

View of the Superior Surface of the Skull of *Goniopholis Gilmorei* Holland.
 $\frac{4}{10}$ nat. size. The portions marked + have been restored.

IX. A NEW CROCODILE FROM THE JURASSIC OF WYOMING.

By W. J. HOLLAND, LL.D.

In the summer of the year 1902 Mr. C. W. Gilmore, at that time in the service of the Carnegie Museum as a field collector, succeeded in finding in the Freeze Out Mountains, not far from the "T. B. Ranch," a number of interesting fossils, among them the skull of a crocodile, which the writer provisionally refers to the genus *Goniopholis* Owen,¹ and to which he applies a specific name in honor of the discoverer. The geological horizon from which this skull came is that known as the Atlantosaurus Beds, and the skull was found in a stratum about eight inches above a stratum in which were found commingled remains of dinosaurs belonging to the genera *Morosaurus* and *Diplodocus*.

Class **REPTILIA.**

Order. *LORICATA* Merrem.

Suborder EUSUCHIA Huxley.

Family GONIOPHOLIDIDÆ Lydekker.

Genus **Goniopholis** Owen.

Goniopholis ? gilmorei sp. nov.

(Catalogue of Vertebrate Fossils, Carnegie Museum, No. 1339.)

The specimen consists of a skull without the lower jaws. It has been subjected to vertical pressure and is evidently somewhat crushed, so that the transverse dimensions, more particularly in the neighborhood of the orbital and postorbital openings, are greater than they would have been in life and the perpendicular dimensions are less. Otherwise the skull is remarkably well preserved. The entire upper surface is covered with round or angular pits from 2 to 3 mm. in diameter, with intervals of about 1-1½ mm. between them, formed by convex reticularly arranged ridges of the bone, in this respect agreeing perfectly with the generic description given by Owen.

The premaxillaries have not sustained much crushing; the anterior

¹ See *Report of the Eleventh Meeting of the British Association for the Advancement of Science*, page 71.

edge has been broken, and the margin of these bones is not entire. A portion of the posterior margin of the right dental foramen is, however, preserved, showing that the animal possessed the dental foramina, and thus was allied to the genus *Crocodylus* rather than to the genus *Alligator* Cuvier, or the genus *Gavialis* Oppel, the former of which is characterized by the absence of the dental foramina, except possibly in extreme age, and the latter of which is always without these openings. The foveæ on the lower surface of the intermaxillaries which lead from the orifices of the dental foramina are distinctly marked on the under surface of the skull. The snout is strongly constricted at the point where the premaxillaries unite with the maxillaries at the dental incisure. The nasal bones do not reach the narial opening, their anterior ends terminating between the premaxillaries fully three centimeters from the posterior margin of this opening. The alveolar border of the maxillaries extends backward from the point of union with the premaxillaries, in a widening curve, to a point in advance of the orbital cavities. There does not appear to be much, if any, evidence of lateral compression of the skull about the middle of the maxillaries, as is the case in the skull of many species of recent crocodiles, notably *Crocodylus Americanus* Seba. The distortion of the specimen to which the skull has been subjected as the result of vertical pressure may have slightly obliterated the evidence of constriction at the point indicated, in case it existed in life.

The arrangement of the bones composing the roof of the back part of the skull is essentially like that in the recent genus *Crocodylus*. At the point where the mastoid and the parietal bone form the inner and posterior margins of the supratemporal fossæ there are developed well marked convex bony ridges, rising about four mm. in height above the plane of the upper surface of the bones which have been named. This bony ridge is far more strongly marked than in the recent genus *Crocodylus*, where it exists only as a vestige. In other respects the upper surface of the skull shows no points of difference from modern types. The under surface of the specimen preserves, though greatly crushed, the outlines of the bones of the inferior surface of the skull, and these do not seem to diverge in form and arrangement from well known recent types.

With the skull were associated a few teeth. The alveolar border of the maxillaries and premaxillaries is sufficiently perfect to show that the number of teeth was identical with that of the modern genus

Crocodylus, and the arrangement of the teeth and their relative sizes, so far as it is possible to ascertain the facts from the skull under consideration, was the same as in *Crocodylus*. Three successional teeth are preserved on the left hand side of the upper jaw, and the crowns of two larger teeth were found detached from the skull and in the matrix beside it, evidently belonging to the same specimen. These teeth differ somewhat from those of the recent genus *Crocodylus* in being somewhat more compressed and trenchant and not as conical. They are not, however, as obtuse as the teeth described by Owen as belonging to the genus *Goniopholis*, although upon the crown, particularly upon the inner surface, they distinctly reveal the neatly defined longitudinal ridges, which appear to agree with the description given by Owen. The two lateral ridges, one anterior and the other posterior, midway between the convex and concave surfaces, are in both cases sharply defined, and even more sharply than in the genus *Crocodylus*. The larger of the teeth that have been preserved appears to the writer to be, reckoning from the front, No. 10 in the left series.

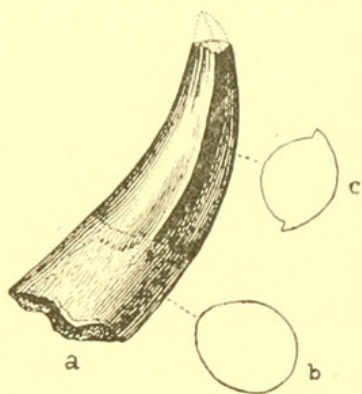


FIG. 1. *a*, Tooth of *G. Gilmorei*, nat. size; *b*, outline of section at base; *c*, outline of section at middle of crown.

DIMENSIONS OF THE SKULL OF GILMORE'S CROCODILE.

Length of skull on median line.....	38.50 cm.
“ “ “ from posterior extremity of quadrate to end of snout.....	44.50 “
Transverse diameter of snout across premaxillaries	7.20 “
“ “ “ “ at junction of maxillaries and premaxillaries	4.00 “
“ “ “ skull at front of orbits.....	10.80 “
“ “ “ “ at upper ends of mastoids	12.00 “
“ “ “ “ at end of quadrates.....	20.00 “
Longitudinal diameter of left orbital foramen	4.00 “
Transverse “ “ “ “ “	5.20 “
Longitudinal “ “ “ postorbital foramen	4.50 “
Transverse “ “ “ “ “	3.50 “
Diameter of supratemporal foramen.....	4.00 “

The specific characters by which this species may be distinguished from the other species of the genus *Goniopholis* described from North America appear to be the very closely pitted superior surface of the bones of the skull, the existence of the elevated ridges partly sur-

rounding the supratemporal foramina, and the less obtuse, elongated, and compressed shape of the teeth.

The writer assigns the species to the genus *Goniopholis* with doubt: first, because no vertebræ were collected, and therefore it is unknown whether the centra were amphicœlous as in *Goniopholis* or not; and, secondly, because the longer, less obtuse, and more trenchant teeth do not fully accord with the generic description given by Owen.



Holland, W. J. 1905. "A new crocodile from the Jurassic of Wyoming." *Annals of the Carnegie Museum* 3(3), 431–434. <https://doi.org/10.5962/p.78084>.

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