

246. *Radiolarian Marl*.—Those soft, friable rocks, which contain a large quantity of calcareous matter, but consist for the most part of the shells of SPUMELLARIA and NASSELLARIA, are called Radiolarian or Polycystine marl, often more correctly Polycystine tripoli; the best known example of them is the chalky marl of Barbados in the Antilles (§ 242). The Tertiary mountain system of this island, which in Mount Hillaby rises to a height of 1147 feet and includes about 15,800 acres, consists almost exclusively of these remarkable masses of rock. Most of it appears as a soft, earthy, often chalky marl, with a considerable but variable amount of calcareous matter. Those specimens, the greater half of which is composed of well-preserved siliceous shells of Polycystina, and which contain little lime, approach the tripoli and "Kieselguhr." Those specimens, however, which contain the largest amount of calcareous matter resemble common writing chalk in consistency, and consist for the most part of shells of Foraminifera and their fragments; of these there are only few species but large numbers of individuals, generally in small fragments with a fine calcareous powder between them. They may be regarded as fossil Globigerina ooze (§ 238). In a third group of specimens from Barbados the quantity of fragments of pumice and other volcanic matters predominates; the amount of clay is also very considerable; these deposits pass over partly into actual clay partly into volcanic tuff. A fourth group exhibits relations to a coarser, often ferruginous material, and although the shells of Polycystina are less abundant in it, still it may be shown to be composed largely of fragments and metamorphosed remains of them. The colour of this deposit, which in some places passes over into sandstone, in others into clay, is usually rather dark, grey, brown, sometimes red and occasionally black (bituminous). The Radiolarian marls of the first two groups, which sometimes approach the white chalk, sometimes the Kieselguhr, are grey, or even pure white (see note A). The same constitution is exhibited by the yellowish or white, very light and friable Polycystine marls of Sicily, which in Caltanissetta approach the chalk, and in Grotte the Kieselguhr. In Greece (Ægina, Zante, &c), on the other hand, they pass over into plastic clay, and the same occurs in the Baden marl of the Vienna basin. In North Africa, however, on the Mediterranean shores of which the Radiolarian marl seems to be very widely distributed (from Tripoli to Oran), it sometimes becomes changed into actual firm polishing slate, sometimes into pulverulent Kieselguhr or tripoli (Terra tripolitana, see note B). Most of these Radiolarian marls appear to date from the middle Tertiary (Miocene) period, and to be deep-sea formations.

A. The Polycystine marl of Barbados appears at different parts of the island to present greater variations in its petrographical and zoographical composition than would appear from Ehrenberg's description (1875, L. N. 25, pp. 106–116). Through the kindness of one of my former students, Dr. Dorner, to whom I take this opportunity of expressing my thanks for the favour, I received a large number of specimens of Barbados rock, taken from various parts of the island, and they exhibit very great variations in their external appearance, their chemical composition, and the