on Classification,[3] criticizes the systems of Van Beneden, Kölliker and Vogt, on account of their violating the structural affinities of groups, implying that embryological conclusions have to be tested by a reference to the natural types of structure. In nature a specific type is often expressed in a long series of species running through a very wide range of grade; and structures so diverse in grade as those of the higher and lower extreme groups are diverse in the nature of the changes which take place in the course of embryological development. Not appreciating this fact, embryological systemists have cut the series, and made bold demarcations between parts that are essentially one in type. Thus has resulted the separation of the class of Worms from Articulates by both Van Beneden and Vogt, and of the order of Cephalopods from Mollusks by the latter, etc.; and such errors will continue to attend upon the decisions of pure embryology until the precise value of its characteristics in classification is understood.

If, then, the structural relations of the developed animals are an authority to which embryology must appeal, the adult Amphibians may claim to be considered, on a question of their relations to ordinary Reptiles, even before their eggs and young. Embryology proves that Amphibians and ordinary Reptiles are *distinct groups*, as is proved also by structural considerations; but, in the present state of the science, it can hardly be said to demonstrate that these groups are *classes*, coördinate with those of Birds and Mammals;—and I venture to say, as regards the separation of groups, that, in no state, will it prove what the adult structures will not sustain.

But, further, if it were proposed to make a Reptilian whose early life should be aquatic, could it be accomplished by means of eggs having the same chemical constitution as those of ordinary or terrestrial Reptiles? The development, at each step, involves, and depends upon, chemical changes; and it is hence

[3] See the first volume of his Contributions to the Natural History of the United States (pages 220 to 232). Even von Baer, as here quoted, in subdividing the placental Mammals, places in one group the *Carnivores*, *Insectivores* and *Rodents*, and in another *Man*, *Monkeys*, *Ruminants*, *Pachyderms* and *Cetaceans*. Van Beneden divides the Invertebrates into two groups, the *first*, including Insects, Myriapods, Spiders and Crustaceans, the *second*, the subkingdom of Mollusks, *the inferior part of the subkingdom of Articulates*, that is, *Worms*, together with the Radiates, Rhizopods and Infusoria; and his division of Polyps, among the Radiates, in his latest amendments of his system, *includes both Polyps and Acalephs*. Vogt makes three grand groups of animals: the *first*, including Vertebrates, and all Articulates *excepting Worms;* the *second*, Mollusks, Worms and Radiates; the *third*, Infusoria, and Rhizopods; and his division of Mollusks *does not embrace the Cephalopods*, while it does include a tribe of Acalephs. Recently, Prof. Huxley, in lectures before the Royal College of Surgeons, of which a report is given in the Medical Times and Gazette, for May, 1863, says, (page 555,) after discussing the importance of the placenta in Mammals as a basis of classification, that, in his view, there is no difficulty in the way of a classification which unites the Proboscideans with the Rodents rather than with Paridigitate and Imparidigitate Herbivores.