

CONTRIBUTIONS FROM THE MUSEUM OF PALEONTOLOGY

THE UNIVERSITY OF MICHIGAN

Vol. 23, No. 24, p. 377-380 (2 text-figs.)

NOVEMBER 11, 1971

THE SHREWS OF THE WAKEENEY LOCAL FAUNA,
LOWER PLIOCENE OF TREGO COUNTY, KANSAS

BY

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MUSEUM OF PALEONTOLOGY
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THE SHREWS OF THE WAKEENEY LOCAL FAUNA, LOWER PLIOCENE OF TREGO COUNTY, KANSAS

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ABSTRACT—The shrews from the WaKeeney local fauna include a large *Tregosorex holmani* n. gen. and n. sp.; a smaller shrew, *Anchiblarinella wakeeneyensis* n. gen. and n. sp.; and *Parydrosorex concisus* Wilson, which is assigned to the genus *Petenyia* Kormos on the characters of the articular condyle and M_3 . All three genera have the talonid of M_3 reduced (bladelike).

INTRODUCTION

VERTEBRATES FROM THE Lower Pliocene of Kansas are poorly known. Richard L. Wilson (1968) and his wife opened a quarry on the Lowell Hillman Ranch in the NW corner, sec. 22, T 11 S, R 22 W, Trego County, Kansas. This quarry is known as The University of Michigan locality UM-K6-59, and the fauna recovered from the site as the WaKeeney local fauna. The Wilsons recovered remains of a large number of amphibians and reptiles.

Since the herpetological fauna is poorly known from the Lower Pliocene of the Plains Region, J. Alan Holman of Michigan State University has collected from locality UM-K6-59 during the summers of 1969 and 1970. In the summer of 1969, he was supported in part by the National Science Foundation (Grant NSF-GB-5988). In the summer of 1970 his collecting at the locality was made possible by a Penrose Grant-5307 from the American Philosophical Society and a grant from Estella R. Warren.

Associated with the other vertebrate fossils were the remains of shrews. The remains have been placed in The University of Michigan Museum of Paleontology collection since the type of *Parydrosorex concisus* Wilson and other figured specimens from the same locality are in that collection.

The drawings in this paper were made by Dominique Jammot. We wish to thank Dr. J. Alan Holman for placing the specimens in The University of Michigan collections; also Dr. Robert V. Kesling for critically reviewing the manuscript. Dr. Douglas M. Lay of the

Museum of Zoology greatly contributed to this study by the loan of Recent comparative specimens under his care.

Class MAMMALIA
Order INSECTIVORA
Family SORICIDAE
TREGOSOREX n. gen.

Type species.—*Tregosorex holmani* n. sp.

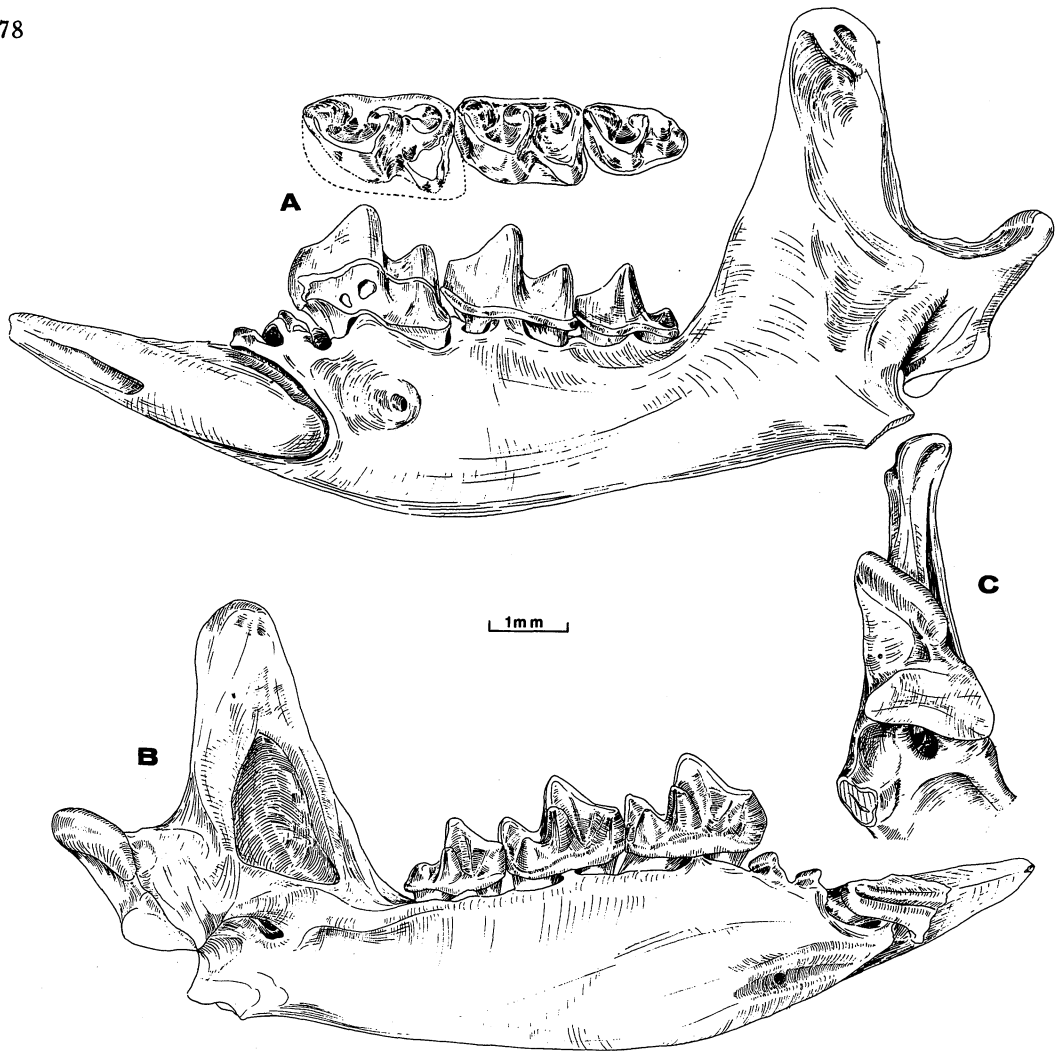
Diagnosis.—A shrew the size of a large *Blarina brevicauda* (Say) with a heavier jaw lacking the digastric tubercle (Gaughran, 1954, pl. 2, fig. 7). The mandibular condyle has both dorsal and ventral articular facets. The posterior mandibular foramen is large and situated just below the posterior border of the posterointernal ramal fossa. The anterior mandibular foramen is located within and on the anterior border of the posterior mandibular foramen. In M_1 , M_2 , and M_3 , the metaconid is closely set to the well-developed protoconid. In M_1 and M_2 , the entoconid is joined to the metaconid and not separated by a groove. The hypolophid of M_1 and M_2 is separated from the base of the metaconid. The talonid of M_3 is greatly reduced and bladelike. The small hypoconid joins the posterior base of the trigonid. The teeth are pigmented.

TREGOSOREX HOLMANI n. sp.

Text-figs. 1A-C

Holotype.—V60444, The University of Michigan Museum of Paleontology, a left lower jaw with incisor and M_1 - M_3 .

Horizon and type locality.—Clarendonian (Lower Pliocene). Ogallala Formation; Wa-



TEXT-FIG. 1—A-C, V60444, *Tregosorex holmani* n. gen. and n. sp., holotype, part of left lower jaw with M_1 - M_3 ; A, occlusal and labial views; B, lingual view; C, posterior view of condyle process. Approximately $\times 10$.

Keeney local fauna, The University of Michigan locality UM-K6-59, 2350-2550 feet south and 75 feet east of the NW corner of sec. 22, T 11 S, R 22 W, Trego County, Kansas. Elevation 2255 feet. Collected by J. Alan Holman and party, summer 1970.

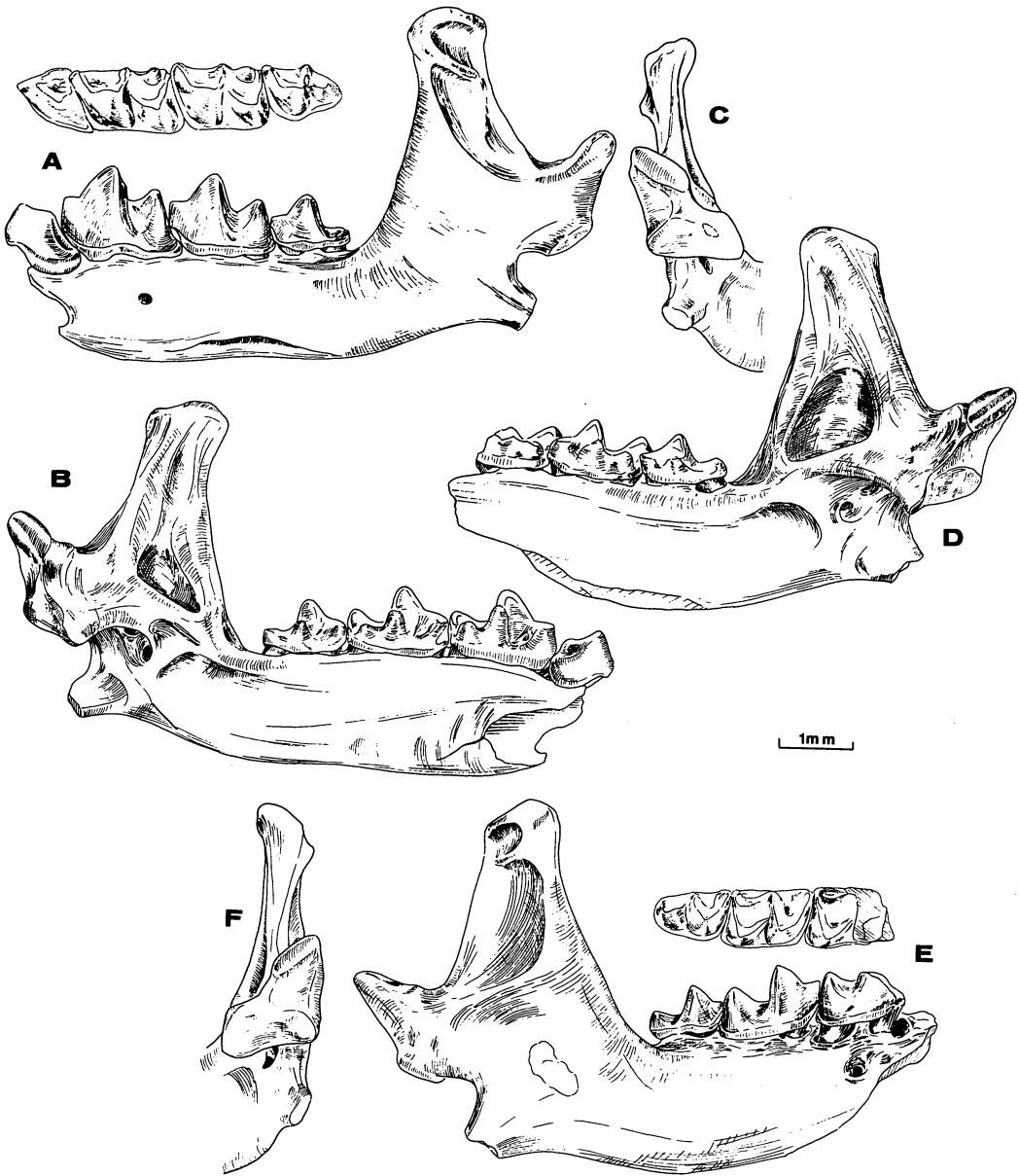
Description of holotype.—The condyle of the lower jaw lacks a labial emargination (text-fig. 1C) but has a slight lingual emargination (Repenning, 1967, fig. 1). The ventral articular facet has a well-developed groove at the base that separates the facet from the dorsal part of the infracondylar notch. The posterointernal ramal fossa (Hibbard, 1953, fig. 5B) is high and triangular with the apex somewhat rounded. There is no limula (Sulimski, 1959, fig. 3b). The mental foramen is located in a shallow depression below the hypoconid of M_1 .

P_3 and P_4 are single rooted. There is evidence of pigment on M_1 , M_2 , and M_3 . The incisor and

the labial side of M_1 are badly eroded. The teeth have a well-developed labial and lingual cingulum. See table 1 for measurements.

Discussion.—The combination of the following characteristics are new for the genus *Tregosorex*: (1) the shapes of the articular condyle and the posterointernal ramal fossa; (2) the infracondylar notch opens broadly on the labial side and the articular condyle is displaced lingually; (3) the shape and position of the mandibular foramina and the mental foramen; and (4) the development of the cusps with the greatly reduced talonid of M_3 . The absence of P_4 does not permit the placement of this shrew in either the subfamily Limnecinae or the subfamily Soricinae.

This species is named for J. Alan Holman who has contributed greatly to our knowledge of the WaKeeney local fauna.



TEXT-FIG. 2—A–C, V60446, *Anchiblarinella wakeeneyensis* n. gen. and n. sp., holotype, part of left lower jaw with P_4 – M_3 ; A, occlusal and labial views; B, lingual view; C, posterior view of condyle process. D–F, V60445, *Petenyia concisa* (Wilson), topotype, part of right lower jaw with M_1 – M_3 ; D, lingual view; E, occlusal and labial views; F, posterior view of condyle process. All figures approximately $\times 10$.

Genus *PETENYIA* Kormos

PETENYIA CONCISA (Wilson)

Text-figs. 2D–F

Parydosorex concisus Wilson, 1968, p. 106,107; text-fig. 11a–d,g,h.

A right lower jaw bearing M_1 – M_3 (V60445), a topotype of the above species named by

Wilson, contributes to a better understanding of this shrew, which possesses characters that are considered to place the species in the genus *Petenyia* Kormos.

This right lower jaw has a well-preserved articular condyle which projects backward as in the Soricinae (text-fig. 2F). The positions of

the articular facets are like those in *Petenya*. The coronoid process is broad. *Petenya concisa* has a narrower ramus below the ventral facet, and the infracondylar notch extends more dorsal and anterior than the notch of the larger *P. hungarica*. In *P. concisa* the posterointernal ramal fossa is deep and high and the limula is lacking. The posterior mandibular foramen is very small and posteriorly placed just anterior to the ventral facet of the articular condyle. The anterior mandibular foramen is well developed. *Petenya hungarica* Kormos has only the large anterior mandibular foramen. The jaw in *P. concisa* is deepest under M_2 . The talonid of M_3 is reduced (text-fig. 2E). The molars have an uninterrupted cingulum. The holotype V55724, and the topotype have the tips of P_4 - M_3 pigmented. See table 1 for measurements.

Discussion.—*Parydosorex concisus* is placed in the genus *Petenya* because the articular process projects backward as in the Soricinae with the position of the articular facets as in *Petenya*.

ANCHIBLARINELLA¹ n. gen.

Type species.—*Anchiblarinella wakeeneyensis* n. sp.

Diagnosis.—A shrew slightly larger than *Sorex taylori* Hibbard with pigmented teeth. The ramus has the shape of *Sorex* and the P_4 as in Soricinae. The entoconid of M_1 and M_2 is distinct and joined near the base to the metaconid. The trigonid of M_3 is reduced and blade-like. The coronoid process is broader at the top than in *Sorex* and has a well-developed spicule. The articular condyle projects backward and the articular facets are widely separated. The dorsal facet is oval in shape and the ventral facet is widened on the ventral side like that of *Blarinella* (fide Repenning, 1967, p. 35, fig. 24). The mental foramen is small and below the protoconid of M_1 . Well-developed anterior and posterior mandibular foramina are located in the same depression.

ANCHIBLARINELLA WAKEENEYENSIS n. sp.

Text-figs. 2A-C

Limnocetus Stirton, Wilson, 1968, p. 103,104; text-fig. 11e.f.

Holotype.—V60446, The University of Michigan Museum of Paleontology, left lower jaw, bearing P_4 - M_3 (text-figs. 2A-C).

Paratypes.—V55723, part of left lower jaw with M_1 - M_3 ; V60447, left lower jaw without teeth; and V60448, part of a left lower jaw with M_2 , M_3 .

Horizon and type locality.—Clarendonian (Lower Pliocene) Ogallala Formation, Wakeeney local fauna, The University of Michigan locality UM-K6-59, Trego County, Kansas.

TABLE 1.—MEASUREMENTS (IN MILLIMETERS) OF THE HOLOTYPE OF *Tregosorex holmani*, *Anchiblarinella wakeeneyensis* AND TOPOTYPE OF *Petenya concisa* (WILSON) FROM THE WAKEENEY LOCAL FAUNA.

	<i>Tregosorex holmani</i> V60444	<i>Anchiblarinella wakeeneyensis</i> V60446	<i>Petenya concisa</i> V60445
Hgt. coronoid	5.67	4.14	4.55
Hgt. condyloid	3.98	2.90	3.36
Depth of jaw below:			
hypoconid of M_3	1.91	1.40	1.49
entoconid of M_2	2.25	1.47	1.62
entoconid of M_1	2.48	1.62	
P_4 - M_3 AP		4.50	
M_1 - M_3 AP	5.01	3.82	
M_1 AP	1.90	1.36	
M_1 W		0.84	0.90
M_2 AP	1.68	1.31	1.22
M_2 W	1.14	0.81	0.87
M_3 AP	1.43	1.13	1.14
M_3 W	0.94	0.71	0.76

Abbreviations: AP, anteroposterior length measured on the lingual side; Hgt., height; W, greatest width.

Collected by J. Alan Holman and parties 1969 and 1970.

Diagnosis.—Same as genus.

Description and comparison.—The type is that of an adult shrew. The M_1 - M_3 are more worn than those of V55723, figured by Wilson (1968). The labial and lingual cingula are not as pronounced as those of *Petenya concisa* and the coronoid process is not as broad. The posterointernal ramal fossa is triangular, and the shape of the ramus is like that of *Sorex*. There is a groove on the labial side below M_2 (text-fig. 2A). The infracondylar notch is more rounded than that of *P. concisa*. The P_4 is not as bulbous as the P_4 of *P. concisa*. The labial cingulum of M_3 is not as well developed as that of *P. concisa*. See table 1 for measurements.

LITERATURE CITED

- GAUGHAN, G. R. L., 1954, A comparative study of the osteology and myology of the cranial and cervical regions of the shrew, *Blarina brevicauda*, and the mole, *Scalopus aquaticus*: Univ. Mich. Mus. Zoology, Misc. Publ. 80, p. 1-87, 82.
- HIBBARD, C. W., 1953, The insectivores of the Rexroad fauna, Upper Pliocene of Kansas: Jour. Paleontology, v. 27, no. 1, p. 21-32.
- REPENNING, C. A., 1967, Subfamilies and Genera of the Soricidae: U. S. Geol. Surv., Prof. Paper, no. 565, p. 1-74.
- SULIMSKI, A., 1959, Pliocene insectivores from Weze: Acta Geol. Pal., v. 4, no. 2, p. 119-173.
- WILSON, R. L., 1968, Systematics and faunal analysis of a Lower Pliocene vertebrate assemblage from Trego County, Kansas: Contrib. Mus. Paleontology Univ. Mich., v. 22, no. 7, p. 75-126.

MANUSCRIPT SUBMITTED APRIL 29, 1971.

¹ *Anchi*, Gr. meaning "near," plus *Blarinella* (a genus of shrews).