and Primary fossiliferous strata, it must be run through the middle of what was once called the 'New Red.' The inferior half of this group will rank as Primary or Palæozoic, while its upper member will form the base of the Secondary or Mesozoic series."* Among the *Equiseta* of the Permian formation of Saxony, Colonel Von Gutbier found *Calamites gigas* and sixty species of fossil plants, most of them Ferns, forty of which have not been found elsewhere. Among these are several species of *Walchia*, a genus of Conifers, of which an example is given in Fig. 75. In their stems, leaves, and cones, they bear some resemblance to the *Araucarias*, which have been introduced from North America into our pleasure-grounds during the last half-century.

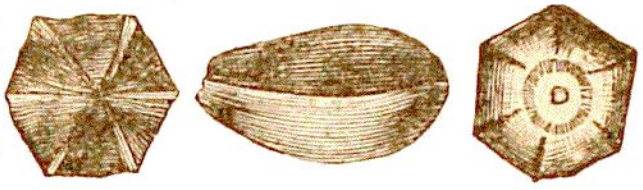

Fig. 76.—Trigonocarpum Nöggerathii.

Among the genera enumerated by Colonel Von Gutbier are some fruits called *Cardiocarpon*, and *Asterophyllites* and *Annularia*, so characteristic of the Carboniferous age. The Lepidodendron is also common to the Permian rocks of Saxony, Russia, and Thuringia; also the *Nöggerathia*, a family of large trees, intermediate between Cycads (Fig. 72) and the Conifers. The fruit of one of these is represented in Fig 76.

PERMIAN ROCKS.—We now give a sketch of the physiognomy of the earth in Permian times. Of what do the beds consist? what is the extent, and what is the mineralogical constitution of the rocks deposited in the seas of the period? The Permian formation consists of three members, which are in descending order—

1. Upper Permian sandstone, or Grès des Vosges; 2. Magnesian Limestone, or Zechstein; 3. Lower Red Sandstone, Marl-slate or Kupferschiefer, and Rothliegende.

The *grès des Vosges*, usually of a red colour, and from 300 to 450 feet thick, composes all the southern part of the Vosges Mountains, where it forms frequent level summits, which are evidences of an ancient plain that has been acted on by running water. It only contains a few vegetable remains.

The *Magnesian Limestone*, Pierre de mine, or Zechstein, so called in consequence of the numerous metalliferous deposits met with in its diverse beds, presents in France only a few insignificant fragments; but in Germany and England it attains the thickness of 450 feet

* "Elements of Geology," p. 456.