

monographic description of a large part of the Cryptogams. Nevertheless, the unfinished work created a model of the best methods of palæophytological investigation.

Although an adherent of Cuvier's theory, Brongniart pointed out the gradual development of the floras in successive geological periods, and thought that the atmosphere, which had been in the earliest epochs warm and moist and supersaturated with carbonic acid gas, became purer and colder in course of time, and less suitable for the lavish development of vascular cryptogams. According to Brongniart, plant-life began on small islands in the primæval ocean; these islands afterwards united to continents, and the vegetation that spread over them always progressed towards more perfect types, and approached more nearly to the flora of the present epoch. He thought that the great changes in the floras and faunas of past ages had been effected contemporaneously by stupendous revolutions.

Peculiar results were obtained by J. Lindley and W. Hutton in their study of the fossil flora of Great Britain. Their unfinished work, consisting of three octavo volumes, was published between 1831 and 1837, and contains good descriptions and illustrations of most of the Carboniferous types. Both authors contest the existence of tree-ferns in the Carboniferous formation, doubt the relationship of the Calamites to the Equisetaceæ, and are of opinion that the Carboniferous flora included not only Conifers, but Cacti, Euphorbias, and other dicotyledons. They altogether deny a progressive development of the fossil floras.

Brongniart and his predecessors had identified the fossil forms exclusively from microscopic features: the finer structures came little into consideration. A new field of research was opened by several papers which gave an account of the microscopic structure of wood. One of the earliest was an essay by Sprengel (1828) on the silicified stems of trees (Psaronites). This was followed in 1831 by Witham's treatise on the structure of fossil and recent woods, and in 1832 by Cotta's richly illustrated work on the tree-ferns (various species of Psaronius) from the Red Underlyer or Lower Dyassic rocks of Saxony. An important work was published by August Corda between the years 1838 and 1842 on the comparative structure of fossil and recent stems. The illustrations of this work were admirably drawn by the author himself. The memoir in 1839