

sea-bottom by Mr. Murray; and several questions of great interest must be left open until their investigations are completed.

The first general survey of the deep-sea collections, undertaken with a knowledge of the circumstances under which the specimens were procured, justify us, I believe, in arriving at the following general conclusions:

1. Animal life is present on the bottom of the ocean at all depths.

2. Animal life is not nearly so abundant at extreme as it is at more moderate depths; but as well-developed members of all the marine invertebrate classes occur at all depths, this appears to depend more upon certain causes affecting the composition of the bottom deposits, and of the bottom-water involving the supply of oxygen, and of carbonate of lime, phosphate of lime, and other materials necessary for their development, than upon any of the conditions immediately connected with depth.

3. There is every reason to believe that the fauna of deep water is confined principally to two belts, one at and near the surface, and the other on and near the bottom; leaving an intermediate zone in which the larger animal forms, vertebrate and invertebrate, are nearly or entirely absent.

4. Although all the principal marine invertebrate groups are represented in the abyssal fauna, the relative proportion in which they occur is peculiar. Thus, Mollusca in all their classes, brachyurous Crustacea, and Annelida, are, on the whole, scarce; while Echinodermata and Porifera greatly preponderate.

5. Depths beyond 500 fathoms are inhabited throughout the world by a fauna which presents generally the same features throughout. Deep-sea genera have usually a cosmopolitan extension, while species are either universally distributed, or, if they differ in remote localities, they are markedly representative; that is to say, they bear to one another a close genetic relation.