other cases the whole of the glass had been converted into palagonite, and these nuclei, when freshly taken from the sea, might be cut with a knife like new cheese. In other cases, again, all that remained of the nucleus was a patch of white matter, soft to the touch, easily cut with a knife, and having an argillaceous aspect, resembling some of the outer palagonitic zones of other nuclei. Again, in some of the nodules all trace of the nucleus seems to have disappeared, but the centre is composed of very compact, black, shining, highly-oxidised manganese. This centre recalls, by its form and aspect, a fragment of volcanic glass, which, in the first instance, had become transformed into palagonitic material, and subsequently a replacement of palagonite by manganese had taken place. There is nothing improbable in this supposition, when we remember the pseudomorphism of hydroxide of manganese upon calcite, fluorite, pharmacosiderite, &c.

The *Carcharodon* and *Lamna* teeth, as well as their broken fragments, and the earbones and other bones of Cetaceans, were sometimes covered with but a slight coating of manganese; at other times they were surrounded by concentric layers of manganese fully 1 cm. in thickness. One of the deeply embedded earbones is shown in Pl. VIII. fig. 11, which represents in section a tympanic bulla of *Mesoplodon* (?). The earbone determines the external form of the nodule; the manganese enveloping the bone breaks up radially and concentrically, and can be easily detached, the layers presenting all the physical and microscopical characters already described. The bone itself is penetrated by dendritic ramifications of manganese, and some portions of the substance of the bone appear to have been wholly removed. The specimen represented in Pl. VIII. fig. 10 resembles the petrous bone of a *Globiocephalus*. It has but a slight coating of oxides of manganese and iron, but in some places it is much penetrated by dendrites of those substances. A large compact fragment of bone, about the size of a cricket-ball, appears to have been the earbone of a Balænid or Balænopterid. The external form of the bone has, however, been quite lost; much of the substance seems to have been removed, and dendritic ramifications of manganese penetrate the surface in all directions. The interior is very compact, the bluish colour, cherty aspect, and the fracture, recalling what is observed in some fossil phosphates; it has not, however, the hardness of chert, nor any of its physical properties, but merely presents a strong analogy of aspect. The microscopic structure is identical with that of recent earbones, but most of the organic matter seems to have been removed.

In many nodules a structure was observed indicating that the nuclei were originally portions of bone, which have subsequently been entirely removed, and replaced by manganese depositions.

Among the nodules were over a dozen rounded pieces of pumice, from 0·5 to 2·5 cm. in diameter; some belong to the felspathic, and others to the basic, varieties. While the interior of these fragments presented a fresh aspect, the surface to the depth of 1 or 2 mm. had undergone profound alteration. At the periphery the pumice is transformed into