

especially to the Ganoid type, would rank low, as is obvious from their exsert and loosely-hung gills without gill-covers, the absence of scales, and the general inferiority in all structural arrangements. The Ganocephs, known only as fossils and generally regarded as Perennibranch Amphibians, have, it is true, a higher grade of organization, both as regards gills and scales, being allied, in these respects, to the highest of Ganoids. And this fact, in view of the above canon, sustains the opinion of Agassiz that the Ganocephs (or Archeosaurs) are actually Ganoids,—having a Reptilian feature in the partial elongation of the limbs, but in little that is fundamental in the structure beyond what belongs essentially to the Ganoid-type.

VII. The lines of gradation between classes, orders and tribes, are only approximating, not connecting, lines, there being often wide blanks of the most fundamental character. The Ornithorhynchus, although Duck-like in some points, leaves still a very wide unfilled gap between the Mammal and Bird, and the Marsupials a still wider. The species are fundamentally Mammalian, and Bird-like only in points of secondary importance. In a similar manner, there are long blanks between the Oötocoids and higher Mammals; between Myriapods and either Insects or Spiders; between Reptiles and Mammals. The intermediate groups belong decidedly to one or the other of the two approximating groups, and are never strictly intermediate.

VIII. Under any *class, order or tribe*, the lines of gradation run in most cases between the *degradational* subdivision and severally the *gammatypic* and *betatypic* subdivisions, and far less clearly, or not at all, between the *gammatypic* and *betatypic* themselves; that is, between D and γ , and D and β , rather than β and γ . For example, in the class of Mammals, the lines run between Oötocoids and either Megasthenes or Microsthenes, and not distinctly between Megasthenes and Microsthenes; in Insecteans, between Myriapods and either Insects or Spiders, and not distinctly between Insects and Spiders; in Crustaceans, between Entomostracans and either Decapods or Tetradeapods, and not distinctly between Decapods and Tetradeapods; etc. There are exceptions to the canon; and still it is a general truth.

IX. Under any *class or order* the line of gradation between the *degradational* and the *betatypic* subdivision (or D and β) is often more distinct than that between the *degradational* and *gammatypic*, (or D and γ), although the *gammatypic* is nearer in grade to the *degradational*.—Thus, the line between Myriapods and Insects is more distinct than that between Myriapods and Spiders; or that between Entomostracans and Decapods, than that between Entomostracans and Tetradeapods.

There is an exception in the class of Mammals: the Oötocoids seem to graduate towards both Microsthenes and Megasthenes with nearly equal distinctness.