FOR the last 12 years the author has been interested in investigating the existing soil profile as a source of information for interpreting the climatic conditions which prevailed prior to the present-day climate. This investigation has been prompted by a study of the morphological, chemical, and physical characteristics of the soils of the Colts Neck series formed on Coastal Plain material. This study revealed that these soils have properties common to soils of the subtropics.

A mere morphologic examination of this soil suggests that it is either a red loam or a red earth—terra rossa. The material of the compact and, when dry, stone-like B horizon of Colts Neck sandy loam slakes in water; it resembles very much the “nazzaz” of the terra rossa in Palestine examined by the author. Among the lighter (in texture) types of soil this compact layer appears in the form of genuine ironstone formations, indicating cementation. Among the heavier types of soil the ironstone formations are of the concretion type. Slabs of stone with tube-like forms are found. The tubes are apparently the root channels through which the movement of soil constituents took place. The red coating of Fe₂O₃ on the grains of the coarse-textured types of this soil series may be removed by several extractions with distilled water, leaving behind pure white silica. The soil has a high P content and is capable of fixing tremendous quantities of phosphate. The latter two properties are also characteristic of the terra rossa of the Mediterranean climate.

The fact that the Colts Neck soils possess indisputable properties of laterization is evidence of a subtropical climate prevailing at the time of their formation. The question, however, is, When was the laterization effect produced? Was it in Post-Wisconsin time or earlier?

The undulating topographic features of the Colts Neck soils indicate that the geologic erosion of these soils had been impeded because of ironstone protective coverings formed in the soils. Remnants of these ironstones are very much in evidence now in the areas of Colts Neck and related soils. As for other soil series of the Coastal Plain are concerned, they are definitely either podzols or podzolized, whereas the Colts Neck is lateritic and shows podzolization effects of the present-day climate. Evidence of laterization in the Coastal Plain materials other than the Colts Neck has thus far not been uncovered. It is probable that the other sedimentary deposits had been more easily eroded. Therefore, during Post-Wisconsin time must have been the time whatever lateritic material was there.

In speaking of the breakdown of the ferruginous fragments encountered in the Colts Neck soils, Marbut (5, page 25) says, “In many places these fragments have been broken, on being brought to the surface and subjected to weathering, consist of plates. The plates occur with warped surfaces of many different kinds, some of them producing a mass of material similar to the masses of slaglike iron oxide occurring in the lateritic soils of the tropics.”

In search for more evidence of laterization in the soil profile, a Montalto soil derived from Triassic basalt was subjected to a morphological, physical, and chemical analysis. The profile was sampled in the Watchung Mountains, between 40°35′ and 40°36′ north latitude and between the meridians 74°34′ and 74°35′ longitude, in the vicinity of Bound Brook, N. J.

The A₁ horizon is of a dirty brown color when moist and of a dirty straw color when dry; it is a silt loam; in structure and consistency it is crumbly and friable.

The A₂ horizon is similar to the A₁, except that it has a lighter brown color with a reddish cast when wet.

The B₁ horizon is reddish brown, heavier in texture and coarser in structure than the A horizon.

The B₂ horizon is of a deeper red brown than B₁; otherwise it is the same as B₁.

The C horizon is of deep rusty brown color; the dark specks of the basalt well are scattered throughout.