

When Chun in 1898 fitted out the "Valdivia" Expedition, special arrangements were made for the purpose of obtaining an accurate knowledge of the animal life in "mid-water." Hundreds of hauls with closing-nets and with other large nets were taken at various depths, the material procured proving that the main conclusions drawn from the "Challenger" Expedition were quite correct. Even in hauls between 5000 and 4000 metres living crustaceans as well as larvæ of the same animals were captured—a sufficient proof that these organisms not only live but also breed at these depths.

The conception of a "pelagic" mode of life, originally associated with the animal-life of the ocean-surface, thus gradually proved to hold true for life in mid-water also, and to apply to floating or drifting organisms as well as free-swimming animals. The main characteristic of pelagic life is its independence of the bottom. The term "bottom-animals" is applied not only to the animals fixed to or creeping along the bottom, but also to those animals which, like certain crustaceans and bottom-fishes, swim and feed along the bottom. But it is impossible to draw a perfectly sharp limit between these migrating bottom-dwellers and some of the deep-living pelagic animals, which have been called "bathypelagic." In accordance with the varying conditions in deep and shallow water and in different parts of the ocean, the pelagic animals have been subdivided into groups: thus Ernst Haeckel¹ introduced the idea of "Holo-pelagic" (wholly pelagic) to distinguish those forms leading an entirely pelagic life from those forms having a bottom-stage like the Hydromedusæ, which he called "Meropelagic" (partly pelagic); he further distinguished those forms found only in coastal waters by the term "Neritic" from those found only in the open sea, which he called "Oceanic."

As in all geographical comparisons of animals we may divide the pelagic organisms into tropical, subtropical, boreal, arctic, and antarctic forms. It has also been proposed to arrange the pelagic fauna in certain bathymetrical zones, distinguishing between those forms living in profuse light, or in the region of twilight, or in the dark abyssal waters, but such distinctions are arbitrary, because our knowledge of the bathymetrical distribution of animals is limited, because the laws of distribution are imperfectly understood (for instance, the effects of light), and because the bathymetrical

¹ Ernst Haeckel, *Plankton-Studien*, Jena, 1890. Haeckel used the words "holoplanktonic" and "meroplanktonic," but I prefer "holopelagic" and "meropelagic," as the word "plankton" is not so clearly defined, and is used in different ways (see Chapter X).