

*Fossil Spines, or Ichthyodorulites.\**

The bony spines of the dorsal fins of the Port Jackson Shark (Pl. 1. Fig. 18.) throw important light on the history of fossil Spines; and enable

perishable nature of the cartilaginous bones to which they were attached; hence the spines and teeth usually afford the only evidence of the former existence of these extinct fossil species. They are dispersed abundantly throughout all strata, from the Carboniferous series to the most recent Chalk.

In Plate 27<sup>e</sup>, Figs. 1, 2, represent a series of teeth of the genus *Acrodus*, in the family of Cestracionts, from the lias of Somersetshire; and Pl. 27<sup>f</sup>, a series of teeth of the genus *Ptychodus*, in the same family, a genus which occurs abundantly and exclusively in the Chalk formation.

In the section Pl. 1, Fig. 19 represents a tooth of *Psammodus*, and Fig. 19', a tooth of *Orodus*, from the Carboniferous limestone; and Fig. 18', a recent tooth of the Cestracion *Philippi*. The Cestracion *Philippi*, (Pl. 1, Fig. 18, and Pl. 27<sup>d</sup>, A.) is the only living species in the family of Sharks that has flat tessellated teeth, and enables us to refer numerous fossil teeth of similar construction to the same family. As the small anterior cutting teeth (Pl. 27<sup>d</sup>, A. Figs. 1. 2. 5.) in this species, present a character of true Sharks, which has not been found in any of the fossil Cestracionts, we have in this dentition of a living species, the only known link that connects the nearly extinct family of Cestracionts with the true Sharks or Squaloids.

The second division of the family of Sharks, Hybodonts, commencing probably with the Coal formation, prevailed during the deposition of all the Secondary strata beneath the Chalk; the teeth of this division possess intermediate characters between the blunt polygonal crushing teeth of the sub-family Cestracion, and the smooth and sharp-edged cutting teeth of the Squaloids, or true Sharks, which commenced with the Cretaceous formations. They

\* See Pl. 27<sup>d</sup>. C. 3.