

# MEGALONYX HOGANI, A NEW SPECIES OF GROUND SLOTH FROM GOULD, OKLAHOMA.

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**ABSTRACT.** An unusually fine skull, pelvis, scapula and rib fragments of a new species of *Megalonyx*, a Pleistocene ground sloth recently discovered in Oklahoma are here discussed for the first time. Measurements of the skull are compared with recognized species of the genus and found to differ from all previously described species. These are the first remains of the genus reported from this state.

**I**N August of 1938, Mr. C. L. Copeland, section foreman for the M. K. and T. Railroad at Gould, Oklahoma, discovered the remains of a ground sloth in a railroad cut at the east edge of town. The find was brought to the attention of Mr. Earl Newberry, Superintendent of Schools at Gould. Mr. Newberry notified the writer, who visited the site and collected the bones on August 27th. The bones were found near the bottom of a well-defined Pleistocene stream channel cut into the underlying Blaine (Permian) rocks. The course of the channel was east-west. It lay about 25 feet above the bed of the nearest stream. Reworked Permian gravel and clay formed the greater part of the material by which the channel was filled.

The discovery is important not only because of the excellent condition of the skull but because the specimen represents a new species and the first *Megalonyx* reported from Oklahoma. I propose to name the animal *M. hogani* in honor of Mr. Dan Hogan, Sr., of Oklahoma City, Oklahoma.

*Megalonyx hogani*, (n. sp.)

*Holotype*.—A skull, upper right third cheek-tooth, pelvis, left scapula and four fragmentary ribs, Univ. of Okla. Mus. of Geol. and Paleon. No. 41-0-S1.

*Locality*.—Gould, Oklahoma.

*Age*.—Pleistocene.

*Specific Characters*.—Size smaller than *Megalonyx jeffersonii*, *M. leidyii*, and *M. milleri*. Junction of the occipital plane with the plane of the sagittal crest an acute angle. Posterior cheek-tooth subterete and without vertical constrictions. Post-orbital ridges absent.

*Description*.—The skull, one of the best ever discovered, is virtually complete, only slightly distorted, and is composed of

well-preserved bone. All of the teeth except the third right upper cheek-tooth are missing. This tooth was not in its socket but was found about three feet from the skull. Each zygomatic arch is represented by an anterior and posterior stub. Complete zygomatic arches are known in only one specimen of this genus, the type of *M. leidyi* Lindahl (1892).

The skull is more robust than in either *M. jeffersonii*, *M. leidyi*, or *M. milleri*. Measurements given by Lindahl (1892) and Stock (1913) show the skulls of the two former species to

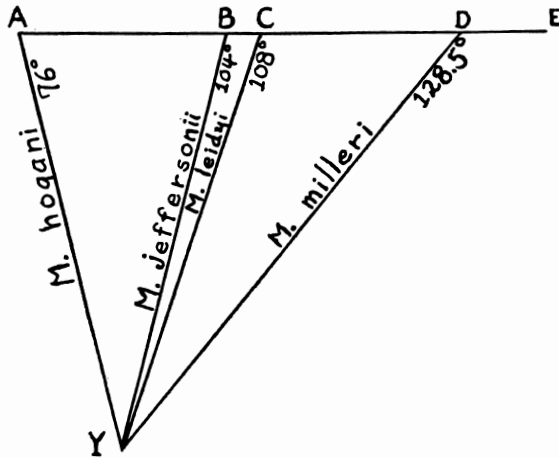


Fig. 1. A diagram illustrating the angular relationship between the occipital plane and sagittal crest in four species of *Megalonyx*. The line AE represents the sagittal crest and the lines terminating at Y represent the occipital planes. Beginning at the left the angles are YAE 76°, *M. hogani*; YBE 104°, *M. jeffersonii*; YCE 108°, *M. leidy*; YDE 128.5°, *M. milleri*.

be considerably longer between the occipital condyles and the anterior margin of the first cheek-tooth alveolus. In no other species does the plane of the occiput form an acute angle with the plane of the sagittal crest. In *M. jeffersonii*, *M. leidy*, and *M. milleri* Lyon (1938), and especially in the latter species, the plane of the occiput is inclined forward, thus producing an obtuse angle between the occipital and sagittal planes. The variation in these angles doubtlessly gave rise to different slopes to the skulls of the animals. Text Fig. 1 is a diagram that shows this feature in comparison with the three species above named.

The foramen magnum is only slightly wider than high and is bounded on each side by the condyles, as in all other species of

*Megalonyx*. The supraoccipital crest is wide, heavy, and expanded medially where it unites with the sagittal crest. The occiput is deeply depressed and equally divided by a strong, narrow ridge which extends from the supraoccipital crest to the foramen magnum. As may be seen in Plate I, Fig. 3, the occipital depression is penetrated by six ridges of bone. The two nearest the middle are broad and heavy. The next outer pair are smaller and conical in outline. The outer pair are broad at the base but become narrow rather abruptly and extend almost to the condyles.

The heavy paroccipital processes extend the arc of the supraoccipital crest downward, thus enhancing the round appearance of the occiput. The location of the stylohyal process is marked with pronounced convexity. The external auditory meatus is large, ovoid and directed outward and downward. The bullae are too badly damaged to be accurately described. The glenoid fossae are smooth of surface but are bent in quarter circles which are 52 mm. wide in a transverse line. The facial portion of the skull is somewhat more depressed than the one figured by Leidy in 1855. There are no postorbital ridges, although there is a gentle break in the profile of the cranium at the upper margin of the orbits. This break spreads inward and unites with the sagittal crest at a point 90 mm. back of the posterior margin of the orbits. The posterior portion of the face is thus somewhat dish-shaped. Lines superimposed on this break in the profile make an angle of 84 degrees at the point of their junction, agreeing more closely in this character with *M. leidy* (76.5 degrees) than with either *M. jeffersonii* (55 degrees) or *M. milleri* (46 degrees). This angle is determined by the length of the sagittal crest, the shorter sagittal crest having the more acute angle. While it is of no value in determining the sex of this or any of the above species, because of insufficiency of material for study, this angle may be, as in the grizzly bears, a sex character. The females would thus have the shorter sagittal.

The temporal fossa is typically megalonichid. It differs from the temporal fossa of *M. jeffersonii* in that the surface of the bone is less rugose, a character doubtless greatly influenced by the age of the animal. The anterior margin of the fossa is less distinct and is separated from the facial portion of the skull by a wide, though slight elevation.

*Megalonyx hogani* differs from *Nothrotherium shastense* in

that the face is much more depressed and the base of the jugal portion of the zygomatic arch is much more rounded. The anterior border continues forward and upward to the low rounded preorbital process above which there is a slight swelling which extends well up the face, thus emphasizing the nasal swelling. In *Mylodon harlani* the temporal fossa is limited above by a much wider sagittal crest than in either the Gould specimen or in *Nothrotherium shastense*.

The palate is Y-shaped, the expanded anterior ends forming the lingual side of the alveoli of the caniniform teeth (see Plate I, Fig. 4). The foramen ovale is larger than the foramen

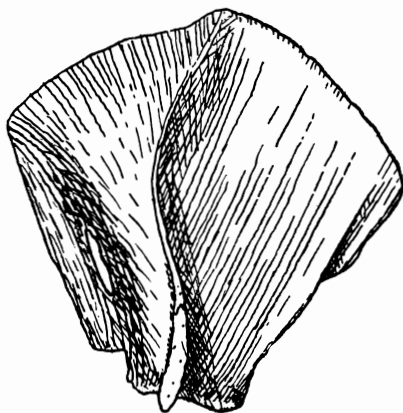


Fig. 2. *Megalonyx hogani*, n. sp., external surface of left scapula. Maximum length 390 mm., maximum width 395 mm.

rotundum. The portion of the palate posterior to the anterior margin of the third cheek-tooth alveolus was damaged before burial.

The shape and number of teeth can be easily determined. The following description, except for the third upper right cheek-tooth, is based on the shape and size of the alveoli. The caniniform teeth are large and set at an angle of 45 degrees to the antero-posterior axis of the skull. The alveoli show clearly that the anterior face of the tooth is convex and the posterior face concave in a vertical direction. In *Nothrotherium* there are no caniniform teeth and in *Mylodon* these teeth are smaller than in this specimen, inclined to be round, and are in a continuous series with the cheek-teeth. The caniniform teeth, where they are present, show no material variation in *Mega-*

*lonyx*. Stock (1925) has pointed out that there is a great deal of individual variation in the caniniform teeth of *Mylodon*, that these two teeth are not always alike in the same skull and that one or both of them may be accidentally lost during the life of the animal. The lack of variation in the caniniform teeth of *Megalonyx* may be explained by the fact that these teeth are larger and stronger in this animal. They were thus not so apt to be injured while the animal was feeding.

The cheek-teeth are four in number and are separated from the caniniform teeth by a wide diastema, as in all other species of *Megalonyx*. The first cheek-tooth is narrower than the second and third. Its general shape is triangular, with the longest axis lying along the posterior side of the tooth. The alveolus suggests very slight vertical constrictions on the anterior and posterior sides. The second cheek-tooth is much wider than thick, its lingual side wider than the cheek side. This tooth, like the third cheek-tooth, has shallow but wide vertical grooves on three sides, the lingual, anterior, and posterior. The third cheek-tooth is smaller than the second but resembles it in general shape. The fourth cheek-tooth is the smallest of the series. It was subterete and the alveolus has no indication of vertical grooves.

*Pelvis*.—The pelvis is about 950 mm. wide, massive and thick along the outer and upper margins. The ilia measure 720 mm. along the outer margin. They are deeply concave and united to five fused sacral vertebrae. The neural spines of these vertebrae are also fused thus forming an inverted keel. The large, rugose pubic bones meet in the median line in front of the anterior margin of the ilia. The greatest diameter of the acetabulum is 128 mm.

*Scapula*.—Although the scapula was badly damaged after arriving at the laboratory its larger features are well shown. The dorsal margin describes two slightly curved lines which intersect near the middle of the scapula to form an angle of

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Explanation of Plate I.

Fig. 1. *Megalonyx hogani* n. sp. Dorsal view of the skull. Maximum length 362 mm.

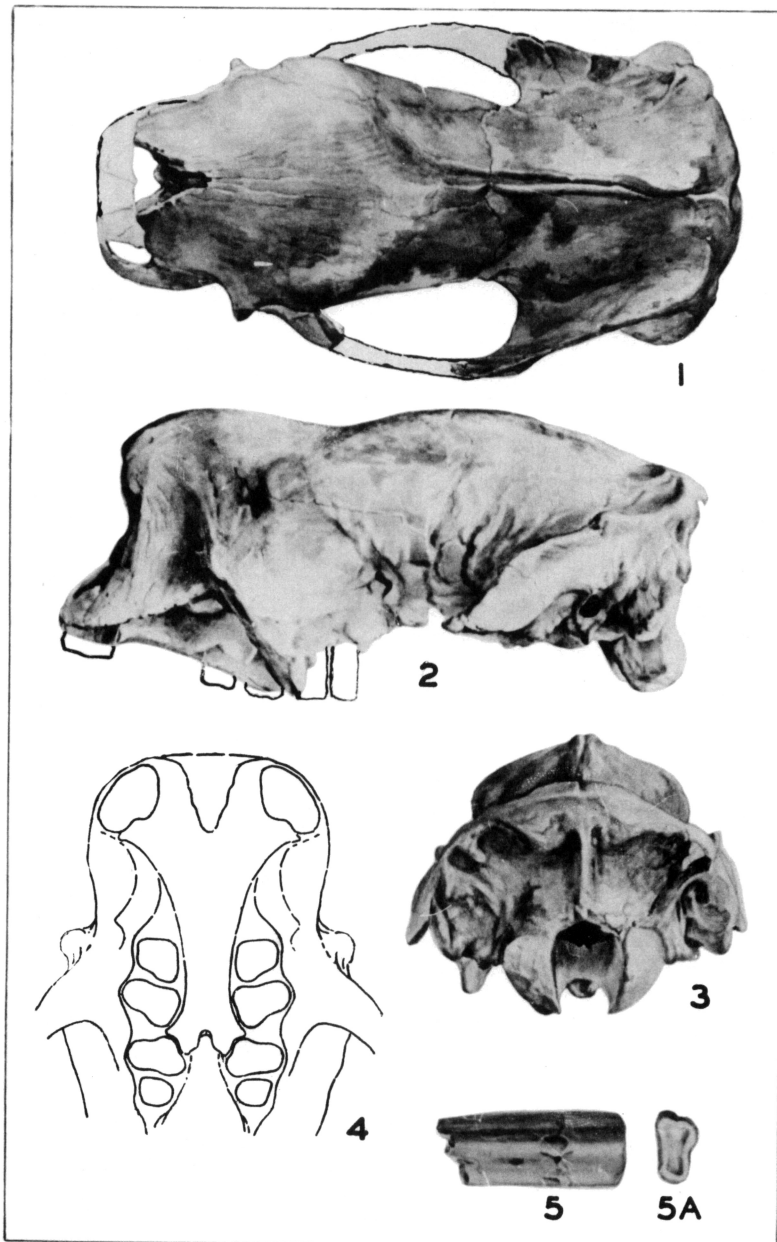
Fig. 2. Left side of the skull.

Fig. 3. Occipital region of the skull. Maximum breadth of occiput 175 mm.

Fig. 4. Palate showing caniniform alveoli.

Fig. 5. Third right upper cheek-tooth. Length 83 mm., width 33 mm.

Fig. 5A. Occlusal surface of the same tooth.



about 136 degrees. It thus has an angular dorsal margin while the scapulae of *Nothrotherium* and *Myiodon* have a rounded upper margin. It differs from the scapulae of *Nothrotherium* and *Hapalops* in that the spine divides the lateral surface into two slightly unequal portions. Leidy (1855, p. 25) said in reference to the scapula of *Megalonyx*: "the dorsum, as in *Myiodon* is nearly equally divided by the spine into two deeply concave fossae, which are roughened with reticular ridges." In the Gould specimen, however, the fossae are only slightly concave in the distal region and not at all in the proximal third. In that region the spine rises rather abruptly from the almost flat surface of the scapula. A little short of the middle, the spine approaches the plane of the scapula very rapidly, and is reduced to a low ridge that curves posteriorly to the outer margin. The spine is moderately high, and, while

Table of Comparative Measurements (in millimeters) of Four Species of *Megalonyx*: *Leidyi*, *Jeffersonii*, *Milleri*, *Hogani*.

	<i>leidyi</i>	<i>jeffersonii</i>	<i>milleri</i>	<i>hogani</i>
Maximum length .....	?	?	384	362
Length of skull from condyles to anterior margin of alveolus of first cheek-tooth	343	356	291	245
Maximum thickness at posterior end of hard palate .....	130	121	?	161
Width at post-orbital process .....	123	123	129	142
Width at about middle of temporal fossa .....	91	90	76	98
Maximum breadth of occiput .....	165	158	161	175
Width of palate at posterior margin of caniniform alveolus .....	?	91	?	96
Depth of occiput to foramen magnum ..	107	110	76	70
Width of palate at middle of second cheek-tooth .....	?	25	?	25
Length of palate along midline .....	?	104	?	92
Breadth of muzzle at anterior extremity	83	94	98	108
Diameter of orifice of nose .....	77	89	79	76
Length of sagittal crest .....	144	127	149	95
Antero-posterior width of caniniform alveolus .....	?	33	?	40
Lateral maximum width of caniniform alveolus .....	?	21	?	25
Maximum diameter of first cheek-tooth alveolus .....	?	18	?	23
Maximum width of second cheek-tooth alveolus .....	?	27	?	28
Maximum width of third cheek-tooth alveolus .....	?	27	?	31
Maximum (approximate) width of fourth cheek-tooth alveolus .....	?	17	?	15

the proximal end extends outward over the approximate middle of the glenoid fossa, it shows no signs of twisting to form the coraco-acromial arch. The only evidence that this scapula had a coraco-acromial arch is a short section of unbroken bone about one and one-quarter inches above the broken anterior edge of the glenoid fossa. The coraco-scapular foramen is oval in outline with its long axis dorsoventral. There are three low ridges on the internal side of the scapula radiating outward from the glenoid cavity. One of these ridges is situated toward the posterior margin of the scapula. At a point a little beyond its middle this ridge swings outward and forms the outer margin of the bone. In addition to these ridges there are several smaller radiating ridges of unequal length on the internal surface of the bone.

The posterior edge of the scapula, beginning at the margin of the glenoid fossa, rises on the outer side in the same plane as the wing of the scapula, but turns outward in its lower third and at about the middle forms a pronounced ridge which extends to the upper margin of the scapula.

*Ribs.*—The ribs are rather heavy, oval in cross-section, but of no particular diagnostic value.

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