

cyanogen process. It is, however, very questionable whether he will be successful with this process in extracting a fair percentage of the silver; it is better adapted for treating gold ores, at least this has proved to be the case by all the experiments yet made with this process, both by Mr. McConnell, the manager of the Crown Company at Karangahake, who was specially sent out by the Cassell's Company from Glasgow to introduce the cyanogen process in this colony, and also by Dr. Scheidel, the managing director of the Sylvia Company at Tararu, who is treating the concentrates from that company's ore by the same process.

The prospectors' claim seems to be the only one where a large amount of work has been done, the total quantity of ore crushed from this claim with their own plant being about 100 tons, which yielded 1,220oz. of silver worth about 3s. per ounce, which would represent a value of £183. During the last year a ton of ore was sent to the School of Mines from the Waipu Claim for treatment, which yielded about 46oz. bullion, worth about 3s. 9d. per ounce, representing a value of £8 12s. 6d. per ton. It is said that the lode from which this ore was taken is from 3ft. to 5ft. in thickness, having the appearance of a lode which would pay for working. Mr. Alexander McKay, F.G.S., Assistant Geologist, has recently examined this field, and his valuable report entirely coincides with my opinion respecting the future prospecting of this district. The following is Mr. McKay's report:—

"Between the 16th and 23rd of February I made an examination of the Puhipuhi Silverfield, and have the honour to submit the following report thereon:—

"On the occasion of my first visit to this field, in 1890, the weather was so bad that little or no work could be done. At that time comparatively little work had been done, and that chiefly on the claim known as Prospectors' No. 1. Several short drives had been put into the hill at or near the creek-level. These, though generally driven on quartz lodes, showed but feeble traces of silver-ore. These works lay higher up the creek than the camp-site at that time. The direction of the lodes was ascertained to be in the above instances nearly north and south. One reef, however, which crosses the creek two or three chains above the camp, trended more in a north-west and south-east direction, and had the peculiarity of being highly charged with pyrites. The other reefs abounded in iron-oxides, but were generally free from pyrites. At that time a prospecting-shaft was being sunk on the lode where it cropped up on the side of the hill, at a height of about 120ft. above the level of the creek. This had been sunk to a depth of 60ft.; and the reef, 2ft. to 4ft. in thickness, was fairly rich in silver-ore. Ore was being brought to grass at the time of my visit, and from the heap in the paddock I selected four samples, one of which was the best I could find, another the worst, and the two others I judged of as being of intermediate grade. These samples were afterwards analysed in the Colonial Laboratory, at Wellington, and yielded silver at the following rates per ton: the first sample gave 352oz., the second 236oz., the third 64oz., and the fourth 13oz. The average of the four samples is thus 69oz.; but, as the last sample was manifestly of very inferior quality as compared with the bulk of the stone then being brought to grass, it is clear that the average yield should be considered as somewhat more than as above stated.

"I noted the character of the quartz and that of the rocks carrying the reefs, and in both cases the peculiarities of these have been described in the Geological Reports for the year 1890-91. But the work done in the field at that time was not sufficient towards the formation of an authoritative opinion as to the value of the observations that had been made.

"Opportunity offering, I paid a visit to the district in February last, and examined most of the more important mines and claim-holdings. I also made a more careful examination of the country rocks of the district, and examined the district for silver and gold and other minerals.

"Since my first visit a good deal of work has been done on the Prospectors' Claim No. 1. Two levels have been driven in the lode, and a good deal of quartz has been stoped out, principally from the rich shot on which the shaft was being sunk when I first visited the field. The reef at both levels was explored to a considerable distance north and south of this, but without coming across stone of equal value. All, or most, of the richer stone has been taken to the mill for treatment, and that now stacked at or near the mine-mouth does not appear to be of any very rich description. The stone from the lower levels gives distinct indications that below the water-line the reef will assume the character of a pyritous lode which will, probably, not favourably affect the readiness of the extraction of the silver. The quartz also continues to be of the same refractory character, a good deal of it being of a very dense and tough description. As regards the permanence of the lode, it has been proved along the lower level for about 100ft., and there can be no doubt that it will live underfoot below the water-level as far as it is likely to be followed by the application of ordinary means. As regards the amount, distribution, and occurrence at low levels of the silver-ore in the lodes, it seems that the prospecting-shaft chanced to be placed on the richest shot of the ore yet met with; but silver is not absent from the other parts of the lode, and it cannot be but there is a probability of equally rich shots of argentiferous stone being found at greater depths than any that has yet been reached in this mine. There can be no doubt that silver-ore is distributed throughout most parts of the reef, and the whole question of its paying-quality will hinge upon the payability of the amount per ton that constitutes the average yield. This is clearly dependent on the cost of treatment.

"*Prospectors' No. 2.*—Three tunnels have been driven for short distances on at least two reefs. One or other of these is evidently a continuation of the main lode in Prospectors' No. 1. Work at the time of my visit was being carried on in the lower level, and stone was being stacked at the mouth of the tunnel. A good deal of this showed silver-ore, but I could not say that it appeared to be very rich. Such stone as I saw would have paid very well had the ore been gold instead of silver, but I fear richer stone must be discovered before the prospects can be characterised as being payable. The stone is of the same character as the lode-stone in Prospectors' No. 1.

"*Young Colonial Mine.*—I was distinctly disappointed with what I saw in this mine. A sample of quartz was received at the Colonial Laboratory last winter from this mine. It gave a high return