

neutral stages) exhibited the condition of hermaphrodites (hermaphroditism). (Compare vol. i. p. 196.) The *certain proof* of the former existence of these skull-less and brain-less ancestors of man, is furnished by the comparative anatomy and the ontogeny of the *Amphioxus* and of the *Craniota*.

TENTH STAGE : Single-nostriled Animals (*Monorrhina*).

Out of the Skull-less ancestors of man there arose in the first place animals with skulls, or *Craniota*, of the most imperfect nature. The lowest stage of all still living *Craniota* is occupied by the class of round-mouthed animals, or *Cyclostoma*, namely, the Hag (*Myxinoidea*) and Lampreys (*Petromyzontia*). From the internal organization of these single-nostriled animals, or *Monorrhina*, we can form an approximate idea of the nature of the human ancestors of the tenth stage. In the former, as also in the latter, skull and brain must have been of the simplest form, and many important organs, as for example, the swimming bladder, the sympathetic nerve, the spleen, the jaw skeleton, and both pairs of legs, may probably as yet not have existed. However, the pouch gills and the round sucking mouth of the *Cyclostoma* must probably be looked upon as purely adaptive characteristics, which did not exist in the corresponding stage of ancestors. The single-nostriled animals originated during the primordial period out of the skull-less animals by the anterior end of the dorsal marrow developing into the brain, and the anterior end of the dorsal chord into the skull. The *certain proof* that such single-nostriled and jawless ancestors of man did exist, is found in the "comparative anatomy of the *Myxinoidea*."