

Here there is a marked unconformity between the Patuxent formation, consisting of the usual compact, partially indurated, drab, sandy clays and light-gray, arkosic and micaceous sands, and the overlying laminated sands and clays of the Black Creek formation.

That the unconformable relations existing between the Patuxent and Black Creek formations are very marked is further proven by observations made at Hairs Wood Landing,  $\frac{1}{4}$  mile below milepost 99. In a section extending for several hundred yards along the left bank the only materials seen are those belonging to the Patuxent formation and to the Pleistocene, the former consisting of the usual compact sands and clays rising some 20 or 25 feet above low-water level, and the latter consisting of characteristic sands and clays with a thin gravel band at base. The laminated materials of the Black Creek formation are entirely absent. At Devanes Ferry, however, just above milepost 98, left bank, the Black Creek beds are again seen resting unconformably upon the Patuxent beds. This is the last section in which the beds of this formation appear.

In Johnston County exposures of typical Patuxent strata occur in cuts of the Atlantic Coast Line Railroad in the vicinity of the village of Four Oaks. In one of these  $4\frac{1}{2}$  miles southwest of the depot sands and clays, with a line of quartz and schist fragments along the base, belonging to the Patuxent formation, were observed in contact with deeply decayed crystalline schists. This is one of the few places where the contact of the formation with the underlying basement rocks has been observed.

In a cut 5 miles southwest of Four Oaks the unconformable relation of the Patuxent, of the Lower Cretaceous, to the overlying Pleistocene is well exhibited. A similar exposure occurs in a cut  $2\frac{3}{4}$  miles northeast of Four Oaks, as represented in the section (Fig. 3) on page 94.

Occasional exposures occur in Johnston County in the hills for several miles to the south and southeast of Four Oaks, and one good outcrop occurs about  $2\frac{1}{2}$  miles northwest of Four Oaks in the road leading from Black Creek up to Clements Church.

On Neuse River various exposures of the Patuxent formation occur from 1 mile above Cox's Bridge in Johnston County to the Atlantic Coast Line Railroad bridge southwest of Goldsboro in Wayne County. These occurrences are all low, the beds not rising more than 8 or 10 feet above extreme low water. Throughout this distance the Patuxent strata are overlain unconformably by overlapping beds of the Black Creek formation, except where the latter have been removed