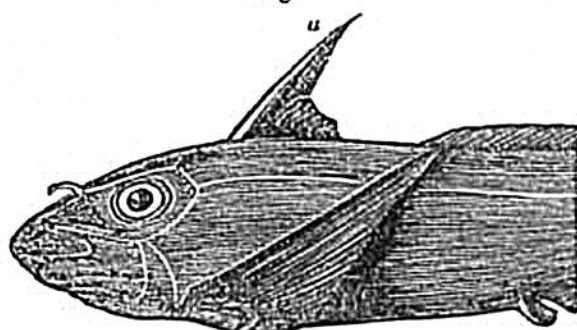


appear to have been bony spines which formed the anterior part of the dorsal fin, like that of the living genera *Cestracion* and *Chimæra* (see *a*, fig. 414). In both of these genera, the posterior concave face is armed

Fig. 414.

*Chimæra monstrosa*.\*

*a*. Spine forming anterior part of the dorsal fin.

with small spines, as in that of the fossil *Hybodus* (fig. 413), one of the shark family found fossil at Lyme Regis. Such spines are simply imbedded in the flesh, and attached to strong muscles. "They serve," says Dr. Buckland, "as in the *Chimæra* (fig. 414), to raise and depress the fin, their action resembling that of a movable mast, raising and lowering backwards the sail of a barge."†

*Reptiles of the Lias*.—It is not, however, the fossil fish which form the most striking feature in the organic remains of the Lias; but the reptiles, which are extraordinary for their number, size, and structure. Among the most singular of these are several species of *Ichthyosaurus* and *Plesiosaurus* (figs. 415, 416). The genus *Ichthyosaurus*, or fish-lizard, is not confined to this formation, but has been found in strata as high as the lower chalk of England, and as low as the trias of Germany, a formation which immediately succeeds the lias in the descending order.‡ It is evident from their fish-like vertebræ, their paddles, resembling those of a porpoise or whale, the length of their tail, and other parts of their structure, that the habits of the Ichthyosaurs were aquatic. Their jaws and teeth show that they were carnivorous; and the half-digested remains of fishes and reptiles, found within their skeletons, indicate the precise nature of their food.§

A specimen of the hinder fin or paddle of *Ichthyosaurus communis* was discovered in 1840 at Barrow-on-Soar, by Sir P. Egerton, which distinctly exhibits on its posterior margin the remains of cartilaginous rays that bifurcate as they approach the edge, like those in the fin of a fish (see *a*, fig. 417). It had previously been supposed, says Prof. Owen, that the locomotive organs of the Ichthyosaurus were enveloped, while living, in a smooth integument, like that of the turtle and porpoise, which has no other support than is afforded by the bones and ligaments within; but it now appears that the fin was much larger, expanding far

\* Agassiz, Poissons Fossiles, vol. iii. tab. C. fig. 1.

† Bridgewater Treatise, p. 290.

‡ Ibid. p. 168.

§ Ibid. p. 187.