

ing quantities for 100 feet, when a band of quartzite of considerable width was met, 3 feet of which carried copper pyrites averaging 5.8 per cent. in copper and \$3.60 values in gold and silver. At 212 feet a rich band of native copper was met, and the change when this was gone through indicates that the vein was passed through. This last band was 17 feet wide, and the native copper was very uniform throughout. A sample taken across the first foot yielded 3.25 per cent. of copper, a sample from the last foot containing also some finely distributed copper glance, which assayed 7 per cent. copper, and a sample taken all across the 17 feet assayed 4.55 per cent. in copper and \$3 in gold and silver. A drift was made along the north side of this band, and samples taken from the vein stuff as it came out gave the same values as the first assay over a distance of 60 feet. A second crosscut was then made and in addition to the native copper an irregular mass of several feet of bornite was encountered. This occurrence of a large band carrying good values in native copper and bornite was very gratifying to the management and the company. The drift of the vein and these bands is to the south, that is, away from the shaft, and the C level, at a depth of 250 feet, is not yet sufficiently advanced to meet this 17-foot band, but the showing for the 230 feet attained is an improvement on the B level. Twenty-five feet from the shaft a band of 4 feet carrying copper pyrites was met; at 80 feet a 12-foot band carrying veins of bornite, native copper and some fine copper glance; at 227 feet the same quartzite that was noticed on the B level

was met and was much wider. At the time of writing the face is still in the quartzite, which carries a good amount of copper pyrites, 27 feet of this assaying 4 per cent. of copper, with \$3.50 in gold and silver.

The D level, at a depth of 325 feet, is only in 80 feet from the shaft, and so far carries the same characteristics as the upper ones. A considerable amount of native copper has been met.

On the dump at the mine there is now 700 to 800 tons of low-grade ore, carrying 1.5 to 2 per cent. native copper, with a small proportion of copper pyrites and copper glance, and carrying values of \$3 per ton in gold and silver and 25 to 30 tons of picked high-grade ore. The low-grade ore is practically a run of mine ore, chiefly from the upper levels. The material from the lower levels is considerably higher in copper than the average of the dump, but taking this average for our basis of calculation, we shall see that this immense mass of low-grade ore is sufficiently valuable to yield a good profit when concentrated. Experiments with samples of the ore show that it will concentrate perfectly and cheaply, and the gold and silver values are saved with the concentrates. Its concentrating ratio is ten to one or a little over. This will yield concentrates, carrying about 20 per cent. copper, worth at smelter price \$40 per ton, possibly more, and \$30 per ton gold and silver values. The remarkable ease with which this soft ore can be mined and crushed reduces the costs of mining and concentrating to a very low figure. It is estimated that \$2.50 per ton will cover all mining expenses; but allowing \$3, each ton of

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