lime, consisting chiefly of the shells of pelagic Foraminifera; this clearly shows, as has been already pointed out, that the amount of lime deposited is in inverse relation to the depth, when as in this instance the surface conditions are the same or nearly so. A sounding (Station 247), where the depth was 2530 fathoms, was remarkable. In the upper part of the section brought up by the sounding tube there was a reddish clay without any carbonate of lime; this layer was about one inch in thickness, and was somewhat sharply marked off from the lower layers, which were of a much lighter colour, and contained about 20 per cent. of carbonate of lime in the form of shells of pelagic Foraminifera. This condition of things might be explained by supposing that after the lower layers had been laid down, a subsidence of the bottom had taken place to the extent of 200 or 300 fathoms. All the deposits from the Japan coast to the 170th meridian of west longitude contained a very large number of the remains of siliceous organisms, chiefly Radiolaria; in fact, five or six of the soundings might have been as consistently called Radiolarian oozes as red clays, for these organisms appeared to make up nearly one half of the deposit. As the Sandwich Islands were approached, the siliceous organisms almost disappeared from the deposits, which were then almost wholly composed of the triturated fragments of pumice and amorphous clayey matter.

There were eleven trawlings and two dredgings during the trip, but on four occasions the line parted and the trawls with a considerable length of line were lost. The others were fairly successful and productive. On all occasions the bag of the trawl contained numerous pieces of pumice and many manganese nodules. Some of the rounded fragments of pumice were quite fresh and unaltered; others had undergone profound alteration, and were frequently coated with successive layers of the peroxide of manganese. These pieces of pumice seem to have formed the centres of most of the manganese nodules taken in the North Pacific, but on several occasions the nuclei were teeth of Sharks—*Oxyrhina*, *Lamna*, and *Carcharodon*—and in one instance a siliceous Sponge (*Farrea*) occupied the centre of the nodule. On the 12th July, from 2740 fathoms, the dredge contained more than a bushel of these dark brown coloured manganese nodules, which, when rolled out on the deck, somewhat resembled in appearance a lot of potatoes, the largest being about the size of cricket balls.

The trawlings were not very productive so far as specimens of animals were concerned. In the shallower depths where there was carbonate of lime in the deposit, viz., at 2050 and 2300 fathoms, there were respectively about sixty and twenty specimens of invertebrates, all belonging to characteristic deep-sea species.

At 2900 fathoms the following were procured:—

Antheomorphe elegans, Hertwig; *Bathyactis symmetrica*, Mosel.; *Antipathes* sp.; *Stephanoscyphus* sp., *Monocaulus imperator*, Allman; *Pourtalesia laguncula*, A. Ag.; *Hymenaster infernalis*, Sladen; *Benthaster wyville-thomsoni*, Sladen; *Brisinga* sp.; *Oneirophanta mutabilis*, Théel; Comatulæ; *Lepas anatifera*, Linn.; *Terebratula wyvillii*,