

go a series of changes precisely analogous to those of the tadpole.

Mammalia, during the early periods of their development, are subjected to all the transformations which have been now described, commencing with an organization corresponding to that of the aquatic tribes, exhibiting not only branchiæ, supported on branchial arches, but also branchial apertures in the neck, and thence passing quickly to the conditions of structure adapted to a terrestrial existence. The development of various parts of the system, more especially of the brain, the ear, the mouth, and the extremities, is carried still farther than in birds. Nor is the human embryo exempt from the same metamorphoses, possessing, at one period, branchiæ and branchial apertures similar to those of the cartilaginous fishes,\* a heart with a single set of cavities, and a brain consisting of a longitudinal series of tubercles; next losing its branchiæ, and acquiring lungs, while the circulation is yet single, and thus imitating the condition of the reptile; then acquiring a double circulation, but an incomplete diaphragm, like birds; afterwards, appearing like a quadruped, with a caudal prolongation of the sacrum, and an intermaxillary bone; and, lastly, changing its structure to one adapted to the erect position, accompanied by a great expansion of the cerebral hemispheres, which extend backwards so as completely to cover the cerebellum. Thus does the whole fabric arrive, by a gradual process of mutation, at an extent of elaboration and refinement, which has been justly regarded as constituting a climax of organic development, unattainable by any other race of terrestrial beings.†

\* These facts are given on the authorities of Rathke, Baer, Huschke, Breschet, &c. Ann. des Sc. Naturelles, xv. 266. See, also, the paper of Dr. A. Thomson, already quoted.

† A popular opinion has long prevailed, even among the well informed, that misshapen or monstrous productions, or *lusus naturæ*, as they were termed, exhibit but the freaks of nature, who was believed, on these occasions, capriciously to abandon her usual course, and to amuse herself in the production of grotesque beings, without any special object. But it is now found that all defective formations of this kind are occasioned by the imper-