begin the series of Double-nostriled animals, is distinguished from the other six classes of the series by the swimming bladder never developing into lungs, but acting only as a hydrostatic apparatus. Agreeing with this, we find that in fish the nose is formed by two blind holes in front of the mouth, which never pierce the palate so as to open into the cavity of the mouth. In the other six classes of double-nostriled animals, both nostrils are changed into air passages which pierce the palate, and thus conduct air to the lungs. Genuine fish (after the exclusion of the Dipneusta) are accordingly the only double-nostriled animals which exclusively breathe through gills and never through lungs. In accordance with this, they all live in water, and both pairs of their legs have retained the original form of paddling fins.

Genuine fish are divided into three distinct sub-classes, namely, Primæval fish, Ganoid fish, and Osseous fish. The oldest of these, where the original form has been most faithfully preserved, is that of the *Primæval fish* (Selachii). Of these there still exist Sharks (Squali), and Rays (Rajæ), which are classed together as cross-mouthed fishes (Plagiostomi), and the strange and grotesquely formed Sea-cats, or *Chimæracei* (Holocephali). These primary fish of the present day, which are met with in all seas, are only poor remains of the prevailing animal groups, rich in forms, which the Selachii formed in the earlier periods of the earth's history, and especially during the palæolithic period. Unfortunately all Primæval fish possess a cartilaginous, never a completely osseous skeleton, which is but little, if at all, capable of being petrified. The only hard parts of the body which could be preserved in a fossil state, are the