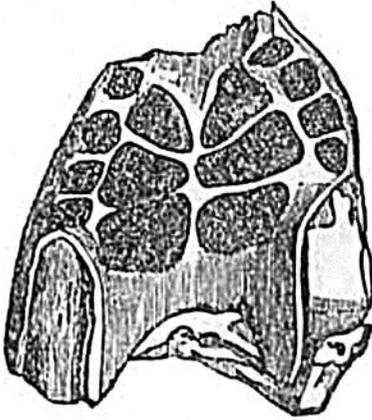


to the Muschelkalk. In the same formation are found ganoid fish with heterocercal tails, of the genus *Placodus*. (See fig. 430.)

Fig. 430.



Palatal teeth of *Placodus gigas*.
Muschelkalk.

Fig. 431.



a. *Voltzia heterophylla*. (Syn. *Voltzia brevifolia*.)
b. Portion of same magnified to show fructification. Sulzbad. Bunter-sandstein.

The *Bunter-sandstein* consists of various colored sandstones, dolomites, and red-clays, with some beds, especially in the Hartz, of calcareous pisolite or roe-stone, the whole sometimes attaining a thickness of more than 1000 feet. The sandstone of the Vosges, according to Von Meyer, is proved, by the presence of *Labyrinthodon*, to belong to this lowest member of the Triassic group. At Sulzbad (or Soultz-les-bains), near Strasburg, on the flanks of the Vosges, many plants have been obtained from the "bunter," especially conifers of the extinct genus *Voltzia*, peculiar to this period, in which even the fructification has been preserved. (See fig. 431.)

Out of thirty species of ferns, cycads, conifers, and other plants, enumerated by M. Ad. Brongniart, in 1849, as coming from the "gres bigarré," or Bunter, not one is common to the Keuper.* This difference, however, may arise partly from the fact that the flora of "the Bunter" has been almost entirely derived from one district (the neighborhood of Strasburg), and its peculiarities may be local.

The footprints of a reptile (*Labyrinthodon*) have been observed on the clays of this member of the Trias, near Hildburghausen, in Saxony, impressed on the upper surface of the beds, and standing out as casts in relief from the under sides of incumbent slabs of sandstone. To these I shall again allude in the sequel; they attest, as well as the accompanying ripple-marks, and the cracks which traverse the clays, the gradual deposition of the beds of this formation in shallow water, and sometimes between high and low water.

Triassic Group in England.

In England the Lias is succeeded by conformable strata of red and green marl, or clay. There intervenes, however, both in the neighborhood of Axmouth, in Devonshire, and in the cliffs of Westbury and

* Tableau des Genres de Vég. Fos., Dict. Univ. 1849.