that the stone only averaged from 4dwt. to 6dwt. to the ton, and it was just as much as he could do to make the mine pay for working. Finally, an adit-level was constructed, and the lode driven on for about 500ft., but the results of the crushing from this level was even more disappointing than that on the surface. It got so poor that it could hardly pay working-expenses by employing men on wages. The mine was then let on tribute, with but very little better results. Indeed, this mine was considered of very little value. The same stereotypical answer was always got from the mine-manager when inquiries were made as to the saving of the gold at the battery, "They were losing very little, and they looked on their gold-saving appliances as being as good as any in the district."

After the Waihi Company had erected a very expensive crushing-plant to treat the ore from the Union and Rosamond Mines, which at that time were the only mining properties belonging to the company, Mr. T. H. Russell, who was superintending the crushing operations, saw that these mines were not capable of supplying a sufficient quantity of ore to keep the plant fully employed: and, indeed, the large expenditure on this plant, with the continued alterations from time to time, would have placed the company in liquidation had they not got a better mining property. However, Mr. Russell, in casually examining the Martha Mine, and getting different parcels of the ore, taken promiscuously, analysed, found that the ore was very rich in both silver and gold, and, instead of the ore containing only 4dwt. and 6dwt. to the ton, some of it was worth nearly £100 per ton. He consequently made the Martha Company what they considered an excellent offer for their property, which was accepted, and this property at the present time is one of the best in the colony.

Waihi Gold and Silver Company.—This company have completed the low-level adit in the Martha mine. It is 1,460ft. in length, 7ft. high, and 7ft wide in the clear. It is carried in a straight line for the whole of the distance, and on a uniform grade. The adit is well timbered. Throughout portions of it, where the ground was heavy, the sets of timber are put close together. The lode in the lower level is of the same character as that found on the smithy level, and varies from 18ft. to over 60ft. in width. This low-level gives 60ft. of backs. The ore from this lode is said to be worth, on an average, about £4 per ton, but there is a difficulty in extracting a fair percentage of the value of the bullion it contains. The company are also working on the surface, quarrying away the lode by taking a greater width of it than the Martha Company had done. This mode of working always enables them to get sufficient ore to keep their battery fully employed. The lode has been proved for from 400ft. to 500ft. in length.

In the Union Mine the shaft has been sunk to a depth of 125ft., and the lode opened out at this level. It varies from 2ft. to 5ft. in width, and contains a larger percentage of gold than the Martha lode, and a higher average in the extraction of the bullion is obtained. The water in this mine is lifted by a 10-inch pump to the level of the tailrace, which is constructed to the Ohinemuri River to carry away the water used on the Pelton wheels.

The ores from both mines are still dried in open kilns, some of it being partially calcined. The cost of this is said to be 2s. per ton. The ore from the kiln is then brought in trucks and hoisted up with a hydraulic ram to the upper floor, and goes through the rock-breaker and thence to the stamps, the latter being fed with Challenge ore-feeders. In my last report a description was given of the erection of thirty heads of stamps, which were used for wet-crushing, and the whole of the water and pulp lifted by an elevator-wheel and run into tanks. This system has been abandoned, and all the stamps—sixty heads—are now used for dry-crushing. When the alterations were made from wet to dry-crushing with the last thirty heads of stamps which were erected, new mortars were put in, having back and front delivery; but the back delivery makes very little difference in the discharge. The other battery of thirty heads has only a front delivery, and this battery pulverised the same quantity of material as the other. The grating used is a 60-mesh wire screen.

The Bohm plant to treat the ore with potassium cyanide, referred to in my last report, was erected, but it did not prove a success. The cylinders used were too long and narrow, containing as they did some 10ft. in depth of ore, that the solution had to be forced through. The effect of this was that the solution could not be made to percolate through the whole of the ore, but passed up between the cylinder and the ore, the solution being forced into the cylinder by a pump at a pressure of 120lbs. per square inch. This pressure should have been sufficient to force the solution through, but as the pulverised material offered a much greater resistance than the junction between the material and the side of the cylinder, the solution went through the weakest spot, and had little effect on the ore in the centre. However, the process so far has proved a failure owing to the mechanical construction of the plant.

For the year ending the 31st December last they crushed 18,279 tons of stone, which yielded 25,456oz. of bullion—namely, 9,998oz. 9dwt. of gold and 15,457oz. 14dwt. of silver; the average value of the bullion for the year being £1 14s. 5d. per ounce. This represents a value of £43,805 10s. for the year. The total value of bullion produced by this company up to the 31st December last is said to be about £90,658; and taking the average percentage of bullion extracted from the ore, it would show that the value of the bullion sent amongst the tailings into the wash-head and those run away would amount to something like £35,000. Taking the year ending the 31st March last, the company crushed and treated 18,279 tons of stone, and got 29,681oz. 10dwt. bullion, representing a value of about £48,809. The average number of men employed by this company last year was about one hundred and fifty. They have recently disposed of all their tailings, and all that will accrue up to November next, to the Cassel Company for, it is said, £5,000, which is going to erect a plant to treat them. The company has also arranged with the Cassel Company to erect a small cyanide plant, and to treat a portion of the dry pulverised ore by the Cassel process. They are also going to erect an Ottis ore-crusher, which is guaranteed to crush 20 tons of ore a day, and only requires 10-horse power to work it.

Silverton Company.—This company has been working on the outcrop of the lode by quarrying the stone, and, after assorting it, sending the best portions to the battery. They have been engaged during the last year in constructing a low adit-level, but the work has not been carried on very energetically. A great deal of the surface stone is of low grade, and this, together with the large