

eral echinoids, among them *Scutella alta* Conrad and *Echinocyamus parvus* Emmons, the latter found in the Gosport sand of Alabama, suggest the upper Claiborne age of the strata. The numerous molluscan casts, which are for the most part simply molds of the interiors, make it very difficult to determine the species with accuracy. It is therefore impossible at present, with such material, to correlate the beds definitely, although the general character of the fauna points to their late Claiborne or early Jackson age.

CASTLE HAYNE FORMATION.

you earlier admitted they didn't!

The Castle Hayne apparently overlies the Trent formation unconformably wherever the two come in contact. The relations of the Castle Hayne to the Trent formation are not clear, since their contact has not been observed in any outcrop, but is only known from well borings. It seems probable, however, that they are unconformable and that an erosion interval existed between them. The materials are quite different from those of the Trent formation, the most common constituent being a fossiliferous limestone of varied hardness and purity. A loose calcareous marl and glauconitic sands and clays are also found. A pebble bed more or less phosphatic is found at the base. The general stratigraphic relations, therefore, suggest a formation distinctly later than the Trent formation in age. No deposits of similar character are seen in adjacent States, so that the more detailed correlation of the beds must rest wholly on the organic remains.

The fossils of the Castle Hayne limestone are numerous. They consist, as in the Trent formation, largely of casts which render their specific determination difficult. Among the more perfectly preserved forms are several which are confined to the Wilmington area, and therefore of very little aid in the correlation of the deposits. Among the important forms are: *Terebratulina lachryma* Morton, *Conus gyratus* Conrad, *Crassatellites altus* Conrad, *Pecten scintillatus* Conrad, *Spondylus dumosus* Conrad, and a number of species which cannot be determined, but whose generic relations suggest the late Eocene age of the formation and its correlation with the beds at the top of the Jacksonian, and Vaughan believes that the Castle Hayne formation should be thus referred. The bryozoa, on the other hand, suggest the Vicksburgian age of the deposits, and Bassler, who has examined the forms with care, is inclined to think that they should be referred to that horizon, which would make them Oligocene in age. A more detailed study of the fauna is required to determine whether the formation is to be placed in the late Eocene or early Oligocene.