

etc., an assemblage that also points to a position low down in the Carboniferous system. This series of strata is known as the Culm-measures, and the name Culm has been adopted as the designation of this type of Lower Carboniferous rocks abroad. Bands of tuff, diabase, etc., mark contemporaneous volcanic activity during the deposition of the Devonshire Culm.²⁰⁰

In the south and southwest of England, and in South Wales, the base of the Carboniferous system consists of certain dark shales known as Lower Limestone Shale, in which a few characteristic fossils of the Carboniferous Limestone occur. These basement beds vary up to rather more than 400 feet in thickness. They are overlain conformably by the thick mass of limestone, which in Britain and Belgium forms a most characteristic member of the Carboniferous system.

The name Carboniferous Limestone (or Mountain Limestone) was given by Conybeare to the thick mass of limestone which in the southwest of England is interposed between the Old Red Sandstone and the Coal-measures. As the geological structure of the country came to be more fully known, the limestone was found to pass laterally into sandy and argillaceous strata. The term Carboniferous Limestone Series is now applied to this division of the system, which attains its greatest thickness in the north, though the limestone there forms a subordinate part of the whole series. Toward the south, on the other hand, the limestone increases in dimensions till it practically constitutes the entire thickness of the series. In the Pennine chain, which forms the axis of the north of England, the Carboniferous Limestone series attains a thickness of nearly 4000 feet, yet this is not its entire depth, for its base is not seen. Of this great thickness the lowest visible 1600 feet consist of limestone. Traced southward the limestone increases in magnitude, till in the Mendip Hills it attains its maximum thickness of about 3000 feet. Followed, on the other hand, toward the north, the calcareous part of the series diminishes to a few thin seams of limestone, the main mass of rock consisting of sandstone and shale with seams of coal and ironstone. The Pennine chain appears to have been the area of maximum depression during the early part of the Carboniferous period in England. The great and rapid vari-

²⁰⁰ De la Beche, "Geology of Cornwall," etc. *Ussher, Geol. Mag.* 1887, p. 10, *Proc. Somerset Arch. Nat. Hist. Soc.* xxxviii. 1892, p. 111.