

At Materangi and on Kuaotunu Peninsula there are a number of outcrops of solid massive igneous rocks that probably are intrusive, but which were not examined carefully enough to determine the point.

In Table Mountain a vast development of grey columnar porphyritic rock appears to be and undoubtedly is of an intrusive character. This extends from the north end of Table Mountain Range through Table Mountain, across the source of the Kauaeranga by way of the Billygoat Falls to the Hihi Valley, and thence to the main range at the northern source of the Fourth Branch of the Tairua River. A probable extension of this is seen in the Fourth Branch one to two miles above its junction with the main stream. The Black Hill at Waihi, and the columnar rocks on the banks of the Ohinemuri at the Crown battery, are probably rocks to be classed under this head.

For the most part these dykes, &c., appear to belong to the period of the Beeson's Island group, and if this assumption be correct it still remains a matter for surprise that no very evident proofs of the occurrence of dykes, as belonging to the older groups, are to be met with. Further investigation may show clearly that these are not wanting.

THEMAL SPRINGS AND SINTER DEPOSITS.

These chiefly affect the junction-line between the Acidic group and whatever other formation the rocks of that may come in contact with. Thermal deposits as surface-accumulations are remarkably absent from the west side of the Peninsula from the Thames or Puriri northwards, and it is only at Manaia, along the junction between the slates and rocks of the Beeson's Island group, where traces of this action remains. Although chalcedony, agate, and jasper occur plentifully amongst the Miocene rocks of Cabbage Bay, such usually occur as small strings and nests in the joints and crevices of the rocks, and nothing in the shape of a sinter terrace appears anywhere at the surface. Nor do such deposits appear to be present in the district of Moehau, forming the northern part of the Peninsula. It is hardly to be supposed that the volcanic activity, as a result of which the Thames-Tokatea and Kapanga groups were deposited exhausted itself without a display of thermal action, and the only reasonable explanation of the absence of the evidences of this as usually met with at the surface is that such deposits have long since been removed by denudation. This is the more reasonable, seeing that there is evidence that a great part of the two older groups have been so removed, owing to the elevation of the Peninsula in the north and along its western side.

There is some evidence of thermal action among the rocks of the Beeson's Island group at Kennedy Bay, but in following down the east coast it is not till Kuaotunu is reached that the products of thermal activity is displayed on an important scale.

The Waitaia Range, east of the Kuaotunu River, runs north and south across the middle or nearer the western end of the Peninsula. The fundamental rock of this is Maitai slate, but volcanic rocks appear to the east and over the southern and higher part of the range. From the northern extremity for fully three miles to the south the higher part and eastern slope of the range is covered with frequent massive developments of siliceous sinter, that at many places, and generally, resemble quartz rock that might at first sight be taken for outcrops of an enormous "buck reef." A little observation shows that the quartz is for the most part at the surface, and does not descend into the slate formation after the manner of a reef. It caps alike the slates and the volcanic rocks, and is disposed along the higher part of the range sometimes as flat table terraces or jutting crags of quartz without leaner arrangement, and towards the south preserving in a marked degree the mound terrace outline of a hot spring. Most of the spurs descending to the eastward are covered by clusters of gigantic blocks of quartz, indicating the position of thermal springs, around which this quartz accumulated as siliceous sinter. Some of these are found quite down to the low grounds near to sea-level. Vast quantities of sinter blocks or whole terraces wrecked are found in the gorge of the creek draining the eastern side of the range. These may have fallen or rolled from the higher part of the range, or may be due to thermal springs, the locality of which was near to where the blocks now are. The sinter quartz is often subcrystalline, and has often a glassy appearance on the surface, clearly an effect of weathering and exposure to a saline atmosphere, being at furthest not more than from two miles to two miles and a half from the sea. On the northern fall of the range towards Mercury Bay, massive bodies of similar quartz occur in the volcanic rocks as reefs, but the deposits that are more particularly being described are clearly and unmistakably a surface deposit.

In the Lincoln Mine, near to the best-preserved terrace forming the higher part of the range, the volcanic rocks driven through have been completely reduced by the action of hot water to a puggy clay, and to all appearances the prosecution of the drive would lead into grounds immediately affected by the near vicinity of the thermal pipe, if not into the very pipe itself.

At the northern end of the range there are also terrace-mounds produced by thermal action, and in "Black Jack," the higher peak on this part of the range, the slates are fissured in all directions, the fissures being filled with siliceous deposits, which also form massive deposits in, or clinging to, the sides of the mountain. Gold is found sparingly in these deposits, and in a band of such rock cut in the Lincoln Claim, by the report of the manager, Mr. Ritchie, this yielded gold and silver at the rate of £5 per ton. Most, if not all, of the reefs on the Kuaotunu field show quartz of a character that leads to the belief that these have been deposited by the agency of hot water. They lie to the westward of the Waitaia Range, and strike nearly parallel thereto, or in a north-north-east direction.

Three miles from Mercury Bay, in Pumpkin or Pannikin Hill, there are heavy deposits of siliceous sinter, the deposits of hot springs, partly in the valley of a small stream flowing into an arm of Whitianga Harbour, and partly on the sides and top of Pumpkin Hill and the next adjacent to the south. Weathered this rock is of a grey colour, but broken into it is dark and flinty in appearance. The area covered by these deposits extends over fully half a mile square. The underlying rock is rhyolitic tuff and coarse spongy rhyolite. Many years ago a little alluvial gold was found in the bed and banks of the upper part of the creek, lodged among the finer material between blocks of