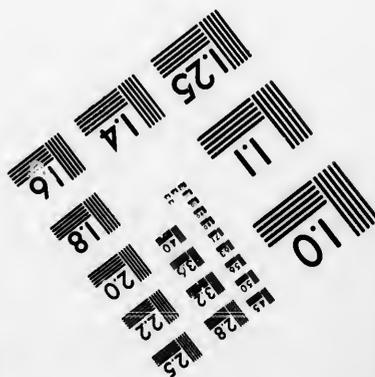
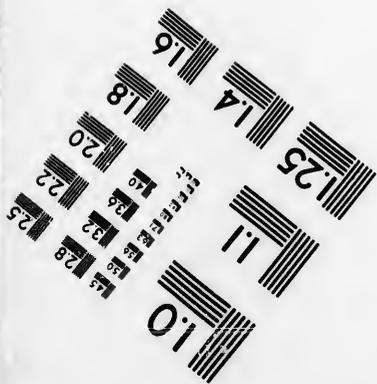
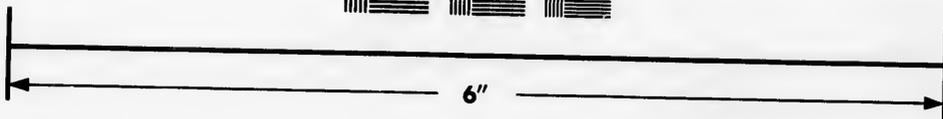
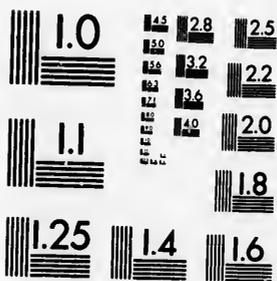


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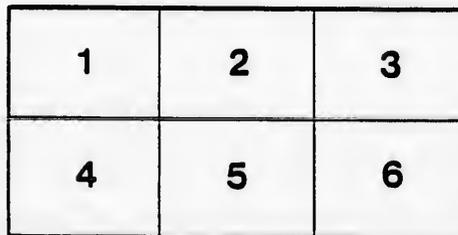
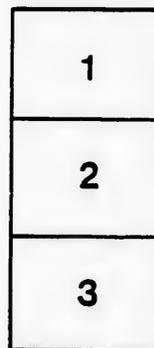
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REPORT

OF

J. F. BOYNTON, GEOLOGIST,

NORTH SHORE OF LAKE SUPERIOR,
August 14, 1846.

JAMES BELL FORSYTH,

SIR,

I was employed in June last, to accompany an Exploring Expedition on the North Shore of Lake Superior, under the direction of Col. C. H. Gratiot, to select Mineral Lands for the location of a Permit belonging to you.

Accordingly, on the 6th of July, in company with W. E. Logan, Esq. Provincial Geologist, we left Copper Harbor on the Schooner *Ocean*, bound for the Canada shore, and we proceeded up the Lake to examine the Islands and Coast, being between Spar Island and Pigeon River.

Our attention was particularly called by Mr. E. H. Thomson, to some large Veins about six miles west of Spar Island, where, after a careful examination, we decided on locating your Permit.

The Location is situated about seven miles east of the Boundary Line between the United States and Canada, on the main Shore, including a large peninsula of high hills, extending into the Lake about two miles, behind which is a most excellent Harbor, where vessels may lie safely secured from storms coming from any direction.

RIVERS.

There are two Rivers emptying into the Lake from this Location. One of them is four rods wide with six feet of water over the bar at its mouth.

We passed up this River one mile and a half, and found the water from three to six feet

▲

deep. At this distance up the River, there is a Fall that would afford an excellent water power for propelling any Machinery that might be required for Mining operations.

SOIL.

At the mouths of these Rivers, there is a large delta of fine rich land that would be easily cultivated, and afford an abundant crop of all the products of any country of its latitude.

WOOD AND TIMBER.

The high land on the Location is covered with a small growth of Spruce, Pine, Poplar, and Birch—but on the low lands, and on the sides of the Rivers, there is a large quantity of fine Timber that will be found highly valuable for building, curbing, and other Mining purposes.

ROCKS.

The prevailing Rocks on the Location are the Syenetic and Greenstone Trap, thrown up in immense dykes, running nearly in a north-east and southwest direction. These Rocks are traversed by numerous Veins of Quartz, Calcareous Spar and Sulphate of Barytes.

VEINS.

The Veins on your Location, as is usual on the North Shore of the Lake, are much larger than those found on the South.

Vein No. 1 is on the western point of the Location.

Its course bears N. 34° W. and S. 34° E. dipping 72° E. It is four feet wide; the wall rock is Greenstone Trap. The greater part of this Vein is Calcareous Spar, but on the east side of the Vein, being against the wall rock, there is a portion of Sulphate of Barytes about one inch thick.

On the west side of that, is Calcareous Spar, four inches thick, separated from the larger portion of the Vein, by Veinstone from four to six inches thick.

On the inside of this, there is a thin portion of highly crystallized Quartz, half an inch thick; on the west of this, is Calcareous Spar, eighteen inches thick; on the other side of this is Crystallized Quartz again as on the east side. This Quartz has a portion of Veinstone on its west side from four to six inches thick, followed by Calcareous Spar, five inches thick, being in contact with the western wall-rock of the Vein, a form of which will be given on the plat of Vein.

In this Vein, I found Iron Pyrites, Spathic Iron, with indications of Lead and Copper.

CROSS VEINS.

There are cross Veins intersecting this Vein. The course of the first is N. 36° E. four feet wide; the second, one foot wide—course bears N. 47° E. The third bears N. 31° E.; and the fourth N. 51° E. At the point, where No. 1 and 2 Cross Veins unite with the main North and South Vein, they form one large Vein, eight feet wide.

VEIN No. 2.

Its course is N. 45° W. and S. 45° E. It dips 80° to the east. This Vein is made up of several small ones, that unite and form one of ten feet wide between wall-rocks. This Vein is mostly Sulphate of Barytes with some Calcareous Spar, with indications of Copper. Professor Mather reports to have found Copper in this Vein, while on an Exploring Expedition last Fall, for Mr. Prince. This Vein can be traced to the opposite side of the hill.

VEIN No. 3.

This Vein is eight feet wide. Its course bears N. 30° W. and S. 39° E. In this, we found Spathic Iron with traces of Copper and Lead. This Vein passes out of the Lake into a cliff of rocks about 30 feet high, and running in this Rock about 20 rods, cuts directly through an immense hill of Trap Rock, about four hundred feet high above the level of the Lake, and is found on the other side of the hill. If a shaft should be sunk on this Vein at the side of the hill, and then drift into it, there is every reason to believe that it would prove rich in Minerals.

VEIN No. 4

Is a few rods East of No. 3, and is three feet wide; its course being N. 30° W. and S. 30° E. dip 75° E., and is composed of Calcareous Spar, interspersed with Quartz.

VEIN No. 5

Is found on the north side of the peninsula. Its course bears S. 38° W. This Vein is composed of about equal parts of Calcareous Spar and Sulphate of Barytes. It is eight feet wide at the top of the hill, about two hundred feet back from the water, and three hundred feet above the level of the Lake. It being covered with loose rocks on the shore, prevented us from ascertaining its exact width at the water, without bestowing more labor than we were prepared to do at the time; but judging from the parts of the Vein exposed on the top of the hill, we thought it must be ten to twelve feet wide at the Lake Shore, as we generally find them to grow wider as they descend.

This is a noble Vein and I would recommend that an adit be opened into it nearly on a level with the Lake, early in the spring or as soon as the Company may make arrangements for practical Mining operations.

On the surface of this Vein I found a large quantity of Spathic Iron.

This Mineral I have found on the surface of all the Veins that have been opened on the North Shore of the Lake which contain the Sulphurets of Copper.

VEIN No. 6

Is 14 inches wide. Its course bears S. 31° E. composed of Sulphate of Barytes. Its wall-rock is Syenetic Trap.

These Veins are all found on the peninsula and form the greatest concentration of Veins I have seen on the North Shore of the Lake.

There are many other small Veins or "feeders" to the larger ones, which I do not describe, as I report none that are less than a foot wide.

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VEINS Nos. 7 AND 8

Are situated on the main land about one mile up the River, and South of it a mile and a half. They are in a range of Greenstone Trap Rocks extending in a Southwestern direction from the mouth of the River as far as the eye can reach.

These Veins are composed of Calcareous Spar, each one foot wide, with perpendicular wall-rock, and present a very good appearance.

Mr. Gratiot forwarded to you about four weeks ago, a box of Specimens taken from the different Veins. They are surface indications.

There are probably other valuable Veins on the Location which have not yet been discovered, as the woods are full of underbrush, and the rocks covered with soil and moss, so that it is very hard to find them only where the rocks outcrop in the sides of the hill and expose them to view.

In order to test these Veins I think it will be necessary to sink shafts on them, as they are geologically situated from forty to sixty feet above the rocks on the Locations where Ores are now found.

Should I find any new indications on analysing the Specimens from this Location after my return east, you may hear from me again.

Respectfully your obedient servant,

J. F. BOYNTON,

Practical Geologist.

