

land, Saxony, and Rhenish Prussia. The Black Creek altogether lacks the fern remains and the other elements of the Raritan formation of New Jersey which are to be considered as survivals from the flora of the Lower Cretaceous Patapsco formation. Twenty-seven of the Black Creek species occur in the Magothy formation of New Jersey and Maryland, the flora of the latter containing several as yet unpublished additions to this list. While this is a less number than is common to the Raritan, it embraces certain forms which, although making their first appearance in the upper Raritan at South Amboy, New Jersey, and Kreischerville, Staten Island, are especially characteristic of the Magothy formation. Among the characteristic forms common to the Black Creek and the Magothy may be mentioned *Araucaria bladenensis* Berry, *Andromeda novae-caesareae* Hollick, various species of *Eucalyptus*, *Magnolia Capellinii* Heer, *Moriconia americana* Berry, *Pistia Nordenskioldi* (Heer) Berry, *Pinus raritanensis* Berry, *Podozamites Knowltoni* Berry, *Salix flexuosa* Newb., and *Lesquereuxi* Berry, etc. A typical Magothy species described originally from the Senonian of Europe and not found in Raritan deposits is *Cunninghamites elegans* (Corda) Endl., which is very abundant in the lower Black River beds. Seventeen of the Black Creek species occur in the Dakota sandstone, 14 in the Atane beds of Greenland, 6 in the Patoot beds of Greenland, 8 in the Cenomanian of Moravia, 2 in the Cenomanian of Dalmatia, 8 in the Cenomanian of Bohemia, 3 in the Turonian of France, 1 in the Senonian of Bulgaria, and 2 in the Senonian of Westphalia and Prussia.

"The character of the Black Creek flora as a whole shows conclusively that it is younger than the Raritan flora and must be correlated with that of the Magothy formation of the northern Coastal Plain and with at least the major part of the upper Tuscaloosa and the lower Eutaw of Alabama with which it is practically connected by certain as yet poorly defined formations in South Carolina and Georgia. It is also to be correlated with the Dakota Group flora of the west.

"Regarding the broader question of detailed correlation with the European time scale, it is perhaps premature to speak at the present time. In a forthcoming report for the New Jersey Geological Survey the Cenomanian age of the Raritan formation is shown in detail.¹ The evidence of the fossil plants is such, however, that the Magothy, Black Creek and upper Tuscaloosa formations must be regarded as either late Cenomanian or possible Turonian age. The latter supposition is not capable of direct proof, since the Turonian flora of Europe is too meager to form any basis for comparison.² It rests on the assumption that the Dakota Group flora should, along with the overlying Benton fauna, be referred to this stage, since the latter has been generally regarded as earlier than the Senonian. The Magothy and Black Creek floras cannot be younger than that of the Dakota Group, which has always been considered as of Cenomanian age."

The evidence afforded, therefore, by the invertebrates and plants is apparently in conflict, since the former present a Senonian facies

¹Berry, Jour. Geol., vol. 18, pp. 252-258, 1910.

²Through the kindness of Professor Laurent, the writer has received a list of the Turonian plants of Southern France contained in the Museum at Marseilles. Out of a total of 15 species provisionally recognized, 4 are identical with Black Creek or Magothy forms, while *Araucaria Toucasi* Sap. represents *Araucaria bladenensis* Berry.