

Let us see whether it is not possible to introduce more precision in this matter. Taking for granted that what I have said about the characteristics of the natural groups in the animal kingdom is correct, that we have, 1st, four great typical branches of the animal kingdom, characterized by different plans of structure; 2d, classes, characterized by the ways in which and the means with which these plans of structure are executed; 3d, orders, characterized by the degrees of simplicity or complication of that structure; 4th, families, characterized by differences of form, or by the structural peculiarities determining form; 5th, genera, characterized by ultimate peculiarities of structure in the parts of the body; 6th, species, characterized by relations and proportions of parts among themselves, and of the individuals to one another and to the surrounding mediums; we reach, finally, the individuals, which, for the time being, represent not only the species with all their varieties, and variations of age, sex, size, etc., but also the characteristic features of all the higher groups. We have thus, at one end of the series, the most comprehensive categories of the structure of animals, while at the other end we meet individual beings. Individuality on one side, the most extensive divisions of the animal kingdom on the other. Now, to begin our critical examination of the progress of life in its successive manifestations with the extremes, is it not plain, from all we know of Embryology, that individualization is the first requirement of all reproduction and multiplication, and that an individual germ, (or a number of them,) an ovarian egg, or a bud, is first formed and becomes distinct as an individual from the body of the parent, before it assumes either the characters of its great type or those of its class, order, etc.? This fact is of great significance, as showing the importance of individuality in nature. Next, it is true, we perceive generally the outlines of the plan of structure, before it becomes apparent in what manner that plan is to be carried out; the character of the type is marked out, in its most general features, before that of the class can be recognized with any degree of precision. Upon this fact, we may base one of the most important generalizations in Embryology.

It has been maintained, in the most general terms, that the higher animals pass during their development through all the phases characteristic of the inferior classes. Put in this form, no statement can be further from the truth, and yet there are decided relations within certain limits, between the embryonic stages of growth of higher animals and the permanent characters of others of an inferior grade. Now the fact mentioned above, enables us to mark with precision the limits within which these relations may be traced. As eggs, in their primitive condition, animals do not differ one from the other; but as soon as the embryo has begun to show any characteristic features, it presents such peculiarities as distinguish its type. It cannot, therefore, be said that any animal passes through