The nature of the food of deep-sea animals has been a matter of some considerable speculation.* Owing to the lack of sunlight in the depths, there is an entire absence of vegetable life, such as could build up the necessary food of the animals living there, and thus render the cycle of life in those regions self-supporting and complete as it is on land and in the shallow seas.

Dr. Carpenter tells me he dredged living calcareous algæ (*Corallinaceæ*) in the Mediterranean Sea at a depth of 150 fathoms. As far as I observed, the "Challenger" dredgings did not on any occasion yield algæ from so great a depth. The greatest depth from which seaweeds were dredged by us in any quantity was, I believe, 30 fathoms. It is a curious fact that a species of *Halophila*, one of the Sea Grasses, which are flowering-plants that have become modified to a marine existence, was obtained by us in abundance off Tonga Tabu from so great depth as 18 fathoms. At this depth it was, when we obtained it, in full flower.

The only plants which extend their range to any great depth are certain lowly organized parasitic *Thallophytes*, which infest corals and bore for themselves branching tubular cavities in the hard skeletons of their hosts. These parasites have been found by Prof. Martin Duncan in corals which have been dredged from a depth of 1,095 fathoms.† These plants, nourished on the tissues of their hosts, are able to thrive without the aid of sunlight, just as do fungi in dark cellars and mines.

In the absence of plants amongst them, the deep-sea animals have to derive their food entirely from the *débris* of animals and plants falling to the bottom from the waters above them. This *débris* is no doubt mainly derived from the surface pelagic flora and fauna, but also to a large extent composed of refuse of various kinds washed down by rivers, or floated out to sea from shores and sunken to the bottom when water-logged.

The dead pelagic animals must fall as a constant rain of food upon the habitation of their deep-sea dependants. Maury, speaking of the surface Foraminifera, wrote, "The sea, like the snow-cloud, with its flakes in a calm, is always letting fall upon its bed showers of microscopic shells.‡

* See K. Möbius, "Wo kommt denn die Nahrung von den Tiefseethieren her." Z. f. Wiss., Zool. 21. Bd. Heft 2.

† P. M. Duncan, F.R.S., etc., "On some Thallophytes parasitic within recent Madreporaria." Proc. Roy. Soc., 1876, p. 538.

‡ M. F. Maury, LL.D., "The Physical Geography of the Sea," 15th Ed., p. 322. London, Sampson Low & Marston, 1874.