SEC. III.—*Physical Geography and Geology of Montgomery county.*

The limits of this county comprise an extent little above 556 square miles, containing 356,326 acres, more than one half of which is waste lands, and nearly the whole of this capable of being converted into soils of superior quality, at a comparatively trifling expense.

The soils of the whole county are beded upon primary rocks, with the exception of that portion lying between the Seneka and the Monocacy, to the S. E. slope of Parr's ridge, and contiguous to the Potomac, where the subjacent rocks are red shales and sandstones of the *transition* class. They are all produced by the decomposition of the rocks in placé, excepting, of course, in the alluvial bottoms of the rivers; so that their mineral constituents can generally be predicated by a knowledge of the characters of the strata which they overlie. Hence, also, great varieties in the nature and qualities of these soils, that are as numerous as the rocks from which they were produced. From this condition of things, it follows that the *geology* of the county requires to be first described.

The Patuxent, which forms the N. E. boundary of the county, takes its rise among the *Argillites* of Parr's Ridge, traversing in a South East direction the whole mass of primary rocks. A section made in the direction of its course exhibits the *talcose slates*, traversed by large veins of quartz, succeeding to the *argillites*, and passing into *steatites* and *soapstones*, as at Etchinson's Mills, followed by *serpentine* between this and Triadelphia, where the rocks are *gneisses* that soon give place to a slaty *hornebtende*, and this, as usual, passing into *talcose slates*, and the latter into *steatite*. At Bond's Mill, a short distance below Snell's bridge, the rocks on the Montgomery side of the river are *talcose slates*, with bands of granular *quartz*; and on the opposite side, well characterised *steatites* and *soapstones* make their appearance. The river does not leave the primary rocks until it has flown some distance through Prince George's county.

On the other hand, a section of the course of the Potomac, within the limits of the county, of which it forms the S. W. boundary, presents, at the mouth of the Little Monocacy, and extending a short distance below that of the Seneka, rocks usually referred by geologists to the *transition* series. These are principally red and gray *sandstones*, that are extensively quarried near the mouth of Seneka, below which they insensibly pass into *shales*, and finally into *talcose slates*, to be succeeded by *horneblende*, *micaslate*, *gneiss*, and the usual *granitic* aggregates. At the Great Falls, the rock is a compact mixture of quartz and mica, traversed by veins of quartz, and, where the mica abounds, has a slaty structure. The lines of stratification are very indistinct, and the dip of the rock most generally to the N. West. Between this and the Little Falls, the *micaslate*, *gneiss*, *sienite* and