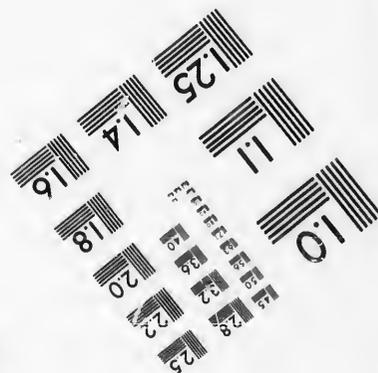
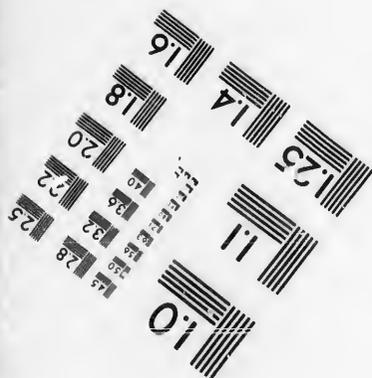
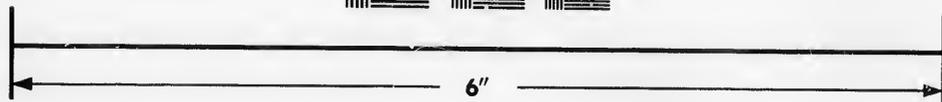
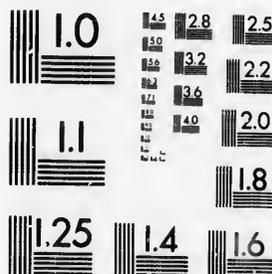


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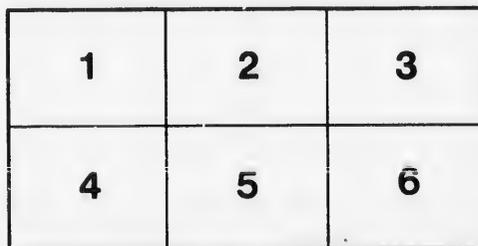
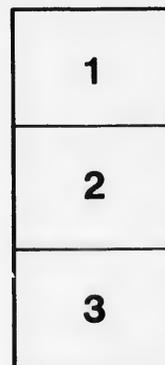
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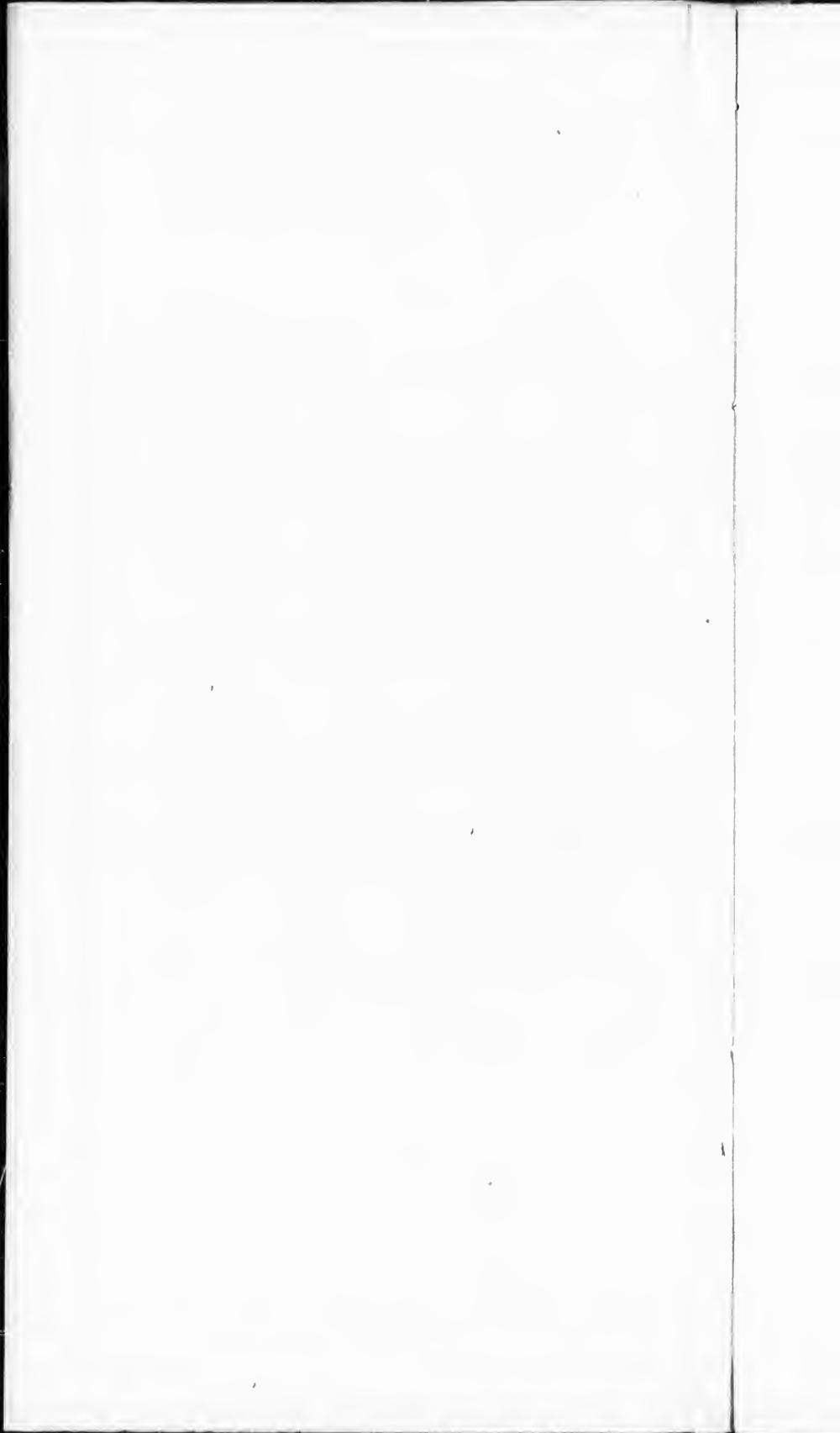
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R E P O R T

OF

J. F. BOYNTON, GEOLOGIST.

NORTH SHORE, LAKE SUPERIOR,

August 22nd, 1846.

TO EDWARD RYAN, Esq., Quebec.

I was employed on the 1st of June last by Col. C. H. Gratiot, to accompany an Exploring Expedition on the North Shore of Lake Superior, in search of mineral lands, on which to locate a Permit belonging to you. Having had charge of the Geological Department of this expedition, I take pleasure in transmitting to you the result of our examinations and discoveries.

We commenced at Pigeon River, at the Boundary Line of the United States and Canada, and followed the coast from thence to the Sault Ste. Marie, stopping on our way at the numerous islands and bays, carefully inspecting their geological formation, and the the metalliferous appearance of the rocks. On our passage we discovered several Veins of Native Copper and its various Ores, and one of the Sulphuret of Lead, containing Silver, but not in such proportions as to make it a valuable Vein for working. We concluded these Veins not of sufficient value for locating under your Permit.

On our arrival at Manainse we met with our other party in charge of Capt. B. Standard, who started from the Sault Ste. Marie, with instructions from Col. Gratiot to coast up the Lake, and if they found a valuable Location to remain on the same until we arrived. They had discovered several large fine looking Veins, and considering this a valuable point for a Location, had built cabins and kept possession of the same, and had been waiting our arrival for several weeks.

After examining the Specimens taken from the several Veins, and acquiring all necessary information in regard to the Location, Capt.

Standard was instructed to proceed to Fort William with despatches to Mr. Logan, to make all further necessary arrangements for securing this Location for you.

The above-mentioned Location is situated on the North Shore of the Lake, about 50 miles above the Sault Ste. Marie, and some 2 miles east of Point Mamainse, where the old mines were worked many years ago, and found to contain *Copper*, *Silver* and *Lead*.

ROCKS.

At the water's edge, on the north part of the Location, are to be found the Sandstone and Conglomerate, lying against the Amygdaloidal Trap Rock, which were at the upheaval of the Trap displayed and tilted from their horizontal position, to an angle of 45°, dipping into the Lake. The Sandstone and Conglomerate Rocks are to be found in no other place upon the Location. In the interior, say about 2 miles, I observed two outcrops of Granitic Rock, which I found upon inspection to be metalliferous. With these exceptions, I found no other rock in place upon the Location but the Amygdaloidal Trap, and this is found wherever rocks are to be seen above the surface. This is known to be one of the best mineral bearing rocks found on the shores of Lake Superior, and upon this Location it is traversed by the numerous Veins of Quartz and Calcareous Spar containing Ores of Copper and Native Copper beautifully crystallized.

VEIN No. 1.

This Vein is 10 feet wide. Course bears E. 15° N. and W. 15° S. with a perpendicular dip, *Veinstone*, *Calcareous Spar* and *Quartz*, colored red with the Red Oxyde of Iron and Copper. Its wall rock is Amygdaloidal Trap. This Vein can be seen beneath the waters of the Lake running into the shore, where, after passing about 200 feet, it cuts into the high bluff of rocks and runs into the main land.

Between the water and the bluff we put in several blasts and blew out at each place, Native Copper in beautiful crystals from a quarter of an inch to an inch and a half in length, and nearly the whole Veinstone appears to

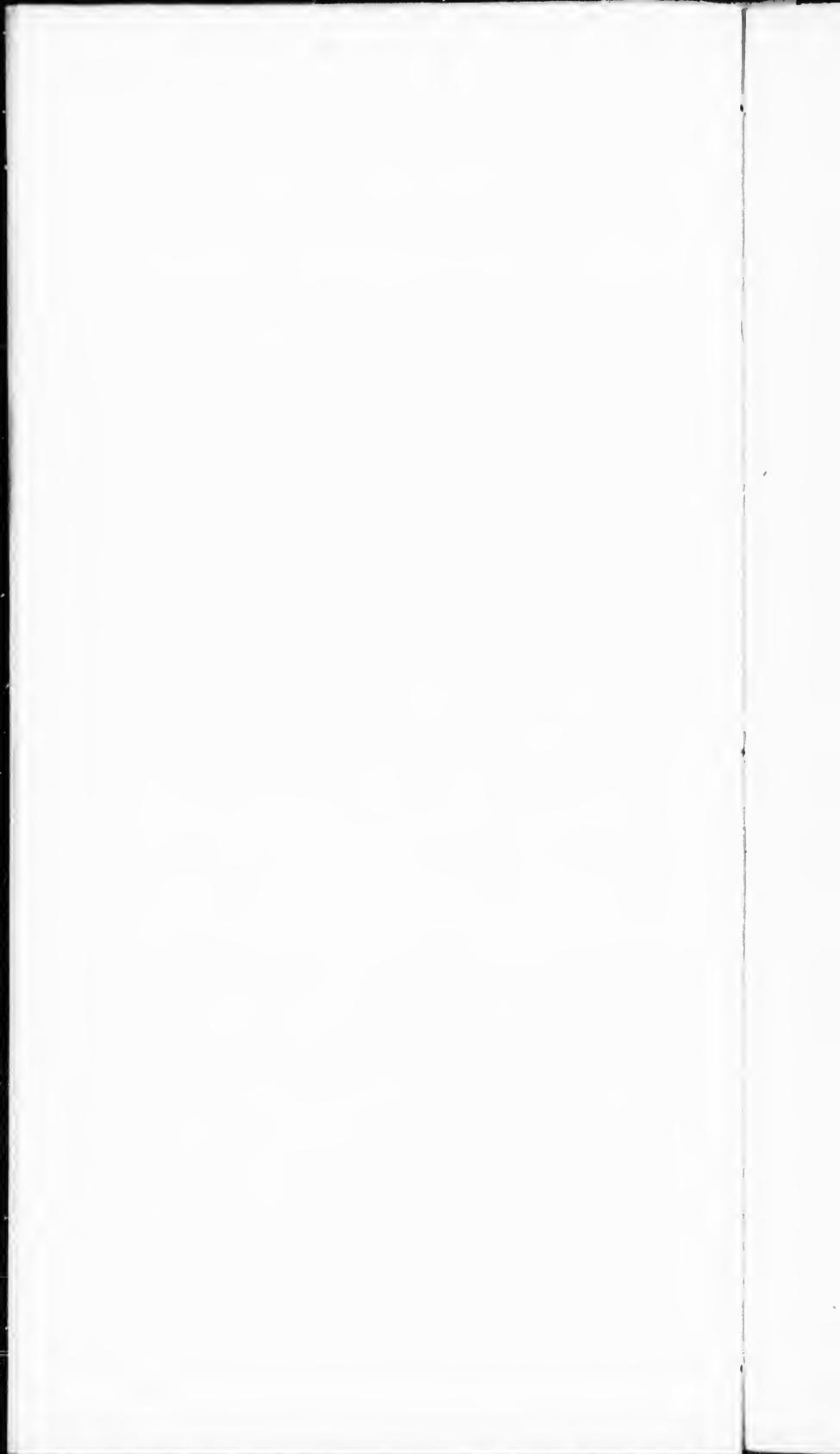
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be impregnated with minute particles of Copper.

This being a perpendicular Vein is in a very favorable position for sinking shafts upon and drifting. If a shaft should be sunk upon the bluff, immediately in rear of where the cabin now stands, it would be at a point where several small Veins or Feeders unite with the large Vein. This would be a favorable point for testing the Mineral qualities of the Vein, as it is at sufficient distance from the waters of the Lake, and as Mineral is generally found deposited at the junction of Veins.

VEIN No. 2.

This Vein is 3 feet 6 inches wide; course bears N. 5° E. Dip 65° E. Wall rock is Trap. Veinstone in Quartz, colored with the Red Oxyde of Iron and Copper.

This Veinstone is found to be richly interspersed with particles of Native Copper. Upon crushing a piece taken therefrom, weighing 4 ozs., 1 oz. of Native Copper was obtained.

From the direction and dip of this Vein it will cut Vein No. 4 in the bluff, a short distance from the water. Some specimens which we took from it bear a strong resemblance to the Veinstone of the Silver and Copper Mines of the Boston and Pittsburgh Company, on the south shore of the Lake, although by chemical analysis I was not able to detect the presence of Silver. In a small boulder (similar in character to the Veinstone) which I found upon the Lake shore upon analysis I detected Silver. From whence this boulder came, I am of course unable to say, and it can only be considered an indication that Silver may be found in the Veins upon the Location or in the vicinity.

VEIN No. 3.

This Vein is 1 foot 3 inches wide; course bears, E. 18° N. and W. 18° S. Wall rock Amygdaloidal Trap. Veinstone chiefly Quartz with some Calcareous Spar. The upper part contains the Grey and Yellow Sulphurets of Copper, but in the lower part, the Ore appears to give place to the native metal.

As this Vein cuts into a rock some 12 feet high on entering the bluff, it afforded a good opportunity for taking Specimens from it at different heights, whereby we are enabled to ascertain the changes in its metalliferous appearance.

From the dip and direction of this Vein, and the fact of the Ore changing to Metallic Copper, we were led to believe that it would terminate in and unite with a large Vein of Native Copper, which lies at a short distance to the east of it.

VEIN No. 4.

This Vein is 5 feet wide, course E. 25° N., Dip 80° E. Veinstone, Quartz and Calcareous Spar. Wall rock Amygdaloidal Trap.

It runs along the shore a short distance and passes into the bluff.

Some 200 feet of the surface of this Vein is exposed in different places, and at each point we obtained Specimens of Native Copper, which is diffused through the whole Veinstone in minute crystals.

Upon crushing several Specimens in a mortar, and carefully washing the same, they yielded from 10 to 20 per cent of Copper.

VEIN No. 5.

This Vein is about 2 feet wide, situated about the middle of the Location on the Lake. Its course bears N. 35° E. Dip 48° N. Wall rock Trap.

The Veinstone is entirely of Calcareous Spar, compact and more highly crystallized than any other Vein upon the Location.

About three rods of the surface of this Vein is exposed to view beneath the water, and passes out of the Lake into the shore, where it enters a high bluff. There was so much earth and loose rock lying above it, that I was not able to obtain any good Specimens from it without blasting, excavating and bestowing more labor upon it than we were prepared to do at that time. It bore a very favorable appearance, and I think will contain Native Copper and Grey Sulphuret, on being opened.

Upon testing some small Specimens, taken from its surface, I found it to contain Green Carbonate of Copper, which is satisfactory in shewing that the Vein is Metalliferous and should be thoroughly tested by sinking shafts a short distance from the Lake.

VEIN No. 6.

This Vein varies from 3 to 5 feet in width, course N. 32° E., dip 75°.

This is entirely different from any other Vein yet found upon the Location.

It presents upon the surface merely slight indications of Copper, but contains a very large portion of Specular Iron.

Upon opening this Vein some 3 feet, it was found to contain ~~a load of~~ Grey Sulphuret, varying from 1 to 4 inches in thickness.

This Vein is, as I before mentioned, of a very singular and uncommon formation.

The Specular Iron appears to take the place of Veinstone, and forms the matrix which holds the ~~load of~~ Copper Ore. Occasionally small particles of Native Copper were found interspersed through the Vein.

This Vein is exposed to view for a considerable distance after leaving the water, and at an angle of about 45° with the shore; passes into the high lands, where its course can be easily marked by a depression of the surface for a considerable distance.

Like all other Veins upon the Location this can be easily tested, as its situation is such that shafts can be sunk upon it, and other mining operations carried on at comparatively little expense.

Upon the Location I discovered many other small Veins, but have included in my Report none less than one foot in width. They run in different directions. Some of these may prove to be separate Veins, and others tributaries to Veins already described. Many of them present a highly metalliferous appearance upon their surface, and are to be found in the interior of the Location in several places, wherever an outcrop of the rock is to be seen.

There are probably many others which are covered with soil, and which may hereafter be discovered in prospecting upon the Location, by sinking cross-cuts through the soil wherever indications may present themselves.

SOIL.

Wherever soil is found on the Location it is rich and fertile, being formed from decomposed Trap Rock, enriched by decayed vegetable matter, and can be easily subdued and made susceptible of producing an abundant crop of the products of a country of its latitude.

WOOD AND TIMBER.

The Location is covered with a thrifty growth of pine, cedar, birch and maple, in sufficient quantities to furnish wood and timber for building, curbing, and all other Mining operations.

In taking into consideration the numerous advantages and highly metalliferous appearance of this Location, I cordially say that there are but few upon Lake Superior which present greater interest and more promising wealth.

We have forwarded to you three kegs of Specimens taken from the *surface* of these several Vcins, which I presume you have ere this received. Others will be handed you by Col. Gratiot in person.

Respectfully your obedient servant,

J. F. BOYNTON,

Practical Geologist.

