

igneous origin, the former so altered as to no longer preserve the remains of organisms by which their age may be determined, while overlying these in places were Triassic sandstones, shales, conglomerates, and igneous rocks in the district to the west of the present Coastal Plain.

The base-leveled condition of this Piedmont region at the opening of the Cretaceous had permitted the deep decay of the rocks and removal by percolating waters of a large part of their more soluble constituents, as a result of which the remaining less easily soluble quartz, kaolin, and mica were rendered in a fit condition for rapid mechanical removal.

The large content of silica in the form of quartz grains, as a rule quite angular, which probably does not fall below 25 per cent even in the purest clays,¹ the usual large percentage of kaolin grains whose angularity in many instances shows them to have been deposited shortly after their removal from their source without subsequent reworking, and the common occurrence of muscovite mica as a rule fairly clear and giving a good biaxial figure, indicates that the source of the oldest Coastal Plain materials must have been, at least in large part, highly siliceous crystalline rocks.

When the causes inaugurating Coastal Plain deposition are considered it is evident that by a tilting of the land surface to the southeastward the Piedmont border was submerged and the region to the northwest was sufficiently elevated to set in motion the erosive forces of the streams, which immediately began to entrench themselves and to transport the products of the disintegration of the Piedmont crystalline rocks to the submerged region to the southeast. Whether this submergence was due to a warping which produced a long northeast-southwest trough, constituting a shallow inland sea or sound more or less completely shut off from the main open sea by land barriers to the east, or whether it was a shallow sea margin, is a question that cannot be satisfactorily answered. The lithologic nature of the deposits would seem to favor the former view. The absence of marine faunas and the presence chiefly of reptilian remains and fossil leaves would seem also to strengthen this interpretation. There is also evidence of a land barrier of some kind in the region about Wilmington in southeastern North Carolina as indicated by the absence there of beds representing the Patuxent formation, or in fact any sediments of the Lower Cretaceous, for a deep-well boring showed what are probably Upper Cretaceous beds resting directly upon basal granite at a depth of 1,109 feet.

¹See Bull. No. 13, N. C. Geol. Survey.