

and Stirlingshire, where it is known as the "Moor Rock." In Ayrshire it does not exist, unless its place be represented by a few beds of sandstone at the base of the Coal-measures.

The Millstone Grit is generally barren of fossils. When they occur, they are either plants, like those in the coal-bearing strata above and below, or marine organisms of Carboniferous Limestone species. In Lancashire and South Yorkshire, indeed, it contains a band of fossiliferous calcareous shale indistinguishable from some of those in the Yoredale group and Scaur limestone.

3. COAL-MEASURES.—This division of the Carboniferous system consists of numerous alternations of gray, white, yellow, sometimes reddish, sandstone, dark-gray and black shales, clay-ironstones, fire-clays, and coal-seams. In South Wales it attains a maximum depth of about 12,000 feet; in the Bristol coal-field, about 6000 feet. But in these districts, as in most of the Carboniferous areas of Britain, we cannot be sure that all the Coal-measures originally deposited now remain, for they are generally unconformably covered by later formations. Palæontological considerations, to be immediately adverted to, render it probable that the closing part of the Carboniferous period is not now represented in Britain by fossiliferous strata. Toward the end of the Carboniferous period, possibly also within early Permian time, the Carboniferous strata were in many if not most districts of Britain upheaved so as to be exposed to denudation. In some areas the denudation was so great that the Permian rocks, as in the case of the Magnesian Limestone of Durham, sweep across the denuded edges of the Coal-measures, Millstone grit, and even the higher parts of the Carboniferous Limestone. But these disturbances and erosion were not universal within the British region, for we find that over parts of South Staffordshire these strata are followed with apparent conformability by the Permian sandstones. In North Staffordshire, the depth of Coal-measures is about 5000 feet, which in South Lancashire increases to 8000. These great masses of strata diminish as we trace them eastward and northward. In Derbyshire, they are about 2500 feet thick, in Northumberland and Durham about 2000 feet, and about the same thickness in the Whitehaven coal-field. In Scotland, they attain a maximum of over 2000 feet.

The Coal-measures are susceptible of local subdivisions indicative of different and variable conditions of deposit. The following table shows the more important of these: