

but a creature with a skull as naked as its teeth, — the bone being merely covered, as in these, by a hard, shining enamel, — and with toes also of bare enamelled bone, would be deemed an anomaly in creation. And yet such was the condition of the *Osteolepis*, and many of its contemporaries. The enamelled teeth were placed in jaws which presented outside a surface as naked and as finely enamelled as their own. (See Plate IV., fig. 5.) The entire head was covered with enamelled osseous plates, furnished inside like other bones, as shown by their cellular construction, with their nourishing bloodvessels, and perhaps their oil, and which rested apparently on the cartilaginous box, which must have enclosed the brain, and connected it with the vertebral column. I cannot better illustrate the peculiar condition of the fins of this ichthyolite than by the webbed foot of a water-fowl. The web or membrane in all the aquatic birds with which we are acquainted not only connects, but also covers the toes. The web or membrane in the fins of existing fishes accomplishes a similar purpose; it both connects and covers the supporting bones or rays. Imagine, however, a webbed foot in which the toes — connected, but not covered — present, as in skeletons, an upper and under surface of naked bone; and a very correct idea may be formed, from such a foot, of the condition of fin which obtained among at least one half the ichthyolites of the Lower Old Red Sandstone. The supporting bones or rays seem to have been connected laterally by the membrane; but on both sides they presented bony and finely enamelled surfaces. (See Plate IV., fig. 6.) In this singular class of fish, all was bone without, and all was cartilage within; and the bone in every instance, whether in the form of jaws or of plates, of scales or of rays, presented an external surface of enamel.