

no an unconformity exists. In the Tapu district, I mentioned before, these beds come in on Mata Creek, just above Gentle Annie Creek, above which no gold has been found up to the present time. About a mile and a half above Gentle Annie Creek a branch creek comes in from the southern side, and up this coal has been discovered. I visited this locality, and found that the coal obtained there was of the same character as the Mahurangi coal (Geological Reports, 1880–81, p. 24), occurring in small pockets in a sort of shale, which was interstratified with tufaceous clays and trachydolerite breccias, and was distinctly overlying the auriferous rocks, but whether conformably or not I was unable to determine at this point. The thickest bit of coal which I saw there was about 2 in. thick, but there were several feet of strata in vertical section in which these patches of coal could be obtained. I was informed that in the next creek higher up a seam about 5 in. thick had been found, but, as it was doubtless in the same formation, I did not visit this locality. I find on inquiry that it is from this last place that the reported seam of coal occurs which I was instructed to report on, and of which samples were forwarded by the Hon. Mr. Whitaker; but I could hear of nothing in the district which corresponded with the 12 ft. seam, and on further inquiry in Auckland the thickness was allowed to fall from 12 ft. to 2 ft. by the discoverer, so I should not be disposed to attach a great deal of importance to the discovery. The section which is exhibited is the same as that depicted on page 14 [of Cox's report], but the unconformity which is shown is not very apparent in this locality, and it is on account of my observations elsewhere that I have shown it.

“At Coromandel these beds, as breccias, form the whole of Beeson's Island, skirt the coast on either side of Coromandel Harbour, and stretch along the northern coast in the direction of Cabbage Bay, and also rise up into the ranges in that direction. They flank up against the auriferous rocks at the Union Beach Mine, a dyke of dolerite occurring at their junction, which is seen at the surface, and was again met with below ground, where it bounded the auriferous formation. I was unable to see this at the time of my visit, as the mine was not at work, and the shaft was filled with water.

“In Beeson's Island again these rocks are traversed by at least one dyke of dolerite, and they exactly correspond in character with the breccias of the Manukau Heads. On the Kennedy's Bay side of the Tokatea Range they again occur, and here also overlie the auriferous rocks unconformably; and the formation is traversed by a very large dyke of trachyte-porphry which forms the whole of Castle Rock, and strikes east-south-east through the country. It is several hundred feet thick, and a similar rock has been met with in Kikowhakarere Bay on the line of strike, where it has been mistaken for granite by some people who are interested in working it for a building-stone. The section from Kennedy's Bay to Beeson's Island shows the relations of these beds well.

“On the range, from the Tokatea to Cabbage Bay, the auriferous rocks can be traced on the surface until the turn-off to Kikowhakarere Bay is passed, beyond which the rocks do not show well on the surface for some little distance, and then angular pieces of trachyte rock make their appearance. These fragments, I conclude, are derived from the Miocene breccias, as these rocks can be seen cropping out at places along the road, although in a very decomposed state. No very good sections are to be obtained, but belts of tufaceous sandstone, very much decomposed, are seen, and again beds of these breccias also in a highly decomposed state. At one point a belt of rock which would appear to belong to the auriferous series is seen cropping out on the surface, but it occupies only a very limited area, and is speedily covered again by the younger formations, which, however, can only be very thin here. As we descend towards Cabbage Bay, these younger beds occupy a much greater area of country, and are of considerable thickness, occurring right down to the flat. They vary in their dip, but are generally lying at angles of not more than 20°, and are frequently much flatter. The coal occurs in these beds at an altitude of about 800 ft. above the level of the sea, with a tufaceous clay on which rests a tufaceous sandstone overlaid by the breccias in a very decomposed state; and from the coal to the level of the flat the beds consist of alternations of tufaceous sandstone, breccia, and clay. The outcrop of coal is 5 ft. thick, but, as shown by the analysis last year, is very impure, and, on a close examination, appears to consist of numerous thin veins of shale which contain a good deal of carbonaceous matter, with which are seams of really good coal, but so thin as to be of no practical value. It would correspond with the coal of Mata Creek and Mahurangi in this particular, only the shale has more the appearance of coal here than at the other localities. These younger beds lap round the auriferous series at the northern end . . . and the auriferous beds have been found close to the coal at Cabbage Bay.

“Another patch of these beds occurs in the Ohinemuri district, about two miles from Paeroa, on the road to Waitekauri; and coal is reported to have been found up a creek which crosses the track at this point. I went to see this seam with Mr. Hennelly, who has interested himself largely in it; but he was unable to find the outcrop. The measures occupy a hill lying to the westward of the auriferous belt at this place; they are dipping westward at low angles, and two seams are reported as having been found.

“Between Mackaytown and Te Aroha a belt of the same country occurs, forming the western spur of the main range, but consisting here of doleritic lava-flöes, which have weathered over considerable areas into a boulder-clay, with large dolerite masses yet left as undecomposed kernels. In the Thames district these rocks occupy the high country to the eastward of the Alburnia and Nolan's Candlelight Claims, form the Lookout Rocks, and occupy the high country stretching round by Table Mountain. They also descend the spur between the Moanataiari and Waiotahi Creeks, and are again met with up Hape Creek, where they are resting unconformably upon the auriferous rocks. These beds frequently exhibit a marked concretionary structure in their decomposed parts, and in places, as up Karaka Creek, they contain heavy boulders of anamesite, sometimes many feet in diameter, forming a boulder-clay very like some of the Otago rocks. The same class of country was driven through on the spur between the Waiotahi and Karaka Creeks; and in the central part it proved to consist of a dark-green tufaceous deposit, which closely resembles the