

from its typical occurrence in the valley of the Patapsco river, forms the lowest division of the Cretaceous deposits here described. It extends entirely across the state from the Delaware border to the Potomac river, and throughout this distance is one of the most important members of the Cretaceous series.

The deposits of this division consist chiefly of highly colored and variegated clays which grade over into lighter colored sandy clays, while sandy bands of coarser materials are at times interstratified. The sands frequently contain much decomposed feldspar, and rounded lumps of clay occur at times. The sands are often cross-bedded, and all the deposits give evidence of shallow water origin. The formation is estimated to reach a thickness of 200 feet. The deposits rest very unconformably upon the Arundel below.

The fossils obtained from this formation consist entirely of plant impressions and a few indeterminate molluscan shells. The flora is very rich both in species and individuals. It has already been extensively investigated by Professor Ward of the U. S. Geological Survey, who finds a considerable representation of dicotyledonous types of vegetable life among the forms examined. The general assemblage of types is distinctly Cretaceous.

THE RARITAN FORMATION.—The Raritan formation, so called from its typical development in the valley of the Raritan river in New Jersey, extends across that state into Maryland. It is found in Cecil and Kent counties and extends thence southeastward along the eastern border of Harford and Baltimore counties into Anne Arundel county, where it broadens out and occupies a large extent of country along the Severn river. Beyond the Patuxent valley the area of outcrop narrows, as the result of the transgression of the overlying upper Cretaceous strata.

The deposits of the Raritan formation consist chiefly of thick-bedded and light colored sands, which at times become gravels. Frequently in the lower portion of the formation the sands grade over into clays, which are generally light in color and highly silicious, although they are sometimes deeply colored. The thickness of the Raritan formation reaches about 500 feet. The deposits overlies unconformably the Patapsco sediments below.