characters thus far assigned to the Rhizostomeæ, the Cepheæ, and the Cassiopeæ, they differ most strikingly in their form, and especially in the form of their oral appendages; that similar differences exist in the form of the Aureliæ, the Pelagiæ, and the Cyaneæ; and that the Charybdeæ are still further removed from these two groups by their peculiar form, — the question at once arises, What are the characters which bind the Rhizostomeæ, the Cepheæ, and the Cassiopeæ so closely that Esch-scholtz should have united them as one natural group, even though he himself never had an opportunity of examining any of their number? and what are the characters which justified Tilesius in dividing them into three families? On the contrary, What are the characters which led Eschscholtz to unite the Aureliæ, the Pelagiæ, and the Cyaneæ into one group, which is natural, even though the attempts of recent writers to subdivide them into several families be equally justifiable? and what, finally, are the reasons which could satisfy Gegenbaur that the Æginidæ are the most aberrant type among the Craspedota, though among themselves they are very closely linked together?

I believe that these questions are not difficult to answer, if we apply to their solution the tests which I have proposed in analyzing the different categories of structure upon which different kinds of natural divisions may be founded in the animal kingdom. The Rhizostomeæ, the Cepheæ, and the Cassiopeæ may be distinguished as natural families because their form is different: they may be united into one natural group because they agree in certain complications of their structure, by which they at the same time differ from the Aureliæ, the Pelagiæ, and the Cyaneæ. These again agree with one another in some other complications of structure as much as they differ from one another in their form; and this is also true of the Charybdeæ and Æginidæ, which, as I shall show hereafter, ought to be united into one and the same group, on account of the peculiar complication of their structure, though they also constitute distinct families, characterized by their form. We have thus among Discophoræ proper, two categories of characters thus far not sufficiently distinguished, which, when properly analyzed, lead to the recognition of a greater number of natural families than are generally admitted among these Acalephs, and at the same time point out the manner in which these families may be combined into higher groups. But what are these higher groups? Can they be orders?

We have already seen that the class of Acalephs contains only three natural orders, — the Ctenophoræ, the Discophoræ proper, and the Hydroidæ, — characterized by the complication of their structure, and occupying respectively the rank in which they are here enumerated, the Ctenophoræ being the highest and the Hydroidæ the lowest. If, then, there are among the Discophoræ natural groups of a higher rank than families, and yet not entitled to be considered as distinct orders, they