

the Cape Colville Peninsula, and from this I have extracted such parts as describe the physical features and geology of the parts examined. Beginning with an account of the general geological structure, this he describes as follows:—

“The Cape Colville Peninsula consists of a belt of slates which stretch from Tapu Creek to the Matawai at Coromandel, being overlaid at places by one or other of the formations which have yet to be described. They crop out again in the lower parts of the gullies cut by the creeks which fall into Cabbage Bay, and are seen as a small patch near Tararu Point, at the Thames. They are also mentioned by Dr. Hector\* as cropping out of the shores of the Bay of Plenty, near Waihi. It thus appears that these slates form the basement rock of the district under consideration, and they will doubtless be found at many points in the interior of the Peninsula, occupying the low ground cut by the creeks, when these areas have been further opened up. It is of great importance in studying the various goldfields throughout the district to bear in mind the foregoing fact, and more especially is it essential for us to remember that, although at places—*e.g.*, Thames, Te Aroha, Waitekauri, and Owharoa—the auriferous reefs are in a country which does not appear to have any direct connection with the slate formation, yet at no very great depths these rocks are certain to occur, and the question of whether the auriferous reefs will ever be found payable in them is one on which the eventual prosperity of the goldfields will largely depend.

“The slates are of a green, blue, or brown colour, and fine-grained; they are in many cases very hard, as at Tapu and Matawai; and they are interstratified with sandstones. At Tapu the main strike of the slates, as seen at the back of Mr. Pepper’s battery, is north and south, with an easterly dip of 60°. They can be traced up the creek from just above the bridge to Number Five Gully, and extend through the range between the Tapu and Matu Creeks, in which latter they occur for some distance along the lower part of its course, and then strike across to the coast, which I understand they follow for the greater part of the way to Coromandel. In the Matawai the strike appears to be about north 15° west, with a westerly dip at high angles; and at Waiohanga, near Tararu Creek, the strike is north-west, and the dip south-west at an angle of 35°; a bed of felsite which overlies them there having the same strike and dip.

“What absolute relation these felsites have to the slates I am not prepared to say, for, although I was constantly on the look-out for information, I found no opportunity of placing the matter beyond doubt. Captain Hutton† mentions the occurrence of a felsite at Waiohanga, alongside the slates on the beach, but states that it does not appear further up the creek where the slates are again seen, and argues from this that the felsite is an intrusive mass. The statements he makes I can quite bear out, but, as the strike of the rocks north-west would carry the felsite away in the direction of the Thames, and not up the creek, it is probably obscured by the overlying unconformable formation of which the surrounding country is composed, and may thus be a stratified rock, the slates cropping out higher up the Waiohanga Creek being a parallel belt.

“At Tapu Creek, up Number Two Gully, a very similar rock is met with, close to which a little gold has lately been obtained; and here again it is in close juxtaposition to the slates. It may seem a matter of small importance whether this particular bed is or is not associated with the slates; but this is not the case, for, when we come to visit Coromandel, we find that in the Tokatea drive this same rock has been met with and passed through, striking north 15° west, and dipping to the westward at an angle of about 50°, thus corresponding in strike and dip with the slates of the Matawai Creek. It is moreover in this locality interstratified with rocks which in the drive where they are undecomposed very closely resemble the slates, while on surface it is very difficult to recognise them, owing to the occurrence of decomposed volcanic rocks which belong to the auriferous series of the Thames, and partially obscure them. The rocks in which the gold occurs in the Tokatea tunnel are of a more earthy character, and softer than the slates, which are exposed at the surface in the localities mentioned.

“Notwithstanding the difficulty of correlating the surface-rocks of the Tokatea Range with those which are met with in the tunnel, it appears equally unreasonable to consider them as the equivalents of the auriferous series of the Thames, which I shall presently describe; neither do they resemble any auriferous rocks which I have seen elsewhere throughout the Peninsula. On the upper part of the Tokatea Range, however, where the Bismarck Claim is situated, and between there and the Union Beach Mine at Coromandel, rocks occur which are distinctly volcanic in character, and which do not appear to have their counterparts in the low-level tunnel which I have mentioned. This leads me to suppose that the lower workings at least of the Tokatea Mine are in a different formation from what the whole of the Thames workings are in, my view of the matter being borne out by the different character of the rocks, the dip of the country, and the fact that the felsite is associated with the gold-bearing rocks, which do not materially differ from it except in their degree of hardness, being softer and more readily worked. Whether the rocks of the Tokatea Mine are allied to the slates I am not prepared authoritatively to state, but think that such is the case; and I believe the points which have been observed will tend to confirm this view of the matter.

“*Auriferous Rocks of Thames.*—(Age?)—The next series of rocks, in ascending order, which are met with in the Cape Colville Peninsula, are those which carry the gold-bearing reefs of the Thames and other goldfields of the district; and I devoted some time to the study of these rocks at the Thames, where the large amount of work done affords opportunities, not elsewhere obtainable, of testing whether or no one is correct in any views which may be formed. This series consist of alternations of various kinds of volcanic rock, the lowest visible ones of which are the Hape Creek breccias, which consist of angular fragments of a purple and green colour, coarse or fine-grained at different points, the whole being cemented in a tufaceous matrix. These beds have evidently undergone a considerable amount of decomposition, the felspars which form a large part

\* Geological Reports, 1870–71, p. 102.

† Geological Reports, 1868–69, p. 18.