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<th>Thryonomyid Rodent from the Late Miocene Namurungule Formation, Samburu Hills, Northern Kenya</th>
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<tr>
<td>Author(s)</td>
<td>KAWAMURA, Yoshida; NAKAYA, Hideo</td>
</tr>
<tr>
<td>Citation</td>
<td>African study monographs. Supplementary issue (1984), 2: 133-139</td>
</tr>
<tr>
<td>Issue Date</td>
<td>1984-03</td>
</tr>
<tr>
<td>URL</td>
<td><a href="https://doi.org/10.14989/68312">https://doi.org/10.14989/68312</a></td>
</tr>
<tr>
<td>Type</td>
<td>Departmental Bulletin Paper</td>
</tr>
<tr>
<td>Textversion</td>
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Kyoto University
THRYONOMYID RODENT FROM THE LATE MIOCENE
NAMURUNGULE FORMATION, SAMBURU HILLS,
NORTHERN KENYA

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ABSTRACT Thryonomyid rodent collected from Late Miocene Namurungule Formation is described. The specimen is represented by a fragmental mandible with dP₄ or P₄, M₁, M₂ and M₃. The tooth pattern with three transverse crest is fundamentally identical in each molar. Neither posterior arm of protoconid nor mesolophid is present in any molars. Absence of anteroconid is another important character of the present molars compared with the known species of Paraphiomys and Paraulacodus. This specimen is possibly assigned to Paraphiomys by the resemblance of tooth pattern, size and hypsodonty, but the specific determination is reserved in this paper. Additional materials are required to decide its definite taxonomic position. The occurrence of the present specimen suggests that Paraphiomys had survived up to Late Miocene in East Africa.

INTRODUCTION

The field survey of the Japan-Kenya expedition team headed by Dr. Hidemi Ishida was carried out in the area west of Baragoi, northern Kenya, in 1982. Many vertebrate fossils including hominoid were collected from the Namurungule Formation exposed in Samburu Hills, the western part of this area. The age of the Namurungule Formation is considered to be in the early part of the Late Miocene on the basis of the comparison of the faunal composition with other localities (Pickford et al., 1984).

The rodent specimen described in this paper was found in situ at Site 22, of the Namurungule Formation. It is referable to Thryonomyidae by its molar pattern, but bears some interesting dental characters. Although its specific determination is reserved in this paper, it has a possibility of being a new species. Additional specimens in the collection of the next field season are expected to permit determination of its taxonomic position with greater confidence.

SYSTEMATIC ACCOUNTS

Order Rodentia Bowdich, 1821
Superfamily Thryonomyoidea Wood, 1955
Family Thryonomyidae Pocock, 1922
Genus Paraphiomys Andrews, 1914
Paraphiomys sp.
(Fig. 2; Plate 1, fig. 1-3)
Fig. 1. Terminology and method of measurement of the molars. The following abbreviations are used:

- prd = protoconid
- hyd = hypoconid
- med = metaconid
- end = entoconid
- alv = antero-lingual valley (talonid basin)
- plv = postero-lingual valley
- bv = buccal valley
- L = length of the crown
- B = breadth of the crown

**Material:** Left fragmental mandible with dP₄ or P₄, M₁, M₂ and M₃ (KNM-SH 10524).

**Locality:** Site 22 (loc. SH 22) in Samburu Hills, north of Maralal, Kenya.

**Age:** Late Miocene

**Description:**

The most anterior tooth is too fragmental to decide whether it is a dP₄ or P₄, whereas other teeth are well preserved. In occlusal view, M₁ and M₂ have sub-quadrate outlines with round corners. M₁ and M₂ are approximately equal in size, but the latter is somewhat broader. The antero-lingual corner of M₃ is slightly damaged. The outline of M₃ is rounder than M₁ and M₂, and slightly longer antero-posteriorly.

These molars with three transverse crests are fundamentally identical in tooth pattern. Protoconid, ectolophid and hypoconid connect these crests on the buccal side of the crown to form a W-pattern. All cusps are completely fused into these W-shaped crests. There are two lingual and one buccal valleys between these crests. The antero-lingual valley is wider than the postero-lingual one. Metalophid runs along the anterior margin of the crown at right angles to the long axis of the crown, whereas hypolophid is directed slightly postero-lingually. Posterolophid extends from
Fig. 2. Paraphiomyne sp. from Samburu Hills (KNM-SH 10524). Occlusal view of left lower cheek teeth (fragmental dP₄ or P₄, M₁, M₂ and M₃).

hypoconid along posterior margin of the crown, and its lingual end is directed slightly anteriorly. In general, metalophid is higher than hypolophid which slightly exceeds the posterolophid in height. Neither posterior arm of protoconid nor mesolophid is present. Anteroconid is also completely lacking.

The measurements are given as follows:

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<tr>
<th>Tooth</th>
<th>Length</th>
<th>Breadth</th>
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<tr>
<td>M₁</td>
<td>3.4 mm</td>
<td>3.0</td>
</tr>
<tr>
<td>M₂</td>
<td>3.4</td>
<td>3.2</td>
</tr>
<tr>
<td>M₃</td>
<td>3.4</td>
<td>2.8</td>
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Discussion:

The molar pattern of the present specimen is essentially coincident with that of Paraphiomyne among the African Tertiary thryonomyids. Paraphiomyne has three crested lower molars whose crowns are higher than those of Phiomys, a representative genus of Phiomyidae. The hypsodonty of the present specimen is similar to those of the African Paraphiomyne and the Indian Paraulacodus, but is more advanced than that of Phiomys.

In the present specimen, the posterior arm of protoconid and the mesolophid are completely lacking. Phiomyids have both or one of these projections in the antero-lingual valley which are generally well-developed. In Paraphiomyne, however, the posterior arm of protoconid is more reduced and the mesolophid is absent (in accordance with the terminology used by Wood, 1968). For instance, Paraphiomyne simonsi from the Oligocene Fayum has no posterior arm of protoconid (Wood, 1968, fig. 5). Wood, however, stated that a very faint suggestion of posterior arm of protoconid was present only on M₂. This projection is also weak or absent in the Miocene species such as Paraphiomyne pigotti and P. stromeri (vide Lavocat, 1973). This is also true in the illustrations of P. pigotti by Andrews (1914), Neosciuromys africanus (=P. pigotti) by Stromer (1926), and Apodector stromeri (=Paraphiomyne stromeri) by Hopwood (1929). The degree of the development of this projection is highly variable even in a single species of Paraphiomyne, although the reductions of the posterior arm of protoconid and the mesolophid are general evolutionary trends of this group. Additionally, Paraulacodus from the Siwaliks lacks such a projection (Black, 1972).

The absence of anteroconid is an important character of the present specimen. The species of
Paraphiomys, such as *P. simonsi*, *P. pigotti*, *P. occidentalis* and *P. stromeri* usually have this small cusp on the anterior face of the protoconid (Stromer, 1926; Hopwood, 1929; Wood, 1968; Lavocat, 1961, 1973). Exceptionally, Andrews (1914) did not illustrate this cusp in his original description of *P. pigotti*. The anteroconid is also present on *M₂* of *Paraulacodus* (Black, 1972).

The present specimen is somewhat smaller than *P. pigotti*, *P. occidentalis*, and *P. simonsi* in size, but the differences among them are rather slight. On the other hand, *P. stromeri* is considerably smaller than the present specimen.

In regard to the proportion of each molar, the size of *M₁* approximates that of *M₂* in the present specimen. But *P. pigotti* has broader *M₂* than *M₁*. This tendency is also seen in *P. simonsi*, but is not so obvious in *P. stromeri*. Because there is a wide range of individual variation in size and proportion of each tooth, these differences can probably be attributed to individual variation.

The present specimen is possibly assigned to the genus *Paraphiomys* by the resemblance of the general tooth pattern, the size and the hypsodonty. The only essential difference from the known species of *Paraphiomys* is the absence of the anteroconid. Because of the scarcity of specimens, the specific determination of the present specimen is reserved.

In East Africa, *Paraphiomys* is recorded from the Early Miocene localities (Lavocat, 1973, 1978). Recently Shipman *et al.* (1981) reported the occurrence of *Paraphiomys* from the Middle Miocene Fort Ternan in Kenya. Outside of East Africa, it occurs from the Late Miocene Beni Mellal of Morocco (Lavocat, 1961, 1978). The present occurrence of *Paraphiomys* from Samburu Hills suggests that this genus had survived up to the Late Miocene in East Africa.

ACKNOWLEDGEMENTS We express sincere gratitude to Professor H. Ishida of Osaka University and other members of the Japan-Kenya expedition team of 1982 for their cooperation and support. We are also grateful to Mr. R.E.F. Leakey, Director of National Museums of Kenya, for providing us with facility to study in the National Museum. Sincere thanks are extended to Dr. M. Pickford of National Museum of Kenya for his kind suggestions and valuable discussions. We thank Dr. L.L. Jacobs of Southern Methodist University for giving us helpful information and discussions on fossil rodents.

REFERENCES


Explanation of Plate 1

*Paraphiomys* sp. from Samburu Hills (KNV-SH 10524). Left fragmental mandible with dP₄ or P₄ (badly damaged), M₁, M₂ and M₃.

Fig. 1. Occlusal view (x10).
Fig. 2. Lingual view (x10).
Fig. 3. Buccal view (x10).
Thryonomyid rodent from Namurungule

Plate 1.