

Division DENDROBRANCHIATA.

This Division forms a natural and well-defined series of families that differ from the Trichobranchiata and Phyllobranchiata in anatomical structure, external form, development, and general habits, and may be divided into a Normal and an Aberrant group.

The branchial structure, instead of being developed in the form seen in the Normal group of the other two divisions, consists of a series of plumes, that in their more typical condition are attached by, or very near, their basal extremity to the animal, and from a long central stalk send off on each side a single row of branches that divide and subdivide in a more or less distinctly different manner in separate genera, and sometimes also in otherwise well-defined species.

In some genera this distinction is so great that in *Philonicus* the branchial petals on a casual inspection may be mistaken for those of a phyllobranchiate Macruran, but even here they differ in form on the same plume, being more decidedly typical of the Dendrobranchiata at the base, but falling off in character as they approach the apex.

In the Aberrantia the branchial plumes are fewer in number and more elementary in structure, but still characteristic of the division.

The nervous system exists as a series of separate ganglionic centres, corresponding to every somite posterior to the cephalic system, with the exception of that of the posterior somite of the pereion, which is absent, the nerve which supplies the fifth or ultimate pair of pereopoda being derived from the same ganglion as that which supplies the preceding pair. Examination of several genera induces me to believe that this is a very constant character throughout the division.

Corresponding to the depreciated condition of their nerve centre, the posterior two pairs of pereopoda are invariably of an enfeebled character as compared with the three preceding pairs, and they are never chelate in either sex during any period of the existence of the animal.

In the Trichobranchiata, as well as in the Phyllobranchiata, the ovum when liberated from the oviduct is connected with the pleopoda by a filamentous attachment, and is thus suspended until such time as the embryo is sufficiently advanced to be hatched, and to swim freely in the ocean. The brephalos appears either in the Zoea, Phyllosoma, or Megalopa stage.

In the Dendrobranchiata the form of the brephalos is unknown, except in *Lucifer*. In 1863 Fritz Müller observed great numbers of the young of Crustacea, of various forms, swimming about in the sea during the summer months. These he examined, and he was able to establish a chain of progressive forms that induced him to believe he had discovered the development of some prawn, which he supposed to be *Penæus*.

The first great link, the determination of the parent of the earliest form, was wanting, and it is remarkable that though more than twenty years have passed, not one of the