

Embryology has, however, a wider scope than to trace the growth of individual animals, the gradual building up of their body, the formation of their organs, and all the changes they undergo in their structure and in their form; it ought also to embrace a comparison of these forms and the successive steps of these changes between all the types of the animal kingdom, in order to furnish definite standards of their relative standing, of their affinities, of the correspondence of their organs in all their parts. Embryologists have thus far considered too exclusively, the gradual transformation of the egg into a perfect animal; there remains still a wide field of investigation to ascertain the different degrees of similarity between the successive forms an animal assumes until it has completed its growth, and the various forms of different kinds of full-grown animals of the same type; between the different stages of complication of their structure in general, and the perfect structure of their kindred; between the successive steps in the formation of all their parts and the various degrees of perfection of the parts of other groups; between the normal course of the whole development of one type compared with that of other types, as well as between the ultimate histological differences which all exhibit within certain limits. Though important fragments have been contributed upon these different points, I know how much remains to be done, from the little I have as yet been able to gather myself, by systematic research in this direction.

I have satisfied myself long ago, that Embryology furnishes the most trustworthy standard to determine the relative rank among animals. A careful comparison of the successive stages of development of the higher Batrachians furnishes, perhaps, the most striking example of the importance of such investigations. The earlier stages of the Tadpole exemplify the structure and form of those Ichthyoids which have either no legs, or very imperfect legs, with and without external gills; next it assumes a shape reminding us more of the Tritons and Salamanders, and ends with the structure of the Frog or Toad.¹ A comparison between the two latter families might prove further, that the Toads are higher than the Frogs, not only on account of their more terrestrial habits (see Sect. 16), but because the embryonic web, which, to some extent, still unites the fingers in the Frogs, disappears entirely in the Toads, and may be also, because glands are developed in their skin, which do not exist in Frogs. A similar comparison of the successive changes of a new species of *Comatula* discovered by Prof. Holmes, in the harbor of Charleston, in South Carolina, has shown me in what relation the different types of Crinoids of past ages stand to

doxus, *Trans. Zool. Soc.*, i. p. 221; *Proc. Zool. Soc.*, ii. p. 43; *Ann. Sc. Nat.*, 2d ser. ii. p. 303; iii. p. 299. — On the Generation of the Marsupial Animals, etc., *Phil. Trans.*, 1824, p. 333. — MEIGS,

(CII.) Observations on the Reproductive Organs and on the Fœtus of *Delphinus Nesarnak*, *Journ. Ac. Nat. Sc. Phil.*, new ser. 1849, vol. 1, p. 267.

¹ AGASSIZ, (L.) Twelve Lectures, etc., page 8.