

Alphatypic,	-	-	-	-	-	1. Vertebrates.
Betatypic,	-	-	-	-	-	2. Articulates.
Gammatypic,	-	-	-	-	-	3. Mollusks.
Degradational,	-	-	-	-	-	4. Radiates.

An important dynamical distinction between Mollusks and Articulates has been suggested on page 10 of this volume.

2. *Classes of Vertebrates, Articulates, Mollusks and Radiates.*—  
(1.) The classes of *Vertebrates* are four (see page 319), namely, Mammals, Birds, Reptiles and Fishes,—three of which are typical, of different grades, parallel with the above.

(2.) The classes of *Articulates* are but three, Insecteans, Crustaceans and Worms. This is illustrated at length at page 3 of this volume, where it is shown that the three divisions of Insecteans, namely Insects, Spiders and Myriapods, are distinguished by characteristics analogous to those which separate the divisions of Crustaceans,—Decapods, Tetradeapods and Entomostracans. The facts on this point are briefly presented on page 335. Insects and Spiders do not, in fact, differ more widely in external form or in structure than Decapods and Tetradeapods.

Insecteans and Birds express in different ways the same type-idea,—that of aerial life, Birds being flying Vertebrates and Insects flying Articulates; and, in accordance, they are of the same grade of type, both being *betatypic*. This follows, further, from the fact that there are but two grand divisions of Insecteans above the degradational division, that of Worms.

(3.) Among *Mollusks*, there are two well-characterized classes, the *first* including the *ordinary* Mollusks; the *second*, the *Ascidoids*, or the Brachiopods and Ascidiarians, which are mostly attached species and thus hemiphytoid. Besides these, there are the Bryozoans, which either make a third division under the Ascidoids (Edwards having long since pointed out their relations to the Ascidiarians); or they constitute a *third* class of Mollusks, characterized by being polyp-like both in external appearance and in being attached, and hence doubly hemiphytoid.

(4.) The *Radiates* are all degradational in their relations to the animal-type. But under the *Radiate-type*, the species of the first two classes are within type-limits, while those of the third are degradational, since almost all are attached and very inferior in type of structure, being the most phytoid of phytoid animals. The grades of structure as marked in the digestive system are as follows: (1) having approximately normal viscera, as in Echinoderms; (2) having, for the digestive system, only a stomach cavity, with vessels, imbedded in the tissues, radiating from it, as in Acalephs; (3) having, for the same, no system of viscera or radiating vessels; but only a central stomach surrounded by a cavity more or less divided at its sides by partitions, as in Polyps.