instead of the black veins I have previously alluded to, and they appear to affect the auriferous reefs in the same way. This belt of country runs through the Battalion ground to the westward, and through the Golden Hill and Bank of New Zealand ground to the east. It is overlaid unconformably by a belt of pumiceous clay, which has been taken for a slide, but which I shall refer to again when treating of a younger formation. The auriferous series again crops out close to the southern side of the Ohinemuri River, being overlaid there by a hard belt of porphyry, which passes into dolerite at places.

"Below the auriferous belt of the Smile of Fortune and Radical Claims a hard belt of country comes in which has recently been struck in a drive put in by the proprietors of the Lucky Hit Claim, and it is also met with in the Radical ground, a similar rock occurring up to an elevation of about 500 ft. at Waitekauri, from which points it dips towards Owharoa, forming the basement of what has yet proved auriferous country. It will doubtless be found, if this rock be sunk through, that another belt of auriferous country underlies it.

"Between Owharoa and Waihi a belt of hard green rock crops out, in which decomposition has frequently set in concentrically. Over part of the road the rock is not visible, but a red-coloured soil points to the fact that it is underlying. It is probable that this hard belt of rock is to be found at no great depth all along this line, and that the pumice sands and clays, which overlie it unconformably, lie away to the southward on the plain. This belt of hard rock may be traced from the road-line, or just on the other side of the creek, up to the Waitekauri, where, as previously mentioned, it crops out at an altitude of 500 ft., and underlies the auriferous belt which can be traced from Waitekauri to Owharoa, and occurs as isolated patches along the strike of the beds between there and Waihi, but at Waihi the country is of a softer nature, although still fair standing-ground. The strike of the rocks at Owharoa and Waitekauri is about east and west, with a southerly dip; while at Waihi the strike is more nearly east-north-east, and the beds syncline as shown on the plan.

"At Te Aroha, again, the geological structure of the country is of great interest, more especially because, on Dr. Hochstetter's authority, the mountain was originally considered to be an extinct trachytic cone. As a matter of fact, it is nothing of the sort, but consists of a series of regularly stratified volcanic rocks, which are continuous through the mountain itself and the adjoining ranges, not differing in any way from those which have proved auriferous at the Thames and elsewhere. On the south-west side of Te Aroha Range, near where the Waiorongomai River debouches on to the plain, a belt of soft country occurs, in which a little gold was formerly got. Above this, a belt of hard greenish rock, perhaps 100 ft. thick, is seen dipping to the north-east at angle of about 20°; and above this a belt of banded country, some hard and some soft, crops out, in part of which the old Shotover workings were situated. This belt would sweep round the hill to near the Te Aroha Township, a belt of hard brown rock, partially decomposed, overlying it; and in this belt the original prospectors' claim was opened. Above this belt, again, comes a bed of purple and green breccia, which closely resembles the Hape Creek stone, and this is passed over on the mountain-track. It is in this breccia that the galena and blende lode, the property of Mr. Allen, occurs; and it will be remembered that it was the same class of rock which formed the matrix of the mineral lode of the Little Agnes Claim, up Tararu Creek. The belts of country which overlie this are those which are met with in the new diggings; and the first of these is a soft belt, which does not show well on the western side of the range, but crops out above the first rise on the mountain-track, and, passing through the mountain as a flat syncline, dips away again to the north-east at an angle of perhaps 20° on the eastern side, passing through the lower part of the Arizona Claim and into the middle spur. Above this, a belt of hard blue rock occurs, which has not a very great thickness, but may still be seen at several points, notably in the gully between the Young Colonial and New Find Claims. Above this comes the belt of country in which the New Find, Eureka, Golden Crown, and Young Colonial, as well as several other claims, have got or expect to get their gold, and this belt consists of a rather hard, partially decomposed, felspathic rock, in which a good deal of pyrites is present at times. It is a harder class of country than is generally considered favourable for gold at the Thames and elsewhere, but is, I think, the same rock, in which the filling of the reefs has not been attended by so much decomposition. A belt of hard blue rock (anamesite?) overlies this, and caps the range about Peter Ferguson's Victoria Claim, runs through the mountain at an elevation of about 2,000 ft., and caps the far ranges, dipping away towards the Waitawheta Valley; and on the summit of Te Aroha Mountain it is overlaid again by a softer class of country. . . .

"I should mention that at Coromandel, in addition to those auriferous rocks which are met with in the Tokatea, there is also a patch of rocks at the Tiki, which undoubtedly belong to the formation I am at present describing, and that these beds are lying comparatively flat, and resting unconformably upon the slates which crop out in the Matawai Creek. They are identical in character with the auriferous rocks of the Owharoa and Waitekauri Goldfields. As the distribution of these beds is of the greatest interest and importance, I attach a small map showing their approximate boundaries, as well as the other formations which are developed on the Cape Colville Peninsula, together with the strike and dip of the beds where I have observed them.*

"*Lower Miocene Beds.*—The next series of beds which is met with in ascending order are the Lower Miocene breccia-beds, which are the same as those described in a previous report as occurring at the Manukau Heads (Geological Reports, 1879–80, p. 16). These are developed at various places throughout the Cape Colville Peninsula, but are more or less confined to the eastern side of it, coming down, however, to the western side at Beeson's Island, Coromandel. Their relations to the auriferous beds last described are somewhat difficult to make out, for where they are in direct contact with them the flat dip of both series renders it a hard matter to decide whether or

* See original of report, by Cox, page 16.