opposed to all other Vertebrate animals which breathed through gills (Branchiata). In all the Vertebrata already discussed, we found that they either always breathed through gills, or at least did so in early life, as in the case of Frogs and Salamanders. On the other hand, we never meet with a Reptile, Bird, or Mammal which at any period of its existence breathes through gills, and the gill-arches and openings which do exist in the embryos, are, during the course of the ontogeny, changed into entirely different structures, viz., into parts of the jaw-apparatus and the organ of hearing. (Compare above, vol. i. p. 307.) All Amnionate animals have a so-called cochlea in the organ of hearing, and a "round window" corresponding with it. These parts are wanting in the Amnion-less animals; moreover, their skull lies in a straight line with the axis of the vertebral column. In Amniotic animals the base of the skull appears bent in on the abdominal side, so that the head sinks upon the breast. (Plate III. Fig. *C, D, G, H.*) The organs of tears at the side of the eye also first develop in the Amniota.

The question now is, When did this important advance take place in the course of the organic history of the earth? When did the common ancestor of all Amniota develop out of a branch of the Non-amniota, to wit, out of the branch of the Amphibia?

To this question, the fossil remains of Vertebrata do not give us a very definite, but still they do give an approximate, answer. For with the exception of two lizard-like animals found in the Permian system (the Proterosaurus and Rhopalodon), all the fossil remains of Amniota, as yet known, belong to the *secondary*, *tertiary*, and *quaternary epochs*. With regard to the two Vertebrata