life fix themselves to the bottom and become sessile, like the Hydromedusæ, forming colonies by budding. They are thus meropelagic, whereas all other Tunicata are holopelagic and perfectly independent of the bottom. These latter are the only ones to be dealt with here, viz. Appendicularians, Salpæ, and the genera *Doliolum* and *Pyrosoma*.

FIG. 445.
Oikopleura labradoriensis, Lohm (about $\frac{1}{1}^{0}$).
(From Lohmann.)

The Appendicularia resemble greatly the larvæ of Ascidians, and present a remarkable likeness to early vertebrate types. As a rule they are transparent and perfectly devoid of colour. Their body (see Fig. 445) is clumsy in shape and contains all the organs of nutrition and propagation, with a long elastic tail which serves solely the purpose of locomotion. Lohmann has studied the biology of this group,[1] and his results will be referred to later. The Appendicularians live mostly in the upper 200 metres of the ocean, though in tropical waters they occur deeper; in fact in the Sargasso Sea the German Plankton Expedition found more of them below than above 200 metres. As with most surface forms the species are most abundant in warm waters, like *Appendicularia sicula*, *Fritillaria venusta*, and *Oikopleura parva*, while *Oikopleura vanhöffeni* and *O. labradoriensis* are northern forms.

The Salpæ are free-swimming, barrel-shaped, transparent animals, well-known to all sea-faring people (Fig. 446). They are often seen crowding the surface-waters of the ocean in countless numbers. Among investigations of recent years we may cite the report on the "Valdivia" collection by Apstein.[2] In hauls with closing nets the "Valdivia" found the majority of Salpæ in depths less than 200 metres.

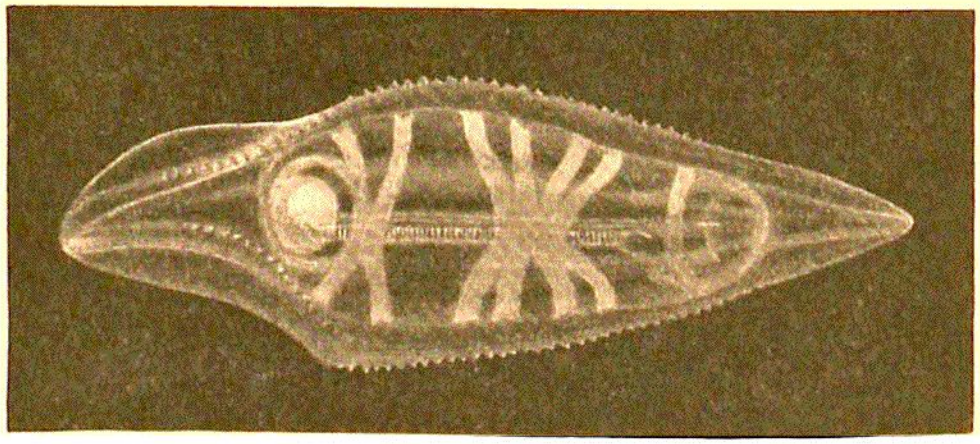

FIG. 446.
Salpa fusiformis forma *aspera*, Cham. Nat. size.

[1] Lohmann, *Ergeb. Plankton-Expedition*, Bd. 2, 1896.
[2] Apstein, *Wiss. Ergeb. "Valdivia" Expedition*, Bd. 12, 1906.