e. Siliceous Organic Remains.

The organisms whose siliceous remains are met with in deep-sea deposits belong to three groups: the Diatomacea and Radiolaria, both of which have a pelagic habitat, and belong to the neritic and oceanic Plankton, and the siliceous Sponges, which live on the bottom of the sea, and belong exclusively to the Benthos. Diatoms and Radiolaria are as widely spread throughout the waters of the ocean, and their dead siliceous shells and skeletons are as widely distributed over the sea-floor, as the remains of calcareous organisms. Siliceous Sponges are also universally distributed on the sea-bed, and their skeletons contribute to the materials of marine deposits. The remains of these siliceous organisms do not, however, bulk so largely in deep-sea deposits as the calcareous remains, still in some regions they are so abundant as to make up a very large part, if not the principal part, of a deposit, as, for instance, in the case of Diatom and Radiolarian Oozes.

Diatomacea.—These siliceous Algæ are met with everywhere in the surface and sub-surface waters of the ocean. It is rare, one may say impossible, to drag a very fine tow-net through sea-water anywhere without capturing a number of these minute organisms. A considerable number of attached forms are carried from land surfaces into the ocean by rivers, and in all the shallower depths of the sea such attached forms may be procured, but the species that play so large a part in deep-sea deposits are free-swimming and pelagic. These pelagic species can generally be recognised in the tow-net gatherings from the sea-surface, if the net used be of very fine texture; when a coarse net is used they can usually be found in the stomachs of the pelagic animals obtained. At times they occur near the surface in enormous numbers, in great floating banks many miles in extent and several fathoms in depth. When the nets are drawn through these banks they are filled with a brown-coloured slimy and felt-like mass, composed principally of the frustules of Diatoms. In the tropics the banks are found at the very surface at night, and during the day their superior limit may be 10 or 15 fathoms below the surface. Floating banks of Algæ were met with by the Challenger in the Southern and Antarctic Oceans, in the Sulu Sea, in the Arafura Sea, and off the coast of North America, by H.M.S. "Triton" off the Shetland Islands, and in other regions by previous and later observers. The dried surface collections made from one of these banks by the Challenger in 54° south latitude gave on analysis:[1]—

Silica soluble in acid,	1·00
Silica insoluble in acid,	76·00
Alumina,	1·38
Organic matter,	16·75
Water,	4·87
	100·00

[1] Made by W. S. Anderson.