagaming, the third from Lake Superior, a leading canoe-route diverges to the northward, and this was adopted as a means of obtaining access to the country in that direction. In connection with the geological investigation of the region, a track-survey, checked by numerous latitudes, was made of the north-west arm of Lake Mattawagaming, Lake Wabatongwashene, Oba Lake and River, Kabinikagami Lake and the river of the same name to latitude 49° 35′.

At the same time Mr. C. Molson, B.A., Assistant Geologist, made a similar survey of Esnagami Lake at the head of the Magpie River, a

esented on the
les in breadth
at of England.
map, is only
ap to show the
d the geology
o be improved
l and the geo-
believed that
lines are very
ere correctly
lored. In the
nian rocks, as
n this region,
ed, with some
sets of rocks
the observed

presented on
erally rich in
metallic ores
the frequent
ally the case
ver eastward

ys, now that
gh the south-
ays are pro-

ions made in
mapped the
way of the
as a base for
ng, the third
northward,
e country in
ation of the
as made of
ngwashene,
of the same

gist, made a
pic River, a

Artotype, Patented *G. E. Desbarats & Co., Montreal.*

GRANITE HILL ON MICHIPICOTEN RIVER, FOUR MILES ABOVE LONG PORTAGE.

part of this river and of a canoe-route thence to Oba Lake, and also some further geological researches around Lake Mattawagaming.

The following is a brief statement of the geological results of the investigations in the basin of Moose River and the adjacent country, including the Michipicoten and Magpie Rivers. The canoe-route from Michipicoten Post to Moose Factory follows the Michipicoten River and the lakes on its course to Mattawagaming Lake, and thence through Dog Lake, just on the south side of the height of land, and separated from the last named lake by a narrow stream a few chains in length.

From Lake Mattawagaming another canoe-route branches to the northward and enters Lake Wabatongwashene, which may be regarded as the source of the Michipicoten River. As stated in my report for 1875, pages 335-336, Huronian schists, with diorites, syenites and granites prevail along the route between Dog Lake and the mouth of the Michipicoten River. Gneiss is there mentioned as occurring at the Cat Portage and the head of the Long Portage. These exposures appear to be at the junction of the Laurentian and Huronian systems, as indicated on the accompanying map. A variety of gneiss which may belong to the latter division was found at a southward bend of the river, about half-way from the mouth to the foot of the Long Portage. The strike was here south-westward. The dividing line between the Huronian area of Michipicoten and the Laurentian gneiss to the south-east of it, appears to have a north-eastward trend, from Cape Choyyé, on Lake Superior to Dog Lake, keeping mostly to the south-east of the Michipicoten River. It crosses Dog Lake, in a north-north-westerly course, and curving round, passes through the southern extremity of Wabatongwashene Lake, in a westerly direction, finally reaching the shore of Lake Superior in the neighborhood of Otter Head. It will be observed by the map that the granite and syenite areas along the Michipicoten River, referred to in 1875 (Report, page 335) and the granite of Burnt Point, mentioned in the Geol. Survey report for 1876, page 219, lie nearly in a straight line and close to the junction of the Huronian and Laurentian. This, as stated in former reports, is the usual position of these granite areas in the great region northward of Lakes Huron and Superior. The light-grey granite, which occurs about four miles above the Long Portage forms the steep hill, about 400 feet high, on the northern side of the river, represented in the accompanying illustration taken from a photograph.

Geology of the vicinity of Michipicoten.

Granite areas.

The geological features of the Michipicoten River were noticed in the report for 1875, pages 334–336, and I shall now add a description of the rocks of the route by which we travelled northward from the outlet of Mattawagaming Lake, where we turned off from the route to Missinaibi Lake. The rock of Little Stony Portage at the outlet of

Geology of a route northward from Lake Mattawagaming.

GRANITE HILL ON MICHIPICOTEN RIVER, FOUR MILES ABOVE LONG PORTAGE.

the former lake consists of fine-grained, massive, soft, greenish-grey, calcareous schist, with large veins of white quartz, which are seen in the river below the chute. Leaving this portage and going northward up the western shore of the lake, a hill of red syenitic granite is met with at a distance of two miles; and a similar granite is more extensively developed on the southern side of the lake directly opposite. With this exception, the rocks all along this side of the lake to its northern extremity, consists of green hornblendic, dioritic and chloritic schists. The strike varies much, being north-eastward in the southern part and north of west in the northern. Opposite Waboose Island, the hornblende schist contains pebbles, and at a point three miles further north, a soft, greyish-green schist, with calcspar in the joints, is, in places, full of large concretions of impure epidote, some of which have a ring-like form on cross section. Waboose Island consists of silicious green schist, running N. 35° W., vertical. Copper pyrites was found in a small quartz vein, cutting green schists, at a spot on the west shore, lying south-west of the north-west point of this island.

On the neck of land separating Lake Mattawagaming from Lake Wabatongwashene, the following rocks were met with in going from south to north in the order stated; bluish-grey, micaceous hornblende schist, coarse greyish-green hornblende schist, dark-grey crystalline diorite (in one place rendered porphyritic by spots of light, greenish-yellow felspar), grey "pepper-and-salt" gneiss, composed of quartz, felspar, green hornblende and black mica, and lastly hornblende schist; all followed to the northward by reddish gneiss. The general strike is a little south of west.

Lakes Wabatongwashene and Oba. Oba River.

Proceeding northward through Wabatongwashene and Oba Lakes, and down the Oba River, Laurentian gneiss was the only rock observed after leaving the Huronian schists in the southern part of the former lake, until meeting with the two narrow bands of schists which cross Kabinakagami Lake. These have a general west-south-westerly strike and consist principally of hornblende schist.

At the inlet of the lake, much fine-grained magnetic iron is disseminated through the hornblende rock, which also holds strings and long lenticular patches of crystalline epidote, running with the strike. The larger patches are quartzose in their centres and are evidently concretionary. The hornblende schists of this belt are mostly compact and dark greyish-green in color. In some parts they are micaceous, and where they cross the southern part of the lake they are marked by iron-stained patches, and are flanked on the north-west side by soft, very fine-grained, grey gneiss, which has the calcareous character of the gneisses of the Huronian series, and contains specks of iron pyrites. Both belts are characterized by masses and bands, parallel to the stratification, of light-grey, felspathic granitoid rock.

A small island, situated a few hundred yards south of the outlet of Kabinakagami Lake, consists of rather coarse, greyish gneiss, dipping north-east, cut by a dyke of crystalline, greyish-green diorite, fifty or sixty yards in width, running N. 20° E. and S. 20° W. The relation of the great north-and-south dykes of the region north of Lakes Superior and Huron to the topographical features, has been pointed out in former reports. It is probable that the dyke just referred to, has had something to do with the position of the outlet, and the course of the lake immediately above it and of the river for some miles below. In connection with this subject, it may be mentioned that a similar diorite, apparently forming part of a great dyke running down the centre of Oba Lake, was discovered upon an island in the narrows, about midway between its extremities. Kabinakagami Lake and River

A fragment of dark-green serpentine, with rusty surfaces, was found on the small island near the outlet of Kabinakagami Lake. It resembles the serpentines of Lake Abittibi and Pigeon Lake, on the Montreal River.

A strong rapid, with a fall of thirty-three feet, occurs just where the Kabinakagami River leaves the lake. The portage past this obstruction is on the west side, and is 1145 paces in length. The rock at the rapid is a dark-green, fissile-hornblende schist, the strike of which varies from N. 45° W. to N. 80° W. At fourteen miles in a straight line below the lake, mica-schists, mostly coarse in texture and grey in color begin, and thence occupy a breadth of about one mile. They are vertical, and strike S. 80° W. Ten miles below this band, dark silicious mica schists make their appearance, and are found again three miles further down. These rocks, however, probably have a greater breadth to the southward than above indicated, since the strata for a number of miles before reaching the first exposure are concealed by a thick deposit of stratified sand. They may have a total breadth of seven or eight miles along the river. These two mica-schist bands appear to indicate the western extension of the great Huronian belt, which, coming from the eastward, crosses the Missinaibi between the Devil's Rapid and the junction of the Brunswick River, and which is largely made up of similar mica-schists. Huronian bands.

An exposure of syenitic granite occurs at about a mile and a half below Kabinakagami Lake, and dark, greenish-grey crystalline diorite, apparently belonging to large dykes, was met with in several places as far as the river was descended. The point at which I turned back was found to be in latitude 49° 35′. With the exceptions above noted, the rocks found along this stream were entirely Laurentian gneiss, mostly of massive varieties. The stratification was usually much contorted, but the general strike was about east and west.

Although the Kabinakagami River appears to join the Missinaibi, as

indicated on the accompanying map, some of the Indians we met with had an idea that it might join the Kenogami, a branch of the Albany at the place called Mammattawa. (See Geol. Survey Report for 1871 page 113).

Mr. Molson, in his track-survey of Esnagami Lake, the upper part of the Magpie River, and the canoe-route thence back to Oba Lake, found only Laurentian gneiss, which presented no characters worthy of special description.

Exploration from Missinaibi House towards Flying Post.

Having completed our labours in this direction, we proceeded to Missinaibi Lake, from which Mr. Molson was sent to make a track-survey of the Wi-a-sitch-a-wan River, which enters the south-east side of this lake, and of Little Missinaibi Lake at its head; while I descended the Missinaibi River to Flying Post Brook, about eight miles from its outlet; and leaving the river here, followed a canoe-route towards the Flying Post, as far as Trout River. This stream flows from the south and joins the Kapuskasing River, just below the outlet of the lake of the same name. It was followed for fifty-two miles in a straight line, and its course, as well as the lakes through which it passes, were carefully laid down. These topographical features are sufficiently well shewn upon the accompanying map and do not require any special description.

Kapuskasing Lake and River; Trout River.

Rocks between Missinaibi and Trout Rivers.

Between the Missinaibi and Trout River the rocks observed consisted entirely of Laurentian gneiss, having an average strike of about S. 60° W. It is mostly massive, but on Lake Tchi-tchi-ga-mog, eight miles south of Kapuskasing Lake, much of it is of a grey, slaty, micaceous character. Along the Trout River, different varieties of gneiss were met with as far as Trout Lake. Along this stretch of the river the direction of the dip and the angle of inclination changed frequently.

Rocks of Trout Lake.

Trout lake is five miles in length, in a north-and-south direction. Gneiss was observed on the north-west side of the outlet, but on the east side,

Schists.

silicious hornblendic schists appear to occupy the shore to a point half-

Granite.

way up the lake. Here a variety of red and reddish-grey syenitic granite, and of diorites are met with. Three miles south of the outlet, and one mile north of the inlet of the lake, the reddish granite is cut by veins of yellow-weathering pearl-spar, and it holds patches of grey amygdaloid

Amygdaloid Calespar.

in which the spots, consisting of white calcspar, from mere grains to the size of peas, are thickly disseminated. Along with the amygdaloidal patches, there are others of white calcspar, and light green apatite, the

Apatite.

latter occurring in small thickly disseminated crystals in the calcspar, and as patches of a granular and very friable character associated with it. The amygdaloid also holds crystals and scattered masses of crystal-

Fluors.

line bright green fluorspar.

Syenitic granites, similar to those just described, are met with on the opposite side of the lake, and the mass to which they belong appears to

have a general east-and-west trend. Between the inlet and the head of Trout Lake, a distance of about a mile, the rocks on both sides consist of rather coarse, dark-coloured hornblendic schists, with a general westward strike, and a dip to the north of 60° to 70°.

The country around Trout Lake is hilly, especially to the south-westward. The river, in entering its eastern side, passes down a steep rapid, with a fall of 144 feet from the head of the portage, which is three quarters of a mile in length; it continues rapid for another mile, but beyond this it is very tortuous with a smooth, moderate current. The elevation of the highest point we reached was ascertained by means of the barometer to be 254 feet above Trout Lake. The rocks in this interval consist of Laurentian gneiss, having a general strike a little to the south of west, and dipping to the north in most cases.

Huronian rocks in the vicinity of Flying Post.

From information derived from Mr. A. R. Ramsey, and Mr. B. R. Poulin, engineers of the Pacific Railway, and also from Mr. E. B. Borron, stipendiary magistrate, it appears that Huronian schists prevail around Flying Post Lake and Lake Mattagama, lying to the south of it. During the season of 1881, Mr. Borron, who was sent by the government of the Province of Ontario, explored the country from Missinaibi House to the Flying Post, and thence to Mattagami Post to the east, which I had reached in 1875 from the Montreal River, a branch of the Ottawa. In the summer of 1882, the same gentleman explored a canoe-route by way of the Mississagui River, from the north shore of Lake Huron to the Flying Post and thence by the Kakozhishk, or Ground-hog River to its junction with the Mattagami. Mr. Borron has a good knowledge of mining and geology, and made valuable notes on the rocks he met with on his journeys. These have been of assistance in laying down the distribution of the formations in the region referred to. We are also indebted to Mr. Borron for a copy of his "log," containing the courses and estimated distances along some of the routes which he travelled.

On his last named journey he crossed the height of land, a short distance east of longitude 83° W. and struck Lake Wakamagaming at the source of the Ground-hog River. In descending this stream he saw no rocks excepting Laurentian gneiss until reaching Cache Lake, the centre of which is near latitude 47°. 40′, longitude 82.° 46′ W. "A schistose rock, Huronian, here forms the shore." From Cache Lake, the river runs a little north of east to a point within about nine miles of the southern extremity of Lake Mattagama, "following nearly, as it appeared to me, the strike of the Huronian rocks at or about their junction with the Laurentian. The river then, finding a passage, turns north, crossing the Huronian ridges, and at the end of nine miles tumbles into a large basin at the south end of Lake Mattagama." (Mr. Borron's Report for 1882, page 23.) At page 30, he says: "I met with lead and

Veins with copper and lead ores.

copper ores on the north-west side of the eastern arm of Lake Mattagama, in the vicinity of Flying Post. The quantity of ore in the veins where exposed is not such as would justify, in my opinion, expensive mining operations, but sufficient, taken in connection with the size and general character of the veins, to warrant careful exploration in the reasonable expectation that larger deposits of these useful and valuable metals may be discovered."

Wi-a-sitch-a-wan River.

Little Missinaibi Lake.

On my return to Missinaibi House, I found that Mr. Molson had arrived there from his exploration a few days in advance of me. He had ascertained the following facts: The upward course of the Wi-a-sitch-a-wan River is S. S. E. for two and one half miles in a straight line, when the outlet of Little Missinaibi Lake is reached. The river is broken by a succession of rapids and falls throughout the whole of its short course. The main body of the lake, which is narrow, has a general south-eastward direction, and a length of about five miles. Two narrow bays extend at right angles from the north-east and three from the south-west side. The southernmost bays, on opposite sides, have the same general direction, and the distance between their extremities is over five miles. A stream enters the head of each of them. The upward continuation of the main river is at the south-eastern extremity of the lake, and its course is the same as that of its central part. It was followed for about six miles, and here, leaving the river, Mr. Molson explored the country, for five miles further to the south-eastward, the distance being ascertained by pacing.

Gneiss: Trap dykes.

Throughout the whole of the country traversed from Lake Missinaibi, gneiss, with trap dykes cutting it, were the only rocks met with. At the Wi-a-sitch-a-wan Falls at the mouth of the river, the gneiss, which is grey and reddish-grey, and coarse in texture, runs S. 80° W., and is cut by a large dyke, having the same direction. Similar varieties of gneiss continued to and around Little Missinaibi Lake, the strike being from S. 10° E. to S. 40° E., averaging about S. 20° E. The dykes, of which several were seen cutting the gneiss, appear to run about S. 80° W. To the south-eastward of the lake, the strike of the gneiss is more variable, being from S. S. W. to W. N. W. The country just described was mostly of a rocky character, but Mr. Molson noticed some tracts of tolerably good soil. Near the Wi-a-sitch-a-wan Falls a light-coloured clay was observed between the ridges of gneiss.

Soil.

Head waters of Michipicoten and Magpie Rivers.

Superficial Geology, Soil, &c. The country around the lakes at the heads of the Michipicoten, Magpie and Kabinakagami Rivers is generally hilly and broken. Some patches of fair land, mostly of sandy and gravelly loam, were found among the hills in the neighborhood of all these lakes. The valleys of the Oba and Kabinakagami Rivers are overspread with fine stratified sands which often contain much clay. On

top of these deposits the soil usually appears to be good, but in some places it is of too light a character. Along the latter stream, the banks of sand sometimes attain a height of fifty feet and upwards, especially in the lower twenty or thirty miles examined. For a few miles above our turning point, a yellowish-drab clay, affording a good soil, was found on either side of the river.

Kapuskasing and Trout Rivers.

In the country examined between the Missinaibi and Kapuskasing Rivers, much of the land is of a coarse sandy nature, broken here and there by ridges and knolls of rock, but in the valley of the latter stream there appears to be a considerable proportion of loamy and fine sandy soil of fair quality.

Coarse and fine sand.

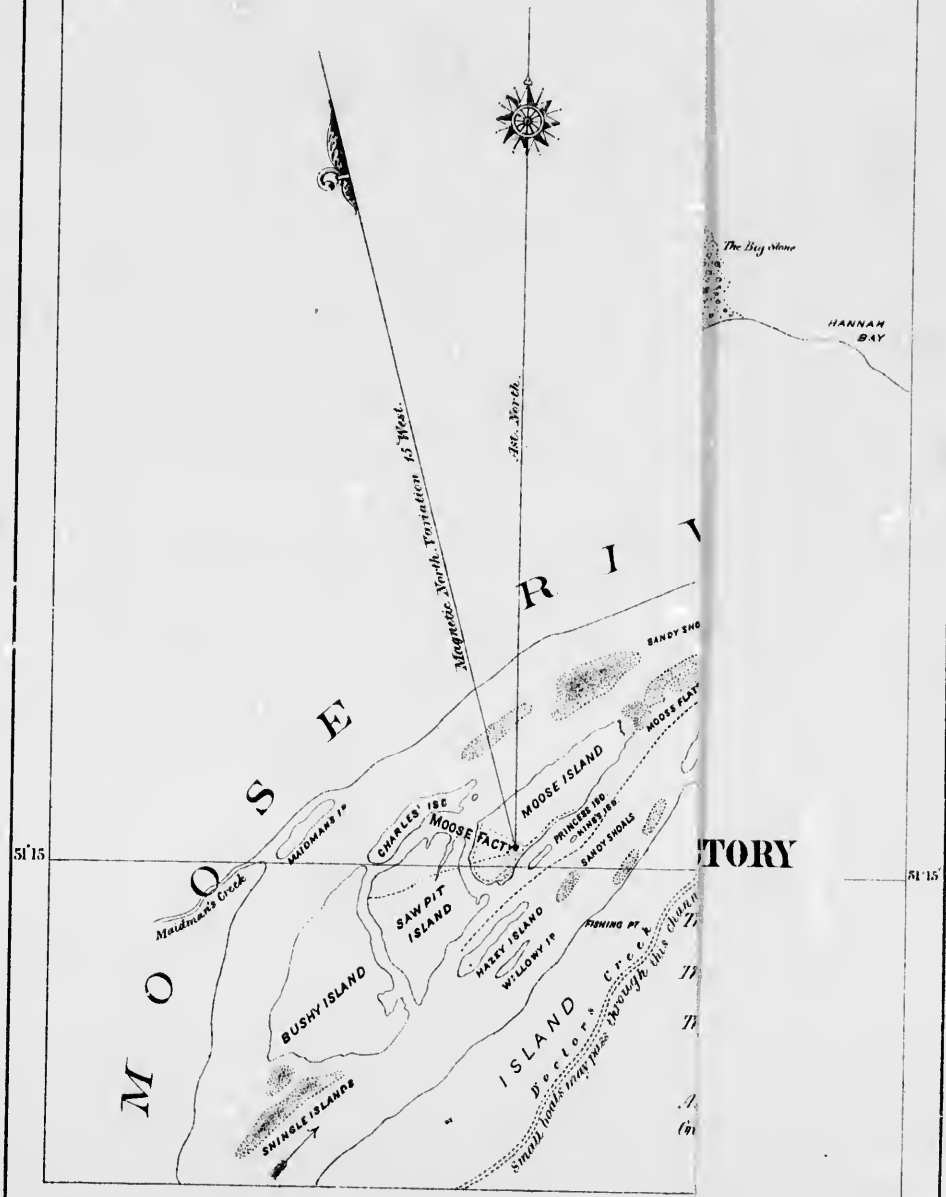
Enormous boulders.

On the east side of Trout River, about twelve miles above its junction with the Kapuskasing, two enormous boulders, each as large as an ordinary settler's house, were seen perched on a low hill a short distance from the water. From the outlet of Trout Lake, for a distance of about ten miles downward, the river which flows with a gentle current, is closely flanked on either side by sharp ridges and conical hills of gravel and sand rising to a height of about 100 feet. The ridges follow the course of the valley and behind them, long ponds and lagoons are situated, having generally openings of greater or less width connecting them with the river.

Ridges and conical hills of gravel and sand


51°15

The water in James Bay in the vicinity of the mouth of Moose River is somewhat tur
The rise and fall at spring tides is about ten feet; at neaps about six feet.
High water at full and change of moon 11½ o'clock.
Sea going ships come to the Inner Ship Hole from the direction of A. Elsewhere the
sand and mud bottom.
The dotted line from the Inner Ship Hole indicates the channel followed by schoon
The head of tide water is about eight miles above Moose Factory or twenty miles fr
The continuous shore lines indicate the ordinary high tide mark. Extraordinar
occasionally flood back to the line of bushes.

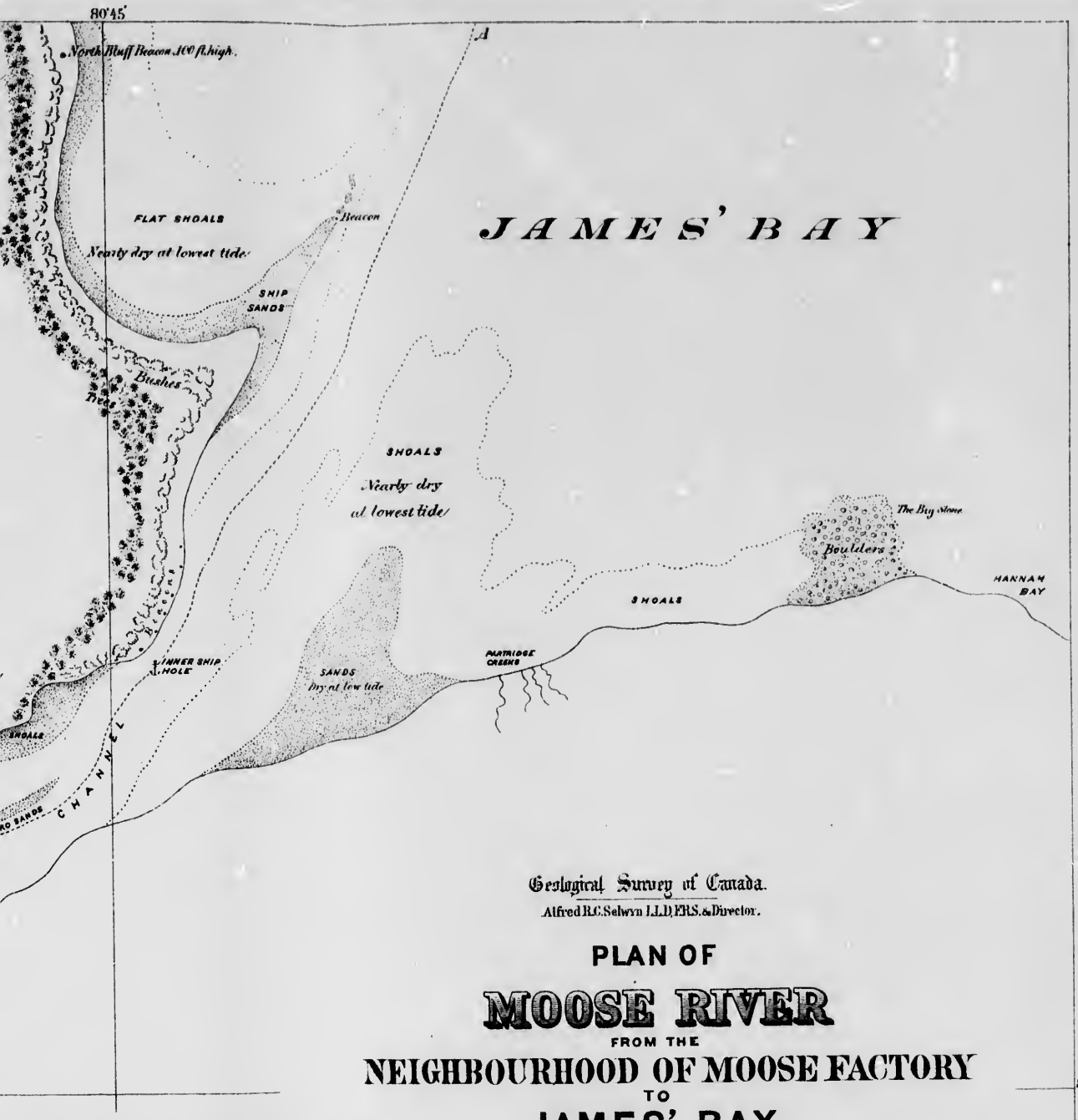


A. Mortimer, Ottawa.

The water in James Bay in the vicinity of the mouth of Moose River is somewhat turbid and slightly brackish.
The rise and fall at spring tides is about ten feet; at neaps about six feet.
High water at full and change of moon XII½ o'clock.
Sea going ships come to the Inner Ship Hole from the direction of A. B'Elsewhere the water is shallow with sand and mud bottom.
The dotted line from the Inner Ship Hole indicates the channel followed by schooners to Moose Factory.
The head of tide-water is about eight miles above Moose Factory or twenty miles from the sea.
The continuous shore-lines indicate the ordinary high tide-mark. Extraordinary high tides occasionally flood back to the line of bushes.

The banks of Moose River are well timbered with spr
white cedar, white birch, aspen, rough-barked po
The soil on Sawpit, Moose, Hazey and Middleboro' Isl
It produces good crops.
The clearing around Moose Factory is about a mile
of the Hudson's Bay Company, an Episcopal Cathed
Moosonee are situated here.
About eighty head of cattle are pastured on Saw-pit
Greenwich Observatory is in lat. 51° 28' 38" or 15 miles n
(Beyond the limits of this map.)

A. Mortimer, Ottawa.



Geological Survey of Canada.

Alfred R.C. Selwyn LL.D. F.R.S. & Director.

PLAN OF

MOOSE RIVER

FROM THE

NEIGHBOURHOOD OF MOOSE FACTORY

TO

JAMES' BAY

SURVEYED BY ROBERT BELL, LL.D., M.D., C.E.

To illustrate Reports of 1875-77-81

SCALE 2 MILES TO 1 INCH

Drawn by A.S. Cochrane

Reduced by A.P. Low, B. Ap Sc.

are well timbered with spruce, tamarac, balsam, banksian pine, birch, aspen, rough-barked poplar, etc.

Hazey and Middleboro Islands is grey clay with level surface.

Factory is about a mile in length, and besides the establishment Company, an Episcopal Cathedral and the residence of the Bishop of ed here.

are pastured on Saw-pit Island.

lat. 51° 28' 38" or 15 miles north of Moose Factory.

this map.)

80°45'

II.

ON THE GEOLOGY OF

THE LAKE OF THE WOODS

AND ADJACENT COUNTRY.

BY

ROBERT BELL, LL.D., M.D., C.E.

The geological explorations which had been made previous to 1881 in the country between Lake Superior, on the one hand, and Lake Winnipeg and the valley of the Red River on the other, had been accomplished by following the numerous canoe-routes leading through it in different directions, and examining the shores of the lakes and rivers, as well as by making short journeys inland from their banks. The Canadian Pacific Railway now traverses this region and passes through large tracts which are not easily accessible by canoe. It was so far completed in 1881 as to admit of our following the line throughout and thus enabling us to ascertain many new facts in regard to the geological structure and the geographical distribution, in these parts, of the Laurentian and Huronian systems. The cuttings along the track afforded excellent opportunties for examining fresh sections of the rock.

Geological examination of the line of the Canadian Pacific R. R.

Before proceeding with a continuation of the geological exploration of the Lake of the Woods, which had been begun in previous years (See Reports for 1872 and 1873), a cursory examination was made of the railway track from English River to Cross Lake. This work was performed by Mr. Molson in the section between Wabigoon Lake and Rat Portage, and in the other sections by myself. The same gentleman explored the Wabigoon and part of the Eagle River, whilst I made a track-survey from Wabigoon Lake to Lake of the Woods by way of the Three-fork River, Eagle, Vermilion and Bell's Lakes. This was followed by a geological examination of the northern part of the Lake of the Woods and of Shoal Lake and Whitefish Bay, with track-surveys of the parts travelled over.

In going westward from English River along the track of the Cana- English River.

Butler. Bonheur. Falcon.

dian Pacific Railway, Laurentian gneiss continues to a point between Butler and Raleigh Stations. It is nearly all of dark-grey shades, and the prevailing strike is between W. S. W. and S. W. Between Bonheur and Falcon Stations, it is conspicuously banded or ribboned, the layers consisting of various shades of grey, with some of red. At the former station and for a short distance west the strike is S. 75° W., but for the remainder of the interval, about ten miles, it is S. 45° W., and the dip is to the south-east at an angle of about 70°. Between Gull River and Falcon Station, the gneiss, which is very dark and hornblendic, passing into schist, is very largely mixed with coarse and fine red felspathic granite. At two miles, and continuing thence for three miles west of Ignace Station, the rock is very massive grey gneiss, or possibly a granite, as no distinct stratification could be detected.

Huronian schists near Raleigh.

The last gneiss was seen at the Y, three miles west of Butler Station; and at about one mile and three-quarters east of Raleigh, dark-green, fine hornblende schist, which is considered Huronian, makes its appearance. The strike is north-westward, quite parallel to the railway track, and the dip is south-westward at an angle of 65° to 70°. A similar rock, with the same strike, was observed two miles west of Raleigh, while at four miles there is a dark, greenish-grey, silicious schist, and a lighter grey felspathic schist, all associated with a few thin, rusty, calcareous beds. Here the strike is more nearly north, but at one mile and a-half further west, where the felsitic schists are more largely developed, the strike is again north-westward. These rocks are followed immediately to the westward by dark-greenish silicious and chloritic schists, having the same strike. Next, slaty diorites were met with, becoming more massive in going westward, to a point three and a-half miles east of

Taché.

Taché Station, where they are succeeded by grey syenitic granite of medium texture, which has a breadth of a mile and a-half on the track. Green schists were observed at one mile west of Taché, beyond which the rocks for a number of miles are concealed by drift. In the neighbor-

Bois Brulé.

hood of Bois Brulé Station, the rocks, which strike north-westward, consist of soft, green schists, with strings of calcspar and quartz. Where the railway crosses the narrows of a small lake a mile or two west of this station, there is a cutting through dark, bluish-grey, soft and hard dioritic schists, with strings of brown-weathering calcspar. Quartz, epidote and iron pyrites also occur in these rocks. In another cutting, a short distance further west, the rock is a dioritic conglomerate. Between this point and Little Wabigoon Lake a variety of dioritic rocks were met with, consisting of massive and slaty forms, of various shades of bluish-green, grey, bluish, and greenish-grey. The dioritic schists generally contain much calcspar in the form of strings and spots. Slaty dioritic rocks running north-westward, or with the track, were ob-

served here and there as far as Elm Bay on (Big) Wabigoon Lake, around the head of Little Wabigoon Lake, and in various localities along the track as far east as Taché, and as far west as Eagle River, there is a considerable thickness of stratified, drab clay, with an occasional reddish band. In some places the stratification of the clay was observed to dip at high angles. Small nodules of curious forms are sometimes found in it.

Wabigoon River to Rat Portage. Gneiss. Schists.

From the Wabigoon River to within about nine miles of Rat Portage, Mr. Molson found only Laurentian gneiss, with the exception of a narrow band of argillaceous slate near the north-east corner of Feist Lake, and a belt of hornblende schist, about one mile wide, with a northward strike, crossing the track opposite the end of Dog-tooth Lake. The strike of the gneiss varied much, but in the majority of cases it approached either a westward or a south-westward course. At nine miles before reaching Rat Portage, and continuing thence for two or three miles, a coarse grey syenitic granite prevailed. Between this and the village of Rat Portage, the rocks are principally fine-grained, somewhat calcareous, hornblende schist, in which the jointing is well marked, but there are also felsitic, dioritic and silicious schists. The average direction of the strike is south-westward. A tough, greenish-grey, hornblendic rock, containing occasional patches of asbestus, occurs a short distance west of the outlet at Rat Portage. The line between the Laurentian and the Huronian systems, which crosses the Winnipeg River at Rat Portage, keeps near the railway to a point between Lake Lulu and Keewatin Mills, where it crosses it diagonally and continues thence in a westerly direction on the south side of the track.

Boundary between Laurentian and Huronian, north of Lake of the Woods.

Lake Deception to Cross Lake.

From Lake Deception to Cross Lake the Laurentian gneiss is generally dark grey and red, rather massive, much contorted and cut by numerous veins of red and grey granite; while from Cross Lake for some distance westward, it is reddish in colour, thinly bedded, and runs with great regularity nearly parallel to the railway, the dip being to the north at moderate angles. It is probable that a line of dislocation or disturbance, which may be connected with the granites of Lake of the Woods and the Winnipeg River, runs north-westward through Cross Lake. The decomposition of the rock along this line, followed by the denuding agencies of the glacial period, have probably been the means of scooping out the deep channel of this lake, which caused so much trouble in attempting to carry the line of the Pacific Railway across it.

Probable dislocation.

Exploration from Wabigoon Lake by Eagle, Vermilion and Bell's Lake to Lake of the Woods.

Returning now to Wabigoon Lake, a short account will be given of the explorations by water which have been referred to. In descending the Wabigoon River to its junction with the Eagle River and in ascending the latter stream, Mr. Molson found only Laurentian gneiss, until coming to the outlet of Eagle Lake, where the Huronian schists begin. Their strike is here S. S. W.

In regard to the exploration from Wabigoon Lake by way of Eagle, Vermilion and Bell's Lakes to Lake of the Woods, the rocks will be mentioned in the order in which they were examined. Around Wabigoon Lake, green dioritic and chloritic schists prevail. I was shewn a small specimen of native copper in quartz, said to have been broken from a vein on an island in this lake. In the southern bay of the lake and along the Three-fork River, as far as the second small lake on its course, a massive, grey diorite appears to be the only rock. From this lake a portage, three quarters of a mile long, leads south-westward to a larger one, the waters of which eventually find their way into Eagle Lake. The northwest side of this lake is occupied with Laurentian gneiss.

Three-fork River.

Lying to the south-east of Eagle Lake, proper, are two straggling sheets of water connected with each other by tortuous narrows, five or six miles long. The second and larger of these was called, for convenience, Hugh Osbourne's Lake. It is separated from the south-eastern bay of Eagle Lake by narrows only a few yards wide, and here the Huronian schists re-appear; the two straggling lakes mentioned being surrounded by hills of gneiss. Three miles north of the narrows by which we entered Eagle Lake, another narrow place was passed. Here the rock is a light-grey calcareous mica-schist on edge, and running S. 30° W. Along the south-east side of the lake, dark-grey diorites, for the most part of massive character, predominate, except in the last four miles before reaching the south-western extremity, where they are replaced by a grey syenitic granite of medium texture. At a mile and a-half north of the south-eastern extremity, a light-grey, slaty felsite was met with in a vertical attitude and striking S. 35° W. A narrow passage connects the western arm of Eagle Lake with the south-west end of Vermilion Lake. The rock at this place is a grey mica-schist full of iron pyrites. The ground is covered with red ochre resulting from the decomposition of the pyrites by bush fires and the action of the weather. The schists contain numerous short veins of red and white quartz (also holding iron pyrites), following the strike, which runs S. 45° W.

Lakes S.E. of Eagle Lake.

Huronian rocks of Eagle Lake.

Passing into Vermilion Lake through the passage already mentioned, at half a mile north of the western arm of Eagle Lake, Laurentian gneiss was again encountered and was the only rock met with along the route followed, until reaching the portage on Berry River, about a mile east of the head of Long Bay at the eastern extremity of the northern part of the Lake of the Woods. Here again schists and calcareous, light-grey micaceous quartzites were found, striking west, which proved to be connected with the large Huronian basin of this lake.

Laurentian gneiss of Vermilion and Bell's Lakes.

The gneiss all along the above route is of the ordinary greyish and reddish varieties, and requires no special description. The country visible from this chain of lakes on either side is mostly rocky and barren and nearly all the timber has been burnt off.

Gneiss of Whitefish Bay.

The shores and islands of Whitefish Bay were found to consist of Laurentian gneiss, except along the northern side and near Turtle Portage at the southern extremity. About a mile and a-half north of this portage dark-grey mica-schist and fine hornblende schist, running south-westward, are seen on both sides of the bay in contact with the gneiss.

Schists of Shebaskong Bay.

According to the late Dr. Bigsby, the shores and islands of Shebaskong Bay are occupied by a variety of schists, which are now included in the Huronian system, (see Journal of the Geological Society of London, Vol. 8). Green schists, with a westward strike, are seen in contact with the gneiss in the northern part of Whitefish Bay.

Huronian rocks of Lake of the Woods.

The subdivisions of the Huronian system, which is well developed around the northern part of Lake of the Woods and Shoal Lake, are explained more concisely and usefully for reference by means of the accompanying geological map and the notes upon it, than would be possible in any other way; and it is, therefore, unnecessary here to repeat these descriptions. At the time of our visit, no mining operations were going on at the Lake of the Woods, although some openings, in search of gold, had lately been made. Owing to the want of guides and the lateness of the season, it was found impossible to examine the various localities at which more or less work had been done. In 1879 I was presented by Mr. J. Dewe with a specimen from Hay Island, of white quartz, containing needle-like crystals of hornblende, with a little calcspar, which showed distinct specks of gold. It was assayed by Mr. Hoffman, chemist to the survey, and found to contain 37.318 ounces of gold and 1.431 ounces of silver to the ton of 2000 pounds [Report of Progress for 1878-79, page 33 H.]. We were shown specimens of copper pyrites in quartz and clay-slate, of galena in quartz and of magnetic iron associated with jasper, all said to have been found in the eastern part of the northern division of the Lake of the Woods.

Gold.

Copper.

Lead.

Botanical and entomological collections.

The botanical collection of the year, of which a list is given in the appendix, was made almost entirely in the region explored during the earlier part of the season. Lists are also given of the coleoptera collected, not only in the regions explored, but also of those which had been obtained at Oxford House, and a collection kindly made for me by Mr. William Isbister at Nelson River House, as well as of Mr. Cochrane's collections from the region which he traversed, between the Nelson and the Athabasca Rivers. We are greatly indebted to Dr. J. L. LeConte of Philadelphia for his kindness in having determined the species in all the above collections. His lists will be found in the appendix.

APPENDIX I.

—

CATALOGUE

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

(*Botanist to the Survey,*)

OF THE PLANTS COLLECTED BY DR. ROBERT BELL ALONG THE MICHIPICOTEN RIVER AND IN THE SOUTHERN PART OF THE BASIN OF MOOSE RIVER,

In July, August and September, 1881.

The collection affords scarcely any indications of a boreal climate. The greater number of the species are the commoner plants of central Ontario. For the purpose of making a comparison between the two regions, the county of Hastings is selected because its flora is most familiar to the writer. The species found in this county are indicated in the fourth column of the catalogue. It may be observed that they represent largely the flora of rivers and river margins rather than the forest away from their banks. Many of the bog plants are absent, which indicates either a comparatively dry region, or that the bogs were not traversed. Plants peculiar to a dry limestone soil are absent. That the climate of the tract of country traversed is much warmer than that in the immediate vicinity of Lake Superior is indicated by the absence of many species which make their home there.

The species in this collection which have been found along the Georgian Bay or Lake Superior, but not in central Ontario, are the following. Those marked with a star are found on the lower St. Lawrence, and those with a dash extend westward to and beyond Manitoba.

—* Hedysarum boreale.
— Vicia Americana.
—* Potentilla tridentata.
Crataegus tomentosa var. pyrifolia.
—* Parnassia palustris.

— Saxifraga tricuspidata.
— Symphoricarpus racemosus, var. pauciflorus.
—* Lonicera involucrata.
— " parviflora var. Douglasii.
—* " cærulea.
—* Viburnum pauciflorum.
—* Aster graminifolius.
—* Nabalus racemosus.
—* Vaccinium cæspitosum.
—* Pinguicula vulgaris.
— Mertensia paniculata.
Gentiana alba.
—* Halenia deflexa.
—* Comandra livida.
—* Linum erectum var. declinatum.
— Tofieldia glutinosa.
—* Streptopus amplexifolius.
—* Allium Schænoprasum.
—* Eleocharis tenuis.
—* Carex capillaris.
—* Aspidium fragrans.
—* Woodsia glabella.
—* Stereocaulon paschale.

The foregoing list gives all the species in the collection which are not found in Hastings county, so that the western range of the species is the only point worthy of consideration. Many of these extend to and beyond the Rocky Mountains, and a few to the Pacific Ocean. It is a curious fact that Lake Superior seems to be the eastern limit of many western forms. At present no other cause can be adduced for it than the increased humidity of the air. Vicia, Parnassia, Saxifraga, Lonicera involucrata, Viburnum, Vaccinium, Mertensia, Comandra, Halenia, Streptopus, Allium, and Carex cross the Rocky Mountains, and are found in great luxuriance in northern British Columbia. A few reach the Pacific coast, and seem as much at home there as they do on Thunder Bay. Of these the Vicia, Lonicera, and Mertensia are the most common, and scarcely undergo the slightest change in fifty degrees of longitude. Many others, which do not appear in the list, could be cited as ceasing to grow at the western end of Lake Superior; and eastern species, especially shrubs and trees, have their western limit there. Much remains to be done in determining the geographical distribution of species, and no place will so well repay examination in this connection as the western end of Lake Superior.

Only two doubtful or unique forms were detected. These were a

Nuphar and a Hieracium. The former may be a variety of N. advena, but I am tempted to believe it is N. luteum, which has been lately found at Ottawa by Mr. J. Fletcher. The Hieracium is possibly a form of H. Canadense, but future collections must decide that, as the present specimen is too imperfect to determine this point.

The columns in the catalogue refer to the localities in which these plants were collected, as follows :

I.—Michipicoten River from the Long Portage to Lakes Mattawagaming and Wabatongwashene.

II.—Oba Lake and River, and Kabinakagami Lake and River.

III.—From Missinaibi House to Flying Post.

IV.—County of Hastings for comparison.

Nos.		I.	II.	III.	IV.
	RANUNCULACEÆ. (*Crowfoot family*).				
1	Clematis verticillaris, DC.				*
2	Anemone Pennsylvanica, Linn.	*			*
3	Thalictrum purpurascens, Linn		*		*
4	" Cornuti, Linn.	*			*
5	Ranunculus aquatilis, var. trichophyllus, Cham	*			*
6	" Flammula, L. var. reptans, Gr		*		*
7	" repens, Linn	*			*
8	Caltha palustris, Linn	*	*		*
9	Coptis trifolia, Salisb.		*		*
10	Aquilegia Canadensis, Linn.			2	*
11	Actæa spicata, L. var. rubra, Gr			1	*
12	" alba, Bigel.		*		*
		*		1	*
	NYMPHÆACEÆ. (*Pond Lily Family*).				
13	Brasenia peltata, Pursh		1		*
14	Nymphæa odorata, Ait		1		*
15	Nuphar advena, Ait.				*
16	" luteum ? Smith.	*			*
17	" luteum, Smith, var. pumilum, Gr.	*			
			*	1	*
	SARRACENIACEÆ. (*Pitcher Plant Family*).				
18	Sarracenia purpurea, Linn		*		*
	FUMARIACEÆ. (*Fumitory Family*).				
19	Corydalis glauca, Pursh	*	*		*
	CRUCIFERÆ. (*Mustard Family*).				
20	Nasturtium palustre, DC.		*		*
21	Cardamine hirsuta, Linn.		*		*
22	Arabis Drummondi, Gray	*			*

Nos.		I.	II.	III.	IV.
	VIOLACEÆ. (*Violet Family*).				
23	Viola blanda, Willd	•			•
24	" cucullata, Ait	•			•
25	" canina, L. var. sylvestris, Reg			1	•
	DROSERACEÆ. (*Sundew Family*).				
26	Drosera rotundifolia, Linn	•			•
	HYPERICACEÆ. (*St. John's Wort Family*).				
27	Hypericum Canadense, Linn			2	•
28	Elodes Virginica, Nutt			2	•
	GERANIACEÆ. (*Geranium Family*).				
29	Geranium Carolinianum, Linn	•		2	•
30	Impatiens fulva, Nutt		•	2	•
31	Oxalis acetosella, Linn	•			•
	RHAMNACEÆ (*Buckthorn Family*).				
32	Rhamnus alnifolius, L'Her	•	•		•
	SAPINDACEÆ. (*Maple Family*).				
33	Acer spicatum, Lam	•			•
34	" rubrum, Linn	•			•
	LEGUMINOSÆ. (*Pea Family*).				
35	Trifolium repens, Linn			•	•
36	Hedysarum boreale, Nutt			•	
37	Vicia Americana, Muhl			•	
38	Lathyrus ochroleucus, Hook	•		•	•
	ROSACEÆ. (*Rose Family*).				
39	Prunus Virginiana, Linn			•	•
40	" Pennsylvanica, Linn		•		•
41	" pumila, Linn		•		•
42	Spiræa salicifolia, Linn		*		•
43	" opulifolia, Linn		•		•
44	Geum macrophyllum, Willis		•		•
45	" strictum, Ait		•	•	•
46	" rivale, Linn		•		•
47	Fragaria Virginiana, Ehrh		•		•
48	Potentilla argu ., Pursh		•		•
49	" anserina, Linn			•	1 •
50	" fruticosa, Linn		•		
51	" tridentata, Ait		•		
52	" palustris, Scop		•		•
53	Rubus triflorus, Rich		•	•	•
54	" strigosus, Michx		•		•
55	Rosa blanda, Ait		•		•

Nos.		I.	II.	III.	IV.
	ROSACEÆ. (*Rose Family*).—(*Continued.*)				
56	Cr.tægus tomentosa, L. var. pyrifolia, Gr. Also at Sault Ste. Marie	•		(E)	
57	Amelanchier Canadensis, Torr and Gr.	•			•
58	Pyrus Americana, DC.	•			•
	SAXIFRAGACEÆ. (*Saxifrage Family*).				
59	Ribes hirtellum, Mx.		•		•
60	" lacustre, Poir.	•	•		•
61	" rubrum, Linn.	•	•	2	•
62	Parnassia palustris, Linn.		•	(25)	
63	Saxifraga tricuspidata, Retz.			(W)	
64	Mitella nuda, Linn.	•			•
	HALORAGEÆ.				
65	Hippuris vulgaris, Linn.		•		•
66	Myriophyllum heterophyllum, Mx.			1	
	ONAGRACEÆ. (*E. Primrose Family*).				
67	Circæa alpina, Linn.	*	•		•
68	Epilobium angustifolium, Linn.	•		(W)	•
69	" palustre, Linn.	•			•
70	" " var. lineare, Gr.	•			•
71	" tetragonum, Linn.	•			•
72	" coloratum, Muhl.	•			•
	UMBELLIFERÆ. (*Parsley Family*).				
73	Sanicula Marilandica, Linn.	•			*
74	Heracleum lanatum, Michx.	•			•
75	Cicuta bulbifera, Linn.			1	
76	Sium lineare, Michx.	•			•
77	Osmorhiza brevistylis, DC.	•			•
	ARALIACEÆ. (*Ginseng Family*).				
78	Aralia nudicaulis, Linn.	•			•
79	" hispida, Michx.		•		•
	CORNACEÆ. (*Dogwood Family*).				
80	Cornus Canadensis, Linn.	•		(W)	•
81	" stolonifera, Michx.	•	•		•
	CAPRIFOLIACEÆ. (*Honeysuckle Family*).				
82	Linnæa borealis, Gronov.	•			•
83	Symphoricarpus racemosus, Mx. var. pauciflorus (Robbins)	•			
84	Lonicera involucrata, Banks.		•		
85	" parviflora, Lam, var. Douglasii, Gr.	•	•	2	
86	" cærulea, Linn.		•		
87	" oblongifolia. Muhl.	•		1	•
88	" ciliata, Muhl.	•	•		•

Nos.		I.	II.	III.	IV.
	CAPRIFOLIACEÆ. (*Honeysuckle Family*).—(*Continued.*)				
89	Lonicera *ciliata*, Eaton		•	1	•
90	Diervilla trifida, Mænch				•
91	Sambucus pubens, Michx	•			•
92	Viburnum paniculorum, Pylaie	•			•
93	" opulus, Linn	•	•		•
	RUBIACEÆ. (*Madder Family*).				
94	Galium triflorum, Michx	•		1	*
95	" trifidum, Linn	•	•	2	•
96	" asprellum, Michx			1	•
	COMPOSITÆ. (*Composite Family*).				
97	Eupatorium purpureum, Linn	•			*
98	Nardosmia palmata, Hook	•	•		•
99	Aster simplex, Willd			1	•
100	" æstivus, Ait				•
101	" cordifolius, Linn		•		•
102	" graminifolius, Torr and Gray		•		•
103	" macrophyllus, Linn	•	•		
104	" punicens, Linn	•	•		•
105	Diplopappus umbellatus, Torr and Grey		•		•
106	Solidago lanceolata, Ait			1	•
107	" Virga-aurea, L. var. Alpina, Rig	•		1	•
108	" Canadensis, Linn			(W)	
109	" nemoralis, Ait			1	•
110	" latifolia, Linn	•			•
111	Achillæa millefolium, Linn	•			•
112	Antennaria plantaginifolia, Hook	•			•
113	" margaritacea, R. Br	•			•
114	Senecio aureus, Linn, var obovatus, T. & G	•			•
115	" " var borealis, T. & G	•		(W)	•
116	Cirsium muticum, Mich				
117	Hieracium Canadense, Michx	•			•
118	" ——— ?	•	•	1	•
119	Nabalus racemosus, Hook				
120	Taraxacum dens-leonis, Desf		•		
121	Mulgedium leucophæum, DC	•			•
122	Lactuca Canadensis, Linn	•	•		•
		•			•
	LOBELIACEÆ. (*Lobelia Family*).				
123	Lobelia Kalmii, Linn				•
	CAMPANULACEÆ. (*Campanula Family*).				
124	Campanula aparinoides, Michx		•		•
	ERICACEÆ. (*Heath Family*).				
125	Vaccinium cæspitosum, Michx				
126	" Canadense, Kalm	•			
127	" Oxycoccus, Linn	•			•
128	" Pennsylvanicum, Linn	•	•		•

Nos.		I.	II.	III.	IV.
	ERICACEÆ. (*Heath Family*).—(*Continued.*)				
129	Chiogenes hispidula, Torr and Gray			1.2	.
130	Arctostaphylos uva-ursi, Spreng		.		.
131	Epigæa repens, Linn	.		1	.
132	Gaultheria procumbens, Linn			1	.
133	Cassandra calyculata, Don	.		2	.
134	Andromeda polifolia, Linn		.		.
135	Ledum palustre, Linn			(W)	
136	" latifolium, Ait		.		.
137	Pyrola secunda, Linn		.		.
138	" rotundifolia, Linn		.		.
139	" elliptica, Nutt			(W)	.
140	Moneses uniflora, Gray		.	2	.
141	Monotropa uniflora, Linn	.			.
	AQUIFOLIACEÆ. (*Holly Family*).				
142	Nemopanthes Canadensis, D C	.			.
	PLANTAGINACEÆ. (*Plaintain Family*).				
143	Plantago major, Linn		.		.
	PRIMULACEÆ. (*Primrose Family*).				
144	Primula Mistassinica, Michx		.		
145	Trientalis Americana, Pursh	.			.
146	Lysimachia thyrsiflora, Linn		.		.
147	" stricta, Ait	.	.		.
	LENTIBULACEÆ. (*Bladderwort Family*).				
148	Utricularia vulgaris, Linn			2	.
149	Pinguicula vulgaris, Linn		.		
	SCROPHULARIACEÆ. (*Figwort Family*).				
150	Mimulus ringens, Linn		.		.
151	Veronica Americana, Schw		.		.
152	" scutellata, Linn	.		2	.
153	Melampyrum Americanum, Michx	.	.		.
	LABIATÆ. (*Mint Family*).				
154	Mentha Canadensis, Linn	.		2	.
155	Lycopus Virginicus, Linn		*	1	.
156	" sinuatus, Gray	*	.		.
157	Calamintha Clinopodium, Benth	.			.
158	Brunella vulgaris, Linn	.			.
159	Scutellaria galericulata, Linn	*		(1w)	.
160	" lateriflora, Linn		.		.
	BORAGINACEÆ. (*Borage Family*).				
161	Mertensia paniculata, Don	.			

Nos.		I.	II.	III.	IV.
	GENTIANACEÆ. (*Gentian Family*).				
162	Gentiana alba, Michx			1	
163	Halenia deflexa, Griesb		*		
164	Menyanthes trifoliata, Linn		*		*
	APOCYNACEÆ. (*Dogbane Family*).				
165	Apocynum androsæmifolium, Linn	*			*
	OLEACEÆ. (*Olive Family*).				
166	Fraxinus sambucifolia, Lam	*			*
	POLYGONACEÆ. (*Buckwheat Family*).				
167	Polygonum tenue, Michx	*			*
168	" amphibium, var. aquaticum, L		*		*
169	Rumex orbiculatus, Gray		*	2	*
170	Fagopyrum esculentum, Mœnch	*			*
	SANTALACEÆ. (*Sandalwood Family*).				
171	Comandra livida, Rich		*		
	CALLITRICHACEÆ. (*Water Starworts*).				
172	Callitriche verna, Linn		*		*
	URTICACEÆ. (*Nettle Family*).			1	*
173	Urtica gracilis, Ait			E	*
174	Celtis occidentalis, Linn, Eagle Lake, Lat. 49° 45′, Long. 93° 15′				
	CUPULIFERÆ.				
175	Quercus alba, Linn. At Sault Ste. Marie				*
176	" rubra, Linn. On east side of Lake Superior, as far north as Agawa River; on west side as far north as the Kaministiquia River		*		*
177	" macrocarpa, Michx. In going west, this species is first met with at the east end of Eagle Lake				
178	Corylus rostrata, Ait	*			*
179	Ostrya Virginica, Willd, around Lake of the Woods				*
	MYRICACEÆ.				
180	Myrica Gale, Linn	*			*
	BETULACEÆ. (*Birch Family*).				
181	Betula pumila, Linn			1	*
182	" papyracea, Ait	*			*
183	Alnus incana, Willd	*			*

Nos.		I.	II.	III.	IV.
	SALICACEÆ. (*Willow Family*).		•		•
184	Salix candida, Willd	•	•		•
185	" discolor, Muhl				
186	" livida var. occidentalis, Gray		(W)		•
187	" lucida, Muhl	•	•	1	•
188	" longifolia, Muhl		•		•
189	" myrtilloides, Linn		•		•
190	Populus tremuloides, Michx		•		•
191	" balsamifera, Linn		•		•
	CONIFERÆ. (*Pine Family*).				
192	Pinus Banksiana, Lamb			1	•
193	" resinosa, Ait			1	•
194	" strobus, Linn			1	•
195	Abies balsamea	•			•
196	" alba	•			•
197	Larix Americana, Michx	•			•
198	Thuja occidentalis, Hook	•			•
199	Taxus baccata, L. var. Canadensis, Gray	•			•
200	Juniperus communis, Linn		•		•
	ARACEÆ. (*Arum Family*).				
201	Acorus calamus, Linn		•		•
202	Calla palustris, Linn		•	(2W)	•
	TYPHACEÆ. (*Cat-tail Family*).				
203	Sparganium eurycarpum, Engelm			2	•
204	" simplex, Huds		•		•
205	" " var. angustifolium, Gr		•		•
206	Typha latifolia, Linn			1, 2	•
	NAIADACEÆ. (*Pond-weed Family*).				
207	Potamogeton amplifolius, Tuck			1	•
208	" compressus, Linn		•		•
209	" gramineus, L. var. heterophyllus		•		•
210	" natans, Linn			2	•
211	" pectinatus, Linn			1	•
212	" Robbinsii, Oakes		•		•
213	" rufescens, Schrad	•			•
	ALISMACEÆ. (*Water-plantain Family*).				
214	Triglochin maritimum, L. var. elatum, Gr		•		•
215	Sagittaria variabilis, Engelm		•		•
216	" " var. obtusa, Gr		•		•
217	Alisma Plantago, L. var. Americanum, Gr			1	•
	ORCHIDACEÆ. (*Orchis Family*).		•		•
218	Habenaria Hookeri, Torr	•	•	1	•
219	" hyperborea, Lindl	•		2	•
220	" obtusata, Rich	•		2	•

Nos.		I.	II.	III.	IV.
	ORCHIDACEÆ. (*Orchis Family*).—(*Continued.*)				
221	Goodyera repens, R. Br.			1	.
222	Spiranthes Romanzoviana, Cham		.		.
223	Corallorhiza innata, R. Br.	.			.
224	" multiflora, Nutt.			1	
225	" Macræi, Gray			1	.
226	Cypripedium pubescens, Willd.				
	IRIDACEÆ. (*Iris Family*).				
227	Iris versicolor, Linn	.			.
	Sisyrinchium Bermudianum, Linn	.	.		.
	LILIACEÆ. (*Lily Family*).	*		1·2	
229	Trillium erectum, L. var. declinatum, Gr.	.			
230	Tofieldia glutinosa, Willd.	.			
231	Streptopus amplexifolius, D.C.	.			
232	" roseus, Michx.	.			
233	Clintonia borealis, Desf.	.			.
234	Smilacina trifolia, Desf.	.		2	.
235	" bifolia, Ker.				
236	Lilium Philadelphicum, Linn	.			.
237	Allium Schænoprasum, Linn.	.			
	JUNCACEÆ. (*Rush Family*).				
238	Luzula parviflora, var. melanocarpa, Gr.		.		
239	Juncus effusus, Linn	.			.
240	" tenuis, Willd.		.		.
	CYPERACEÆ. (*Sedge Family*).			.	.
241	Dulichium spathaceum, Pers.	.		1	.
242	Eleocharis palustris, R. Br.	.			.
243	" tenuis, Schultes.	.			
244	Scirpus validus, Vahl	.			.
245	" microcarpus, Prest.		.		.
246	" subterminalis, Torr		1		.
247	Eriophorum Virginicum, Linn.		1		.
248	Carex adusta, Boot.	.			.
249	" aurea, Nutt.		.		.
250	" capillaris, Linn.	.			
251	" Houghtonii, Torr.	.			.
252	" lenticularis, Michx.	.			.
253	" monile, Tuck.	.			.
254	" polytrichoides, Muhl.	.			.
255	" straminea, Schk.		.		.
256	" tenella, Schk.		.		.
257	" retrorsa, Schw		.		.
258	" irrigua, Smith.			1	.
	GRAMINEÆ. (*Grass Family*).		.	1	.
259	Zizania aquatica, Linn	.			.
260	Phleum pratense, Linn.			1	.

Nos.		I.	II.	III.	IV.
	GRAMINEÆ. (*Grass Family*).—(*Continued.*)				
261	Agrostis scabra, Willd.		•	1	•
262	Cinna arundinacea, Linn		•		•
263	Muhlenbergia glomerata, Trin.	•	•		•
264	Calamagrostis Canadensis, Beauv.			1	•
265	Glyceria aquatica, Smith			1	•
266	" fluitans, R. Br.	•			•
267	Bromus ciliatus, Linn.			1	•
268	Phragmites communis, Trin.	•			•
269	Triticum repens, Linn.	•			•
270	Danthonia spicata, Beauv.	•			•
271	Aira cæspitosa, Linn.	•	•		•
272	Trisetum subspicatum, var. molle, Gray.	•			•
	EQUISETACEÆ. (*Horse-tail Family*).				
273	Equisetum arvense, Linn.	•			•
274	" limosum, Linn.		•		•
275	" hyemale, Linn			2	•
276	" scirpoides, Michx.	•			•
	FILICES. (*Fern Family*).				
277	Polypodium vulgare, Linn.	•			•
278	Pteris aquilina, Linn	•			•
279	Asplenium trichomanes, Linn.			1	•
280	" Filix-fœmina, Bemh.	•	*	1	•
281	Phegopteris polypodioides, Feè	•		1	•
282	" Dryopteris, Feè.	•			•
283	Aspidium fragrans, Swartz.			1·2	
284	" cristatum, Swartz.			B.L.	•
285	" spinulosum, Swz. var. intermedium, Gr.	•			•
286	" " var. dilatatum, Gr.		•		•
287	Onoclea sensibilis, Linn.	•			•
288	Cystopteris fragilis, Bernh.	•			•
289	" bulbifera, Bernh.	•		1	•
290	Woodsia Ilvensis, R. Br.	•		1 BL	•
291	" ——— ?	•			
292	Osmunda regalis, Linn.	•			•
293	" Claytoniana, Linn	•			•
294	Botrychium Virginicum, Swartz.	•		2	•
	LYCOPODIACEÆ. (*Club-moss Family*).				
295	Lycopodium annotinum, Linn	•			•
296	" dendroideum, Michx.	•			•
297	" clavatum, Linn.	•			•
298	" complanatum, Linn.			2	•
	MUSCI. (*Moss Family*).			1	•
299	Sphagnum cymbifolium, Ehrh.			1	•
300	" recurvum, Beauv.			1	•
301	Dicranum undulatum, Turner.			1	•
302	Polytrichum commune, Linn.			1	•
303	Mnium cuspidatum, Hedw.		•		•

Nos.		I.	II.	III.	IV
	MUSCI (*Moss Family*).—(*Continued.*)				
304	Funaria hygrometrica, Linn		•		•
305	Hypnum Crista-castrensis, Linn		•		•
306	" Schreberi, Willd		1		•
307	" splendens, Hedw			1	
308	" triquetrum, Linn				
	HEPATICÆ. (*Liverwort Family*).				
309	Marchantia polymorpha, Linn	•	•		•
310	Madotheca platyphylla, Dumort		•		•
	LICHENES. (*Lichen Family*).			2	•
				2	•
311	Usnea barbata, Fr		•	2	
312	Parmelia saxatilis, Ach		•	2	•
313	Umbilicaria Dillenii, Tuck	•	•	2	•
314	Sticta pulmonaria, Ach	•	•		•
315	Peltigera canina, Hoffm		*		
316	Stereocaulon paschale, Lam		•		
317	Cladonia cornuta, Fries		•		
318	" cornucopioides, Fries		•		
319	" gracilis, Fries		•		
320	" furcata, Fries				

APPENDIX II.

—

LISTS OF COLEOPTERA COLLECTED IN 1881 BY DR. BELL AND OTHERS, IN THE LAKE SUPERIOR DISTRICT AND IN THE NORTH-WEST TERRITORIES,

east of the 112th Meridian and south of the 60th parallel.

By Dr. J. L. LeConte, Philadelphia.

The species given in Lists i.–vii. were collected by Dr. Bell; those in viii. by Mr. William Isbister, and those in ix. x. xi. by Mr. A. S. Cochrane.

The only remark I have to make upon the collections examined is that *Aphodius fimetarius* is still extending its area towards the North-West. This European species was first found in Maine about 1835 by Randall, since which time it has extended towards Georgia on the south, and also into the Western States. It now appears in Dr. Bell's collection of last summer, made on the route from Thunder Bay to Lake-of-the-Woods. This is, I believe, the first record of its appearance in the Lake Superior basin. It will therefore probably, undisturbed by enemies, diffuse itself over all parts of the continent, where proper food and endurable climate can be found.

I.—Sault Ste. Marie (between Lakes Huron and Superior), Lat. 46° 31', Long. 84° 20'.

1. Cicindela longilabris.
2. " purpurea.
3. " vulgaris.
4. " duodecimguttata.
5. Patrobus longicornis.
6. Pterostichus lucublandus.
7. " orinomum.
8. " erythropus.
9. Amara impunctieollis.
10. " obesa.
11. Calathus impunctatus.

12. Platynus cupripennis.
13. " cupreus.
14. " obsoletus.
15. Chlænius sericeus.
16. Anisodactylus Baltimorensis.
17. Harpalus Pennsylvanicus.
18. " herbivagus.
19. " pleuriticus.
20. Stenolophus conjunctus.
21. Rhantus binotatus.
22. Leistotrophus cingulatus.
23. Philonthus æneus.
24. Silpha Americana.
25. Liodes globosa.
26. Dermestes lardarius.
27. Pediacus fuscus.
28. Epuræa rufa.
29. Nitidula bimaculata.
30. Coccinella trifasciata.
31. Anatis pullata.
32. Hister abbreviatus.
33. " depurator.
34. Dendrophilus punctulatus.
35. Saprinus Oregonensis.
36. " maneus.
37. " fraternus.
38. Platycerus depressus.
39. Onthophagus Hecate.
40. Aphodius granarius.
41. Serica tristis.
42. Lachnosterna fusca.
43. Trichius affinis.
44. Chalcophora Virginiensis.
45. Buprestis fasciata.
46. " consularis.
47. " maculiventris, form rusticorum.
48. Melanophila longipes.
49. Chrysobothris dentipes.
50. " trinervia.
51. Cryptohypnus abbreviatus.
52. Elater apicatus.
53. Agriotes maneus.
54. " fucosus.

55. Agriotes oblongicollis.
56. Dolopius lateralis.
57. Corymbites cruciatus.
58. Asaphes memnonius.
59. Cyphon variabilis.
60. Plateros canaliculatus.
61. Ellychnia corrusca.
62. Photinus ardens.
63. Photuris Pennsylvanica.
64. Podabrus puberulus.
65. Telephorus fraxini.
66. " scitulus.
67. Clerus undatulus.
68. Criocephalus agrestis.
69. Xylotrechus undulatus.
70. Desmocerus palliatus.
71. Aemæops pratensis.
72. Leptura chrysocoma.
73. " pubera.
74. " aspera.
75. Monohammus scutellatus.
76. " maculosus.
77. Chrysochus auratus.
78. Graphops marcassita.
79. Doryphora 10-lineata.
80. Chrysomela Philadelphica.
81. Prasocuris varipes.
82. Blapstinus moestus.
83. " interruptus.
84. Iphthimus opacus.
85. Upis ceramboides.
86. Tenebrio molitor.
87. " tenebrioides.
88. Hymenorus pilosus.
89. Isomira quadristriata.
90. Arthromacra aenea.
91. Corphyra lugubris.
92. Macrobasis unicolor.
93. Hylobius pales.
94. " confusus.
95. Baris confinis.
96. Dryopthorus corticalis.

II.—Mouth of Michipicoten River, Lake Superior. Lat. 47° 56′, *Long.* 84° 51′.

1. Cincindela longilabris.
2. Calosoma calidum.
3. Cymatopterus sculptilis.
4. Necrophorus vespilloides.
5. Silpha Lapponica.
6. Dichelonycha Backii.
7. Dicerca tenebrosa.
8. Buprestis maculiventris.
9. Monohammus scutellatus.

III.—Head Waters of the Michipicoten River, Lake Superior. Lat. 48° 30′, *Long.* 84° 00′, *to Lat.* 48° 30′, *Long.* 84° 10′.

1. Cicindela vulgaris.
2. " duodecimguttata.
3. Nomius pygmæus.
4. Pterostichus coracinus.
5. " orinomum.
6. Amara erratica.
7. Cymindis cribricollis.
8. Hydroporus inæqualis.
9. " sericeus.
10. Dytiscus Harrisii.
11. Acilius semisulcatus.
12. Cymatopterus sculptilis.
13. Hybius confusus.
14. Gaurodytes lutosus.
15. Gyrinus limbatus.
16. " borealis.
17. " pectoralis.
18. Silpha Lapponica.
19. Coccinella picta.
20. Buprestis rusticorum.
21. Pogonocherus penicillatus.
22. Monohammus scutellatus.
23. " marmoratus.
24. Donacia subtilis.
25. Galeruca sagittariæ.
26. Blapstinus moestus.
27. Pissodes strobi (very small).
28. " dubius.

IV.—From Missinaibi House, north-east of Lake Superior, to Flying Post. Lat. 48° 29′, *Long.* 83° 35′ *to Lat.* 48° 02′ *Long.* 82° 20′.

1. Platynus affinis.
2. " obsoletus.
3. Pterostichus coracinus.
4. " orinomum.
5. Dytiscus confluens.
6. Gyrinus confinis.
7. " affinis.
8. Silpha Americana.
9. Choleva basillaris.
10. Coccinella picta.
11. Ellychnia corrusca (very small).
12. Monohammus scutellatus.
13. Donacia proxima.
14. " hirticollis.
15. " aurea.
16. Graptodera bimarginata.
17. " (two species undetermined).
18. Penthe obliquata.
19. Stenotrachelus arctatus.

V.—Oba and Kabiuakagami Lakes and Rivers, north-east of Lake Superior. Lat. 48° 30′, *Long.* 84° 27′ *to Lat.* 49° 45′, *Long.* 83° 45′.

1. Pelophila rudis.
2. Nomius pygmæus.
3. Bembidium impressum.
4. Patrobus hyperboreus.
5. Pterostichus punctatissimus.
6. " coracinus.
7. " orinomum.
8. Amara impunctcollis.
9. Calathus ingratus.
10. Platynus metallescens.
11. " deceptivus.
12. " retractus.
13. Cymindis cribricollis.
14. Chlænius Pennsylvanicus.
15. Bradycellus cognatus.
16. Hydroporus rotundatus.
17. Dytiscus Lapponicus.
18. Cymatopterus sculptilis.

19. Agabus lutosus.
20. " parallelus.
21. Dineutus emarginatus.
22. Choleva basillaris.
23. Epurea immunda.
24. Trichius affinis.
25. Buprestis maculiventris.
26. Chrysobothris trinervia.
27. Elater nigrinus.
28. Corymbetes virens.
29. " ochreipennis.
30. Celetes basalis.
31. Ellychnia corrusca.
32. Collops tricolor.
33. Leptura Canadensis.
34. Monohammus scutellatus.
35. Pogonocherus penicillatus.
36. Donacia pubicollis.
37. " æqualis.
38. Adoxus vitis.
39. Lina interrupta.
40. " scripta.
41. Galeruca sagittariæ.
42. Upis ceramboides.
43. Macrobasis unicolor.

VI.—From Thunder Bay to Lake-of-the-Woods, west of Lake Superior. Lat. 48° 25′, *Long.* 89° 10′, *to Lat.* 49° 25′, *Long.* 95° 00′.

1. Cicindela purpurea.
2. Bembidium picipes.
3. Platynus sinuatus.
4. " sordens.
5. Pterostichus lucublandus.
6. " patruelis.
7. Amara (Lirus) latior.
8. " erratica.
9. " interstitialis.
10. Bradycellus nigrinus.
11. Philhydrus perplexus.
12. Quedius lævigatus.
13. Silpha Surinamensis.
14. Ips quadriguttatus.

15. Coccinella picta.
16. Aphodius fimetarius.
17. " fœtidus.
18. Ellychnia corrusca.
19. Corynetes violaceus.
20. Donacia cuprea.
21. " flavipes.
22. Chrysomela Philadelphica.
23. Xyloterus bivittatus.

VII.—Oxford House, between Lake Winnipeg and Hudson's Bay. Lat. 54° 53′, *Long.* 95° 44′.

1. Notiophilus Hardyi.
2. Elaphrus riparius.
3. Carabus palustris.
4. " tædatus.
5. " Chammissonis.
6. Calathus ingratus.
7. Platynus sinuatus.
8. " metallescens.
9. " perforatus.
10. " obsoletus.
11. " quadripunctatus.
12. Pterostichus punctatissimus.
13. " orinomum.
14. " mandibularis.
15. Amara (Lirus) cylindrica.
16. " impunctícollis.
17. " interstitialis.
18. Harpalus pleuriticus.
19. Bembidium impressum.
20. " bimaculatum.
21. " nitens.
22. " nigripes.
23. " axillare.
24. Hydroporus alpinus.
25. Dytiscus confluens.
26. Gyrinus ventralis.
27. Tachyporus jocosus.
28. Creophilus maxillosus.
29. Olophrum rotundicolle [Sahlberg].
30. Porrhodites fenestralis.

31. Necrophorus vespilloides.
32. Silpha Lapponica.
33. Dermestes nubilus.
34. Attagenus megatoma.
35. Trogoderma inclusum ?
36. Pediacus fuscus.
37. Cryptophagus (not determined).
38. Anisosticta strigata.
39. Aphodius leopardus.
40. Dicerca tenebrosa.
41. " prolongata.
42. Buprestis Nuttalli.
43. " rusticorum.
44. Elater luctuosus.
45. Corymbites virens.
46. " spinosus.
47. " æripennis.
48. " metallicus.
49. Ellychnia corrusca.
50. Clerus undatulus.
51. Hadrobregmus foveatus.
52. Criocephalus agrestis.
53. Tetropium cinnamopterum.
54. Merium Proteus.
55. Hylotrupes ligneus.
56. Xylotrechus undulatus.
57. Rhagium lineatum.
58. Acmæops Protens.
59. Leptura sexmaculata.
60. Monohammus scutellatus.
61. Pogonocerus penicillatus.
62. Gonioctena pallida.
63. Galeruca sagittariæ.
64. Graptodera (not determined).
65. Upis ceramboides.
66. Stenotrachelus aretatus.
67. Serropalpus striatus.
68. Hypomolyx pinicola.
69. Hylobius pales.

VIII.—Nelson River House, near Churchill River. Lat. 55° 50′, *Long.* 99° 30′.

1. Nebria Sahlbergi.

2. Pelophila rudis.
3. " Ulkei.
4. Carabus palustris.
5. " tædatus.
6. " Chamissonis.
7. Calathus ingratus.
8. Platynus ruficornis.
9. " obsoletus.
10. Pterostichus orinomum.
11. Amara (Stereocerus) similis.
12. " (Lirus) elongata.
13. " erratica.
14. " interstitialis.
15. " museulus.
16. Harpalus pleuriticus.
17. Dytiscus confluens.
18. Cymatopterus sculptilis.
19. Ilybius confusus.
20. Agabus punctulatus.
21. Gyrinus borealis.
22. Necrophorus vespilloides.
23. Silpha Lapponica.
24. Dermestes lardarius.
24. Hippodamia quinquesignata.
24. " tredecempunctata.
25. Coccinella trifasciata.
26. " quinquenotata.
27. Anatis quindecempunctata.
28. Dicerca prolongata.
29. Buprestis Nuttalli.
30. Melanophila longipes.
31. Elater nigrinus.
32. Sericosomus incongruus.
33. Corymbites virens.
34. " resplendens.
35. " ochreipennis.
36. Ellychnia corrusca.
37. Criocephalus agrestis.
38. Merium Proteus.
39. Xylotrechus undulatus.
40. Pachyta liturata.
41. Monohammus scutellatus.
42. Donacia hirticollis.

. 55° 50',

43. Donacia cuprea.
44. Adoxus vitis.
45. Gonioctena rufipes.
46. Gastroidea cyanea.
47. Galeruca sagittariæ.
48. Upis ceramboides.
49. Meloe angusticollis.
50. Lepyrus gemellus.
51. Hypomolyx pinicola.

IX.—From Cross Lake, on the Nelson River, to Cumberla ouse on the Saskatchewan. Lat. 54° 40′, *Long.* 98° 00′, *to Lat.* 54° 00′, *Long.* 102° 22′.

1. Notiophilus Sibiricus.
2. Carabus palustris.
3. Platynus cupreus.
4. Pterostichus orinomum.
5. Bembidium quadrimaculatum.
6. Gyrinus ventralis.
7. Pediacus fuscus.
8. Hippodamia tredecempunctata.
9. Buprestis Nuttalli.
10. Melanophila longipes.
11. Collops vittatus.
12. Merium Proteus.
13. Donacia magnifica.
14. " proxima.
15. " subtilis.
16. Cryptocephalus quadrimaculatus.
17. Galeruca sagittariæ.
18. Upis ceramboides.
19. Gonotropis gibbosus.

X.—From Cumberland House to Reindeer Lake. Lat. 54° 00′, *Long.* 102° 22′ *to Lat.* 58° 30′, *Long.* 101° 00′.

1. Carabus tædatus (form Agassizii).
2. Platynus obsoletus.
3. Pterostichus orinomum.
4. Amara littoralis.
5. Cymindis cribricollis.
6. Thymalus fulgidus.

7. Melanophila appendiculata.
8. Dinoderus substriatus.
9. Criocephalus agrestis.
10. Merium Proteus.
11. Gonocallus collaris.
12. Xylotrechus undulatus.
13. Acmæops Proteus.
14. Leptura sexmaculata.
15. " nigrella.
16. Monohammus scutellatus.
17. Lina interrupta var.
18. Hypomolyx pinicola.
19. Hylobius pales.

XI.—From the north end of Reindeer Lake to the west end of Athabaska Lake. Lat. 58° 30′, *Long.* 101° 00′ *to Lat.* 58° 30′, *Long.* 101° 00′.

1. Calathus ingratus.
2. Anatis 15-punctata.
3. Corymbites ochreipennis.
4. Hydnocera humeralis.
5. Donacia proxima.
6. " subtilis.
7. Upis ceramboides.
8. Carabus tædatus, var. Agassizii.