

principles. DeBlainville and Lesson are the only zoölogists who have associated heterogeneous types with the Ctenophoræ.

In now closing this sketch of the anatomical characters of the Ctenophoræ, I have only to add a few remarks upon some controverted points of their structure, with a view of eliciting further investigations, and preventing some mistakes from being more widely circulated. I have already stated that there exists no distinct muscular system in the Ctenophoræ. The appearance of fibres resembling muscles arises from the peculiar form of the large cells (Pl. II. *Fig.* 24) forming the spherosome, about which more may be found in a subsequent chapter, where I shall also consider the true nature of the parts which, from their position and appearance, have been mistaken for nerves.

The Ctenophoræ move in two different ways; and the two kinds of motion are produced by different parts. The more energetic movements, which propel the body forward, are produced by the contraction of the various systems of motory cells hereafter to be described, and take place by jerks when they are most powerful, though during a slow, onward progress they produce a more sliding motion; besides, these animals are kept hovering in the water by the unceasing and rapid motion of their locomotive flappers. Of course, during a slow progress, the movements of these rows of flappers combine with the action of the motory cell systems, while in a more rapid progression they can contribute but little, if any thing, toward a change of place. As the mode of locomotion of the Discophoræ differs in different families according to their different form and the part their various appendages take in their movements, we must postpone a more detailed account of these differences to another chapter. Suffice it here to say, that the long tentacles of Pleurobrachia and the broad lobes of Bolina become important auxiliaries in regulating the motions of these types. That the powerful contractions of the spherosome greatly modify the form of the Ctenophoræ is now generally understood; but I would warn the student against a belief that the form of these animals is on that account less characteristic than in other animals. A bird flying has certainly a very different appearance from what it presents when at rest; but, whatever position it may assume, its form is always characteristically its own. So is it with the Acalephs in general, and, more especially, with those Ctenophoræ which are capable of performing the most diversified movements. As soon as the mode of execution of these movements is fully understood, the form preserves all its characteristics.

The chymiferous system of all Ctenophoræ requires more careful study than has generally been devoted to it. The mode of ramification of its main trunks, the form of the funnel, the course of its branches and their anastomoses, are very characteristic of the different families. That these details should have been neg-