

intermediate or *Ichthyoid* one of Amphibians—the young of frogs and salamanders and other included species having gills like fishes, besides some additional fish-like peculiarities.

The parallelism between the three classes, Mammals, Birds and Reptiles, is thus complete.

(4.) Fishes have no class of Vertebrates below them, so that an *inferior* hemitypic division is not to be looked for. It might be suspected that the intermediate group in this case would be one between Fishes and the lower subkingdoms either of Mollusks or of Articulates; but none such exists. The lowest fish, an *Amphioxus*, is as distinctly a Vertebrate as the highest, and no Mollusk or Articulate exhibits any transition towards a vertebrate structure.

There are, however, *hemitypic* Fishes; but their place is towards the *top* of the class instead of at its bottom. Ganoids constitute one group of this kind, between Fishes and Reptiles, as long since pointed out by Agassiz. Again, Selachians (or Sharks and Rays) constitute another, between Fishes and the higher classes of Vertebrates. This last idea also has, we believe, been suggested by Agassiz (although we cannot refer to the place where published), this author regarding the species as intermediate in character between Fishes and the allantoidian Vertebrates. Moreover, Müller long ago observed the relation of the Sharks to the Mammals in having a vitelline placenta, by which the embryo draws nutriment from the parent, as does the mammalian fetus by means of its allantoidian placenta.

Ganoids and Selachians are, thus, two *hemitypic* groups in the class of Fishes.

The scheme of grand divisions is then as follows:*

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| I. | |
| A. Typical Mammals, | |
| B. Hemitypic Mammals. | |
| or OÖTOCIDS. | |
| II. | III. |
| A. Typical Birds, | A. Typical or true Reptiles. |
| B. Hemitypic Birds. | B. Hemitypic Reptiles, |
| or ERPETOIDS. | or AMPHIBIANS. |
| IV. | |
| A. Hemitypic Fishes, | B. Hemitypic Fishes, |
| or SELACHIANS. | or GANOIDS. |
| C. Typical Fishes, | |
| or Teliosts. | |

One of the groups of hemitypic Fishes looks directly towards Reptiles, and the other towards the three higher classes of Vertebrates collectively, but especially Mammals and Birds.

* It is here seen that the term *Oötocoid*, applied to Marsupials and Monotremes, has great significance; and so likewise, *Erpetoids*, and *Amphibians*. *Oötocoid* is simply the Greek form of the term *semi-oviparous*.