

seemed far to exceed that of the pelagic fish eggs; this also appears to have been the case with the catches of the German Plankton Expedition, but these catches were very small. The scarcity of fish eggs and the abundance of pelagic fish fry might appear to indicate a continuous production of rapidly hatching eggs, the larval and post-larval stages being of much longer duration, but a study of the ovaries of the adult fishes does not favour this supposition. In *Cyclothone*, for instance, the eggs seem to be equally developed in every portion of the ovary, and to ripen throughout the entire length of the ovary at the same time. During our cruise the ovaries were found to be ripest at Stations 53 and 64 on the southern section.

Any observer previously acquainted only with the spawning of large boreal fishes must be strongly impressed by the appearance of the minute, sexually mature, oceanic fishes. Figs. 526 to 529 represent some ripe fish of genuine oceanic types and their ovaries. In the laterally compressed *Argyropelecus hemigymnus* (Fig. 526), the ovaries, containing only a few hundred eggs, lie wholly or partly above one another, and the full-grown individual, the ovaries of which approach ripeness, is only 3.4 cm. long. *Cyclothone signata* (Fig. 527) becomes sexually mature when 3 or 3.5 cm. in length, the aggregate number of eggs contained in both ovaries being about 1000. *Cyclothone microdon* (Fig. 528), on the whole a larger species, becomes mature when about 6 cm. in length, the ovaries containing a total of about 10,000 eggs. A specimen of *Photostomias guernei* 10.8 cm. in length had, according to Collett, about 400 eggs in each ovary. *Gonostoma grande* had, according to Collett, 2798 eggs. On the other hand, the larger pelagic fishes from deep water, like *Gastrostomus bairdii* (see Fig. 529), have many eggs, but they

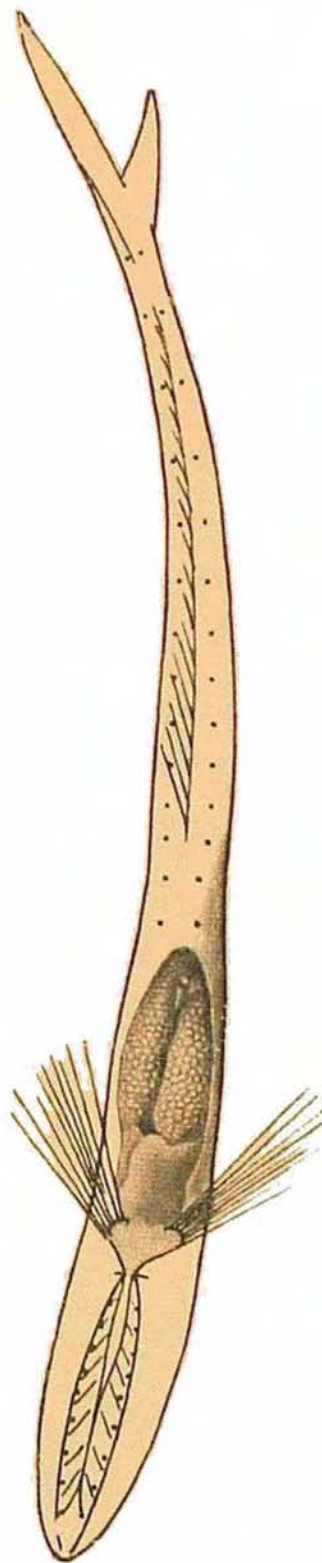


FIG. 527.
Cyclothone signata, Gárm.
Nat. size, 3.5 cm.