A NEW SUBFAMILY OF PRIMITIVE POCKET MICE (RODENTIA, HETEROMYIDAE)
FROM THE MIDDLE TERTIARY OF NORTH AMERICA

William W. Korth
Rochester Institute of Vertebrate Paleontology, 928 Whalen Road, Penfield, New York 14526

ABSTRACT
A number of genera of heteromyids from the middle Tertiary of North America that were previously assigned to different subfamilies are allocated to a new subfamily Mioheteromyinae. The genera included are *Peridiomys* Matthew, *Mookomys* Wood, *Trogomys* Reeder, *Schizodontomys* Rensberger and two new genera, *Mioheteromys* and *Balantiomys*. These genera are characterized by primitive cranial and dental morphologies relative to the Heteromyinae, Perognathinae, and Dipodomyinae, but are more advanced than the Harrymyinae.

The species of these genera are reviewed. Three new species are described: *Mioheteromys amplissimus*, *Balantiomys nebraskensis* and *?B. meridionalis*, all from the Miocene of Nebraska. The problematical *Diprionomys agrarius* Wood is referred to *Mioheteromys* and *Diprionomys oregonensis* Gazin is named as the type species of *Balantiomys*.

The Mioheteromyinae are a primitive group of heteromyids from which no other subfamilies can be definitely derived.

INTRODUCTION

History of Investigation
The first published reviews of fossil pocket mice (Heteromyidae) were those of Wood (1931, 1935). Wood (1935) defined three subfamilies, Heteromyinae, Perognathinae, and Dipodomyinae, based predominantly on the structures of worn cheek teeth (Table 1). Three fossil genera (*Diprionomys*, *Peridiomys*, *Proheteromys*) and two Recent genera (*Liomyx* and *Heteromys*) were referred by Wood (1935) to the Heteromyinae. Five differences were cited by Wood (1935) between the cheek teeth of heteromyines and dipodomyines and perognathines: 1) lophs of lower premolar unite buccally and lingually (central union in other heteromyids); 2) lophs of upper premolar unite linguually (central in others); 3) protoloph of upper premolar with more than one cusp; 4) central enamel basin formed on molars with wear; and 5) separation of anterior cingulum from metalophid of lower molars forms Y-pattern. Of these characters only the first two consistently differentiate all fossil genera that have been referred to the Heteromyinae from fossil members of the other subfamilies.

In an unpublished dissertation, Reeder (1956) again reviewed all known fossil heteromyids but did not divide them into subfamilies. Three other genera of fossil heteromyids have subsequently been referred to the Heteromyinae following Wood’s diagnosis. Martin (1984) named the new genus *Oregonomys*, Korth et al. (1990) allocated the Hemingfordian *Schizodontomys* Rensberger (1973) to the subfamily, and Korth (1992) questionably included the Arikareean genus *Hitonkala* Macdonald (1963). This raised the number of genera of fossil heteromyines to six.

Wahlert (1985) studied the cranial morphology of Recent geomyids and heteromyids and was able to distinguish the subfamilies of Heteromyidae without dental criteria. Based on his interpretations of the Recent material, Wahlert (1993) excluded all fossil heteromyids from the Heteromyinae and included only the Recent genera. He contended that the fossil history of the heteromyines was to be found in Central America where little or no fossil record is currently known from the middle Tertiary, and that all of the fossil genera previously referred to the Heteromyinae were better allocated to other subfamilies of heteromyids. Unfortunately, very few skulls of fossil heteromyids have been described from the Tertiary. Thus, it is difficult to utilize Wahlert’s (1985) characters to separate the subfamilies of heteromyids. In genera for which cranial material is known, such as *Schizodontomys*, the diagnostic features that separate the subfamilies are ambiguous, resulting in an uncertain subfamilial allocation (Wahlert, 1985, 1991; Korth et al., 1990). Previous classifications of fossil Heteromyidae are listed in Table 1.

A great deal of fossil material of heteromyid rodents from the middle Tertiary is currently available for study that has never been described, cited only in unpublished dissertations (Reeder, 1956; Sutton, 1977), or simply listed as occurring without further description (Munthe, 1988). This material serves as the basis for this study. Among this undescribed material are several...