pumice, and this, carried some distance into the lake, seems unable to pass the current described by Hochstetter as passing south to north along the middle part of the outlet. The floating pumice is then, by the prevailing strong north-west winds, carried to the south-east and stranded on the beaches in that direction. The comparatively extensive low grounds on both sides of the entrance of the Tauranga River into the lake is covered deeply with such blocks of pumice, and is the principal source of such when used as building-material. None of this pumice reaches the south-west side of the lake, and the pumice-blocks used in building chimneys and other parts of houses in the Township of Tokaanu are all brought from the south-eastern shore of the lake and from the neighbourhood described.

Along the banks of the Hinemaia River large blocks of pumice are frequently found; and in the upper valley of that river beyond where the high-level terraces extend to, during the past year solid blocks of pumice-stone 5 ft. in diameter were met with. Beyond this, toward the east and north-east, must be the source of the coarse pumice carried into the lake by the rivers draining to the lake from the eastward.

Between Taupo and Rotorua, along the lines of travel by coach, the country in the low grounds is thickly covered with pumice-drift, the higher ranges being formed of trachyte and rhyolite, the lower hills and downs being often a pumice breccia, more or less consolidated. North of Rotorua and the Hot Lakes district to the shores or low land along the Bay of Plenty the country is hilly and broken, and almost everywhere shows a great depth of pumice-drift of a coarser description than is met with in the cliffs bounding Lake Taupo. This is usually rudely stratified, and contains deposits of rhyolite gravels, not usually of great extent but of frequent occurrence. To the eastward the coarser pumice gravels descend to sea-level, but toward the north-west in the Te Puke Range the pumiceous material resting on the underlying rhyolites is as fine as that forming the cliffs on the east shore of Lake Taupo.

The drift-pumice of the Middle Waikato, Waiho, and Piako basins, it cannot be doubted, has originated from volcanic vents of the Taupo zone of activity or belongs to areas contiguous, and active at the same time. Indifferently, from the Taupo zone or other source much pumice found its way into the west and north-west of the Taupo zone, firstly, as being spread over a shallow sea-bottom, and latter, as carried thither by running water or wind-borne.

Conclusion.

The vastness of all these deposits forbids the idea that all this pumice originated within a limited district, extensive even as that of Lake Taupo; and, as the southern end of the Taupo zone does not appear to have been a pumice-producing area, the district between Lake Taupo and the shores of the Bay of Plenty must be considered as having yielded the bulk of the pumice. The volcanic monntains of this district for the most part are formed of rocks of the acidic type, but it is very curious that pumice is rarely found on the slopes or higher parts of these; and this can hardly be explained away by supposing that the light pumice has been removed by gravitation to the lower grounds, seeing that loose pumice covers large areas of the slopes and higher parts of the Kaimanawa Mountains, of the mountains of the east coast within the Hawke's Bay district and the Urewera country. In the case of Tauhara, east of the lower end of Lake Taupo, this mountain, though surrounded on all sides by a great and unknown depth of pumice, holds no pumice on its slopes or higher part. Its rocks are formed of trachyte and porphyritic rhyolites, and though it might have been expected to show evidences of having thrown out pumice, as has been said, none are to be found on the mountain at the present time. This is also the case with several other mountains and ranges of volcanic rocks in the district to the north and west.

The conclusion seems to be warranted that the vents chiefly concerned in yielding pumice have been covered up; and of greater age in some cases, but generally younger, the more solid acidic rocks appear through the pumiceous deposits. It is only to the east, to the lower end of Lake Taupo that solid pumiceous rocks are likely to be found. From what may be seen in the valleys of the Hinemaia and the Waitahanui this is rendered highly probable, but such rocks *in situ* have yet to be discovered. Whatever its source, the quantity of pumice distributed over the middle part of the North Island from Ruapehu to the shores of the Bay of Plenty and the upper end of the Hauraki Gulf, in the Middle and Lower Waikato, and east and west from the sources of the Waipa to the East Coast and Hawke's Bay is enormous, and may well excite curiosity and prompt speculation as to the origin of the same.

Alexr. McKay.

21st June, 1899.

REPORT ON THE OCCURRENCE OF COAL NEAR WAIHI, AUCKLAND.

By Alexander McKay, F.G.S., Government Geologist.

Sir, 16th May, 1899.

I have the honour to report that, as directed, between the 19th and 21st of March last, I visited Waihi, Ohinemuri County, for the purpose of examining some seams of coal or lignite recently discovered in the hills bounding on the south-west the Waihi or Upper Ohinemuri Plain. At Waihi I was met by Mr. McLean, of the Waihi Consolidated Company, who, with Mr. Morgan, of the Waihi School of Mines, accompanied me to the locality where the outcrops are. Three seams of workable thickness and some smaller seams were examined. Their value as a fuel had already been ascertained at the Waihi School of Mines, and my business chiefly lay in determining the formation in which the seams of coal or lignite occurred.

Coal as anthracite, bituminous coal, brown coal, or lignite, occurs at many places on the Cape Colville Peninsula; but in the southern or Upper Thames district, within Ohinemuri County, it is known only in two horizons—first, in connection with the Beeson's Island group of rocks; and second, associated with the acidic group of younger date.