aggregations appears to be greater than that of somewhat similar ones from other stations, and may be due to the cementation of the isolated particles by colloid siliceous matter. In this specimen there are finally some very peculiar white-coloured aggregations composed of minute rhombohedral crystals, which when treated with dilute acids decompose with liberation of carbonic acid, but a flocculent residue is left behind, as well as microscopic granules; we are inclined to consider these crystals as calcite or dolomite. The general appearance of this deposit under the microscope is shown on Pl. XV. fig. 3, and the fine washings are represented on Pl. XXVII. fig. 5.

Professor Haeckel and Dr. Dreyer have recognised in the material from this station no fewer than 338 species of Radiolaria, belonging almost entirely to the two legions: Nassellaria and Spumellaria, only two species being noted belonging to the Phæodaria, while the Acantharia are quite absent, as is nearly always the case in the deep sea, owing to the acanthin skeleton being easily decomposed.[1] The Nassellaria are by far the most abundant in this deposit, the number of species compared with that of the Spumellaria being as 2 to 1; about three-fourths of the Nassellaria, and half of the total Radiolaria, belong to the orders Spyroidea and Cyrtoidea.

A detailed account has been given of this, the deepest sounding, because we consider it the most typical Radiolarian Ooze that has yet been discovered. It is estimated that about 80 per cent. of this sample is made up of the remains of siliceous organisms. The specimens from lesser depths in the Central Pacific and from the tropical regions of the Indian Ocean are less pure. Whenever a Red Clay is estimated to contain 20 per cent. of the skeletons of Radiolaria and siliceous organisms other than Diatoms, it has been classed as a Radiolarian Ooze. There seems to be little doubt that the Radiolaria are, like the calcareous Foraminifera, slowly dissolved by the sea-water after the death of the organisms, for the skeletons and spicules are frequently seen reduced to the merest threads, or in some parts the fenestrated spheres of some species are wholly removed.[2]

In the Tables of Chapter II. nine deposits collected by the Challenger Expedition are described as Radiolarian Oozes, and numerous other samples have been subsequently procured by other expeditions in the Pacific and Indian Oceans. The above-mentioned nine samples range from 2350 fathoms at Station 273 to 4475 fathoms at Station 225,

[1] Haeckel states that "the skeletons of the Phæodaria consist of a compound of organic substance and silica," and regards "acanthin as a substance related to chitin" (see "Report on the Radiolaria," Zool. Chall. Exp., pt. xl. pp. lxix, lxx); he says further that "the Acantharia are entirely wanting [in deep-sea deposits], for their acanthin skeleton readily dissolves" (*l.c.*, p. clv.). Murray records one species of Acantharia (*Pantopelta icosaspis*) from the Diatom Ooze, Station 157, 1950 fathoms, Southern Indian Ocean (see *Scot. Geogr. Mag.*, vol. v. pp. 433, 4, 1889).

[2] If we take into account the molecular state of the silica forming the skeletons of Radiolarians, it is easily conceivable that they may pass into solution in the sea-water after the death of the organisms, but this dissolution cannot be very rapid, as will be seen from the following experiment. Some of the Radiolarian skeletons from Station 266 were treated in a water-bath in a solution of 2 grms. of carbonate of potash, the water being renewed as evaporation went on. This operation was continued for thirty hours with the result that of 0·4725 grm. of Radiolarian skeletons, dried at 110° C., 0·0607 grm. of silica passed into solution, equal to 12·84 per cent. Owing to the difficulty of separating the Radiolarians from the argillaceous matters, it must be pointed out that we were not dealing with pure Radiolarian skeletons. See also Schulze, "Report on the Hexactinellida," Zool. Chall. Exp., pt. liii. pp. 26, 27.