

2. SILICEOUS.—Silica is directly eliminated from both fresh and salt water by the vital growth of plants and animals. (Book III. Part II. Section iii.)

Diatom-earth, Tripolite (Infusorial earth, Kieselguhr)—a siliceous deposit formed chiefly of the frustules of diatoms, laid down both in salt and in fresh water. Wide areas of it are now being deposited on the bed of the South Pacific (*Diatom-ooze*, Fig. 181). In Virginia, United States, an extensive tract occurs covered with diatom-earth to a depth of 40 feet. It likewise underlies peat-mosses, probably as an original lake-deposit. It is used as *Tripoli powder* for polishing purposes (see p. 807).

Radiolarian ooze—a pale chalk-like abysmal marine deposit consisting mainly of the remains of siliceous radiolarians and diatoms. It is further referred to in Book III. Part II. Section iii.

Flint (Silex, Feuerstein)—a gray or black, excessively compact rock, with the hardness of quartz and a perfect conchoidal fracture, its splinters being translucent on the edges. Consists of an intimate mixture of crystalline insoluble silica and of amorphous silica soluble in caustic potass. Its dark color, which can be destroyed by heat, arises chiefly from the presence of carbonaceous matter. Flint occurs principally as nodules, dispersed in layers through the Upper Chalk of England and the northwest of Europe. It frequently incloses organisms such as sponges, echini and brachiopods. It has been deposited from sea-water, at first through organic agency, and subsequently by direct chemical precipitation round the already deposited silica. (Book III. Part II. Section iii.) **Chert** (phtanite) is a name applied to impure calcareous varieties of flint, in layers and nodules which are found among the Palæozoic and later formations, especially but not exclusively in limestones.¹³² In some cases, as in the spicules of sponges, the silica has had a directly organic origin, having been secreted from sea-water by the living organisms; in other cases, where, for example, we find a calcareous shell, or echinus, or coral converted into silica, it would seem that the substitution of silica for calcium-carbonate has been effected by a

¹³² Consult Hull and Hardman, Trans. Roy. Dublin Soc. i. (1878), p. 71. Renard, Bull. Acad. Roy. Belgique, 2d ser. vol. xlvi. p. 471; Sollas, Ann. Mag. Nat. Hist. vii. (1881), p. 141; Scientific Proc. Roy. Dublin Soc. vi. (1887), part. i. G. J. Hinde, Geol. Mag. 1887, p. 435. Bands of radiolarian chert occupy persistent horizons among the Lower Silurian rocks of southern Scotland.