

In the typical Diatom Ooze from Station 157, 1950 fathoms, about forty-eight species have been recognised, and it is estimated that the recognisable species together with their minute broken parts, make up fully 50 per cent. of the whole deposit; in some specimens of Diatom Ooze this percentage of Diatom remains is still higher. In the case of some deep Red Clays of the tropical Pacific, for instance, Station 229, 2500 fathoms, in lat. 22° N., 36 species of Diatoms have been recognised, but in this deposit it is estimated that the Diatom remains do not make up over 2 per cent. of the whole deposit. In the case of a Blue Mud off the coast of Japan, Station 237, 1875 fathoms, in lat. 34° N., 61 species of Diatoms have been recognised, still it is estimated that here again they do not make up more than 3 or 4 per cent. of the whole deposit. In a Radiolarian Ooze, Station 269, 2550 fathoms, in lat. 5° 54' N., there have been recognised 51 species of Diatoms, and it is estimated that here their remains make up about 15 per cent. of the whole deposit. It will thus be noted that although Diatom remains may, in a Diatom Ooze, make up fully one-half of the whole deposit, and in a Radiolarian Ooze 15 per cent., in other kinds of deposits they seldom make up over 2 or 3 per cent. It is true that in the fine washings of a deposit a relatively large number of very minute broken-down fragments of Diatoms may be recognised, so that could these be determined with certainty, a larger percentage might be given in many cases to these Diatom remains. It is also to be noted that in tropical regions (*e.g.*, Station 269), where the remains make up only 3 or 4 per cent. of the deposit, the number of species may be greater than in a deposit from high southern latitudes (*e.g.*, Station 157), where the remains make up fully two-thirds of the whole deposit; fourteen species are recorded as common to these two deposits.<sup>1</sup> It seems difficult to account for the absence of Diatom remains in some deposits, except on the supposition of their removal by exposure to the action of sea-water; this subject will be referred to further on.

*Radiolaria.*—The Radiolaria are quite as widely distributed in oceanic waters as the Diatoms, but while Diatoms are probably more abundant near shore and in brackish waters, the Radiolaria on the other hand flourish in purely oceanic regions. One whole legion—the Acantharia—has a skeleton composed of acanthin, a substance related apparently to chitin,<sup>2</sup> and the representatives of this legion are almost wholly absent from the deposits at the bottom of the sea. The most abundant species in the deposits belong to the legions Nassellaria and Spumellaria. The species belonging to the fourth legion—the Phæodaria—are frequently met with in the deposits, but not so abundantly as might have been expected, this probably arising from the fact that many of the species of the Phæodaria contain a large quantity of organic matter in the composition of their shells, and thus owing to their areolar structure are more easily dissolved than the shells composed of pure silica.<sup>3</sup>

<sup>1</sup> Mr. Comber recognises 48 species and 4 varieties in Station 157, and 44 species and 1 variety in Station 269, and 11 species common to the two Stations.

<sup>2</sup> See Haeckel, Report on the Radiolaria, Zool. Chall. Exp., part xl. p. lxx.

<sup>3</sup> Haeckel, *loc. cit.*, p. lxxix.