

mine in December last the lode appeared to be of much greater dimensions than it proved to be on my recent visit, but nevertheless it is a large lode.

The quartz in the lode is partially amorphous and partially crystalline, and mixed with blackish-grey spots and blue streaks, and in some places coloured with oxide of iron. It is on these streaks and spots principally where gold and silver is found. The manager informed me that he forwarded 1 ton of the pulverised picked ore to the Cassell works at Karangahake, which yielded bullion to the value of over £100, the Cassell Company giving 80 per cent. of the assay-value of the ore. It seems scarcely credible that the Martha Company should have parted with so valuable a property; but it may solely be attributed to the fact that very few of the mining companies yet take any steps to ascertain the value of the ore by assay; they deem it money wasted to employ an assayer, and pin their faith to the old processes for extracting the gold. Such a case as this will tend to make mine proprietors a little more careful in examining and prospecting their properties before disposing of them. It must not be deemed that the quality of all the ore in this lode is as rich in bullion as that sent to the Cassell plant for treatment, for there is a large quantity of low-grade ore in the lode; but the whole of it taken in a face is likely to give good returns. From the appearance of the lode it is likely to continue payable to a good depth, and also to run for a considerable distance across the country. After the present level is worked out another can be taken in, which will give another 60ft. of backs.

From the report of Mr. R. Spratt, the mine-inspector of the company, it appears that the company now holds the whole of the ground comprised in the Martha Extended, Britannia, Nut, and Martha Block, and the Go Ahead, Victory, and Monmouth licensed holdings. Mr. Spratt states that the Martha Lode should also be found in the Victoria Special Claim and in the Union Special Claim, but at a considerable depth. The following is taken from the report:—

"A block of ground the whole length of the Martha Extended, as well as a portion of the Britannia and Nut, can be opened by a drive at the level of the main tramway, nearly 60ft. below the adit, which will take years to work out before it will be necessary to employ pumping or winding machinery. I have carefully estimated the tonnage of the ore within the boundaries of the Martha Extended ground, from the adit-level to the surface, not including what is in the Britannia and Nut, and, making large allowances for irregularity of the lode and stuff that might not pay for treatment, I am satisfied there are 300,000 tons, and from the adit down to the level of the main tramway 200,000 tons more; in all, 500,000 tons.

"It would be a difficult matter to arrive at an estimate of the value of this vast body of ore unless based upon actual returns from the stuff already treated, which were so incomplete at the time of my visit that they could not be accepted unconditionally. In order to afford all information possible on this most important matter, samples of ore were broken out in my presence at points marked 1 to 9, on the plan along the course of the reef in the adit-level. These samples were selected, as far as it was possible to judge, below the general average of their surroundings, avoiding in all instances what might be taken as a mean between the richest and poorest portions of the lode, and, although only atoms, will, I am satisfied, be found to represent pretty accurately the value of the whole. The parcels were in my own keeping until handed over to a competent metallurgist, who has furnished the following values of them:—

No. 1 sample, value £11 18s. 0d. per ton.	No. 4 sample, value £0 19s. 0d. per ton.
No. 2 " " £9 2s. 8d. "	No. 5 " " £0 15s. 0d. "
No. 3 " " £1 8s. 0d. "	No. 6 " " £5 14s. 5d. "

Samples Nos. 7, 8, and 9 being valueless.

"The three latter, I was certain, were worthless, but I wanted to know, and therefore had them tested. Against this, I think, might be fairly compared assays of two additional samples, marked A and B, the first being taken from the face of a drive then in work at the adit-level, and the second from various parts of the mine. Sample A gave—Gold, 23 oz. 3dwt. 16gr.; silver, 159oz. 2dwt.: value, £124 13s. 4d. per ton. Sample B—Gold, 119oz. 4dwt. 16gr.; silver, 730oz. 2dwt.: value, £622 18s. 8d. per ton. These samples have been taken only to show the richness of the ore that could easily be selected if the object of this report were to place a high value on the mine. Rejecting samples 7, 8, and 9, and A and B, as extremes, and taking the average of results 1 to 6, we shall have close on £5 per ton, which, I feel confident, will be found to be a close approximation of the value of the ore per ton.

"Next in importance to the value of the ore is the cost of treatment, including mining, milling, wear-and-tear of machinery, and all incidental expenses. This at present will not be below £1 5s. per ton, but I am certain the work will in time be done cheaper. If the value of the ore is taken at £5 per ton, and reckoning that only 50 per cent. of bullion is saved by the present process of treatment, at a cost of £1 5s. there will be a handsome profit. In course of time better results will follow, both as regards reduction in expenses and increase in the percentage of bullion extracted."

It is possible that Mr. Spratt may be rather sanguine as to the large quantity of available quartz above water-level—namely, 500,000 tons—that will average an assay-value of nearly £5 per ton. Taking the whole length of the lode the present main level has gone through—namely, 500ft.—and the average height of backs above the present level, as given me at the time of inspection—140ft.—adding to this the 60ft. additional which it is said can be got by constructing a new level, it would make the average backs above water-level to be 200ft. The lode would have to average 70ft. wide, 500ft. long, and 200ft. backs to give 500,000 tons of quartz: this is allowing 14 cubic feet of solid quartz to the ton. In estimating the lode at such large dimensions there cannot be a large allowance made for irregularity of the lode and stuff which might not pay for treatment, as mentioned by Mr. Spratt. However, be that as it may, the company has a lode of colossal proportions, and its present