

PLATE IV.

- Fig. 1. External form and appearance of a typical nodule from the North Pacific (natural size). The little knob on the top is a small piece of pumice cemented to the nodule by enveloping layers of manganese, and the swellings on the side have a similar structure and origin. The nodules from this station looked like a lot of potatoes when rolled out of the dredge. Station 252; 2740 fathoms. North Pacific.
- Fig. 2. Typical manganese nodule from the Central Pacific (natural size). All the nodules taken at this station (about one hundred) have the same general form, and are the most compact of all the nodules dredged during the cruise. The upper surface is smooth, and very different in aspect from the under surface, which is covered with little rough mammillæ, having spaces between them, giving this face a scoriaceous aspect. The whole nodule has a discoidal form. Station 274; 2750 fathoms. Mid Pacific.
- Fig. 3. One of several large slabs dredged among the nodules from the South Pacific, in section, and showing part of the upper surface (natural size). About the middle of the section there is a dark line which appears to represent the upper surface of an old sea-bottom, with manganese nodules imbedded or partially imbedded in the clay. A fall of ashes would appear to have taken place, covering the floor of the ocean in some places to the depth of an inch. The coarser particles lie immediately on the clay, and contain much black mica, then follow layers of finer and finer particles. Subsequently the bottom was apparently, after consolidation, rent by cracks, and layers of manganese were deposited over the upper surface and down the cracks, binding the whole into a compact mass. Station 281; 2385 fathoms. South Pacific. (For microscopical description of this slab see Plate XXI. fig. 2).
- Fig. 4. Round nodule from the same station, in section (natural size). On one side there is a whitish layer of volcanic ashes, over which, as in the case of the slabs, there is a layer of manganese. The side with the layer of ashes had evidently been the upper surface of the nodule when resting on the bottom of the sea. Station 281; 2385 fathoms. South Pacific.
- Fig. 5. Another nodule from the same station (natural size), broken to show the *Carcharodon* tooth in the centre. Station 281; 2385 fathoms. South Pacific.
- Fig. 6. Upper surface of rather rare and irregular form of nodule from the South Pacific (natural size). It is more or less flattened, and presents a scoriaceous aspect, with a rugged appearance on the upper surface. The interior contains a yellowish earthy matter. Station 276; 2350 fathoms. South Pacific.
- Fig. 7. Section of another nodule from the same station (natural size). The interior does not present any concentric structure, but there is an outer zone of concentric layers from 2 to 3 mm. in diameter. The nucleus was probably originally a piece of pumice. Station 276; 2350 fathoms. South Pacific.
- Fig. 8. External surface of the same nodule (natural size), showing the scaly structure of the outer zones.