

seldom larger than this (in ash of mineral), and repeated that lime is a very trifling ingredient in the ash of all coal.

The following are my results. The Sydney main coal left on complete incineration a residue consisting of red and white portions; the latter were heavier than the former, and were evidently the clay of shale; the former was ferric oxide in part. There was a trace of sulphuretted hydrogen, evolved on addition of hydrochloric acid, and on continued action with aqua regia, a considerable coarsely gritty, reddish residue remained. The filtrate from this gave a little soluble silica. The percentages stand as under:—

Ash of Sydney Main Coal (bituminous).

Sand and clay, ferruginous, and a little soluble silica . . .	20.57
Peroxide of iron	51.33
Alumina	4.84
Lime	7.57
Sulphuric acid	6.46
Magnesia, undetermined	} 0.23
Phosphoric acid, decided traces	
Chlorine, traces	
Manganese, traces	
	100.00

The top or roof, middle, and bottom portions of the Langan seam were examined separately; the ash of the roof was nearly white, the residue left by acid consisting of clay and fine sand; that of the middle was still whiter, and that of the bottom was red, with white specks throughout, the residue left by acids being reddish clay and sand. Having found in the former case that the amount of soluble silica was but small, it was disregarded, and it is, if present below, included in the alumina, as separated by strong alkali from peroxide of iron. The results were these:—

Ash of Langan Coal (bituminous).

	Top.	Middle.	Bottom.	Whole coal average.
Sand and clay	43.07	79.46	48.62	57.05
Peroxide of iron	35.66	1.57	27.75	21.68
Alumina (and soluble silica?) . .	9.07	6.08	4.91	6.69
Lime	6.13	8.84	11.83	8.93
Sulphuric acid	5.73	3.08	6.62	5.11
Magnesia, undetermined }	0.34	0.97	0.37	0.56
Phosphoric acid, decided traces				
Chlorine, traces				
	100.00	100.00	100.00	100.00

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