

**Mammalia.** But I hold, at the same time, with other naturalists, that the *Batrachia* must be separated, as a class, from the true Reptiles, as the characters which distinguish them are of the kind upon which classes are founded. I am also satisfied that the differences which exist between the Selachians, (the Skates, Sharks, and *Chimæra*;) are of the same kind as those which distinguish the Amphibians from the Reptiles proper, and justify, therefore, their separation, as a class, from the Fishes proper. I consider also the Cyclostomes as a distinct class, for similar reasons; but I am still doubtful whether the Ganoids should be separated also from the ordinary Fishes. This, however, cannot be decided until their embryological development has been thoroughly investigated, though I have already collected data which favor this view of the case. Should this expectation be realized, the branch of Vertebrata would contain the following classes:—

1st Class: *Myzontes*; with two orders, *Myxinoids* and *Cyclostomes*.

2d Class: *Fishes* proper; with two orders, *Ctenoids* and *Cycloids*.

3d Class: *Ganoids*; with three orders, *Coelacanth*s, *Acipenseroids*, and *Sauroids*; and doubtful, the *Siluroids*, *Plectognaths*, and *Lophobranches*.

4th Class: *Selachians*; with three orders, *Chimæra*, *Galeodes*, and *Batides*.

5th Class: *Amphibians*; with three orders, *Cæcilie*, *Ichthyodi*, and *Anura*.

6th Class: *Reptiles*; with four orders, *Serpentes*, *Saurii*, *Rhizodontes*, and *Testudinata*.

7th Class: *Birds*; with four orders, *Natatores*, *Grallæ*, *Rasores*, and *Insessores*, (including *Scansores* and *Accipitres*.)

8th Class: *Mammalia*; with three orders, *Marsupialia*, *Herbivora*, and *Carnivora*.

I shall avail myself of an early opportunity to investigate more fully how far these groups of Vertebrata exhibit such characters as distinguish classes, and I submit my present impressions upon this subject, rather as suggestions for further researches, than as matured results.

## SECTION II.

### EARLY ATTEMPTS TO CLASSIFY ANIMALS.

So few American naturalists have paid special attention to the classification of the animal kingdom in general, that I deem it necessary to allude to the different principles which, at different times, have guided zoölogists in their attempts to group animals according to their natural affinities. This will appear the more