

PLATE III.

- Fig. 1. Portion of a large flattened fragment of manganese from the North Atlantic (natural size). The original fragment was over a foot in diameter, and was evidently a piece torn from a much larger mass by the action of the dredge. The upper surface shows the usual rough mammillated appearance, being black and shining, while the interior is black-brown. To this nodule was attached a large branching Coral; at the upper right hand side of the figure a portion of the base of this Coral is seen to be attached to the nodule, and to be again covered by a slight coating of manganese. Station 3; 1525 fathoms. North Atlantic.
- Figs. 2 and 3. Fragments of the Coral (*Pleurocorallium johnsoni*) attached to the above nodule (natural size). The Coral was all dead, and in some places much corroded; it was everywhere coated and permeated by depositions of manganese, sometimes 0.1 mm. in thickness. The axis in some places was 2 cm. in diameter; it was pure white with black rings, took a high polish, and contained a considerable quantity of organic matter. Amidst the arms of the Coral was seated a large living siliceous Sponge (*Poliopogon amadou*). Station 3; 1525 fathoms. North Atlantic.
- Fig. 4. Pyramidal nodule from the South Pacific (natural size). The upper parts and upper surface are smoother and more compact than the lower ones, which are mammillated and covered with asperities resembling in many respects the nodule figured in Plate II. fig. 3. Station 299; 2160 fathoms. South Pacific.
- Fig. 5. One of a large number of nodules of similar size and external appearance from the North Pacific (natural size). Its dimensions were 7 × 7 × 5 cm. The specimen is broken to show that in the centre there is a large *Carcharodon* tooth about 4 cm. in length. The tooth is surrounded by concentric layers of manganese 1.5 cm. in thickness, and the whole nodule takes roughly the form of the tooth. The outer layers, 6 mm. in thickness, are of a lighter colour than the deeper ones, and the same is the case with other nodules from this station. Only the hard dentine of the tooth remains, the external surface being black and shining; the vaso-dentine has entirely disappeared, and the whole tooth is impregnated with manganese. Station 252; 2740 fathoms. North Pacific.
- Fig. 6. Nodule similar to the preceding, shown in section (natural size). Three zones may be distinguished: first, in the centre an elongated yellowish white nucleus, penetrated by dendrites of manganese, and in some places sharply separated from the second zone of dark layers of manganese, in which no concentric arrangement can be observed, the third zone being composed of concentric layers of manganese, the outer ones of a lighter colour than the inner ones. As shown in the figure, there is a thin layer of clay of varying continuity immediately below the concentric layers. The manganese has always a semi-metallic lustre on a broken and polished surface. Station 252; 2740 fathoms. North Pacific.
- Fig. 7. Section of a nodule from the South Pacific (natural size). In the centre there is a light-coloured nucleus, probably of volcanic origin, surrounded by layers which are denser and blacker than usual. The outer surface is extremely irregular. Station 289; 2550 fathoms. South Pacific.
- Figs. 8 and 9. Nodules from the South Pacific, one showing the external form, and the other in section (natural size). The external surface has a mammillated and rough appearance similar to that of the majority of nodules, but the internal portions are quite different, remarkable, and exceptional. Nearly all the nodules from this station have yellowish white or greenish nuclei. In general the nuclei are soft, and contain numerous casts of Foraminifera, but none of the carbonate of lime of the shells remains; there is a dendritic arrangement of manganese throughout the nucleus. The nodules are from a deposit of Globigerina Ooze, and seem to have been formed round aggregations of the bottom. Station 297; 1775 fathoms. South Pacific.