a laminated structure, and were very compact and difficult to break up, being composed of felted masses of Radiolarians and frustules of Diatoms.

Pumice was very abundant in all the deposits, the trawl frequently bringing up numerous rounded pieces, many of them partly decomposed and coated with manganese peroxide. The mineral fragments in the deposits appeared to be chiefly derived from the pumice, except in the soundings close to the Japan coast. All the deeper deposits were brown or chocolate coloured, due to the presence of manganese.

The dredgings and trawlings were not very productive. The dredge brought up from 1850 fathoms a large quantity of Globigerina ooze, specimens of *Bathyactis symmetrica*, *Ophioglypha undulata*, *Ophiomusium corticosum*, and *Styracaster armatus*, the latter being a new genus and species of Asterids. A specimen of *Hyocrinus* was obtained from 2325 fathoms, some fragments of *Brisinga* from 2300 fathoms, and a *Discina* was found on some pumice stones from 2425 fathoms.

The surface fauna and flora were especially rich and abundant throughout. In the region of the Counter Equatorial Current, between the Equator and the Caroline Islands, pelagic Foraminifera and Mollusca were caught in great numbers in the surface nets, surpassing in this respect anything previously observed. The fact is most probably in relation with another, which may be pointed out. In this region the soundings in 2325 and 2450 fathoms contained respectively 52 and 6 per cent. of carbonate of lime, whereas at 2300 fathoms, in lat. 14° 44′ N., only a few broken fragments of Globigerina shells could be detected on microscopic examination; and at 2450 fathoms, in lat. 19° 24′ N., there was not a trace of carbonate of lime shells in the ooze. This shows apparently that where there are numerous calcareous shells at the surface their remains may be found at greater depths at the bottom than where relatively less abundant at the surface. The pelagic Foraminifera appear to float about in great banks; one day immense numbers of *Pulvinulina* would be taken in the net, the next day *Pullenia* would be most abundant, and *Pulvinulina* nearly or quite absent from the hauls. The heavier shelled specimens were usually taken when the nets were dragged 100 or 150 fathoms beneath the surface. Between latitudes 10° and 20° N., Oscillatoriæ were very numerous at the surface, and Diatoms, especially a large cylindrical *Etmodiscus*, were more abundant than in the tropical waters of the Atlantic far from land. The list of surface animals recorded in the note-book is nearly the same as that given on pp. 216 and 217, but the relatively much greater abundance of Radiolarians and Diatoms is specially noteworthy.

Between the Admiralty Islands and the northern tropic very few birds were observed from the ship. One day, in lat. 5° N., a red-tailed Boatswain Bird (*Phaëthon flavirostris*) alighted on the ship, and the following day a Noddy Tern (*Anous melanogenys*) was procured in a similar manner. As soon as the ship passed out of the tropics, she was daily surrounded by large numbers of the northern Albatross (*Diomedea brachyura*). When