son. He suggests that peneplanation was followed by a submergence and the deposition of a mantle of coastal plain sediments covering a large part, if not all, of the peneplane. He presents an array of facts to show that the present drainage system can best be explained by a former cover of this sort. The present streams are believed to have originated when the region was later uplifted. They eventually cut through these unconsolidated sediments and, maintaining their positions, cut channels in the underlying Paleozoic rocks. This explains the manner in which the major streams cut across both hard and soft rocks alike with little regard to structures. Johnson's theory is beyond proof or denial as no trace of the extended coastal plain sediments remains. It appeals to some geologists but as yet seems to have been received with much skepticism.

Ver Steeg presents one bit of evidence as opposed to this idea of a cover of coastal plain sediments.

In the majority of cases it was found, as a result of profile and field studies of Appalachian ridges in Pennsylvania and New Jersey, that for long distances on either side of water gaps and major wind gaps, ridge crests representing the upper (Schooley or Kittatinny) peneplane descend faintly toward the major stream courses, indicating that these streams were superposed in a cycle earlier than the Schooley (Kittatinny) and held their courses throughout Schooley (Kittatinny) time. . . . The presence of high level, broad, shallow valleys on the Schooley (Kittatinny) peneplane, coincident with the present courses of the larger rivers, is not consistent with the theory that these streams were incised in this peneplane from an immediately overlying coastal plain cover. (p. 218.)

L. and C. Dryden have recently studied the heavy minerals of the Coastal Plain formations of New Jersey and have concluded that "the Coastal Plain sediments were derived essentially from crystalline rocks, not from the Paleozoic or Triassic. Therefore, the writers believe that the Piedmont and the New Jersey Highlands were never covered by Cretaceous or Tertiary sediments."

The evidence presented appears to be valid in that the Coastal Plain heavy minerals show a close relationship to the crystalline rocks of the Piedmont, thus indicating their origin. With the entire Piedmont covered with such an extension of the Coastal Plain as suggested by Johnson that source for the heavy minerals would not have been possible.

The name Kittatinny was long applied to this peneplane of erosion. Kittatinny (Blue) Mountain, with its comparatively flat top caused by the truncation of steeply dipping hard siliceous rocks to about the same level, has been assumed to constitute the existing remnants of this old plane. It is now generally believed that the peneplane developed on Schooley Mountain is likewise a part of this old base level plane. It is at a lower level but the dip of the plane to the southeast, it is thought, would bring the two together if the intervening low-lying region could be refilled to its former condition. Stose cor-

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