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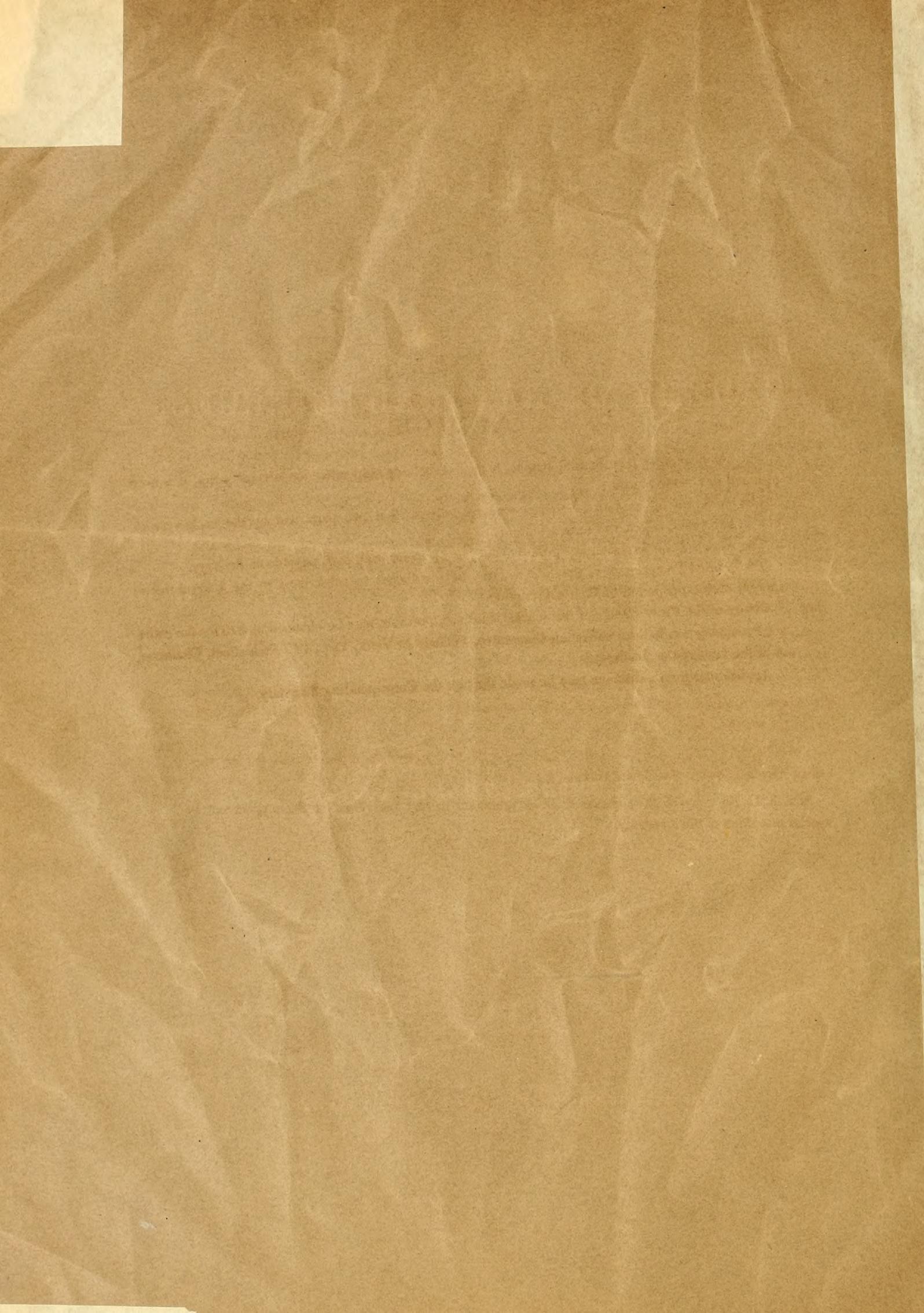
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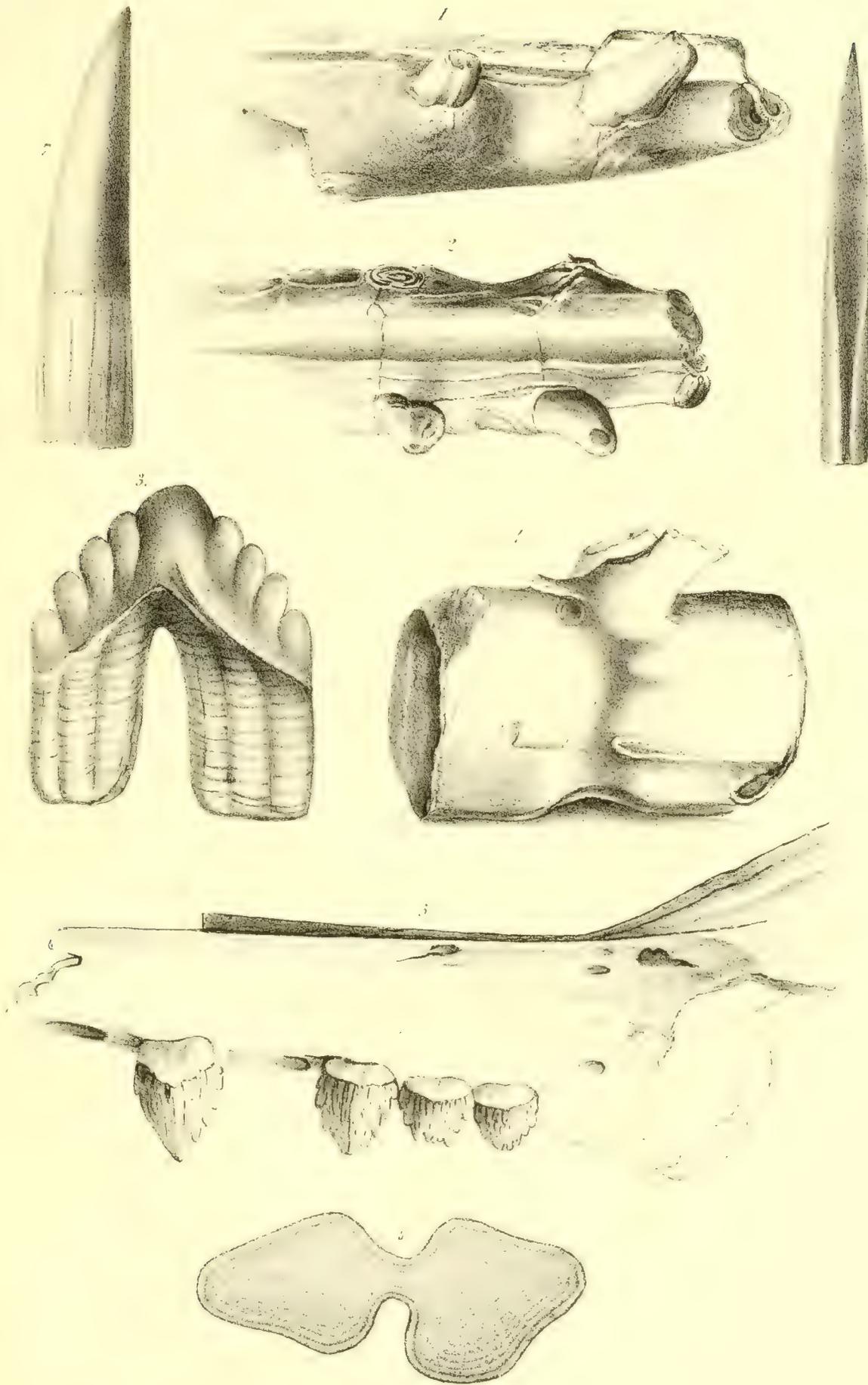
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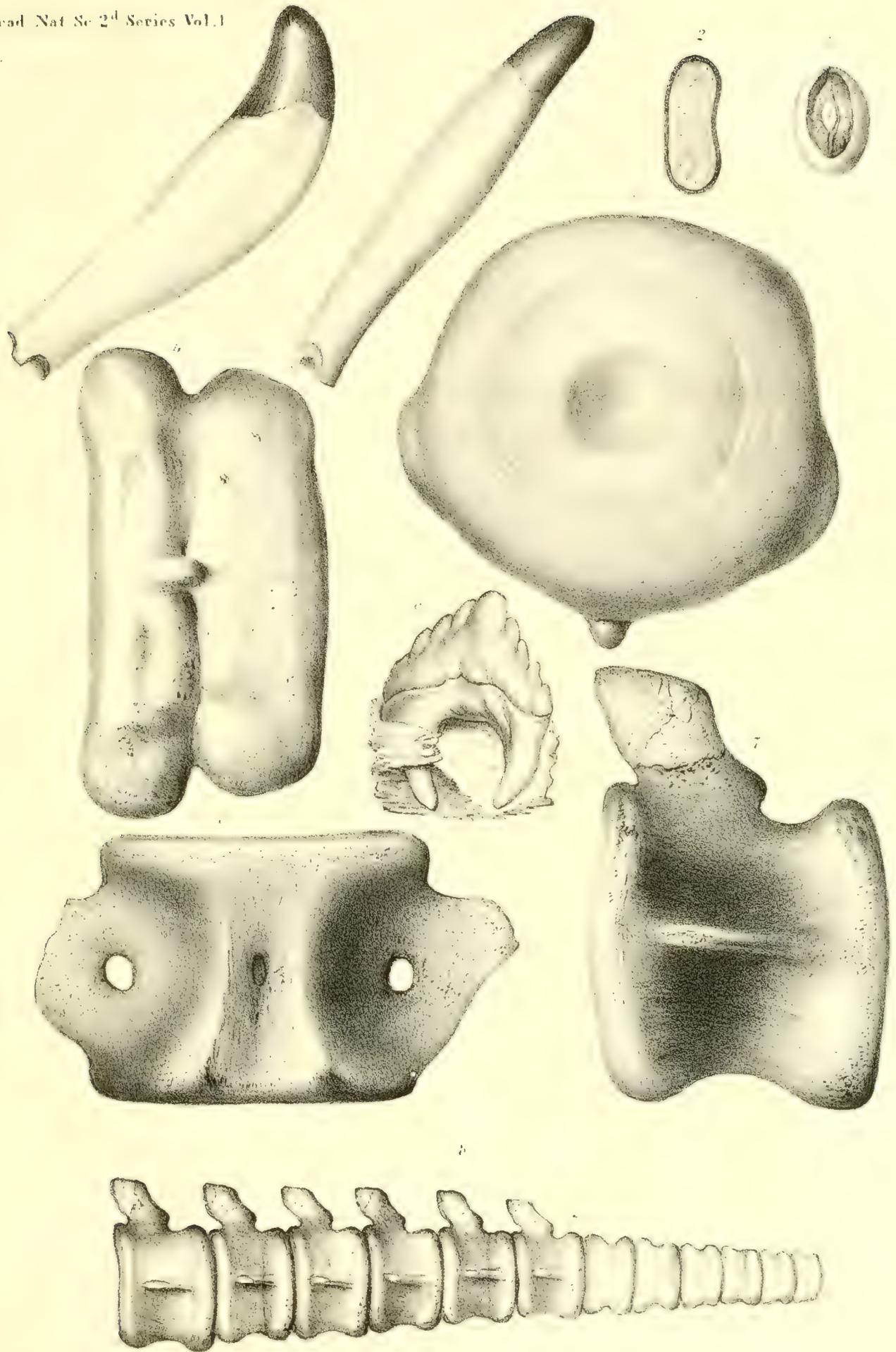


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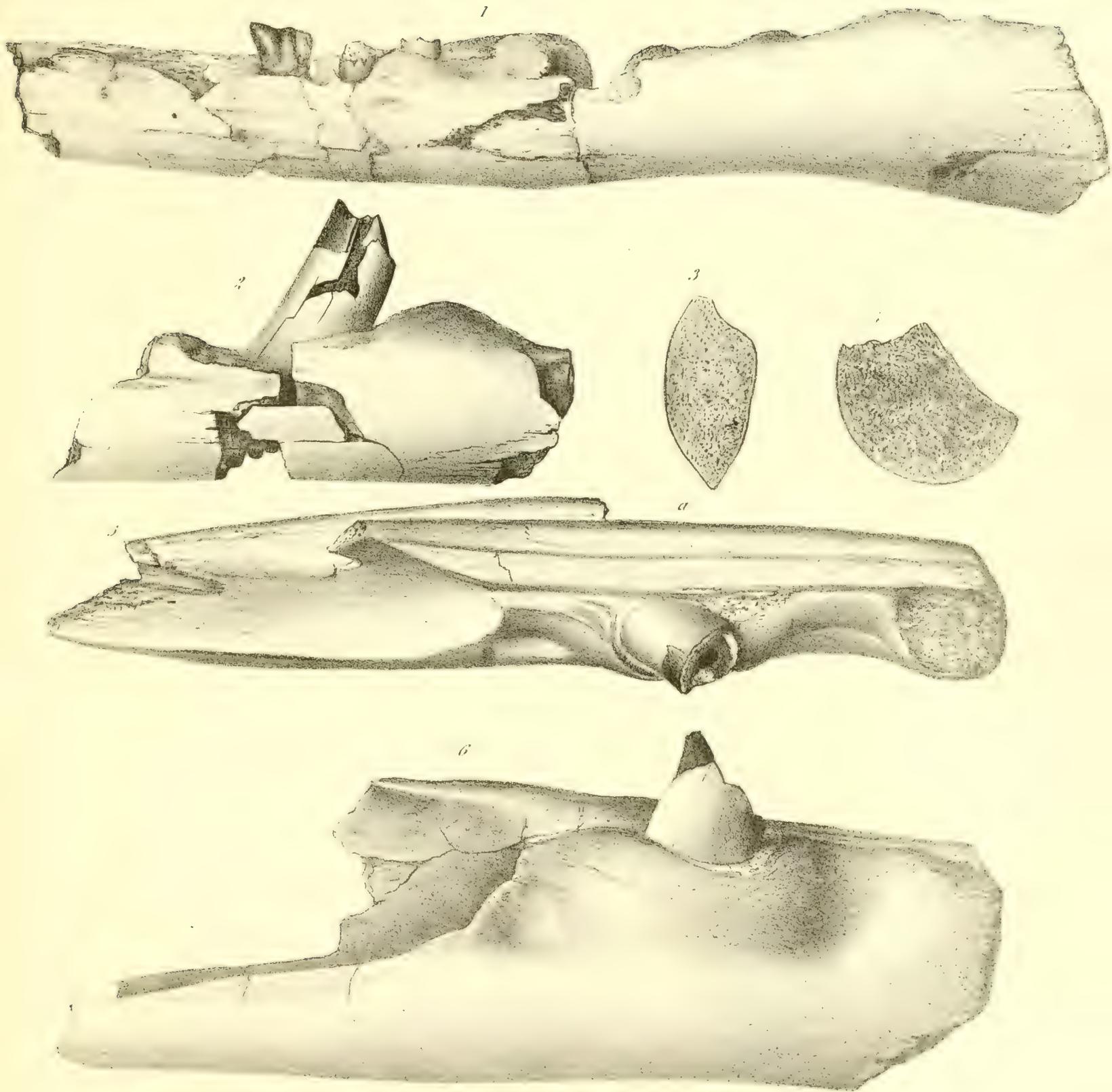


12.3.4. **BASILOSaurus CETOIDES.** *Owen.*
5. **BASILOSaurus SQUALODON.** *Gratloup.*
6.7. **PRISTIS AGASSIZI** *Gibbes*



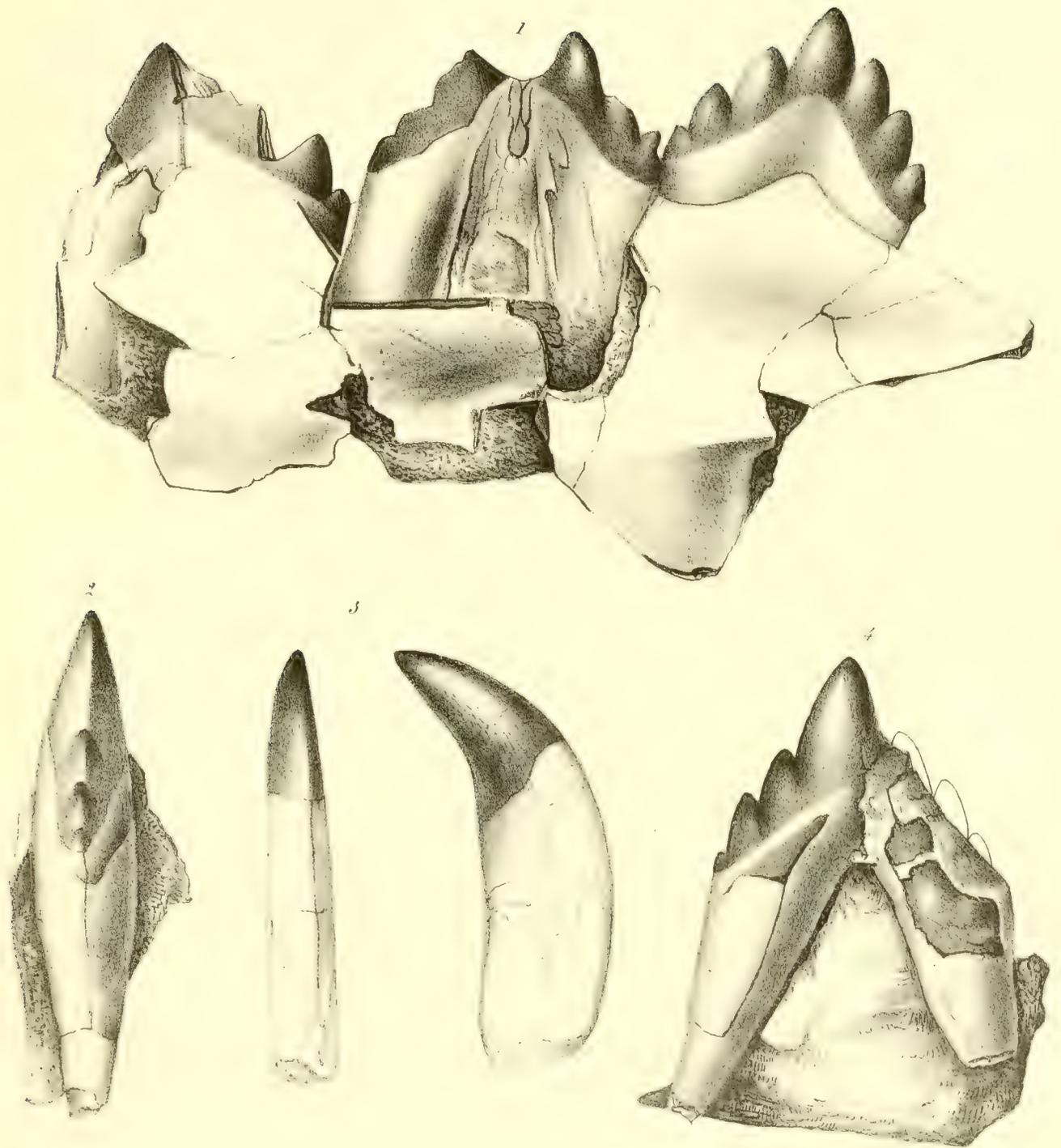
BASILOSARUS CETOIDES *Owen*

From Nature by Feach



123 BASILOSaurus SERRATUS. *Gibbes*

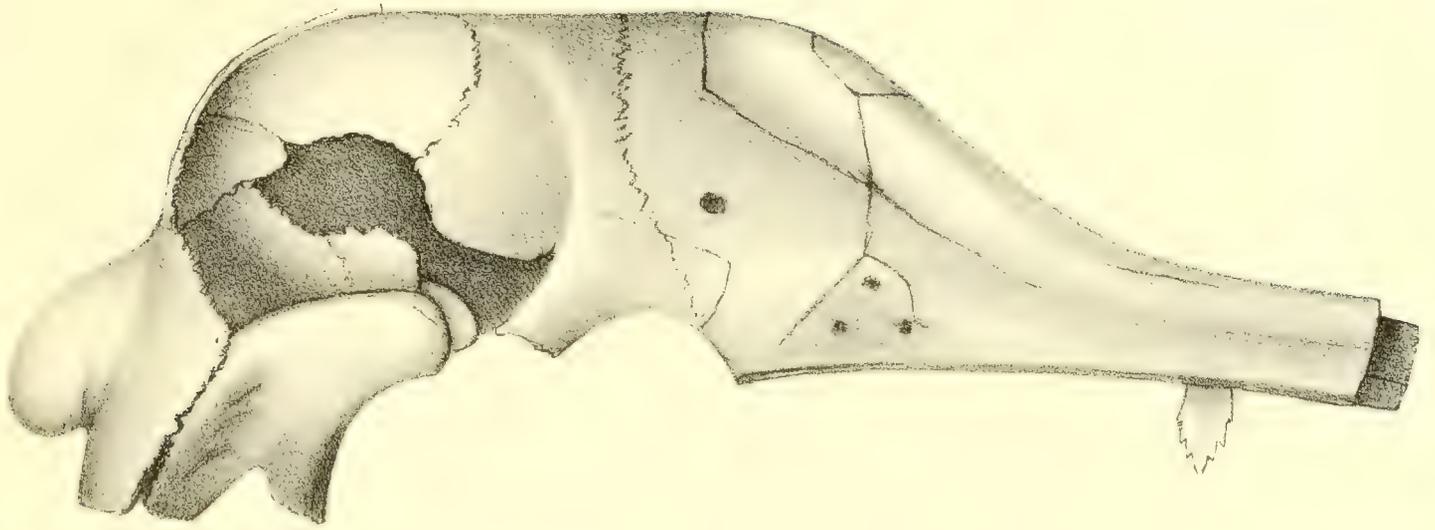
456 BASILOSaurus CETOIDES. *Owen*



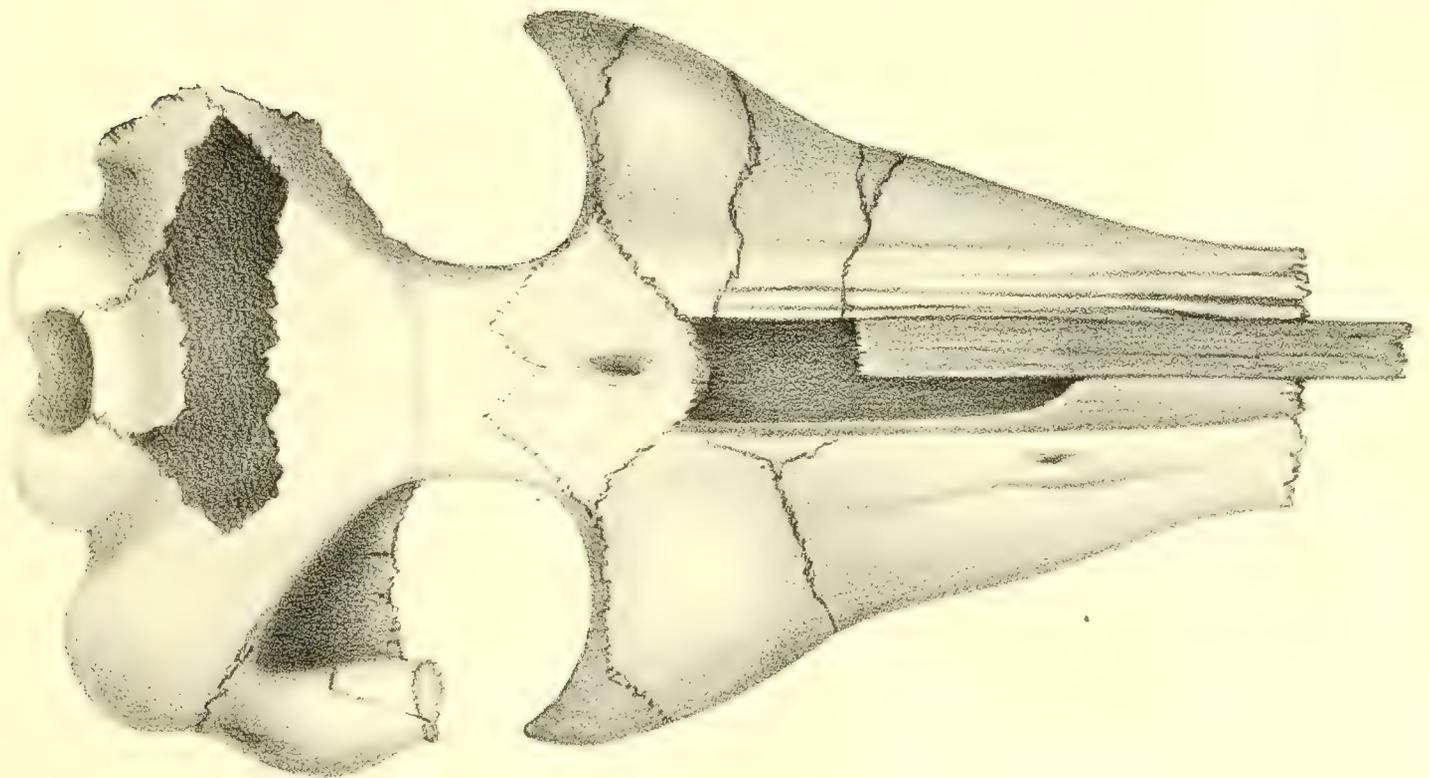
BASILOSARUS SERRATUS *sh. n.*

From Nature by Dr.

1.



2.



CRANIUM OF BASILOSaurus.

Lith. of T. Sinclair

Description. Occipital bone somewhat semicircular, transversely flat or slightly concave, central portion thin; a crest-like ridge surrounds the superior portion terminating in the suture with the temporal bone. Condyles two, articulating surfaces lunate, and almost enclosing the foramen magnum. Foramen magnum oval; transverse diameter $1\frac{1}{2}$ inches, vertical diameter 1 inch; transverse processes thick, spreading, making the breadth of the base of the cranium equal to its diameter across the zygomatic processes; jugular foramen $\frac{1}{2}$ inch in diameter; temporal bones small, mastoid portion thick and strong but not prominent; articulating cavities for condyles of lower maxillæ large, forming about 30° of a circle, inclining inwards and backwards; maxillæ thick and strong, vertical section triangular; a cavity for nerves and vessels runs within at the points of the roots of the teeth; alveolar process thick; palatal bone strong, anteriorly emarginate and horizontal, posteriorly descending below the alveolar process.

Frontal bone and anterior portion of maxillæ wanting; walls of the nasal canal smooth; sutures squamous; in the left maxilla one tooth remains, which is solid, spear-shaped, edges coarsely serrate, exterior side flattened, interior side convex, agreeing in this respect with the position of the teeth in the shark; roots double, nearly parallel, and inserted obliquely backwards; in the right maxilla are the alveolæ for eight teeth with double roots. In the solidity of the teeth and slight divergency of the roots, this specimen agrees with the figures of Dr. Harlan and Prof. Emmons.

This fossil is particularly interesting, as it removes every doubt, if any remain, of the true character of the animal to which it belonged. The double occipital condyle shows it to have been a mammal, while the squamous sutures and a symmetrical form refer it to the Cetaceæ.

Dimensions. Length $14\frac{1}{2}$ in.; greatest breadth $7\frac{1}{2}$ in.; height $5\frac{1}{2}$ in.; length of enameled portion of tooth $\frac{3}{8}$ in.; breadth $\frac{5}{8}$ in. It was evidently a young individual. (Pl. V., fig. 1 and 2.)

Geological position. The teeth described by Dr. Gibbes were found in the oldest of the calcareous beds of the Eocene of South Carolina, which contain *Cardita planicosta*, (Sowerby,) and other well known Eocene fossils, together with *Gryphæa mutabilis*, (Morton,) and *Terebratula harlani*, (Morton,) which are also common to the cretaceous formation. The fossil just described was found in upper beds of the Eocene; so that the Zeuglodon must have existed through the whole of the Eocene period; a period which, in South Carolina, was at least sufficiently long for the deposition of three hundred feet of calcareous and sedimentary matter; a fact ascertained by boring at Charleston.

ART. III.—*Observations on certain Fossil Bones from the collection of the Academy of Natural Sciences of Philadelphia.** By RICHARD OWEN, Esq., F. R. S., Professor of Comparative Anatomy in the Royal College of Surgeons, London, &c., &c.†

Genus Bos.

No. 1. Distal half of right humerus: it is about one-sixth less than the same part in *Bos primigenius*, and more resembles that of the Aurochs: it belongs, probably, to a species of *Bison*.

No. 2. The left tibia of the same species.

Genus EQUUS.

No. 3. Fragments of a lower molar tooth of the size of the *Equus caballus*; but the specific character not determinable.

Genus MASTODON.

No. 4. A portion of tusk, labelled *Hippopotamus*, but satisfactorily known to have belonged to a Proboscidian Pachyderm by the decussating curved lines intercepting lozenge-shaped spaces, at the transverse fractures of the ivory at the two ends. This structure is shown in British Fossil Mammalia, p. 291, fig. 101, c. Transverse fractures of the tusks of Hippopotamus show fine concentric lines, as figured in British Fossil Mammalia, p. 402, fig. 160.

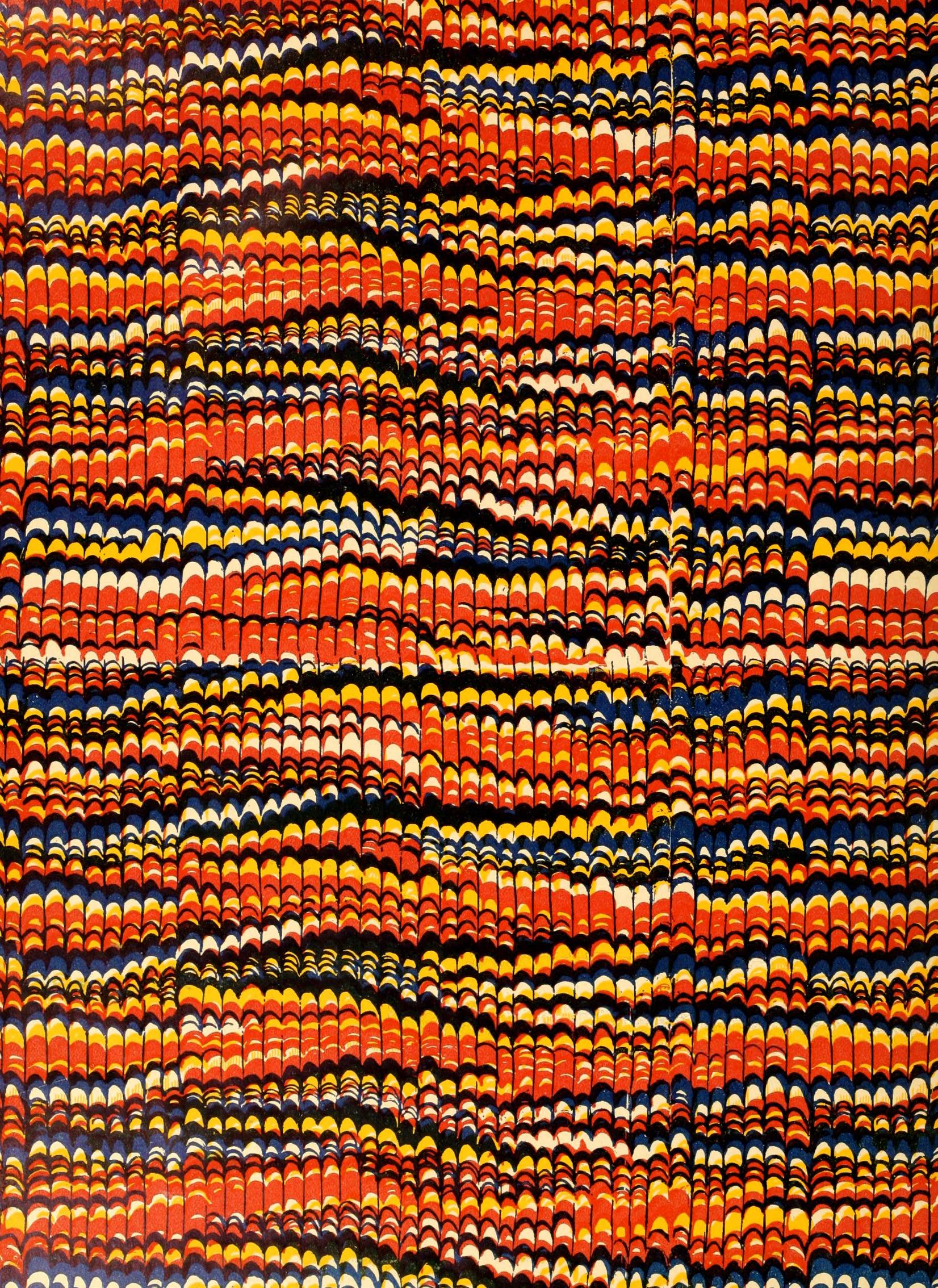
From the size, shape and slight degree of curvature of the Georgian fossil, it may probably have belonged to the left side, lower jaw, of the *Mastodon giganteus*.

Genus HARLANUS. Plate VI.,

No. 5. The middle part of the right ramus of the lower jaw of a large Pachyderm, with the last three (or true) molars, part of the premolar next in advance, and part of the socket of another premolar. The crowns of all these teeth appear to have been worn down by mastication to their base; they present the proportions, and the last molar, in a cast transmitted to me by my lamented friend Dr. Harlan, appears to retain the anterior of the two large transverse ridges, which characterize the teeth of the genus *Lophiodon*, Cuv.: it likewise possesses the large posterior lobe or talon, which dis-

* Proceedings of the Academy of Natural Sciences, August, 1846.

† The organic remains which form the subject of this paper are a part of a series collected by James Hamilton Couper, Esq., during the excavation of the Brunswick Canal, near Darien, in Georgia. Prof. Owen, having expressed a wish to examine these fossils, they were transmitted to him through Mr. Charles Lyell, by authority of the Academy, and the following highly interesting memoir was promptly returned. Besides the reference by Professor Owen to Dr. Harlan's original paper in the American Journal of Science, some valuable remarks by Mr. Couper himself, will be found in Vol. I. of the Proceedings of this Academy, page 216.





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