

GENERAL OBSERVATIONS.

The classification of the Macrura into three separate divisions, according to the structural character of one of their most important and essential organs, will be found convenient in the study of this order in relation to its distribution both in time and space.

Each division is apparently of equal importance both in relation to size and structure, but however much they may correspond in certain anatomical details which are characteristic of the separate divisions, or may approximate to one another in general form, yet they are essentially distinct in affinity, both in their development and descent. Independent of the character of the branchiæ, the Trichobranchiata, Dendrobranchiata, and Phyllobranchiata are separated generally from each other by the form of the carapace, the appendages of the pereion, the plan of the rhipidura, and the stage at which the embryo quits the ovum.

In the Dendrobranchiata the brephalos is supposed to exist in the Nauplius condition, from positive evidence in the genus *Lucifer*; and from negative evidence of all the other genera this is supposed to obtain universally throughout the division.

In the Phyllobranchiata the brephalos, so far as it has been observed, is a Zœa, excepting in the case of a few genera in which closely allied forms vary, such as *Alpheus* and *Homaralpheus*, *Acanthephyra* and *Systellaspis*, and *Crangon*, in which it appears that the only separation beyond specific character is that of this variation in the stage of the brephalos.

In the Trichobranchiata the brephalos is in the Megalopa condition, of which *Phyllosoma* is an immature stage; this is universal in the division, excepting in the genus *Stenopus*. According to their branchial structure both *Stenopus* and *Spongicola* belong to the Trichobranchiata, while the appearance of their carapace resembles that of the Phyllobranchiata, and the structure of their legs corresponds with that of the Dendrobranchiata; whereas in the manner of their development, the brephalos of *Stenopus* appears to be a Megalopa, approaching in form that of the Trichobranchiata, while that of *Spongicola* is a Zœa, approaching that of the Phyllobranchiata.