

yielded 9 per cent., and it seems to be irregularly distributed through the rock. The surface soil is very heavy in that localis. It also occurs on Criss creek and Deadman river, and Jacko lake on the South side of the granitic area of Coal Hill seems to be destined to take a prominent place. Intrusive volcanic rocks of later date are there in contact with the gabbros. It is note-worthy that nearly all the deposits of copper are near outcrops of the Tranquille ash beds.

*Copper Creek.**—On the west side of Copper Creek is a zone of

* Trans. Inst. M. E., vol. xiii., page 3, H. Merritt.

dolomites and porphyries which overlies the cold water conglomerates. In irregular quartz and calcite veins through these cinnabar is found. The general direction of the veins is north and south. Cinnabar is found in the country rock as well as in the veins. A considerable sum has been spent at the mouth of the creek in mining in these rocks without success. A furnace was built to treat the low-grade ore with the result that one may now wash quicksilver in the creek below it. Parallel levels were driven into the mountain side, and the works now resemble a huge rabbit warren. Under the earlier management they produced 7,865 lbs. of quicksilver from high-grade ore. This quicksilver zone extends for a great distance, crossing Copper creek higher up, where it is again found to contain cinnabar at Hardie mountain. In that locality it occurs disseminated in dolomite and in an altered rock which appears to be volcanic ash, also in rich little veins traversing these, and in the channels of extinct hot springs. The best ore is a brecciated quartz cemented with lime on this same zone, cinnabar was discovered by Mr. A. J. Colquhoun at Toonkwa lake last year. This place is 12 miles south of Savonas. There is but little rock showing, but the zone appears to be of considerable width. Between these two, near Kamloops lake, dolomite and dolo-

mitized rocks about 1,000 feet wide are seen at several points to carry cinnabar. Throughout the upper part of the Nicola series, especially near the west end of Kamloops lake, a little cinnabar may be found. North of Copper creek, on Criss creek and Deadman river it occurs in the Tertiaries, and there seems to be a most promising district about 3 miles up Criss creek, where the zone of cinnabar bearing dolomites run nearly north and lie near granite. This zone lies west of the other, but may be the same one faulted. It is noteworthy that the Copper creek zone has at one end two small areas of granite and in the immediate neighborhood of Hardie mountain mines another granitic area. In the granite of Copper creek some cinnabar occurs. Near the Trent mine cinnabar is found in dolomite close to another granite area.

The dolomites containing cinnabar have been traced by Mr. Colquhoun 10 miles north of their occurrence on Criss creek. These dolomites may be in part the result of alteration of other rocks, but would seem from their permanence and the fact that they coincide with the line of strike and dip of the bedded rocks of the district, to be in part at least a sedimentary formation. The strata of the district are throughout so heavily faulted that it is extremely difficult to classify them. The work of the Geological Survey in this district is very rough, (probably on account of the great area to be traversed by a very small party), especially in the outlying districts, Criss creek, for instance, but affords a good groundwork on which to base observations.