

accept them as natural divisions much smaller; few of them having expressed a belief that genera have as distinct an existence in nature as species. And as to families, orders, classes, or any kind of higher divisions, they seem to be universally considered as convenient devices, framed with the view of facilitating the study of innumerable objects, and of grouping them in the most suitable manner. The indifference with which this part of our science is generally treated becomes unjustifiable, considering the progress which Zoölogy in general has made of late. It is a matter of consequence, whether genera are circumscribed in our systematic works within these or those limits; whether families inclose a wider or more contracted range of genera; whether such or such orders are admitted in a class, and what are the natural boundaries of classes; as well as how the classes themselves are related to one another, and whether all these groups are considered as resting upon the same foundation in nature or not.

Without venturing here upon an analysis of the various systems of Zoölogy,—the prominent features of which are sufficiently exemplified for my purpose by the systems of Linnæus and Cuvier,¹ which must be familiar to every student of Natural History,—it is certainly a reasonable question to ask, whether the animal kingdom exhibits only those few subdivisions into orders and genera which the Linnæan system indicates, or whether the classes differ among themselves to the extent which the system of Cuvier would lead us to suppose. Or is, after all, this complicated structure of Classification merely an ingenious human invention, which every one may shape, as he pleases, to suit himself? When we remember that all the works on Natural History admit some system or other of this kind, it is certainly an aim worthy of a true naturalist, to ascertain what is the real meaning of all these divisions.

Embryology, moreover, forces the inquiry upon us at every step, as it is impossible to establish precise comparisons between the different stages of growth of young animals of any higher group and the permanent characters of full-grown individuals of other types, without first ascertaining what is the value of the divisions with which we may have to compare embryos. This is my reason for introducing here, in a work chiefly devoted to Embryology, a subject to which I have paid the most careful attention for many years past, and for the solution of which I have made special investigations.

Before I proceed any further, however, I would submit one case to the consideration of my reader. Suppose that the innumerable articulated animals, which are counted by tens of thousands, nay, perhaps by hundreds of thousands, had never made their appearance upon the surface of our globe, with one single exception: that, for instance, our Lobster (*Homarus americanus*) were the only representative of

¹ Compare Chap. III.