

a considerable stream flows from the mountain-range north-east into the Katikati arm of Tauranga Harbour, and the gravels of this divide the stratified pumiceous sands and clays to the north from the larger area of the same rocks that lie to the south. The main range south of Thompson's Track, after forming a massive mountain, descends to lower heights, and to the south and south-east forms hills separated by deep gullies, constituting a country not high, but somewhat broken. The western border of this forms a deep scarp descending to the level of the plain along which flows the Waihou or Thames River. The pumiceous deposits seen along the road from Katikati to Tauranga evidently reach on to this hilly area, and as followed south towards Tauranga become coarser in character, pieces of pumice and fine gravel of pumice being seen in most of the road-cuttings that reach to a moderate depth from the surface. This state of things continues to Tauranga, when andesitic rocks appear on the north side of this part of the harbour, and in the high hill on the east side of the entrance.

To the south-west from Tauranga the country is comparatively low for a considerable distance, and in this direction the pumiceous rocks continue further than was determinable, and divide the block of mountains lying towards Te Puke from the southern continuation of the Cape Colville Peninsula Ranges and the high levels west of the Tauranga-Rotorua Road, which have already been mentioned.

There is thus a complete separation of the two areas of auriferous rock, and the popular idea that the Te Puke Goldfield is connected with, and forms but the southern continuation of, the Hauraki Goldfields is not supported by the facts above stated.

Leaving Tauranga, the stratified pumiceous rocks continue to a distance of six or seven miles on the road to Te Puke, and there give place to brecciated rocks of a dark colour and more distinctly rhyolitic type. These are seen at various points along the road, and, becoming massive developments, form rounded hills of considerable height, and the northern part of the mountainous country that continues to and beyond the Te Puke Goldfield. These rocks form the eastern lower slopes of the mountain-range, and are deeply cut into by the stream surrounding Fleming's Hill to the south and east, and continue in a south direction beyond the limits of the auriferous rocks terminating near Gibraltar Rocks, which (though not visited) are evidently rhyolite.

The rocks containing the auriferous reefs are decomposed andesites, that are not only highly decomposed along the walls of the lodes in Fleming's Hill, but everywhere where openings have been made. Less than a mile to the north the creeks draining from this part show the presence of dark andesites undecomposed, although at the Sisters Claim the rocks forming the banks of the stream are highly decomposed. To the south and south-west there is every appearance of these rocks being cut off by rhyolites within a distance of two miles. To the north the auriferous rocks apparently extend fully three miles, while to the westward they reach the water-divide of the higher range, and descend some distance the western side of the range: how far has not been ascertained.

Reefs of quartz form at least two or three distinct lines in Fleming's Hill, and where opened out show a very considerable thickness of quartz, usually exceeding 20 ft. The quartz is of a light-grey colour generally, but at one place it is dark from the presence of sulphide of iron. Near the surface it has the appearance of having been deposited by the agency of hot water, and in the lower levels of the eastern lode banded spongy and solid grey or creamy quartz is met with in different parts of the same intersection of the lode.

Highly-mineralised stone was only seen at one place on the west side of the hill, and apparently away from the main outcrop on this side of the hill. The stone generally resembles that of the Waihi Mine, Waihi, and, like it, is undoubtedly due to hydro-thermal agencies, but, as on Martha Hill so here, there is no evidence of sinter deposited at the surface. This, if it ever existed, has been removed by denudation, and only the channels filled with quartz, by which such reached the surface, together with the highly decomposed surrounding country, testify to the nature of the action by which the ore-bodies were formed. The curly, twisted, agate-like quartz of the higher levels of the Waihi Mine does not appear abundant on the Te Puke field, and this, on consideration, seems to be the main difference in a mere comparison of the quartz.

As regards the amount of gold present in the stone, the analysis made by the owners is the only source of information. A large number of samples would be required to determine the average yield per ton, and the time at my disposal did not suffice for the making of such a collection of specimens. The returns of samples tested seem to indicate that in different parts the stone varies in value, but is scarcely ever wanting in gold, and it is confidently expected that larger parcels, when treated, will prove the paying character of the ore.

On the Sisters Claim there has not been sufficient work done to prove the size of the lode or the value of the ore; but the indications clearly pointed to the presence of a lode of at least moderate size, and a sample analysed, taken from a lode cut in one of the drives, was reported to us as having afforded what may be considered an excellent return. This, however, does not seem to have been verified by the obtaining and testing of further samples.

I was shown a sample of alluvial gold which was obtained on the slope of the range north of the Sisters Claim. This was in the possession of Mr. Griffiths, of Tauranga. It consisted of a few pieces of coarse nuggety gold, of apparently considerably greater purity than the reef-gold of the neighbourhood, and, from the position pointed out as that from whence it came, it would appear that it cannot be referred to any alluvial deposit covering the low grounds and belonging to the recent period, or from a modern wash in the bed of a mountain creek. It is said to come from a bed of pipeclay exposed in the spur of the range about two miles north of Fleming's Hill, and future examination will be required to determine the true nature of the deposit in which the gold is found.\*

\* Since the above was in type samples have reached Wellington that show the auriferous material to be mainly or wholly volcanic, and partly rounded by action of water.—A. McKAY, 4th October, 1898.