

Copper-ores from Great Barrier Island; analysed by A. R. Carnie.

	No. 1.	No. 2.
Silica	00·00	0·00
Copper	32·00	4·32
Iron	29·92	41·80
Sulphur	32·50	47·80
Water and CO ₂	7·40	5·40
	101·82	99·32

Both ores contained copper-pyrites and a little copper carbonate. No. 2. was principally composed of iron-pyrites.

Antimony-ore; analysed by F. B. Allen, M.A., B.Sc.

Insoluble gangue	12·40
Antimony (metal)	63·36
Sulphur }	24·24
Oxygen }	
	100·00

This ore was composed of the sulphide (antimonite) encrusted with a thick layer of the yellow oxide cervantite. Locality: Waikari, Bay of Islands.

Manganese Oxides from Waiheke Island; analysed by A. R. Carnie.

	No. 1.	No. 2.
Manganese oxides	89·90	88·90
Iron oxides	6·20	6·20
Water	2·76	2·76
Insoluble matter	0·51	0·50
	99·37	98·36

These are valuable ores. They contained no phosphorus.

Brown-coals from Reefton; analysed by the Director.

	No. 1.	No. 2.
Hydro-carbons	40·08	41·33
Fixed carbon	41·21	40·42
Water	12·86	13·15
Ash	5·85	5·10
	100·00	100·00
Evaporative power	5·36lb.	5·25lb.

These are valuable coals for domestic and steam purposes.

Kerosene-shale from Kaikohe, North Auckland; analysed by the Director.

This shale yielded by destructive distillation 14 per cent. of crude oil, equal to 31·36gal. per ton. Colour, yellowish-brown or buff. This is a valuable shale, and if it exists in large quantities could be turned to commercial account.

Sample of Jamesonite from near Wellington; analysed by the Director.

Lead	72·10	Bullion, 358oz. 16dw. per ton—Gold, trace; silver, 358oz. 16dw. per ton. Value, £35 16s. per ton.
Antimony	12·76	
Iron	Trace	
Sulphur	13·70	
Silver	1·00	
	99·56	

This is said to be from a lode near Wellington. It is a most valuable ore, and is the first known occurrence of Jamesonite in New Zealand. A large proportion of the antimony is replaced by lead, and in its argentiferous character it closely resembles the Jamesonite found at Mount Zeehan, in Tasmania.

Land- and Mine-surveying.—This class was originally started for the instruction of those preparing themselves for the Government examination for mine-managers. It is now numerously attended, and many of the students devote themselves to their studies with great zeal. A large number of class surveys have been made during the year on the high hills behind the town, the areas ranging in size from a quarter of an acre to 40 acres. The ground is steep, very broken, and in most places covered with dense manuka-scrub; but, notwithstanding these physical disadvantages, the closure of most of the surveys has been exceptionally accurate, and far within the limits of error allowed by the Survey Department.

A number of underground surveys were successfully undertaken by the students, and under my supervision the true meridian was carried down to the No. 4 level of the Mary Ann shaft of the Waiotahi gold-mining lease. Two different methods were used, and there was less than a minute of arc of difference between them. In the first method two wires were suspended in the shaft, one in each winding compartment, and the meridian carried below by means of triangulation. In the second method the two wires were suspended in one compartment, and the meridian carried below by protracting the bearing of the line between them. Every precaution was taken to insure success, and the results prove the accuracy of both methods when carefully undertaken.

The students who went up for the school and Government examinations made independent surveys of areas not less than 20 acres in extent. All the surveys were conducted with the theodo-