

*Malacopterygii*, or soft-finned order of Cuvier — an order to which all these well-known fish, with an immense multitude of others, belong. Thus the results of the principle of classification adopted by Agassiz wonderfully agree with the results of the less simple principles adopted by Cuvier and the other masters in this department of Natural History. Now, it is peculiar to yet a fourth order, the Ganoidean, or shining-scaled order, that by much the greater number of the genera which it comprises exist only in the fossil state. At least five sixths of the whole were ascertained to be extinct several years ago, at a time when the knowledge of fossil Ichthyology was much more limited than at present : the proportions are now found to be immensely greater on the side of the dead. And this order seems to have included all the semi-osseous, semi-cartilaginous ichthyolites of the Lower Old Red Sandstone : the enamelled scale is the characteristic, according to Agassiz's principle of classification, of the existences that filled the gap so often alluded to as existing in the present creation. All their scales glitter with enamel : they bore to this order the relation that the cartilaginous fish bear to the Placoidean order, the thorny-finned fish to the Ctenoidean order, and the soft-finned fish to the Cycloidean order. It also included, with the semi-cartilaginous, the sauroid fish — those master existences and tyrants of the earlier vertebrata ; and both classes find their representatives among the comparatively few ganoid fishes of the present creation ; the one in the sturgeon family, which of all existing families approaches nearest in other respects to the extinct semi-cartilaginous fishes ; the other in the sauroid genus *Lepidosteus*, to which the bony pike belongs. The head, back, and sides of the sturgeon are defended, as has been already remarked, by longitudinal rows of hard osseous bosses — the bony pike is