

experiments. The researches of the Challenger in this direction have been confirmed and extended by those of Chun, Hensen, Haeckel, and other naturalists.¹ The researches carried out on board H.M.S.S. "Triton" and "Knight Errant" in the Faroe Channel, and by the yacht "Medusa" in the deep lochs of the west of Scotland, conclusively show that some animals which, in their larval condition, are captured in the surface and subsurface waters, are found in the adult condition at the bottom in depths of 100 to 400 fathoms. It was also found that at definite depths in the intermediate waters different species were captured on the same day, but at different depths on the following day, thus showing an oscillation of the great floating banks of animals or Algæ.² When the tow-nets could be dragged within a few feet of the deposit without touching the ground, immense hauls of Crustaceans, largely Copepods and Schizopods were always obtained.

Haeckel has extended the connotation of the term "Plankton"³ to include all animals living in the waters of the ocean, in contradistinction to Benthos—those living on the bottom of the sea. Murray⁴ has shown that the organisms living in mid-ocean in the great oceanic currents are quite different from those in the surface waters near land, and Haeckel proposes to designate the former oceanic Plankton, and the latter neritic⁵ Plankton. We would suggest that the term oceanic Plankton be subdivided into pelagic Plankton for the animals living in the waters from the surface to 100 fathoms, zonary Plankton for those living in the intermediate zones between 100 fathoms from the surface and 100 fathoms from the bottom, bathybial Plankton for those living within 100 fathoms from the bottom in the transitional area covered by deep-sea terrigenous deposits, and abyssal Plankton for those living within 100 fathoms from the bottom over pelagic deposits.

While, however, life is universally present on the ocean's bed and throughout the mass of oceanic waters, it by no means follows that it is uniformly distributed either over the first or throughout the second. It is well known that in shallow waters certain species are found on some banks or in some deep muddy pits, while they are absent in other localities under apparently, at the present time, similar physical conditions. The productiveness or fertility of certain stretches of the sea-bottom in shallow water would appear to be due to some unknown antecedent conditions. It is the same in the deep sea, for otherwise it seems impossible to account for the almost constant success of the

¹ Chun, "Die pelagische Thierwelt in grösseren Meerestiefen und ihre Beziehungen zu der Oberflächen-Fauna," *Bibliotheca Zoologica*, Heft i., 1888; "Die pelagische Thierwelt in grösseren Tiefen," *Verhandl. d. Gesellsch. Deutsch. Naturf. u. Aerzte*, Bremen, 1890; Hensen, "Einige Ergebnisse der Plankton-Expedition der Humboldt-Stiftung," *Sitzb. d. Berliner Akad. d. Wiss.*, 1890, pp. 243-253; Haeckel, *Plankton-Studien*, Jena, 1890.

² Tizard and Murray, "Exploration of the Faroe Channel, during the summer of 1880, in H.M.'s hired ship Knight Errant," *Proc. Roy. Soc. Edin.*, vol. xi. pp. 638-677, 1882; Murray, "On the Effects of Winds on the Distribution of Temperature in the Sea- and Fresh-water Lochs of the West of Scotland," *Scot. Geogr. Mag.*, vol. iv. pp. 345-365, 1888.

³ First introduced by Hensen in 1887, *loc. cit.*

⁴ "The Great Ocean Basins," *Nature*, vol. xxxii. pp. 581 and 611, 1885.

⁵ Νηπινης, son of Nereus.