a dozen or more miles below Elizabethtown upstream nearly to Fayetteville are regarded as of probable Eocene age. The occurrence of *Belemnitella*, *Exogyra*, and coprolites as a mechanical mixture in the Miocene marl is mentioned. The report contains an extended account of the fossils of the marl beds, of which over 200 species, many of which are new, are described and figured. It is the most complete report on the Coastal Plain formations of the State published, up to that time. The soils of various Coastal Plain counties are described.

1860.

EMMONS, EBENEZER.—*North Carolina Geological Survey, Part II, Agriculture.* Raleigh, 1860, 95 pp.

Describes the geographic distribution and character of the swamp lands, with special reference to the nature of the soils, of which many analyses are given. He regards the swamp accumulations as of recent origin.

1861.

CONRAD, T. A.—*Fossils of the (Medial Tertiary or) Miocene Formation of the United States.* No. 4, 1861 (?), Phila., pp. 81-89, index and plates xlv-xlix. Republished by W. H. Dall, Washington, 1893.

Crypta densata,
Busycon contrarium,
Fasciolaria rhomboidea,

are described from the Natural well in Duplin County.

RUFFIN, EDMUND.—*Sketches of Lower North Carolina and the Similar Adjacent Lands*, 296 pp. Printed at the Institution for the Deaf, Dumb, and the Blind, Raleigh, 1861.

Contains general statements in regard to the marl deposits of the State. The deposits are said to belong to the Tertiary, though no mention is made of the different divisions. To explain the origin of the materials of the "drift region" (Coastal Plain), he adopts the already antiquated theory of H. H. Hayden which appeared in his "Geological Essays" published in 1820.

1864.

CONRAD, T. A.—*Notes on Shells, with Description of New Fossil Genera and Species.* Proc. Acad. Nat. Sci., Phila., vol. 16, 1864, pp. 211-214.

The new species of *Fasciolaria subtenta* is described from the Natural well in Duplin County.

1865.

CONRAD, T. A.—*Observations on the Eocene Lignite Formation of the United States.* Proc. Phila. Acad. Sci., vol. 17, pp. 70-73, 1865. Amer. Jour. Sci., 2d series, vol. 40, pp. 265-268, 1865.

In this article it is stated for the first time that the commingling of Cretaceous and Eocene fossils in the limestone breccia at Wilmington was due to mechanical mixture. It is explained as due to a "disturbance in the bed of the Eocene ocean."