

A NEW PALEOCENE MAMMAL FROM A DEEP WELL IN LOUISIANA

By GEORGE GAYLORD SIMPSON

American Museum of Natural History, New York City

The discovery here described is one of the most remarkable in the history of vertebrate paleontology. A core was unintentionally taken in an oil well in Louisiana at a depth of 2,460 feet, and apparently from this core came the fairly well-preserved facial and palatal part of a small skull. As if this in itself were not sufficiently improbable, the skull, although supposed to be of Cretaceous age, proves to be that of a Paleocene mammal of a genus hitherto known only from very limited areas in New Mexico and Montana. This noteworthy specimen has been assigned to me for study through the kindness of C. W. Gilmore.

The circumstances of the discovery are given as follows by W. C. Spooner in a letter to Dr. W. C. Mendenhall dated March 14, 1931:

In reply to your letter of March 3d concerning core from the Junior Oil Company Beard No. 1, Caddo Parish, Louisiana.

The condition of the well, at the time the sample containing the specimen was obtained, was such that I am unable to state positively that it came from the depth reported. Surface casing was set through the Wilcox formation into the Midway Clay with open hole below the depth from which the specimen was obtained. The drill-stem had parted at a depth of 2,460 feet and the drillers were running an overshot-fishing-tool, attempting to pick up the drill-stem. The overshot was a piece of pipe shaped as shown in the sketch.

The drill was leaning against the wall of the hole and when the overshot was lowered it hit the drill-stem on the side, deflecting it into the wall of the hole opposite the side against which the pipe leaned, so that when the overshot was rotated it cored into the wall of the hole at the depth reported. Inasmuch as they failed to place the overshot over the drill-pipe, it was pulled out of the hole and the material cored from the wall was removed. This material was definitely the same material as shown in the cores from this depth and, according to the drillers and the drilling-superintendent, who was on the well at the time, the concretions were imbedded in the shale, which was a core although taken under unusual circumstances. Unfortunately, the core was broken before I had an opportunity to examine it and am unable to state whether the men at the well are correct in their assumption that the specimen belonged in the material cored.

It is possible that it may have come from the Midway above, although under the existing conditions it is rather difficult to see how it could have lodged in the position from which it was obtained. It would be much more reasonable to assume that if it had come from higher in the hole it would have

dropped below the top of the drill-stem, as the drill-stem was 4 inches in diameter, whereas the hole was 9 inches in diameter, and, furthermore, the drill-stem was leaning against the side wall of the hole.

However, there is a distinct element of uncertainty as to the actual depth from which the specimen was obtained, but I am certain that it came from beds older than the Wilcox formation.

Some further data are given in a memorandum from H. D. Miser to Dr. J. B. Reeside:

* * * Core from the Junior Oil Company Beard No. 1 well in sec. 9, T. 18 N., R. 16 W., Caddo Parish, Louisiana, at a depth of 2,460 feet. According to Mr. Spooner, the formation from which the core was taken is the Tokio formation of Austin age.

Although thus considered as probably coming from Cretaceous strata, the specimen is surely of Paleocene age, and probably not earliest Paleocene, as will be shown below. Speculation as to the possibility that the terrestrial mammal-bearing Paleocene is in part equivalent to the marine late Cretaceous is not furthered by this find. It is not certain that the specimen was in place at the recorded depth, although this seems very probable, and it is apparently not certain that the stratum in question does not belong to a post-Cretaceous intercalation not present, or not recognized, in surface exposures of adjacent regions. The latter would seem the most probable hypothesis on the data at hand.

Description of the specimen follows:

Order AMBLYPODA

Family PERIPTYCHIDAE

Subfamily ANISONCHINAE

ANISONCHUS FORTUNATUS, new species

Type specimen.—U.S.N.M. No. 12147. Anterior part of skull, with left canine, broken P³ of both sides, somewhat imperfect M¹⁻³ of both sides, and other tooth fragments.

Type locality.—Junior Oil Company Beard No. 1 well, sec. 9, T. 18 N., R. 16 W., Caddo Parish, La.

Horizon.—From an oil well, probably at a depth of 2,460 feet. Formation uncertain, but evidently (from the specimen itself) of Paleocene and probably of Torrejon age.

*Definition*¹.—Size of molars about that of *A. sectorius*, premolar series relatively smaller and shorter. Molar proportions also about

¹This definition is so expressed as to facilitate comparison with revised diagnoses of other species of the genus in the still unpublished memoir of the Paleocene mammals of the San Juan Basin by Matthew and Granger.

as in *A. sectorius*, more triangular than in that species but less transverse than in *A. gillianus*. Base of hypocone projecting much farther internally than base of protocone. Hypocones, especially that of M^3 , relatively stronger than in other species. Trigons, proper, strongly compressed transversely. Anterointernal cingulum (protostyle) very weak or absent. Small metaconules on all molars, protoconules very weak or (probably) absent on M^{2-3} . Paracone and metacone well separated, paracone larger than metacone, slightly

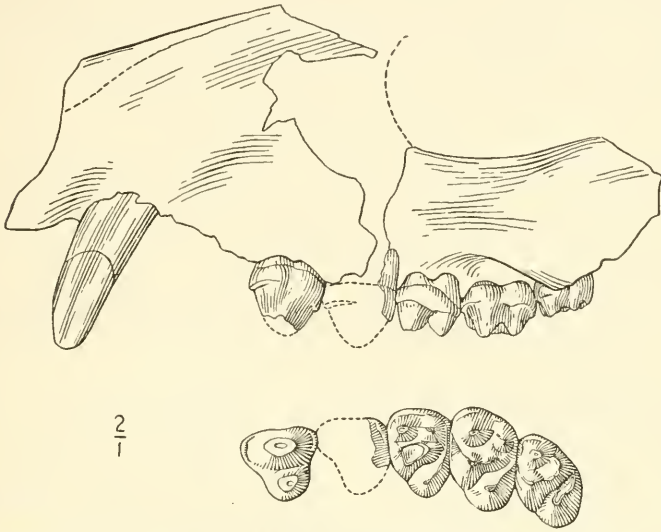


FIGURE 1.—*Anisonchus fortunatus*, new species, type specimen, U.S.N.M. No. 12147. Left lateral view of face, with canine and P^2 - M^3 , and crown view of left P^3 - M^3 . Teeth in part a composition from both sides of original

on M^{1-2} , more so on M^3 . P^3 trigonal, wider than long, strong internal heel.

Measurements.— M^{1-3} about 13.5 mm. Posterior edge of canine to posterior end of M^3 about 30 mm.

Remarks.—The diagnosis, in conjunction with what is known of the San Juan Basin species, gives an adequate conception of the known morphology of the cheek teeth. The canine is relatively large and laniary, the incisors apparently small and unspecialized. The snout was pointed, the nasals long and narrow. The very stout zygoma arises chiefly outside and above M^2 . The anterior border of the orbit is above the anterior end of M^1 . The general aspect of the facial part of the skull is that of a small and primitive carnivore.

This specimen fortunately preserves characters diagnostic of the genus *Anisonchus*: P^3 with laterally compressed external cusp and well-developed internal cusp, upper premolars in general enlarged

but not molariform, upper molars low-crowned, basically tri-tubercular but with large posterointernal heel, cusps high and sharp, protostyle small or absent, molars less transverse than in *Conacodon* or *Haploconus*.² It is not closer to any other genus and differs no more from other species referred to *Anisonchus* than they differ between themselves. In short, surprising as is the discovery of an *Anisonchus* at this place and level, the generic reference is not open to question.

Two valid species of *Anisonchus* have previously been established: *A. gillianus* from the Puerco, and *A. sectorius* (the type) from the Torrejon. The genus also occurs in the Fort Union, but the species there present have not yet been defined or identified. *A. gillianus* and *A. sectorius* are very distinct, and *A. fortunatus* is also a very clear-cut species. In part it combines characters of the other two. Thus the strong internal projection of the hypocone base and the shape and proportions of the premolars are more like *A. gillianus*, while the molar size and overall proportions, separation of paracone and metacone, and reduction of protostyle are more like *A. sectorius*. Other characters, such as the very large hypocones and extreme compression of trigons, are distinctive from either species. The combination of these various characters is unique.

Being about equally distinct from *A. gillianus* and *A. sectorius* its closer affinities are in doubt. It is perhaps in a stage of evolution analogous to that of *A. sectorius* but derived independently from a more primitive, more *A. gillianus*-like common ancestry.

The age of the specimen is surely Paleocene. Other specimens of this genus are known only from the Lower and Middle Paleocene, and *A. fortunatus* is not apparently more advanced than those from the latter. More exactly, but with somewhat less security, it seems to be of approximately Middle Paleocene, Torrejon age.

The discovery of mammal-bearing Paleocene sediments nearly half a mile below the surface in Louisiana (and far below sea level) is a very extraordinary and interesting fact, but unfortunately it can hardly be said to open up a new field for collecting.

² Absence of conules is sometimes given as characteristic of *Anisonchus* or the *Anisonchinae*, but the less-worn specimens of both San Juan Basin species of *Anisonchus* show small but distinct conules, although less developed than in the present specimen.