Art. XLIV.—*Some Florida Miocene;* by Daniel W. Langdon, Jr.

Judge Lawrence Johnson, of the United States Geological Survey, has pointed out the existence of Miocene deposits occupying depressions in the Eocene White Limestone in the vicinity of Tallahassee, Florida, but so far as the writer is informed the formation has not as yet been noted as occurring farther westward.

In November, 1887, while making a section of the Cretaceous and Tertiary rocks exposed along the course of the Chattahoochee river, the writer had the good fortune to discover at Alum Bluff some twenty-five miles below Chattahoochee or River Junction, Florida, the following section:

Alum Bluff, Fla.

1. White sand, evidently marine but of recent formation, 30 feet.
2. Black lignitic sand, very pyritous, and from the efflorescence of ferrous sulphate arises the name *Alum* Bluff. Variable in thickness, and unfossiliferous, . . 10–15 feet.
3. Gray calcareous sand, highly fossiliferous, the principal shell being *Mactra similis* Con. Varies in thickness with preceding stratum, ... 10–15 feet.
4. Gray sand, slightly calcareous, no fossils, . . 5 feet.
5. Light yellow sand, containing pockets of fossils. Where there are no shells the sand is very calcareous. To water's edge and probably slightly thicker than . . 35 feet.

Owing to the high stage of water it was not possible to collect many fossils from the lowest stratum, and only a partial series from the upper fossiliferous stratum is given.

Stratum 3 contains:

Echora quadricostata Say
Buccinum porcinum Say.
Conus adversarius Con.
Cancellaria depressa T. & H.
Typhis aculicostata Con.
Trochus philantrophus Con.
Fusus cinereus Say.
Dentalium attenuatum Say.
Oliva litterata Say.
Ranella (Eupleura) caudata Say.
Cadulus thallus Con.
Scalpellum, nov. sp.
Hipponix Bullii T. & H.
Crepidula plana Say.
Crepidula fornicata Say.
Trochita centralis ?
Crucibulum ramosum Con.
Pyrula pyriformis Con.
Drillia lunata Lea.
Natica heros Say.
Natica duplicata Say.
Turritella Purdenii ? T. & H.
Voluta sp. ?

Lucina contracta Say. (*Chama congregata*)
Lucina crenulata Con.
Lucina cribraria Say.
Lucina sp. ?
Crassatella Marylandica Con.
Venus concentrica Gmelin.
Venus cancellata Lin.
Dione cribraria Con.
Mercenaria Rileyi Con.
Circe metastriata Con.
Cardita granulata
Mactra similis Say.
Nucula (*Yoldia*) *acuta* Con.
Nucula dallabella H. C. Lea.
Nucula limatula Say.
Corbula cuneata ? Say.
Ensis ensiformis Lin.
Pecten eboreus Con.
Tellina, 2 *sp. ?*
Arca incongrua Say.
Arca lienosa Say.
Pectunculus subovatus Con.
Ostrea disparilis Con.
Panopea reflexa
Carcharodon megalodon Ag. (tooth).
Balanus sp.

Stratum 5, from which only a few of the species were collected, contains among other fossils:

Marginella limatula Con.
Solarium perspectivum Lin.
Cytherea reposta Con.
Mercenaria tridachnoides Lam.
Cardita arata Con.
Cardium muricatum Lin.
Cerithium sp. ?
Strombus sp. ?
Hemicardium hemicardium Lin.
Lucina Pennsylvanica Lin.
Lucina divaricata Lam.
**Tellina alternata* ——.

A comparison of the foregoing list with Meek's Check List† and the valuable compilation of Prof. Heilprin‡ shows that of the 63 species enumerated above, 44 or 70 per cent are found in South Carolina; 40 or 64 per cent are found in North Carolina; 26 or 41 per cent in Virginia; and 24 or 38 per cent among the newer beds in Maryland. A very fair inference then is that these Alum Bluff deposits are members of Dana's Sumpter Epoch or Heilprin's Carolinian, only one of the species enumerated, *Crucibulum ramosum* Con., being found in Heilprin's Marylandian, though a closer study of the fossils made possible by further collections may point to a faunal relationship to an older epoch.

These Miocene strata dip toward the south about twenty-five feet to the mile, and are soon covered by the sands of the Drift and the cypress swamps so common along this coast.

Immediately underlying these Miocene sands is a limestone of uncertain age, but which the writer is inclined to class with the Miocene beds.

Southward from Rock Island, nine miles by water, above Chattahoochee or River Junction, Florida, the white orbitoidal limestone disappears, and in lieu thereof there is a rock more argillaceous and siliceous in character resembling some phases of the Eocene Buhrstone. This limestone is very well developed in a railroad cut about half a mile east of the Chatta-

* The above determinations were made by and with the assistance of Mr. Truman H. Aldrich, of Blocton, Ala.

† Smithsonian Miscell. Col., vol. vii, 1867.

‡ U. S. Tertiary Geology, Angelo Heilprin, 1884.

hoochee river, Ocheesee, fifteen miles below the railroad bridge, and again at Rock Bluff, two miles below Ocheesee.

Section at Ocheesee, Fla.

1. Argillaceous limestone, greenish yellow in color, no fossils seen, ... 10 feet.
2. A purer, more granular limestone, creamy white and soft, resembling the "chimney rock" phase of the Vicksburg group. Contains a few obscure corals to water edge, 5 feet.

Rock Bluff, about thirty feet high, is made up of strata of limestone varying in purity as at Ocheesee.

For this older member of the Miocene or newest member of the Eocene White Limestone the writer suggests the provisional name, Chattahoochee Group. The only fossils found were a large *Pecten* about $3'' \times 3\frac{1}{2}''$ and an oyster resembling very closely our living *Ostrea Virginica*. This group, estimated to be 250 feet in thickness, differs materially in its lithologic characteristics from any phase of the White Limestone yet observed in Alabama or Mississippi. On the rich black loam, derived from the disintegration of these slightly phosphatic limestones, the unique *Torreia taxifolia* or "Stinking Cedar" is found growing.

These outcrops at Chattahoochee, Ocheesee, Rock Bluff, and Alum Bluff appear to be the western terminations of ridges that extend eastward parallel to each other like gigantic ribs, and between these ridges are found some of the richest "hummock" lands in West Florida.

On subsequent canoe trips down Conecuh and Pea rivers, the writer failed to discover any Miocene deposits or any traces of the Chattahoochee Group, so that it is believed that the Chattahoochee river marks the western limit of undoubted Miocene or at any rate Dana's Sumpter Epoch.

University Ala., May 20, 1889.