

detailed above, I am inclined to think that the Cirroteuthidæ belong to the deep-water rather than to the shallow seas.

As regards their habits we are quite in the dark. Reinhardt and Prosch in their treatise upon *Cirroteuthis mülleri* confessed their entire ignorance of this matter, and though they held out the hope that Dr. Rudolph would do something to enlighten the scientific world on this head, still the darkness remains as great as ever—whether the huge umbrella serves only for swimming, or whether it is also a kind of fishing net; what is the function of the cirri between the suckers? are they tactile like the long fringes of certain deep-sea fish? or do they serve to create a current sweeping particles of food to the mouth as already suggested (p. 56)? Even as regards the food of *Cirroteuthis* I can give no information, for all the specimens in the Challenger collection were either so fragmentary that it was impossible to examine their stomachs, or else these were empty. The intestine of *Cirroteuthis magna* contained a mass of pulpy material in which I found no recognisable fragments.

Another genus, which there is reason to regard as an inhabitant of the deep sea, is *Bathyteuthis*, the type specimen of which was dredged by the Challenger in the Southern Ocean, north-west of Kerguelen, from a depth of 1600 fathoms; and quite recently Professor Verrill has described, under the name *Benthoteuthis*, two other specimens from 600 and 1073 fathoms in the North Atlantic, obviously belonging to the same genus.¹ In the course of his description he calls attention to the embryonic characters of these animals, which indeed are too striking to escape notice, but these same characters may also point to the deep sea as the probable home of the species.

For the small fins seem but ill adapted for a pelagic life, and the minuteness of the suckers with which the arms and tentacles are provided seem little fitted for raptorial purposes, while the great size of the eyes is known to be a character of frequent occurrence in deep-sea animals, in addition to which the large buccal membrane may serve the purpose of collecting food from an oozy bottom.

A third genus which may perhaps be abyssal is *Mastigoteuthis*, Verrill, of which at present only one species is known, *Mastigoteuthis agassizii*, which has been dredged by the U.S.S. "Blake" and by the Fish Commission in depths varying from 647 to 2516 fathoms, while the Challenger brought home a single tentacle which adhered to the dredge-rope at Station 2 in the eastern part of the North Atlantic, where the depth was 1945 fathoms.

It will be seen that this species presents a great contrast to the last mentioned in the fin, which is exceedingly large, quite as large as in any of the pelagic forms; this would seem to indicate that although the animal may dwell in the deep sea, it by no means leads a sedentary existence; the two genera resemble each other, however, in the form of the tentacles, which are long, cylindrical and taper to points at the extremities instead of

¹ *Trans. Connect. Acad.*, vol. vi. pp. 401-403, 1885.