

of Aristotle, Lamarck, Oken, and Ehrenberg together, have we not, as characteristic of their systems, the very words by which every one distinguishes the most prominent features of the body of the higher animals, when speaking of blood relations, of blood and bones, or of having flesh and nerve?

Neither of these observers has probably been conscious of the identity of his classification with that of his predecessors; nor, indeed, should we consider either of them as superfluous, inasmuch as it makes prominent, features more or less different from those insisted upon by the others; nor ought any one to suppose that with all of them the field is exhausted, and that there is no more room for new systems upon that very first distinction among animals.¹ As long as men inquire they will have opportunities to know more upon these topics than those who have gone before them, so inexhaustibly rich is nature in the innermost diversity of her treasures of beauty, order, and intelligence.

So, instead of discarding all the systems which have thus far had little or no influence upon the progress of science, either because they are based upon principles not generally acknowledged or considered worthy of confidence, I have carefully studied them with the view of ascertaining whatever there may be true in them, from the stand-point from which their authors have considered the animal kingdom; and I own that I have often derived more information from such a careful consideration than I had at first expected.

It was not indeed by a lucky hit, nor by one of those unexpected apparitions which, like a revelation, suddenly break upon us and render at once clear and comprehensible what had been dark and almost inaccessible before, that I came to understand the meaning of those divisions called types, classes, orders, families, genera, and species, so long admitted in Natural History as the basis of every system, and yet so generally considered as mere artificial devices to facilitate our studies. For years I had been laboring under the impression that they are founded in nature, before I succeeded in finding out upon what principle they were really based. I soon perceived, however, that the greatest obstacle in the way of ascertaining their true significance lay in the discrepancies among different authors in their use and application of these terms. Different naturalists do not call by the same name groups of the same kind and the same extent: some call genera what others call subgenera; others call tribes, or even families, what are called genera by others;

¹ By way of an example, I would mention the mode of reproduction. The formation of the egg in Vertebrata; its origin, in all of them, in a more or less complicated Graafian vesicle, in which it is nursed; the formation and development of the embryo up to a certain period, etc., etc., are so completely

different from what is observed in any of the Invertebrata, that the animal kingdom, classified according to these facts, would again be divided into two great groups, corresponding to the *Vertebrata* and *Invertebrata* of Lamarck, or the *Flesh-* and *Gut-Animals* of Oken, or the *Encima* and *Aneima* of Aristotle, etc.