

sea-shore on that side of the Peninsula. The third and largest branch, the Oraki, is fed from the eastern slope of Te Aroha, and the ranges which flank it on that side. These branches join to form the main stream of the Ohinemuri at the gorge, after passing which the stream has a short course of five miles through the alluvial deposits of the Thames Valley, receiving only a few insignificant streamlets from the western side of the range. I may remark that this exceptional physical conformation affords a practically level route through the range at this point, the gorge being short and not precipitous, and the greatest elevation in this line, at the source of the middle branch, within three miles of Waihi, on the east coast, being only 370 ft. above the sea, with very favourable ground for grading down to Tauranga Harbour.

"I recently explored the district (19th to 26th April, 1870) crossing the range north of the gorge to the head-waters of the northern branches. In crossing the alluvial flat between the Thames River and the base of the hills several outlines of dolerite were observed, being the remains of what were once continuous sheets that occupied this part of the valley at a low level. The outer range proved to be formed of dark-coloured trachyte tufa, beyond which is a basaltic range, the summit of which is 1,100 ft. above the river. This range has broad, massive ridges, which continue for six miles, when the formation changes, at a marked dip in the ground, beyond which the ridges become narrow and the gullies steep. The formation is here a yellowish-white, smooth-grained, or gritty felspathic rock, intersected by quartz veins, which frequently mark the summits of the ridges. Several of these reefs have been opened at the surface, and consist of sub-crystalline quartz, not unlike that which occurs at the top of the Tokatea Hill, at Coromandel. From the highest point of these hills (1,210 ft.), at what is called the Bare Patch, a magnificent view is obtained, especially to the south and east, in which direction the country is quite free from timber, except in the valleys leading from Te Aroha. An abrupt descent of 500 ft. leads to the valley of the Whatakura, with several principal branches, in some of which a good deal of prospecting had been done along the base of the terraces. The most extensive of these workings, which were all abandoned at the time of my visit, consisted of two tunnels, driven for about 130 ft. in a north direction. They both passed through a soft porphyritic rock, decomposed to a white mottled clay, with obscure crystals interspersed. A few small leaders of compact sub-crystalline ferruginous quartz had been cut, but no decided reef found. I was led to understand by one of my party, who had been digging there, that no gold had been obtained from these drives, but that some small specimens found in the adjacent creeks had led to the underground exploration. Small quantities of gold are reported to have been found in several places on the west or right-hand side of the Whatakura, but never in any of the creeks on the opposite side. The main stream, which is 30 ft. wide, flows in a bed cut in this soft porphyritic rock, but is filled by rolled boulders of trachyte and dolerite derived from the surrounding hill-tops. On following down the river for five miles, to its junction with the Ohinemuri in the low-level land seen from the top of the mountains, the trachytic lavas are met with, forming widespread floes, over which the river runs in a broken, rocky bed—falls, 30 ft. to 40 ft. in height, being frequent. The plains are about four miles in width, and expand towards the eastward, the soil being everywhere extremely poor, owing to the trachyte being near the surface. The vegetation is chiefly short wiry manuka, rushes, and straggling ferns. In one part of the plain, a little below the junction of the Whatakura, and almost directly south of the Bare Patch Hill, there is a good deal of quartz, in fragments, strewn on the surface, which I failed to trace to its source, but which appears as if derived from veins in the neighbourhood. Along with these are fragments of quartz, porphyry and nodules, with large well-developed crystals of quartz. It is, no doubt, the occurrence of these fragments on the surface, and the wide expanse of terraced plain, recalling, as it does, the surface features of the southern goldfields, that has led to the general belief that alluvial gold will be found in this district. Following up the valley of the middle branch of the Ohinemuri to the eastward, the only rock exposed at the surface is a compact trachyte, sometimes porphyritic, until a low range of hills, 360 ft. above the general level of the country, but presenting broken rocky cliffs 500 ft. in height to the sea, is reached. The coast is, on the whole, very bold, and in the cliffs between Matuara and Waihi, of true trachyte agglomerate, intersected by dykes of trachyte, that give rise to remarkable promontories enclosing a few sheltered bays, in some of which are small Maori settlements. The upper part of these hills is formed of true rhyolite, or quartzose trachyte, apparently similar to those at Rotorua, in the Lake District, and which, by their disintegration, give rise to extensive beds of felspathic and quartz sands. The only exception observed to the above formation is on the south headland of the first sandy bay north of Waihi, the Maori settlement at the commencement of the long sandy beach that extends to Tauranga. The north headland of this bay is composed of the ordinary agglomerate, containing masses of scoria and basalt in a tufaceous matrix; but the rock at the south headland contains large angular blocks of primary slate and sandstone, and masses of green breccia, so that probably the junction of the agglomerate with the older rocks of the district is not far distant. On the face of the spur above this point a small quartz reef crops out at the surface, and in the gully beyond a soft blue rock is exposed, covered by a wash of rolled fragments of green sandstones and diorite, thus indicating a nearer approach to the character of the formations in the auriferous parts of the Peninsula than I had observed in other parts of the district. The deficiency of pyrites, however, [it is] which argues against the probability of gold being found in any quantity in any of the places where the ground has been tried. Returning down the river to the westward, through the gorge, heavy deposits of alluvium are found at a considerable elevation above the stream, indicating the higher levels of the former river channels as it cut its way gradually through the barrier of trachyte rock. These drifts contain well-rounded boulders of large size, chiefly fragments of trachyte and chert, intermixed with ferruginous sand, and it has been ascertained that a little gold is irregularly interspersed. . . . There is a similarity in the character of the formation [on the] . . . summit ranges . . . to that of the 'country-rock' at Shortland."*

* Geological Reports, 1870-71, pp. 98-102.