

that which it occupies at the present time. There would thus be formed a series of runs of gold, getting poorer, or, if not, wider apart from each other towards the north-west. The elder of these would be that most to the south-west; the youngest, the present channel of the Teremakau. By the shifting of the river-channel from point to point, where it made passage through the morainic hills, the different old river-channels appear to converge on a point higher up the valley than the site of Dillmanstown. This radial character of the different runs of gold has already been established by observation.

Mr. Gow, when in charge of the waterworks, paid a good deal of attention to this matter, and had exceptional opportunities for making observations and the collection of data bearing upon the subject. He described the different runs of gold crossing Larrikin's and the upper end of Kumara Flat as having the radial character alluded to, pointing out that different runs did not unite or focus at a point on the western side of the morainic hills. It is unlikely that the Greenstone ever had an independent course to the sea. Its first course would be the old channel of the Teremakau, which, by the general direction of the valley, would tend to a south-west course in the direction of Akers Creek and the lower Kapitea. The stream would thus join the Teremakau on the south-west side of the Flat, nearly in the direct line of the Greenstone Valley. The false bottom of Larrikin's and Kumara Flat is deeper in the middle and western sides than towards the north-east, in driving from the Teremakau, there being a ridge of "blue bottom" to be got through in order to reach the lowest gravels under the false bottom. The Teremakau in its present channel is thus, probably, below the general level of the blue reef over the flat lands on its southern bank. If there be sufficient inducement the ground can, therefore, at most places, be drained, by tunnelling from the river-bank opposite. The prospecting-shaft put down by the Kumara Prospecting Association showed that the false bottom under the upper wash is not so thick as has been supposed, bottom having been reached at from 95ft. to 100ft. from the surface. At most places a shaft 130ft. to 150ft. deep should reach the bottom. Thus, but for the great abundance of water in the lower strata, any part of Kumara Flat could be easily prospected to the blue reef, but, as matters stand, where adits cannot be driven to drain the water from the working-levels great difficulties must attend the working of the deeper ground.

At the present time the tendency seems to be to follow the shallower auriferous deposits along one of the old runs that are parallel to and at some little distance from the Kapitea Hill and the terrace bank, thence to the north-western end of Sandy's Hill. There is thus the possibility of a considerable area of new ground being opened up, which may pay well for hydraulic sluicing.

Gold was found in the deep shaft which was sunk through the false bottom, but the place where it was sunk seemed to be too near the Kapitea Hill for the deep ground, although the blue reef was dipping in towards the hill. Taking the level of the bottom of the shaft and the level of the drainage-tunnel, where the old river-gravels have recently been struck, it would appear that there is yet deep ground between the river and this shaft. Indeed, it may be found that there had been at one time two river-channels in this Flat, one alongside the foot of Kapitea Hill, and another through the centre of the flat. The drainage-tunnel had been constructed through the blue reef for a distance of nearly 700ft. when a heavy blue boulder wash-drift was met with; as soon as this was struck, a very large quantity of water was found. At the time of my visit to this field, in the end of May last, about two sluice-heads of water was coming out of the boulder-wash, which was overhead in the drive, and although it had been flowing at this rate for nearly a fortnight prior to my visit there seemed to be no diminution in the quantity of water.

The tunnel is only a short distance above the No. 3 channel, and there is always a large stream of water alongside this channel as leakage, and it is probable that this water is finding its way towards the present drainage-tunnel in the lower wash-drift; and, if so, there is very little likelihood of any diminution of the flow taking place. On the other hand, if the water was coming from the river-basin itself, it will soon become less, by being gradually drained off. The blue reef, through which the tunnel is constructed, will not stand for a great length of time without timber, it is now beginning to show signs of caving on the sides.

As year by year passes by, there does not appear to be much difference in the quantity of ground washed away. The most noticeable feature is, that the most of the claims working are getting up to the Larrikin's Road, which is completely washed away in one place. The workings, as they get nearer the Kapitea Hill, are getting more difficult, on account of the small fall that the miners can get for their tail-races. Still, some of the ground yet pays fairly well for working.

A considerable area of new ground has been taken up between the Long Tunnel Company's ground and the Hokitika-Greenstone Road, and very fair prospects have been obtained. At this place, 13 claims have been taken up, and 29 shafts sunk; and, taking the average prospects obtained, it shows that the ground will pay for hydraulic sluicing; but before any sluicing can be done here a tail-race will have to be constructed for about 70 chains, which is estimated by the miners to cost £4,500, and the head-race will have to be extended along the side of the Kapitea Hill for about 40 chains. There is a new tail-race in course of construction higher up the flat than where this ground is situate, which is being brought in to work another portion of the field.

#### *Callaghan's.*

There has been very fair gold got in Callaghan's Flat in Hyndman and party's claim. It is three years ago since this party sunk their shaft, but the water proved too heavy to be able to cope with by means of a horse-whins. Since then this party has constructed a drainage-tunnel for a distance of nearly 3,000ft., and succeeded in opening out the ground, which is said to contain about 4dwt. gold to the load of wash-drift. Another party has taken up a claim alongside them, and are making arrangements to get drainage into Hyndman and party's tunnel. Some of the ground nearer the terrace was driven out from shafts in the early days, and gave fair returns for working. There is a large extent of this Flat, and probably several leads of gold-bearing wash-drift will now be discovered.