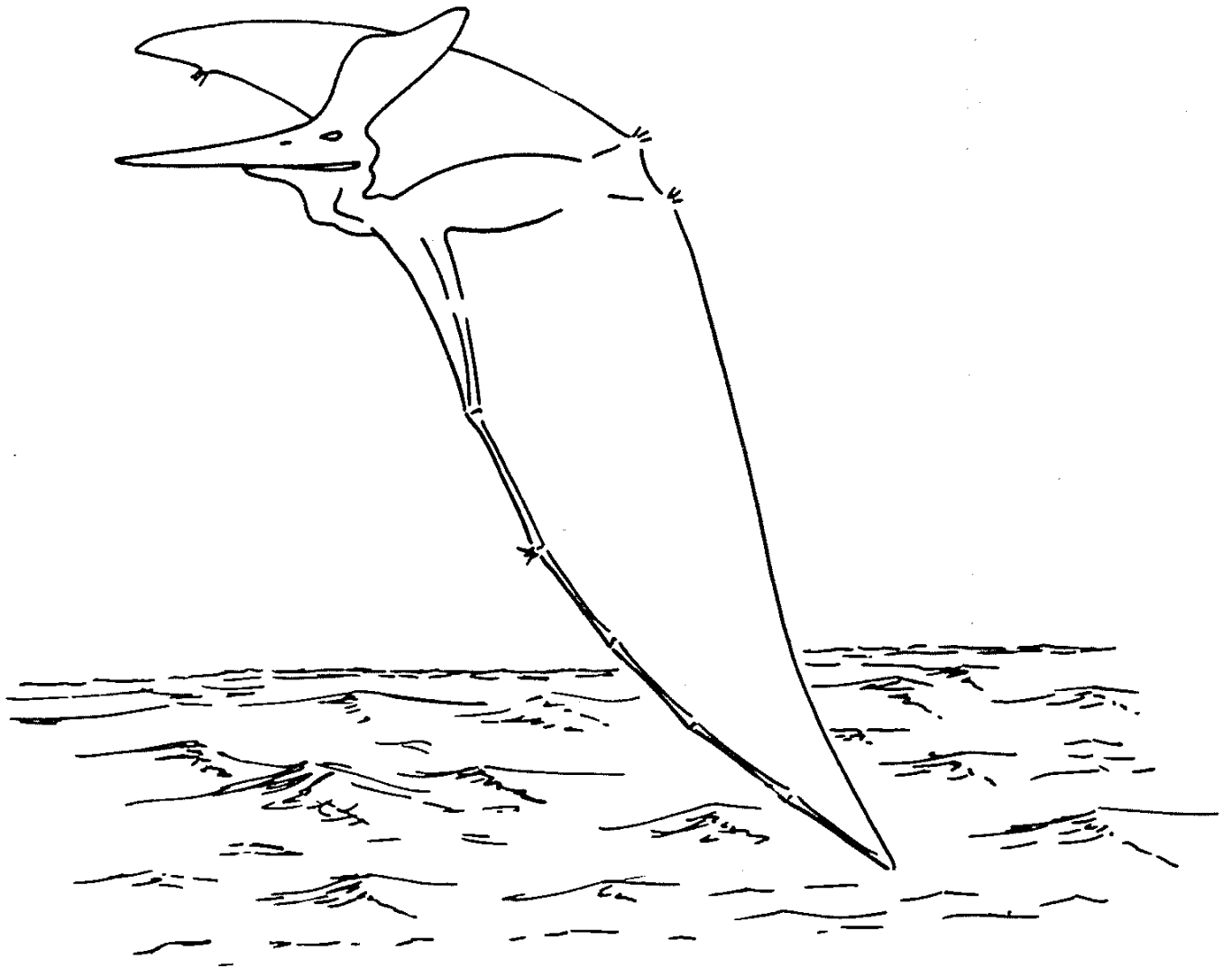


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Pteranodon Sternbergi, A new Pterodactyl
from the Niobrara Cretaceous of Kansas.

by J. C. Harksen, 1966



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PTERANODON STERNBERGI, A NEW FOSSIL
PTERODACTYL FROM THE
NIOBRARA CRETACEOUS OF KANSAS¹

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In the fall of 1952 Mr. George F. Sternberg collected the skull of an unusually large *Pteranodon* from the Niobrara Formation of Graham County, Kansas. Root wedging and erosion had severely weakened the normally fragile specimen. While some of the very thin and delicate bone was lost during collection and subsequent preparation, the outline of the skull and most of the bone was preserved intact. The specimen was slab collected and slab mounted, thereby retaining the exact shape and form of the fossil skull as it was found.

The author is indebted to Myrl Walker and Orville Bonner of the Fort Hays Kansas State College Natural History Museum (FHKM) for reviewing the manuscript. However, all opinions expressed are those of the author.

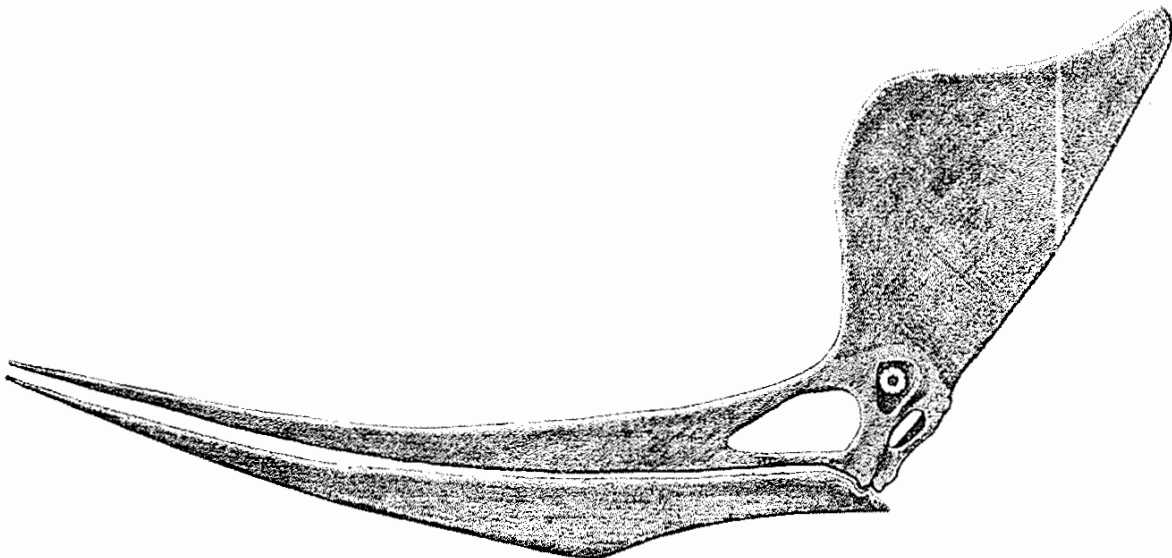


Figure 1. *Pteranodon Sternbergi*, New Species, FHKM 5426, Niobrara Formation, Graham County, Kansas. Skull, Left-Lateral Restorative Drawing. Drawing by the author.

¹ Publication approved by the Director, South Dakota Geological Survey.

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Class REPTILIA
Order PTEROSAURIA
Family ORNITHOCHEIRIDAE
Pteranodon sternbergi, New Species

Type. FHKM No. 5426, skull with incomplete upper and lower jaws.

Type Locality. Graham County, Kansas. In accordance with recent concepts (Macdonald, 1964) a more precise type locality will not be published, but will be retained in the museum books and supplied to qualified institutions and individuals only upon request.

Horizon. Smoky Hill Chalk Member of the Niobrara Formation, Upper Cretaceous.

Diagnosis. Characters of the genus *Pteranodon*: The distinguishing characteristics of this species are the bulbous outline of the supraoccipital crest and the high angle formed between the long axis of the supraoccipital crest and the long axis of the mandible.

DISCUSSION

Three genera of flying reptiles are known from the Cretaceous of North America: *Pteranodon* Marsh (1876a), *Nyctosaurus* Marsh (1876b), and *Apatomerus* Williston (1903). *Apatomerus* is known only from the proximal end of a femur from the Lower Cretaceous of Clark County, Kansas. *Nyctosaurus* and *Pteranodon*, both from the Upper Cretaceous, are known from several partially complete skeletons as well as additional fragmentary material. While flying reptile material is considered rare, Eaton (1910:1) reported that the Marsh collection at Yale University contained the remains of 465 individuals of *Pteranodon* as well as seven individuals of the allied genus *Nyctosaurus*.

The light construction and hollow bones of the flying reptiles, which allowed them the power of gliding flight, also made it difficult for complete or partially complete specimens to be preserved as fossils. Nearly all flying reptile material consists of disassociated elements or fragments.

The cranial elements of the specimens of *Pteranodon* thus far recorded have shown that wherever the crest is present it is long, tapering towards the distal end, and extends nearly straight back from the brain case. The type specimen of *Pteranodon sternbergi* is the only representative of this genus that has a crest of bulbous outline which extends nearly dorsally from the brain case.

Comparisons of cranial measurements (Fig. 2) would indicate that the skull of *Pteranodon sternbergi* is more than twice as large

³ For Mr. George F. Sternberg of Hays, Kansas.

Figure 2
COMPARATIVE CRANIAL MEASUREMENTS

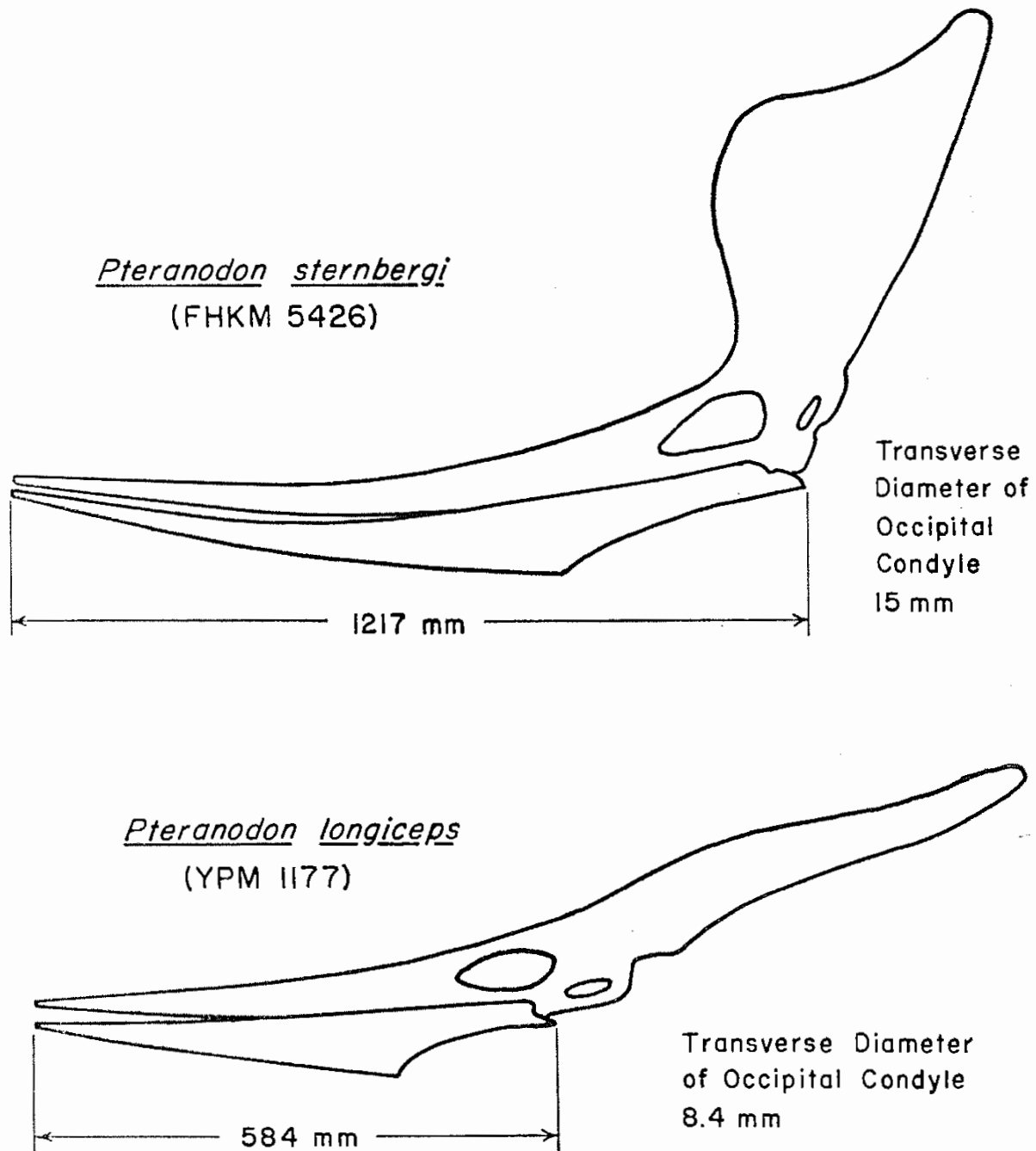


Figure 2. Comparison of the length of the mandible and the transverse diameter of the occipital condyle in the type specimens of *P. sternbergi* FHKM 5426 and *P. longiceps* YPM (Yale Peabody Museum) 1177. The measurements of *P. longiceps* are those of Marsh (1876) and Eaton (1910).

as the skull of the type of *Pteranodon longiceps*. Eaton (1910:37) estimates that in life the type specimen *Pteranodon longiceps* would have had a wingspan of sixteen feet. Using the cranial measurements of these two types, it seems reasonable to assume that in life the type of *Pteranodon sternbergi* would have had a wingspan in excess of thirty feet. This would make *Pteranodon sternbergi* the largest of the flying reptiles known to science at this time.

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