principal joints the rock on either side for a breadth of 20 or 30 fathoms is occasionally converted into yellowish or brown dolomite or "dunstone" (see p. 547). In Derbyshire, sheets of contemporaneous lava, locally termed "toadstone," are interpolated in the Carboniferous Limestone. Other evidences of contemporaneous volcanic action have been noted in the Isle of Man[203] and in Devonshire,[204] but it is in Scotland, as will be immediately referred to, that the most remarkable proofs of abundantly active Carboniferous volcanoes have been preserved.

In the Carboniferous areas of the southwest of England and South Wales, the limits of the Carboniferous Limestone are well defined by the Lower Limestone Shale below, and by the Farewell Rock or Millstone Grit above. In the Pennine area, however, the massive limestone is succeeded by a series of shales, limestones, and sandstones, known as the Yoredale Group. These cover a large area and attain a great thickness. In North Staffordshire they are 2300 feet thick. In Lancashire, they attain still greater dimensions, Mr. Hull having there found them to be no less than 4500 feet thick. Both the lower or main (Scaur) limestone and the Yoredale group pass northward into sandstones and shales with coal seams. In Northumberland, the Carboniferous Limestone series has been grouped into the following subdivisions:[205]

Upper Calcareous group, from the base of the Millstone grit to the Great Limestone, 350–1200 feet.
Lower Calcareous group, from the Great Limestone to the bottom of the Dun or Redesdale Limestone, 1300–2500 feet.
Carbonaceous group, Scremerston coals, from the Dun Limestone to the top of the Fell Sandstone, 800–2500 feet.
Fell Sandstone, 500–1600 feet.
Tuedian or Cement-Stone group, 500–1500 feet.
Basement conglomerate.

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[203] J. Horne, Trans. Geol. Soc. Edin. ii. 1874, p. 332; B. Hobson, Quart. Journ. Geol. Soc. xlvii. 1891, p. 432. Yn Lioar Manninagh, Douglas, January, 1892, p. 337.

[204] De la Beche, "Report on the Geology of Cornwall," etc., 1839, p. 119; F. Rutley, "The Eruptive Rocks of Brent Tor," Mem. Geol. Surv. 1878.

[205] See G. Tate's "History of Alnwick," vol. ii. 1869, p. 441; H. Miller, Brit. Assoc. 1886, sects. p. 675; and "Geology of Otterbourne," etc., Mem. Geol. Surv. 1887.