layers of the external zone (*c*), with a distinct concentric arrangement, have a very constant thickness of about 7 mm. for the majority of the nodules from this station, while the inner zones are variable in thickness. On the fracture of these nodules by a blow, they separated into large concentric scales. Pl. III. fig. 5 represents (natural size) a nodule (7 × 7 × 5 cm.) broken to show the nucleus, which in this case is a large *Carcharodon* tooth, about 4 cm. in its greatest length; the tooth is surrounded by concentric layers of manganese 1·5 cm. in depth, and the whole nodule has roughly the form of the tooth. The tooth is black and shining, and is thoroughly impregnated with manganese; the vaso-dentine has entirely disappeared from the centre, the hard dentine of the outer surface alone remaining. There were three or four other nodules with sharks' teeth (*Oxyrhina* and *Lamna*) occupying the centres. Pl. IV. fig. 1 represents the external form and aspect of a typical nodule from this station. The mammillæ vary much in size, and are applied against and pass into each other without any very marked outlines; each mammilla corresponds to a concretionary centre, and, when cut into, these parasitic concretions are found to be pieces of more or less altered pumice or small sharks' teeth. Among the nodules were one or two that appear to have been broken while yet at the bottom of the ocean, and these fragments have subsequently formed the nuclei of other nodules. In some cases small fragments of palagonite are found in the centres of the nodules. The most frequent nucleus, however, is a hard white or yellowish substance, which, when examined in thin slices, is slightly transparent, but does not show any special structure to indicate its origin. In the fundamental mass little prismatic bodies are seen, but they have no characters which permit them to be referred to any mineral species. The fundamental mass appears to be composed of extremely fine grains, and sometimes there may be observed among these opaque points of manganese or fragments of sharks' teeth; between crossed nicols the mass behaves like an isotropic body, only some grains show, sporadically, birefrangence. When these nodules are broken down, crystals of hornblende, felspar, and magnetite may be extracted from the mass, yet it is extremely rare to observe these minerals in the microscopic sections. Among the magnetic particles are also metallic spherules of cosmic origin. Between twenty and thirty pieces of pumice were among the manganese nodules; these were either highly altered at the surface or surrounded with a coating of manganese 0·5 cm. in thickness.

It may be noticed that an analysis of the clay brought up in the sounding tube yielded only traces of manganese; the trawl, however, here yielded one of the largest hauls of manganese nodules taken during the cruise. It would appear as if the trawl had been dragged over a considerable surface of the deposit, the nodules being retained by the net while the clay in which they were imbedded was washed away. If this be the correct interpretation it is quite possible that the nodules are but sparsely scattered throughout the deposit, and that they had segregated nearly all the manganese from the clay. The quantity of manganese in the clay in which the nodules were imbedded in