

Appendix
(G.)
29th January.

diminishes. If a similar condition of circumstances should accompany the lower part of the greenstone westward, it would subtract considerably from the depth of the copper bearing portion of the rock; and the supposed 100 fathoms at Prideaux' Shaft would be reduced to a productive depth of probably twenty-five fathoms below the level of the lake or thirty-five fathoms from the surface. It is only by a deep shaft that such a question can be decided. But what might thus be lost in depth might possibly be compensated for at the surface; for in regard to that part of the east lode beyond the point to which it has been uncovered the analogy would be that running nearly parallel to the supposed outcrop of the sedimentary strata outside of the Peninsula, and keeping therefore in an equal and steady thickness of greenstone it would hold a quality similar to that of the known productive part, and there would then be room for three repetitions before attaining the western boundary; whereas, if the barren character of the east end is due to some cause independent of the sandstone, one half of the westward continuation may be expected to be like it.*

In the greenstone, on the rear of the location, a lode three feet wide, and marked with spots of copper pyrites, was inspected. The exposure continued only a few fathoms, and no experiment was made to ascertain its productiveness. From the position of the greenstone in relation to the limestone of the Thessalon, the strike of this, and the general coincident bearing of the mineral veins, it appears to me probable that this may be a continuation of one of the lodes of the South Echo location, on Echo Lake, my visit to which last locality was too short, and my examination too cursory, to authorise me to make any remark in regard to its productiveness.

The quantity of copper ore and undressed vein-stuff above ground at the Bruce Mines at the time of sampling

*The view taken of the physical structure of the front of the Bruce Mines location is predicated upon the supposition, that the true dip of the limestone band above the French Islands, is northward, and that the band is not to be found between the Thessalon and the coast, on this location, or any to the eastward. Although it was not observed, it is so narrow that it may, notwithstanding, be concealed on the north side of the front greenstone; should it be discovered there, the problem of the structure would be very simply solved. The greenstone would then evidently appear to be on the crown of an anticlinal, and all the phenomena of the locality would be accounted for. The bend of the arch would account for the fissures which have given space for the secretion of the mineral veins, and the sandstone of Eagle Point would be the greenstone's supporting rock, approaching which, the quantity of copper in the lode diminishes. This structure would be the most favourable for the mines, as the probability would be, that the lode would maintain its productive quality westward, with an increasing depth all the way. It appears to me it would be well worthy of the Company's attention, to make diligent search for the limestone band in this position, not only on the Bruce Mines location, but on those to the eastward.

them in the beginning of July, it will be perceived, by a reference to a table in the Appendix, was estimated at 1475 tons. The average produce is 8.01 per cent. (equal to the average of the dressed ores of Cornwall), giving about 118 tons of pure copper, which, allowing for the mode of assay and waste in dressing, would yield upwards of 650 tons of 15.00 per cent ore. At the time of my departure, much activity prevailed in working the lodes, and an expectation was entertained by the mining captains that 250 tons of such ore might be raised monthly. One hundred and sixty-three persons were employed in carrying on the operations connected with the mines, consisting of seventy-seven miners, sixty-five labourers, four boys, eleven blacksmiths, carpenters and other artisans, two mining captains, one engineer, two clerks, and a superintendent, constituting a population, including the families of the workmen, of about 250 souls. Three frame buildings and about thirty log houses had been erected for stores, workshops, and lodging accommodation; and the foundation of an engine house was commenced, in which was to be placed a steam engine of about forty horse power, for clearing the mine of water and crushing the ore for dressing. A pier, or planked platform road, had been carried out about 180 yards, to an insulated rock, on which a wharf had been constructed; and three stone-loaded cribs had been sunk in ten feet water beyond this, for an additional wharf, for the accommodation of steamers and vessels frequenting the harbour, which is a commodious one, well sheltered from most winds, and not difficult of access. There is abundance of timber for mining purposes and for fuel on the location, and in the vicinity; and on the Thessalon, good pine, hemlock and spruce were met with in some quantity. On this river, which joins the lake nine miles east of the Bruce Mines, there are, in or near the intermediate locations, four falls, about thirteen, eighteen, eight, and three feet respectively, affording excellent mill sites; and some of the land in the valley is well fitted for cultivation. Little good land, however is met with along this part of the lake shore, and the front of the Bruce Mines location is particularly rough and rocky; but on Saint Joseph Island, opposite, there is an ample extent of excellent land, at present well clothed with maple, birch, and elm, in some parts, and good pine in others, and being underlaid by the rocks of the lower fossiliferous formations, it abounds in limestone, affording good material for either burning or building.

I have the honor to be
Your Excellency's

Most obedient servant,
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Provincial Geologist

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