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A New Genus of Eomyid Rodent From The
Oligocene Ash Spring Local Fauna of
Trans-Pecos Texas

by

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Contents

Abstract	3
Introduction	3
<i>Meliakrouniomys</i> new genus	3
Description	4
Discussion	5
<i>Meliakrouniomys wilsoni</i> new species	6
References Cited	7
Fig. 1. <i>Meliakrouniomys wilsoni</i> n. sp.	5
Table of measurements of <i>Meliakrouniomys wilsoni</i> , n. g., n. sp.	6

A New Genus of Eomyid Rodent from the Oligocene Ash Spring Local Fauna of Trans-Pecos Texas

BY JOHN M. HARRIS¹ & ALBERT E. WOOD²

ABSTRACT

This paper describes a new genus and species of eomyid rodent, *Meliakrouniomys wilsoni*, from the Ash Spring local fauna, the latest vertebrate faunule from the Vieja Group of Trans-Pecos Texas. The teeth indicate that it is an eomyid rodent in process of tooth pattern simplification. Resemblances in tooth pattern and jaw structure to heteromyids and eomyids suggest that *Meliakrouniomys* may represent a transitional stage between the two families.

INTRODUCTION

A small collection of fossil vertebrates was collected from the Ash Spring locality, about one mile east of the Moody Bennett Ranch, western Jeff Davis County, Texas. The geology of the occurrence was discussed and the fauna described in an unpublished master's thesis by the senior author (Harris, 1967). The Ash Spring local fauna is the latest vertebrate faunule in the Vieja Group (Wilson, Twiss, DeFord and Clabaugh, 1968) and has been considered to be of early Chadronian age. A lower jaw found among the fossils represents a new genus of eomyid rodent.

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Meliakrouniomys new genus³

Type species.—*M. wilsoni* new species.

Diagnosis.—Mandible stout and relatively deep anteriorly; M_{1-2} subequal in size and larger than P_4 and M_3 , which are approximately equal in size; all cheek teeth bilophate, each loph formed of two cusps, and accessory structures very small; minute posterior cingula on all teeth except M_3 , with

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³ Derived from the Greek *μελια* (*melia*), an ash tree; *κροννος* (*krounos*), a spring; and *μυς* (*mys*), a mouse.

slight enlargements into hypoconulids on M_{1-2} ; short anterior arms of the hypoconids on M_{1-2} ; incisor transversely compressed, with proportionately heavy enamel; measurements as given in table.

DESCRIPTION

The lower jaw is stout, with the ventral margin forming an almost straight, horizontal line (Fig. 1A), due in part to a slight deepening of the chin region. Such a deepening is present in some other eomyids, such as *Paradjidaumo trilophus*. A chin process, though rare in heteromyids, is sometimes present in *Heliscomys* (Wood, 1939, Fig. 8). The mental foramen is high on the jaw, well forward of P_4 , resembling both eomyids and heteromyids. The masseteric fossa is large and prominent, ending anteriorly at the same height as the mental foramen, in front of the anterior end of P_4 . In other eomyids, the fossa does not extend so high nor so far forward; heteromyids (Wood, 1935, Figs. 42, 106; 1939, Fig. 8) more closely resemble *Meliakrouniomys*. There is a distinct pit at the anterior end of the masseteric fossa. The anterior border of the coronoid process passes the alveolar border by the middle of M_3 , and there is a deep fossa, lateral to M_3 , between the tooth row and the ascending ramus.

The symphysis is small and not highly crenulate, presumably indicating a strong transversus mandibulae muscle and extensive scissors motion between the lower incisors. The symphysis does not extend backward. The pit for the genioglossus is not very large.

The permanent premolar was in process of eruption at the time the animal died. The alveolus of the anterior root of dP_4 was open in front of P_4 , but is filled with matrix, and the deciduous tooth was probably lost before death. P_4 is four-cusped. The metaconid is the most prominent cusp, but the protoconid is clearly indicated, at a somewhat lower elevation (Fig. 1 A, C). The hypoconid and entoconid are both transversely elongate, and form a ridge along the posterior margin of the crown, from the middle of which a short posterior cingulum extends lingual.

The two anterior molars are essentially identical. There is an anterior cingulum along the middle half of each tooth. The metaconid and protoconid form a continuous ridge, slightly concave forward, the cusps being large and prominent (Fig. 1 C). The hypoconid has both an anterior and a posterior arm; the former is very short, the latter extends to the hypoconulid, from which a short posterior cingulum reaches nearly to the lingual side of the tooth. The entoconid tapers into a buccal crest, recurved to the middle of the anterior side of the hypoconulid. The metalophid is a better developed crest than the hypolophid.

The third molar is similar to the other two, but smaller. The posterior half is appreciably narrower than the anterior. The hypoconulid is connected

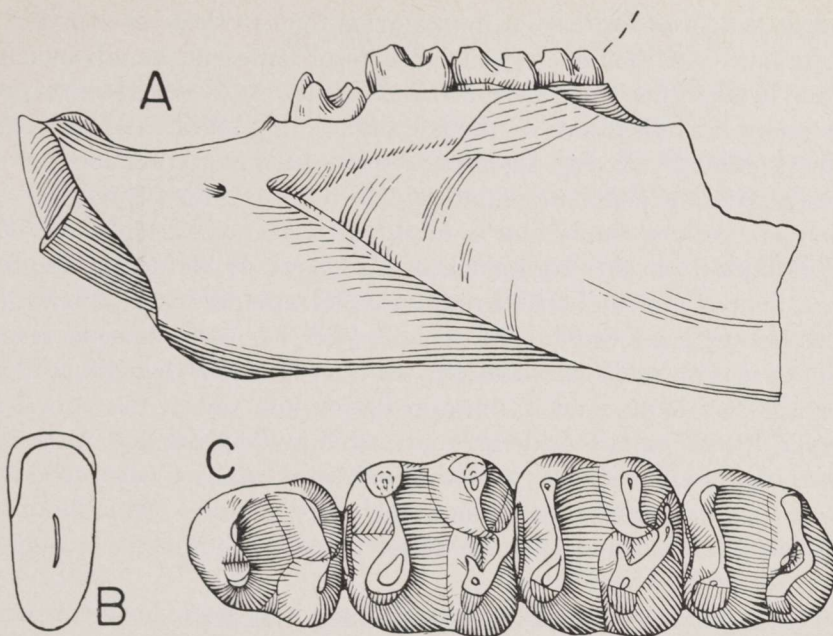


Fig. 1. *Meliakrouniomys wilsoni*, new genus, new species. UTBEG 40283-80, holotype. A. Lateral view of jaw, $\times 6$. B. Cross section of incisor at anterior end, $\times 12.1$. C. $P_4-M_{2,3,4}$ rotated so that crowns are in the same plane, $\times 12.1$.

with both the hypoconid and entoconid, cutting off a narrow basin, and there is no posterior cingulum.

The incisor is compressed, about three times as long from front to rear as transversely (Fig. 1 B and table). The enamel is heavy, and reaches about half way around the lateral side of the tooth. In general appearance the incisor is similar to those of both heteromyids and eomyids. The enamel surface is bright orange.

DISCUSSION

The most probable phylogenetic position for *Meliakrouniomys* seems to be an eomyid on the way to becoming a heteromyid. If one were to postulate such a change, there would have had to be a loss of the mesoconid and ectolophid, a reduction of the anterior and posterior cingula and the development of a buccal cingulum (Wood, 1939, Figs. 5-7). There is no trace of a buccal cingulum in *Meliakrouniomys* but all the other features are represented. *Meliakrouniomys* seems perhaps too advanced to be ancestral to *Heliscomys*, in the large size of the protoconid of its P_4 , and in the fact that the cusps of the teeth are not isolated, rounded tubercles. If, however, *Heliscomys* is descended from an eomyid, such changes must have taken place. *Meliakrouniomys* also is appreciably larger than *Heliscomys*, but a reduction in size is to be anticipated in the ancestry of minute rodents.

The jaw is closer to those of heteromyids than to those of eomyids. The great forward extension of the masseteric fossa represents an advance in the heteromyid direction from an eomyid condition, since the anterior part of the masseter lateralis inserts on the jaw slightly in front of P₄ in heteromyids (Tullberg, 1899, Pl. 23, Fig. 19, *mlp*). This forward migration does not seem to be related to the pouch musculature (Howell, 1932, Figs. 6 and 7).

There are striking similarities in tooth pattern between *Meliakrouniomys* and *Ritteneria* from the Aquitanian of La Chaux de Ste. Croix, Canton of Geneva, Switzerland. In both there is a simplification of tooth pattern giving two-crested teeth (cf. Stehlin and Schaub, 1951, Fig. 506). In some respects, *Ritteneria* is even more like heteromyids than is *Meliakrouniomys*. For example, the two lophs tend to unite in the middle and at the buccal side. However, *Ritteneria* is considerably advanced in the reduction of size of P₄. It seems improbable that the two forms, neither of which is very well known, could be congeneric, but the presence of a heteromyid-like eomyid in Europe strengthens the likelihood that the same type of evolutionary development occurred in North America.

The tooth pattern of *Meliakrouniomys* could have been derived from that of an eomyid such as *Protadждаumo*, and it is believed that this is probably its ancestral stock, whether or not *Meliakrouniomys* has any relationships with the Heteromyidae. It is therefore referred to the Eomyidae, with uncertain relationships within that family.

Meliakrouniomys wilsoni new species⁴

Fig. 1

Holotype.—UTBEG 40283–80, partial left ramus with P₄-M₃, lacking part of the symphysis and the posterior part of the jaw.

Diagnosis.—As for the genus.

Table of measurements (in mm.) of *Meliakrouniomys wilsoni* n.g., n. sp.
Holotype, UTBEG 40283–80, left lower jaw

P ₄ -M ₃ , anteroposterior				7.15				Incisor, anteroposterior				2.16	
								transverse				.95	
								ratio, t/a				.44	
anteroposterior		P ₄	1.70	M ₁	1.89	M ₂	1.83	M ₃	1.71				
width, metalophid			1.31		1.87		1.98		1.73				
width, hypolophid			1.63		1.98		1.95		1.42				

⁴ The species is named for J. A. Wilson, who collected the type and only specimen in June 1966.

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