

fragments are very abundant in some samples, as are also teeth of sharks. With reference to the organisms living on the Red Clay and the Radiolarian Ooze, they appear to be the same in nearly all respects in the two regions both as to the species and their relative abundance.

The deposit was first met with in the Western North Pacific, during the voyage from New Guinea to Japan, in the deepest sounding taken during the cruise, and, with one or two exceptions, the greatest depth hitherto discovered, and still the greatest depth from which a specimen of the bottom has been procured. As this was a highly characteristic Radiolarian Ooze, we will refer to the sample collected at some length. Two soundings were taken at this station (Station 225, lat.  $11^{\circ} 24' N.$ , long.  $143^{\circ} 16' E.$ ). The first sounding was in a depth of 4575 fathoms, when only a little of the deposit came up on the outside of the tube. This sounding not being a satisfactory one, a second was taken, when the depth was ascertained to be 4475 fathoms. The tube had sunk fully three inches into the deposit; the upper layers were of a red colour, and contained much more peroxide of manganese than the lower ones, which were of a pale yellow or straw colour, in this respect, as well as in other physical aspects, very much resembling the Diatom Oozes found in the Southern Ocean during the cruise towards the Antarctic regions. The whole of the lower part of the deposit when it came up had a very compact and laminated appearance; the laminated fragments could be easily broken with the fingers, but it was difficult to separate the various components of the deposit the one from the other by shaking the whole in a bottle with water. The Radiolaria, Diatoms, and Sponge spicules appeared to be most abundant in the lower layers. The deposit effervesced a little with dilute hydrochloric acid, and one or two fragments of pelagic Foraminifera were found during the microscopic examination of a large portion of the sample, along with two specimens of *Haplophragmium globigeriniforme*.

The most abundant mineral particles are angular and more or less rounded fragments of volcanic glass in various stages of alteration and of a red-green or yellow colour; they are glossy, and break like resin; some are vesicular, and the vesicles are coated with prismatic zeolites. Besides these altered fragments of volcanic glass, there are grey-black lapilli of andesite and colourless splinters of pumice. There are also fragments of plagioclases surrounded with vitreous matter, crystals of augite, grains of magnetite, and a few cosmic chondritic and native iron spherules.<sup>1</sup>

Argillaceous matter is not very abundant in this sample of Radiolarian Ooze, but there are large numbers of little particles formed by agglomerates of the deposit. These particles have an irregular form, and do not break up under the action of strong hydrochloric acid, which merely removes the iron along with other colouring substances; microscopic examination shows that they are aggregates of the bottom made up of Radiolarians, Sponge spicules, and minute volcanic particles. The tenacity of these little

<sup>1</sup> See Pl. XXIII.