The rhyolites of the Waihi Plain, where they become tufaceous, frequently contain buried timber carbonized or completely altered by silica and other minerals, but it is only near the junction of the Waitekauri with the Ohinemuri and on the left bank of the latter that are seen clays and stratified deposits that might be expected to carry seams of lignite. These rhyolites are the younger of the group of rocks to which they belong. To the eastward of the Waihi Township the hills towards the sea are formed of spherulite and spherulitic rhyolite, evidently of older date, and to the south four or five miles beyond the limits of the Waihi Plain rises Hikurangi Mountain, of which the middle and higher parts are rhyolite that agrees in character and probably corresponds in age with the rhyolite forming the hills to the eastward of Waihi.

North-west from Hikurangi Mountain along broken hilly country a narrow belt of rhyolite and rhyolite-tuff is traceable to the edge of the bush, east of the saddle crossed by the Waihi-Tauranga Road where it begins the descent from the plain to the sea-level by way of the Waiau Stream. This projection to the north-west of the acidic rocks of Hikurangi does not stop short at the edge of the bush as shown on the map of the district by me to accompany report on the Cape Colville Peninsula (published with the Mines Reports, 1897), but is continued north-west through the bush for some distance.

Two miles north of the saddle leading into the Waiau, a district road leads from the Tauranga Road to the edge of the bush, whence a tributary of the Ohinemuri flows north across the open plain to join the main stream. On the banks of this stream, near the bush, solid rhyolites are met with, and near the edge of the bush rhyolitic tuffs and breccia are seen, forming the last of the fern-clad hills. On entering the bush and following the stream towards its source, andesic boulders mainly are met with. But a quarter of a mile into the bush rock-exposures are seen in the bed of the creek. The rocks exposed here and higher up the stream are rhyolite and rhyolite-tuff, passing into clays and shales derived from, or interbedded with, the acidic rocks. Higher up, and on the right bank of the creek, a carbonaceous clay, or lignite of poor quality, is cut in a shaft sunk within a yard or so of the creek-bank. This appears to be lying nearly horizontal. Higher up the creek, a 4 ft. seam and a 10 ft. seam of considerably better quality are exposed crossing the creek, and in the walls of the gorge within which the creek is confined at that place. Both these seams are standing nearly vertical. The roof of the thicker seam is rhyolite-tuff, the shale or under-clay not being clearly discernible at where the seam is exposed. Less than a quarter of a mile higher up the stream a fourth seam, 6 ft. in thickness, is exposed crossing the creek in a north-west direction. This seam has a dip of 30° to the east-north-east, and, as far as dip and the disposition of the associated beds affects it, is quite workable. The seam is so disposed that it rises into the ridge of hills to the south-east, and offers considerable facilities for being mined in that direction.

As to the quality of the deposit, it is certainly not a high-class fuel; but the ash is low, and without question this lignite will be a valuable asset in time to come, when, as must certainly happen, the hills in the neighbourhood of Waihi are denuded of timber, and the need of fuel for steam and domestic purposes is greater. Mr. McLean had 10 tons mined and taken to the saw-mill at the entrance to the bush, where its steam-raising qualities were tested, as he writes me in the following manner with the results as here stated: "The seam has been driven on for 60 ft., and as driven on continued to improve in quality; while a 3-ft. seam 800 ft. distant to the north [this has been discovered since my visit] is of yet better quality. From this, 10 tons which were mined and its steaming powers tested at the adjacent sawmill, proved that each ton of lignite was equal to 2 tons of rata-wood used for the same purpose." There thus appear to be four seams, of a thickness varying from 3 ft. to 10 ft., and as Mr. McLean purposes boring, others of a workable thickness may yet be discovered.

It is undeniable that this discovery is of great importance as a source of fuel to the mining district of Waihi and the township of that name. The enormous quantity of firewood consumed bids fair within a year or two to denude the timber from all accessible places on the adjacent ranges, and the cost of fuel for all purposes would in consequence be greatly enhanced. Although this discovery of coal in the neighbourhood may not greatly retard the disappearance of the forest, it will at all events tend to keep down the price of fuel, and, as a consequence, in working mines will enable stone to be treated that otherwise would not afford a margin of profit. Clearly, in time a railway must be built from Paeroa to Waihi, so that Waikato coal may find a market at Waihi. This, as yet, is in the future; and meanwhile, whether conveyed by tramway or cartage, the transit of this coal to Waihi in cost need even now scarcely exceed the cost of cartage on the firewood used.

The Under-Secretary, Mines Department. ALEXR. MCKAY.

REPORT ON AURIFEROUS CEMENTS AT TE PUKE, TAURANGA COUNTY, AUCKLAND.

By ALEXANDER MCKAY, F.G.S., Government Geologist.

BETWEEN the 22nd and 29th of January last, I paid a visit to the Te Puke Goldfield, specially with the purpose of making an examination of the reported alluvial or cement deposits that have been prospected on the range to the north of Fleming's Hill.

When I visited Te Puke three years ago, this alluvial or cement deposit had been discovered, but the limited time at my disposal and other circumstances prevented my visiting the locality. During the month of January last, I was engaged in investigating the occurrence of gold in connection with the volcanic rocks lying between the Bay of Plenty and the Lake Taupo regions; this naturally brought me to Te Puke. Three years ago, I was shown a sample of rather coarse gold said to have been obtained from the deposit here to be described, and during the past season, there were on show at the Auckland Industrial and Mining Exhibition samples of the cement, and