

of regulus from 100 parts of ore: Regulus, per cent., (1), 22·91; (2), 22·89. The regulus was in each case fused with oxide of lead (6 parts) and a small quantity of lamp-black after having been ground and partially calcined, and the button of metal was cupelled in the usual manner. Beads of the precious metals were obtained amounting to—gold and silver, per ton of ore, (1), 3oz. 5dwt. 16gr.; (2), 3oz. 3dwt. 1gr. The metals were separated in one case, and gave the following results: Gold, per ton of ore, 1oz. 2dwt.; silver, ditto, 2oz. 3dwt.: total metals, 3oz. 5dwt. The whole operations are performed without difficulty, the fluxes used are very inexpensive, and I think considerably less oxide of lead might be used. For comparison, I made two experiments by the ordinary process of assaying refractory gold-ores. The ore was first calcined to oxidize the sulphides, then fluxed with an equal weight of carbonate of potash, 60 per cent. of carbonate of soda (refined soda-ash), 40 per cent. of acetate of lead, and 10 per cent. of lamp-black. A button of lead was obtained in each case, which was cupelled in the usual manner, and the gold and silver were afterwards separated by the well-known process of quartation. The result obtained was: Gold, per ton of ore, 1oz. 3dwt.; silver, ditto, 2oz. 2dwt.: total metals, 3oz. 5dwt. I need scarcely say that this process of assaying could not be carried on the large scale on account of the expense of the fluxes and crucibles, the latter being of large size in proportion to the result obtained."

It will be noticed that the result of this test shows that all the gold and silver was taken out of the ore, and was quite equal (although only costing a few shillings for fluxes per ton of ore) to the most expensive process of assaying, which would cost for fluxes about £23 per ton of ore.

With such a flourish of trumpets did Mr. Parkes arrive in this colony that many believed a new era had dawned on mining, and that the industry that has been languishing in the Karangahake district for years would soon become a prosperous one. Mr. Chambers had perfect confidence that Mr. Parkes would treat the ores successfully, and purchased ores in the district by assay to operate on. The plant was completed, and the process carried on for nearly a month; but, instead of being able to obtain fluxes for smelting the ore for 12s. 6d. per ton, which was Mr. Parkes's estimate, it cost from £18 to £20 per ton, and even with all the costly fluxes the ore could not be successfully smelted. When examining the slag from the furnace it was full of knots and lumps of silica, like lumps of dry oatmeal amongst pottage.

This plant is referred to merely to show that the ore in this district is not suitable for smelting in its raw state as it comes from the mine, on account of the very large percentage of silica it contains. If smelting is resorted to the ore will have first to be crushed and concentrated, and then it is possible to smelt the concentrates and extract the metals. There are large lodes of ore in this district that will pay for working as soon as an efficient and economical process is found to extract a fair percentage of the metals it contains.

Woodstock Mine.—The workings in this mine were carried on last year by tributers. Six men obtained 101 tons of quartz, which yielded by the ordinary crushing-battery process 449oz. of gold. There is a large body of quartz in some of the lodes in this mine, some of it of low grade, and all of the lode-stuff contains a certain percentage of silver.

Kenilworth Mine.—This mine adjoins the Woodstock, and was worked last year by tributers. Eight men have obtained about 150 tons of stone, which contains a large percentage of silver. Thirty-six tons of this ore has been sold to export to Europe for treatment, the assay-value being £3,400, or over £94 per ton. Some of the remaining ore on hand will be sent to the reduction-works at Waiorongomai for treatment.

Crown Mine.—This property has recently changed hands, and now belongs to the New Zealand Crown Mines Company, which is formed partially with foreign capital. The mining operations were suspended in this mine for a long time, but now they have resumed work again. There are numerous gold- and silver-bearing lodes running through this mine, some of which are 10ft. in thickness in places. The ore in general has been of low grade, or, at least, there have never been any high returns from large parcels of stone crushed.

An incline tramway was constructed from Railey's battery up the face of the range by subsidy from the Mines vote, but since its completion it has never been used. This company now propose to utilise this tramway in conveying the ore from their mine to their reduction-plant, which is to be erected on the site where Railey's crushing-battery stood. Their plant is to consist of a stone-breaker or pulveriser and Lamberton mills, which have been sent from Glasgow, in Scotland. These mills are entirely new in the colonies, and, not having seen any of them, their construction cannot be described. They are spoken highly of by those who have seen them at work. After the ore is finely pulverised it is to be handed over to the Cassells Company, who are also erecting chlorination-works near the reduction-machinery. This company have entered into an agreement with the Crown Mines Company to treat the whole of their ore at a certain percentage of the yield, and have also agreed to save a high percentage of the bullion in the ore.

Several other mines have been worked to some extent. Ten men have been employed in the Ivanhoe and Truro Mines, and a considerable amount of prospecting-work has been done. About 77 tons of quartz have been taken out during last year; but the yield has not been very high, 43oz. of gold being obtained from 37 tons of stone. A crushing-battery consisting of four heads of stamps has been erected on these mines, and also two pulverising-pans and settler. The muddy water coming from the table attached to the battery is conducted into settling-tanks or reservoirs, and there allowed to stand until it is clear, when the water is drawn off and used again, and the slimes from the muddy water are treated and found to contain a considerable percentage of bullion.

Many of the mines are merely held waiting to see if any process can be got to satisfactorily deal with the ore. Prospecting is carried on now and again, and sufficient work done to prevent cancellation of the holdings being made.

OWHAROA AND WAIHI.

There is only one claim at Owharoa where there has been any extent of work done—namely, the Smile of Fortune. This claim is worked entirely by tributers—eight men. The lode on which