

trees of the primeval forests of our globe, and some of the largest living Coniferæ.*

The structure of Araucarias alone has been as yet identified in trees from the Carboniferous series of Britain.† That of ordinary Pines oc-

* The transverse section of any coniferous wood in addition to the radiating and concentric lines represented Pl. 56^a, Fig. 7, exhibits under the microscope a system of reticulations by which Coniferæ are distinguishable from other plants. The form of these reticulations magnified 400 times is given in Pl. 56^a, Figs. 2, 4, 6. These apertures are transverse sections of the same vessels, which are seen in a longitudinal section at Pl. 56^a, Fig. 8, cut from the centre towards the bark, and parallel to the medullary rays. These vessels exhibit a characteristic and beautiful structure, whereby a distinction is marked between true Pines and Araucarias. In such a section the small and uniform longitudinal vessels, (Pl. 56^a, Fig. 8) which constitute the woody fibre, present at intervals a remarkable appearance of small, nearly circular figures disposed in vertical rows (See Pl. 56^a, Figs. 1, 3, 5). These objects under the name of glands or discs, are differently arranged in different species; they are generally circular, but sometimes elliptical, and when near each other, become angular. Each of these discs has near its centre a smaller circular areola. Pl. 56^a, Fig. 1, represents their appearance in the *Pinus strobus* of North America.

In some Coniferæ, the discs are in single rows; in others, in double as well as single rows, e. g. in *Pinus strobus*, Pl. 56^a, Fig. 1.

Throughout the entire genus of living Pines, when double rows of discs occur in one vessel, the discs of both rows are placed side by side, and never alternate, and the number of the rows of discs is never more than two.

In the Araucarias the groups of discs are arranged in single, double, triple and sometimes quadruple rows, see Pl. 56^a, Fig. 3, 5. They are much smaller than those in the true Pines, scarcely half their size, and in the double rows they always *alternate* with