

## CHAPTER IV.

### THE CORRELATION OF THE COASTAL PLAIN FORMATIONS OF NORTH CAROLINA.

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The correlation of the geological formations of the North Carolina Coastal Plain is based on both physical and paleontological criteria. Among the physical elements that enter into such correlation are continuity of the strata, similarity of lithologic characters, similarity of sequence, and similarity of topographic form, while the paleontological factors, which are by far the most important generally for final discrimination, are based on identity of the species and the faunal and floral grouping.

The physical criteria are alone available in the case of the Patuxent, Lafayette, Coharie, Sunderland, Wicomico, Chowan, and Pamlico formations, since fossils are either lacking or, when present, as in the case of some of the Pleistocene formations, are not sufficiently distinctive to be of any aid in establishing the equivalency of the deposits. The paleontological criteria are available in the case of the Black Creek, Peedee, Trent, Castle Hayne, St. Marys, Yorktown, Duplin, and Waccamaw formations, and with the physical criteria make it possible to approach the problem with a larger amount of evidence than in the case of the first group. It is fortunate, however, that in the case of the earliest and among the youngest formations the available physical criteria are such as to render their correlation quite as satisfactory as in the case of some of those of the second group.

Dr. L. W. Stephenson and Mr. E. W. Berry, under the direction of Dr. T. Wayland Vaughan, have greatly enlarged our knowledge of the stratigraphy and paleontology of the South Atlantic and Gulf States, and the results of their work have been available for the comparisons with the southern districts south of North Carolina.

The formations will be considered chronologically in the order of their occurrence.

#### PATUXENT FORMATION.

The Patuxent formation, in the absence of recognizable fossils, can only be correlated with the deposits of other areas on physical grounds. In stratigraphic position and lithologic character it is similar to the Patuxent deposits of Virginia and Maryland. The continuity of the strata is interrupted over a considerable area in southern Virginia, due