

In Otago and Southland the fleet of seventy-two dredges in commission was distributed as follows: Waikaka Valley, 16; at or near Alexandra, 14; Waikaia, 6; at or near Cromwell, 3; Miller's Flat, 5; Manuherikia, 3; Lowburn Ferry, 2; Nevis, 4; Charlton, 3; two at each of the following places—Glenore, Cardrona, and Roxburgh; and single dredges are working at Poolburn, Kyeburn, Waimumu, Kelso, Kawarau River, Clutha, Bannockburn Creek, Ettrick, Waipori, and Maitaura.

During the year five dredges were dismantled—namely, the Orcadian, on the Maitaura River; the Lady Roxburgh, at Roxburgh; the Kyeburn, at Kyeburn; and upon the Buller River the Old Diggings and Smeaton Syndicate dredges. The number of dredges in active commission at the end of the year was reduced to 82.

### (3.) ALLUVIAL.

A somewhat unexpected feature in connection with the gold-mining industry is that the output of gold from sluicing claims is being maintained. During 1912 bullion to the value of £266,348 was obtained, as against £275,216 for 1911, and £188,464 for 1910. This satisfactory condition is due to several causes, chiefly, however, to more general rainfall throughout Otago, Southland, and Westland, the principal alluvial-mining provinces. By the systematic testing of alluvial ground with Keystone drills, placer mining in New Zealand has been rendered less speculative, and although the profits from alluvial claims are not frequently large, there still appears to be shown considerable interest in this branch of mining.

On the West Coast the most important alluvial mines are situated at Ross, where the old Mont d'Or Mine, with a paid-up capital of £10,800, produced gold to the value of £4,665, and returned £2,400 in dividends, the sum so distributed by this company now amounting to £54,000. It is proposed in the near future to undertake a considerable amount of development to enlarge the scale of operations, in addition to which a lower tail-race will be opened up.

The Ross Goldfields (Reconstructed) during 1912 again unwatered the Ross Mine, but owing to failure in electrical surface-transmission through defective insulation three stoppages of pumping were experienced. To overcome this contingency a Diesel engine of 250 h.p. was installed at the mine as a stand-by. A prospecting-drive has been driven at No. 6 level (315 ft.) from near the shaft to a point about 20 ft. below the nearest and deepest workings of the old Cassius Mine, and from this drive six boreholes were put up to drain the Cassius and those other old workings abandoned through influx of water in 1872. After two months continuous pumping by one stationary and one sinking three-stage turbine pump at the rate of about 2,000 gallons per minute, the ground was unwatered at the end of June, 1913, and a rise is now being put up into the Cassius Mine. During thirty-two-and-a-half weeks' operations in 1872, immediately prior to their inundation, 11,543 oz. of gold was obtained from the Cassius, Morning Star, and Excelsior Mines now included in this company's lease, since then £197,000 has been expended by four different companies in their endeavour to unwater and work these mines.

At the old Montezuma Claim, on the Hokitika Beach, Messrs. Lincoln and party have installed a steam-driven 8 in. centrifugal gravel-pump of Kershaw type to elevate the black sand from their paddock, water for hydraulic elevating being unavailable. The pump is driven by a Robey semi-portable engine of 18 N.H.P. The capacity of the pump is claimed to be 30 cubic yards of material per hour. At this claim the black-sand faces are broken down by ground-sluicing, for which purpose drainage-water is pumped from the paddock and conveyed by flume and pipe to the faces, from whence it again flows back into the paddock. The gold is saved on matting in the usual manner. Sluicing was commenced during December, 1911, and to the 25th September, 1912—the date of my inspection—about 13,500 cubic yards of sand had been worked, for a return in gold of £235, being an average of 4d. per cubic yard, equivalent to £1 per working-day. As four men were employed and 1 ton of slack coal was consumed at the boiler per day, the operations were not profitable. During 1912 this party produced gold to the value of £345. As a result of these operations a considerable area of black-sand country has been pegged out in claims in the neighbourhood, but it is evident that the cost of fuel will somewhat handicap steam-pumping operations on poor ground. Operations at the Montezuma Claim have recently been transferred a few chains to the northward on the beach where a more extensive plant has been installed and new paddock opened.

In the Southern Inspection District the most profitable work was carried out by the Nokomai Hydraulic-sluicing Company, who obtained from their claim, the faces of which maintain a uniform depth of about 60 ft., gold to the value of £10,354, and distributed in dividends £4,800.

The Blue Spur and Gabriel's Gully Consolidated Gold Company discontinued operations during the year. Their plant and mining privileges, sold to satisfy the claims of the mortgagee, were purchased by the Gabriel's Gully Sluicing Company, who propose to work the claim in conjunction with their own ground. The history of the Blue Spur Mine is unfortunate. The subscribed capital amounted to £91,266, and, although gold to the value of £135,771 was obtained from about 50 acres of deep ground, no dividend has been paid since the registration of the company in 1888. The causes of non-success were the necessity of blasting the fluvio-glacial conglomerate, and frequent shortage in the water-supply.

The Muddy Terrace Sluicing Company, near Waikaia, from whose operations much is expected, have obtained during the year gold to the value of £7,500, the total production since the commencement of sluicing in December, 1909, being £22,941. The total capital expenditure by this company amounts to £36,500, nearly all of which has been applied to the construction of lengthy conduits for sluicing purposes. The auriferous ground within this company's area is already extensive, but a new field of operations adjoining—at Long Gully, to the east of Muddy Terrace—has been secured by the company, and it is proposed to commence sluicing operations thereon at once. Contemporaneously the usual work at the claims on the western slopes and flat will proceed. The following is the average monthly yield from the Muddy Terrace Claim during the past three years: 1910, £618; 1911, £544; 1912,