

which they are themselves founded; while orders alone are strictly defined by the natural degrees of structural complications exhibited within the limits of the classes.

As to the question, whether orders constitute necessarily one simple series in their respective classes, I would say, that this must depend upon the character of the class itself, or the manner in which the plan of the type is carried out within the limits of the class. If the class is homogeneous, that is, if it is not primarily subdivided into sub-classes, the orders will, of course, form a single series; but if some of its organic systems are developed in a different way from the others, there may be one or several parallel series, each subdivided into gradated orders. This can, of course, only be determined by a much more minute study of the characteristics of classes than has been made thus far, and mere guesses at such an internal arrangement of the classes into series, as those proposed by Kaup or Fitzinger, can only be considered as the first attempts towards an estimation of the relative value of the intermediate divisions which may exist between the classes and their orders.

Oken and the physiophilosophers generally have taken a different view of orders. Their idea is, that orders represent, in their respective classes, the characteristic features of the other types of the animal kingdom. As Oken's Intestinal or Gelatinous animals are characterized by a single system of organs, the intestine, they contain no distinct orders, but each class has three tribes, corresponding to the three classes of this type, which are Infusoria, Polypi, and Acalephs. The tribes of the class of Infusoria, are Infusoria proper, Polypoid Infusoria, and Acalephoid Infusoria; the tribes of the class of Polypi, are Infusorial Polypi, Polypi proper, and Acalephoid Polypi; the tribes of the class Acalephs, are Infusorial Acalephs, Polypoid Acalephs, and Acalephs proper. But the classes of Mollusks which are said to be characterized by two systems of organs, the intestine and the vascular system, contain each two orders, one corresponding to the Intestinal animals, the other to the type of Mollusks, and so Acephala are divided into the order of Gelatinous Acephala and that of Molluscoid Acephala, and the Gasteropods and Cephalopods in the same manner into two orders each. The Articulata are considered as representing three systems of organs, the intestinal, the vascular, and the respiratory systems; hence their classes are divided each into three orders. For instance, the Worms contain an order of Gelatinous Worms, one of Molluscoid Worms, one of Annulate Worms, and the same orders are adopted for Crustacea and Insects. Vertebrata are said to represent five systems, the three lower ones being the intestine, the vessels, and the respiratory organs, the two higher the flesh (that is, bones, muscles, and nerves) and the organs of senses; hence, five orders in each class of this type, as, for example, Gelatinous Fishes, Molluscoid Fishes, Entomoid Fishes, Carnal