This once settled, it remains to be seen how many such sub-orders there are among Ctenophoræ, and what is the range of their structural peculiarities, and next to ascertain in the same way the number and natural limits of the families in each of these natural groups.

As Gegenbaur has already noticed, Leuckart has based his primary subdivisions of the Ctenophoræ upon a character of comparatively little value, — the dimensions of the digestive cavity. It is nevertheless true, that the group thus separated from the other types under the name Eurystomata is a very natural one, already distinguished by Eschscholtz, to whose family of Beroidæ it exactly corresponds, as well as to Gegenbaur's third group of Ctenophoræ, without lobes and without tentacles. There is therefore no discrepancy among naturalists as to the existence of a natural division among Ctenophoræ, including the species most closely allied to the genus Beroe of Brown. Eschscholtz recognizes it as a family under the name of Beroidæ; Mertens as a family under the name of Idya; Lesson as a tribe under the name of Beroæ; Leuckart as an order under the name of Eurystomata; and Gegenbaur as one primary division of the Ctenophoræ including the only family of Beroidæ. But while all agree upon the limits of that group of Acalephs, there is the widest discrepancy among them as to its rank and standing in the class.

In attempting to decide between these conflicting opinions, it must be borne in mind, that, in analyzing the characteristic features of these Beroids, we have to consider different categories of characters. In the first place, the Beroe proper have all those structural peculiarities in common with the other Ctenophoræ, which, from their complication, place them highest in the class of Acalephs as a distinct order. But, though agreeing with the Ctenophoræ generally in the complication of their structure, they differ from all other Ctenophoræ in one striking anatomical character, entirely independent of their peculiar form, — *they have no interambulacral chymiferous tube*, which exists in all others. The existence of two parallel chymiferous tubes in the transverse plane of some Ctenophoræ, on both sides of the digestive cavity, was first pointed out by Milne-Edwards in his admirable description of LeSueuria vitrea (Ann. Sc. Nat. 2e sér. vol. 16, p. 203, Pl. 3, *Fig.* 1 *h* and *j*). Will has described them in Eucharis multicornis (Horæ tergestinæ, p. 31, Pl. I. *Fig.* 3, *b* and *c*). I myself have traced them in Bolina (Mem. Am. Ac. IV. Pl. 7, *Figs.* 4, 7, and 8). Gegenbaur, however, mentions and figures only one of them. As they are easily confounded, on account of their parallel course, I have no doubt that he must have confounded them. One is deeply seated, close to the digestive cavity, and communicates with the tube encircling the mouth; the other is more superficial, and quite at the surface, near the mouth. They are best seen facing the anterior or the posterior surface of the animal, as their divergence is thus