

variably agreeing, and the wanting portions invariably agreeing also — it seems but natural to conclude that an original difference must have obtained, and that the existing parts, which we can at once recognize as bone, must have been united to parts now wanting, which were composed of cartilage. The naturalist never doubts that the shark's teeth, which he finds detached on the shore, or buried in some ancient formation, were united originally to cartilaginous jaws. Now, in breaking open all the ichthyolites of the Lower Old Red Sandstone, with the exception of those of the two families already described, we find that some of the parts are invariably wanting, however excellent the state of preservation maintained by the rest. I have seen every scale preserved and in its place — one set of both the larger and smaller bones occupying their original position — jaws thickly set with teeth still undetached from the head — the massy bones of the skull still unseparated — the larger shoulder-bone, on which the operculum rests, lying in its proper bed — the operculum itself entire — and all the external rays which support the fins, though frequently fine as hairs, spreading out distinct as the fibres in the wing of the dragon-fly, or the woody nerves in an oak-leaf. In no case, however, have I succeeded in finding a single joint of the vertebral column, or the trace of a single internal ray. No part of the internal skeleton survives, nor does its disappearance seem to have had any connection with the greater mass of putrescent matter which must have surrounded it, seeing that the external rays of the fins show quite as entire when turned over upon the body, as sometimes occurs, as when spread out from it in profile. Besides, in the ichthyolites of the chalk, no parts of the skeleton are better preserved than the internal parts — the vertebral joints, and the internal rays. The reader *must*