

THE PLANKTON

Although of rather recent birth as words go,³ the term "plankton" filled so obvious a need that it is now in general use to cover a whole assemblage of organisms, plant and animal, related by their manner of life though they may be far apart in the systematic scale. By it we understand all such forms as float or swim freely in the water, but which, however active, are unable to carry out voluntary horizontal journeys of any extent, though certain of them perform considerable vertical migrations under the directive influence of sunlight or of some other physical stimulus. Among the three major faunistic groups into which the inhabitants of the sea may be divided—bottom dwellers, free swimmers, and plankton—the importance of the last in the economy of nature was slowest in gaining general appreciation. Within the last half century, however, biologists have come to realize both that the number of species of this category is past all counting and that the microscopic pelagic plants are the chief producers—that is, are capable of elaborating simple inorganic compounds into complex organic matter—in the sea. They serve as food supply for many larger marine animals at one stage or another, and thus play a most essential rôle in the general nutritive scheme of marine life. As it chances, the planktonic plants (producers) as a whole are unicellular and microscopic; the planktonic animals (consumers) are multicellular and comparatively large, so that the oft-employed terms "microplankton" and "macroplankton" are not empiric, but do classify the plankton roughly as vegetable or animal, more technically as phytoplankton or zoöplankton.

In the following pages I have attempted to place before the reader a general survey of these two great planktonic divisions as they occur in the Gulf of Maine, followed by more particular accounts of the status of such groups of each as loom large in its pelagic communities at one time or another. Many other groups are also represented in the tow nettings, but time and the assistance available have so far allowed examination of those only that are dominant or numerically important in the Gulf at one time or place or another.

Study of the occurrence of buoyant fish eggs is not sufficiently advanced to warrant more than a few preliminary notes here. The present knowledge of the breeding grounds and seasons and of the distribution of the eggs and larvæ of Gulf of Maine fishes is summarized by species in the first part of this report (Bigelow and Welsh, 1925).

³ The term was coined in 1886 by Hensen.