

3,115ft.; taking the depth of Hyndman's shaft as 150ft., the total fall from the bottom of the shaft would be 56·5ft., or a fall of 1 in 55·13, or about $2\frac{3}{16}$ in. to every 12ft., which is not sufficient fall for a tail-race to carry away drift gravel-wash. A second line was tried from higher up Callaghan's Creek, 35·7ft. of fall from the bottom of the shaft, the distance being 2,739ft.; this is equal to a fall of 1 in 76·7, or about $1\frac{1}{2}$ in. to 12ft. A third line was taken from Morretti and party's tunnel tail-race, the distance being 2,046ft., and the fall from the bottom of the shaft 7·5ft. Another line was tried from the bottom of the drop in Manuka Creek; this only gave 133·5ft. from the top of the shaft.

It will be seen from the available fall in the locality that the ground cannot be worked by hydraulic sluicing to a depth of 150ft. at Hyndman and party's shaft. To take the line from the junction of Callaghan's and Manuka Creek, and allow 20ft. of drop for the tailings, and to have only a gradient of 1 in 48, or 3in. to 12ft., the ground could only be worked to a depth of about 101ft. below the surface at the shaft already referred to. Even had it been found that sufficient fall could have been attained for sluicing the ground, the construction of a tunnel tail-race would have been very expensive, as it would have had to go through from 6 to 8 chains of very hard rock containing a large percentage of, apparently, silicate of iron, which would cost about £2 per foot to go through. This character of rock is seen in Morretti and party's tail-race, and, judging from the angle of inclination it is lying at, the distance through it is not over-estimated.

Between McConnon and party's shaft and the Little Kapitea Creek there is a good width of a pakihi or flat. On the edge of this flat, next to the Little Kapitea, two parties have opened out sluicing-claims, but, judging from the character of the granite wash-drift, the ground is not likely to contain rich auriferous layers; but, if a large supply of water were available to work the ground continuously, there is a likelihood of there being some good claims in the locality. The whole of the material of which this flat is composed is of a more recent formation than the wash-drift on the terraces which have hitherto been worked. It resembles to some extent the wash-drift found on Duke's Terrace, at the Greenstone; and is, no doubt, but a mass of concentrated material brought there by the action of water from a glacial deposit. The stones are all greatly rounded, and there is a good deal of fine drift, indicating that the deposit must have been carried for some distance before the amount of attrition would have left so much fine grit. On this hypothesis the ground is likely to contain richer auriferous layers higher up the flat, where, possibly, runs or leads of gold may be discovered similar to those found on the Kumara field. The morainic deposit which has been concentrated and lodged in this flat appears to have originally come from a southern direction, but, be that as it may, it covers the older gravels and abuts on to them at the side of Callaghan's Range.

Waimea.

The ground on the south side of the Waimea Creek is getting pretty well worked out, but there is apparently yet a good many auriferous terraces on the north side of the creek that will pay for working; but there is very little water to be got on that side. On the south side the ground is worked with water from the Government water-race: but the creek-bed is becoming so fast filled up with tailings, and the ground getting a long way back, there is very little fall to be got so as to work it economically. The extension of the race to the head of the Waimea Creek will be the means of opening-up new ground in this locality.

Humphreys Gully.

The only party working in this locality is the Humphrey's Gully Company, who hold a lease of a large area of land from the Hokitika Harbour Board, being one of its endowments. There is a little gold distributed through a great depth of drift gravel; but being poor, it requires large quantities of the material to be sluiced away in order to make the venture remunerative. The supply of water the company has is very limited, and not nearly sufficient for the purpose of working this description of ground. When any breakage takes place, all the profits accruing from working the ground with a small quantity of water are soon absorbed in expenses, as was the case last year. Their head-race broke away in September last, immediately above the hydraulic-pipe line, which not only necessitated repairing the head-race, but also shifting the pipes and laying them down in another place. This took a considerable time; and sluicing operations were not again resumed until the beginning of the present year. The actual loss is not only the cost of repairing the damage, which cost about £400, but the time during which sluicing operations were suspended is a great element in the actual cost.

Owing to the suspension of sluicing operations for a long time, the returns from the ground last year have not come up to previous years. The value of gold obtained last year was £1,351, as against £2,536 for the former year. Out of the proceeds of the gold last year the tributers received £626, or about 50 per cent of the gross proceeds; but as the company pays for race-maintenance, and plant, and all rents, fees, &c., which amounted last year to £641, irrespective of the cost of management, the latter amounting to £283, it will be seen the company's property was anything but a remunerative one; neither can they expect it to become a payable venture until the race is extended to the Arahura River, where an unfailing and constant supply can always be relied on. Considering the great depth of auriferous ground there is over the area this company holds, the water-race should be extended to the Arahura River without delay, and it ought to have a carrying capacity of from 80 to 100 sluice-heads. Were this done, there is some prospect that the venture would be a remunerative one; but it certainly could never be expected to give interest on the whole of the nominal capital, which is £150,000. The directors will have to reduce the capital to something like a reasonable amount before they can expect fresh moneys to be subscribed to construct the contemplated works.