

STEGOSAURIDÆ.

PALÆOSCINCUS, Leidy.

PALÆOSCINCUS COSTATUS, Leidy.

Palæoscincus costatus, Leidy. 1857. Proc. Acad. Nat. Sci. Philadel., vol. viii, p. 72, and 1860, Trans. Amer. Philos. Soc. Extinct Vertebrata from the Judith river and Great Lignite formations of Nebraska, p. 146, pl. 9, figs. 49-52.

In the collections are a few teeth that cannot be distinguished from the one figured by Leidy in the latter of the above two publications. Of these, an average specimen is of the same size as the type and has the same number of serrations. As the crowns of some are worn the exact number of serrations that the tooth had originally cannot always be ascertained. Their sides are smooth. They seem to vary little in form but are proportionately thicker, near the base of the crown, than the type.

Belly River series, Red Deer river below Berry creek, 1901.

PALÆOSCINCUS ASPER. Sp. nov.

Plate XVII, fig. 5.

The tooth for which the above name is proposed is in the form of a laterally compressed cone, with a serrate edge and rugose sides. The root was evidently cylindrical but has been broken off close to the base of the crown.

One side of the crown is more rugosely striated and flatter than the other which is decidedly convex. The trenchant edge has eighteen serrations, fifteen only of which are seen in a side view, as the last three on the right (as figured) are paired with three others of equally small size. The groove separating these three pairs is deep and decided. The other end of the tooth is flattened in an almost vertical direction; here the serrations curve toward the side of the greater rugosity. The broad apical denticle is the one that shows the most wear. The base of the crown is evenly rounded below to meet the fang.

This tooth differs materially from others of the genus described by Leidy and Marsh. The serrations are more numerous, the sides more conspicuously ridged, whilst the double row of denticles at one end of the cutting edge, besides being novel, is most interesting and instructive, in that it is suggestive of a progressive step toward the development of a double row of tubercles such as is found in the molars of the *Multituberculates*.

The specific name here suggested has reference to the rough sides of the crown of the tooth.

Measurements.

	M
Height of crown0055
Length of same006
Maximum breadth near base003

Belly River series, below Berry creek, 1901.

STEREOCEPHALUS. Gen. nov.

STEREOCEPHALUS TUTUS. Sp. nov.

Plate XI, plate XII, figs. 1, 2, 3, 4 and 5, and plate XXI, figs. 6, 7 and 8.

The specimen of which views from above, from the side and from below are given on plates XI and XII, represents part of the plate-protected cranium of a herbivorous dinosaur, that is, apparently, quite distinct from any hitherto described.

With the head was found a transverse series of coössified sharply keeled scutes which will be described farther on.

The part of the head preserved is strongly convex transversely, but only moderately so from front to back. Coössified plates cover the whole of the upper surface and are continued down on the vertical sides. They are arranged with a certain amount of bilateral symmetry, are quite small at the centre and toward the back, but are larger in front and very much more so on the sides. They are for the most part irregularly five or six sided, with rather undulatory surfaces that are marked by an irregular, raised, structural cross-hatching, feebly suggestive of the surface markings of the plates of *Nodosaurus textilis*, Marsh. Small vascular openings and grooves are also numerous on the surface. The edges of the plates are as a rule angular and sometimes raised. Each plate has its limit defined by a deep circumscribing furrow, so that although they are coössified and form a continuous surface covering to the head, they do not lose their individuality. A rounded node, or an incipient keel is noticed on some of the plates.

The removal of sandstone from the lower surface of the specimen revealed the bones of the palatal region (plate XII, fig. 2). The interpretation of these elements are as indicated by the letters. The back ends, only, of the palatines (p.) are seen, meeting the pterygoids in a suture indicated at "s." From here the latter bones (pt.) extend backward on either side of interpterygoid vacuities (v.). The ridge (pb.) represents the presphenoid and basisphenoid elements; it is bent posteriorly to one side in the specimen, which has been subjected to considerable pressure from above and is somewhat crushed behind.

From this interpretation of the bones of the palate it would appear that the part of the armature preserved covers the upper part of the head near the union of the nasals with the frontals. No indication of the orbits can be detected and it is probable that they were placed far forward in the head.

Part of a rib, having a T-shaped transverse section (Plate XII, fig. 5), such as is characteristic of the heavily armoured *Stegosauria*, was found separately but in the same locality, and is provisionally associated with *S. tutus*. The finding of such a rib is sufficient evidence of itself to prove the existence, during the time of the deposition of the Belly River series, of a large dinosaur having a heavy protective covering of bony plates

Measurements.

	M.
Antero-posterior diameter of specimen.....	.250
Greatest transverse diameter.....	.210
Height of centre of upper surface above the level.....	.125
Width of interpterygoid vacuities..... about.....	.040
Maximum thickness of cranial armature..... about.....	.016

With the head, just described, were five keeled, bony scutes or plates that have since been found to fit together in the form of an arch (plate XII, figs. 3 and 4), whose sides curve forward as well as downward. This oblique curve places the lower, paired scutes, as seen when the arch is viewed from above, a little in advance of the upper pair which is again slightly in advance of the median plate

The scutes rest on and are ossified to a thickness of bone that constitutes the inner, continuous surface of the arch. This band of bone, ornamented above by paired ossicles, suggests the possibility of its being the back border of the posterior crest of the species to which the head armature, above mentioned, belonged.

This suggestion is given credence from the fact that the concave edge of the band of bone on which the scutes rest is fractured, whilst the convex edge appears to be intact.

Numbering the ossicles from the right, the junction between Nos. 1 and 2 was perfect, as were also those between Nos. 3, 4 and 5, but in the case of Nos. 2 and 3 the fractured edges did not fit with sufficient exactness to remove all doubt as to their being placed side by side, although the continuity and symmetry of the curve of the under surface seemed complete. It is possible that one or two scutes are missing from between Nos. 2 and 3, especially as fragments of similarly shaped scutes were found at the same spot. If an additional scute completed the series it probably would have been the mate of the present median one, or if two were required to fill the gap (if such a gap exists) one would be on the median line, the other would correspond with No. 3 to form another pair. The addition of one or two scutes to the series would result only in extending and possibly flattening the curve.

The median scute is apparently symmetrical, the others are asymmetrical, forming pairs with reversed lateral proportions.

The scutes have an irregularly oval basal outline, are sharply keeled, with sloping sides shallowly excavated from the keel downward but convexly curved from front to back, their basal edges are defined by an engirdling furrow below which, at a lower level, they are laterally expanded to meet each other in a plane surface. A very small ossicle rises above this intermediate basal surface between Nos. 3 and 4. Vascular markings are conspicuous on the sides of the scutes.

From the appearance of the outer, basal edges of scutes Nos. 1 and 5, it seems probable that these scutes constituted the lateral terminations of the series.

Measurements of transverse series of scutes.

	M.
Height of apex of median keel above the level.....	190
Height of centre of inner surface of arch above the level.....	125
Width of inner spread of arch below.....	236
Average height of apices of keels above inner surface of arch.....	072
Basal breadth of the scutes (Nos. 2 and 4) on either side of the median one....	075
Basal length of same.....	143
Thickness of bone on which the scutes rest, about.....	010

Belly River series, Red Deer river, 1897.



A



B

FIG. 12.—*Sterecephalus tutus*. Tooth, from Red Deer river, A, side view; B, end view. Twice the natural size. (Provisionally associated with *S. tutus*.)

The tooth shown in fig. 12, is of the *Stegosaurian* type. It differs from those, of the Red Deer river district, referred to the two species of *Paleoscincus*, and is about twice as large as those of *P. costatus*. It is figured here with the idea that it may eventually prove to belong to *S. tutus*. It was collected below Berry creek, on Red Deer river, in 1901.

A spinous dermal plate of massive proportions, fig. 13, A and B, is referred to this species on account of its similarity, in structure and surface markings, to the posterianal keeled scutes described above. This specimen was collected in 1897. Another large plate similar in general proportions to the above and nearly as large, as well as numerous others of different sizes and of a variety of shapes, were collected in 1901.

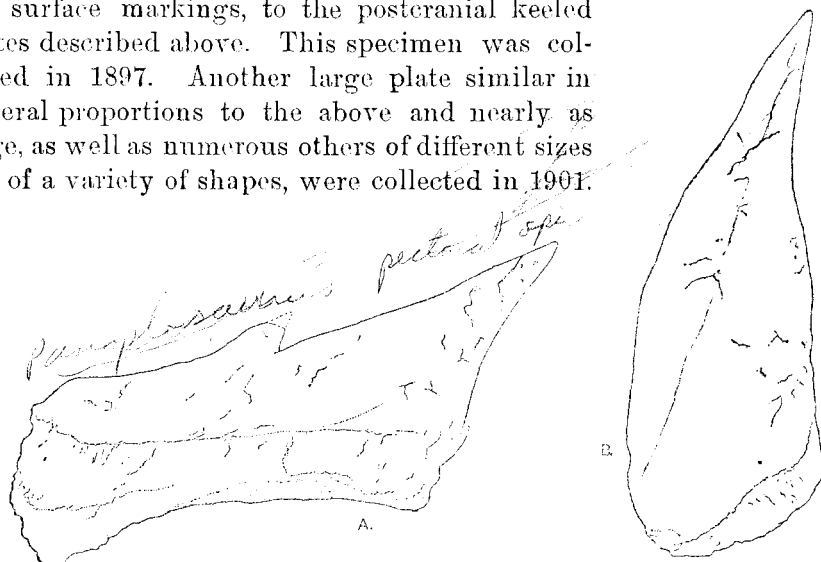


FIG. 13.—*Sterecephalus tutus*. Dermal plate from Red Deer river; one-sixth the natural size. A, side view; B, view from above. (Provisionally associated with *S. tutus*.)

CERATOPSIDÆ.

MONOCLONIUS, Cope.

MONOCLONIUS DAWSONI. Sp. nov.

Plate XVI, plate XIX, figs. 4-6, and plate XX, figs. 3 and 4.

The remains of an apparently undescribed species of this genus, consisting of the skull of one individual and the posterior crest of another, are of especial interest. The

PLATE XI.

Stereocephalus tutus, Lambe, head armature, superior view ; natural size. The anterior end of specimen points downward. Page 55.

a, anterior end.

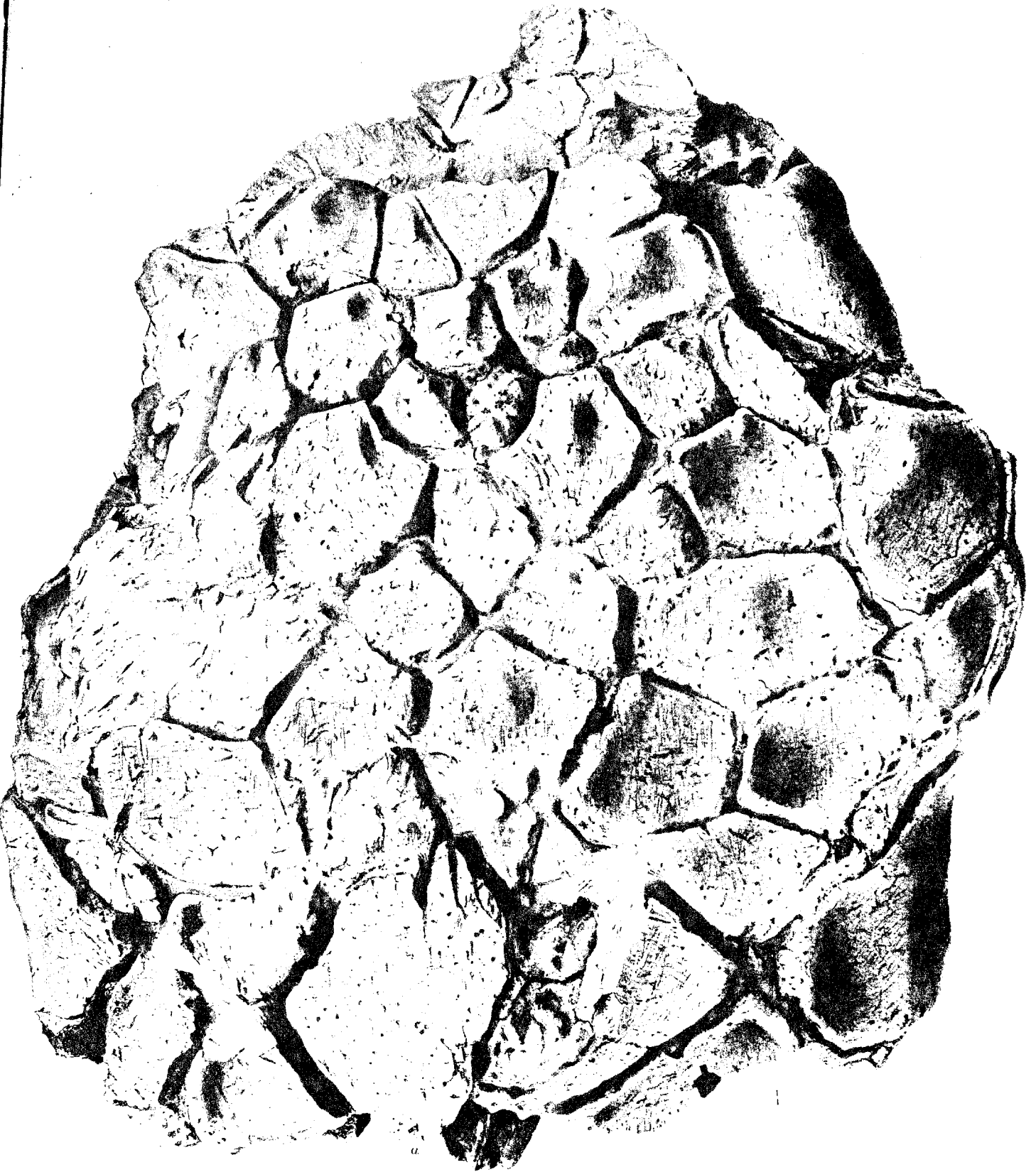


PLATE XII.

- Fig. 1. *Sterecephalus tutus*, Lambe, view of left side of specimen figured on plate XI., one-half the natural size. Page 55.
- Fig. 2. Palatal view of the same; one-half the natural size.
- Fig. 3. *Sterecephalus tutus*, coössified posteranial scutes, superior view; two-sevenths the natural size. Page 56.
- Fig. 4. The same, anterior view.
- Fig. 5. Transverse section of rib (provisionally associated with *S. tutus*); one-half the natural size. Page 55.

p, palatine; *s*, suture; *pt*, pterygoid; *v*, interpterygoid vacuity; *pb*, presphenoid and basisphenoid element; *a*, anterior; *b*, posterior.

