8 M GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.

coke *, and in respect to general appearance and chemical composition closely resemble some varieties of coal of the Carboniferous system.

Applications.

Coking experiments.

All the fuels referred to as coals are well adapted for the manufacture of illuminating gas, as are also, although in a somewhat lesser degree, the lignitic coals-and possibly some of the lignites might be used for the same purpose. The first mentioned being for the most part strongly caking, the coke obtained from them in the process of gas making will constitute a valuable fuel for many purposes; in the case of the lignitic coals and lignites, however, which yield respectively but slightly fritted and non-coherent cokes, the residuary coke, more especially that of the lignites, will most probably be found to be of somewhat limited application. It appeared desirable in the case of those fuels which are only slightly or non-caking, to ascertain what proportion of a caking coal would be required to be added to them in order to ensure the production of a coherent, serviceable coke, and with this object in view the undermentioned experiments were carried out, Number 26 was selected to represent the lignitic coals and number 2 the lignites: the caking coal employed was the well-known Youghiogheny gas coal (Pennsylvania). The materials were reduced to the same state of mechanical division (tolerably fine powder); the weight of mixture employed was in all instances the same, and the cokings were conducted as nearly as possible at the same temperature. The results were as follows :---

Number of experiment.	Proportions. Parts by weight, of		Character of the coke.
	1.	100	20
2.	"	15	
3.	"	10	" " somewhat inferior to
			the one immediately preceding, but still of good quality.
4.	и	5	Coherent, but tender-fairly good.
	Number 2. (lignite)		
5.	100	20	Firm, coherent - good quality -
6.	"	15	Coherent, somewhat tender, fairly
7.	"	10	Coherent, but tender, inferior.

From this it will be seen that—as far as experiments on the small scale are concerned—the addition of fifteen parts of a strongly caking

* Fast coking referred to.

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