

**Article VI.—*BRACHYGNATHOSUCHUS BRAZILIENSIS*, A NEW
FOSSIL CROCODILIAN FROM BRAZIL¹**

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The bones which comprise the type material of the broad-jawed genus herein proposed, *Brachygnathosuchus*, were collected in the Upper Purús River, in western Brazil. They were found in silt in the river bed, and not in rock in place. The geological age of the material is therefore unknown. Associated with these bones in the collection, which is the property of Mr. S. H. Roper and is on deposit in The American Museum of Natural History, was a tooth of *Megamys* (?) and a humerus of a megalonychine ground-sloth, which are stated by Dr. Matthew to suggest Pliocene age. There is a reasonable possibility, therefore, that the crocodilian remains may also be Pliocene. The crocodilian remains consist of a portion of the right ramus of a lower jaw, two vertebral centra and another worn bone provisionally identified as a vertebral centrum, and a worn, flat bone provisionally identified as an eroded dermal plate.

The jaw fragment consists of a portion of the dentary bone only. It differs considerably from that of any other known crocodilian, and in some respects resembles, superficially at least, that of a dinosaur. In the totality of its characters, however, it is nearer the typical crocodilian jaw than any other, and is therefore referred to the Crocodilia.

The bone is large and massive, surpassing any other known crocodilian jaw in this respect. Eight complete alveoli are preserved, and borders of two more are indicated. The complete alveolus which lies nearest the anterior end contains the tubular root of a large tooth. This alveolus is smaller than the second complete one, which is huge in size. Posterior to the second the alveoli exhibit a progressive decrease in size; the alveoli themselves are round and are close together. The vertical diameter of the bone is much greater, and the transverse diameter is slightly greater at the anterior end of the bone than at the posterior. The dental series is close to the external border of the superior surface at the anterior end and rather near the internal border at the posterior end. This suggests that the dental series did not extend much farther back.

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The anterior end of the jaw is not preserved, and the symphysis is lacking, but an expansion on the inferior border of the anterior end of the part of the bone preserved indicates that this is at or near the posterior end of the symphysis. The superior surface, both internal and external to the alveoli, is extensively pitted. External to the alveoli the pits extend down over the surface.

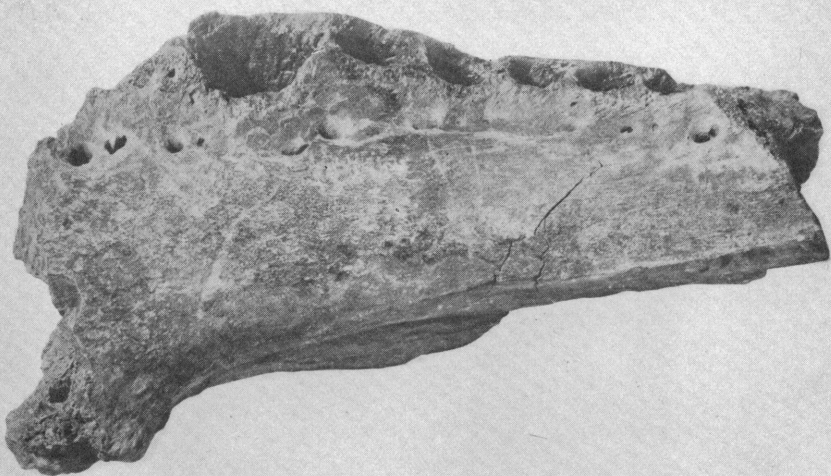
The bone differs from the dentaries of other Recent and fossil crocodiles in that the largest tooth is posterior to the symphysis (the missing teeth could hardly have been larger than that of the second complete alveolus of the specimen). In typical crocodiles and alligators the teeth increase gradually in size from the posterior direction as far forward as the fourth, which are never posterior to the symphysis. The specimen here described might be interpreted, of course, as having had the symphysis extending back only as far as the level of the second or third teeth. In any case, there was a pair of very large teeth slightly posterior to the symphysis; this is a departure from the normal crocodilian structure. The groove which lodged the anterior end of the splenial is deep.

The larger and better preserved of the two vertebral centra resembles the centra of the lumbar region of the modern procœlous crocodiles in most respects. The anterior concavity is moderately deep and the posterior convexity is strongly rounded. The pedicles which supported the neural arch are rather high, and are situated nearer the concave than the convex end of the centrum. The latter differs from the normal crocodilian centrum in that its vertical diameter is greater than its transverse, resembling, in this respect, the typical centra of the dinosaurs. The inferior surface of the centrum is partly broken away, revealing an interior mass of coarsely spongy bone.

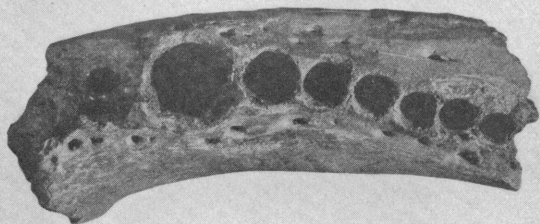
The other vertebra is fragmentary; it is broader than the one described above; one end of it is concave, otherwise its characters are not clearly determinable. It is clearly a vertebral centrum, however.

The bone mentioned above as provisionally identified as a vertebral centrum is very poorly preserved. It is longer than the two centra described above, otherwise its dimensions are similar. One end is very convexly rounded and is very smooth. The contacts of this rounded end with the other surfaces of the bone are largely eroded, but evidently they were sharp. The end of the bone opposite the convex one is not preserved. The surfaces between the two ends are partially preserved. They are composed of longitudinally striated bone; three sides are rounded and smooth; the other side is eroded deeply near the convex

A



B



C

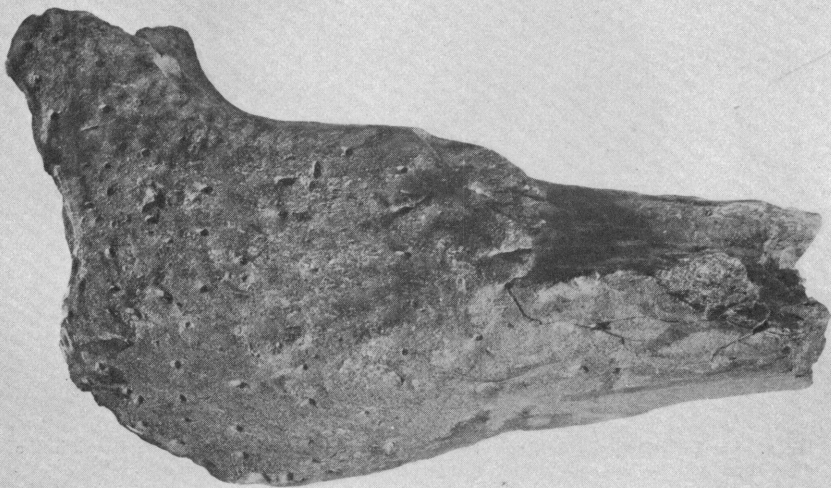


Fig. 1. Right dentary of *Brachygnathosuchus braziliensis*. Type specimen, on deposit in the American Museum. A, internal view, one-third natural size; B, superior view, two-ninths natural size; C, external view, one-third natural size.

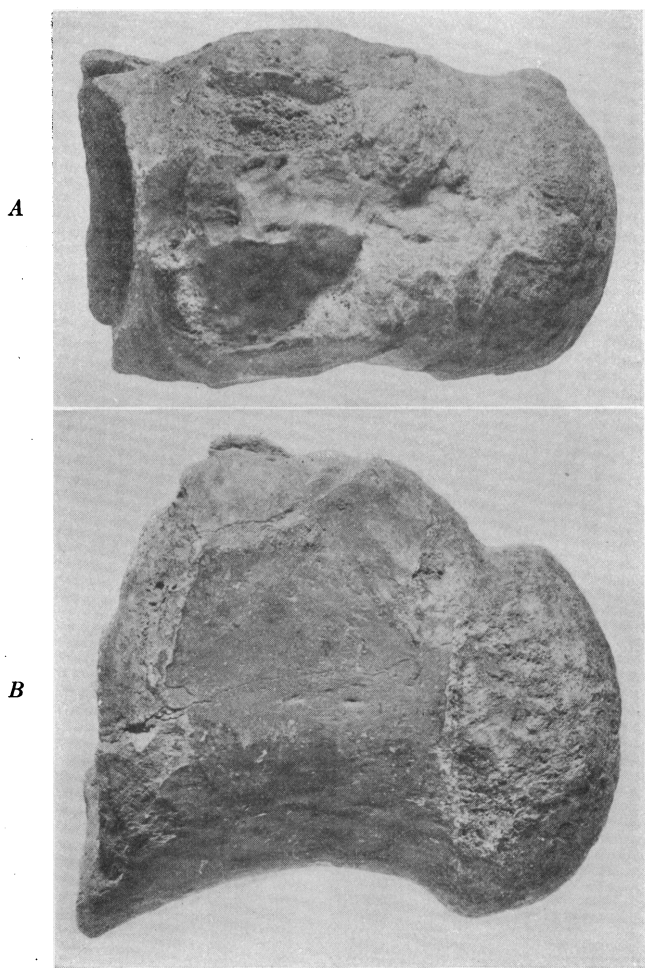


Fig. 2. Lumbar vertebra of *Brachygnathosuchus brasiliensis*. Type specimen, on deposit in the American Museum. One-half natural size. A, superior view; B, lateral view, left side.

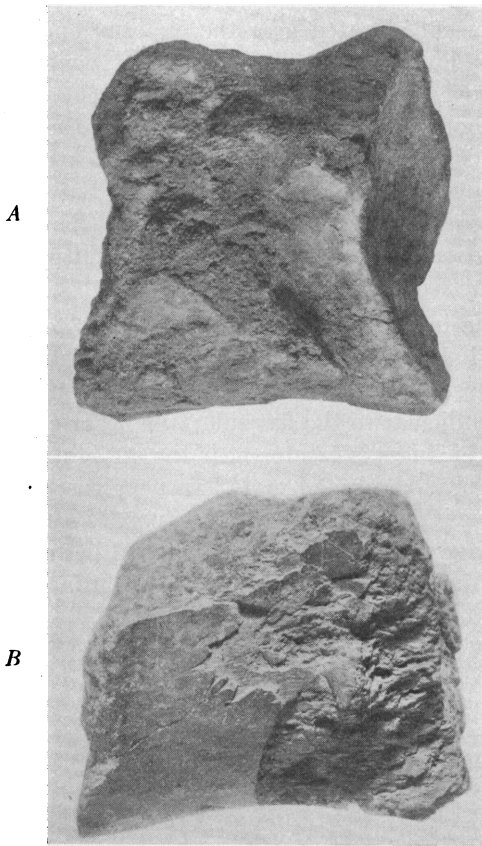


Fig. 3. Vertebral centrum of *Brachygnathosuchus braziliensis*. Type specimen, on deposit in the American Museum. One-half natural size. A, superior view; B, lateral view.

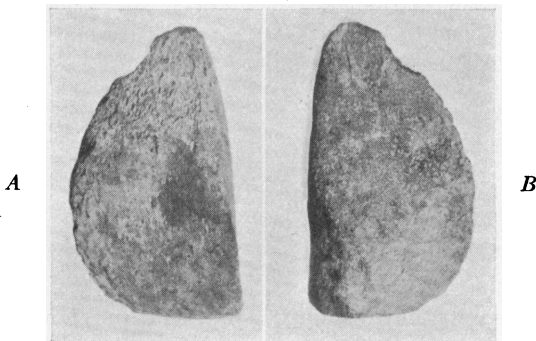


Fig. 4. Dermal scute of *Brachygnathosuchus braziliensis*. Type specimen, on deposit in the American Museum. One-half natural size. A, internal view; B, external view.

end, but is somewhat elevated near the opposite end. If the bone is considered as a caudal centrum, the convex end would be the posterior end and the destroyed end the anterior end of the centrum. The elevated portion of the poorly preserved surface between the two ends would then be the base of the neural arch. The central portion of the centrum would then be considerably higher than broad, but the posterior end would be about equal in vertical and transverse diameters. Owing to the poor preservation of the bone, however, it is not possible to identify it positively.

Another bone in the collection which appears to belong with the remains described above is a flat solid bone, which is nearly straight on one side, the opposite being convexly curved; one end is straight and flat, and is perpendicular to the flat side; the other end is more nearly acuminate; the thickness is greater near the straight border than near the curved, and near the broad end than near the pointed end; one surface of the bone is very slightly concave, part of it in fact being flat, and the other convex. This bone is evidently a dermal scute that has been water-worn and has had its original rough surface destroyed.

MEASUREMENTS

Portion of Right Mandible Preserved, Length	.341M.
Portion of Right Mandible Preserved, Height	.186.
Portion of Right Mandible Preserved, Breadth, Minimum	.097
Seven Alveoli of Same, Total Length	.230
Length of First Complete Alveolus	.035
Breadth of First Complete Alveolus	.031 (est.)
Length of Second Simple Alveolus	.048
Breadth of Second Complete Alveolus	.046
Depth of Second Complete Alveolus	.110
Length of Eighth Complete Alveolus	.021
Breadth of Eighth Complete Alveolus	.018
Most complete Vertebral Centrum, Length	.130
The Same, Breadth, Anterior End	.084
The Same, Breadth Posterior End	.081
The Same, Breadth, Center	.065
The Same, Height, Total	.122
Fragmentary Vertebral Centrum, Length of Part Preserved	.101
Bone Provisionally Identified as a Vertebral Centrum, Length	.130
Dermal Scute, Length	.081
The same, Breadth	.047

The name **Brachygnathosuchus** is proposed, in reference to the short, stout character of the mandible.

TYPE SPECIES.—*Brachygnathosuchus braziliensis*.

SUMMARY OF GENERIC CHARACTERS.—Mandible exceedingly short and broad; alveoli crossing rapidly from the external portion of the superior surface of the dentary near the anterior end to the internal portion of this surface slightly farther back; a very large tooth in the dentary slightly posterior to the symphysis; vertical depth of the anterior end of the dentary very great.

The name **braziliensis** is proposed for the species in reference to its general locality.

TYPE.—A portion of a right dentary, two vertebral centra, and two more or less problematical bones, provisionally identified as a vertebral centrum and a dermal scute. Property of Mr. S. H. Roper, on deposit in The American Museum of Natural History.

SUMMARY OF SPECIFIC CHARACTERS.—Size very great; steady decrease in the size of the teeth from the large postsymphysial tooth backward.

