

upon which such a subdivision is founded, are of the kind upon which the class itself is based, but do not extend to the whole class. An order may embrace natural groups, of a higher value than families, founded upon ordinal characters, which may yet not determine absolute superiority or inferiority, and therefore not constitute for themselves distinct orders; as the characters upon which they are founded, though of the kind which determines orders, may be so blended as to determine superiority in one respect, while with reference to some other features they may indicate inferiority. Such groups are called sub-orders. The order of Testudinata, which I shall consider more in detail in the second part of this volume, may best illustrate this point, as it contains two natural sub-orders. A natural family may exhibit such modifications of its characteristic form, that upon these modifications subdivisions may be distinguished, which have been called sub-families by some authors, tribes or legions by others. In a natural genus, a number of species may agree more closely than others in the particulars which constitute the genus and lead to the distinction of sub-genera. The individuals of a species, occupying distinct fields of its natural geographical area, may differ somewhat from one another, and constitute varieties, etc.

These distinctions have long ago been introduced into our systems, and every practical naturalist, who has made a special study of any class of the animal kingdom, must have been impressed with the propriety of acknowledging a large number of subdivisions, to express all the various degrees of affinity of the different members of any higher natural group. Now, while I maintain that the branches, the classes, the orders, the families, the genera, and the species are groups established in nature respectively upon different categories, and while I feel prepared to trace the natural limits of these groups by the characteristic features upon which they are founded, I must confess at the same time that I have not yet been able to discover the principle which obtains in the limitation of their respective subdivisions. All I can say is, that all the different categories considered above, upon which branches, classes, orders, families, genera, and species are founded, have their degrees, and upon these degrees sub-classes, sub-orders, sub-families, and sub-genera have been established. For the present, these subdivisions must be left to arbitrary estimations, and we shall have to deal with them as well as we can, as long as the principles which regulate these degrees in the different kinds of groups are not ascertained. I hope, nevertheless, that such arbitrary estimations are for ever removed from our science, as far as the categories themselves are concerned.

Thus far, inequality of weight seems to be the standard of the internal valuation of each kind of group; and this inequality extends to all groups, for even within the branches there are classes more closely related among themselves than others: Polypi and Acalephs, for instance, stand nearer to one another than