

A hard pinkish-coloured rock from Kamo, handed to the writer by Major Clark-Walker, on analysis yielded 0.23 per cent. of phosphoric anhydride.

In the Whauwhau valley near Whangarei there is a thin bed of limestone which contains many fossil fish, and is probably somewhat high in phosphate. The writer's attention was drawn to this occurrence by Mr. T. F. Cheeseman, who many years ago collected a specimen, now in the Auckland Museum.

Mangakahia District (Northern Wairoa).—A sample of soft, grey, very sandy limestone from this district, collected by Major Clark-Walker, contained 0.17 per cent. of phosphoric anhydride, or somewhat more than the average limestone.

Kawakawa District.—Owing to the limited time at the disposal of the writer, the limestone-outcrops in the Kawakawa district were not visited. Samples of the flinty pebbles plentifully scattered over the surface near the old coal-mine workings were collected and tested for phosphoric anhydride, but gave a very poor reaction, judged to indicate less than 0.10 per cent.

Onewhero District (Lower Waikato).—The Onewhero district is best approached by way of Tuakau, from which the township is distant seven miles. A soft sandy limestone of probable Miocene age outcrops south of the township, in the valley of the Opuatia Stream and elsewhere. Two samples of this rock, collected in a gully near the road south of the stream, on analysis yielded 0.13 and 0.17 per cent. of phosphoric anhydride respectively. A similar sample from a cutting on the Ponganui Road (which leads up the Opuatia valley) gave 0.17 per cent. of phosphoric anhydride.

A specimen of fossiliferous claystone, obtained on the roadside south of the bridge over the Waikato River, contained 0.12 per cent. of phosphoric anhydride.

It will be observed that none of these results give any indication of material approaching in phosphatic content that which was analysed by the Dominion Laboratory in 1909, and found to contain 10.60 per cent. of tricalcic phosphate.

ANALYSES.

The following tabulated statement gives the partial analyses (made in the Dominion Laboratory) of eighteen samples of rock collected during the examinations made by the writer:—

No.	Nature and Locality.	Phosphoric Anhydride.	Calcium Carbonate.	Insoluble in Acid.
		Per Cent.	Per Cent.	Per Cent.
1	Impure limestone from railway-cutting near Maungaturoto ..	0.10	78.86	15.61
2	Limestone from quarry near road-crossing of railway between Maungaturoto and Paparoa ..	0.14	49.45	17.02
3	Hard pinkish rock from Kamo (per Major Clark-Walker) ..	0.23	1.00	64.30
4	Soft, grey, sandy limestone from Mangakahia (per Major Clark-Walker) ..	0.17	55.52	33.35
5	Flinty rock, &c., from roadside near Dwyer's gate, Otaika ..	0.10	0.10	83.78
6	Soft phosphate rock inside Dwyer's gate ..	24.40*	2.77	27.32
7	Hard rock bands in road-cuttings beyond old limestone-quarry near Tikorangi ..	0.32	1.63	87.34
8	Claystone, &c., from excavation on roadside at foot of hill, past old limestone-quarry (near Tikorangi) ..	0.10	1.82	85.55
9	Calcareous material on road near No. 8 ..	0.11	77.36	17.60
10	Clay, &c., near No. 8 ..	0.08	0.30	85.40
11	Greyish limestone from Abbey Rocks (east of Whangarei) ..	0.20	88.79	7.07
12	White limestone from Abbey Rocks ..	0.11	92.54	1.74
13	Impure limestone in gully south of Opuatia Stream, Lower Waikato district ..	0.13	57.73	34.80
14	Same locality as No. 13 ..	0.17	50.75	40.38
15	Impure limestone on Ponganui Road, Opuatia valley ..	0.17	56.23	35.96
16	Calcareous claystone on road to Onewhero, south of Waikato Bridge ..	0.12	27.91	55.12
17	Dark flinty concretion in cutting 20 chains north of Kaipara Flats Railway-station ..	0.09	1.23	88.92
18	Impure limestone (hydraulic), same locality as No. 17 ..	0.08	75.95	17.62

* Equivalent to tricalcic phosphate, 53.31 per cent.

A more detailed analysis of sample No. 6 is as follows:—

	Per Cent.
Silica (SiO ₂) ..	26.92
Iron oxide and alumina (Fe ₂ O ₃ , Al ₂ O ₃) ..	6.58
Lime (CaO) ..	30.59
Magnesia (MgO) ..	0.16
Phosphoric anhydride (P ₂ O ₅) ..	24.40
Carbonic anhydride (CO ₂) ..	1.50

Owing to the smallness of the sample the other constituents could not be determined.