

Magnesian Limestone Group.—This subdivision is the chief repository of fossils in the Permian system of England. Its strata are not red, but consist of a lower zone of hard brown shale with occasional thin limestone bands (Marl Slate) and an upper thick mass of dolomite (Magnesian Limestone). The latter is the chief feature in the Dyas development of the system in the east of England. Corresponding with the Zechstein of Germany, as the Marl Slate does with the Kupferschiefer, it is a very variable rock in lithological characters, being sometimes dull, earthy, fine-grained, and fossiliferous, in other places quite crystalline, and composed of globular, reniform, botryoidal, or irregular concretions of crystalline and frequently internally radiated dolomite. It is divisible in Durham into three sections—1st, Lower compact limestone, about 200 feet thick; 2d, Middle fossiliferous and brecciform limestone, 150 feet; 3d, Upper yellow concretionary and botryoidal limestone, 250 feet. The Magnesian Limestone runs as a thick persistent zone down the east of England.²⁵³ In southern Yorkshire it is split up by a central zone of marls and sandstones with gypsum. It is represented on the Lancashire, Cheshire, and Cumberland (Penrith) side by bright red and variegated sandstones covered by a thin group of red marls, with numerous thin courses of limestone, containing *Schizodus*, *Bakevella*, and other characteristic fossils of the Magnesian Limestone. Murchison and Harkness have classed as Upper Permian certain red sandstones with thin partings of red shale, and an underlying band of red and green marls and gypsum. These rocks, seen at St. Bees, near Whitehaven, resting on a magnesian limestone, have not as yet yielded any fossils.

The Magnesian Limestone group of the north of England has yielded about 150 species belonging to some 70 genera of fossils—a singularly poor fauna when contrasted with that of the Carboniferous system below. The brachiopods include *Productus horridus*, *Camarophoria humbletonensis*, *C. Schlotheimii*, *Strophalosia Goldfussi*, *Lingula Credneri*, and *Terebratula elongata*. Of the lamellibranchs *Axinus* (*Schizodus*) *Schlotheimii*, *Bakevella tumida*, *B. antiqua*,

²⁵³ In borings at Middlesboro' beds of salt and gypsum have been found at a depth of more than 1300 feet from the surface, and below a mass of limestone 67 feet thick, which is believed to be the Magnesian Limestone.