Radiolaria which have either an incomplete skeleton or none at all. When the pelagic forms leave the surface on account of unfavourable weather, they appear only to sink to slight depths (probably not below 20 or 30 fathoms). Within the limits of the same family the size of the pelagic species seems to be on an average greater than that of the related abyssal forms.

234. *The Zonarial Fauna.*—Between the pelagic fauna living at the surface of the open sea and the abyssal, which floats immediately over the bottom, there appears to be usually a middle fauna, which inhabits the different bathymetrical zones of the intermediate water, and hence may be shortly called the "zonarial" fauna. The different species of Radiolaria which inhabit these different strata in the same vertical column of water present differences corresponding to those of the plants composing the several zones of vegetation, which succeed each other at different heights on a mountain; they correspond to the different conditions of existence which are presented by the different strata of water, and to which they have become adapted in the struggle for existence. The existence of such bathymetrical zones has been shown by those important, if not numerous, observations of the Challenger, in which the tow-net was used at different depths at one and the same Station. In several cases the character of the Radiolarian fauna at different depths presented characteristic differences.

For the present, and until we are better acquainted with the characters of the Radiolarian fauna at different depths, we may distinguish provisionally the following *five bathymetrical zones*:—(1) The *pelagic* zone, extending from the surface to a depth of about 25 fathoms; (2) the *pellucid* zone, extending from 25 to 150 fathoms, or as far as the influence of the sunlight makes itself felt; (3) the *obscure* zone, extending from 150 to 2000 fathoms, or from the depth at which sunlight disappears to that at which the influence of the water containing carbonic acid begins and the calcareous organisms vanish; (4) the *siliceous* zone, extending from 2000 or 2500 to about 3000 fathoms, in which only siliceous not calcareous Rhizopoda are found, and in which the peculiar conditions of the lowest regions have not yet appeared; (5) the *abyssal* zone, in which the accumulation of the oceanic deposits, and the influence of the bottom currents, create new conditions of existence. So far as our isolated and incomplete observations of the zonarial Radiolarian fauna extend, it appears that the subclass Porulosa (SPUMELLARIA and ACANTHARIA) predominates in the two upper zones, and as the depth increases is gradually replaced by the subclass Osculosa (NASSELLARIA and PHÆODARIA), so that the latter predominates in the two lowest zones. The obscure zone which lies in the middle is probably the poorest in species. In general, the morphological characters of the zonarial fauna appear to change gradually upwards into the delicate form of the pelagic and downwards into the robust constitution of the abyssal; so also the average size of the individuals (within the limits of the same family) appears to increase upwards and decrease downwards.

235. *The Abyssal Fauna.*—The great majority of Radiolaria which have hitherto been observed, and which are described in the systematic portion of this Report, have been obtained from the bottom of the deep-sea, and more than half of all the species have been