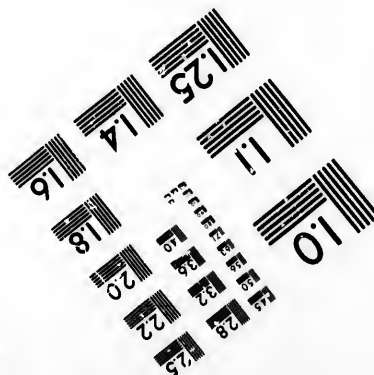
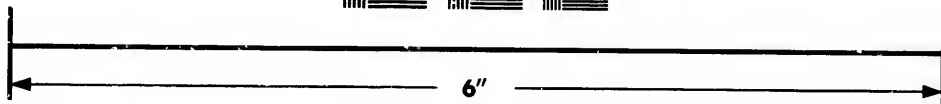
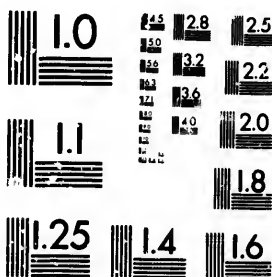


IMAGE EVALUATION TEST TARGET (MT-3)



Photographic
Sciences
Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1981

Technical and Bibliographic Notes/Notes techniques et bibliographiques

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

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

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

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

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

15X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

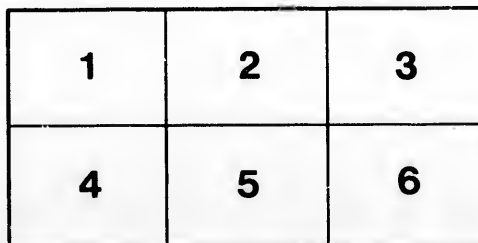
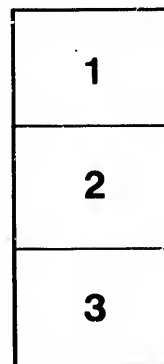
National Library of Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ▼ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

Bibliothèque nationale du Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ▼ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.

tails
du
odifier
une
image

rrata
o

pelure,
n à

32X

Can.
Pam.

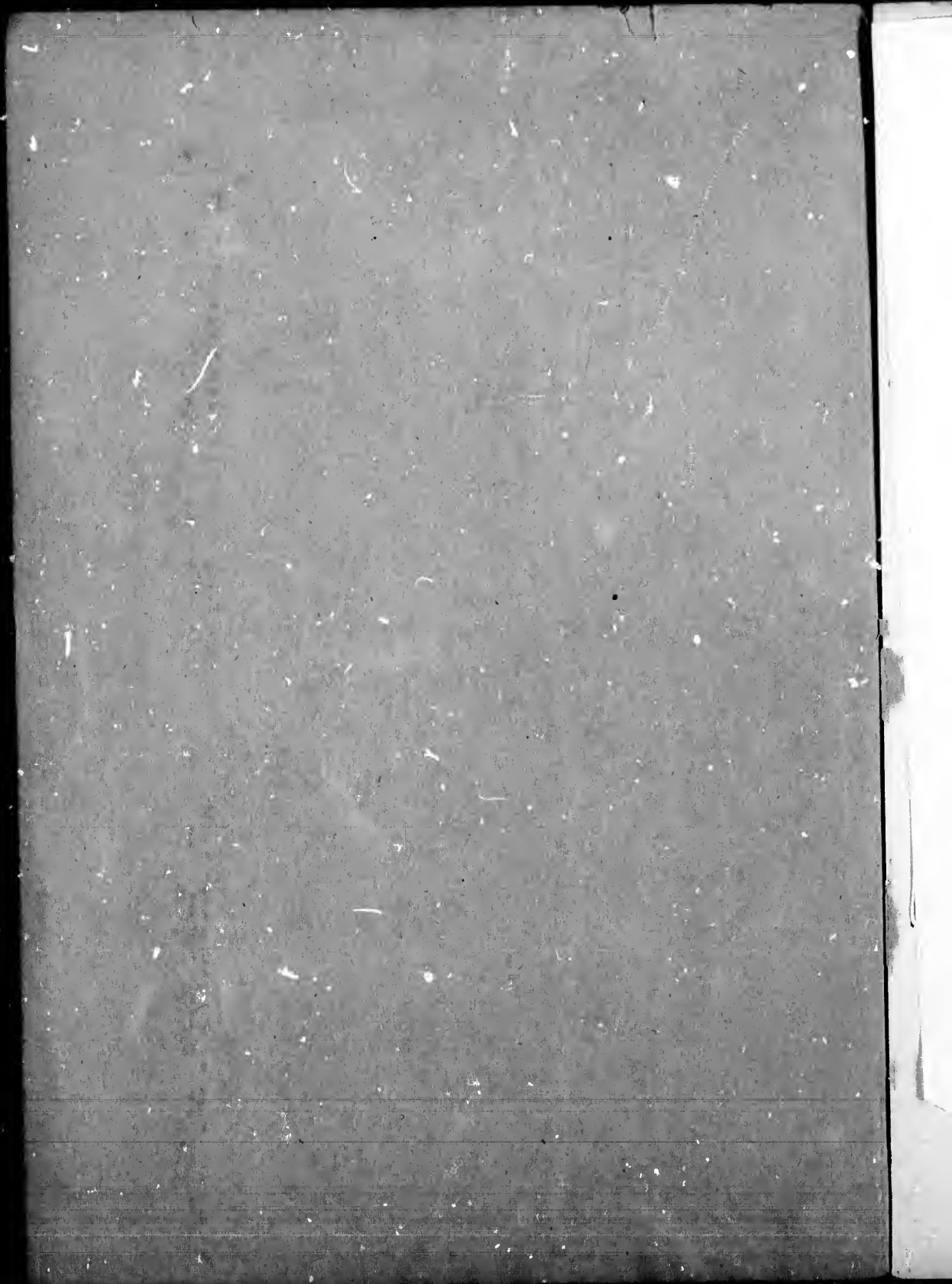
Thomson, Archibald Co.

R. Bell

REPORT AND EXTRACTS
ON
THE BLACK RIVER
MINING LOCATIONS,
Nos. 1, 2, 3, & 4.
NORTH SHORE OF LAKE SUPERIOR.

TORONTO:
CGPP, CLARK & CO., KING STREET EAST.

1872.



T

S,

R.



7

REPORT AND EXTRACTS

ON

THE BLACK RIVER

MINING LOCATIONS,

Nos. 1, 2, 3, & 4.

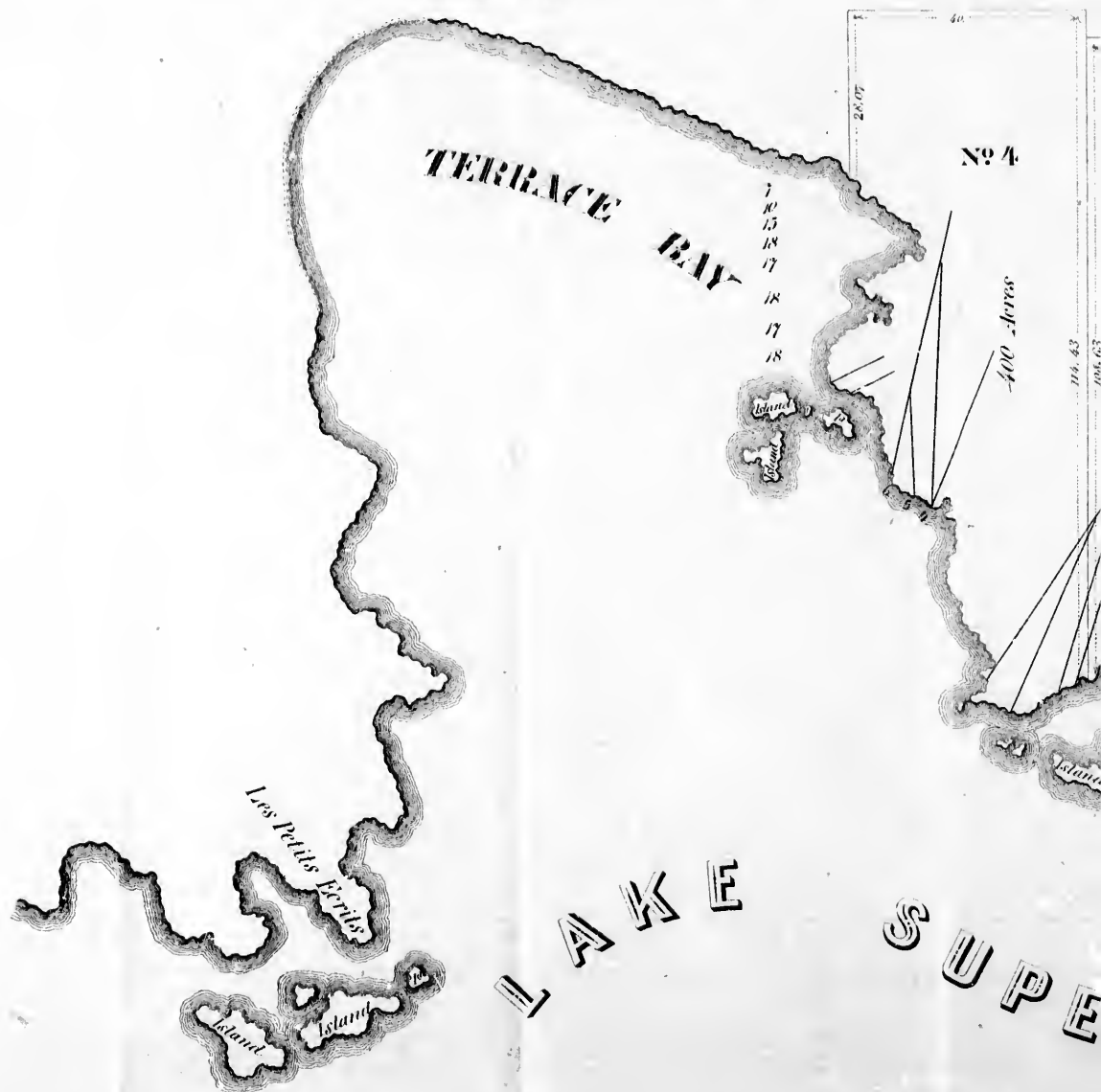
NORTH SHORE OF LAKE SUPERIOR.

TORONTO:
COPP, CLARK & CO., KING STREET EAST.
1872.

PLAN OF MINERAL LOCATIONS ON BLACK RIVER, LAKE SUPERIOR.

Scale, 20 Chains to One Inch.

COPP, CLARK & CO. LITH. TORONTO.

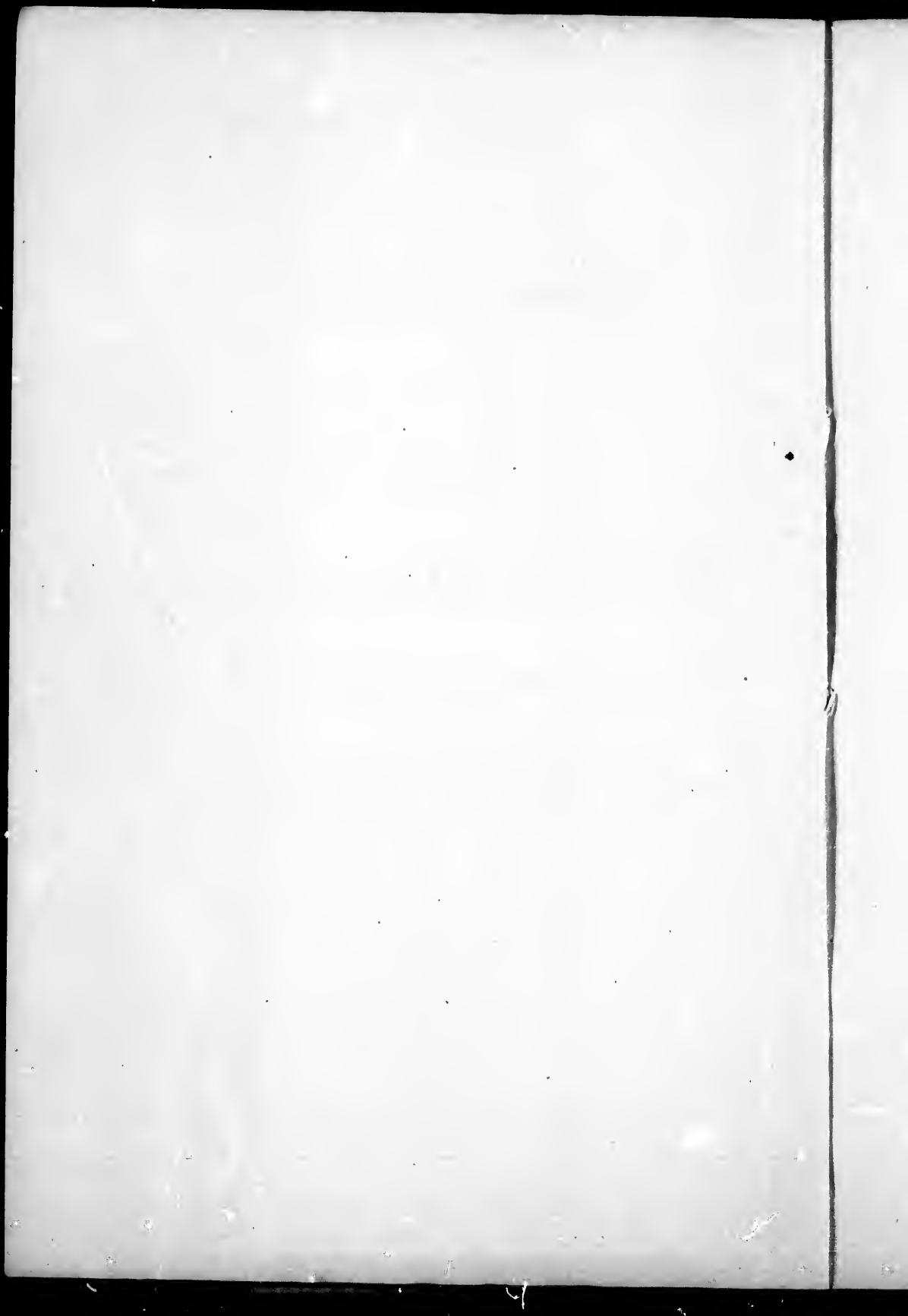


Var. 2 15' East



Chatham
Nov 8th 1864.

Albert Pellico Sachs
Pres. Surgeon



We, the undersigned, holders each of an undivided one-fourth interest in the Black River Mining Locations, Nos. 1, 2, 3, and 4, North Shore of Lake Superior (the other half being the property of the Royal Canadian Bank), are desirous of placing some facts with regard to said locations before the public, which will draw the attention of Capitalists, with a view to their development.

To this end, we herewith, by permission, publish copy of a report recently made to Royal Canadian Bank, by a competent mineralogist and others, accompanied with some extracts taken from reports formerly made to the Upper Canada Mining Company.

We are willing to sell our interest therein, or to join with any Capitalists who may purchase the interest of the Bank, in forming a Joint Stock Company for the developing and working the mines.

ARCHIBALD C. THOMSON,

Barrie.

JAMES MCGEE,

31 Grenville Street, Toronto.

R E P O R T
TO THE PRESIDENT AND DIRECTORS
OF THE
ROYAL CANADIAN BANK.

GENTLEMEN,—In pursuance of your instructions, we proceeded to Lake Superior, and had an opportunity, on our way, of inspecting the "Wellington Copper Mines" and smelting works on Lake Huron, now carried on successfully (being wrought day and night) by Messrs. Taylor & Sons, of London, England. Also of visiting Marquette, the seat of the Iron trade of the south shore of Lake Superior.

The view here presented to the eye and mind of the tourist, by this busy and well adapted shipping port, is that of the enormous growth of the iron-mining industry of this section, and forms a contrast with the barren, uninhabited regions of the north shore, which is reached in a run of a hundred miles that is not very gratifying to a Canadian. But on reaching Silver Islet, it is very suggestive of what the north shore will be when the richness of its silver as well as its copper and iron mines become fully known and developed.

The wharf at which the steamer stops is on the mainland, east of Thunder Cape, where the Silver Islet Company have cleared a hundred acres of land, erected a wharf, about thirty houses, and a church. They have had as many as 480 men in their employ at one time. Opposite the wharf, to the south, is Burnt Island, forming a breakwater that makes a safe harbour inside; and outside of this, to the south again, is that speck of rock, scarcely rising above the waters of the lake, known as Silver Islet, exposed to every wind.

On commencing operations, it was found necessary to enclose the island with crib-work. The first cribs put down were twenty feet wide, and were soon carried away. New ones had to be constructed, which are sixty-five feet wide, said to be the heaviest and strongest crib-work in Canada; and they would require to be so, to withstand the winter storms of this latitude; as a wharf constructed during the winter at Prince Arthur's Landing was carried away when the ice heaved, and the steamers have to lay out, and discharge their freight into scows.

The Silver Islet Company own four small steamers or tugs, which they employ solely in their own work, exclusive altogether of freight. As yet there are no roads, which will be very difficult and costly to make, owing to the rocky nature of the country; so the lake is the present highway. On their wharf we noticed quite a number of barrels containing ore, addressed to the "Wyandotte Silver Smelting Company, Mich." From the weight marked on each, we found they ran about three barrels to the ton; and although some specimens of the ore have proved an assay of \$5,000 to the ton, yet, on the most reliable authority we could obtain, the average value would be \$2,000 to the ton, or say \$700 per barrel. By the end of this season, 2,000 barrels will have been shipped, making an aggregate of \$1,400,000 worth of ore, as the product of this their first year's operations.

The head of Black Bay is twenty miles to the north-east from Silver Islet. Here a Mr. Gooding, of Chicago, is prospecting a mine, and will have a road to make six miles to the mine.

After visiting Fort William, and going some distance up the Kaministiquia River, we returned to Prince Arthur's Landing, which is head-quarters of the mining interest in this locality. Through the kindness of friends, we had a good opportunity of visiting and inspecting Jarvis and McKellar Islands; the Trowbridge, Shortiss, Carson, Bennett, Withers

or Shuniah Mines; the Savigny, Thompson, Slawson, Mendlebaun and Beck Mines; Cariboo Island, Amethyst Harbor, Thunder Bay, Algoma and Ontario Mines. None of these can be properly said, as yet, to deserve the name of "mine," as they are only being prospected and opened up.

The farthest advanced are the Shuniah and Beck Mines, where the prospects are good. The ores from both these were found to have about an equal value to those of Silver Islet, taken at the same depth, and the surface indications to be the same as the Black River locations. In none of these has much native silver been found. When some pockets of native silver have been found amongst the regular ore, it has caused an assay to be made of exceptional richness—say as much as \$5,000 to the ton has been obtained; but the average yield will fall much short of this. A mineralogist met with here says: "The principal ranges of rocks in this section (from which are many off-shoots or droppers from volcanic action) are all mineral-bearing, and exhibit evidence of upheaval and dislocation. In these ranges, the existence of copper, zinc and silver lead, has been definitely ascertained by explorers. As regards the silver deposits, they usually occur in combination with lead, small results at the surface increasing as the vein is worked."

The *New York Financial Record*, in an article lately, on the Lake Superior Mining Region, *inter alias*, says: "It will be found that the mines of Lake Superior have a great advantage over those of the Western States, in the item of transportation; the chain of lakes and canals connecting quite to the seaboard, and enabling carriage of ore at not more than \$12 per ton from here to New York, while from Utah it costs from \$35 to \$40."

Labourers' wages here at present are \$1 per day gold, and for mechanics from \$1.50 to \$2. Facilities for communication are increasing constantly.

The Collingwood line have withdrawn the old steamer *Algoma*, and substituted two new first-class steamers, the *Manitoba* and *Cumberland*. These boats, with the *Chicora*, form a regular line, leaving Collingwood every two days, touching at various points on the Georgian Bay, Sault St. Marie, Batchewauning Bay, Michipicoton, Marquette, crossing thence to Silver Islet, Fort William, and passing along the north shore to Duluth.

Captain Ward is, we believe, building an iron steamer, to run from Marquette to Silver Islet, Black Bay, Nepigon Bay, and other points of interest. Marquette, in Michigan, is the regular stopping-place for all steamers, and is connected by rail with Chicago and the south and east. Being only one hundred miles distant from the North Shore and the Silver Mines, the run is made in one night most pleasantly.

The *Globe*, of date 2nd June, 1871, says: "Silver Islet, formerly the unproductive property of the Montreal Mining Company, is now the scene of the most intense interest. Through the solitary days of the past winter, miners have been quietly working, and the revelations of this spring show that their labours have not been magnified or wasted. Every week large shipments of silver ore are made from these mines and the supply would seem inexhaustible. Over 835 barrels of ore have already been shipped this spring." A few weeks later, the *Collingwood Bulletin* says, on the information of Mr. Nettleton, "Mining operations are going on vigorously at the Islet, and the ore is exceedingly rich. The silver is contained in ordinary quartz, and mixed with galena in large quantities. The *Chicora* brought down thirty tons to the Bruce Mines: one piece weighed 25 cwt., and was valued at \$3,000." Again, a fortnight later, the *Globe*, in a short article, says: "We learn that great excitement exists in the silver mining district. The steamer *Chicora*, on her last trip from Thunder Bay, brought down \$15,000 worth of ore, which was obtained from Silver Islet. One large piece alone was valued

at \$4,000. The Mining Company have at present 480 men employed, and have in project to still further crib in four acres around the ledge, which is now covered by the waters of the lake."

It seems, then, established, on undoubted authority, that, whilst native silver in small pockets is occasionally met with, yet the ores of the Shuniah, Algoma, Beck and Silver Islet mines are ores of silver-bearing lead, or argentiferous galena; and when we turn to the reports of every geologist who has examined the North Shore, we find the four locations formerly held by the Upper Canada Mining Company, and now by the Royal Canadian Bank, and being locations Nos. 1, 2, 3 & 4, containing 400 acres each, or 1,600 in the aggregate, and embracing the mouth of the Black River, extending from thence westward to and embracing the best harbours on Terrace Bay, are by them all more highly spoken of than any points on Lake Superior, for the great number, continuity and well-ascertained bearings of its veins or lodes of argentiferous galena.

Convinced by the facts patent to our observation, that the ores of the Black River locations are identical in type and equal in value to those of Silver Islet, and that the surface indications are much more abundant, we feel that our mission is satisfactorily accomplished, and on this point quote the opinion expressed by Sir William Logan, in his *Geology of Canada*. Speaking of the galena of the north shore, he says: "Veins holding lead ore are found in several localities on the north shore of Lake Superior. Some of these traverse the granitic gneiss of the Laurentian series, as on Granite Island on Black Bay, where a vein of twelve inches in breadth carries a considerable quantity of galena in a breccia of fragments of the wall rock, cemented by drusy chrystalline quartz. This ore does not appear to contain much silver. Farther to the east, and at a mining location at the mouth of the Black River, to the north of the Slate Islands, the Laurentian rocks are seen near their contact with the Huronian series. Here a

vein of quartz occurs in the granitic gneiss. It runs nearly east and west, with a breadth of from one and a half to five feet, and holds galena and iron pyrites. The latter is more abundant near the shore; but about twenty rods beyond, in the hill, the galena predominates. According to Professor Hadley, this ore is extremely rich in silver."

Feeling satisfied that these locations will prove the richest in argentiferous galena of any on the north shore, we prefer furnishing you with some extracts on this point, taken from the reports of Sir Wm. Logan and Professors Carlos, Cobb, Hadley and P. Van Schneidau, rather than offer useless opinions of our own.

To place any positive value on these locations, we cannot; but in the light of sales that have been made of other locations, we think their comparative value would be \$100,000 each location.

APPENDIX TO REPORT.

In introducing to the notice of the public the mining locations on Lake Superior, known as the "Black River Mining Location," it is thought that very little more is necessary than to give a short resumé of the notices already so favorably made of it in the reports of some of the Geologists, and others who have partially explored it.

The exceeding richness of the location in various minerals was first noticed by Professor Agassiz, in 1846, when making a geological survey of the North Shore of Lake Superior; and this induced the "Upper Canada Mining Company" (then being formed) to engage the services of Professors "Cobb," "Hadley," and "Schneidau," specially to visit the "Black River." All these gentlemen found the character given of it by Professor Agassiz more than verified. Two locations, covering the richest veins, were surveyed by them and added to those already taken up by the Company. And in the first report, submitted to the Company by the chairman of the "Board of Trustees" (I. J. Brondgeest, Esq.) he thus speaks of this location :

"These reports will show that the chief objects intended by the operations of the season have been fully accomplished. Valuable locations have been discovered and secured; and although these may appear more numerous than was at first proposed, it must be borne in mind that the discoveries were of greater value as the explorations continued. This applies more particularly to Lake Superior, where the two last locations, at Black River, exceed in value all the rest, both for quantity, value, and variety of minerals; for the fitness of

the extensive terraces for agriculture ; for the abundance of water power ; and for the valuable fisheries."

So that of the eight locations taken up by the "Upper Canada Mining Company," containing in all 51,200 acres, these two locations on the Black River, of 1,600 acres, the last taken up by them, were placed at a value equal to all the rest put together, owing to the large number of veins found on it, their great extent varying in width from one to thirty feet. Their facility for work running all along the shore, and cropping out in the precipitous river banks ; being in the direct line of navigation ; with good safe harbours, good fisheries, a large amount of fair farming land, and an abundance of timber for all purposes.

Carlos Cobb, Esq., of Buffalo, N.Y., who had charge of an exploring party, speaking of this portion of the North Shore of Lake Superior, says :

Metallic
Rocks.

"A highly metamorphic slate occurs at the various points of junction with the trap or granite, losing many of its former external characteristics, resembling in many respects a green stone. Rock of this character is observed at 'Gros Cap,' near the junction of the slate with porphyritic trap." This is esteemed a favorite rock for metallic veins.

Various qualities of slate are found, micaceous, talcose, and argillaceous ; among which roofing slates of good quality may be procured. This rock is observed at "L'ance à la Bou-teille," Slate Islands, and other localities, which also afford metallic indications.

A red steatitic rock occurs here, underlying cliffs of green stone, resembling the celebrated pipe stone of "St. Peters." This rock is manufactured by the Indians into pipes, and, I have no doubt, may be used in the construction of furnaces as a fire stone. Granitic rocks are found in great abundance, and in a great variety of forms. This rock, at no very distant day, will probably be brought into use, upon the lower lakes, as a beautiful and valuable building material. Any desired shade may be selected, from a deep red to a light grey. The

predominating mineral in this rock is feldspar, of a red color. A light grey variety is found near "Black River," "Les Petits Ecris," and numerous other localities. This rock is esteemed the most favorable for well defined metallic veins. Veins occur in great number along the shore, exposed by action of water and ice; are particularly numerous in amygdaloidal trap formations, frequently crossing and intersecting each other like a net work; generally of small size, but nearly all are metallic, even at the surface. Native silver and copper are met in this rock. Native Silver.

The slate rocks are cut by veins of calc spar and quartz, frequently of large size, with well-defined walls, lined with a steatitic mineral. The ores of copper, lead, zinc, and argentiferous galena, are met in these veins; and pyratous copper and iron are frequently disseminated in the surrounding rocks. The granitic rocks are particularly interesting for the great number and regular character of the veins, occurring in several districts; are frequently of great width, carrying the ores of copper, zinc, molybdenite, and galena, which latter is often highly argentiferous. Galena. The neighbourhood of a junction between granitic and slate, or granitic and trap rocks, has been found a favorite locality for the existence of metallic veins.

The climate of this district is temperate and remarkably healthy. The thermometer seldom falls to zero during the winter; and the influence of so large a body of water upon the atmosphere, during summer, renders that season cool and admirably suited to manual labor. Snow covers the ground about the middle of November, remaining until March; the ground unfrozen. During the whole year, the climate seems such to which the human system becomes easily acclimated. My own party, though mostly strangers to the mode of life and climate, at no time having other shelter than tents, and often without any, have not suffered from a common cold.

The Black River locations, as surveyed by the "Upper Canada Mining Company," are numbered 4 and 5, having each a lake frontage of two miles, with a depth of five miles,

or ten square miles, making 6,400 acres each. In again locating this mining section, it was thought advisable not to take up useless land. The same lake frontage has been preserved and divided into four locations, numbered 1, 2, 3, & 4, having a sufficient depth inland to include all the veins in the former survey, and containing 400 acres each, or 1,600 acres in all. The descriptive survey made of lots Nos. 4 & 5 is now applicable, as follows: — No. 4 is now Nos. 1 & 2, No. 5 is now Nos. 3 & 4. Carlos Cobb thus describes them :

LOCATIONS Nos. 1 & 2

Are situated on the main shore of the lake, at the mouth of the Black River, and nearly north from Slate Islands.

In passing along the shore opposite them, high, rocky points are observed, which seem the termination of ranges of hills running interior. About one and a half miles from the shore a steep bank is seen rising, about three hundred feet above the level of the lake, densely covered with timber, terminating on the west in a sudden slope, where it is seen composed of sand, the brow of which has from time to time slidden off into a deep gorge, through which flows Black River, opposite rocky cliffs, about four hundred feet perpendicular. Several miles in the rear are seen a range of mountains running nearly parallel with the shore, rising in cliffs, apparently twelve or fifteen hundred feet above the level of the lake, which are said to be greenstone trap. Black River empties into the lake near the west side of the location: its source is far interior; is the outlet of a number of small lakes, and is a route taken by traders passing to and from Long Lake, nearly two hundred miles interior. This river abounds in some of the finest scenery upon the lake. Near its mouth, and in view from the lake, occurs the first fall, about twenty feet in height, where the stream is divided by two small islands. Above this fall the river is enclosed between bluff banks of rocks, and falls over series of rapids; half a mile up a second fall occurs, about thirty feet in height, below which the stream divides, forming a large island. One

Black River

Route to
interior.

First Fall.

Second Fall.

In again
le not to
been pre-
, 2, 3, &
e veins in
, or 1,600
os. 4 & 5
os. 1 & 2,
bes them :

mouth of
s.
gh, rocky
ranges of
from the
dred feet
nber, ter-
seen com-
e to time
ws Black
t perpen-
of moun-
in cliffs,
e level of
ck River
ation : its
of small
and from
his river
e. Near
first fall,
vided by
osed be-
rapids ;
n height,
d. One

branch washes the foot of the high sand bank before de-
scribed, causing slides of earth from time to time. One mile
up, the river falls one hundred feet, into a narrow chasm.
Above this occurs a series of rapids for half a mile, where the
stream becomes deep and broad, running through an elevated
table land or terrace for several miles, and is navigable for
large boats. About three miles up occur clay banks of a
reddish color, tenacious and of a fine quality. This river
affords facilities for hydraulic uses which can scarcely be
equalled. At the high falls, the water may be taken from
the river above, through a natural race created by the decay-
ing out of a dike or vein to the water level. The river flows
through this channel in high water, cutting off an island. An
excavation of fifty square yards of rock would throw any de-
sired amount, or the whole stream, through this channel,
affording a cheap and desirable water power, at about where
its use would particularly serve the wants of this location.
Good cedar, pine, spruce and birch grow abundantly in the
neighbourhood, sufficient for the demands of the location for
economical uses for many years. From this point to the lake
shore the ground is favorable for the construction of a road.
The terraces or table land before spoken of are composed of
sand and gravel, which seem here deposited by action of
water, and once to have been the level of the waters of the
lake. The highest of these slope at an angle of about forty
degrees, two hundred feet, where a series of terraces and
slopes occur towards the lake shore. These are covered with
a sparse growth of timber, consisting of fir, birch, tamarac
and pine, and seem a lighter soil than the high or upper ter-
race. This land may easily be cleared, is found to produce
good potatoes, and other crops suited to the climate, abun-
dantly, which is of very great importance to a mining settle-
ment at this point. I have estimated two full square miles
of land of this description, and is included in the boundaries
of this location, lying in one body.

One side of this tract would border upon the lake, the
west side upon Black River—a position unsurpassed for

River falls.

Third Fall.

Natural
race way.

Road.

Good land.

River.

beauty and healthfulness. The river at its mouth is narrow ; within it is about one hundred yards wide. Six feet of water may be carried over the bar. Inside it is nine to twelve feet deep, and is sheltered from the prevalent westerly winds by a high rocky point projecting into the lake. This river may be safely entered by vessels of light draught, in ordinary weather ; but the reliable harbor for this neighborhood occurs about one mile west of this location, No. 5, hereinafter described.

The mouth of Black River affords one of the most esteemed fisheries upon the lake, and has long been the resort of neighboring Indians during the proper season. Our own little net, scarcely twenty yards in length, supplied us abundantly, and a large surplus. The fish here taken are the speckled and salmon trout, white fish, siscowit, pike and herring. The labor of one or two men, during the first run, would supply a large settlement with most excellent fish, and I believe three-fourths of the provisions required for a mining settlement could be derived from the soil and fishery at this point.

The rock of this location is a beautiful grey granite. A stratification is observed, and a very considerable dip towards the west. This rock continues for about six miles west, where it meets metamorphic slate. A series of greenstone trap dikes cross it from east to west, several of which are of great width, cutting the granite vertically, and are traceable several miles in a westerly direction, cutting also the metamorphic slate range before mentioned, towards Nepigon Bay. The front of this location exhibits an array of metallic veins seldom seen upon the lake, and are remarkable for great regularity, their well-defined character, their persistence in width and direction, together with the variety and excellence of their mineral indications. Near the centre of the front occur two veins of

Size of veins larger size than I have before met with in granite rocks—one of twenty-five and one of thirty feet wide, bearing yellow sulphuret of copper and zinc blende, occupying a lode two feet in width near the centre of the vein. These veins have been traced about two miles, appearing in the river bluffs of similar dimensions, and mineral indications as at the shore.

Several veins of Derbyshire spar, of a beautiful purple, appear on the shore, and crossing the river bluffs nearly two miles distant. Eighteen veins have been discovered upon the front of the location, bearing yellow and grey sulphurets of various ores, each of which warrants a thorough exploration. Besides these occur a number of droppers or tributaries joining the larger veins. On exploring the river, twenty-two veins were discovered, besides very numerous droppers and tributaries, several of which correspond in width, direction and contents with those discovered upon the shore.

The gangue of the veins upon this location is generally white quartz, occasionally accompanied by calc and fluor spar, with walls frequently smooth and uniform, as if polished, and generally lined with a soft steatitic mineral. Upon opening two of these veins a few feet, two circumstances were observable—an increased width of vein, and an increased quantity of ore. For locality of veins, dimensions and ores carried by each, I beg to refer to the accompanying map.

Black River Locations, Nos. 3 & 4, correspond to Location No. 5, Upper Canada Mining Company, and immediately adjoin Locations Nos. 1 & 2 on the west, and is thus described by Carlos Cobb.

Location No. 5 is situate upon the shore of the lake, adjoining No. 4 upon the west, and is bounded as follows:—beginning at a point upon the shore, made by the intersection of the west line of No. 4 with the same; thence north upon the west line of location No. 4, sufficient distance to give an average depth to this location of five miles; thence west at a right angle to said line, running north two miles; thence south at a right angle to said line running west, parallel to said line running north, two miles distant therefrom to the lake shore; thence easterly along the lake shore, following the meanderings thereof, to the place of beginning, including also the small islands opposite and contiguous.

The rock of this location is the same as that of No. 4, the same stratification and westerly dip.

Roads.

Pine

Terraces.

Veins.

A part of Terrace Bay is included within the bounds of this location, running into the west front, in which occurs several small rocky islands, forming a large and safe harbor in any weather, with good anchorage, easy access, and deep water to a very few yards from shore, which is a sand beach. From this harbor the ground is favorable for cutting roads to almost any part of this and the adjoining location. On the east side of this harbor occurs about one square mile of land, rising gradually from the bay, of good quality, covered with timber, among which is a considerable quantity of pine of sufficient size for lumber. Terrace Bay is so named from a remarkable series of sand and gravel banks, rising like steps, forming its north shore. For several hundred yards the ground is composed of a series of low, curved ridges, parallel to the shore, gradually rising, appearing like recent lake beaches. A bank here rises at an angle of about forty degrees, one hundred feet, where occurs a terrace, from which rises a third bank. In this manner five distinct terraces are observed. On measuring the elevation of the highest, it was found three hundred and eight feet above the present level of the lake. These banks skirt the bay nearly three miles, when they are intersected by a high mountain ridge running interior. The view of these singular banks from the lake is vast, imposing, and when standing upon the brow of the uppermost terrace, appears like an immense amphitheatre beneath. Three miles to the north of Terrace Bay occurs a lake several miles in length, the outlet to which is a tributary to Black River. Upon the north side of this appear the perpendicular cliffs of the greenstone mountains, before mentioned in the description of No. 4.

The eastern side of this location is rocky and mountainous, and is cut by numerous veins bearing yellow and grey sulphurets, and other ores similar to those found on location No. 4 adjoining. A vein occurs opposite the small islands in the harbor, in a bluff bank, about fifty feet in height, runs interior north fifteen degrees east, and has been traced into the mountain ridge one and a half miles. At the bluff cut by

this vein, the rock seems to dip each way, as from an anticlinal ridge, leaving a width of about twelve feet, in which the rocks in their broken strata lie on their edge, or a vertical position. Through this runs a vein about eight inches in width, with a gangue of white compact quartz, by the side of which runs a vein of steatite. This vein carries a handsome display of yellow ore, in proportion to the width of the vein, well disseminated through the gangue.

This ore is accompanied by sulphuret of molybdenites. Several droppers join the lode from various angles, mostly running into the interior.

Polycarpus Van Schneidau, Mineralist of Chicago, examined these locations for the Upper Canada Mining Company, and describes them as follows in his report :

LOCATION No. 2.

The general character of the rocks in this location are trap and slates. The slate often upheaved, standing on edge, its layers running nearly east and west, and in some places very much altered in character by the contiguity of trap. On the shore were discovered seventeen veins of quartz or calcareous spar, all of them highly metaliferous. Inland the rocks have the same character. One of the best defined veins on the shore, is one five feet wide, of calcareous spar and quartz, bearing north and west, carrying sulphurets of copper, zinc and lead ; and another of calcareous spar, with sulphuret of lead containing silver. Other veins were found carrying iron pyrites, with sulphuret of molybdena.

Veins highly
metaliferous

Silver.

LOCATION No. 3.

The rocks in this location consist of granite, slate and greenstone, rising, according to estimation, 800 feet high. The principal vein is one of quartz running nearly east and west, eighteen inches wide in the narrowest part, and traverses the granite carrying iron pyrites, and argentiferous sulphuret of lead, very rich in silver. The iron pyrites, (so

called) which is very light colored, might be argentiferous, like some mines in Mexico. ("See Ure's Dictionary, vol. 11, page 172.") On the shore the iron pyrites is prevalent in the vein, but on opening this about twenty rods from the shore, up in the mountain, the argentiferous lead was predominant.

Very rich in silver.

LOCATION No. 4.

Argentiferous ore.

The rock is granite. On the shore, and also inland, appear some heavy trap dikes. The ground rises inland about 6 to 800 feet by estimation, partly in terraces and mountains. Along the shore eighteen veins are discovered, mostly quartz and calcareous spar, and in exploring the river banks, twenty-two veins were found carrying the same ores. One of these veins is twenty-five feet, and another thirty feet wide, carrying calcareous and fluor spar, zinc blende, and a grey, vitreous ore or pyrites, which, like the mines in Mexico, may prove to be highly argentiferous.

Water power timber, &c.

Finally I add, that in my opinion every one of these locations encloses a great amount of mineral wealth, and that the working of the veins must be greatly facilitated by the water power afforded by the Black River, by its fisheries, by the abundance of timber for economical purposes, by the amount of fair arable land, and by its fine harbours.

Professor George Hadley, analytical chemist of Buffalo, N. Y., also visited these locations, and thus reports of them:

"The whole location abounds in quartz veins, the rock being granite. The granite is composed of glassy quartz and red feldspar, in moderately sized grains, with small particles of hornblende, and will not yield to any granite in beauty, and in all the other qualities which render this rock valuable as a building stone. It should not be forgotten, in estimating the expense of sinking in the veins, that it quarries and works more easily than most of the hard traps in which the mines of Lake Superior are mostly situated. Some heavy dikes of black trap cut through the granite on the western side of the

location, and on the eastern is an extensive fault, which seems to have changed the direction of the great joints or fissures in the rock."

About twenty veins have been discovered on the shore, in a distance of two miles, and as many in the cliffs of the Black River, and that not counting droppers or branches, but only such as are distinct and continuous, and at the same time metaliferous at the surface. Of these veins there seem to be two distinct sets or kinds; one of which is confined to the set of joints or fissures by which the granite is divided into blocks, running with these in an east or north-east direction, and dipping at an angle to the north-west. The other set of veins are of more considerable size, varying from a few inches up to twenty and even thirty feet in width. The general course of these veins is from the shore directly into the interior; but they vary somewhat in different parts of the location. Many of them have been traced for a great distance inland, and are uncommonly uniform in width and direction. Some have even and smooth steatitic walls, and all seem to be subject to very few dislocations or disturbances of continuity from any cause whatever. I examined only one of these veins carefully: it is three to five feet wide, well defined, and carries in a gangue or veinstone of quartz fine large chrystals of iron pyrites, and a highly argentiferous lead.

Cross veins.

Full or continuous veins.

With the data at present in possession, it would be impossible to make a reliable estimate of the profits of working these mines. That the indications on most of them warrant thorough exploration, there can be no doubt, as they would be regarded by all explorers as highly favourable. To expend large sums at once in erecting smelting works and other fixtures, might not be the best course to pursue, involving the outlay of very heavy capital, which for some time might be unproductive of profit to the shareholders, and therefore produce dissatisfaction. I would recommend, therefore, that the most favourable points be selected, and that they first be worked by small parties of miners. In this way the amount and quality of the ore, the cost of obtaining it, and all other

Argentiferous lead.

points relating to the profitable working of the mines may be ascertained with only the risk of a comparatively trifling outlay.

Sir William Logan, in his "Geology of Canada," speaks in several places of galena found in different localities on Lake Superior, from which silver has been extracted: in one case as low as two per cent., and in others four, ten, thirty, thirty-seven, sixty-nine, and as high as 256 ounces to the ton of lead. He says veins holding this lead are found in several localities on the north shore of Lake Superior. Some of these traverse the granitic gneiss of the Laurentian series, as on "Granite Islet" on Black Bay, where a vein of twelve inches in breadth carries a considerable quantity of galena in a breccia of fragments of the wall rock, cemented by drusy chrySTALLINE quartz. This ore does not appear to contain much silver.

Farther to the east, at a mining location at the mouth of
 Black River. the Black River, to the north of the Slate Islands, the Laurentian rocks are seen near their contact with the Huronian series. Here a vein of quartz occurs in the granitic gneiss. It runs nearly east and west, with a breadth of from one and a half to five feet, and holds galena and iron pyrites: the latter is more abundant near the shore; but about twenty rods beyond, in the hill, the galena predominates. According
 Silver. to the tests made of it by Professor Hadley and others, this ore is extremely rich in silver.

Again, in another part of his works, speaking of the copper-bearing rocks of Lake Superior, he says: "Among the copper-bearing veins of Lake Superior, those near the Black River, which are described as cutting a stratified granitoid gneiss, composed of red feldspar and vitreous quartz, are supposed to belong to the Laurentian series. They contain in a gangue of quartz, sometimes with calcspar and fluorspar, small portions of yellow and vitreous copper ores, with a little molybdenite, blende and galena, the latter sometimes highly
 Argentiferous galena. argentiferous."

mines may
ely trifling

a," speaks
calities on
ed: in one
ten, thirty,
to the ton
in several
ne of these
ries, as on
lve inches
lena in a
by drusy
o contain

e mouth of
the Lau-
Huronian
tic gneiss.
n one and
rites: the
ut twenty
According
thers, this

the copper-
mong the
the Black
granitoid
, are sup-
ntain in a
fluorspar,
th a little
es highly

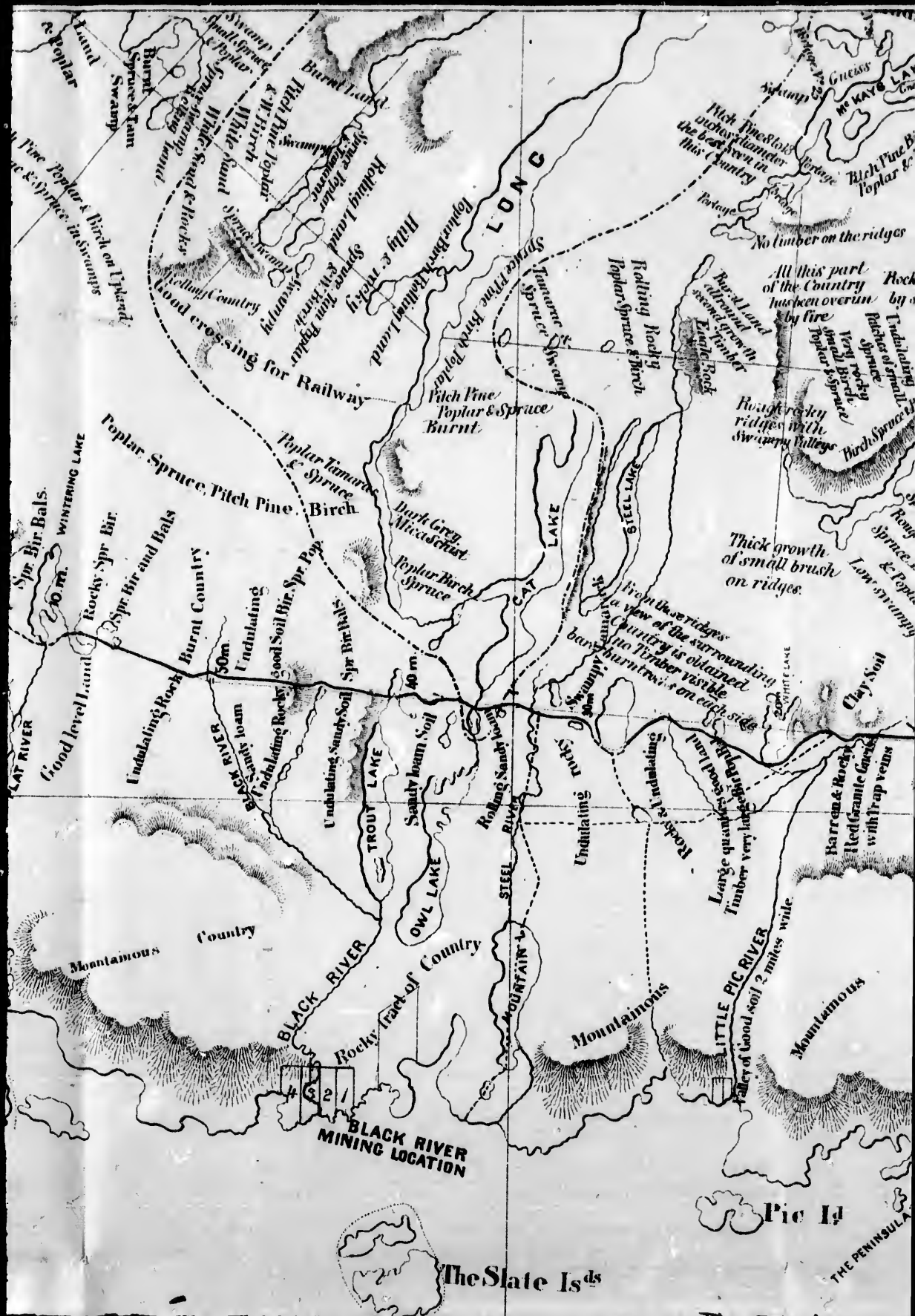
Since the foregoing was put to press, we learn that, at the close of navigation, the Mendlebaun and Beck Mines, under the able development of Mr. Slawson, a practical miner, formerly Captain of the "Cliff Copper Mines," are likely to turn out well; a shaft having been sunk on each, of sufficient depth to test them; and that an interest in them has been sold for \$150,000.

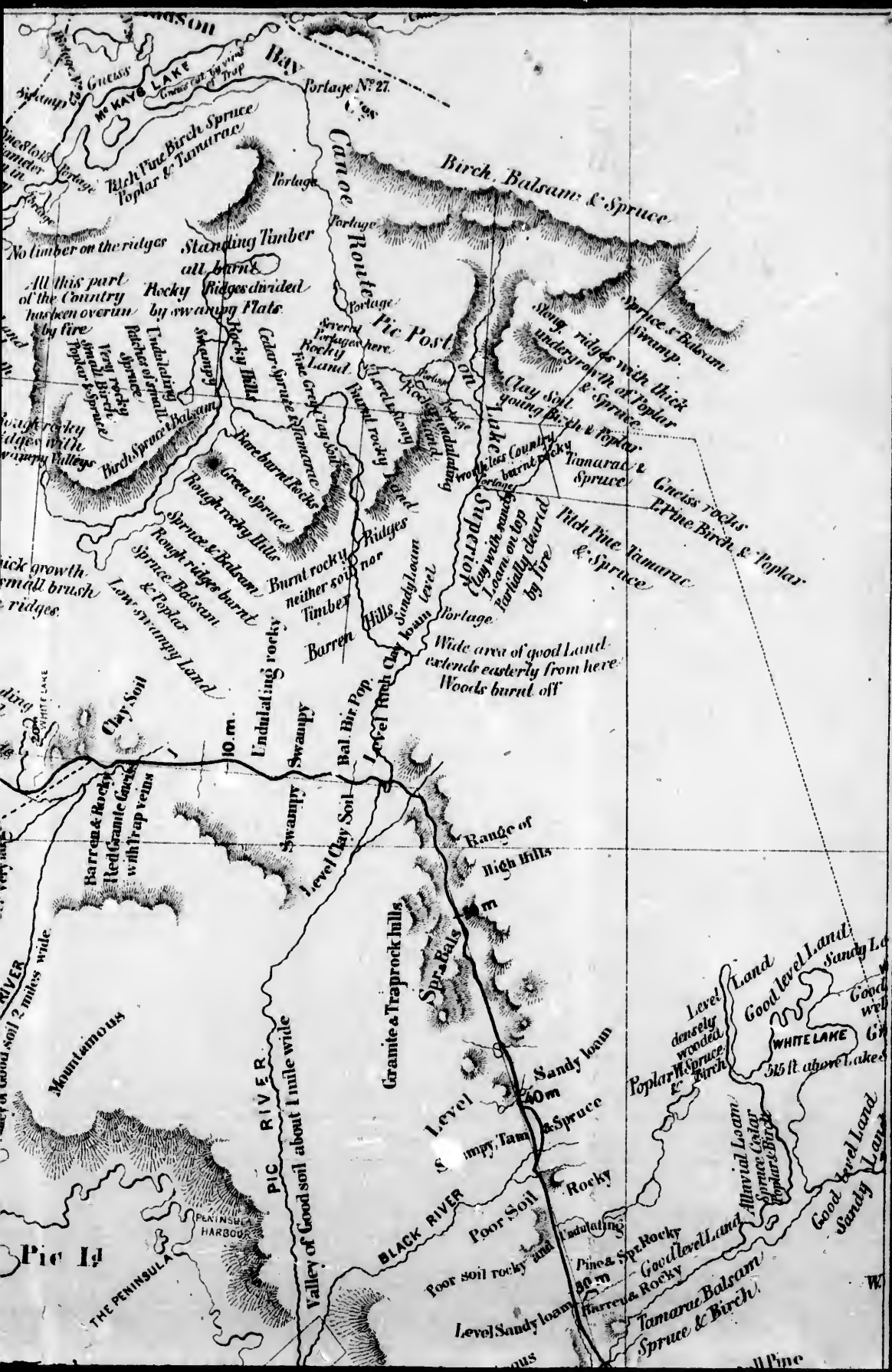
Also that the Savigny and Shortiss Mines are likely to turn out well.

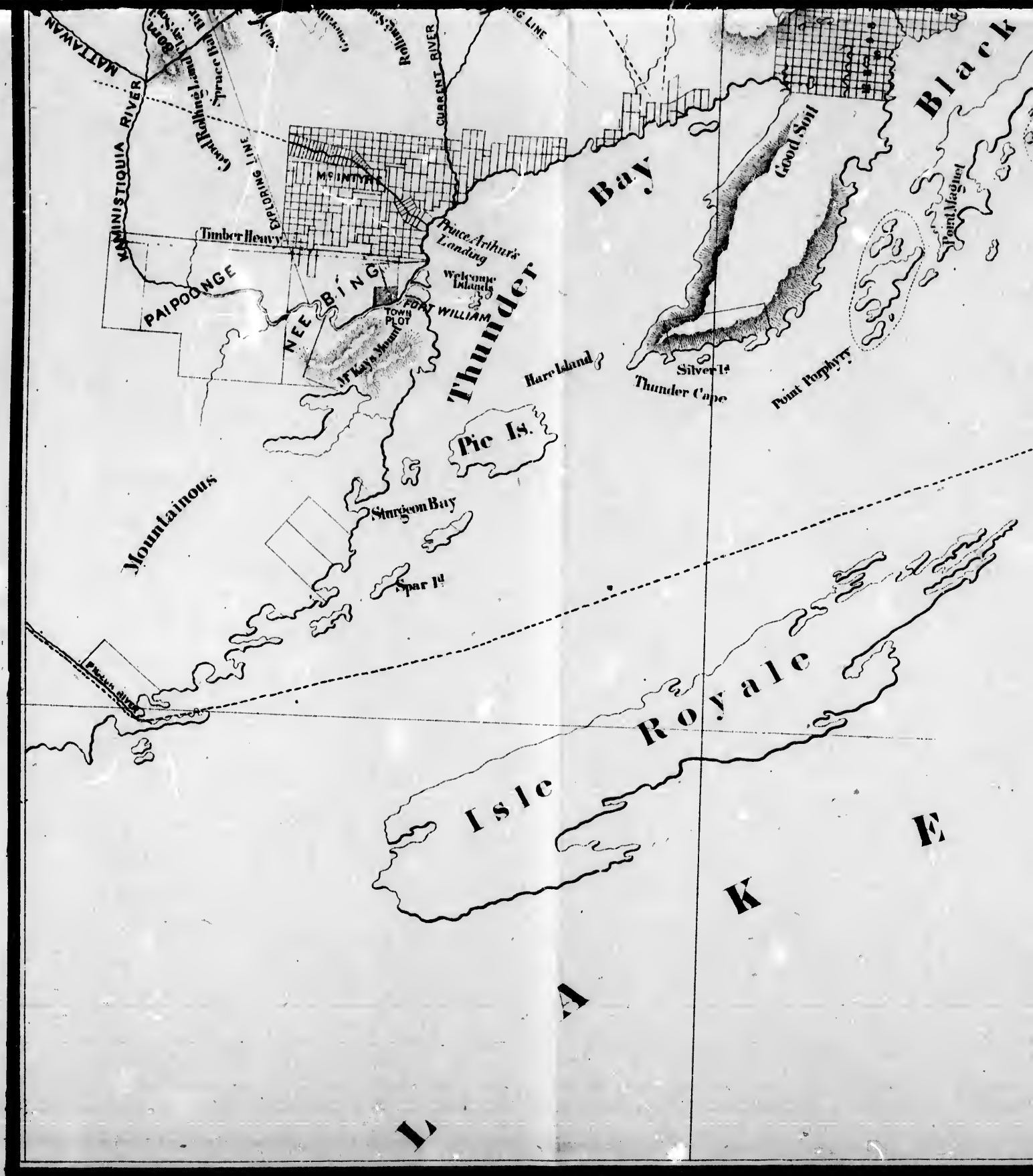
Also that the present proprietor of the Shuniah Mine, Mr. Carson, who purchased the "Withers Location" last spring for \$15,000, has spent \$25,000 in developing it, during the season; and, being successful in finding silver in the shaft now sunk, has sold the East Shuniah claim for \$200,000, and intends the coming season to develop the West Shuniah Location.

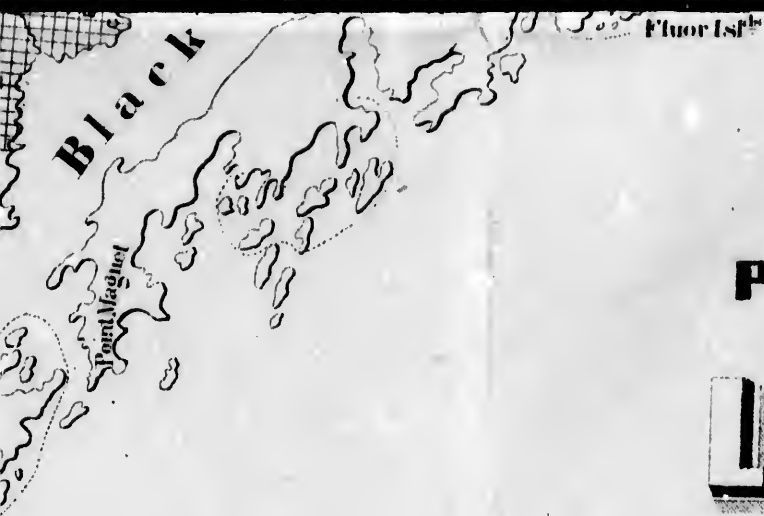








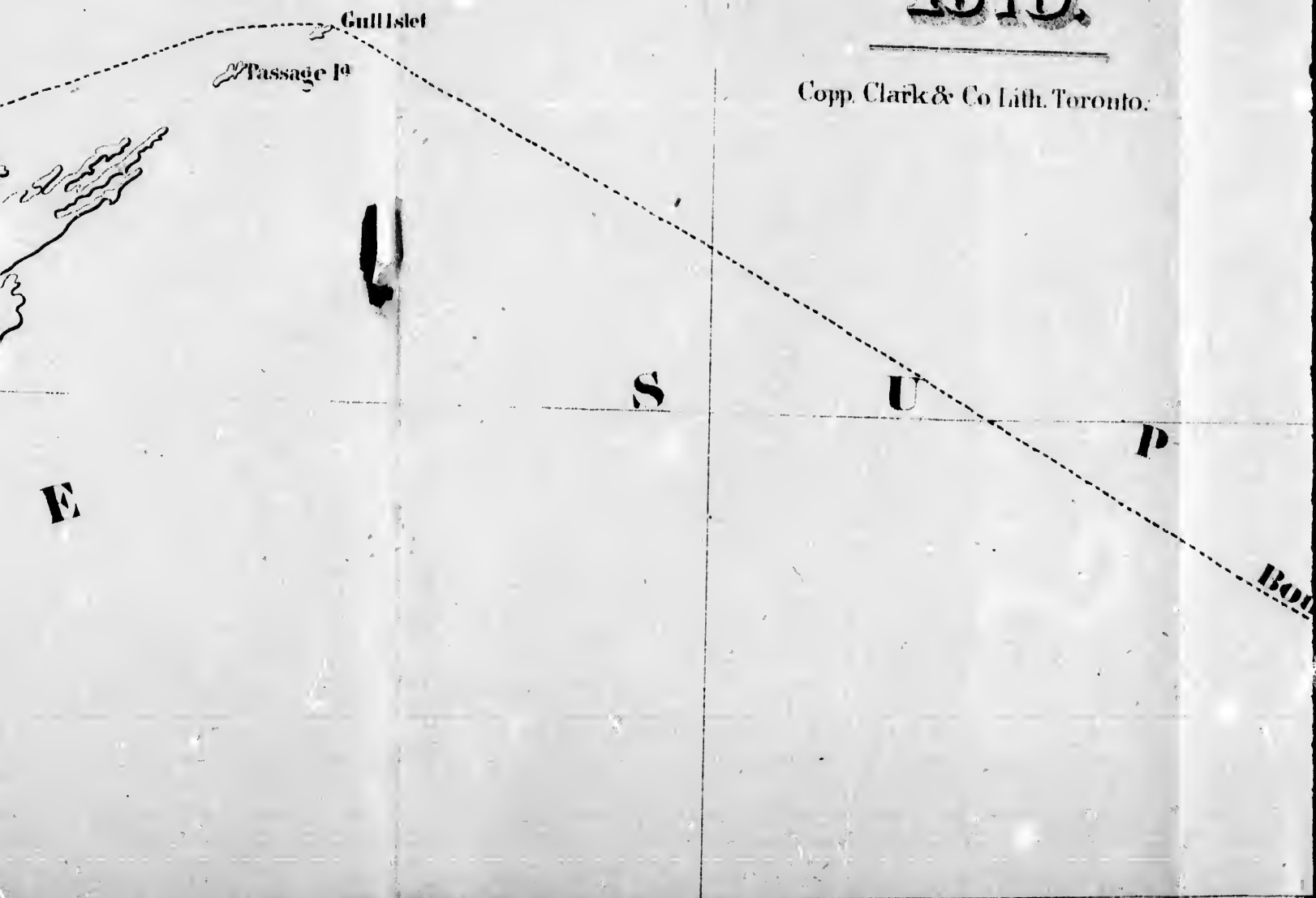




PLAN OF THE NORTH SHORE LAKE SUPERIOR

1870.

Copp, Clark & Co Lith. Toronto.



SHORE OF

ERIOR

E

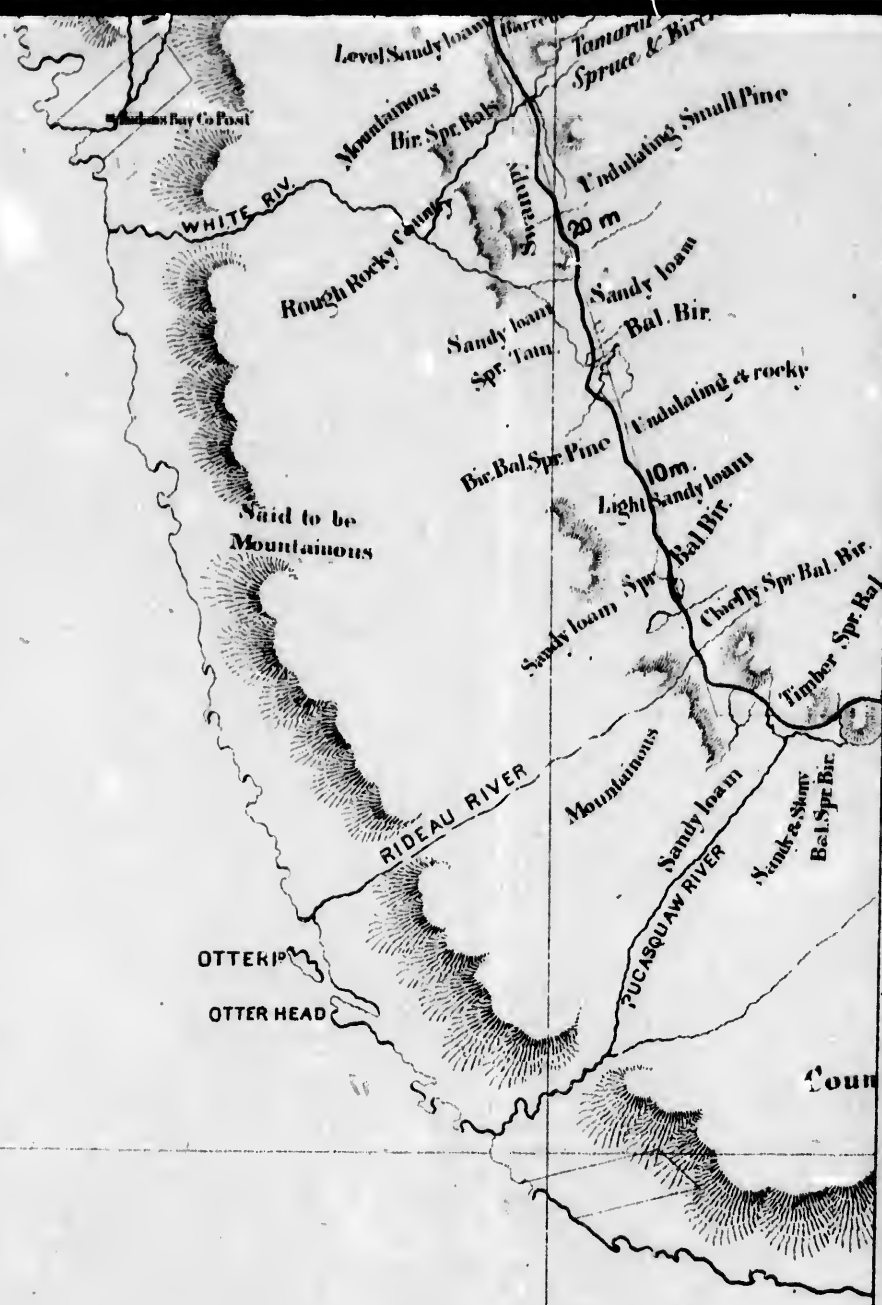
R

Boundary Line

I

O

THE



0 R

