

stones might not have been produced by internal movements in the rocks, like slickensides (p. 878).¹⁸⁵

LIFE.—Each of the two facies of sedimentation above described has its own characteristic organic types, the one series of strata presenting us chiefly with the fauna of the sea, the other mainly with the flora of the land. The marine fauna is specially rich in crinoids, corals, and brachiopods, which of themselves constitute entire beds of limestone. Among the lower forms of life the foraminifera are well represented. The genera include *Amphistegina*, *Archæodiscus*, *Climacammina*, *Endothyra*, *Lagena*, *Saccamina*, *Fusulina*, *Trochammina*, and *Valvulina*. Some of these genera exhibit a wide geographical range; *Saccamina*, for example, forms beds of limestone in Britain and Belgium, and *Fusulina* plays a still more important part in the Carboniferous Limestone of the region from Russia to China and Japan, as well as in North America; one species of *Valvulina* (*V. palæotrochus*) extends from Ireland to Russia on the one side and to North America on the other. As already noticed, species of organisms, with a wide geographical extension, have also a long geological range, and this is more specially exemplified in such lowly grades of existence as the foraminifera. *Trochammina incerta*, for instance, is found through the whole Carboniferous Limestone series of England, reappears in the Magnesian Limestone of the Permian system, and occurs not only in Britain but in Germany and Russia.¹⁸⁶ The

¹⁸⁵ The glacial origin of the phenomena in question has been ably advocated by Mr. W. T. Blanford, "Manual of Geology of India," Address to Geological Section of British Association, Montreal; and H. F. Blanford, *Quart. Journ. Geol. Soc.* xxxi. 1875, p. 519. Sutherland, *op. cit.* xxvi. p. 514; W. Waagen, *Jahrb. Geol. Reichsanst.* xxxvii. 1887, p. 143. A. Julien has advocated the glacial origin of the coarse Carboniferous breccias of Central France. *Compt. Rend.* cxvii. 1893, p. 255.

¹⁸⁶ H. B. Brady, "Monograph of Carboniferous and Permian Foraminifera," *Paleontog. Soc.* 1878.