

continental depths, and descends a little more rapidly towards the shore than towards deep water; from this and the similar behaviour of the first curve it would appear that Sponges generally, and the Monaxonids in particular, are more generally distributed in water of from 51 to 200 fathoms deep than in depths of from 0 to 50 fathoms, but on the other hand those localities in the shallower water where they do occur are comparatively richer in species.

The curve of Hexactinellid Sponges culminates on the ordinate III., from which we may infer that the characteristic depth for this group lies between 201 and 1000 fathoms, so that this is pre-eminently the deep-water group of Sponges; it descends more rapidly towards deeper water than towards the depth of 51 to 200 fathoms, and it does not reach the first column at all; all the same Hexactinellids do extend into shallow water, since O. Schmidt records the occurrence of *Cystispongia superstes*, off Yucatan, in 18 fathoms. This will prevent our placing too much confidence on the results obtained by a single expedition; the dredgings will require to be enormously multiplied before we shall be in possession of sufficient statistics to enable us to frame completely satisfactory tables. Schulze questions the accuracy of Schmidt's record in the case of *Cystispongia superstes* just cited, because the given depth appears to be exceptional, but this is scarcely sufficient reason for setting aside Schmidt's direct statement; that the fact is exceptional gives it greater interest. On comparing the station curve with the species curve in the case of the Hexactinellida it will be observed that while both culminate on the ordinate III., the former diverges from the latter towards shallow water, but approaches it towards the abyssal depths, showing that stations are richer in species in the shallower than in the deeper water.

The Tetractinellid curve comes next in order; it culminates on the ordinate II., so that the Tetractinellida appear to flourish best in water of from 51 to 200 fathoms deep; even here where they are most numerous they fall below the Hexactinellida in numbers and far below the Monaxonida. The slope of the curve shows that they fall off much more rapidly towards the deeper than towards the shallower water. The station curve is most remote from the species curve on the ordinate II., that on which the species curve culminates, and approaches it towards the ordinates for both deeper and shallower water. Hence so far as the Challenger observations are a guide it would appear that the localities which are richest in Tetractinellid species occur in water of between 51 and 200 fathoms deep, but that on the other hand more numerous localities for Tetractinellida occur in water of from 0 to 50 and from 201 to 1000 fathoms deep. This result may not be true of Tetractinellids in all circumstances, but only of such as are obtainable by the dredge or trawl, which obviously cannot bring up to the surface species which incrust the under sides of reefs and rocks, a locality especially affected by many Sponges, including Tetractinellids.

The curves for the Ceratosa and Calcareia may be passed without comment.