

and, as boulders of ore were reported to occur in a branch of the creek east of the waterfall, the east line across the intervening spurs was followed, and—perhaps but a coincidence—this crossed within a chain of where the ore boulders were met with in the branch creek. This determination had to be accepted, 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, an endeavour was made to follow from that a west line through the bush to the southern boundary of the claim. This resulted also in the line passing within about 2 chains from where an outcrop of ore is reported on outside the claim. This seemed to confirm the supposition that the lodes strike east and west magnetic; but on returning to the main outcrop the conclusion was arrived at 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 in part to the scattered condition of the vein-stuff and mullocky walls as far as seen, but yet more 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 had some further work done while these examinations were being made. 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. Next it was 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 at the time could be seen, there is 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. I 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.

Since the above was written prospecting has been carried on, which, on the adjacent claim to the eastward, has resulted in the discovery of a heavy lode striking in the direction of the serpentine cliff at the waterfall, and, on the Prospectors' Claim, of a second lode about 90 ft. higher up the creek than the original outcrop. Prospecting at the waterfall has not resulted in the discovery of a solid lode of ore, despite the presence of blocks of copper-ore in the bed and banks of the creek at that place.

It is as yet too early to pronounce an opinion as to the value of the different properties on which copper has been found further than that they are well worthy of being vigorously prospected, and in this connection it may be pointed out that the position of the lodes and facilities for reaching a shipping-place in Whangaroa Harbour are such as to add materially to the value of these properties in comparison with localities where such mines and indications of copper are elsewhere found in New Zealand.

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REPORT ON FURTHER PROSPECTING FOR COAL AT KAWAKAWA, BAY OF ISLANDS COUNTY.

By ALEXANDER MCKAY, F.G.S.

I HAVE the honour to report that, as directed by the Hon. the Minister of Mines, on the 8th and 9th February, 1898, I examined various parts of the Kawakawa Coalfield, with the view of determining the probability of coal being reached by the further prosecution of Boreholes Nos. 1 and 2 in course of being sunk by the Russell Syndicate (Limited).

I readily arrived at the conclusion that there is little likelihood of either the one or the other of the boreholes being within a very considerable distance of the coal horizon; but of the two, No. 1 bore, situated most to the north, and near the border of Scoria Flat, is in all respects the most favourably placed, and the sinking of this might be prosecuted to a successful issue. The coal-measures probably underlie the rocks that as yet have been encountered, these being Pliocene rocks flanking the lower hills on the southern side of Scoria Flat, and developed elsewhere in other parts of the district as strata distinctly unconformable to the coal-bearing series. These not having been passed through the borehole so far as this has been carried proves nothing with respect to the extension of coal westward that has not already been ascertained.

The position of the borehole is nearly in the line of dip of the seam worked at Kawakawa, and in this respect has been judiciously chosen, and without question the underlying coal-measures could be reached and passed through. The evidence, however, is not in favour of a workable seam of coal being found provided the formation was pierced to the Palæozoic rocks on which the coal-measures rest, and the probabilities are that the present company, with limited means at their dis-