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REPORT

Of the Select Committee on the Copper Mines on the North Side of Lake Superior.

Printed by order of the Legislative Assembly.

(Mr. JONES, North Leeds.)

OTTAWA:
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REPORT

OF THE

SELECT COMMITTEE

ON THE

COPPER MINES

ON THE NORTH SIDE OF LAKE SUPERIOR.

The Select Committee appointed to obtain information as to the extent and resources of the Copper Mines on the north side of Lake Superior, and the best means of their development, so as to make the Mines the means of increasing the revenue and affording, at the same time, greater encouragement to the employment of capital for the development of the Copper Mines; also to inquire into the sale of lands in the mining district up to this time, and generally as to all matters whatever relating to the Copper Mines: have the honor to Report, as follows:—

Your Committee proceeded, without delay, to obtain the information required, and to investigate the several points submitted in the Order of Reference.

Although the Order of Reference is confined to the north side of Lake Superior, yet your Committee have deemed it expedient to extend their enquiry to the north side of Lake Huron as well as Superior, and to procure as much information as possible respecting iron and other economic minerals, as well as copper.

Your Committee have been induced to extend the field of their investigations from the fact that, in general, the same witnesses who could afford information respecting the minerals of Lake Superior, were also prepared to furnish information respecting the mineral resources of Lake Huron; and for the same reason, your Committee were induced to receive evidence respecting iron and other economic minerals, as well as copper.

It has been known for many years past, that copper exists on the north sides of Lakes Huron and Superior, and many surveys and explorations have been performed to ascertain the extent and value of the Copper Mines, and, consequently, a great deal of information has been obtained; yet, the information contained in the various reports is principally of a scientific nature, and, consequently, not of very great practical importance to the general reader. Besides, these Reports extend over a period of twenty years, and are distributed through fourteen volumes of the Journals of the House of Assembly (a reference to which is given in Appendix A to this Report), so that even such persons as have access to the Library of Parliament experience considerable delay in procuring the necessary information on any particular subject; but as regards the general public, such information as that contained in the Journals is of but little value.

In the Report of the Select Committee of 1854, appointed to report upon the best means of making public the valuable information already obtained by the Geological Survey, the following statement occurs:—

"It is mortifying to your Committee to have to report, that results of so much value are almost inaccessible to the public, and that a great proportion of the inhabitants of Canada,

if not ignorant of the existence of the Survey, are, at least, unacquainted with what it has achieved.

"The Annual Reports are presented to Parliament and buried in the Journals of the House, except a few hundred copies, which are distributed by Members amongst their friends, so that the Reports of two consecutive years fall into the same hands. Professor Chapman complains of the difficulty of procuring them; Mr. Lovell speaks of the frequent applications to him for complete sets, both at home and from abroad; and Mr. Bell says that so much is this want felt, that it has been proposed to reprint them in New York. Were it not for additional copies which Mr. Logan orders at his own expense, and kindly distributes, it is doubtful whether (apart from the Journals) there would be a hundred complete sets in the Province. Mr. Logan also speaks of the demand for the Reports, the imperfect knowledge in the country of what they contain, and the consequent verbal and written applications which are made to him for information."

Seven witnesses were examined, most of whom were professional and scientific men; but your Committee deemed it also advisable to procure the evidence of persons of practical experience in mining operations.

Your Committee directed enquiry to the following points embraced in the Order of Reference, together with the other subjects above referred to:—

1. The extent and resources of the Copper Mines on the north side of Lakes Superior and Huron;
2. Best mode of developing the same;
3. The extent of sales made, and to whom, at what prices, with conditions of sale, &c. (This information may be obtained by referring to document marked B, hereunto annexed);
4. What work being done for developing the properties sold by Government;
5. Information respecting capabilities of country for settlement and agriculture.
6. Character, quantity and quality of timber in the country;
7. What other minerals exist besides copper;
8. Means of access to the mineral region;
9. Land, and location system, as compared with the American system, pursued on the south shore of the lakes;
10. Harbours on the north shore, their character, frequency, &c.

From the Reports of the Geological Survey, and the evidence adduced before your Committee, the copper-bearing region would appear to embrace a large area of country on the north side of Lakes Huron and Superior; but the full extent of the mineral region has not yet been explored. Copper, however, has been found at the following places on the north side of Lake Huron:—In rear of Sault Ste. Marie; at the Bruce, Wellington, and Copper Bay mines; on the River Thessalon and its chain of lakes; on the Mississaga River, on the Serpent River, on the Spanish River, the White-fish River, the Maganitawang River, and at the Portage des Rats, near Killarney.

"The lower copper-bearing series on Lake Huron extends from the neighborhood of Sault Ste. Marie to Shebahahnung, or Killarney, a distance of about one hundred and thirty miles, with an average breadth, as far as known, of probably fifteen or twenty miles, giving an area of about two thousand square miles.

"On the north shore of Lake Superior the Canadian mineral region extends from Pigeon River to the eastern extremity of the Nipigon Archipelago, a distance estimated at about one hundred and twenty five miles, with a breadth of from ten to twenty miles, from which nearly one half is to be deducted for the waters of Thunder Bay, Black Bay, and Nipigon Bay, leaving an area of from one thousand one hundred to one thousand two hundred square miles. This area belongs chiefly to the Quebec group, or upper copper-bearing series. To it is to be added the Island of Michipicoten, about seventy-five square miles, and patches on the east coast of Gargantua, Mamainse, and Point aux Mines, about as much more, making altogether about one thousand three hundred square miles of this series. Of the Huronian, or lower copper-bearing series there is a triangular area extending on each side of the Pic River, and probably thirty miles up it, giving, with the Slate Islands, between four hundred and five hundred square miles, to which are to be added two narrow strips west of Michipicoten River, and a small triangular area at its mouth, giving seventy five square miles. Another area occupies fifty square miles on Batchewahnung Bay and the Goulais River, making altogether of the Huronian about six hundred square miles."

Copper has been found at the following places on the north side of Lake Superior:—At Goulais and Batchewahnung Bays, Mamainse, Gargantua, Cape Chozon, and the Island of Michipicoten, Dog River, Pickerel River, Jack-fish River, Black River, and the Slate Islands, Les Petits Ecrits, Black Bay, Dutch Bay, Thunder Bay, Isle St. Ignace, the Fighting Islands, and Simpson's Islands.

Besides the localities here referred to, the evidence goes to shew that good indications of copper have been observed at many other places throughout this whole section of country, and the copper-bearing rocks are spread over a space sufficiently large to warrant the expectation that further explorations will lead to very important results in the way of further discoveries.

As regards the character and general appearance of the country, the evidence given indicates that the land in the region where the minerals are found is generally mountainous and rocky, and not well adapted for agricultural purposes. The land best adapted for agricultural purposes is situated principally along the valleys of the rivers, and is of sufficient extent to support large settlements. In order, however, to the rapid development of the country, both in an agricultural and mineral point of view, it appears evident that the opening up of leading roads is an essential condition.

Your Committee would, therefore, recommend that each alternate block of land along any proposed line of Railroad through the mineral region be granted to any person or company on the construction of such road.

The amount of copper ore sent to market from the Wellington and Copper Bay Mines, by the West Canada Mining Company, in the year 1861, was about three thousand tons, averag- the nearly nineteen per cent. The Company had then eleven thousand pounds sterling to the credit side of profit and loss.

Iron exists in large quantity and of superior quality, a short distance in rear of the north boundary line of the Township of Palmer, on the north-east end of Lake Superior, forming, in one instance, a mountain, covering an area of about one hundred and fifty acres, and yielding the black magnetic ore, which has been analyzed, and found to average forty-eight per cent. It also occurs in many other places throughout this section of country.

An American Company is now carrying on mining operations at Gros Cap-Michipicoten Harbour, and exporting the iron ore to Cleveland.

It is much to be regretted that so large an extent of mineral lands have fallen into the hands of speculators, and companies who do not carry on mining operations, but merely hold the lands for the purpose of speculation. This has long been felt to be a great hindrance to the development of the mineral region.

One company, known as the Montreal Mining Company, although they carry on no mining operations, yet, are in possession of no less than ninety-nine thousand four hundred and ninety-eight acres, on the north side of Lake Superior. This large quantity of mineral land appears to have been all purchased in 1856, at forty cents an acre.

Your Committee are of opinion that the unconditional sale of such a large quantity of land to one Company must greatly retard the development of the country, and prove detrimental to the public interest.

The system of granting lands on the South Shore, or United States side, of Lake Superior, is a very simple one. The whole country is surveyed by the Government, and laid out in separate blocks, divided into sections of one mile square each, by lines running north and south and east and west, and each of these sections are again subdivided into four quarters, or lots. Some of the best mines have no more length of lode to work upon than may be contained in a quarter section; consequently, the attention and energies of the Mining Companies and their Managers are, on the discovery of a cupriferous bed, at once turned to exploring and mining in depth.

Your Committee would suggest, that on the north side of Lake Superior a system of survey be adopted similar to that which has been pursued on the north shore of Lake Huron, and that the whole country be thoroughly explored by a skilful Surveyor and Mineralogist, and base lines drawn north and south and east and west, at a distance of eighteen to twenty miles apart; that the portion of country found fit for cultivation be subdivided into lots, and the other parts of the country, or such as may be found suitable for mining purposes only, be blocked out, so that miners may have no difficulty in describing their mineral locations;

and that the price of mineral lands, in all cases, be forty cents an acre, paid in cash at the time of sale.

All which is respectfully submitted.

FRANCIS JONES.
Chairman.

COMMITTEE ROOM,
7th August, 1866.

APPENDIX. A.

Extracts from Geological Reports contained in the Journals of the House of Assembly.

Sir Wm. E. Logan, Provincial Geologist, in his Report of 1847, states as follows:—

The Canadian shores of Lake Superior in general present a bold and rocky coast, diversified in the character of its scenery in accordance with the distribution of its different geological formations. Cliffs and eminences rise up to heights varying from 300 to 1,300 feet, close upon its margin, and this deeply indented in some parts with extensive bays, and in others presenting extensive clusters of islands, is in a multitude of places carved out into well-sheltered coves and inlets, affording innumerable harbours of a safe and commodious character, destined greatly to facilitate whatever commerce may hereafter be established on the lake, whether in the produce of its mines or its fisheries.

The timber of the district on the Canadian shores of Lake Superior does not seem to promise much encouragement to traffic: it is not of the size nor of the kind most esteemed in commerce, though there is much useful wood capable of being rendered available for mining or house-building purposes, as well as for fuel. Hardwood is scarce; red pine is not often seen, and white pine not abundant.

The trees most common are spruce, balsam fir, white birch and poplar, with cedar in moist places.

On the immediate coast many of the hills are nearly denuded of trees, particularly where granite and gneiss prevail. The hills composed of trapp are better clothed; but it is in the trappean valleys and on the surfaces underlaid by sandstone, which are usually flat, that the largest growth is met with. It is chiefly in these localities also, and at the mouths of some of the principal rivers, that is to be found whatever land may be fit for cultivation; and although of this, in comparison to the area of the district, the extent cannot be called great, nor such as, even less remotely situated, would tempt settlement, sufficient would probably be found to supply many of the wants of a mining population, should the metalliferous minerals of the region be found, on trial, to exist in sufficient abundance to be worked with profit. * * * * * * * *

Several considerable streams fall into the lake, the chief of which are the Kamanitiquia, the Neepigon, the Pic, the Michipicoten, and the Montreal. The first three flow in on the north, and the other two on the east side; and the whole, taking their origin in the height of land separating the waters of Hudson Bay from those of the St. Lawrence, may pass through 100 to 200 miles of country before yielding their tribute to the grand head reservoir of the latter, which, with a rim of 500 leagues, comprises an area of 32,000 square miles, its greatest length being 300 miles, and its greatest breadth 140 miles. Its greatest depth is supposed to be 1,200 feet, which would make its bottom 603 feet below, while its surface is 597 feet above the level of the sea; and its main depth, being taken at 600 feet, would give about 4,000 cubic miles of water.

The frosts of winter are not sufficiently long continued to cool, nor the heats of summer to warm, this great body of water to the temperature of the surrounding surface, and the lake in consequence considerably modifies the temperature of the country on its banks, which is neither so low in the one season, nor so high in the other, as it is both to the east and to the west.

Sir Wm. E. Logan, Provincial Geologist, in his Report of 1849, states as follows:—

On North Shore of Lake Huron.

The quantity of copper contained in the lodes is very various, ranging from what might result from mere specks of ore in some to the contents of large workable quantities in others.

* * * * * * * * * * * *

In no part of the country visited, from the Sault Ste. Marie to the Shebawenahning, was any great area wholly destitute of cupriferous veins, and it would appear singular if a region extending over a space of between one and two thousand square miles, and so marked by indications, did not in the course of time yield many valuable results.

In regard to the productiveness of lodes, it is to be remarked, that it appears probable it will be different in different qualities of rock they may intersect. From the described arrangement of the strata, it will be perceived that the lodes must vertically pass from one quality of rock to another; and as they keep a rudely regular course, they must do the same thing horizontally, from the effects produced in the geographical distribution of the rocks, by undulation or denudation of the strata. So far as my observation went, it appeared to me to be a fact, that the copper was most abundant in the greenstone, least so in the sandstone or quartz rock, and more copious in the slates than in the syenitic conglomerates.

Alexander Murray, Esq., Assistant Provincial Geologist, in his Report of 1849, states as follows:—

Geological Characteristics.—North coast of Lake Huron, west of French River.

The greater portion of the immediate coast line on the north shore of Lake Huron, in so far as my observation extended, may be described as generally poor and rocky, in some parts wholly destitute of vegetation, in others thickly clad with trees, which, however, are of stunted growth and of inconsiderable value. These marginal forests are chiefly composed of trees common to the cooler and more mountainous parts of Canada, the species being balsam fir, spruce, red and white pine, white birch and poplars, predominating on dry parts, while white cedar and tamarack abound on the swampy and moister ground. But while the coast line exhibits this uninviting appearance, the interior in many places presents a very different character, especially on the principal streams, where there are frequently to be seen extensive flats of rich and deep soil, producing maple, oak, elm, birch and basswood, besides occasional groves of both red and white pine of large size Various places of this description have been cleared and cultivated by the Indians, and where such has been the case, as at Spanish River, notwithstanding the rude state of aboriginal agriculture, the crops of maize and potatoes are nearly equal, both in quantity and quality, to those usually seen in the more favored latitude, and under the more enlightened system of tillage in Canada West.

Sir W. E. Logan, Provincial Geologist, in his Report of 1852–3, states as follows:—

Copper.

The Copper Ores of Lakes Superior and Huron were generally represented by Cabinet specimens, which had been collected during the exploration of the shores of those lakes by the Officers of the Geological Survey. None of the lodes being worked, with the exception of those of the Bruce mines, it was impossible, without great expence, to procure, except from the Bruce Mines, such large specimens as would have attached effective attention. The whole, however, formed an illustrative collection, and the prize medal awarded the Montreal Mining Company for its exhibition of Copper Ores, and Copper extracted from them, attests the interest with which the collection was examined. Of the remaining materials of this class of objects—zinc, lead and nickle ore, with native silver and gold—the specimens, with the exception of the last, were all of cabinet size, and those of them which excited enquiry were the sulphuret of nickle, from the Wallace Mines, and the native silver from Prince's location. * *

A considerable number of agates, some of them of large size, obtained on Michipicoten and Simpson Islands, and various parts of the north shore of Lake Superior, in which places they abound, together with several beautiful specimens of Perthite and peristerite, (different species of feldspar contributed by Dr. Wilson,) were placed in the hands of a London Lapidary to be split and polished for exhibition, and their addition to the collection, as materials applicable to jewellery, served to embellish its appearance.

Further information respecting the mineral resources of the north side of Lakes Huron and Superior may be found in the Journals of the years 1856, 1857 and 1858, and in Mr. Gibbard's Reports, on Mining Operations, of 1862 and 1863; also, in a Report on the Geology of Canada, published in the year 1863, by Sir W. E. Logan, Provincial Geologist.

B.

STATEMENT of Mineral Lands on the North Shore of Lake Superior patented, to whom, and price paid per acre.

To whom Patented.	TRACT.	Area in Acres.	Price per Acre.	Date of Patent.
Montreal Mining Company	Opposite Victoria Island (McNaughtan's plan.)	6400	40 cts.	8th Sept., 1856.
Montreal Mining Company	Islands at entrance of Black Bay (McNaughtan's plan)	5230	40 "	13th Sept, 1856.
Montreal Mining Company	North East Shore of Thunder Bay (McNaughtan's plan)	6400	40 "	10th Sept., 1856.
Montreal Mining Company	Fluor Islands (McNaughtan's plan)	5468	40 "	13th Sept, 1856.
Montreal Mining Company	East part of St. Ignace Island (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	North part of St. Ignace Island (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	West Shore of Neepigon Strait (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	South-West Shore of Neepigon Strait (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	West end of St. Ignace Island (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	West end of St. Ignace Island (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	East side of Pigeon River (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	South part of Simpson Island (McNaughtan's plan	6400	40 "	13th Sept., 1856.
Montreal Mining Company	West part of Simpson Island (McNaughtan's plan)	6400	40 "	13th Sept., 1856.
Montreal Mining Company	Copper Islands (McNaughtan's plan)	7200	40 "	13th Sept., 1856.
Montreal Mining Company	At Cape Maimainse (Salter's plan)	6400	40 "	12th July, 1856.
Montreal Mining Company	At Cape Maimainse (Salter's plan)	4800	40 "	10th Oct., 1856.
British North American Mining Company	Spar Island and tract on the main Shore in rear thereof (McNaughtan's plan)	6400	80 "	6th April, 1853.
John Bonner, Junior	Part of Michipicoten Island (Bridgland's plan)	6400	80 "	17th June, 1854.
George A. L. Wood	North of and adjoining Township of Nee Bing	400	$1	4th Jan, 1864.
P. M. Vankoughnet	North of and adjoining Township of Nee Bing	200	1	26th Jan., 1864.
Jean Langlois	North of and adjoining Township of Nee Bing	200	1	28th Jan., 1864.
Thomas A. Begley	Block on East Shore of Batchewaung Bay (Prince's plan)	400	1	9th May, 1864.
D. B. Duffield	Lot No 1, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
James P. Mansfield	Lot No. 2, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
William A. Moore	Lot No. 3, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
George Duffield	Lot No. 4, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
Samuel P. Duffield	Lot No. 5, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
Henry Day	Lot No. 6, West of Batchewaung River (Keating's plan)	400	1	30th Aug, 1864.
Caleb Van Husen	Lot No. 7, West of Batchewaung River (Keating's plan)	400	1	30th Aug, 1864.
Everett W. Moore	Lot No. 8, West of Batchewaung River (Keating's plan)	400	1	30th Aug., 1864.
John Moore	Lot No. 4, in block on West Shore of Black Bay (Donnelly's plan)	275	1	23rd Sept., 1864.
James McGregor	Lot No. 6, in block on West shore of Black Bay (Donnelly's plan)	391	1	24th Sept., 1864.

STATEMENT of Mineral Lands, &c.—*Continued.*

To whom Patented.	TRACT.	Area in Acres.	Price per Acre.	Date of Patent.
John J. Vickers	North of and adjoining the Township of Nee Bing	400	$1	28th Dec., 1863.
Asa D. Dickenson	Lot No. 8, in block on West Shore of Black Bay (Donnelly's plan)	400	1	24th Sept., 1864.
William B. Clarke	Lot No. 10, do do	400	1	26th Sept., 1864.
Charles P. Crosby	Lot No. 12, do do	400	1	26th Sept., 1864.
Francis B. Montizambert	Lot No. 9, do do	400	1	3rd Oct., 1864.
Peter A. Shaw	Lot No. 7, do do	400	1	3rd Oct. 1864.
Frost W. Gray	Lot No. 5, do do	400	1	4th Oct., 1864.
Donald C. Thompson	Lot No. 3, do do	400	1	20th Oct., 1864.
James F. Turnbull	Lot No. 18, do do	400	1	20th Oct., 1864.
Walter Scougall	Lot No. 1, do do	400	1	20th Oct., 1864.
William Shaw	Lot No. 19, do do	400	1	21st Oct., 1864.
Rev. Andrew Balfour	Lot No. 20, do do	400	1	20th Oct., 1864.
George Caplin	Lot No. 14, do do	400	1	20th Oct., 1864.
Myron W. Stanley	Lot No. 13, do do	400	1	20th Oct., 1864.
William F. Ladd	Lot No. 22, do do	400	1	20th Oct., 1864.
Robert Hunter	Lot No. 15, on Thunder Bay (Herrick's plan)	400	1	3rd Nov., 1864.
John Mason	Lot No. 1, St. Ignace Island (Donnelly's plan)	400	1	11th Nov., 1864.
William C. Scott	Lot No. 2, do do	400	1	10th Nov., 1864.
Thomas H. Thompson	Lot No. 7, do do	400	1	11th Nov., 1864.
John C. Thompson	Lot No. 8, do do	400	1	11th Nov., 1864.
Charles P. Champion	Lot No. 1, in block on West shore of Thunder Bay (Donnelly's plan)	400	1	11th Nov., 1864.
William W. Duffield	Block A, West of Banchewaung River (Wilson's plan)	200	1	19th Dec., 1864.
Oliver C. Gibbs	Block B, do do do	250	1	19th Dec., 1864.
J. B. Tobey	Block C, do do do	400	1	19th Dec., 1864.
Thomas Drew	Block D, do do do	295	1	17th Dec., 1864.
Charles J. Johnson	Block A, St. Ignace Island (Donnelly's plan)	400	1	9th Feb., 1865.
Rev. Geo. Duffield, Jr.	Lot No. 2, in block on West shore of Black Bay (Donnelly's plan)	400	1	3rd March, 1865.
Quebec & Lake Superior Mining Association.	At Point Aux Mines (Salter's plan)	6400	80 cts.	17th March, 1865.
Quebec & Lake Superior Mining Association.	At Cape Maimainse (Salter's plan)	6400	80 "	17th March, 1865.
Quebec & Lake Superior Mining Association.	No. 16, St. Ignace Island (McNaughtan's plan)	6400	80 "	17th March, 1865.
Jeremiah Millbank	Lot No. 21, in block on West Shore of Black Bay (Donnelly's plan)	400	$1	28th March, 1865.
Henry G. Gregg	Lot No. 11, do do	400	1	28th March, 1685.
William P. Trowbridge	Block A, on Current River, North shore of Thunder Bay (Donnelly's plan)	400	1	29th March, 1865.
Hudson Bay Company	Block A, West side of Neepigon River (Herrick's plan)	400	1	18th April, 1865.
Quebec & Lake Superior Mining Association	Block A, on North shore of Michipicoten Island (Bridgland's plan)	400	1	5th April, 1865.
Hugh R. Fletcher	Block B, on South side of Michipicoten Island (Bridgland's plan)	22	20 cts.	18th April, 1865.
Joseph B. F. Grady	Lot No. 14, St. Ignace Island (Salter's plan)	315	$1	21st April, 1865.
Joseph Kincaid	Lot No. 1, near Point Aux Mines (Salter's plan)	384	1	11th Aug., 1865.
Joseph Kincaid, Jr.	Lot No. 2, do do do	384	1	11th Aug., 1865.
Lucy Kincaid	Lot No. 3, do do do	384	1	11th Aug., 1865.
Mary Ann Kincaid	Lot No. 4, do do do	384	1	11th Aug., 1865.
John Henry Kincaid	Lot No. 5, West of Cape Maimainse (Salter's plan)	384	1	11th Aug., 1865.
Isabella Kincaid	Lot No. 6, do do do	384	1	10th Aug., 1865.
John J. H. Humphreys	Lot No. 7, do do do	384	1	10th Aug., 1864.

STATEMENT of Mineral Lands, &c.—*Continued.*

To whom Patented.	TRACT.	Area in Acres.	Price per Acre.	Date of Patent.
James Stewart Kincaid...	Lot No. 8, West of Cape Maimainse (Salter's plan).....	384	$1	10th Aug., 1865.
John McIntyre.....	Lot A, in block West of Black Bay, (Herrick's plan).....	400	1	2nd Sept., 1865.
Donald McKellar.....	Lot B, do do do	200	1	2nd Sept., 1865.
Peter McKellar.....	Lot C, do do do	400	1	1st Sept., 1865.
Thomas W. Herrick.....	Lot D, do do do	400	1	2nd Sept., 1865.
Hugh Wilson.....	Lot North of the Township of Palmer (Wilson's plan).....	400	1	18th Nov., 1865.
John S. Steele.....	Lot No. 2, in Block North of Township of Nee Bing (Francis' plan).....	400	1	29th Nov., 1865.
Daniel McLaren	Lot A, North of Section 4, Township of Palmer (Wilson's plan)	200	1	21st Dec., 1865.
	Total patented on Lake Superior.....	154718		

STATEMENT of Mineral Lands on the North Shore of Lake Huron patented, to whom, and price paid per Acre.

To whom Patented.	TRACT.	Area in Acres.	Price per Acre.	Date of Patent.
Montreal Mining Company	The Bruce Mine (Vidal's plan).....	6458	80 cts.	5th Oct., 1852.
Huron Copper Bay Co.....	At Copper Bay (Vidal's plan).....	6400	80 "	15th March, 1859.
George Sheppard	Lot No. 1, West of White Fish River (Vidal's plan).....	200	$1	4th March, 1864.
Josiah Blackburn.....	Lot No. 2, West of White Fish River (Vidal's plan).....	400	1	4th March, 1864.
James Metcalf.....	Lot No. 3, do do do	400	1	4th March, 1864.
Jean Langlois.....	Lot No. 4, do do do	400	1	4th March, 1864.
E. R. Jones & N. E. Welch.	Lot No. 5, do do do	400	1	12th May, 1864.
Stephen Blackburn	Block A, do do do	400	1	11th May, 1864.
George Desbarats.....	At mouth of River Desbarats (Jones' plan)	3960	1	6th July, 1864.
Lake Huron Silver and Copper Mining Co.	West of Bruce Mine (Vidal's plan).....	6400	80 cts.	17th Nov., 1864.
James M. Ray.....	Lot No. 1, at Grande Portage, on the Mississagua River (Prince's plan)....	400	$1	28th Nov., 1864.
David J. Hinckley.....	Lot No. 2, at the Slate Portage, on the Mississagua River (Prince's plan)....	225	1	28th Nov., 1864.
Alexander H. Conner....	Lot No. 3, between Lake Waquikobing and the Mississagua River, (Prince's plan)	400	1	28th Nov., 1864.
Montreal Mining Company	Block A, North of the Bruce Mine, (Salter's plan)	1200	50 cts.	10th Feb., 1865.
Arthur McKee Rankin....	On North Shore of St. Mary's River (Vidal's plan).....	6400	40 cts.	1st April, 1865.
Edward Barnes Borron....	Block A, part of the tract formerly known as the Starnes location (Prince's plan)	100	$1	18th April, 1865.
Thomas Simpson.....	Block B, part of the tract formerly known as the Starnes location (Prince's plan)	400	1	19th April, 1865.
Edward Barnes Borron....	Lot No. 1, South, on the Mississagua River)Prince's plan).....	225	1	16th Nov., 1865.
	Total acres patented on Lake Huron...	34768		

Examined and certified to be correct.

ANDREW RUSSELL,
Assistant Commissioner.

DEPARTMENT OF CROWN LANDS,
OTTAWA, Dec., 30, 1865.

MINUTES OF EVIDENCE TAKEN BEFORE THE COMMITTEE.

13th July, 1866.

Evidence of J. P. Mansfield of Detroit.

BY THE CHAIRMAN :—

1. Have you had any experience in mining operations on the north side of Lakes Superior and Huron, if so, where, and to what extent?—We are now working at Batchewanung Bay, on the north-east end of Lake Superior, mining for iron. Commenced mining last August, and have been working since. Prospects not favorable; but, by going further east from the lake, on our location, prospects are better.

2. Is it your opinion, from the experience you have had, that mining for iron can be carried on to advantage in that section of country?—Yes, providing the ore is rich enough.

3. Have you met with any copper veins during your operations?—We have, of the same quality as that at the Bruce Mines; and we have also discovered, on the western portion of our property, the native copper-bearing rock (the amygdaloid rock); but, as yet, have discovered no veins of copper in this rock.

4. Have you experienced any inconvenience in locating mineral lands, and procuring a title for them?—I have found that the regulations of the Crown Lands Department admit of no more than four hundred acres of mineral lands to be sold to one person; and my opinion is, that this restriction has an injurious effect; that it would be more to the advantage of the Government, as well as to the purchaser, to allow each person to buy whatever quantity of land he might require; and that a tax should be at once imposed which would prevent any person or company from holding too large a quantity for mere purpose of speculation; the taxes to be appropriated to the development of the country.

5. What is your idea as to the best means of developing the mineral resources of the country?—I am of opinion that in the sale of mineral lands the Government should always reserve the right of way for the construction of a Public Road or Railroad, wherever adjoining occupants or others might deem it advisable to make such improvements; the original price of the land to be paid to the owner for such right of way. I am also of opinion that where a railway is constructed through any mineral region to the extent of five miles or over, every alternate section of the land on each side of the road should be granted to the party constructing the road; and that the price of the remaining alternate sections should be held at double the original price.

6. Have you experienced any inconvenience from the Government, or any other party, since you commenced mining operations in the locality above referred to?—I have not met with any from the Government, but I have experienced some inconveniences from the Indian Branch of the Crown Lands Department, in the following manner:—1st. I was notified by Mr. Wilson of the Sault, that we had no right to cut timber on our location, granted to us by the Commissioner of Crown Lands, which caused me a journey from Superior to Quebec. Afterwards, I was notified by the same Wilson that I must pay timber dues on all logs used in the construction of railway-loghouses and docks. A Mr. Maitland also stated that he had obtained from Mr. Wilson a timber license, and that, consequently, I must pay him for said license, which I did to the amount of $200.00

In consequence of the demand made by Mr. Wilson for timber dues, I have had to perform a journey to Ottawa, thus incurring considerable trouble and expense; but on my arrival in Ottawa I was assured by the Commissioner of Crown Lands that the timber dues shall not be collected.

14th July, 1866.

Questions submitted by the Select Committee, on the Copper Mines of the North Side of Lake Superior, to Thomas MacFarlane, Esq., of Acton Vale, C. E.

1. Have you examined the country on the North Side of Lakes Superior and Huron,—if so, at what time and to what extent?—I have examined that part of it which extends from Sault St. Marie to Montreal River, on the east shore, and from Michipicoten Harbour to a point opposite Michipicoten Island, on the north shore, as also Michipicoten Island itself; this I did from the 23rd June until the 29th August, 1865.

2. What are the general features of the country in a mineral and agricultural point of view?—Where Laurentian and Huronian rocks prevail the country is hilly and rocky, and

it is also higher-lying than the ground occupied by the copper-bearing rocks or the horizontal red sandstone. There is very little agricultural land of value.

3. In what section of country did you find the existence of copper, iron, or other economic minerals, and to what exent?—I observed copper in all the formations (with the exception of the horizontal sandstone), and iron principally in the Huronian rocks. The occurrences of these minerals are described in a Report addressed by me to Sir Wm. E. Logan, dated 28th April, 1866, to which I beg to refer.

4. Do you consider that copper exists in sufficient quantities to pay the expenses of working the mines, and if so, your opinion as to the most available means of developing the resources of the copper region?—I think that copper may be found in sufficient quantity to pay, with careful and economical management. This would, I think, be the case with the Begley Mine, although large profits could not be expected. The ores of the copper-bearing rocks would be best developed by presenting inducements to South Shore explorers to take up the matter. The enactment of a mining law similar to that of Norway, but with modifications, would, in my opinion, lead to the discovery of valuable mines. I shall refer to such a law further on.

5. The same question with respect to iron?—The Hemalite Mines of Bachewahnung Bay and Gros Cap Michipicoten, so far as they have yet been developed, will not pay, in my opinion. Still, I believe that in that neighborhood and in other Huronian districts valuable iron mines will yet be discovered. The proposed mining law would also apply in this case.

6. The same question with respect to other minerals?—The agates found in various beds of the copper-bearing rocks might, perhaps, be exported to Europe (Oberstein in Germany) with profit, in the same manner as the agates of Brazil. The mining law would come in here also.

7. At what points are mining operations now going on, so far as you know, and with what success?—I am unaware as to what mining is being done on Lake Superior this year. With regard to 1865, the information is given in my Report.

8. What are the facilities for reaching the mineral deposits on the coast, and in the interior?—The Steamer *Algoma* usually sails from Sault St. Marie up the lake every fortnight, but it touches only at Michipicoten Harbour, Isle St. Ignace and Fort William. The best means of getting into the interior is by a birch canoe. Facilities for the transport of ores there are worse.

9. Are you acquainted with mining operations on the South Shore, or American side of the lakes?—Yes; and have referred to them in a paper contributed to the *Canadian Naturalist*, a proof of which accompanies these answers.*

10. Please inform the Committee as to the character and extent of the mines there when you visited that locality?—See the paper just mentioned, especially towards the end.

11. Are you acquainted with the system of granting lands on the South Shore,—if so, please state its leading features?—Any one on making application for unallotted lands can obtain them without delay, on account of their having been previously laid out and surveyed.

12. What is your opinion of the American system as compared with ours?—It is preferable, because, on our side, the applicant has to get a survey made himself.

13. Have you any suggestions to offer the Committee for the improvement of the land-granting system in the mineral region,—if so, please state them?—I would suggest the passing of a law by which any explorer, having discovered valuable minerals and intimated his discovery to an Inspector of Mines, should receive papers putting him in possession for twelve months, and as long thereafter as he continued to work the mines discovered, subject to a royalty to the Crown of 1-25th, or 4 per cent. of the produce. In the event of work being stopped, the location to fall free again. This is the Norwegian law, and wild land belonging to individuals is subject to it.

14. Have you had any experience in mining operations on the North Side of Lakes Superior and Huron,—if so, where, and to what extent?—No.

15.—Is it your opinion, from the experience you have had, that mining for iron can be carried on to advantage in that section of country?—See question already answered.

16.—Have you met with any copper veins during your operations?—See my Report to Sir W. E. Logan.

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* See document marked A at the end of this Evidence.

17.—Have you experienced any inconvenience in locating mineral lands, and procuring a title for them?—Never applied for any.

18.—What is your idea as to the best means of developing the mineral resources of the country?—The enactment of a mining law, as already stated.

19.—Have you experienced any inconvenience from the Government, or any other party, since you commenced mining operations in the locality above referred to?—Was never connected with any such operations.

A.

The following is the Extract referred to by Thomas Macfarlane, Esq., taken from the paper mentioned in his Evidence.

"The system of dividing the lands into small sections seems to have contributed not a little to the rapid development of the mines of the Portage Lake District. The sections contain one square mile = 640 acres, and each of these is subdivided into four quarters. Some of the best of the mines have no more length of lode to work upon than may be contained in a quarter section. As a consequence, the attention and energies of the Mining Companies and their Managers are, on the discovery of a cupriferous bed, at once turned to exploring and mining in depth. The opposite system, which prevails on the north shore of the lake, of having very large mining locations, is as detrimental to the progress of the country as it is to the interests of the owners. The explorations are carried on over too great an area; they are desultory, are not easily superintended, and seldom yield any definite result."

17th July, 1866.

Questions submitted to Sir W. E. Logan, Provincial Geologist, by the Select Committee on the Copper Mines of the North side of Lake Superior.

1.—Have you examined the country on the North side of Lakes Superior and Huron, if so, at what time, and to what extent?

2.—What are the general features of the country in a Mineral and Agricultural point of view?

3.—In what sections of country did you find the existence of Copper, Iron, or other economic minerals, and to what extent?

4.—Do you consider that copper exists in sufficient quantities to pay the expenses of working the mines, and if so, your opinion as to the most available means of developing the resources of the copper region?

5.—The same question with respect to Iron?

6.—The same with respect to other minerals?

7.—At what points are mining operations now going on, so far as you know, and with what success?

8.—What are the facilities for reaching the mineral deposits, on the coast, and in the Interior.

9.—Are you acquainted with the mining operations on the South Shore, or American side of the Lakes.

10.—Please inform the Committee as to the character and extent of the mines there, when you visited that locality?

11.—Are you acquainted with the system of granting lands on the South shore; if so, please state its leading features?

12.—What is your opinion of the American system as compared with ours?

13.—Have you any suggestions to offer the Committee, for the improvement of the land granting system in the mineral region, if so, please state them?

Answers to questions submitted to Sir W. E. Logan, Provincial Geologist, by the Select Committee on the Copper Mines of the North side of Lake Superior.

1.—I visited Lake Superior in 1846, and made a geological examination of the Canadian coast from Pigeon River to Sault Ste. Marie, as well as of the coast of the Island of Michipicoten. A Report of the general results of the examination was made to the Govern-

ment on the 1st May, 1847. I visited the North shore of Lake Huron in 1848. The chief object of the visit was to examine the Bruce Mines, but a hasty exploration was made of the coast from Echo lake to the Mississaqui River. A Report of the examination was made to the Government on the 29th December, 1848. My assistant, Mr. A. Murray, made several explorations on the North shore of Lake Huron, all of which have been reported, as will be seen by a reference to a list of all the reports and publications of the Geological Survey, to be found in the preface to the Atlas illustrating the general report of 1863, pp. 29–34. The substance of the reports on Lakes Superior and Huron will be found in the general reports under different heads, on pages 51, 454, 458, 459, 463, 500, 503, 504, 505, 506, 514, 516, 517, 678, 689, 690, 693, 708, 737, 738, 745, 751, 771, 831, 834.

2.—On the North shore of Lake Huron there is a considerable breadth of country capable of agricultural settlement, and the Huronian series of rocks which underlies it, renders it at the same time a mineral region worthy of attention; the more important economic minerals which characterize the series being the ores of Copper and Iron. The East and North shores of Lake Superior are of inferior Agricultural capabilities. They are, with the exception of a somewhat narrow and broken strip along the margin of the Lake, underlaid by the Laurentian series. This when destitute of the great bands of crystalline limestone, interstratified in it in some other parts of the Province, does not give good settling land. The broken and somewhat narrow strip which is exceptional to this condition of the geographical surface, consists geologically of the Huronian series and the Quebec group, a part of the lower Silurian. Both of these are metalliferous, and it is their wide spread on the South side of the Lake, which gives to it its importance as a mineral region, abounding in copper and iron, while at the same time they afford a fair Agricultural surface. The Laurentian rocks in some parts of Canada hold important deposits of iron and lead, with some copper, but these parts, as far as our present experience goes, are usually to be found associated with that portion of the series which is interstratified with the crystalline limestones; these have not yet been met with on the Canadian shores of Lake Superior. A glance at the general map of the Atlas to the general report will show the distribution of the rocks in question on the two Lakes.

3.—On the North shore of Lake Superior the Canadian mineral region extends from Pigeon River, to the eastern extremity of the Nepigon Archipelago, a distance rudely estimated at about 125 miles, with a breadth of from 10 to 20 miles; from which nearly one half is to be deducted for the waters of Thunder Bay, Black Bay and Nepigon Bay; leaving from 1100 to 1200 square miles. This area belongs chiefly to the Quebec group, or upper copper bearing series. To it is to be added the Island of Michipicoten about 75 square miles and patches on the east coast at Gargantua, Mamainse and Pointe aux Mines, about as much more, making altogether about 1300 square miles of this series. Of the Huronian or Lower Copper-bearing series, there is a triangular area, extending on each side of the Pic River, and probably 30 miles up it, giving with the Slate Islands between 400 and 500 square miles; to which are to be added two narrow strips west of Michipicoten River, and a small triangle area at its mouth, giving 75 square miles. Another area occupies 50 square miles on Batchewahnung Bay and the Goulais River, making altogether of the Huronian about 600 square miles. On Lake Huron the Lower Copper-bearing series extends from the neighborhood of Sault Ste. Marie to the Shebahahnawung a distance of about 130 miles with an average breadth, as far as known, of probably 15 or 20 miles, giving about two thousand square miles.

4.—In my opinion copper exists in sufficient quantity to become gradually, as the country advances, the means of giving support to the industry of a mining population; and to aid in its development every facility should be given to discoverers who intend to work the minerals, and every discouragement to mere speculators in mineral lands, unless a copper lode be of an exceptional character, it always requires a considerable outlay to put it in a productive condition, and care should be taken not to grant to any one person or company a greater location or *sett* of mineral ground than can be worked with such an amount of capital as might be supposed attainable with moderate facility. By reference to remarks placed by me before the Executive Council on the 26th March, 1846, and printed in the appendix to the journals of the Legislature, it will be perceived that in old mineral countries, a square mile is considered a large *sett* or location; but when the mineral lands of Lakes Huron and Superior were first brought into notice, the locations on the Canadian side of the Lakes were made *ten* square miles, and so many of these were applied for and granted as to become a

serious detriment to the development of the mineral lands. A very large part of the mineral region became absorbed, while few if any of the grantees could command capital sufficient to make effectual trial of ten square miles. How much of this ground subsequently reverted to the Government from the non-fulfilment of the conditions of sale, can no doubt be ascertained from the Crown Land office.

5.—It is well known that on the South side of Lake Superior very great deposits of specular or hematitic iron ore exists in the Huronian series. Important masses of similar ore have been met with on the Canadian side in the same geological series at Gros Cap, in Michipicoten Harbor, and at Batchewahnung Bay. Magnetic Iron ore is said to have been discovered lately in considerable quantity in the Laurentian series, a few miles north of Batchewahnung Bay.

6.—Lead, Nickel, Manganese, Barytes, and perhaps Cobalt and Uranium, will, I believe, ultimately become available to mining industry on the Canadian side of Lake Superior.

7.—The only mining operations that I am aware of at present going on in those parts of Canada, are those of the West Canada Mining Company for copper, at the Bruce, Wellington and Copper Bay Mines on Lake Huron, and of an American Company for iron ore at Gros Cap, in Michipicoten Harbor. The iron ore, I believe is exported to Cleveland. The West Canada Mining Company is said to have sent to market in 1861 about 3000 tons of copper ore, of about 19 per cent., from the Wellington and Copper Bay Mines. They had then £1100 Sterling at the credit side of profit and loss, and they shortly afterwards purchased the Bruce Mines from the Montreal Mining Company, to whom they had previously been paying a royalty of about $4800 per annum on the Wellington Mine. It is generally understood that their enterprise has altogether been a very successful one.

8.—Along the Canadian Shores of Lakes Superior and Huron there are many good harbors, accessible to such sailing vessels and steamers as navigate these lakes, but I am not aware of any means of reaching the interior, except by canoes up the rivers, a great number of which are navigable for such craft.

9.—I am acquainted with the mining operations on the south side of Lake Superior only in a general way, being aware that there is thence sent to more southern parts of the United States to be put into available forms, a great amount of copper and iron ores; that these minerals are obtained from the same geological formations as exist on the Canadian shores, giving the same mineral indications, though the extent of the Canadian mineral ground is not so great; and that it has been by the expenditure of millions of dollars in practically testing the mines, that this trade in minerals has been brought to its present condition.

10.—The only visit I have had an opportunity of making to the south side of Lake Superior was in 1846, when the Americans were just beginning to test their mines, and when only a few of them had attained a productive condition. Mr. Thomas Macfarlane, of Acton Vale, was last year employed, on behalf of the Geological Survey, on an exploration on the east side of Lake Superior, and he took the opportunity then afforded of visiting the south side, and devoting some attention to the mines there. As I understand his evidence is to be made available to the Committee, I shall refer you to him for a description of such as came within his observation. I am aware that he has prepared one.

11.—The system of granting lands on the south shore of Lake Superior is a very simple one. A Government Survey is made of separate blocks of land, dividing it up into lots of one mile square each, by lines running north and south, and east and west. Upon these lots a fixed price is placed, and each lot is sold to the first claimant prepared to pay the price.

12.—On the north shore of Lake Huron, and extending on Lake Superior to Batchewahnung Bay, where mineral and agricultural lands are combined, the Canadian Government have caused to be surveyed several townships, dividing them into lots of one square mile each, apparently upon the American plan; and each lot is granted to the first claimant ready to pay a fixed known price for it. Any one applying for a location in unsurveyed mineral land is required to place before the Crown Land Commissioner, at his own expense, a plan of the same, connected with some known point in previous surveys, by a sworn Provincial Land Surveyor. So that unless an explorer carry a Provincial Land Surveyor with him as one of his party, he is, after making a discovery which he is desirous to secure, obliged to come out of the bush for the purpose of procuring one; and he thus has to bear the expense of the journey out, of the journey back with the Land Surveyor, and of the survey and plan. This it no

doubt a great clog upon the explorer, and before he determines upon incurring the expense, it will no doubt be necessary for him to do some preliminary work to make sure that his discovery is worth it. This will take some time, and unless his discovery is very far removed from any settlement, and he and all who work for him are very silent, his discovery will become known or suspected, and while he is in search of a Provincial Land Surveyor to make his plan for him, some other Provincial Land Surveyor, who is at the same time a speculator in mineral lands, and is on the watch for such opportunities may ascertain the position, make a plan of the place and lodge a claim for it before the discoverer. I am informed that such a thing has happened more than once, and the chance of it is a farther discouragement to the explorer.

It is necessary, however, for the Crown Land Commissioner to have a plan, in order that he may know the true position of the location, otherwise he might grant the same mineral ground to two or more different parties at once. If the expense were borne by the Crown Lands Department, the survey of many of these isolated locations at a distance from one another might become a great public burden, for the expense of surveying each separately would be more than the price to be obtained for the land, and as the Department could not choose for whom they would survey, but have to act for all alike, they might be subjected to the necessity of surveying many worthless localities for unskilful explorers. The Crown Land Department would scarcely be justified in making a survey, unless of some considerable block of mineral land, where in addition to the chance of minerals of value, there was also some encouragement for agricultural settlement, and this, it appears to me is the plan the Crown Land Commissioner is pursuing.

There may, however, be minerals of great value in positions, which, from their isolation, or from misjudgment on the part of the authorities, or because every place cannot be surveyed at once, may stand in unsurveyed lands; and in regard to claims made for locations in unsurveyed lands, it might perhaps be judicious to follow the example of the European countries in respect to unopened or unworked mines. In Spain, Norway, and some other parts of Europe, any person may open new mineral ground or enter upon any abandoned or unworked mine, even if it should be upon private property, but this part of the rule it would be inexpedient to follow. He has only to signify his act to the inspector of mines, and obtain from him a letter of license, which is given in a specified form and registered. The conditions are the payment of a small lordship, and the working of the mine. The mine therefore must be constantly occupied. The moment occupation ceases, any one else may enter upon it in the same way. A Surveyor's plan of the position of the location is scarcely necessary, as it is sufficiently proved by the occupation of the enregistered miner. This mode establishes little or no expense beyond the salary of the Inspector of mines and an office. The duty of the Inspector of mines would be to issue and register the licenses, and annually or periodically to examine each mine, to see that the condition of occupation was complied with, and that a working plan of the mine was properly kept up. If he were a thoroughly competent person skilled in Geology, Mineralogy, and Chemistry, a great amount of information on minerals might be gradually accumulated, and a periodical report by him on the condition of all the mines in the country would become a permanent record of Canadian Mining industry.

13.—I have no farther suggestions to make beyond what may be gathered from the answers to previous questions.

18th July, 1866.

Evidence of Robert Bell, Esq., C.E., F.G S., F.C.S., of the Geological Survey of Canada and Professor of Chemistry and Natural Sciences, Queen's University, Kingston.

1. Have you examined the country on the north side of Lakes Superior and Huron; if so, at what time and to what extent?—I have examined parts of that country in 1859, 1860 and 1865, under the direction of Sir W. E. Logan, and again this spring for a mining company. My observations on Lake Superior extended from Mamainse to the Sault Ste. Marie, and over part of the country in rear of this portion of the shore; and on Lake Huron from the Sault Ste. Marie as far east as Shebahahwahnung or Killarney, and over the whole of the Grand Manitoulin Island and parts of the smaller islands of the Manitoulin group.

2. What are the general features of the country in a mineral and agricultural point of view?—The portions of the mainland which I have examined are com-

posed principally of rocks of the Huronian series, which are generally productive of useful minerals, especially ores. The Manitoulin Islands, however, are composed of flat-lying Silurian strata in which no metalliferous veins have yet been discovered upon the islands, but economical materials of other kinds occur there, which will, no doubt, prove valuable in the settlement of the islands, and the development of the mines on the north shore.

In an agricultural point of view the country is generally unpromising, being mountainous and rocky. There are, however, many tracts of good land, sufficiently extensive to form permanent settlements. Some of the land behind Mamainse and near the shores of Batchewahnung Bay is suitable for farming, and apparently in sufficient quantity for large and continuous settlements. I have examined the country for a distance of nine or ten miles to the north of Batchewahnung Bay, and for shorter distances to the east and south, and found that the soil became very thin or altogether wanting after passing beyond the more level tracts bordering the bay. The valley of the Goulais River, for several miles from the lake, is broad and covered with a fertile soil, bearing hardwood timber, with a few white pines scattered through it. In crossing the country from the head of Goulais Bay to the Sault Ste. Marie, I found much of the land of fair quality. Nearly every lot might contain sufficient good land for the support of one settler. A good many farmers are now settled to the north of the Sault Ste. Marie, and appear to be doing well. There is much good land along the northern half of the Grand Manitoulin Island. The tracts suitable for the plough are interrupted by others having a very thin soil, but such lands are found to afford good pasturage. Much of the southern side of the island consists of almost bare flat limestone rock.

3. In what sections of country did you find the existence of copper, iron or other economic minerals, and to what extent?—I have examined several copper veins on the promontory of Mamainse. Some of them appear to be sufficiently promising to warrant much more extensive operations than the trials which have hitherto been made upon them. The ores consist of the yellow, purple and grey sulphurets. Native copper also occurs at this locality. I have observed specks of copper pyrites in a boulder of magnetic iron ore, beyond the northern boundary of the Township of Palmer. Copper pyrites in quartz was pointed out to me upon the Batchewa nung Mining Company's location in Palmer, where it is found in several veins, and trials are now being made upon two of them. In Begley's location, in Tilley, on the north-east side of Batchewahnung Bay, there is a vein of yellow and purple copper ore which appears to me to be rather promising. A trial which has been made since I visited the locality is said to have resulted very favorably. I was shewn some fine specimens which had been taken out while I was in the vicinity of the mine this spring. I have discovered specks of copper pyrites in quartz veins cutting greenstone between Goulais Bay and the Sault Ste. Marie, and am aware of the existence of the same ore between Batchewahnung and Goulais Bays. In 1860 I visited Mr. Rankin's copper mine on Root River, near Little Lake George, a few miles east of the Sault Ste. Marie. At that time two shafts were being sunk, and a large heap of ore had been raised. It consists of yellow sulphuret in quartz, and also imbedded in their layers in glassy clay slate. The celebrated Bruce and Wellington mines are so well known that I need not describe them. I visited these mines this spring, and found them still vigorously worked. I was informed that between 300 and 400 men were employed in the direct mining operations. Yellow sulphuret of copper, associated with nickel ore, occurs at the Wallace mine, about a mile west of the mouth of the Whitefish River. I had an opportunity of visiting this mine last fall, but the shafts were then filled with water, and I was unable to form any opinion as to its value.

In regard to iron, I have seen no locality on the north shore of Lake Superior or Huron where it occurs so abundantly as in two places a short distance in rear of the north line of the Township of Palmer. The ore is of the black magnetic kind. In one of these localities it forms a mountain covering about 150 acres. I have analysed this ore and find it to average 48 per cent. of iron. In the other locality I observed it over several acres, and the same ore occurs largely in other places in the neighborhood. Although the mine which has been opened on the Batchewahnung Company's location has not proved satisfactory, more extensive beds of ore exist in the vicinity. Red hematite occurs close to the shore of Lake Huron, at the Wallace mine, and a shaft was being sunk upon it last fall, in order to ascertain its extent and value.

In regard to other economical minerals, I might mention the red jasper conglomerate which is found at the northern extremity of Goulais Bay, and in many places on the mainland to the northward of St. Joseph's Island. This rock is suitable for ornamental purposes, and probably also for millstones. Quartzite, well adapted for glass-making, is very abundant in many places on the north shore of Lake Huron. On the Manitoulin Islands, limestone of different kinds, suitable for building and lime-making, occurs in great abundance. A good variety of sandstone for building is found on Campement d'Ours. Clay, suitable for brick-making and puddling in mines, is found in the valleys of nearly all the rivers from Batchewahnung Bay, eastward to the Spanish River, on Lake Huron. I have also observed it upon a small island about eight miles east of the Hudson Bay Company's trading-post at La Cloche, but never on any of the larger islands. Some of the beds, of the Trenton formation, on the shores of Manitowaning Bay, would probably make hydraulic cement. The fine grained sandstone beds of Cape Smyth and other places in Grand Manitoulin Island would make good scythe-stones and whetstones. The Clinton strata on Horse Island, and in many parts of the Grand Manitoulin, are suitable for flagstones. On the same island gypsum is found in small quantities on the east side of Honora Bay, and is said to occur more largely near Wequemakongsing. Indications of petroleum are met with in several places on Grand Manitoulin. A test well sunk on the South side of Wequemakong Bay is reported to have yielded, up to the present time, about 100 barrels of oil.

4. Do you consider that copper exists in sufficient quantities to pay the expenses of working the mines; and, if so, your opinion as to the most available means of developing the resources of the copper region?—I believe that copper exists in many places on the north shores of Lake Superior and Huron in sufficient quantities to make mining operations very remunerative. The operations should be undertaken by companies or individuals having sufficient capital to bear, without inconvenience, a considerable outlay, if necessary, for preliminary work, without looking for an immediate return. In order to encourage the development of the mineral region, the Government might advantageously guarantee exemption from taxation on all materials used in mining, and on the products of the veins, and also secure regular and frequent communication. When railroads are required in order to reach the mines, the public lands along the route might be surveyed into blocks, and each alternate one given to any company willing to build such roads. The price—one dollar per acre—now set upon mineral lands by the Government, can scarcely be considered too high, but much of the best land for mining purposes is unfortunately held by parties who will neither work the mines themselves, nor sell at reasonable rates to those who are willing to do so. The mining system of Norway and Sweden might be advantageously introduced into Canada. Its main feature consists in allowing any individual or company the privilege of working any mine, which may be lying unused, by paying the proprietor of the land a fair royalty, the amount being determined in each case by a scientific commission, and also indemnifying him for any surface damage which his land may suffer. The royalty which the produce of any mine can bear must necessarily vary according to the different circumstances, and is, therefore, adjusted in each case so as to fall as an equal tax upon all. The proprietor of the land, according to these regulations, is himself interested in the vigorous working of the mine, and has a proper means of redress in case this be not done. The effect of this system is to prevent promising mines from being locked up in the hands of proprietors who are unwilling or unable to work them. The Mexican system has the same object in view, and every possible facility is afforded to those willing to undertake the development of mines. It is much to be regretted that the tendency in this country has been to secure mining locations for the purposes of speculation rather than for the actual working of the mines, and perhaps such a change in the system, as I have suggested, would be productive of better results.

5. The same question with respect to iron?—The deposits of iron in the rear of the Township of Palmer undoubtedly afford ore in sufficient quantities. The question of profit depends on the cost of labor, fuel, transportation, &c., as compared with the value of the iron produced. The ore being situated at a distance from the shore, the Government might advantageously grant a certain amount of land in this region to any company, pledged to build a railway from the most convenient harbor to the mines. The distance is not so great as in the case of the celebrated Marquette mines on the American side.

6. The same with respect to other minerals?—Most of the various non-metallic economical minerals, which I have mentioned as occurring upon the north shores and on the Manitoulin Islands, exist in unlimited quantities, and could be easily worked if a paying market were found for them. The most important of those which I have enumerated is, perhaps, the petroleum. Although the amount hitherto obtained has not been very great, it is always an encouraging fact that the first well sunk in this new petroleum region has actually produced oil in marketable quantities. The rocks are of Lower Silurian age, and there is no geological reason why the oil should not be found in them to a paying extent, since petroleum is by no means confined to any particular formation, and the Lower Silurian rocks of Central Kentucky have yielded considerable quantities of oil.

7. At what points are mining operations now going on, so far as you know, and with what success?—At a locality in Donelly's survey, on Black Bay, Lake Superior, two or three men have been mining copper all winter, but with what success I am not aware. At the point called Gros Cap, in Michipicoten Harbor, iron mining is being carried on, and, it is reported, with success. The iron mines on the Batchewahnung Mining Company's location are still being worked, but the result have not proved as good as the promoters of the enterprise anticipated. Copper mining is in progress upon the same location. Native copper has been mined upon Michipicoten Island, but the work was abandoned about two years ago. A trial is being made this spring by Mr. Palmer on a copper vein on the the west side of Goulais Bay. The Wellington and Bruce mines, as I have already remarked, are being extensively worked. A number of men are employed in mining and in the erection of buildings at the Wallace location. Drilling and pumping are in progress at the Great Manitoulin Oil Company's location on the south side of Wequemakong Bay.

8. What are the facilities for reaching the mineral deposits upon the coast and in the interior?—The only expeditious means of reaching the north shore of Lake Superior is by the steamer *Algoma*, which makes regular trips from Collingwood about once in ten days. The steamer *Wabuuno* makes weekly trips from Collingwood to the Sault Ste. Marie, calling at some places on the way. Very few Canadian sailing vessels visit Lake Superior. Portions of the Great Northern (Turnpike) Road, which runs parallel with the north shore of Lake Huron, are now constructed. Common roads run north for a few miles from the Bruce mines and the Sault Ste. Marie. A railway has been graded for a distance of three miles northward from the Mining Company's wharf on the north side of Batchewahnung Bay, but the track has not yet been laid.

9. Are you acquainted with the mining operations on the south shore or American side of the Lakes?—The Marquette iron mines are the only ones which I have visited upon that side of the Lakes.

10. Please inform the Committee as to the character and extent of the mines there, when you visited that locality?—The Marquette mines were of wonderful extent and productiveness. They are situated twelve or fifteen miles from the Lake. On reaching them the railway divides into a number of branches, each one terminating in a cutting in the solid ore. As the iron is quarried and removed by the cars, the track is extended. The ore has a slatey or schistose appearance and is easily excavated. It is the variety known as hematite, and is said to yield from 60 to 70 per cent. of iron. I was informed that at the time of my visit, in 1860, about 300 tons of the ore were being delivered every day on board the schooners which were carrying it to Cleveland. From Cleveland it is conveyed by rail to Pittsburg, Pennsylvania, where it is smelted. The vessels, in returning, carry coal to Marquette, and this is used for smelting the ore at the mines. These mines were opened in 1855. The amount of ore shipped during 1864 is stated at 235,100 tons of 2,240 pounds each.

11. Are you acquainted with the system of granting lands on the south shore; if so, please state its leading features?—The lands have all been surveyed into square blocks, each containing one mile or 640 acres, and these are again subdivided into quarter sections of 160 acres each. The price is fixed at $1 25 per acre. The Land Office is at Lansing, the capital of the State, where a map shewing the subdivisions can be seen. Upon this map the names of all purchasers are written upon their respective lots. If a person wishes to purchase a lot which he has explored, and supposing it to be public land, he has a right to inspect this map, and if he finds no name written upon the lot which he desires, he can then point it out to the Land Agent, and by paying an instalment, require

him immediately to place his name upon it, and the land becomes his property on completing the payment.

12. What is your opinion of the American system as compared with ours?—The American plan of keeping a map for the registration of the names of the buyers of land is a very good one, and might be profitably adopted in this country for the surveyed tracts, but the want of local land agents in Michigan is a disadvantage under which we do not labor in Canada. Our system compares favorably with the American as far as comparison is possible.

13. Have you any suggestions to offer the Committee for the improvement of the land granting system in the mineral region; if so, please state them?—The second clause of the regulations now in force would indicate that the smaller blocks in unsurveyed territory should measure 70 chains and 71 links by 28 chains and 28 links. This might be improved by giving them the same depth as the larger blocks, with half their breadth. The fourth clause requires such tracts to be surveyed by a Provincial Land Surveyor. As the number of such surveyors is limited, and as it must consequently be difficult in many cases to secure the services of one of them at the time and place required, a discoverer should be allowed a reasonable length of time for having his survey made, without running the risk of having his proposed location taken up by another person who might be able to comply sooner with this regulation. The fourth clause also requires the tracts laid off in unsurveyed territory to be connected with known points in previous surveys. This condition would be very difficult to fulfil, if the distance to the nearest point in a previous survey were great, and in these cases locations might be allowed to be surveyed and taken up, provided their positions were otherwise indicated.

19th July, 1866.

Questions submitted by the Select Committee, on the Copper Mines of the North Shore of Lake Superior, to Thomas A. Begley, Esq.

1. Have you examined the country on the north side of Lakes Superior and Huron,—if so, at what time, and to what extent?—I have explored at the eastern end of Lake Superior in the years 1863, 1864 and 1865—principally around Batchewahnung Bay, and towards the east and south inland, at some places to the extent of four or five miles.

2. What are the general features of the country, in a mining and agricultural point of view?—The country is very rugged, interspersed with rocky bluffs, sometimes shewing a perpendicular face of some hundred feet in height, others sloping, but generally very steep.

The rock consists of gneiss, trap, sandstone, greenstone, syenite, amygdaloid, &c., with various conglomerates and large veins, or lodes, of quartz, principally white and others red. both richly mixed with copper ore. Clay is also found, some of it, to the north, stratified. The lie or dip of the rocks is at all angles, some nearly vertical.

There are patches of table-land lying between the rocky bluffs and belts round the bays, which would seem good land for agricultural purposes. This land is all wooded with cedar, black-birch, hard-maple, hemlock, spruce, &c. Oaks and pines are found of large growth, but not to any extent.

3. In what sections of country did you find the existence of copper, iron, or other economic minerals, and to what extent?—Copper is found at Mamainse in all the varieties of the ores of this metal, and some native copper. I am not aware that any of those mines are worked. They are in the hands of monopolists. I believe that there are good veins, or lodes, of copper ore in the neighborhood of Batchewahnung Bay, Goulais Bay, and in the neighborhood of Sault St. Marie.

Iron is found in quantity in the vicinity of Batchewahnung River, but the quality is doubtful.

4. Do you consider that copper exists in sufficient quantities to pay the expense of working the mines, and if so, your opinion as to the most available means of developing the resources of the copper region?—I believe copper ores exist all over the region I have described, in sufficient quantity and quality to pay for the working.

With regard to the best means of developing, I must say it is a difficult country to explore, and, so far as my experience goes, the best thing to do is to burn off all the timber and the underbrush; without this is done you cannot see anything.

5. The same question with regard to iron?—All I know with regard to iron is, that a Company at Detroit has made large purchases of land, as well as large expenditure in constructing a railway, buildings, wharves, &c., which I have seen. The road extends from near Batchewahnung River, inland, about four or five miles; but, I believe, as to the mines being remunerative, it is uncertain. Messrs. Gartshore, of Dundas, C. W., have also discovered and purchased a large tract of iron land, but no development has yet been made.

6. The same with respect to other minerals?—I am not aware what has been done with respect to other metals. Last year, Mr. Palmer informed me that he had discovered gold at Goulais Bay, but I have not heard anything further since. I believe it is the opinion of Sir Wm. E. Logan that the rocks in that locality are such as bear gold, but I am not aware that any has yet been found.

7. At what points are mining operations now going on, as far as you know, and with what success?—At the Bruce and Wellington Mines, on Lake Huron, a large expenditure is being successfully made by an English Company, under the management of Captain Plummer. The ore is nearly altogether yellow at present, and is dressed up by machinery, for shipment, to 19 and 20 per cent., which pays; for although the yellow is an inferior ore, the quantity found generally makes up for the quality.

The next is a mine of copper, a little to the north of Goulais Bay, owned by Mr. Palmer. I cannot say with what success it is worked.

Next is a mine of copper at Batchewahnung Bay, owned by Mr. Hill, of Hamilton and myself. I spent part of the summers of 1863, 1864 and 1865 there. A considerable amount has been expended, but altogether for the purposes of the development of its extent and richness. The ore, which is very rich, consists principally of grey, purple, and a little yellow crops out or shews itself in the south face of a perpendicular cliff or bluff, from 200 to 300 feet in height, in a lode of white and red quartz rock, which in extent has been traced 900 feet in length, 250 to 300 feet in depth, from the top of the bluff to the surface of the table-land; and from the south face of the cliff the lode has been explored thirteen feet in width, but the north wall not having yet been reached, the full width of it has not, therefore, been fully ascertained.

Copper has been found near to the Sault Ste. Marie, also at Echo Lake, and last year locations were taken up on the Thessalon River, and the river next it, on Lake Huron.

I have mentioned all I know relative to iron under article 5.

8. What are the facilities for reaching the mineral deposits on the coast and in the interior?—Mineral locations on the north shore of Lake Superior could be reached with great facility, as there is a succession of good natural harbours, as well as anchorage, from one end of the lake to the other; whereas, on the south shore, the facilities afforded for shelter to ships "in stress of weather" are comparatively few. But when you get inland, as there are few rivers navigable to any extent, or roads, it may be said that there are no facilities whatever for getting your ore to a place for shipment. Notwithstanding that rivers and streams abound in this mountainous country, quite sufficient for driving all the machinery which will ever be required for the dressing of ore and all other purposes, there is a want of roads and other means of access to the portion of the mineral country where the richest mineral veins will likely be found.

9. Are you acquainted with the mining operations on the south shore, or American side, of the lakes?

10. Please inform the Committee as to the character and extent of the mines there when you visited that locality?—I have no acquaintance whatever with those matters.

11. Are you acquainted with the system of granting lands on the south shore, —if so, please state its leading features?—I have understood from many persons who had purchased on the south shore, that when you found a location to answer you, all that was required to be done was to pay in the money to the local agent, and you at once got your title to the land and took possession.

12. What is your opinion of the American system as compared with ours?—The system in Canada will not bear any comparison to the American, or United States, system. There, you pay your money and get a title at once. In Canada you may pay your money and it may be given to a favorite.

13. Have you any suggestions to offer the Committee for the improvement of the land-granting system in the mineral region,—if so, please state them?—The

granting of land in the mineral region contiguous to the great western lakes should be on a very different principle. The persons who frame the regulations are generally ignorant of the nature of the country, ignorant of the mode of development, ignorant of mining operations, of the quantity of land required for mining purposes; in fact, ignorant of everything they should be acquainted with.

In my opinion, it would be better to define the mode for procuring and purchasing, settling as to the right of way, construction of wharves, &c., by law, and not by Orders in Council and regulations made by the Crown Lands Department, which, from being continually altered, very often place intending purchasers in a false position; and persons without expenditure of either time or money get possession of locations on which large expenditure has been made by explorers.

Purchasers should be secured the right of way to enable them to get their ore to a place for shipment with facility. They should not be limited in the quantity of land; let them purchase any quantity they require, and charge taxes thereon, the proceeds to go for the construction of roads, harbours, lighthouses, &c. The 400 acres a person requires may be a barren rock. A good mine will employ two or three hundred men; they require dwellings and gardens; ground is required for floors for dressing, buildings for machinery, pasturage for horses, oxen, and other animals, for roads, &c., &c.; and for those purposes 400 acres will go but a short way.

14. Have you had any experience in mining operations on the north side of Lakes Superior and Huron,—if so, where, and to what extent?—Already answered.

15. Is it your opinion, from the experience you have had, that mining for iron can be carried on to advantage in that section of country?—I have not had sufficient experience to answer.

16. Have you met with any copper veins during your operations?—Already answered.

17. Have you experienced any inconvenience in locating mineral lands and procuring a title for them?—I have; very great and vexatious annoyance and delays.

18. What is your idea as to the best means of developing the mineral resources of the country?

19. Have you experienced any inconvenience from the Government, or any other party, since you commenced mining operations in the locality referred to?—Yes; great inconvenience and delay. After paying in the money, expense of exploring, and having been informed, in writing, that I could have the lot, I could not obtain the patent until more than three years after: consequently, the mines lay idle during that period.

After the survey of the location above referred to had been made, it was found that more land would be required, as hereinbefore explained; and in August and September, 1863, a little over 400 acres were applied for in the name of my partner, Mr. Robert G. Hill, but it could not be obtained, we were informed, until the Government survey, then ordered, would be completed. After the survey was completed, on 13th December, 1865, I offered to pay in the money, but was informed, at the Indian Office, that no price having been settled on by the Government, it could not be sold until an Order in Council would be passed fixing the price and conditions of sale. In February, 1866, I have since learned, that Mr. Geo. Jackson had applied for all the land surrounding our location, and has received patents for it all, except ten acres, through which a road cannot be made, and we are now at his mercy. It has been stated that he applied previous to Mr. Hill, but the documents in the Indian Office prove the contrary. The annexed sketch will show the manner in which we are hemmed in, and are without any remedy.

THOMAS A. BEGLY.

OTTAWA,
July 19th, 1866.

26th July, 1866.

Questions submitted by the Select Committee on the Copper Mines of the North side of Lake Superior, to Albert P. Tacher, Provincial Surveyor, and his answers thereto.

1 Have you examined the country on the North side of Lakes Superior and Huron; if so, at what time, and to what extent?—I have, and am intimately acquainted with the coast of both lakes; and inland, from Fort William to Lake Nipissing.

I first visited Lake Superior in 1846. I was subsequently, or during the years 1847, 1848, and 1849, under the employment of the Honorable Commissioner of Crown Lands, surveying the mineral tracts on that Lake; and in 1849, I made the passage from Fort William to Sandwich in a bark canoe. In 1855, I was again ordered on service to explore the country bordering on the Lakes, accompanied by the Count De Rottermund, and continued in that service until 1863, when my services were dispensed with.

2. What are the general features of the country in a mineral and agricultural point of view?— This section of the country is much diversified, at one time presenting to the explorer a tract of land fit for agricultural purposes, at another, startling him with ridges of barren rock, destitute of herbage or vegetation; and at others he will pass through tracts of valuable timbers. As a whole it is a mixed *mineral, timber* and *agricultural country*; and its fisheries cannot be surpassed, if equalled.

3. In what sections of country did you find the existence of copper, iron, or other economic minerals, and to what extent?—Throughout the whole section of country from Penetanguishene to Fort William, minerals will be, and have been found. I may mention more particularly the Magânituwâng River, the Portage des Rats, and the country in that vicinity, where the yellow sulphuret of copper is abundant, and in well-defined lodes. At the White Fish River, nickel abounds. This locality was many years ago worked by, I think, the *Upper Canada Mining Company.* Why they abandoned a property which, I am satisfied, must prove valuable, I am not prepared to say. On the Spanish River, the explorer will find lodes which will command his attention, bearing copper pyrites of a rich quality. This section also abounds in timber: pine, red and white, and of good quality.

The Serpent River, and the section of country to the north of it, offer a fine field for exploration, as well for mineral as timber; and fine tracts of good arable land will be found in its vicinity.

The River Mississaga, the next on our map, offers inducements to a mineral explorer, on all sides. It was once described to me by a very able mineralogist as *Nature's Smelting Pot.* In this section, yellow sulphuret of copper is abundant, and at the Slate Portage, I am of opinion minerals of a more valuable character will be found.

The whole of this section is strongly mineralized, and the surface indications such as to lead an explorer to examine the country carefully.

On the chain of lakes through which the River Thessalon flows, I have found both copper and Iron, and in economic quantities.

In rear of the Sault Ste Marie copper and iron are found, and in sufficient quantity to warrant the working of the lodes; and without doubt, on careful examination, lodes will be discovered superior to any found by me.

North and West of the Sault Ste. Marie, or on Goulais and Botheheuôna Bays, the explorer will find a fine field for examination. Here will be found, in paying quantities, deposits of copper and iron, at "Maimainse," "Gargantua," "Cape Ghoyon," "Michipicoten" and the Island of the same name, "Dog River," "Pickerel River" or "Riviere Doré," the "Jack Fish River," "Black River" and the "Slate Islands," "Les Petits Ecrits," "Black Bay," the "Sheehe Bay," or Duck Bay, "Thunder Bay," "Isle St. Ignace" and the "Fighting Islands," near "Simpson's Island," are places well worthy of examination, and but little known.

These localities *are rich*, and will, I hope and feel sure, sooner or later, form a mine of wealth to our country. This opinion I have expressed before, and I adhere to it still.

4. Do you consider that copper exists in sufficient quantities to pay the expenses of working the mines, and if so, your opinion as to the most available means of developing the resources of the copper regions?—I answer *Yes*, most positively, not only *copper*, but *iron, silver*, and *molybuctiu* will be found in economic quantities; and all that is required is capital and energy.

My opinion is that the whole country should be surveyed, or blocked out, in sections of six miles square; that it should be offered for sale at such a price per acre, as the Commissioner with his colleagues may approve, without any restrictions whatsoever, save that the moment a patent is issued, a *tax* should be placed upon the property.

5. The same question with respect to iron?—Same as answer No. 4.

6. The same question with respect to other minerals?—Same as answer No. 4.

7. At what points are mining operations now going on, so far as you know,

and with what success?—At the Bruce and Wellington Mines on Lake Huron; Batchewôna Bay on Lake Superior, in rear of Fort William, and I believe, on the Island of St. Ignace. The first have been worked since 1847, and under the present managers, are the *best paying mines on the shores of either Lake.* These mines are managed by Messrs. Plomer and Bennett, for "Taylor and Sons" of England.

8. What are the facilities for reaching the mineral deposits, on the coast and in the interior?—There are two means of communication, the one by the steamer *Algoma,* from Collingwood, the other by the American boats, from Detroit. In answering this question I must express my regret that the "North Western Transit Company" had not been supported, as I have no hesitation in saying, that had a generous support been extended to them, many portions of the country, bordering on the shores of Lake Superior, and lying between Fort William and the Red River, would have been settled and occupied, in place of being in a state of primeval wilderness.

9. Are you acquainted with the mining operations on the south shore, or American side, of the Lakes?—I am, and deeply regret that the same energy and enterprise, has not been displayed on our shores, as upon theirs. The whole country is surveyed and becoming, daily, developed, while as we, with a section of country equally rich in mineral wealth, *are doing nothing.*

10. Please inform the Committee as to the character and extent of the mines there when you visited the locality?—In answering this question, I would most respectfulty state, that, while employed under the Hon. Commissioner of Crown Lands, I, deeming it to be my duty, collected all the information I could, both from the American authorities and our own. This information I gave in my Report to the Honorable Commissioner of Crown Lands, but to recapitulate it I would say that from *May* to *October,* 1859, the south shore of Lake Superior, exported 63,190 tons 247 lbs. of iron, and 6,427 tons 429 lbs. of copper, valued at, by the Custom's Report, $3,199,608.73 —employing in the transit 891 vessels, *steamers, sailing craft* and *tugs.* I could go more minutely into the business and wealth of the shore south of us, but I hope, *one year* will suffice to shew its importance.

11. Are you acquainted with the system of granting lands on the south shore; if so, please state its leading features?—I am acquainted with the American method of disposing of lands, having been instructed in 1845 to enquire into the method adopted, and to report to the chief of my department. This report is, or should be, on record. In as few words as possible. The whole country is surveyed. Such Townships as are found *fit for settlement* are subdivided into *sections* and *quarter sections*; the outlines of the remainder are defined, thereby giving an explorer a chance of determining his locality. The lands are offered for sale in the vicinity *by an agent,* who, to the settler or explorer, shews the map, on a scale of 20 chains to an inch; furnished with which, he can easily discover the plot he wishes to locate himself on, further, on the payment to the agent, of the amount required, a receipt is given to the purchaser, a duplicate of which, forwarded to Washington, secures the patent *forthwith.* This, I think, correct.

12. What is your opinion of the American system as compared with ours?—I think the American method of managing their wild lands, far superior to ours, inasmuch, as they encourage settlement. *We* hinder it, or at all events, throw every obstacle in the way of promoting it.

13. Have you any suggestions to offer the Committee for the improvement of the land-granting system, in the mineral regions; if so please state them?—I would respectfully refer the Committee to my answers to questions 11 and 12, which contain, in few words, my opinion on this subject.

14. Have you had any experience in mining operations on the north side of Lakes Superior and Huron; if so, where and to what extent?—I have not. I am an explorer, not a miner.

15. Is it your opinion from the experience you have had, that mining for iron can be carried on to advantage in that section of country?—I have no doubt that the iron lodes in the vicinity of both Lakes can be worked profitably.

16. Have you met with any copper veins during your operations?—I have, many.

17. Have you experienced any inconvenience in locating mineral lands, and procuring a title for them?—I have not.

18. What is your idea as to the best means of developing the mineral resources of the country?—I again respectfully refer the Committee to my answers to questions 11 and 12.

19. Have you experienced any inconvenience from the Government, or any other party, since you commenced mining operations in the locality above referred to?—I have not. On the contrary, from the Local Agent, Mr. Wilson, of the Sault Ste. Marie, I have ever received the greatest kindness.

ALBERT PEDERO TACHER,
Provincial Surveyor.

OTTAWA, July 26th, 1866.

3rd August, 1866.

Questions submitted by the Select Committee on the Copper Mines on the north side of Lake Superior, to Thomas Devine, Esq., Crown Lands Department, and his answers thereto.

1. Have you examined the country on the north side of Lake Superior and Huron; if so, at what time and to what extent?—In the summer of 1864, in obedience to instructions from the Department, I visited the north shore of Lakes Huron and Superior, for the purpose of reporting from personal examination the manner in which the surveys in the Great Manitoulin Island had been performed, and at the same time to ascertain the progress of settlement and mining operations in that section of the Province.

As the time at my disposal, however, was limited, and the instructions requiring my presence at the office, as soon as I could possibly return, my examination was somewhat cursory; I was nevertheless enabled to acquire some useful information, in addition to the results of my own observation, with reference to the lands for settlement and mining operations, and the best mode of developing the same. My report will be found in Appendix No. 35 of the Report of the Commissioner of Crown Lands, for the year ending 30th June, 1865.

2. What are the general features of the country in a mineral and agricultural point of view?—The general features of the country along the north shore of Lakes Huron and Superior indicate that the regions abound in mineral wealth, at the same time there is a fair proportion of good lands, back from the shore, adapted for agricultural purposes, as will be seen by a reference to the maps accompanying the Commissioner's Report, for the year ending 31st December, 1865.

3. In what sections of country did you find the existence of copper, iron, or other economic minerals, and to what extent?—As already stated, the time at my disposal prevented more than a cursory examination of the lands, the principal object of my mission being the examination of the surveys, and to obtain such information as to enable me to report from my own personal observations what progress settlement and mining operations were making, and the best method of dealing with these important matters; I had not, consequently, the opportunity of personally knowing in what sections the particular kinds of ore abound, nor their extent.

4. Do you consider that copper exists in sufficient quantities to pay the expenses of working the mines, and if so, your opinion as to the most available means of developing the resources of the copper region?

5. & 6. The same question with regard to iron and other minerals?—With the view of developing the mineral resources of the north shore of Lakes Huron and Superior, we recommend, in my report referred to:

"1st. The erection of light-houses on prominent points along the north shore and on the main islands, in certain points that were indicated on a sketch that accompanied my report. And it can scarcely be expected that the want of direct steamboat communication will be effectually supplied until this is done, so as to render navigation less subject to serious risks and hazards."

"And then, that encouragement should be given to run a first-class steamer during the summer season, from Sarnia to Fort William, touching at the principal places along the east coast of Lake Huron to the mouth of the Saugeen River, and from thence direct to Sault Ste. Marie and Fort William. With this steamer another should be kept up between Collingwood and Sault Ste. Marie."

My suggestions with reference to the price of lands for mining and settlement, and also for the abrogation of the tax on ore, have been since carried out; and the recommendations therein contained, incorporated with regulations for the sale of mineral lands (which have been since published).

As to the question "whether I consider that copper exists in sufficient quantities to pay the expenses of working the same, and also with reference to iron and other minerals;" I beg to state that the time at my disposal was too limited to enable me to form any correct idea as to the quantity of copper, iron, or other minerals, but refer you to the Report of the Provincial Geologist, Sir W. E. Logan, for 1863.

7. At what points are mining operations now going on, so far as you know, and with what success?—The Wellington and Bruce Mines I found to be in active operations; the former worked by an English company (the Western Canada Company, limited), produces, I was informed, profitable returns, notwithstanding a large royalty paid by the company to the original proprietors. The same company has, since my visit there, purchased the whole of the Bruce Mine, which would appear to be an indication of their success.

About three hundred families were settled in the vicinity, most of them being employed at the mines, at remunerative wages, $1.15 per day for men, and boys in proportion.

8. What are the facilities for reaching the mineral deposits on the coast, and in the interior?—The facilities for reaching the mineral resources on the Canadian side of the Lakes are not by any means such as to encourage private enterprise, and I endeavored in my report (see answers 4, 5 and 6) to point out that the erection of light-houses, the improvement of navigation, and the encouragement of steamboat communication should receive the attention of the Government.

A canal will also have to be constructed at Sault Ste. Marie (as pointed out in my report), the site for which should be reserved through the lands along the river and islands near the village.

At present the steamer *Algoma* plies between Collingwood and Lake Superior as far as Fort William, calling at Batchewahnung Bay three times a month, leaving Collingwood on the 1st, 11th and 21st of each month.

9. Are you acquainted with the mining operations on the south shore, or American side, of the Lakes?—I am not.

10. Please inform the Committee as to the character and extent of the mines there, when you visited that locality?—I have never visited the mines on the south shore.

11. Are you acquainted with the system of granting lands on the south shore; if so, please state its leading features?—

12. What is your opinion of the American system as compared with ours?—One of the features of the American system is the mode by which the survey of public lands is effected.

The surveys are given out by contract to the Deputy Surveyors at so much per mile, the result has been that numberless frauds have been perpetrated. Field notes and plans have been manufactured, shewing townships as surveyed which the contractor never so much as saw or visited; lakes, swamps and lands unfit for settlement have been thus shewn on plans, and described in field notes, where excellent land existed which was thus shut out from sale and settlement for a length of time. In other cases, in consequence of the Surveyors having found that the rates could not possibly remunerate them, the surveys were so badly and imperfectly performed as to afterwards lead to a vast amount of litigation.

An immense amount of re-surveying has thus been forced upon the American Government, greatly enhancing the cost of the survey of the public lands (see Report of the Commissioner of the General Land Office for the year 1849). On page 293 it is stated that in seven townships, surveyed by one individual, "it was found that *less* than one-third of the lines and courses described in the field-notes, had any existence on the ground; the few that could be found were very badly marked, and so erroneous that an entire survey is necessary."

In one of the seven townships which have been re-surveyed, "it appears that the *aggregate length* of all the lines that were run therein by the original contractor *does not exceed two miles* or about 1-30th part of the division that he was paid for."

There are several other instances of equally bad surveying on the same page.
See also pages 313 and 346, same volume.
In Report* for 1850 see pages 3, 61, 130.

Do	1851	do	86, 91, 173.
Do	1852	do	59, 101, 103, 118.
Do	1853	do	6, 51, 67, 103.

In Arkansas for 1851 it was estimated that $18,000.00 would have to be spent for re-surveys (See Report 1850, page 66).

In the Lower Peninsula of Michigan, in 1855, $25,160.00 was required for the re-survey of 36 townships.

See Report 1853, page 67 and page 51.
See also Report 1852, page 103.
In Michigan, for the year 1856, over $15,000.00 was required for re-surveys.
See Report for 1854, pages 53, 65 and 86.
See Report for 1858, pages 92 and 93, *re* fraudulent surveys.

DEPARTMENT OF CROWN LANDS,
Ottawa, 3rd August, 1866.

*Report of Commissioner General Land Office.