

of gold. The quartz rock at the surface was driven into in one or two places, but these different trial drifts were abandoned, and a shaft was then put down on the east side of the mound or little hill. This, within a yard or two of the outcrop of the quartz rock, on being sunk some distance, entered on a deposit of dark, fine-grained, feebly-coherent iron-sulphide or pyrites, which continued for 40ft., and at the time the mine was visited this deposit in the shaft had not been passed through. These iron-pyrites contain gold, free or combined, and a sample taken from the deepest part of the shaft, on being exposed to the atmosphere till, on partial decomposition, it was reduced to an incoherent heap of crystals, was then panned off, and gold was collected in this way amounting to 3 dwt. 16 gr. per ton. The total of the gold contained in these pyrites amounts to but a trace or little more per ton.

Thermal springs are still present in different parts of the Peninsula—at Hot-water Beach, at Puriri, Te Aroha, and at Katikati. They are notable for their volume and curative properties, chiefly at Te Aroha and at Katikati. The springs at Te Aroha have been long and well known. Those on the opposite side of the mountains are now also coming into prominence on account of their value in application to special diseases.

FAULTS.

Faults of large displacement have not been traced at many places. The Moanataiari fault at the Thames has a course in approximately a north-north-west and south-south-east direction, and a downthrow to the westward which may be variously estimated as from 700 ft. to 1,000 ft. The Collarbone and Beach Slides at the same place have not been so well established or proved in the different mine-workings.

At Waihi the Martha Lode appears to be crossed by faults on both the east and west sides of the hill, thereby causing considerable difficulty in tracing the lode beyond the bounds of the Waihi Company's claim in each of these directions. The reef east of Martha Hill is clearly displaced to the north, and search should accordingly be made in that direction, and on the west side in the opposite direction.

GOLD.

It is doubtful whether the flinty hornstone reefs found in the slates of Cabbage Bay and the northern part of the Peninsula are gold-bearing. They probably originated prior to the commencement of the volcanic activity that deposited the Thames-Tokatea and younger groups of volcanic rock, and therefore they may be left out of consideration.

Two main lines or belts of auriferous country are traceable, the first along the west side of the Peninsula from Puriri to Cabbage Bay, to which also the gold of Karangahake and Te Aroha may be referred; the second lies along the east side of the Peninsula from Kuaotunu Peninsula to Waihi and Waitekauri. Of the first, this is chiefly confined to the rocks of the Thames-Tokatea and Kapanga groups, but also at several places is found in slate country.

Whether there may have been two periods of gold-impregnation is a question which may not admit of determination at the present time; and whether on the one side of the Peninsula the quartz has been deposited by other than thermal agencies of an intense degree, and on the other in the presence of such intense thermal agency, may be also left for future decision. Apparently, however, the reefs in the older groups of volcanic rocks along the west side of the Peninsula are of much deeper-seated origin than those on the east side, and this may be a reason sufficient to account for the difference that obtains between the quartz on the two sides of the Peninsula. While chalcedonic, ribboned, and jasperoid quartz is not absent from the western slope of the Peninsula, massive sparry and crystallized quartz are the characteristic forms on this side. Calcite, perhaps as a secondary introduction into the reefs, is also much more common on the west than on the east side. The gold itself differs, not so much in mineral composition as an alloy of gold and silver as in the manner in which it is aggregated in the substance of the reefs or in connection therewith. On the west side it occurs visible and massive as very rich "pockets," or distributed as "blobs" and "dabs" throughout the stone or towards the walls of the reef or leader; often also entangled between the points of the crystals in drusy cavities—conditions that are not often exemplified on the east side of the Peninsula. All this may have arisen from the fact that we have now to deal with a formation the higher part of which is either non-auriferous or has been removed by denudation, a truth which seems to be demonstrated by the fact that the productive areas on the west side of the Peninsula, from the Thames to Cabbage Bay, are never far removed from the underlying slates. This has resulted obviously from the gold finding a resting-place near or being deposited in the lower part of the formation, whether of the Kapanga or the Thames-Tokatea group, and now being exposed or brought within reach of the miner by the tilting of the north end and west side of the Peninsula, and the denudation that followed, by means of which, as a necessary consequence, the slates and deeper-seated volcanic rocks were exposed.

As regards the continuance of the gold-bearing reefs into the slate formation that underlies the volcanic series, there are many well-established instances of this, and yet mining in slate on the west side of the Peninsula has not been established on a sound basis.

On the east side of the Peninsula the gold is fine, and for the most part evenly distributed through the reefs. Pockets of gold and specimen stone are not common, and—perhaps due to the more superficial character of the workings—refractory minerals are less common, and the ore is in comparison eminently fit for the application of the cyanide process as a means of gold extraction. On the whole, therefore, it would appear that in the one case we are dealing with the roots, in the other case with the branches, of the tree, and in the latter case it must be left to inference where the bole and trunk of the tree is to be sought for.

The most northerly area constituting a promising field is the Cabbage Bay district. Over this during the past two years a considerable amount of prospecting has been done, with hopeful but not decided results. This lies within the Kapanga group of rocks.

The next to the south is Tokatea Hill and the Success Range, an old-established field within which there are possibilities of future and encouraging developments.