

As a locality for such boring I would recommend the vicinity of the Queen of Beauty shaft, and, should the results be favourable, that shaft, from its position and size, seems the most suitable to select for deeper sinking, provided it be in proper condition.

Another highly important work would be the continuance of the Moanataiari tunnel, as this will afford a highway to, and the facilities for prospecting, a large area of likely ground, the upper portions of which were very rich. As to whether the tunnel should be continued as at present projected, or deviated somewhat to the north-east, there is likely to be a diversity of local opinion. From what I saw, the latter course would appear preferable; but this question is one which should be decided according to local experience and judgment.

I would also recommend prospecting the country between Karaka and Hape Creeks by sinking through the Post-tertiary deposits into the tufaceous rocks and then cross-driving in the latter.

If a deep shaft be sunk at or near the site of the Queen of Beauty shaft, exploring drives should be extended southward towards Hape Creek, and westward towards the gulf, as it is quite possible that the auriferous rocks may extend far under the sea and the recent accumulations in its bed, and may be worked at such depths that no danger from influx of water need be apprehended.

#### *Coromandel.*

The mines visited near Coromandel were the Kapanga Mine and the workings at Tokatea Hill. The rock-formation is tufaceous, of volcanic origin, and about the same geological position as that of the Thames.

In the Kapanga Mine, the depth of which is 600ft., there are two nearly parallel reefs about 60ft. apart, having a general strike north and south, but somewhat sinuous, and an underlie to the west. The upper or western is the Kapanga, the lower and eastern Scotty's Reef.

The foot-wall of Scotty's and the hanging-wall of the Kapanga reef are tolerably hard, the country between being of a softer character; the lodes occasionally split up and meet again, and the gold-shoots are patchy and unequally distributed, giving out quite suddenly at a cross-course or change of country, or a deflection in strike or underlie. The portions having the normal north and south strike and the steepest underlie are usually richer than those deviating in strike or having a lower rate of inclination. These two lodes are supposed to be separate portions of one, separated by a "horse" and likely to come together at depth. So far there appears no sign of their dying out downwards and their tracks are continuous longitudinally as far as followed, though very little exploration has been carried on in the way of driving along them in search of other blocks of stone.

The Tokatea workings show one large reef and a great number of smaller veins. The large reef is auriferous but poor, the bulk of the gold being contained in the smaller veins adjacent to it. In some of the upper workings on the east side of Tokatea Hill there are vertical veins intersecting flat ones, and these are frequently very rich along the lines of junction. There is a certain analogy between this feature and that observable in some of the quartz-mines of Ballarat East, in Victoria, where the intersections of flat "spurs" of quartz by their vertical veins of pyrites (indicators) are sometimes exceedingly rich. The rock-formations and other conditions of the two localities are, however, very dissimilar.

Lower down Tokatea Hill are thin crystalline vertical quartz veins which are rich where they are intersected by one another or by joints or heads.

Towards the foot of the hill is a low-level tunnel—inaccessible at the time of my visit—which is stated to have passed through the tufaceous rock into a projection of subjacent slate of the Maitai or Carboniferous series, and it is reported that a reef was followed down from the superincumbent tufaceous rock into the slate; that a winze was sunk on it from the tunnel and good gold obtained, but that it was abandoned on account of the large influx of water.

Mr. W. H. Argall, manager of the Kapanga Mine, made inquiries concerning this, and wrote to me stating that he had learned that the depth of the winze in the slate was 35ft. at 1,500ft. in from the mouth of the tunnel; that gold was visible in the bottom of the winze when work was suspended, and was the continuation of a shoot worked the whole way down from the outcrop of the big reef on the hill. The absolute verification of this statement would be most important, and encouraging to further exploration.

#### *Karangahake.*

At Karangahake, in the gorge of the Waitawheta Creek, a large reef is being worked from a tunnel near the creek-level. The rocks are very similar to those of the Thames, but rather harder. There is nothing visible militating against the probability of this reef continuing to great depths.

#### *Waihi.*

The Waihi Reef, near Waihi, is one of great size and importance. Its outcrop is on a hill composed of tufaceous rock or decomposed andesite similar to that of the Thames, and is about 30ft. in thickness, the whole being taken out by open quarrying for treatment at the mill. A large main shaft is being sunk near the base of the hill, and has been connected with an adit driven to the reef, which shows a thickness of from 8ft. to 45ft., with no sign of dying out; its bearing is north-easterly and its underlie south-easterly.

The quartz is "ribbony" and jasperoid or agatiform in many places. The cyanide process, for which a large plant has been erected, appears to have proved highly successful in extracting the gold. The flat country around the hill is composed of a rhyolite-tufa, a volcanic product here, more recent than and overlying the andesite, which slopes away under it. The quartz reef does not extend upwards into the rhyolite, which is evidently a newer formation, but has every appearance of continuing downward and longitudinally in the andesite. It would be worth while to prospect for the continuation of this reef in both directions by sinking through the rhyolite down into the andesite.