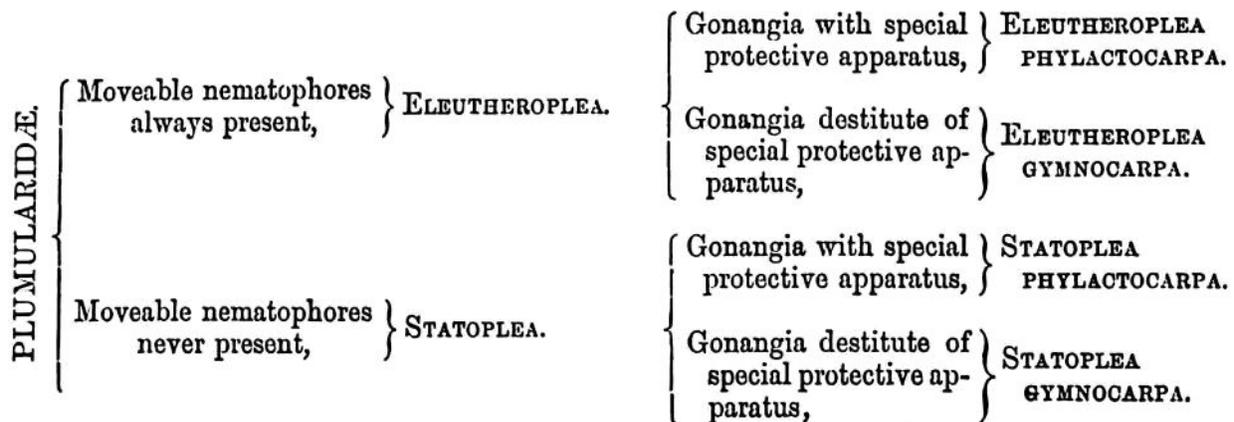


In accordance with these differences, the great leading groups of the Plumularidæ may be systematically arranged as in the following scheme :—



The opportunities of examining the Hydroida in a living state, or even in dead specimens which have the soft parts sufficiently well preserved, are so comparatively few, that the systematist is compelled to have recourse to the chitinous periderm, as affording almost the only available grounds for determination and classification.

This chitinous external skeleton, however, presents so many points of high morphological interest, that the classification thus based upon it is by no means an arbitrary and artificial one.

A correct idea of the morphology of the chitinous skeleton in the Plumularidæ will be best obtained by comparing with one another the modifications of form which it presents when examined in the various parts of the colony or hydrophyton in the different groups.

### *Morphology of the Trophosome.*

*Hydrocaulus.*—The hydrocaulus of the Plumularidæ, both in the Eleutheroplea and the Statoplea, may be formed either of a single tube (monosiphonic) or it may be fascicled or polysiphonic. The fascicled condition may exist in the main stem and in the principal branches, but the ultimate ramuli or hydrocladia are always monosiphonic. The polysiphonic condition gradually gives place to the monosiphonic in passing from the proximal to the distal parts of the colony, the fascicled stem sending off bundles of tubes to form the branches, and these again throwing off smaller bundles to form secondary branches, until finally, in the distal parts of the colony, the fasciculation has become exhausted, and a monosiphonic condition has taken its place.

The tubes which compose the fascicled portions of the hydrocaulus communicate laterally with one another. In *Aglaophenia coarctata* (Pl. XIX. figs. 7–9) this communication is plainly seen to be effected by very short tubular processes which are given off from