

ooze in the fossil condition. *Mixed* Radiolarian ooze is the name given to those deposits in which the Radiolaria exceed any of the other organic constituents, although they do not make up half the total mass. To this category belong a large number of the Challenger soundings which are entered in the Station list either as red clay or Globigerina ooze. Such mixed Radiolarian ooze has been discovered (A) in the North Pacific in an elongated area of red clay extending from Station 241 to Station 245 (perhaps even from Station 238 to Station 253), that is, at least, from long. 157° E. to 175° E., between lat. 35° N. and 37° N.; (B) in the tropical Central Pacific in the Globigerina ooze of Stations 270 and 271. The ooze from the latter station, situated almost on the equator (lat. $0^{\circ} 33'$ S., long. $151^{\circ} 34'$ W.), is specially remarkable, for it has yielded more new species of SPUMELLARIA and NASSELLARIA than any other Station, not excluding even the neighbouring Stations 268, 269, and 272. Probably such mixed Radiolarian ooze is very widely distributed in the depths of the ocean, as, for example, in the South Pacific (Stations 288, 289, 300, and 302), and in the Southern Ocean (Stations 156 to 159); also in the South Atlantic (Stations 324, 325, 331, 332) and in the tropical Atlantic (Stations 348 to 352). When carefully purified and decalcified by acids, Radiolarian ooze appears as a fine shining white powder; in the raw state it is yellowish or reddish, sometimes reddish-brown or dark brown in colour, according to the quantity of oxides of iron, manganese, &c., which it contains. Calcareous skeletons (especially the tests of pelagic Foraminifera) do not occur at all or only in very minute quantities in *pure* Radiolarian ooze from more than 2000 fathoms, whilst specimens of *mixed* ooze often contain considerable quantities of them.

Pure Radiolarian ooze was first described by Dr. John Murray as regards its peculiar nature and composition under the name "Radiolarian ooze" (1876, L. N. 27, pp. 525, 526); compare also Sir Wyville Thomson (The Atlantic, L. N. 31, vol. i. pp. 231-238), and John Murray (Narr. Chall. Exp., L. N. 53, vol. i. pt. ii. pp. 920-926, pl. n. fig. 2). The different specimens of pure Radiolarian ooze obtained by the Challenger from the Pacific, and handed to me for investigation, are from depths of from 2250 fathoms to 4475 fathoms, and may be divided according to their composition into three different groups:—I. The Radiolarian ooze of the Western Tropical Pacific, Stations 225 and 226, from depths of 4475 and 2300 fathoms (lat. 11° N. to 15° N., and long. 142° E. to 144° E.). II. The Radiolarian ooze of the northern half of the Central Pacific, Stations 265 to 269, from depths of 2550 to 2900 fathoms. III. The Radiolarian ooze of the southern half of the Central Pacific, Stations 270 to 274, from depths of 2350 to 2925 fathoms. A fourth group would be constituted by the Radiolarian ooze from the Philippines, which was brought up by Brooke in 1860 near the Marianne Islands from 3300 fathoms, and described by Ehrenberg (Monatsber. d. k. preuss. Akad. d. Wiss. Berlin, 1860, p. 765). The Diatom ooze, too, found by the Challenger in the Antarctic regions (Stations 152 to 157) is in some parts so rich in Radiolaria that it passes over into true Radiolarian ooze. Regarding the Radiolarian ooze from Zanzibar, obtained by Captain Pullen in 1859 from 2200 fathoms (§ 230), we have only the incomplete communications of Ehrenberg (L. N. 24, p. 147). A more accurate knowledge of these deposits from the Indian Ocean, and of