

The Challenger's dredging and trawling operations have shown that, not only in shallower water near coasts, but even in all the greater depths of all oceans, animal life is exceedingly abundant. A trawling in a depth of over a mile (1000 fathoms, Station 78) yielded two hundred specimens of animals, belonging to seventy-nine species and fifty-five genera. From a depth of about two miles (1600 fathoms, Station 147) a single haul of the trawl procured over two hundred specimens of deep-sea animals, belonging to eighty-four species and seventy-five genera. A trawling in a depth of about three miles (2600 fathoms, Station 160) yielded over fifty specimens, belonging to twenty-seven species and twenty-five genera. These are but a few, and not the most striking, of the examples that might be cited. From the contents of their stomachs it was evident that the great majority of these lived on, or in the immediate neighbourhood of, the bottom. Even in depths of four miles, fishes and animals belonging to all the chief invertebrate groups have been procured, and in the sample of ooze from nearly five and a quarter miles (4475 fathoms) there was evidence that living creatures could exist at that depth. In the deeper waters far removed from the coasts the genera and species are almost all new to science, while at similar depths near continents the species and genera are both more numerous, and include many more forms identical with, or closely allied to, shallow-water species. These results have been confirmed by subsequent investigations in special regions by French, German, Italian, Norwegian, and British expeditions.

Haeckel has introduced the useful term "Benthos" to designate all those animals and plants living fixed to, or creeping over, the bottom of the ocean, and in accordance with the classification given on pages 185 and 186 we would propose that the Benthos be divided into neritic Benthos and deep-sea Benthos. The neritic Benthos may be subdivided into littoral Benthos and shallow-water Benthos. The deep-sea Benthos may again be subdivided into bathybial Benthos for those animals living on deep-sea terrigenous deposits, and abyssal Benthos for those living on pelagic deposits.

Not only is life everywhere distributed over the floor of the ocean, but experiments appear to show that it is present everywhere throughout the whole body of oceanic waters at all depths from the surface to the bottom, most abundant at and near the bottom and at and near the surface, while much more sparingly represented in the waters of intermediate depths. In the spring of 1891, Alexander Agassiz conducted experiments with closing tow-nets from the U.S.S. "Albatross," off the Pacific coast of America. At intermediate depths greater than 200 fathoms he did not procure any animals in the open ocean, but a few specimens were obtained from these intermediate waters in the Gulf of California.<sup>1</sup> As all the surface animals must after death fall towards the bottom, we should expect to capture such specimens, at least sparingly, in tow-nets dragged at intermediate depths, and such captures seemed to be clearly indicated in the Challenger

<sup>1</sup> *Bull. Mus. Comp. Zool.*, vol. xxi. pp. 185-200, June 1891.