

separate and in transverse lines. Witham's name was changed by Goeppert to *Araucarites*, to indicate the similarity of these woods to *Araucaria*, *Pinites* being reserved for trees more closely allied to the ordinary pines. Endlicher, restricting *Araucarites* to foliage, etc., of *Araucaria*-like trees, gave the name *Dadoxylon* to the wood; and this, through Unger's "Genera and Species," has gained somewhat general acceptance. Endlicher also gave the name *Pissadendron* to the species which Witham had called *Pitus*; but Brongniart proposed the name *Palæoxylon* to include all the species with thick and complex medullary rays, whatever the arrangement of the discs. In Schimper's new work Kraus substitutes *Araucarioxylon* for Endlicher's *Dadoxylon*, and includes under *Pissadendron* all the species placed by Brongniart in *Palæoxylon*.

To understand all this confusion, it may be observed that the characters available in the determination of Palæozoic coniferous wood are chiefly the form and arrangement of the wood-cells, the character of the bordered pores or discs of their walls, and the form and composition of the medullary rays.

The character on which Witham separated his genus *Pitus* from *Pinites* is, as I have ascertained by examination of slices of one of his original specimens kindly presented to me by Mr. Sanderson, of Edinburgh, dependent on state of preservation, the imperfectly preserved discs or areolations of the walls of the fibre presenting the appearance of separate and distinct circles, while in other parts of the same specimens these discs are seen to be contiguous and to assume hexagonal forms, so that in this respect they do not really differ from the ordinary species of *Dadoxylon*. The true character for subdividing those species which are especially characteristic of the Carboniferous, is the composite structure of the medullary rays, which are thick and composed of several radial piles of cells placed side by side. This was the character employed by Brongniart in separating the genus *Palæoxylon*, though he might with convenience have retained Witham's name, merely transferring to the genus the species of Witham's *Pinites* which have complex medullary rays. The Erian rocks present the greatest variety of types, and *Palæoxylon* is especially characteristic of the Lower Carboniferous, while species of *Dadoxylon* with two rows of bordered pores and simple medullary rays are especially plentiful in the upper coal-formation and Permian-Carboniferous.

The following table will clearly show the distinctive characters and relations of the genera in question, as held by the several authors above referred to: