

food of copepoda in deep water has not yet, as far as I know, been made the subject of systematic investigation, although this point is essential to a more complete understanding of marine biology. Nordgaard, who is describing the copepoda from our Atlantic cruise, has at my request been kind enough to examine the stomachs of a large number of copepoda from our deepest hauls in the Sargasso Sea, but has not been able to find anything morphologically definable in their stomach-contents. Do these copepoda there feed on detritus formed by the dead and disintegrating organisms falling from the surface of the ocean?

Importance
of minute
crustacea as
food-animals.

Along with other small animals (foraminifera, radiolaria, sagittidæ), the copepoda and other crustacea form the main food-supply for the majority of the somewhat larger oceanic animals. Thus the stomach-contents of the pteropods *Clio falcata* and *Limacina helicoides* taken at depths between 500 and 1500 metres consisted of foraminifera and radiolaria. In the stomachs of large prawns, *Acantheephyra purpurea* and *A. multispina* taken below 500 metres, Sund found the remains of copepoda, sagittidæ, and fragments of minute fishes (*Cyclothone*). Koefoed has examined numerous stomachs of *Cyclothone* without finding any contents, but their guts contained organic remains, mainly the jaws of minute crustaceans. The stomach of the fish *Gonostoma grande* from deep water was found to contain a mysid (*Eucopia australis*), and in *Gonostoma rhodadenia* were found five euphausiidæ (*Nematoscelis*, *Stylocheiron*, *Euphausia*, *Thysanopoda*), seven sagittæ, five copepoda (*Euchæta*, *Eucalanus*), and some lumps consisting of radiolaria.

Many of the pelagic fishes are extremely voracious. Repeatedly other fishes have been found in their stomachs of a size nearly equal to that of the devourer. Thus a small *Astronesthes niger* had a scopelid in its stomach, and a *Chauliodus* had eaten a *Stomias boa*. The record for voracity is held by the remarkable *Chiasmodon niger* (of which we took three specimens in the Atlantic), which is known to swallow fishes several times its own size. Fig. 514 shows a specimen with only slightly extended abdomen; Fig. 515 shows a specimen that has swallowed a fish much larger than itself, and most strangely one of the same species.

Abundance
of minute
crustacea in
various areas
and depths.

Generally speaking, the very minute animals, especially the minute crustacea, play an exceedingly important part as nourishment for other and larger animals. These minute crustaceans are constantly taken in the fine silk tow-nets, and in nets with a somewhat larger mesh they constitute the bulk