Paleontological Journal, Vol. 36, No. 5, 2002, pp. 531–534. Translated from Paleontologicheskii Zhurnal, No. 5, 2002, pp. 89–92.
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An Oligocene Mole (Talpidae, Insectivora, Mammalia) from Mongolia

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Received January 22, 2001

Abstract—A new mole, *Mongoloscapter zhegalloi* gen. et sp. nov. (Talpinae, Scaptonychini), is described on the basis of a fragmentary lower jaw from the upper part of the Shand Gol Formation of the Tatsin Gol locality. This is the first record of the Talpidae from the Oligocene of Mongolia.

INTRODUCTION

The family Talpidae from the Oligocene of Asia has not been adequately investigated. One species, *Pseudoparatalpa shevyrevae* Lopatin, 1999 (Urotrichini, Talpinae), was described from the Early Oligocene Chilikty Fauna (so-called Indricothere Fauna) of western Kazakhstan (Lopatin, 1999). It was indicated that the Talpidae were rather diverse in the Early Oligocene Buran Fauna from eastern Kazakhstan (Zaisan Depression) where *Desmanella* sp., Uropsilinae gen. indet., Desmaninae gen. indet., Urotrichini gen. indet., Talpinae gen. indet., and Talpidae indet. were recorded (Gureev, 1979; Gabunia and Gabunia, 1987b; Shevyreva, 1995; Gabounia and Chkhikvadze, 1997). Desmaninae gen. indet. (Gureev, 1979) and Talpinae gen. indet. (Gabunia and Gabunia, 1987a) were described from the terminal Eocene of the Zaisan Depression (Aksyir Formation). Bohlin (1942, 1946) determined a questionable (?)Talpidae indet. in the Late Oligocene Taben Buluk Fauna from northern China (Yindirte). In the Early Miocene (MN1) Aral Fauna from western Kazakhstan where a large number of Oligocene genera of small mammals were preserved, the Talpidae were represented by *Desmanella* sp. (Uropsilinae) and three forms of the subfamily Talpinae: *Myxomygale* sp., *Pseudoparatalpa lavrovi* (Bendukidze, 1993), and *Hugueneya* sp. (Bendukidze, 1993; Lopatin, 1999).

In the previous studies, the presence of two insectivore families, the Erinaceidae (Tupaiodontinae, Brachyericinae, and Erinaceinae) and the Heterosoricidae, was recorded in the Oligocene Shand Gol Fauna of Central Asia (Matthew and Granger, 1924; Trofimov, 1960; McKenna and Holton, 1967; Mellett, 1968; Sulimski, 1970; Huang, 1984; Russell and Zhai, 1987; Lopatin, 2002). In the present study, the first find of the Talpidae from the Shand Gol Formation of Mongolia is described. The material comes from the upper part of the Shand Gol Formation of the Tatsin Gol locality (Valley of Lakes, left bank of the Tatsin Gol River; collected by V.I. Zhegallo in 1970) dated as the Late Oligocene (Vislobokova, 1996).

When describing the dental structure, I use the terminology for the Talpidae proposed by Hutchison (1974) and Storch and Qiu (1983).

SYSTEMATIC PALEONTOLOGY

Family Talpidae Fischer von Waldheim, 1817

Subfamily Talpinae Fischer von Waldheim, 1817

T r i b e Scaptonychini Van Valen, 1967

Genus *Mongoloscapter* Lopatin, gen. nov.

E t y m o l o g y. From Mongolia and the Greek *scapter* (digger).

T y p e s p e c i e s. *Mongoloscapter zhegalloi* sp. nov.

D i a g n o s i s. Small-sized mole. M_2 and M_3 with large metastylid. Cristid oblique of M_2 and M_3 reaching metastylid and ascending to its apex. In pairs protoconid–metaconid and hypoconid–entoconid, labial cusps much higher than lingual cusps; protoconid substantially higher than hypoconid. On M_2, precingulid, postcingulid, and entostylid well developed; ectocingulid reduced. Trigonid strongly longitudinally compressed, protoconid and hypoconid extended labially. M_3 relatively short and lacking postcingulid and entostylid.

S p e c i e s c o m p o s i t i o n. Type species.

C o m p a r i s o n. *Mongoloscapter* gen. nov. differs from *Scaptonyx* Milne-Edwards, 1872 by a higher and more lingually positioned anterior end of the cristid oblique on M_2 and M_3, the presence of the postcingulid on M_2, and by a shorter and wider M_3. It differs from *Myxomygale* Filhol, 1890 and *Geotrypus* Pomel, 1848 by the lingual position of a high cristid oblique and by a well-developed metastylid on M_2 and M_3.

R e m a r k s. *Mongoloscapter* is assigned to the tribe Scaptonychini, because it is similar in shape, proportions, and structure of lower molars to Miocene *Scaptonyx edwardsi* Gaillard, 1899 from Europe and Recent *S. fusicaudatus* Milne-Edwards, 1872 from

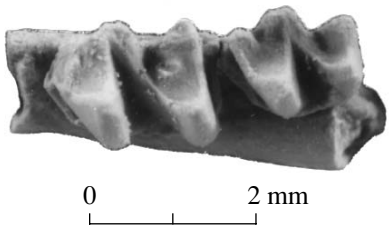

Fig. 1. *Mongoloscapter zhegalloi* gen. et sp. nov., holotype PIN, no. 3211/30, fragment of the left dentary with M_2 and M_3, occlusal view.

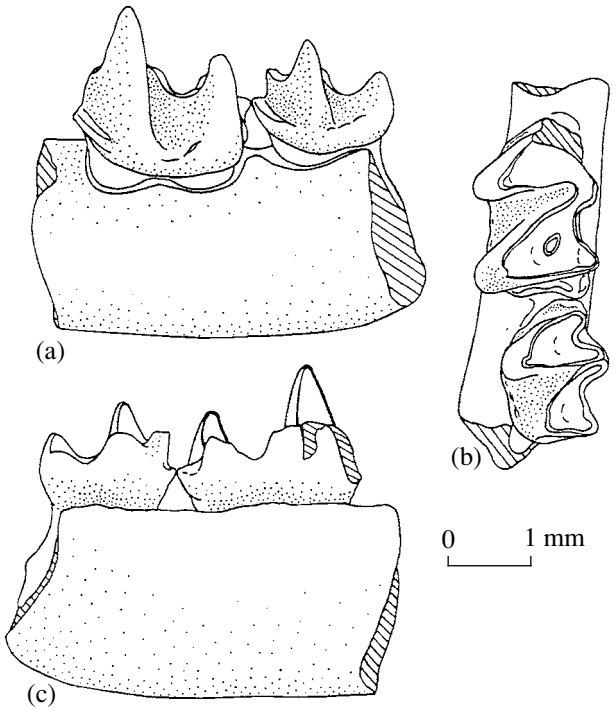

Fig. 2. *Mongoloscapter zhegalloi* gen. et sp. nov., holotype PIN, no. 3211/30, fragment of the left dentary with M_2 and M_3: (a) labial, (b) occlusal, and (c) lingual views.

China. The most important features are the compressed labial cusps combined with a deep hypoflexid and the lingual position of the cristid oblique, which adjoins the metastylid. In the tribes Urotrichini and Talpini, this set of characters is absent; in *Myxomygale* (Scaptonychini), the genus that is most advanced in these characteristics, the cristid oblique ascends along the posterior wall of the metaconid independently of the metastylid and metacristid and is located at a greater distance from the lingual edge (Hugueney, 1972; Doukas, 1986; Ziegler, 1990, 1998). The extreme lingual position of the anterior part of the cristid oblique, which is characteristic of M_2 and M_3 of the new genus, was marked in some members of the tribe Scalopini, such as *Scalopoides* Wilson, 1960 from the Miocene of North America and *Scapanulus* Thomas, 1912 (Recent *S. oweni* Thomas, 1912 from China). However, in these forms, as in *Scaptonyx*, the cristid oblique terminates at the base of the metastylid, rather than ascends to the apex (Wilson, 1960; Hutchison, 1974; Storch and Qiu, 1983). *Mongoloscapter* differs from members of the tribe Scalopini by the tooth proportions (cusps are lower and the protoconid is much higher than the hypoconid) and the shape of the dental ramus of the lower jaw; in particular, an abrupt curvature of the lower edge at M_2 and M_3, which is characteristic of Scalopini, is absent.

***Mongoloscapter zhegalloi* Lopatin, sp. nov.**

Etymology. The species is named in honor of the Russian paleotheriologist V.I. Zhegallo.

Holotype. PIN, no. 3211/30, fragmentary left dentary containing M_2 and M_3; Mongolia, Tatsin Gol; Upper Oligocene, uppermost part of the Shand Gol Formation.

Description (Figs. 1, 2). The dental ramus of the lower jaw is low and has a straight lower edge. M_2 is large and extended; the trigonid is equal in width to the talonid. The precingulid and postcingulid are well developed, the entostylid is large, and the ectocingulid is substantially reduced and looks like a weak and discontinuous ridge at the exit of a deep hypoflexid. The labial cusps are much higher and more massive than their lingual counterparts; the latter are strongly worn; the protoconid is much higher than the hypoconid. The paraconid is broken off. The protoconid and metaconid are widely spaced and strongly longitudinally compressed. The talonid is relatively long and wide with a strongly projecting hypoconid. The cristid oblique is high, long, and strongly inclined lingually; anteriorly, it is connected to a well-pronounced metastylid. The metastylid is a posterolingual projection of the metaconid; it lingually projects somewhat greater than the proper metaconid. Being strongly worn, the posterior part of the cristid oblique, metacristid, entocristid, and the postcristid fused to form an integral triangular area, the center of which is occupied by a small enamel lake, the remainder of the talonid basin.

M_3 is 1.4–1.5 time shorter than M_2. The trigonid is longitudinally compressed. The talonid is of approximately the same length as the trigonid; however, it is substantially narrower than the latter. The relationships between the cusps are similar to those in M_2. The precingulid is broad; anteriorly, it adjoins the entostylid of M_2. The postcingulid and entostylid are absent. The ectocingulid is extremely weak and discontinuous. The hypoflexid is deep and long. The paraconid is small and relatively high. The trigonid basin is flattened because of wear. The paracristid and protocristid are almost entirely fused with one another. Anteriorly, the cristid oblique fused with the high metastylid. Wear facets on the metastylid and metaconid are isolated. The talonid is strongly worn, so the crests bordering the talonid basin are indistinguishable.

Measurements, mm. M_2: total length (paraconid is broken off), approximately 2.0; talonid length, 1.2; trigonid width, 1.45; talonid width, 1.45; and labial crown height along the protoconid and the hypoconid, 1.95 and 1.4, respectively. M_3: total length, 1.65; talonid length, 0.8; trigonid width, 1.3; talonid width, 1.1; and labial crown height along the protoconid and the hypoconid, 1.35 and 0.8, respectively. Labial depth of the dental ramus at M_2 and at M_3,1.75 and 1.9, respectively.

Material. Holotype.

DISCUSSION

Notwithstanding the fact that the described specimen is poorly preserved, the structural features of M_2 and M_3 of *Mongoloscapter* allow one to distinguish this Oligocene mole from members of the Uropsilinae, Desmaninae, Urotrichini, Talpini, and Scalopini and assign it to the tribe Scaptonychini. This tribe was established by Van Valen (1967) and initially comprised the genera *Scaptonyx* Milne-Edwards, 1872; *Mygatalpa* Schreuder, 1940; and *Myxomygale* Filhol, 1890. Gureev (1979) saw little reason to distinguish this tribe and placed the listed genera in the Urotrichini. Later, the genus *Mygatalpa* was transferred to the Desmaninae, *Myxomygale* was assigned to Urotrichini, and it was proposed to include *Geotrypus* in Scaptonychini (Hugueney, 1972; Hutchison, 1974; Storch and Qiu, 1983). Storch and Qiu (1983) believed that *Scaptonyx* and *Geotrypus* are close to Talpini, Gureev (1979), and Ziegler (1990) assigned *Geotrypus* to this tribe. In a recent mammalian system proposed by McKenna and Bell (1997), the tribe Scaptonychini is considered to comprise three genera: *Myxomygale*, *Geotrypus*, and *Scaptonyx*. Regarding the structure of M_2 and M_3, *Mongoloscapter* is closer to *Scaptonyx* than *Myxomygale* and *Geotrypus*.

In addition to the type species *Scaptonyx fusicaudatus*, which currently dwells in China, *S. edwardsi* from the Astaracian of France is usually referred to the genus *Scaptonyx*. Hutchison (1974) was doubtful of the assignment of this extinct species to *Scaptonyx* and believed that it should be ranked as a separate genus of the tribe Scaptonychini. However, the distinctive dental characters (the extent to which P_3 and P_4 are reduced and certain structural details of the cingulids of M_1 and M_2) indicated in the cited paper most likely fit to the species level of differentiation. In the shape and structure of teeth, *Mongoloscapter zhegalloi* is closer to *S. edwardsi* than to *S. fusicaudatus* (Hutchison, 1974, pl. 38, fig. 1).

Myxomygale and *Geotrypus* are known in Europe from the Late Eocene to the Early Miocene (McKenna and Bell, 1997). In Asia, *Myxomygale* sp. was determined in the Lower Miocene of the North Aral Region, western Kazakhstan (Lopatin, 1999). A preliminary study of the Talpidae from the Early Oligocene Buran Fauna of the Zaisan Depression (eastern Kazakhstan) allowed me to discover the presence of *Myxomygale* sp. in the Novyi Podorozhnik locality (material collected by N.S. Shevyreva in 1985 and 1990). Thus, the Late Oligocene *Mongoloscapter zhegalloi* is not the earliest Asian member of Scaptonychini. The phylogenetic significance of this form, which is the most advanced Paleogene member of the tribe, is yet to be estimated. It may well be that *M. zhegalloi* belongs to the evolutionary lineage that gave rise to the genus *Scaptonyx*.

ACKNOWLEDGMENTS

This study was supported by the Russian Foundation for Basic Research, project nos. 99-04-48636 and 00-15-97754.

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