

Dav.; *Gonostoma microdon*, Günth.; several Annelids, Shrimps, fragments of siliceous Spongæ, and several living Foraminifera. It is of course probable that the *Gonostoma* and Shrimps did not come from the bottom.

To the upper surface of a nodule from 3125 fathoms (12 × 8 × 2 inches), the following were attached:—*Bifaxaria abyssicola*, Busk; *Cribrilina monoceros*, Busk; *Bugula johnstoniæ*, Gray; *Phylactella* sp.?; several Annelids, *Stephanoscyphus* sp., *Actinia* (?), a tubularian Hydroid, and over the whole surface were many branching tubes of *Rhizamina algæformis*, H. B. Brady.

The remarkable fall in the temperature of the surface water on the 21st June (Station 240) has already been referred to, and at the same time there was a marked change in the character of the surface fauna. The ship on that day passed through red and white coloured patches of water. The red colour was due to immense numbers of Copepods (*Calanus propinquus* G. S. Brady) and Hyperids, the contents of the tow-nets resembling very much those taken in the cold water south of Kerguelen and the Crozets. There were also in the tow-nets immense numbers of dead pale white Copepods, a species different from the red ones, and the white coloured patches of water appeared to be due to the presence of these. There were in the tow-nets many other dead animals besides the Copepods, and it seems probable that immense numbers of animals belonging to the warm currents had been killed by the streams of cold water flowing southward and breaking into the warm waters of the Japan Stream. On the second portion of this cruise, between 180° and 156° west on the 38th parallel, where the average temperature was 65°, the surface fauna was considerably different from what it was 2 degrees farther to the south. The large tropical *Etmodiscus rex*, *Pyrocystis*, *Pulvinulina menardii*, some of the tropical species of *Globigerina* and other pelagic Foraminifera peculiar to the warmer waters of the ocean were absent. On the other hand, there were immense numbers of small Diatoms and of *Lepas fascicularis* and its larvæ. For days the ship passed through floating balls of this barnacle, the development of which was made the subject of a special study by Dr. v. Willemoes Suhm.¹ The balls appeared to be mostly formed by the larvæ becoming attached to dead *Ianthinas* and *Velellas*, very large numbers of which were found dead floating on the surface, apparently killed by the cold water. A Nudibranch, an Aphroditacean, a *Cymothoa*, and *Halobates* were found attached to or resting on these floating balls of *Lepas*, while very numerous small particles of pumice were taken in the tow-nets, which in some instances had animals attached to them. The stomachs of the zoæas of the *Lepas fascicularis* contained many Coccospheres and Rhabdospheres, and minute Diatoms.

Tow-nets were sent down to 500, 1000, and 2000 fathoms on many occasions in the trip between Japan and the Sandwich Islands, with the result that many organisms were procured which had not hitherto been noticed in the tow-net gatherings down to

¹ *Phil. Trans.*, part i. pp. 131-154, pls. x.-xv., 1876.