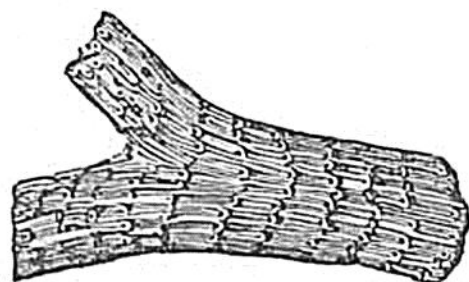


the time when the ancient Red Shale, usually termed, in the United States, "infra-carboniferous," was in the course of deposition.

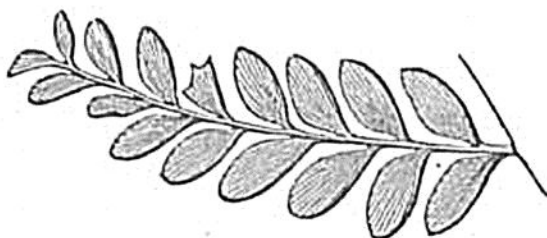
In Ireland, the upper beds of the Old Red or yellow sandstone of Kilkenny contain fish of the genera *Coccosteus* and *Dendrodus*, characteristic forms of this period, together with plants specifically distinct from any known in the coal-measures, but referable to the genera found in them; as, for example, *Lepidodendron* and *Cyclopteris* (see figs. 538 and 539). The stems of the latter have, in some specimens, broad bases of attachment, and may therefore have been tree-ferns.

Fig. 538.



Stem of *Lepidodendron*, so compressed as to destroy the quinqueax arrangement of the scars. Upper Devonian, Kilkenny.

Fig. 539.

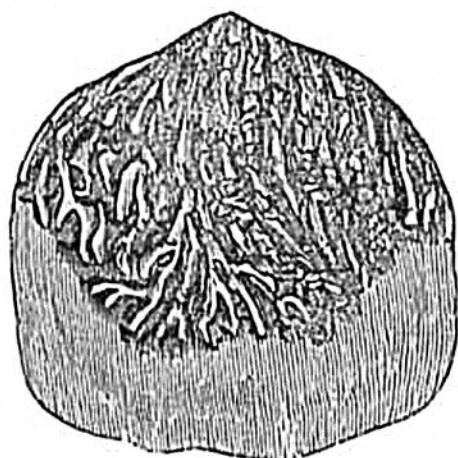


Cyclopteris Hibernica, Forbes.
Upper Devonian, Kilkenny.

In the same strata shells having the form of the genus *Anodon*, and which probably belonged to freshwater testacea, occur. Some geologists, it is true, still doubt whether these beds ought not rather to be classed as the lowest beds of the carboniferous series, together with the yellow sandstone of Mr. Griffiths (see p. 359); but the associated ichthyolites and the distinct specific character of the plants, seem to favor the opinion above expressed.

B. (Table, p. 412.)—We come next to the middle division of the "Old Red," as exhibited south of the Grampians, and consisting of—1st, red shale and sandstone, with some cornstone, occupying the Valley of Strathmore, in its course from Stonehaven to the Firth of Clyde; and,

Fig. 540.



Scales of *Holoptychius nobilissimus*, Agas.
Clashbinnie. Nat. size.

2dly, of a conglomerate, seen both at the foot of the Grampians, and on the flanks of the Sidlaw Hills, as shown in the section at p. 48, Nos. 1, 2, and 3. In the uppermost part of the division No. 1, or in the beds which, in Fife, underlie the yellow sandstone, the scales of a large ganoid fish, of the genus *Holoptychius*, were first observed by Dr. Fleming, at Clashbinnie, near Perth; and an entire specimen, more than 2 feet in length, was afterwards found by Mr. Noble. Some of these scales (see fig. 540) measured 3 inches in length, and $2\frac{1}{2}$ in breadth.