

Here, as everywhere else, analogies must be traced to Adaptation, homologies to Transmission by Inheritance. When we see that the limbs of the most different Vertebrata, in spite of their exceedingly different external forms, nevertheless possess essentially the same internal structure; when we see that in the arm of a man and ape, in the wing of a man or a bird, in the breast fins of whales and sea-dragons, in the fore-legs of hoofed animals and frogs, the same bones always lie in the same characteristic position, articulation and connection—we can only explain this wonderful agreement and homology by the supposition of a common transmission by inheritance from a single primary form. On the other hand, the striking differences of these homologous bodily parts proceed from adaptation to different conditions of existence. (Compare Plate IV.)

Ontogeny, or the individual history of development, like comparative anatomy, is of especial importance to the pedigree of the Vertebrata. The first stages of development arising out of the egg are essentially identical in all Vertebrate animals, and retain their agreement the longer, the nearer the respective Vertebrate animal forms, when fully developed, stand to one another in the natural system, that is, in the pedigree. How far this agreement of germ forms, or embryos, extends, even in the most highly developed Vertebrate animals, I have already had occasion to explain (vol. i. pp. 306–309). The complete agreement in form and structure, for example, in the embryos of a man and a dog, of a bird and a tortoise, existing in the stages of development represented on Plates II. and III., is a fact of incalculable importance, and furnishes us with the most important data for the construction of their pedigree.