

lode, this, as far as carried, continued in the foot-wall, and failed to show the presence of ore. The original outcrop in the creek-bed showed as a mass of angular blocks that crossed the creek apparently in a west-north-west direction, or nearly at right angles to its course, and which continued up and down the creek some 10 ft. or 12 ft., and constituted the bed of a miniature rapid thus formed.

The ore at the surface consisted mainly of iron-pyrites, but many of the blocks, on being broken into, showed the presence of yellow copper-ore of good quality, and the sample originally thus taken and tested at the Colonial Laboratory, Wellington, yielded over 30 per cent. of copper.

To lay bare the outcrop the loose blocks in the creek were removed, and all loose material from the foot-wall side of the lode to where it began to be confined by the hanging-wall, but no attempt was made to trace the ore underfoot where so covered in the direction of its dip. On the west side of the creek a pit was sunk close alongside the outcropping ore, but this again was in the foot-wall of the lode, and was not so disposed as to prove anything respecting the lode itself. On both sides the copper-ore has a tenacious clay of a blue colour, which must be regarded as lying between the walls proper. The lode itself is mullocky, and quartz is almost absent.

The rocks exposed in the shaft and drive, and developed on the foot-wall side of the lode, are sandstones and shales of a type such as characterizes the young Secondary rocks of the district, and are calcareous in character like the rocks of the Pu Puke Lower Valley. The nature of the hanging-wall outside the "pug band" has not yet been definitely ascertained. On this side there is, and apparently over the pug band of the hanging-wall, a thick band of iron-gossan, which, though completely oxidized, still seems to indicate a massive body of pyritous ore, which has yet to be cut into and explored. A pavement of boulders of volcanic rock is met with in the bed and banks of the creek, and for 5 or 6 chains above the outcrop of ore the nature of the rocks cannot be ascertained till some distance away from the creek. Further towards its source the banks of the creek show rocks *in situ*, which, however, are decomposed, and a little higher up, at the waterfall, pass into the serpentine. In these rocks copper-ore again appears, some large blocks occurring in the bed of the creek, and others appear in the right bank (which, however, seems at this place to be slipped ground), while at the foot of the waterfall cliff a considerable block of ore lies wedged in a fissure of the rock at that place. From the few facts that could be observed at and near the waterfall Mr. McKay concluded that the direction of the ore band must be nearly east and west, and, as boulders of ore were reported to occur in a branch of the creek east of the waterfall, he traced the east line across the intervening spurs, and—perhaps but a coincidence—this brought him to within a chain of where the ore boulders were met with in the branch creek. This determination he had to accept, there being no better means possible, short of some time and considerable labour.

Following down the branch creek (Frenchman's) to the first-described and more important outcrop with the compass, he endeavoured to follow from that a west line through the bush to the southern boundary of the claim. This resulted also in bringing him to within about 2 chains from where an outcrop of ore is reported present near the westward boundary of the claim. This seemed to confirm the supposition that the lodes strike east and west magnetic; but on returning to the main outcrop he arrived at the conclusion that probably the true bearing is more to the north, as indicated by the direction of the outcrop in the creek-bed and of the gossan outcrop on each bank of the creek. There is reason, therefore, to believe that the true course of the lode is from between west-north-west and north-west to the opposite point in a south-east direction. In the opposite direction the lodes should pass into claim No. 3, east of and adjacent to the Prospectors' and Prospectors' No. 2.

Owing to the scattered condition of the vein stuff and mullocky walls as far as seen, but yet more owing to the mistake made in sinking and driving in and along the foot-wall rocks, an impression prevails that the ore seen at the surface, and as far as proved at the principal outcrop, is only a slip from a lode *in situ* higher up the creek, which has yet to be discovered. In order to arrive at a conclusion with respect to this matter the prospectors placed men at the Government Geologist's disposal. A trench north along the bed of the creek was made, and when the ore disappeared underfoot a hole was sunk to prove its presence under the supposed hanging-wall of pug-clay, first at about 1 ft. below the level of the outcrop, and at a further distance at a greater depth of some 2 ft. 6 in. Mr. McKay then directed that the trench should be continued in the direction of the dip, and a hole sunk in a position at which some 10 ft. or 12 ft. of rock should be passed through before reaching the upper surface of the ore. So far as he could see, there seems every probability of the ore being in place, while yet it is possible it may not be. Even then, should the latter contingency be the case, the lode *in situ* cannot be far to seek, since it must be somewhere in the distance between the principal outcrop and the waterfall, some 6 chains higher up the creek. He could not estimate correctly the thickness of the ore band, but thought it must be at least 6 ft.

The quality of the ore improved as cover made on the hanging-wall side, but, as poor and high-class ore has been obtained from the very surface, it is a general improvement in the bulk of the ore that is to be looked for and expected. No samples were taken for assay, because sufficient from near the surface had already been taken and reported upon, giving returns up to 34 per cent. of copper, and it is from greater depths that a general average should be obtained.

RECORDS OF MINING OPERATIONS.

The system of recording the monthly return of operations carried on in the various portions of the mine, together with the return of gold, &c., which is adopted by Captain Hodge, the manager of the Hauraki Gold-mining Company, for presentation to the directors, is so comprehensive and worthy of general adoption that it is considered advisable to publish a copy of the statement for general information.