

10. NOTES ON THE HUNTLY DISTRICT.

(By J. HENDERSON, Mining Geologist.)

The district in the neighbourhood of Huntly has been examined by several geologists, who have recorded their observations in the following publications:—

1867. Hochstetter, F. von: "New Zealand," pp. 80-81. 302-306.
 1867. Hutton, F. W.: "Geological Report on the Lower Waikato District." (Rep. Geol. Explor., No. 2.)
 1877. Cox, S. H.: "Report on Raglan and Waikato Districts," Rep. Geol. Explor. during 1874-76, No. 9, pp. 9-16.
 1877. Cox, S. H.: "Report on Waikato District," Rep. Geol. Explor. during 1876-77, No. 10, pp. 11-26.
 1877. Denniston, R. B.: "Summary Report of Coal Explorations, Auckland District," Rep. Geol. Explor. during 1876-77, No. 10, pp. 114-128.
 1886. Park, J.: "Report on the Huntly-Raglan District," Rep. Geol. Explor. during 1885, No. 17, pp. 141-147.

The above writers are in substantial agreement as to the rock sequence, which is as follows:—

- (1.) Recent gravel and sand.
- (2.) Pleistocene gravel, sand, and clay.
- (3.) Tertiary claystone, limestone, sandstone, and at the base again claystone with coal-seams.
- (4.) Early Mesozoic argillite and greywacke.

The Mesozoic series forms the Hakarimata Hills, and on a gently undulating surface of these rocks the Tertiary strata rest. Only the lowest or coal-bearing horizon occurs in the area examined, and the rocks composing it consist of massive, occasionally arenaceous, claystone locally known as "fireclay." The layers both above and below the coal are similar, and when weathered closely resemble the clay and silt that form the Pleistocene beds. These latter were evidently deposited in an ancient valley-system eroded during a post-Tertiary uplift. The bulk of these deposits are of fluvial origin, but near their base a layer of clay containing shells shows that the sea invaded the old valley as far as Huntly during the Pleistocene depression. Elevation during Recent times rejuvenated the streams, and the Waikato is now re-excavating the ancient valley. The Recent history of the area, however, is by no means as simple as the above statements imply. Thus at a very late period either a slight depression of the land or, more probably, a great increase in the load of the Waikato led to the river aggrading its bed and forming an extensive flood-plain. The remarkable series of shallow lateral lakes formed by the damming of its tributary valleys by the overloaded stream was produced at the same time.

The Taupiri Coal Company have shafts and numerous bores penetrating the post-Tertiary clays and sands to the coal-measures beneath. One borehole sunk from the flats, which are approximately 44 ft. above sea-level, reached a depth of 146 ft. before striking the Tertiary beds. It was in one of these bores that the clay with shells was struck, at a depth of 111 ft. from the surface and 34 ft. from the coal-measures.

On exposure to the air the claystone in which the coal-seams are contained develops cracks in all directions. When the rock outcrops and is strongly weathered these cracks are filled with a waxy translucent substance of a yellowish or reddish colour. At Huntly, in a quarry worked for clay, the weathered rock exhibits all stages of alteration, the minute veins of halloysite—for such the mineral proved to be—expanding to such a size and becoming so numerous that certain layers in the face resemble weathered breccia. The mass of the clay is then formed of secondary material, in which angular leached fragments of the original rock are set, often several inches apart. Samples were taken and analysed, with the following results:—

	(1.) Average Sample.	(2.) Veins in Clay.
Silica (SiO ₂)	49.99	39.65
Alumina (Al ₂ O ₃)	27.95	34.29
Iron oxide (Fe ₂ O ₃)	1.48	1.58
Lime (CaO)	0.03	0.07
Magnesia (MgO)	0.16	0.14
Water at 100° C.	9.83	10.42
Combined water and organic matter	10.24	13.67
Alkalies	0.32	0.18
	100.00	100.00

Dr. MacLaurin reports that the samples are clays of very good plasticity, and that their colour when burnt is light brown.

Approximate Cost of Paper.—Preparation, not given; printing (1,350 copies including maps), £25.

By Authority: MARCUS F. MARKS, Government Printer, Wellington.—1916.