

*General Remarks on Quartz-mining.*

Despite the period of acute financial stringency through which the Dominion has been passing, the quartz-mining industry has during the past year shown signs of slightly increased activity. The quantity of ore treated showed an improvement of nearly 4,000 tons on that for the previous year, and, notwithstanding a decrease in the premium received on gold disposed, the total value realized exceeded that for 1920 by over £9,000. The dividends paid during the year also showed an advance on the previous year's figures, being £4,200 as against £1,800.

No serious accidents of any kind have occurred in any of the quartz-mines for the year.

A considerable amount of prospecting has been carried out.

*Dredging.*

A noticeable feature during the period in connection with this branch of the mining industry has been the completion and putting into commission of the large new dredge of the Rimu Gold Dredging Company at Rimu Flat, near Hokitika. Actual dredging operations were started in September, and to the end of the year 221,591 cubic yards of gravel were treated, for a yield of 1,429 oz. gold, equal, with gold at standard value, to a return of approximately 6½d. per cubic yard. The total amount, including premium, received for the gold was £6,518. An average of fifty-eight men were employed.

This dredge is the most powerful yet put to work in New Zealand, and presents a number of features, both in construction and method of operating, new to dredging here. It cost £100,000 to construct. The pontoon, mainly of Oregon pine, is 115 ft. 6 in. long, 50 ft. wide, and 10 ft. 7½ in. deep. The working-parts are all very massive compared with those on previous dredges here. By way of illustration, the bucket-pins are 6 in., the top tumbler-shaft 21 in., the bottom one 15 in., and the ladder-rollers 16 in. in diameter, and all are of manganese steel. The buckets, seventy-three in number, and delivering at the rate of nineteen per minute, are also wholly of the same material. The main drive, winch, pumps, stacker, &c., are all operated by electric power. To work them simultaneously 535 electrical horse-power is required, the figures for the various units being—main drive, 200 h.p.; winch, 25 h.p.; screen, 50 h.p.; stacker, 50 h.p.; high-pressure pump, 125 h.p.; low-pressure pump, 60 h.p.; and nozzle pump, 25 h.p. The power is transmitted by the Kanieri Electric (Limited) to a transformer near the dredge at a pressure of 10,000 volts, and is there stepped down to 2,000 volts.

The most novel features in connection with the dredge are the pivoting of the ladder on the upper tumbler-shaft, the dispensation with links between buckets, use of electricity for all power purposes, control of practically all work on board from one central position, stacking by means of belt conveyer, and employment of spuds in place of head-lines. The stacker and ladder are each 135 ft. in length. The former was designed to dig normally to 43 ft., but can, it is claimed, dig to about 55 ft. if required. The screen is 46 ft. long and 7 ft. internal diameter. The spuds, two in number, are 56 ft. long, and each weighs 18 tons. For saving gold, 6,000 square feet of tables are provided on the dredge. No copper plates nor any description of blanket are used, the gold being caught in shallow riffles in which mercury is placed. The dredge has not, so far, been worked to its full capacity.

This Rimu dredge was the only one in the district which won any gold during the year, but at Awatuna Beach a company known as the Awatuna Dredging Company (Limited) is re-erecting the dredge formerly worked as the Chambers Reward at Humphrey's Gully. The area on which it will operate has been well tested by drilling, and is said to contain good gold-values. Some twelve men have been employed in connection with it.

*Alluvial Mining.*

A slight falling-off in the number of men employed in this branch of the industry has been noticeable, and the total amount of gold won showed a proportionate decrease, being 3,911 oz., as compared with 4,245 oz. in 1920. The total value received for it was £17,570, as against £18,336.

In the following notes some particulars are given as to operations in the various localities where work was carried on:—

*Howard Diggings.*—Only twelve men have been employed in this field during the year, the amount of gold recovered being 298 oz., valued at £1,186.

*Murchison.*—For the whole of this district, including Matakitaiki, Newton Flat, and Lyell, only 84 oz. of gold, valued at £330, were recovered. Seven men were employed.

*Addison's Flat.*—Only one claim (Mouat and party's) was worked, 219 oz. gold, valued at £914, being recovered.

*Charleston and Brighton.*—In these localities the amount of gold won for the year amounted to 916 oz., for which £3,819 was realized.

*Grey Valley.*—At the various claims twenty-one men were employed. The total gold won amounted to 684 oz., valued at £3,409. The Hochstetter Company, not finding the yield payable, closed down towards the end of the year.

*Barrytown.*—There was no gold won in this locality during the year, but the Waiwhero Sluicing Company was engaged in entirely reconstructing its plant.

*Kumara.*—On the Kumara, Greenstone, Stafford, and Callaghan's fields the total production for the year amounted to 773 oz., valued at £3,691. The principal producers were—Linklater Sluicing Company (Stafford), 283 oz. 10 dwt., valued at £1,229; Stubbs and Steel (Greenstone), 182 oz., valued at £912; and R. Kean (Greenstone), 149 oz., valued at £671. The Havill Brothers at Callaghan's completed towards the end of the year a new low-level tunnel tail-race over 2,000 ft. in length, and the Callaghan's Sluicing Company has been engaged in putting its property (formerly Honey Bros.' claims) into working-order. At the Hohonu Diamond Terrace Sluicing Company's claims at Greenstone preparations are being made for the construction of a new main race to bring a water-supply in from the Hohonu River.

*Hokitika.*—In this district 275 oz. gold, valued at £2,261, were won, the principal producers being Rimu United Sluicing Company (Seddon Terrace), 266 oz., valued at £1,238 15s. 1d.; and Ford and Knight (Rimu), 148 oz., valued at £752. Eighteen men were employed.

*South Westland.*—Some 107 oz. were won from various beach leads, the value of which was approximately £489.

*Reefton.*—Returns from this district show that eight men were employed, and that 279 oz. gold, valued at £1,332, were recovered. The principal producer was Antonios Limited, with 229 oz., valued at £1,151.

*Marlborough.*—The total return of gold was only 11 oz. 16 dwt., valued at £46 8s.

*Mining other than for Gold.*

*Onakaka Iron and Steel Company.*—This company has during the year been busily engaged in erecting a plant for smelting the iron-ores on its property at Onakaka, between Takaka and Collingwood, some thirty-five men, on an average, having been employed. The plant is not designed for a large output; its producing capacity is estimated to be about 25 tons of pig iron per day. The following is a brief description of the plant already erected, and of the general proposed scheme of operations: The furnace is of shaft type, of mild-steel plate, constructed in New Zealand. It is 64 ft. in height from feeding-platform to hearth-level, with an internal diameter of shaft 10 ft., and of hearth 5 ft. Up to the bosh the lining is of local clay and silica, and thence to the top of the shaft is of Huntly firebricks. The thickness of lining in the shaft averages 1 ft. 6 in., and in the hearth 2 ft. 6 in. The top of the furnace is fitted with a bell for distributing the feed uniformly. The furnace will be hand-fed. The bronze tuyeres are water-cooled, as are also the water-blocks used as the tuyeres-zone construction. The air required in the furnace will be heated in a U-pipe stove to 900° F. The U-pipes in the stove are of cast iron, twenty-four in number, and they will be heated by burning the waste gas from the top of the furnace under and around them. The blower was made by the Baker Company, and is of the Root type, with a rated capacity of 64.5 cubic feet per revolution. It is of iron throughout, and heavily geared. Two boilers have been installed for providing steam for driving the blower. One of these is of