rocks of the North Auckland district; and I am informed that not a single reef was met with in this drive.

"When we come to examine the country on the surface, no doubt remains that these beds are distinct from the auriferous series, for this reason: We find that the deposits of brown tufaceous rock (due to the surface-weathering of the green rock cut in the drive) do not follow a definite level, but are sometimes at a very great elevation—1,500 ft. or more—and at other times they are met with on spurs which are comparatively low-lying; not more than 300 ft. above the level of the sea. When we seek a cause for this, it is at once apparent that the auriferous rocks had been deposited, upheaved, fractured, and partially denuded—indeed, so much so that the conformation of the country corresponded more or less with that which at present exists—before these Younger rocks were deposited upon them. These beds are traversed at places by dykes of basalt, anamesite, and dolerite, through which reefs have never been known to pass, and which do not appear in any way to affect the auriferous characters of the country, being younger than the reefs.

"*Rhylotic Formation (Pliocene).*—A yet younger volcanic formation occurs in this district, occupying a part of the Ohinemuri Valley, and I have casually alluded to this before when speaking of the Smile of Fortune and Radical Claims, at Owharoa. These beds consist of pumiceous clay, which has been cut through in two of the Radical levels and taken for a slide. It is, however, nothing of the sort, but fills an old gully which had been formed in the auriferous rocks prior to the deposition of these beds. It is met with again on the slopes of the spur at the foot of which the Annie Claim is situated, and, passing through the saddle above Farmerville to the west, is seen again cropping out on the road-line in that direction, making its course about east and west. On the opposite side of the river to which the Owharoa Township is situated the same class of country has been cut in a drive, after passing through a narrow belt of auriferous rocks, and here the beds are associated with a belt of porphyry (which is considerably decomposed) at their base, and this has sometimes weathered in the concentric manner I have before described. The pumiceous clays rise to the top of this range, it being through them that the water-race which supplies the battery has been cut, and they extend for some distance in the direction of Waitawheta. . . . In following the road from Owharoa to Waihi, the clay band which crops out on the Annie spur may be traced for some distance, as shown on the plan, rising up on to the hill, which is passed over before the turn-off to Waitekauri is reached. From this point the road follows undulating ground for a long way, and at places the clay band appears lying indiscriminately upon the auriferous rocks and the hard belt which I have described at their base, where the auriferous rocks have been deunded. This clay band has to a large extent determined the course of the Ohinemuri River near Owharoa, and also, no doubt, has been instrumental in forming the falls in Waterfall Creek, which are situated just above the township. At the battery-site on the Waihi Plains an outcrop of rhyolitic lava consisting of a mixture of pumice and obsidian occurs, associated with these pumiceous clays, and a similar rock occurs on the Waitawheta track, very near to the Ohinemuri River. The whole of the Waihi Plains, on the southern side of the Waihi track, may be looked upon as belonging to this youngest volcanic formation of the district, and one which corresponds with the rhyolitic beds of the interior, near Taupo. It appears probable that the sinters, &c., of Puriri also belong to this formation; but very little is to be seen of these, since they occupy low-lying fern-covered grounds, in which sections can only be obtained with great difficulty. . . .

"The tufaceous rocks of the Thames rest unconformably on the slates, as shown by the section between the Waiohanga Creek and the head of Moanataiari Creek, and the section through the Tokatea Range from Beeson's Island to Kennedy's Bay further support this. At Tapu the breccia-beds rest unconformably upon the slates, and are a more or less local formation, since, in some cases, the tufaceous sandstones themselves rest on the slates into which auriferous rocks have been traced; but the rock is very hard, and the reefs pinched. . . . Gold has been obtained in the beds at the Thames to an altitude of 1,500 ft. in Nolan's Candlelight Claim; but the tops of the spurs further back appear to be composed of a different class of rock, more approaching a dolerite in character; and this rock, in a decomposed state, and very closely resembling some of the Lower Miocene tufaceous sandstones of the North Auckland district, may be traced down the spur between the Moanataiari and Waiotahi Creeks to comparatively low levels, where they are resting unconformably upon the auriferous rocks. There is a further proof of this superposition of the Miocene beds up Mata Creek near Tapu, and again at Coromandel, so no doubt can exist that the auriferous rocks belong to an older series, which is well developed at the Thames, stretches from there to Tapu, may be found at several places between the Thames and Ohinemuri, and crops out again at Te Aroha. A yet younger rhyolitic formation is met with in the Ohinemuri Valley and towards Waitawheta.

"As regards the relations of the superficial to the deep-seated workings at the Thames no difference is to be detected. The deep-seated workings are all situated to the south of a large east-and-west fault or slide, and consist of a moderately hard, white, tufaceous sandstone (the most favourable country for gold), with hard green dioritic belts and beds of jointy or shingly ground, the lowest beds seen being the breccias of Karaka and Hape Creeks, which are again met with at the bottom of the Queen of Beauty shaft. These beds are all dipping, as near as I have been able to determine, west-north-west at an angle of 1 in 2, and the rocks on the northern side of the slide have approximately the same dip. The breccias are again represented at Tararu Creek, as shown in section.

"It will be at once evident that the diamond-drill will form a valuable agent for proving the country at the Thames, for the flat-lying character of the beds offers great facilities for its use, and when it is considered that the reefs are generally auriferous in certain classes of ground and non-auriferous in others, it will be seen what a vast amount of information can thus be obtained. In using this drill, I should recommend that, first of all, three bore-holes be put down on the flat in a