

though small outliers are occasionally found several miles further west, occupying depressions in the Piedmont Plateau. Eastward it seems to extend to the ocean, though it disappears beneath the Yorktown formation along a line passing near Winton, Williamston, Washington, and Kinston. Over the area bounded by the above lines the St. Marys formation forms an almost continuous series of beds and outcrops along nearly all of the streams where erosion has removed the surficial Pleistocene deposits. In certain places, as has already been mentioned, it is wanting, and the Pleistocene there rests directly upon the Cretaceous.

South of the Neuse River the St. Marys formation seems to be wanting. It is possible, though scarcely probable, that it formed a continuous belt over the southern portion of the State, though there is now no evidence of it. In all probability the southern part of the State formed a land area during St. Marys time, and no extensive deposits referable to this formation have ever existed in that region. On the other hand, it is probable that this formation had a somewhat wider distribution at one time than it has at present, since we have evidence, stated on a previous page, of erosion removing portions of the formation in certain places. The marginal deposits would naturally be thinner, and no doubt these have been removed. Northward the St. Marys extends into Virginia, and is continued across that State into Maryland, where it has been carefully studied. In certain places it is not exposed. Between the major streams it is not exposed at the surface over any considerable areas, though it undoubtedly is present in most places over these stream divides, and it has been reached by excavations or well borings in many localities.

The structure of the St. Marys formation is decidedly simple. It is practically horizontal in almost every section exposed, though, in the main, it does descend gently toward the ocean, the dip being only slightly greater than the inclination of the surface. For this reason the formation has such a wide outcrop, though it is comparatively thin. Locally, certain beds dip at a rather high angle, though this is not common except where the materials are rather coarse. Along Tar River, where there is evidence of shallow water deposition as shown by the coarse character and the variability of the materials, local dips much greater than the average are not infrequent. In any case, however, dips exceeding 5 to 10 degrees are never found and, in most cases, the beds dip at a rate of considerably less than ten feet to the mile.