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First Evidence of the Turolian Carnivorous Species *Perunium ursogulo* ORLOV, 1948 (*Mustelidae, Mammalia*) from Slovakia

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Abstract: The first acquisition of the *Perunium ursogulo* ORLOV, 1948 from the Turolian (Upper Miocene) of Borský Jur (Slovakia) is described here, presenting this rare gigantic mustelid species with lower left M_1. There are very few paleontological localities, atwhich this taxon could exist. Evidence of this *Perunium ursogulo* ORLOV ,1948 from Borský Jur (Lower Turolian, MN 11) is the northernmost finding of this species.

Key words : *Perunium* - *Mustelidae* - Carnivora - Upper Miocene

Abbreviations : LM_1 = length of M_1, WM_1 = width of M_1, ZIBA = Zoological Institute, Comenius University, Faculty of Natural Sciences, Bratislava

Introduction

Peruniids (*Peruniidae, Mustelidae*) are large or medium sized mustelids of Miocene. A typical cranial feature of this little known subfamily is the short rostral part. The skull is extraordinarily larger than in the greatest specimen of recent *Gulo gulo* (wolverine). The relatively high braincase is very similar to the ursid *Thalarctos maritimus.* Basicranial region is narrow with small mastoid. Zygomatical arcs are significantly broader. High and robust mandibula has a strongly formed symphysal part. The upper fourth premolar is architectonically related to the *Martes* type. Inner cusp (protocone) is lower and connected with paracone. Parastyle has an important secondary cusp. Enamel of the lower dentition is smoother than in *Gulo* specimen. The lower M_1 is longer, with higher protoconid. The absence of metaconid tubercule is diagnostically important. Talonid consists of a longitudinal, hypoconidal ridge (ORLOV, 1948).

Except for some isolated and briefly reported finds (SCHMIDT-KITTLER, 1976), the best collection of peruniids remains the one from Moldovian (ORLOV, 1948). There are probably no further papers dealing with the description of this species. A new species of *Perunium* was recently found on the deposits of Lothagam (Turkana, Kenya). This African species will be described in the near future (L.WERDELIN, in prep.).

Systematical part

Classis *MAMMALIA* LINNAEUS,1758
Ordo *CARNIVORA* BOWDICH, 1821
Subordo *FISSIPEDIA* BURMEISTER, 1791
Superfamilia *ARCTOIDEA* FLOWER, 1869
Familia *MUSTELIDAE* SWAINSON, 1835
Genus *PERUNIUM* ORLOV, 1948
Species *URSOGULO* ORLOV, 1948

Synonymy: *Pliogulo gigas* VOZNESENSKY, 1937 *Plesiogulo* VOZNESENSKY, 1939 *Plesiogulo* PIDOPLIČKO, 1938
Type: Skull No. 268 with incomplete mandibular arc (Geological Institute, Academy of Sciences, Kiev (Ukraine)
Type locality: Grebenniki,Tiraspol District, Moldovian
Type level: Turolian, Miocene
Material: M_1 - first lower left molar (M_1 sin., inf.), ZIBA-002
Age: Upper Pannonian, MN11, Lower Turolian
Locality: Borský Jur, Western Slovakia (see Fig.1)

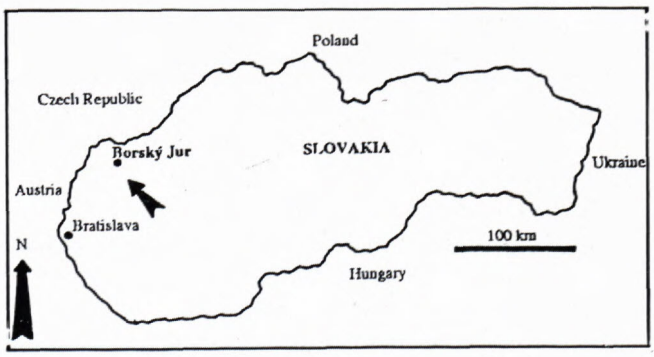


Fig. 1 Geographical position of the locality Borský Jur (Lower Turolian)

Locality

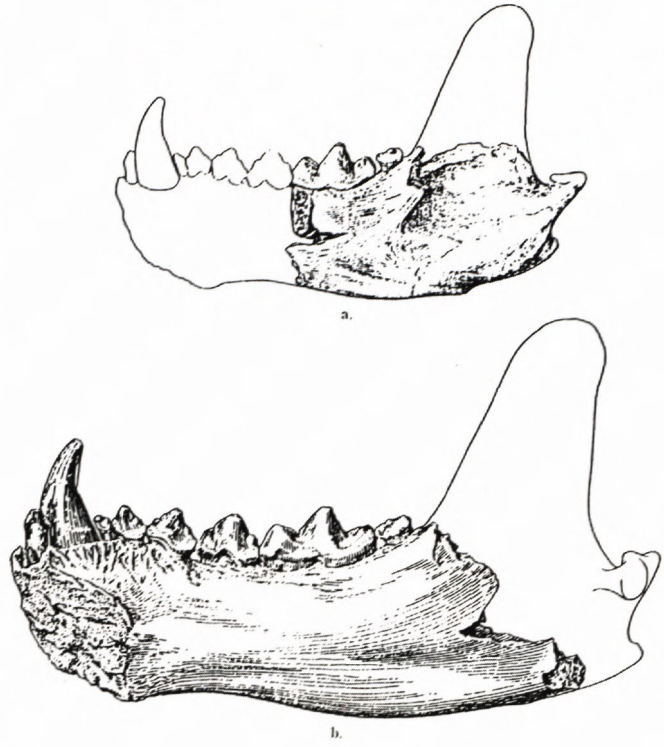
The occurrence Borský Jur is located northwest of Bratislava, in the vicinity of the village Sekule. Basic sediments are after marine chronostratigraphy - Pannonian clays (Upper Pannonian, MN 11). After mammalian biochronostratigraphy these sediments correspond to the Lower Turolian. More details concerning geological background and vertebrate fossils are available in LUPTÁK (in press).

Description of material

The whole M_1 sin.inf. with well formed three tubercules and two strong, flattened roots is preserved (Fig.2). The crown base is longitudinal in the outline. Anterior part has strong curving of the paraconid cusp (in the medial course). The trigonid length reaches approximately three-fourths of the whole molar length. The talonid is remarkably simplified (one-fourth of molar length) and is formed by a single ridge-shaped hypoconid. This ridge stretches from the place of junction to posterior protoconid edge. This structure is turned into the central part and has a transversally oblique pattern. The shallow cave with cuneiform pattern is located on the lingual side of the talonid. The lingual margin of the talonid is separated from postero-lingual wall of protoconid by a narrowed notch. The posterior cingulum of talonid is expressive, mainly in the buccal side.

The protoconid is the highest tubercule from whole carnassial (two fifths more than in adjacent paraconid). On the lingual wall of the posterior part, very strong inner edge developed, rising from basal cingulum to the top of the cusp. This edge has different lingual inner walls. The first wall - in the posterior part has a convex pattern and it is triangular in the outline. The ridged area of posterior edge is formed extraordinarily. The second wall is half size larger and has concave character with lacking lower anterior part. The basal cingulum is slightly structured and lies below this tubercule. It is possible to observe a similar, but smaller edge on the buccal side. Most of the interior part of the wall is strongly disrupted. On the protoconid/talonid bounds there is a vertical incision.

Paraconid has apparently developed also an inner edge. This edge is crossing to the back line of the tooth. The buccal wall is without edge and has a concave pattern. Basal and anterior cingulum of this cusp is simple and expressive. The transitional



Perunium ursogulo

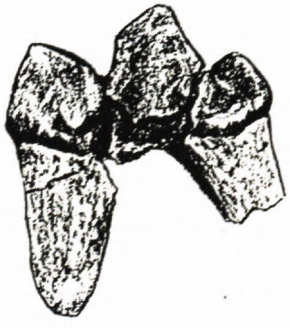


Fig. 2 Perunium orsogulo ORLOV, 1948.
A – Left mandibular fragment No. 269b in buccal view (Grebenniki, Moldova, after ORLOV, 1948), B – Right mandibular fragment No 269a in lingual view (Grebenniki, Moldova, after ORLOV, 1948), C – Lower left molar M_1 ZIBA - 002 (Borský Jur, Slovakia).

part between paraconid and protoconid was broken. On the top of the paraconid there is a longitudinal occlusal surface. The molar is broadest in the central part. The tooth was originally two rooted and belonged to an adult specimen (LUPTÁK, 1993).
Measurements: LM_1 = 23.6, WM_1 = 9.5 (in mm)

Comparison and phylogenetical status

After a detailed research of major tubercules and investigation of Moldavian specimens, it is clearly indicated that M_1 from Borský Jur belongs to the rare gigantic mustelid species of Perunium ursogulo ORLOV, 1948. All species marks which had been recognized by ORLOV (1948) are present. They are the following features of M_1-carnassial :

1. broadest molar in the central part
2. only from hypoconid built talonid
3. on the same level lying paraconid and hypoconid
4. protoconid - highest cusp of the tooth
5. fine lingual trigonid incision

The genus name has been established by ORLOV in 1948 on the ground of fossil finds from Grebenniki in Moldovian. Unfortunately, only cranial and mandibular material is known. Together with this genus, named after old Slavonic god Perun, to the subfamily *Peruniinae* belongs also the genus *Eomellivora wimani* having a greater and longer M_1. The forms *Eomellivora tenebrarum* are similar in dimensions. *Eomellivora wimani* generally formed strong anterior and basal cingulum, significantly broader M_1 and little medially curved paraconid part. Protoconid and paraconid are developed on the lateral side. The trigonid edge in Perunium is composed of these two cusps in the centre of longitudinal axis of M_1. The majority of differences between the species is based on signs of the other dentition than M_1 and cranial features (size of rostrum, jaws, braincase, basicranium, etc.).

The genera *Perunium* and *Eomellivora* are not the members of the subfamily *Mellivorinae*. Since 1948 they are distinguished in the subfamily *Peruniinae* ORLOV, 1948, of large-sized, to the wolverines or honeybadgers related mustelids. Except for *Mega-lictis ferox* MATTHEW (1907) they are the largest known mustelid forms of all times. *Plesiogulo brachygnathus* SCHLOSSER from the Lower Pliocene of China has similar size to *Perunium ursogulo*. From the European locality Montpellier there is known *Plesiogulo monspessulanus* (VIRET, 1939). This species has Middle Pliocene age and is larger than *Plesiogulo brachygnathus* (ZAPFE, 1948). Both *Plesiogulo genera* are significantly geologically younger.

Other genera from the subfamily *Mellivorinae*, like *Promellivora, Promellivorodon*, are of no importance for further comparison.

Conclusions

The first acquisition of M_1 *Perunium ursogulo* ORLOV, 1948 from the territory of Slovakia is presented. The molar M_1 from this gigantic extinct mustelid species contributed to the so far few finding sites in the European Miocene. The locality Borský Jur is the northernmost site of this form. The age of the fossil find is Upper Pannonian (MN 11). The species characteristics of the molar which were recognized in Moldovian specimens have been presented here as well.

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