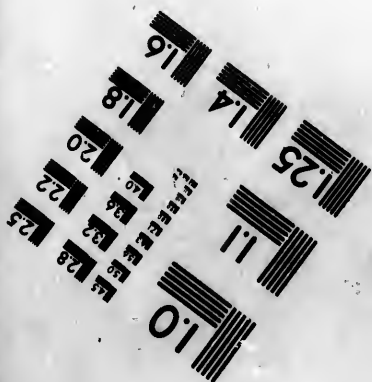
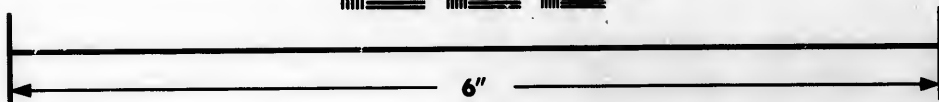
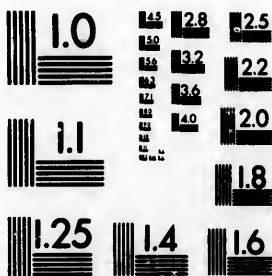


**IMAGE EVALUATION
TEST TARGET (MT-3)**



**Photographic
Sciences
Corporation**

23 WEST MAIN STREET
WEBSTER, N.Y. 14590
(716) 872-4503

**CIHM/ICMH
Microfiche
Series.**

**CIHM/ICMH
Collection de
microfiches.**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1983

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/
Le reliure serrée peut causer de l'ombre ou de la distorsion 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.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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:

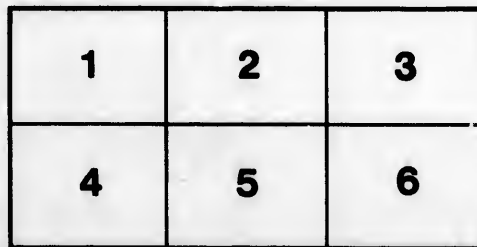
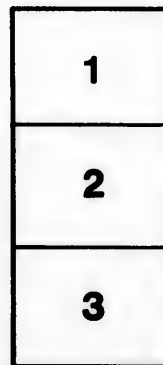
Library of the Public
Archives of Canada

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 \rightarrow (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:

La bibliothèque des Archives
publiques du Canada

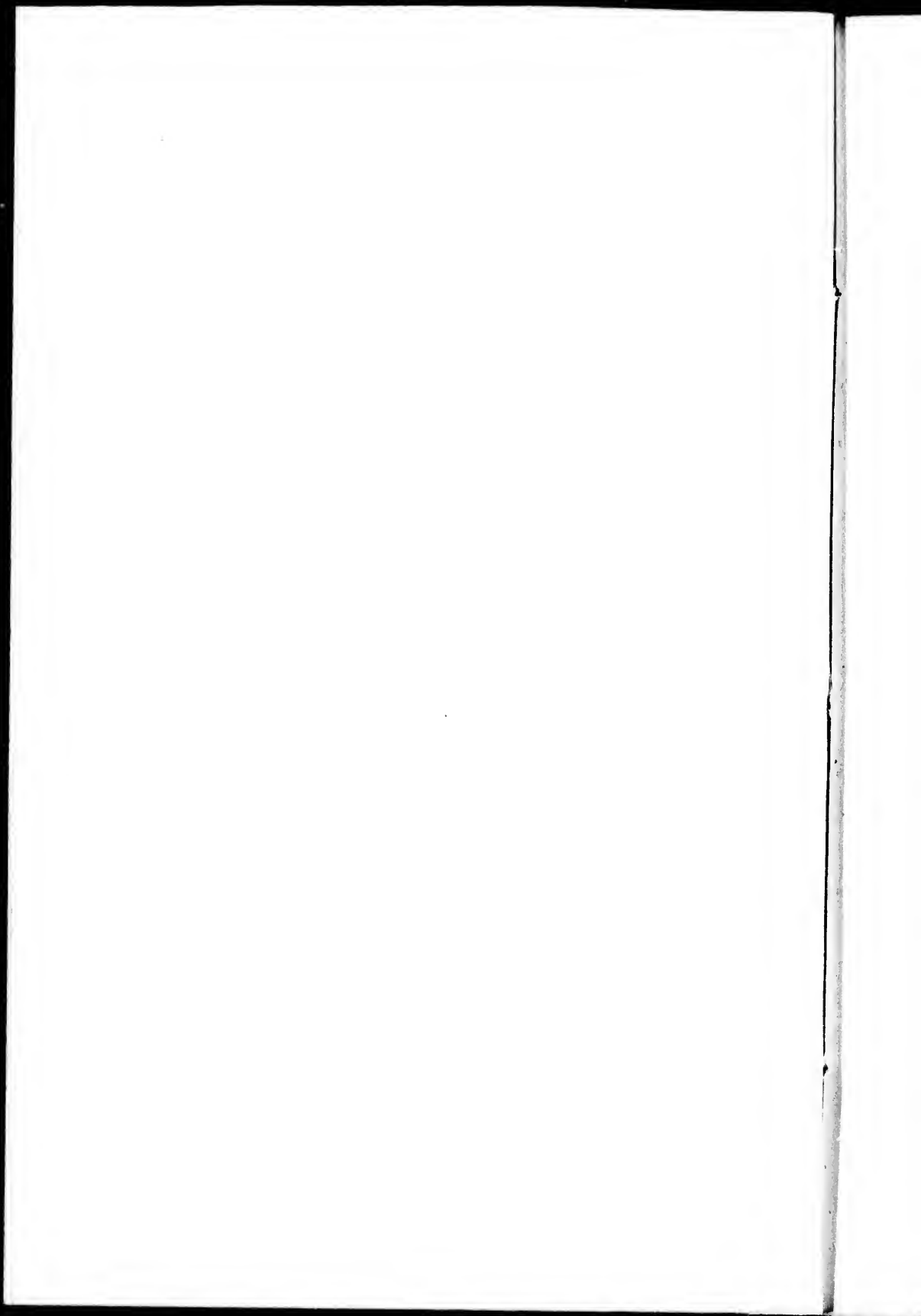
Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

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 \rightarrow 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.

errata
to
t
e pelure,
on à



DESCRIPTION AND REPORTS

OF THE

Copper Mountain Mine,

BATCHEWANUNG BAY,

LAKE SUPERIOR.

FOR PRIVATE CIRCULATION.

HAMILTON:

PRINTED BY T. & R. WHITE, "SPECTATOR" OFFICE, PRINCE'S SQUARE.

—
1865.

1865
(39)

DESCRIPTION AND REPORTS

UPON

The Copper Mountain Mine,

BATCHEWANUNG BAY,

LAKE SUPERIOR.

This Copper location is situated on Batchewanung Bay, on the north shore of Lake Superior.

About a mile from the Lake shore, there is a perpendicular cliff or bluff nearly six hundred feet above the level of the Lake, the cliff being about nine hundred feet in length, and three hundred feet in height from the surface of the surrounding ground. Within few feet from the edge of this cliff, a very extensive lode containing rich purple, grey and yellow ore, runs in an east and west course, cropping out at various parts of the cliff, where the rocks have become detached. The special natural advantages in this valuable location, for its economical development, consist of

1st. A very fine water-power on the property capable of driving all the machinery required for crushing and dressing any amount of ore.

2nd. No artificial drainage or pumping required.

3rd. No shafts required, the cliff being capable of open excavation.

4th. Its accessibility to the Bay for shipment of the ore, to which, from the Mine, there is a gradual slope of about a mile, over which a tramway could be easily constructed, the Bay being a fine land-locked harbour, having a depth of twenty feet of water a few feet from the shore and requiring a very short wharf.

5th. Abundance of timber, suitable for building and other purposes.

The working expenses of this Mine, would, from these facilities, be comparatively light, and are estimated at fully one-third less than those of other Mines in successful operation.

This location has been for sometime in the hands of the present proprietors, and several explorations of it have been made; but particular reference is made to the report in 1864, (Appendix, No. 1) of Mr. EDWARD BEVAN, an experienced miner from the Eastern Townships, and the later report, 1865, (Appendix, No. 2) of Mr. RICHARD OATEY, of Montreal. As a guarantee of Mr. OATEY's fitness for the duties assigned to him, the following extract is quoted from SIR WILLIAM LOGAN's preface to his Geological Report of Canada:—

“Mr. RICHARD OATEY, a practical Cornish miner, residing in Montreal, has from time to time been intrusted with the examination of metalliferous lodes and deposits, particularly those holding lead, copper, silver and gold, with a view of ascertaining their economic value.”

There are also appended hereto extracts from letters, and a Report, from Mr. A. McPherson, (Nos. 4 and 5,) a thoroughly practical miner, who has been continuing the explorations since Mr. Oatey's departure from the Mine, which fully confirm the extreme richness of the lode. In the Appendix will also be found a map (No. 6) of the River St. Mary and parts of Lakes Huron and Superior, shewing the position of the Mine; also a plan and sections (No. 7) of the Cliff, in which will be found marked the various explorations and points at which the blasts have been put in, and to which reference is made in the Reports. These various documents, it will be seen, all point to the great extent of the deposit, its richness and fine quality, and the facility with which the ore could be dressed to a much higher percentage than is usually shipped. The cash value in England of an ore of twenty-five per cent., to which Mr. Oatey states this could be readily dressed, would be at least \$100 per ton, and the expense of excavating, crushing and dressing at this location has been estimated by competent authority as not exceeding \$25 per ton. The expense of transporting such an ore to England, including commissions and other charges, would not exceed \$25 per ton, so that a net profit of \$50 per ton on twenty-five per cent ore would be realized, equal to a return of one hundred per cent on the cost of production and getting to market. The particularly advantageous circumstances above referred to render the prospects of the very profitable working of this Mine highly favorable, and the Reports appended hereto point it out as the most promising exploration yet made on the north shore of Lake Superior.

Immediate steps will be taken to organize a Company for the working of this valuable property.

APPENDIX:

No. 1.

REPORT BY MR. EDWIN BEVAN.

RICHMOND, C. E., 30th Nov., 1864.

THOMAS A. BEGLEY, Esq.

SIR,—Agreeably to your request I now send you my report on your valuable mineral property, from examinations made in August and September last.

This property is situate about one mile inland to the east of Batchewanung Bay, Lake Superior. On my arrival there, my attention was first attracted by the high cliffs of rocks with their great adhering masses of quartzose veinstone stained with green and blue carbonates of copper. In travelling over the vast heaps of debris fallen down from the cliffs, I observed a great quantity of large and small rocks of felspar and quartzose veinstones carrying purple and grey copper ores, with small portions of specular iron, that first led me to think the greater portion of the debris had fallen down from the lode, but by means of an open cutting through the upper part of the debris from eight to ten feet deep, I found no copper, or scarcely any, below six feet. It would therefore appear that previous to any of the lode having fallen down, the greater portion of the debris had been part of the mountain adjoining the lode on the south, which exposed the same in many places for a length of three hundred feet, at depths varying from six to one hundred and fifty feet from the top of the mountain, carrying rich purple and grey copper ores.

At the west end of the mountain slope near to the level ground, just previous to our leaving, two or three holes were blasted on the back of the lode which shewed very rich grey sulphuret and green carbonate of copper. At a point two or three hundred feet east where the south part of the lode is exposed, at depths varying from fifty to one hundred and fifty feet from the top of the mountain, several holes were blasted in different places, which threw out considerable quantities of purple and grey copper ores of a high percentage.

From this point eighty to ninety feet further east, the face of the Mountain has fallen down and forms a slope of 25° or 30° , and completely covers the lode at this place, except to the right and left where the lode is seen at a depth of one hundred and fifty feet down from the top, dipping south at an angle of 80° .

At a point over four hundred feet further eastward another discovery of the lode was made from fourteen to eighteen feet in width, within twenty feet of a high slope, and eighteen feet in depth, carrying rich masses of purple and grey copper ores. This was first thought to be another lode, but at a point eighty feet west further explorations in clearing and cutting away the trees, and removing the surface earth ten or twelve feet across the lode, some holes were blasted on the north of the lode, which threw out large massive rocks of purple grey and yellow copper ores of a high per centage.

The section of the lode explored and opened up is about eight hundred feet in length and varies from fourteen to eighteen feet in width. The true course of the lode so far as discovered, appears to be about east 20° south magnetic line, or 4° north of true east. Small veins from two to eight inches thick containing the same kind of ores are also found in this mountain, gneiss being the most predominate rock on both north and south of the lode.

This mine is so advantageously situated as to give every advantage for working in the cheapest way. You have a splendid water power at command without which no mine can be so well prosecuted with a view to so profitable results.

You can pick up all the copper ore that has fallen down from the lode and lay it aside in large heaps, then levelling the debris you can blast down thousands of tons from the lode, and at the same time you can drive in a level and obtain twenty fathoms of backs which will at the same time drain off all the water that may percolate through the lode, and give you plenty of room for storing away your ore. You will not require a pumping engine for many years, and with a small outlay you can lay down a tramroad and so tram all your ore to the crushing house to prepare it for market.

I can only add that, having worked in, and superintended as mining Captain the working of, mines in different parts of the world for the last thirty years, I have never met with a property offering such facilities and possessing such advantages as yours.

Yours respectfully,

EDWIN BEVAN.

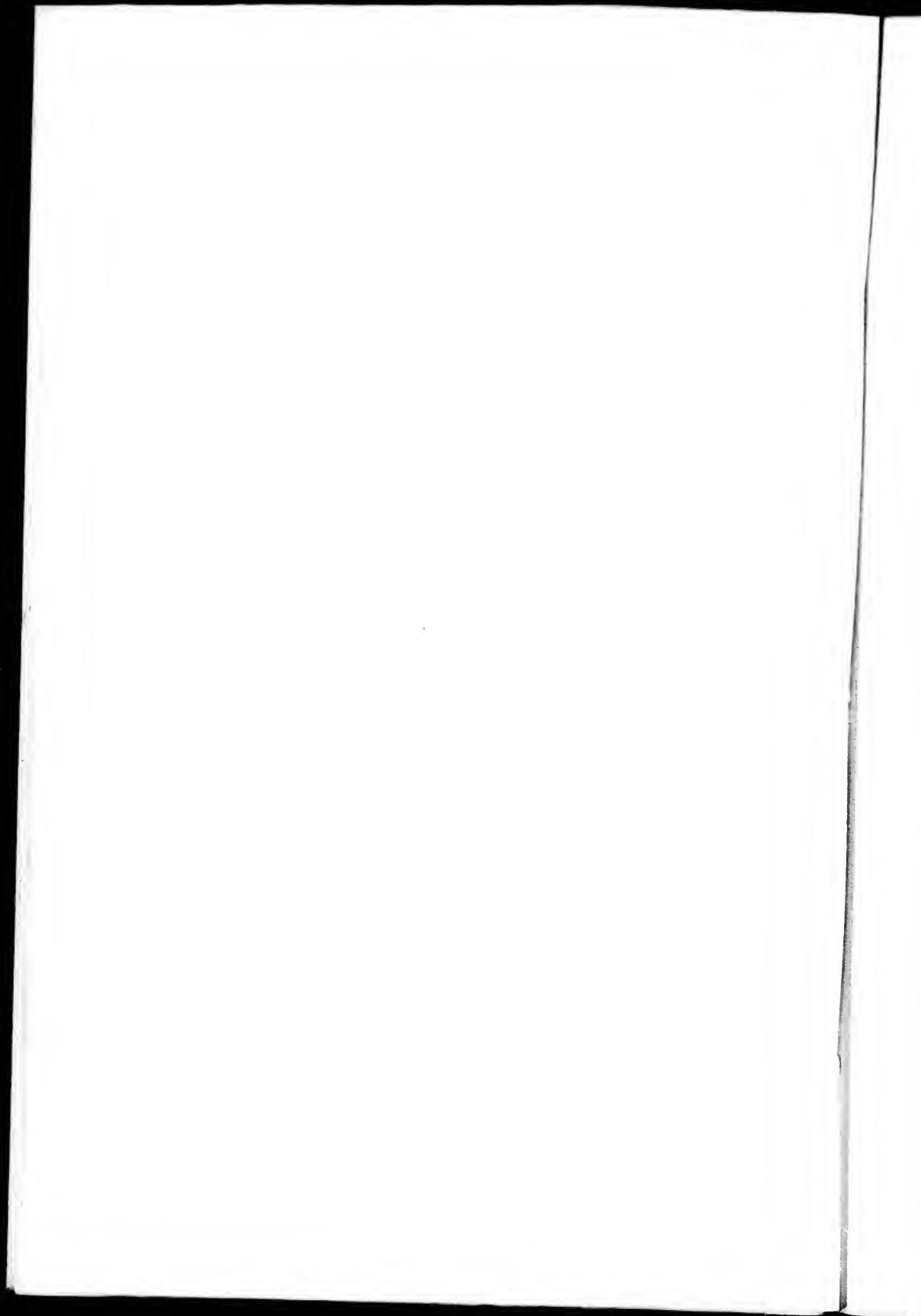
her
in
both,
was
rest
re.
me
rge
igh

ght
in
ars
ast.
me
ost

an-
ter
se-

om
ris
he
of
ay
ng
or
ad
or

as
ld
ng



No. 2.

REPORT BY MR. RICHARD OATEY.

TO THOMAS A. BEGLEY, ESQ.

SIR,—Having been engaged by you to examine your Copper Mine location, situated about a mile from the Lake shore, at the east end of Batchawanung Bay, Lake Superior, I proceeded on the 17th July, 1865, to Lake Superior, for the purpose of inspecting this location, and arrived at Batchawanung Bay, on the 27th of the same month, and immediately commenced the task assigned me, and having devoted thirteen days on the location to the accomplishment of this object, I beg to place before you, very respectfully for your consideration, the following report :

About a mile from the Lake shore at Batchawanung Bay, Lake Superior, there is a high mountain, the top of which is about one hundred fathoms above the level of the surface of the water in the Lake. This mountain presents a very bold, high cliff, facing Batchawanung Bay, and is about one hundred and fifty fathoms in length—its bearing, east, 20° south.

The front of the cliff is marked by being stained and coated over with green and blue carbonate of copper. The cliff is perpendicular in some places, but in other places, it rather overhangs, and there has fallen down from it a very large amount of broken rocks, which are lying along in heaps, at the foot of the cliff, from east to west. This rubbish is generally all stained and coated over with green and blue carbonate of copper ; besides there are found among this rubbish good stones of grey and purple horse-flesh copper-ore.

The eastern end of the mountain rather narrows, but has a bold cliff, underlying, east, about nine inches to a fathom, facing the valley, which comes round from the front of the mountain.

The western end of the mountain gradually slopes down to an angle of about 45° .

Three distinct cross courses are seen in the face of the cliff, the first about forty fathoms to the west of the eastern end of the mountain, the second about fifty fathoms to the east of the western end of the mountain, and the other in the centre, between those two described. The bearings of these three cross-courses are all in the same direction, a little west of north, and south of east, and their underlie is the same, west south-west, about one foot to the fathom.

The eastern cross-course is about three feet wide, filled with quartz and wall-rock, and its walls are well defined.

The western cross-course is about eighteen feet wide, filled with quartz and wall-rock, and its walls are well defined.

The centre cross-course is about three and a-half feet wide, filled with quartz and wall-rock, and its walls well defined.

A little to the north of the face of the cliff, a lode runs through the mountain in an easterly and westerly course, and near the eastern end, on the top of the mountain, an open costeening-trench has been cut on the run of the lode, westerly about fifteen fathoms in length and about eight feet wide, from the north wall of the lode, transversely southward towards the cliff; but in this distance the south wall of the lode has not been reached, which proves the lode to be large, and its full breadth not ascertained.

The lode in this working has a very promising and prosperous indication, containing grey, purple, horse-flesh and yellow copper ores, which generally are mixed with quartz, trap and bastard granite rocks.

About forty fathoms west from the eastern end where the lode strikes the eastern cross course, another open costeening trench has been cut five fathoms in length, on the run of the lode, and about eight feet wide. The appearance in this opening is good, and similar to what has been described in the first, containing grey, purple, horse-flesh and yellow copper ore. The full breadth of the lode has not been ascertained in this working.

A third costeening pit has been sunk between those two described openings. The lode has here been struck, and two blasts which have been made in the lode, threw out a good mixture of grey, purple, horse-flesh and yellow copper ore, generally mixed with quartz, trap and bastard granite rocks. In the costeening trenches the lode has been proved forty fathoms westerly from the eastern end of the mountain, where the lode strikes the eastern cross-course. In these limits the lode presents a very favorable indication to be prosperous for yielding a good supply of copper ore to the fathom, that could be brought up speedily by dressing, to 25 per cent. It has been noticed that the bearing of the face of the mountain is east, 20° south, and the run of the lode through the mountain nearly due east and west, which courses bring the lode in its westerly bearing through the mountain near to the south face of the cliff, and here where the lode comes near to the cliff it is marked by being stained and coated over with green and

blue carbonate of copper, which indicates that the lode to the north of the cliff is well filled with copper.

At the eastern end of the mountain the lode is about ten fathoms north from the face of the Cliff.

In these limits a number of branches of quartz are seen, and all generally contain copper, with spots of specular iron; and from east to west, in the line of the face of the Cliff, various branches of quartz are seen, which contain, grey, purple and horse-flesh copper ore, with spots of specular iron attached to the same.

Between these three cross courses in the mountain, the indications are prosperous, and shew the lode to be exceedingly large, its breadth being from the north granite wall rock of the lode seen in the costeening trenches to the south face of the cliff, which as it has been observed, is marked, as being stained and coated over with green and blue carbonate of copper.

There is no appearance of the lode having been heaved by the cross courses.

It has been remarked that the western end of the mountain gradually slopes down to an angle of 45° . Two lodges of about six feet wide each, generally filled with quartz, are seen near to the foot of the slope, where the mountain drops down into the lower lands. One of these lodges is near the south face of the cliff, and the other a short distance north of the cliff. The quartz in both lodges is spotted with grey, horse-flesh and yellow copper ore. On the bearing of those lodges westerly, the land is covered with trees and vegetation, which should be cut down speedily, and the lodges opened on their run in their western course in the lower lands.

The rock in this location is a bastard granite, and patches of a black trap are in places found overlying the granite.

A short distance of about an acre and a half, west north-west from the western end of the mountain, there is a good stream of water, and, by putting a dam across this stream, a headway could be obtained, furnishing a power which could easily be made available for purposes of crushing copper ore and dressing it for market, besides sawing lumber for mining purposes.

On this location there is, likewise, abundance of timber of excellent quality, consisting of beach, birch, tamarac, spruce, cedar and pine. Many of the trees are of large size; and the produce of this timber, in combination with the water power, greatly enhances the value of the Mine. The soil is rich and fertile for

all agricultural purposes, and oats, barley and other grain, as also vegetables of all descriptions, could be cultivated without difficulty.

The harbour at Batchawanung Bay is an excellent one, with a good depth of water, good anchorage, and is always perfectly safe and accessible, except when obstructed by the ice in winter.

The distance, by water, to Sault Ste. Marie, is forty-five miles, and the distance, overland, to the same place is twenty-three miles and one quarter.

Before concluding this Report, I would mention my obligations to Mr. Alexander McPherson, a most experienced and practical miner, belonging to the Bruce and Wellington Mines, who got permission from Captain Plummer to come up to Lake Superior, to assist in exploring this location.

The time occupied in our examination of the Mine was thirteen days, during the whole of which the weather was exceedingly fine, and Mr. McPherson and his party vigorously pushed on the work to their best, and I am happy that our exertions have resulted in exposing a good lode of copper in the costeening trenches.

I am, Sir,

Yours most respectfully,

(Signed)

RICHARD OATEY.

No. 3.

(Extract from a letter of Mr. RICHARD OATEY, dated 21st October, 1865.)

"Miniug operations should be commenced in the face of the Cliff on the top of the mountain, which is marked by being stained and coated over with green and blue carbonate of copper, which is an indication of there being an abundance of copper near the face of the Cliff. This master lode is spread to an exceedingly large breadth between the three cross courses, and the mountain being of so great a height, with a bold cliff, affords great advantages for mining, so that a dollar and a half per cubic yard would be a fair estimate for excavating on the lode in the face of the Cliff, and saving the copper clean from the poorer rocks. In the open costeening trenches it is excavated in places forty fathoms in length on the run of the lode westerly from the eastern end of the mountain. The lode shews in these workings as if it would produce between two and three tons of copper ore of about

twenty-five per cent. to a fathom, and the crushing and dressing of the ore would be worth about one-eighth of the above percentage.

“The water privilege on this location to drive a crusher and dress the ore, &c., is of great value to the mine.”

No. 4.

(Extracts from Mr. A. McPherson's Letter, dated 13th Sept., 1865.)

“We started work on the top of the mountain, at the east end of the lode, which is proving very good. When you blast you would think you were walking into the Wellington Copper Yard. We then tried fifty fathoms to the west, which is also working very well—the large specimens are from about four fathoms from the east end, three are from fifty fathoms from the east, and one from two hundred feet west at the bottom.” * * * “I think there is no use to drive a cross cut in the east end, for the further we go down, the copper is getting better every blast we put into it. This last week we have raised all of three tons of ore, so you may have an idea of how it is looking since you were here.” * * * “If you see Mr. Oatey, you can tell him the ore is extending from north to south from about twelve to fourteen feet.”

No. 5.

REPORT OF Mr. W. A. McPHERSON.

BRUCE MINES, 30th Oct 1865.

I returned here with the men I employed from Batchewaning Bay on Saturday last, the 28th inst., and I beg leave to report to you the work I have done, and the present appearance of the mine.

At the east end I have sunk nine feet and stoped three, and I am happy to be able to say that I found the mine better at the depth of nine feet than on the surface.

At about two hundred feet from the west end and at the foot of the Cliff, I commenced a cross-cut and drove fifteen feet, cutting

a branch of first-rate ore, four feet wide, and reached a band of syenite, where I stopped. I then to the west of the first cross course blasted two holes, which gave an excellent appearance of ore.

From the sinking and stoping done, I consider that ore enough is obtained to pay for these explorations, a thing not usual in mines. I calculate that the ore I have broken will yield seven tons of dressed ore, which, from its nature, must be of a high per centage.

Trusting that my operations may prove satisfactory to you,

I remain, &c.,

(Signed), ALEX. McPHERSON.

band of
at cross
e of ore.

enough
sual in
seven
a high

you,

SON.

