

a distinct pattern of form determined by the even thickness of the spherosome, or, more accurately, by the even arrangement of the motory cells of the spheromeres. I hold, therefore, that the Beroids proper constitute a distinct sub-order, and not merely a family nor a distinct order, since their distinguishing characters, though of the kind of those upon which orders may be founded, do not extend to their whole organization. We shall see presently whether these *Acalephs* constitute only one single family, or not.

It would be tedious, were I to analyze at the same length the value of all the characters upon which are founded the other subdivisions of the Ctenophoræ proposed by different naturalists. Suffice it for me to say, the division proposed by Leuckart under the name of *Stenostomata* is neither an order, as he takes it, nor a natural sub-order,—not simply because the characters which he assigns to these Ctenophoræ are not of the kind upon which orders may be distinguished, but because it is in itself a heterogeneous assemblage of different types. The groups designated by Eschscholtz as two distinct families, and the corresponding groups proposed by Gegenbaur, under which he unites respectively the families of the *Callianiridæ* and *Calymnidæ*, and the *Cestidæ* and *Cydippidæ*, approach much nearer to the idea of sub-orders. At all events, they include the representatives of two distinct sub-orders; but, from want of personal acquaintance with the *Callianiridæ* and *Cestidæ*, I am unable to state with certainty how closely these may be allied to the types of the two sub-orders which I have investigated. It may also be noticed, that Eschscholtz and Gegenbaur disagree as to the affinities of *Cestum* and *Callianira*,—Eschscholtz uniting both with *Cydippe*, while Gegenbaur separates them as types of distinct families. So, leaving for the present the question of the closer affinities of the genera *Cestum* and *Callianira* out of consideration, I am prepared to show that Eschscholtz's *Mnemiidæ* and his *Callianiridæ* do not constitute two natural families, but two distinct sub-orders equivalent to that of the Beroids proper. On account of the questionable affinities of the genera *Callianira* and *Cestum*, I am, however, compelled for the present to designate one of these sub-orders by a different name from that applied to it by Eschscholtz, and shall adopt for it that of *Cydippidæ*, instead of *Callianiridæ*.

The anatomical peculiarities of the *Cydippidæ*, which show them to be a sub-order, and not merely a family, correspond exactly to those which distinguish the *Beroidæ*. The eight ambulacral tubes are equal or nearly so, as in *Beroidæ*, but they terminate, on both sides of the main axis, at a considerable distance from the poles of the spherosome, and do not open into an oral tube; for there is no such circular chymiferous tube around the actinostome in this group of Ctenophoræ. The *cœliac* tubes are very large, and terminate as blind sacks upon the sides of the actinostome. Neither the ambulacral nor the *cœliac* tubes give out conspicuous