ART. XII.—*Chlamytherium septentrionalis*, an *Edentate* from the *Pleistocene of Florida*; by E. H. SELLARDS.

THE genus *Chlamytherium*, of which *C. humboldtii* is the type species, was established by Lund in 1838 on material from South America.* Distinctive characters of the genus are found in the molar teeth, which are elongated from front to back, the larger teeth being as much as three or four times as long as broad. On the exterior of the molar teeth is a broad furrow which partially divides the crown into an anterior and a posterior pillar. On the inner surface of the tooth is seen two or three faint furrows, which, however, are but faintly seen on the crown. The cross section of the molar is thus that of an ellipse compressed at the center, more strongly so from the outer side. Traversing the central line of the molar teeth from front to back is a thin dark band which is in fact made up of two bands of dark colored dentine placed in juxtaposition, giving an appearance such as would result from the collapse of a cavity the walls of which were lined by a dark band of dentine. Moreover in breaking, the tooth parts along this line, the bands of dentine are sometimes somewhat separated from each other, and in this case, according to Ameghino, the cavity between is filled with cement. Although seldom preserved in the fossils, the exterior of the tooth is said also to have been covered with a layer of cement which is thickest in the lateral furrows. At the base the tooth shows in the fossil condition a large undivided cavity, which narrows upward, becoming closed near the middle line of the tooth, beyond which is the dark band already described.

The lower jaw of *Chlamytherium* is pointed in front and contains nine teeth. Of the teeth the posterior six are molariform in appearance and function, while the anterior three are reduced and are more nearly circular in cross section. In general appearance the jaw is distinctly glyptodont. From the glyptodonts, however, the genus is distinguished not only by the structure of the teeth, which lack the tripartite division of the crown and base, but also by the fact that the ascending ramus of the jaw is inclined gently backward, and does not turn up at a right angle, or at more than a right angle as in the glyptodonts. Moreover, the shield consists of

* Overs, K. Danske Vid. Selsk. Forh., viii, p. lii, 1838.

In the original description the generic name was written *Chlamytherium* although subsequently Lund as well as others used the form *Chlamydothierium*. In his Bibliography and Catalogue of Fossil Vertebrates (Bull. U. S. Geological Survey, No. 179, p. 581, 1901) Dr. O. P. Hay used the form *Chlamytherium*.

FIG. 1. *Chlamytherium humboldtii*, left jaw, interior view. A tracing taken from Lund's original illustration. One-half natural size.

FIG. 2. *Chlamytherium septentrionalis*. Two teeth from the right lower jaw. At the left, the third tooth from the back of the jaw, presumably the seventh from the front; the grinding surface of the tooth measures 22 by 6^{mm}. At the center, the fourth tooth from the back, presumably the sixth from the front: the grinding surface of the tooth measures 23 by 6^{mm}. At the right, median section through the fourth tooth from the back of the jaw, showing, by diagrammatic section, the cavity at the base of the tooth. All from specimen No. 1722, Fla. Geol. Survey. Natural size. From Vero, Fla.

FIG. 3. *Chlamytherium septentrionalis*. Exterior view of the right jaw, same specimen as fig. 2. Approximately one-half natural size.

FIG. 4.

FIG. 4. *Chlamytherium septentrionalis*. The horizontal ramus of the right jaw viewed from above, showing the molariform teeth. From specimen No. 1722, Fla. Geol. Survey. Approximately four-fifths natural size.

FIG. 5.

FIG. 5. *Chlamytherium septentrionalis*. At the top of the figure is seen a plate from the movable band, exterior view; below, at the left, one of the dermal scutes, showing the coarse and rather deep sculpturing that characterizes most of the scutes of this species; at the right is seen the fourth tooth, counting from the back, of the right lower jaw, viewed from the inner side, showing the two faint furrows and the wavy cross lines of the tooth. From Vero, Fla., Coll. Fla. Geol. Survey. All natural size.

an anterior and a posterior buckler with several movable transverse bands between, similar to those of the armadillos. Although referred to the Dasypoda, the genus is recognized as in many ways intermediate between the armadillos and the glyptodonts.

The presence of the genus *Chlamytherium* in the late Cenozoic deposits of Florida was first made known by Joseph

FIG. 6.

FIG. 6. *Chlamytherium septentrionalis*. Right lower jaw viewed from the inner side. One-half natural size. From Vero, Fla., Coll. Fla. Geol. Survey.

The canal, the location of which is seen below the specimen number, is apparently a character of generic, or more than generic value, as it is observed not only on this species but also on *C. humboldtii* and *C. paranense*.

Leidy, to whom was referred dermal scutes of the genus collected on Peace Creek by Mr. Joseph Willcox in 1888. These plates were at first described by Leidy as *Glyptodon septentrionalis* sp. n. Afterwards, however, all of the plates, including the types of *Glyptodon septentrionalis*, were referred to *Chlamytherium* (*Chlamydotherrium*) *humboldtii* Lund. Subsequently additional scutes were obtained from other localities in Florida, all which were referred to *C. humboldtii*. By the fortunate discovery of additional material of the genus,

including dermal scutes and one right lower jaw from near Vero, Florida, it now appears that the Florida specimens pertain not to *C. humboldtii*, but to a species distinct from the South American forms. Moreover, after direct comparison of the scutes, I am convinced that the new material from Florida is specifically identical with that to which Leidy originally applied the name *Glyptodon septentrionalis*. It becomes necessary, therefore, to revive Leidy's specific name, the species, however, being referred to the genus *Chlamytherium* and not to *Glyptodon*.

The material now known from Florida representing the species and on which the following description is based includes the following: One right lower jaw found near Vero, collected by Frank Ayers and presented to the State Geological Survey by Isaac M. Weills; also a number of dermal scutes from the same locality; twenty-four dermal scutes from Peace Creek collected by Joseph Willcox and now in the collection of the Wagner Free Institute; also one plate from the movable band obtained by Mr. Willcox from White Beach, Sarasota Bay; one dermal scute from Peace Creek in the collection of the U. S. National Museum, and two dermal scutes taken from Peace Creek by Mr. S. A. Robinson. In addition the Yarman collection of Vanderbilt University contains several scutes of *Chlamytherium* obtained from the Hillsboro River, Florida. The jaw and scutes from Vero may not be from a single individual, although they represent with little doubt a single species.

The deposits from which the *Chlamytherium septentrionalis* is obtained are of Pleistocene age. The fossils associated with this species at the locality near Vero include *Equus*, *Elephas*, *Mammut americanum*, *Megalonyx*, *Tapirus*, and *Odocoileus*, the fauna as well as the conditions of deposition indicating late Pleistocene. The Peace Creek beds include the same fauna although with these is associated some earlier forms, most if not all of which have washed in from the Pliocene and older formations through which the river has cut its channel. The specimens from the Hillsboro River and from White Beach are doubtless of the same age as those from Vero and Peace Creek.

The writer acknowledges his indebtedness to the officials of the Wagner Free Institute, the National Museum and the American Museum for the opportunity and facilities afforded of comparing specimens of this and related species.

Chlamytherium septentrionalis (Leidy).

Glyptodon septrionalis Leidy, Acad. Nat. Sci., Phila., Proc., p. 97, 1889.

Chlamydotherium humboldtii, Lund, Leidy, Wag. Free Inst. Sci. Trans., vol. ii, pp. 24-25, 1889, U. S. Geol. Survey, Bull. 84, p. 129, 1892.

Chlamydotherium humboldtii Lund, Cope, U. S. Geol. Survey, Bull. 84, p. 130, 1892.

Chlamytherium humboldtii Lund, Hay, U. S. Geol. Survey, Bull. 179, p. 581, 1901 (pars.).

Chlamydotherium humboldtii Lund, Trouessart, Catalog. Mammalium, p. 812, 1904 (pars.).

Although presenting the generic characters of *Chlamytherium*, the Florida species is apparently distinct from all of the South American species of that genus that have been described. From *C. humboldtii*, to which species the Florida material has previously been referred, *C. septentrionalis* differs, if we may rely on Lund's figures, in the form and proportion of the jaw, the relative size and position of the teeth, as well as in the sculpturing of the dermal plates. The inferior margin of the jaw of *C. septentrionalis* is full and rounded, while in *C. humboldtii* the margin is noticeably constricted between the angle of the jaw and the symphysis. Moreover, in *C. septentrionalis* the symphysis begins opposite the fifth molar, counting from the back, while in *C. humboldtii* the symphysis is placed opposite or near the anterior margin of the fourth molar from the back. The ascending ramus of the jaw of *C. septentrionalis* is relatively broader and has a slightly more pronounced backward inclination than has that of *C. humboldtii*. The tip of the jaw of the Florida specimen, which should show the anterior teeth, is unfortunately not preserved.

The pittings on the face of the scutes of *C. septentrionalis* are stronger than are those on *C. humboldtii*; the sculpturing also is more strongly marked on the margins of the plates of the movable shield. Moreover, the excellent illustrations of the scutes of *C. humboldtii* given by Lund* do not show the median keel or ridge which characterizes the plates of the movable hands, as well as many of the other dermal scutes of *C. septentrionalis*.

The plates of the movable bands of the two species, and also the dermal scutes, are of approximately the same size. The jaw of *C. humboldtii*, however, as figured by Lund (l. c., Tredje Afhandling, pl. xiv, fig. 1), the outline of which is shown in figure 1 of this paper, is perhaps somewhat larger than that of the Florida specimen, although a second complete jaw subsequently figured by Lund† is no larger than the jaw from Florida, and it is probable that the two species differed little if any in size, being, as estimated by Lund, approximately the size of the modern South American tapir.

* Lund, P. W., Blik paa Brasiliens Dyreverden för sidste Jordomvæltning. K. Danske Vidensk. Selskabs Anden Afhandl., pl. 1, figs. 7-10, 12, 13: pl. xii, figs. 6, 7, 1841.

† Ibid., Fjerde Afhandling, ix, pl. xxxiv, fig. 9, 1842.

A second species described by Lund from South America, namely, *C. giganteum* (*C. gigas*, *C. majus*), is not only much larger, being approximately the size of a rhinoceros, but has teeth which in cross section are more oval than are those of the Florida species.

Of the five species of this genus from South America described by Ameghino,* one, namely, *C. typum*, has much less strongly sculptured dermal scutes than those of *C. septentrionalis*. A second species, *C. paranense*, of which scutes and parts of the lower jaw are known, includes animals of scarcely more than half the size of those of the Florida species. The structure of the teeth of *C. paranense* is very similar to that of *C. septentrionalis*. The last lower molar of the South American species, however, is set in, and, at the base, is out of line with the other molars. *C. intermedium*, a species intermediate in size between *C. typum* and *C. paranense*, is reported to have been derived from the upper Miocene deposits. The two remaining species, *C. ? extremum* and *C. ? australe*, are reported from yet older deposits and are doubtfully referred to this genus.

The presence in Florida of a species of the South American genus *Chlamytherium* affords another interesting example of the spread of the South American fauna into the United States during the late Cenozoic.

Florida Geological Survey, Tallahassee, Fla.