igneous rock (perhaps diabase) now so decomposed that its true lithological character cannot be satisfactorily determined. Here and there, the intrusive rock lies concordantly with the stratification of the coal, in other places it sends out fingers, ramifies, abruptly ends off, or occurs in detached nodular fragments in the coal. The latter, in contact with the intrusive material, is converted into prismatic coke. The analysis of three specimens of the coal throws light on the nature of the change. One of these (A) shows the ordinary composition of the coal at a distance from the influence of the intrusive rock; the second (B), taken from a distance of about 0·3 metre (nearly 1 foot), exhibits a partial conversion into coke; while in the third (C), taken from immediate contact with the eruptive mass, nearly all the volatile hydrocarbons have been expelled.

	Ash	Sulphur	Coke	Bitumen
A.	8·29 per cent	2·074	79·7	20·3
B.	9·73 "	1·112	87·8	12·2
C.	45·96 "	0·151	95·3	4·7

During the subterranean distillation arising from the destruction or alteration of coal and bituminous shales, while the gases evolved find their way to the surface, the liquid products, on the other hand, are apt to collect in fissures and cavities. In central Scotland, where the coal-fields have been so abundantly pierced by igneous masses, petroleum and asphaltum are of frequent occurrence, sometimes in chinks and veins of sandstones and other sedimentary strata, sometimes in the cavities of the igneous rocks themselves. In West Lothian, intrusive sheets, traversing a group of strata containing seams of coal and oil-shale, have a distinctly bituminous odor when freshly broken, and little globules of petroleum may be detected in their cavities. In the same district, the joints and fissures of a massive sandstone are filled with solid brown asphalt, which the quarrymen manufacture into candles.

Marmarosis.—The conversion of ordinary dull granular limestone into crystalline or saccharoid marble may not infrequently be observed on a small scale, where an intrusive sheet or dike has invaded the rock. It is also observable

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includes all volatile constituents driven off by heat, hence coke and bitumen = 100. Another instance is described by Gümbel from Mährisch-Ostrau, where coal is coked by an augite-porphyry, Verh. Geol. Reichsanst. 1874, p. 55.