

it is entirely erroneous to consider, as is universally done, that the classes exhibit modifications of the plan of structure of their respective branches.

It is no more true that Fishes, Reptiles, Birds, and Mammalia exhibit respectively modifications of the plan of structure of Vertebrates, than that Insects, or Crustacea, or Worms are respectively modifications of the type of Articulates, or the different classes of Mollusks and Radiates, modifications of their respective types. A Fish is as truly a Vertebrate as any Bird or Mammal; the plan is not at all modified; it is only executed in different ways and with different means. The plan which characterizes Vertebrates is no more modified in the Fish than in the Reptile; the plan of Articulates is no more modified in Insects than in Crustacea or Worms; the plan of Mollusks, as a plan, is the same in Cephalopods as in Gasteropods and Acephala; that of Radiates, the same in Polyps as in Acalephs and Echinoderms. What, then, constitutes the difference of each class in the same branch? It is the manner in which the plan of the branch to which they respectively belong is carried out. They are respectively characterized by the way in which, and the means with which, they are built up. The idea of radiation which is inherent in the plan of structure of Radiates is the same in all Radiates, in Polyps as well as in Medusæ and Echinoderms; but in the Polyps it is expressed in one way, in the Acalephs in another, and in Echinoderms in still another. This is equally true of all the other classes, with reference to the plan of their respective branches. The different ways in which, and the different means with which each plan is executed in its respective classes, go far to show that the branches themselves are founded in nature, for the means employed in carrying out these different plans in a variety of ways, in their different classes, are everywhere homological, and homological only within the limits of the same branch. We can trace no true homology between the systems of organs in Vertebrates and those in Articulates, nor between these and those of Mollusks; and a critical examination shows that the structure of Radiates is not homological with that of Mollusks.

Truly homological systems of organs, then, more or less complicated, constitute class characters; but, again, these homologies are only general as far as the branch is concerned, while within each class special homologies only can be traced. Had these distinctions been made before, what an amount of confused discussion might have been spared respecting homologies in the animal kingdom! I trust this statement, the correctness of which may easily be tested by a comparison of the Batrachians and the true Reptiles, will put an end to the useless and puerile attempts to homologize every point of ossification in any class of the Vertebrates with some part or other of the skeleton of all the other members of that type. I hope also it may prevent such fanciful investigations from being extended into the study of the other systems of organs.