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ARGUIMUS KHOSBAJARI GEN.N., SP.N. (PERAMURIDAE, EUPANTOTHERIA) FROM THE LOWER CRETACEOUS OF MONGOLIA

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Arguimus khosbajari gen.n., sp.n., assigned to the Peramuridae, is described on the basis of a single lower jaw with P_2—M_2 found at the locality of Khovboor (Guchin Us somon, Gobi Desert), Mongolia, in beds of presumable Aptian or Albian age. *Arguimus khosbajari* differs from the Upper Jurassic *Peramus tenuirostris* in: 1) having a somewhat molarized P_4, 2) smaller paraconid on M_2, 3) absence of an entoconid on M_1 and M_2, 4) lack of the diastemas between the premolars, and 5) by a distinct asymmetry in lateral view of the lower premolars.

Key words: Asia, Eupantotheria, Gobi Desert, Lower Cretaceous, Mammals, Mongolia.

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INTRODUCTION

The specimen described in this paper as *Arguimus khosbajari* gen.n., sp.n., assigned to the Paramuridae (Eupantotheria), was discovered in 1965 at the locality of Khovboor (Хобур) in Mongolian People's Republic. This locality is situated on the right bank of the river Arguj (Аргуй), 18 km south-west of the village Gouchin Us (the capital of the Gouchin Us somon) in Ubur Khangaj aymak. It was discovered by the author and Dr. Khosbayar in 1964, when they found numerous fragments of freshwater turtles and some parts of carnivorous dinosaurs in a yellowish-grey sandstone. During the 1965 field season remains of lizards and mammals, including Triconodonta, Multituberculata, Symmetrodonta and Eutheria, were discovered.

Between 1970 and 1973 the Khovboor locality was explored by members of the Soviet-Mongolian Palaeontological Expeditions who washed

the fossiliferous sandstone and obtained a rich collection of mammalian fossils (Kramarenko 1974; Kalandadze and Reshetov 1974). New taxa of mammals including members of the Triconodonta, Symmetrodonta and Eutheria collected by these expeditions were named by Trofimov (in Beliajeva *et al.* 1974) but not described and are *nomina nuda*. The only mammal genus and species from Khovboor described so far is *Kielantherium gobiensis* Dashzeveg, which is assigned to the Aegialodontidae of the Theria of metatherian — eutherian grade (Dashzeveg 1975).

The geology of the Khovboor region was described by Shuvalov (1974) and Kalandadze and Kurzanov (1974). Primarily on the basis of freshwater mollusks and phyllopods the age of the Khovboor beds was tentatively determined as Aptian-Albian (Shuvalov 1974). Turtles from Khovboor beds have been described by Suchanov and Narmandakh (1974).

The article was commenced at the Geological Institute of the Mongolian Academy of Sciences in Ulan Bator and completed during my stay in the spring of 1977 in Warsaw at the Institute of Paleobiology of the Polish Academy of Sciences.

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The dental terminology used in this paper is that of Szalay (1969). The specimen described is housed in the Section of Paleontology and Stratigraphy, Institute of Geological Sciences, Academy of Sciences of the Mongolian People's Republic in Ulan-Bator, abbreviated as GISPS.

DESCRIPTION

Arguimus khosbajari gen.n., sp.n.
(pl. 1; fig. 1)

Holotype: GISPS IO-15, fragment of the right lower jaw with P_2-M_2; pl. 1; fig. 1. (The new genus is monotypic, and the type species is based on a single specimen).

Derivation of the name. — From the river Argui, *mus* — alludes to the similarity with *Peramus*; the species is named after the Mongolian geologist P. Khosbajar.

Generic and specific diagnosis. — Premolars asymmetrical in side view, P_4 submolariform. On the molars paraconid and metaconid less than half the height of the protoconid; paracristid and protocristid distinct. Cristid oblique on M_1 and M_2 directed less obliquely than in *Peramus* and not angulated. Entoconid lacking; hypoconid and hypoconulid distinct.

Type horizon and locality. — Khovboor beds, ?Aptian or Albian, Khovboor, Guchin Us somon, Gobi Desert, Mongolia.

Description. — The mandible is slender. The height of the horizontal ramus

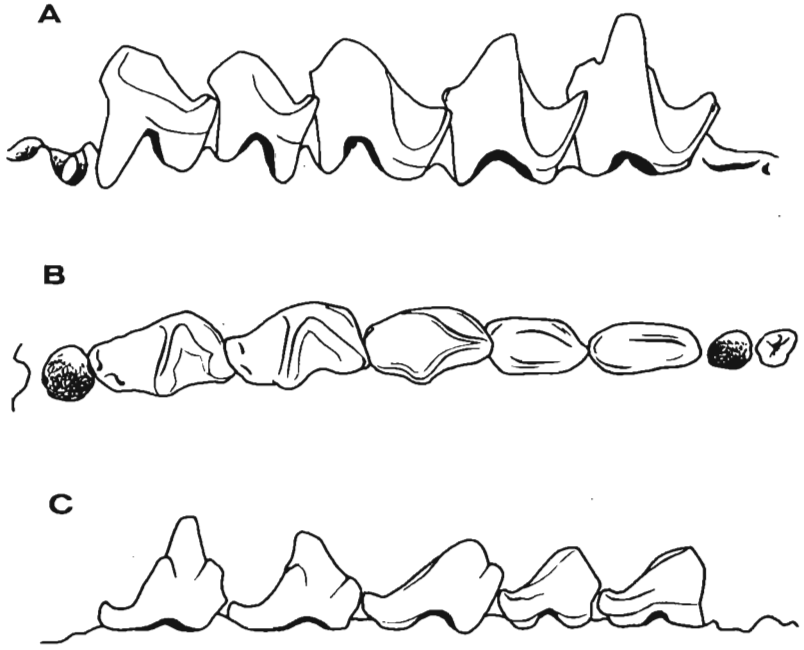

Fig. 1. *Arguimus khosbajari* gen.n., sp.n. Holotype GISPS 10—15. Gouchin Us (Mongolia), Early Cretaceous. Fragment of the lower tooth-row P_2—M_2. *a* labial view, *b* occlusal view, *c* lingual view.

gradually increases from front to the back. There are two mental foramina; the anterior is below the anterior root of P_1, and the posterior below the anterior root of P_3.

Premolars. P_1 is not preserved. Two alveoli are present and it is assumed P_2 was two rooted as are all the other premolars. P_2 and P_3 show no traces of molarization. They are similar in shape, P_3 is only slightly larger and has a more pronounced incipient talonid. Both lack anterior basal cuspules. Their crowns consist almost entirely of the pointed main cusps, whose proximal margins are distinctly convex, while the distal slope gently down to the incipient talonids. The crowns of these premolars are asymmetrical in lateral view. On both of these premolars the proximal margin is sharp but the distal is broad and delimited by shearing surfaces. The apices of the main cusps are turned anterior and upward; they appear V-shaped in postero-dorsal view. There is no indication of a lingual or labial basal cingulum. The incipient talonid consists of one tubercle on P_2 an two on P_3. The lingual tubercle of P_3, which because of its larger size is probably homologous with that on P_2, is situated somewhat lingual to the sagittal axis of the tooth and is overlapped by the anterior corner of P_4. Lingual to this talonid cusp and well separated from it is a second, hardly discernible tubercle. P_4 is submolariform, distinctly larger and higher than P_3. It also differs in the presence of a small paraconid situated just lingual to

the midline of the crown and in its comparatively longer talonid. About the middle of the crown and posterolingual to the paraconid is an incipient metaconid. The paracristid is well developed and the protocristid is distinct. From the apex of the metaconid the distinct entocristid slopes down to the posterior margin of the tooth. Two small tubercles similar to those of P_3 are presented on the posterior margin of the tooth. The labial cusp is overlapped by the paraconid of M_1. Together with the entocristid these talonid cusps delimit a fossa sloping obliquely to the labial side of the crown. A true talonid basin is absent but a very small shearing surface is present on the occlusal surface of the entocristid and, to some extent, at its labial slope.

Molars. M_1 — The trigonid is much stouter and the protoconid higher than that of P_4. In contrast the talonid is shorter and has a deeper oblique fossa. Apart from this, the structure of the talonid is exactly like that of P_4. In comparison to P_4 the paraconid and metaconid of M_1 are much better developed and shifted farther lingually. Their apices are much lower than that of the protoconid. The trigonid basin is small, and slopes steeply to open on the lingual side of the crown. M_2 is very similar to M_1. However, the three tubercles of the trigonid as well as two of the talonid (hypoconid and hypoconulid) are more pronounced. Additionally a tubercle is present in front and below the paraconid, where M_2 overlaps M_1. Entoconid absent.

Shearing facets. Traces of wear are distinctly visible on the premolars and molars of this specimen. On P_2 only a narrow shearing surface is situated on the distal slope of the tooth. It includes the apex of the cusp, is some what oval in shape, and sharply delimited. The shearing surface of P_3 is similar but somewhat broader. Unlike that of P_2, this facet is not perpendicular to the sagittal plane, but obliquely overlaps demonstrates that shearing occurred between the distal surfaces of the main cusps of P_2 and P_3 and the proximal slopes of the paracones of the opposing upper premolars. On P_4 a large shearing surface extends from the top of the protoconid into its distal surface. A slight trace of wear also is evident on the labial slope of the talonid crest. The distal slope of P_4 moved over the proximal (mesial) slope of P^4. The apex of the protoconid of P_4 was worn by contact with cusp situated on the proximal slope of P^4. The development of the talonid facet resulted from its contact with the lingual slope of P^4.

Shearing surfaces of M_1 and M_2 are more complicated than those of P_4 and are similar to those of *Peramus*. Facet I (terminology of Crompton 1971) extends over the distal slope of the protocristid from the top of the protoconid and paraconid. The comparatively broad trigonid together with the large size of the wear facet 2 suggest the presence of a well developed metastyle on the occluding upper molars. On the talonids of M_1 and M_2 there are the facets numbered 3 and 4. Facet 3 is transversal and comparatively narrow. Facet 4 weakly expressed. As shown by the form of facet 4, a metacone was present on the uper molars, but it was much lower than the paracone. A similar morphology is exhibited by *Peramus* (Mills 1964; Clemens and Mills 1971).

Discussion. — Several derived (specialized) characters of *Arguimus* suggest close phylogentic relationship with *Peramus* from the Upper Jurassic of England. For example, the shape of the talonid of the lower molars together with the degree of differentiation of its cusps (hypoconid, hypoconulid) are very similar in both genera. However M_2 of *Arguimus* lacks the lingual entoconid. In this it differs from *Peramus* which has all three tubercules on M_2 and M_3 (the last molars cannot be compared because this tooth is not preserved in the type of *Arguimus*). Other characters of *Arguimus* differing from those of *Peramus* are:

1. Submolariform morphology of the last premolar. No abrupt change of tooth structure occurs between P_4 and M_1.

2. Relatively low principal cusp of P_4.

3. Paraconid of M_2 is distinctly smaller than the metaconid, the opposite is the case in *Peramus*.

4. Straighter and less oblique entocristid and a stronger crest across the hypoconulid.

5. Distinct asymmetry of the premolar teeth in lateral view.

Arguimus is easily distinguished from *Kielantherium* (Dashzevag 1975), also from Khovboor, by its less differentiated talonid and less developed entocristid. On lower molars of *Kielantherium* the talonid fossa is well formed, thus indicating the development of the protocon, which is not true for *Arguimus*.

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ARGUIMUS KHOSBAJARI GEN.N., SP.N. (PERAMURIDAE, EUPANTOTHERIA) Z DOLNEJ KREDY MONGOLII

Streszczenie

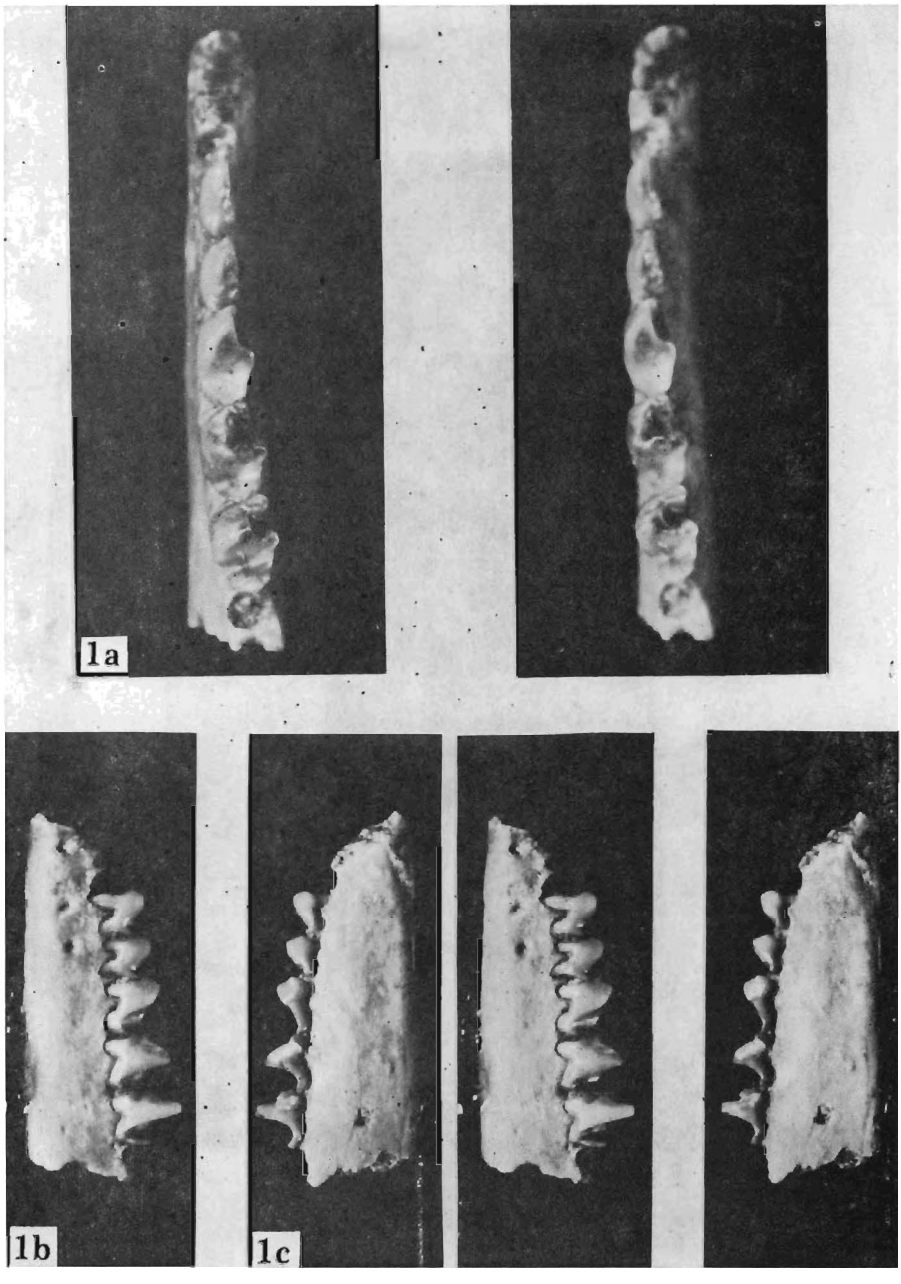
Na podstawie pojedynczej niekompletnej żuchwy z P_2—M_2 pochodzącej z miejscowości Chowbur, w somonie Guczin Us na pustyni Gobi, z warstw, których wiek określono w przybliżeniu na apt lub alb, opisano nowy rodzaj i gatunek *Arguimus khosbajari*, zaliczony do rodziny Peramuridae w obrębie Eupantotheria. *Arguimus khosbajari* różni się od górno-jurajskiego przedstawiciela Peramuridae *Peramus tenuirostris* następującymi cechami: 1) P_4 jest nieco zmolaryzowany, 2) parakonid na M_2 jest mniejszy niż u *Peramus*, 3) na M_1 i M_2 brak jest entokonidów, 4) między przedtrzonowymi nie występuje diastema, 5) dolne przedtrzonowe w widoku z boku są wyraźnie asymetryczne.

EXPLANATION OF THE PLATE 1

Plate 1

Arguimus khosbajari gen.n., sp.n.

Holotype GISPS 10—15. Gouchin Us Mongolia, Early Cretaceous. Fragment of the lower jaw with P_2—M_2. Stereophotographs. *a* occlusal view, ×10; *b* labial view, ×6; *c* lingual view, ×6.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