

exposed in the roadbed a few feet above the level of the water in the stream. Lithologically, it resembles the limestone exposed at many places along the Trent River.

Rock of a similar character is exposed where the same road crosses the New River, about 1 mile south of Richland.

Two Miles Northeast of Jacksonville.—At this point marl has been dug for fertilizing purposes. It consists of a rather rotten fossiliferous limestone which contains some *Echinoids*.

Three Miles Northeast of Spout Springs, Harnett County, Near Reedy Swamp, Head of Jumping Run.—The Trent formation occurs at this point, but is poorly exposed. It consists of a light colored, somewhat chalky limestone which is somewhat siliceous in places. It is soft when first removed, but hardens on exposure. It contains some fossil *Bryozoa* and *Echinoderms*. The outcrop is near the top of the hill and probably caps it. A short distance away a similar hill is capped with a ferruginous sandstone, which probably contains the same stratum of Trent limestone, though it is not exposed. Similar material is also reported west of Spout Springs.

CASTLE HAYNE LIMESTONE.

Name.—Up to the present time no attempt has been made to differentiate the Eocene strata of North Carolina, and therefore the name Castle Hayne is proposed for those beds that constitute the upper Eocene horizon of the State. The name is especially appropriate, because the exposures of this formation in the vicinity of the town of Castle Hayne are typical of the formation, and also because the section exposed at this locality has been described in the literature at several different times.

Definition.—The Castle Hayne formation constitutes the youngest Eocene strata of North Carolina and consists of calcareous marls, fossiliferous limestones, and conglomerates that are extensively developed in Onslow, Pender, and New Hanover counties. The deposits rest upon older strata of Cretaceous or Eocene age and are in turn succeeded and overlain by deposits belonging to the Miocene, Pliocene, and Pleistocene.

The Castle Hayne formation, so far as observations of outcrops can determine, everywhere rests unconformably upon marine Cretaceous strata. The fossils which it contains indicate a younger formation than the Trent, yet the two have not been observed in contact. It is probable that the two are in contact in the region lying to the southeast of Wilmington, as revealed by well records. They must be unconformable, as the evidence of an erosion period between the deposition of the two