

animals (*Cyclostoma*), which includes the Hags (*Myxinoida*) and Lampreys (*Petromyzonta*). The third class contains only the genuine Fish (*Pisces*): the Mud-fishes (*Dipneusta*) are added to these as a fourth class, and form the transition from Fish to Amphibious animals. This distinction, which, as will be seen immediately, is very important for the genealogy of the Vertebrate animals, increases the original number of Vertebrate classes from four to eight.

In most recent times a ninth class of Vertebrata has been added to these eight classes. Gegenbaur's recently published investigations in comparative anatomy prove that the remarkable class of *Sea-dragons* (*Halisauria*), which have hitherto been included among Reptiles, must be considered quite distinct from these, and as a separate class which branched off from the Vertebrate stock, even before the Amphibious animals. To it belong the celebrated large *Ichthyosauri* and *Plesiosauri* of the oolitic and chalk periods, and the older *Simosauri* of the Trias period, all of which are more closely allied to Fish than to Amphibious animals.

These nine classes of Vertebrate animals are, however, by no means of the same genealogical value. Hence we must divide them, as I have already shown in the Systematic Survey on p. 133, into four distinct main-classes or tribes. In the first place, the three highest classes, Mammals, Birds, and Reptiles, may be comprised as a natural main-class under the name of *Amnion animals* (*Amnionata*). The *Amnionless animals* (*Anamnionata*), naturally opposed to them as a second main-class, include the four classes of Batrachians, Sea-dragons, Mud-fish, and Fishes. The seven classes just named, the *Anamnionata* as well as the *Amnionata*, agree among one another in numerous characteristics, which dis-