

brittle. The great majority of the large cancellated bones of the whales appear to have been wholly removed from the deposits through the chemical action of the sea-water.

With respect to the distribution of the earbones and fragments of other Cetacean bones, it will be observed that no specimens were obtained north of the equator either in the Atlantic or Pacific. From terrigenous deposits only one earbone was dredged, viz., at Station 299, 2160 fathoms, over 100 miles from the South American coast, where the deposit was a Blue Mud. These Cetacean bones are also rare in Globigerina Ooze, being obtained in only three instances, viz., one bulla at Station 131, 2275 fathoms, in the South Atlantic (the only Cetacean bone procured in the Atlantic); a fragment at Station 143, 1900 fathoms, 100 miles south-east of the Cape of Good Hope; and another fragment at Station 293, 2025 fathoms, in the South Pacific. With the above exceptions all the bones of Cetaceans procured during the Challenger Expedition were dredged from Red Clays and Radiolarian Oozes, and these are all situated in the Central South Pacific, excepting Station 160, 2600 fathoms, in the Southern Indian Ocean, 500 miles southwest of Australia.

The preservation of the earbones and fragments of beaks of Ziphioid whales is to be accounted for by the great density of these portions of the skeleton, and the consequent small amount of surface presented to the action of sea-water when compared with the cancellated bones. Professor Sir William Turner points out that he could not identify any of the bones as belonging to the great Sperm Whale (*Physeter macrocephalus*), although the track of the Challenger, where these hauls of Cetacean bones were made, was through the part of the Pacific frequented by that huge Cetacean.

The distribution of the sharks' teeth in the deposits is similar to that of the bones of Cetaceans, although they were dredged more frequently. They are most abundant in the red clay areas far removed from land, and especially in those of the Central South Pacific; they were less frequently taken in the organic oozes of the deep sea, and only in one or two instances in the terrigenous deposits surrounding continental or other land. It seems undoubted that many of the teeth of sharks and the bones of the Ziphioid whales belong to Tertiary and extinct species.

In the foregoing paragraphs we have indicated the various kinds of organic structures of a calcareous nature which enter into the composition of marine deposits, and we have to some extent pointed out their bathymetrical and geographical distribution. Those structures, like the bones of fish and marine mammals, or even the exoskeletons of Crustacea, which are very areolar in structure, and contain a large quantity of phosphate of lime associated with much albuminoid matter, appear to be able to resist the solvent action of sea-water only for a relatively short time, so that they disappear from marine deposits much more rapidly than the bones with a denser structure. The otoliths of fish, the hard dentine of sharks' teeth, and the dense earbones and beaks of certain whales, resist for a longer time the solvent action of the sea-water, and may therefore accumulate and