

ferent points of their longitudinal diameter. These tubes are surrounded by walls, varying in thickness, as the spaces they inclose vary in size, the upper one containing the centres of the nervous system, the lower one the organs through which life is maintained; while the walls, in connection with the intervening longitudinal axis, constitute a locomotive apparatus, and serve also to sustain the relations with the surrounding media.

These characteristics of the type of Vertebrates do not necessarily imply a definite structure; they apply as well to the imperfectly organized *Amphioxus* as to Man, for they do not involve the idea of a distinct head, nor that of locomotive appendages arranged in pairs, nor that of a branchial or pulmonary system of respiration, nor that of a heart as the centre of circulation, nor indeed any of those anatomical and histological differences or peculiarities which are constantly and, in my opinion, erroneously introduced in the characteristics of the great types of the animal kingdom. The external development of the skeleton of the Turtle no longer seems an anomaly, when we remember that it forms a part of those walls which surround the spinal cavity on the one hand, and the abdominal cavity on the other.

If we next consider the Reptiles as a class, we must remember that ever since Linnæus these animals have been considered as one class. Cuvier, and with him all herpetologists, have agreed in considering them all as one class. We find de Blainville, for the first time, insisting upon the separation of the Batrachians from the other Reptiles as a distinct class. This view has also been adopted by Milne-Edwards, while Wagler has separated a few of their extinct types, the Ichthyosauri, the Plesiosauri, and the Pterodactyli, to unite them with the Ornithorhynchus and Echidna as one class, under the name of Gryphi. The incongruity of this combination is so obvious, now that these fossil animals have been described in such a masterly manner by R. Owen, that I will not dwell upon its artificial character here. But the separation of the Batrachians from the other Reptiles as a class deserves a special notice, and if the definition I have given above of a class, as such, is correct, the result cannot be doubtful. I have stated that a class was defined by the manner in which the plan of structure of the branch to which it belongs is carried out. I have condensed that definition by saying, that the limitation of a class is a question of ways and means. Now, before applying this definition to the question of the separation of Batrachians from other Reptiles, I would make two remarks: In the first place, that this definition was not made to suit the case, but was arrived at by a critical consideration of the foundation upon which those classes rest, about whose natural limits there have never existed great doubts among naturalists, such as the class of Mammalia, that of Birds, that of Cephalopods, that of Gasteropods, that of Insects, that of Crustacea, and that of Echinoderms; in the second place, that