

represented. The series of strata which constitutes a coal-field is, therefore, an alternation of layers of coal and of clay, of variable thickness, resting (very generally) on grit or marine limestone, abounding in shells, corals, and crinoidea.

In this review of the carboniferous strata the principal feature which arrests attention, is the *uniform presence of a thick bed of clay beneath every layer of coal*; but a still more extraordinary fact remains to be mentioned: it is, that a common plant of the coal strata, called *Stigmaria*, (hereafter described, see *Lign.* 27, 28.) *invariably occurs, more or less abundantly, in this bed of underclay*, although very rarely to be met with in the coal or shale above. This fact, long since noticed by Mr. Martin, Dr. M'Culloch, and other authors, but whose value was not duly estimated till the recent observations of Mr. Logan, (*Geol. Proc.* Vol. III. p. 275.) is also found to prevail throughout the entire thickness of the Welsh coal formation, which is upwards of twelve thousand feet, and contains more than sixty beds of coal, and as many of clay with *stigmariæ*. And in the Appalachian coal strata of the United States the same phenomenon appears.\* To place this interesting question before the student in a distinct point of view, I will more particularly describe one of the series of which a coal-field is composed.

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\* See Proceedings of the American Geologists, Prof. Rogers, p. 453; and *Geol. Proc.* III. p. 710.