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## A NEW CHALICOTHERIAN FINDING FROM THE MIOCENE KARST IN POLAND (MAMMALIA, BADENIAN)

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The easternmost finding of the early Badenian (MN 5—6?) *Chalicotherium grande* (de Blainville) is reported from the karst deposits at Przeworno, Lower Silesia.

**Key words:** *Chalicotherium*, *Perissodactyla*, Mammalia, Miocene, Poland.

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### INTRODUCTION

Up to the sixties, Miocene vertebrate faunas from Poland were known only from Sarmatian deposits of Opole (Królewska Wieś; Wegner 1913, Ryziewicz 1961, Kowalski 1967). Then, Badenian vertebrate remains were reported (Głazek *et al.* 1971) from the karst deposits in an old marble quarry at about 1 km NE of Przeworno village, 50 km S of Wrocław (fig. 1). For full list of thus far described species from Przeworno 1—3 sites see: Głazek *et al.* 1971, Galewski and Głazek 1973, 1977, Kowalski and Zapfe 1974, Kubiak 1982.

Among the bone remains from the site Przeworno-2, housed at the Institute of Paleobiology of the Polish Academy of Sciences in Warsaw (ZPAL), a middle phalanx of the III manual digit of a chalicotherian has been found. The age of Przeworno-2 site has been specified as the Orleanian/Astaracian MN 5—6? (Głazek *et al.* 1971, 1977, Głazek and Szyrkiewicz 1987). The only chalicotherian remains described hitherto from the neighbouring area were some teeth and an astragalus from Sarmatian deposits (Astaracian MN 6—7?) of Opole, determined as *Macrotherium grande* Lartet by Wagner (1913).

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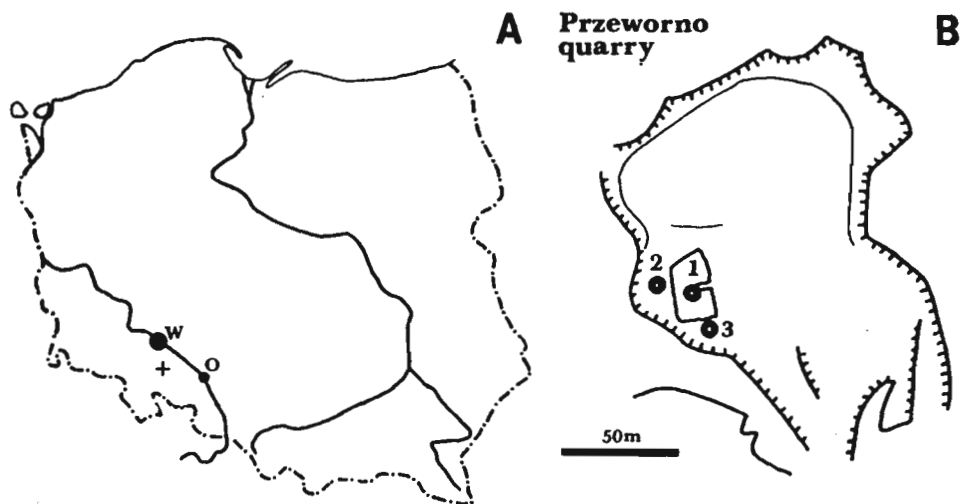


Fig. 1. A Situation of Przeworno locality in the Lower Silesia region; B Sketch of the Przeworno quarry (after Głazek et al. 1971, modified). W Wrocław, O Opole, + Przeworno, 1, 2, 3. Przeworno-1, Przeworno-2 and Przeworno-3 faunistic localities.

comparative materials. Thanks are also due to Mr. W. Siciński, who helped in preparation of the bone. The line drawings have been made by the junior author.

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Family **Chalicotheriidae** Gill, 1872  
 Genus *Chalicotherium* Kaup, 1883  
*Chalicotherium grande* (de Blainville, 1849)  
 (fig. 2)

1979. *Chalicotherium grande* (de Blainville); Zapfe: 282, figs. 1–156, pls 1, 2 (here synonymy).

**Material.**—A middle phalanx of the III digit of the right hand, with slightly damaged lateral sides. No. ZPAL M/IV-3.

**Remarks and comparisons.**—Judging by its size, weak development of the dorsal sharply pointed processes, massive volar tuber, asymmetrical form of the articulation facets for basal phalanx, and outline of the articulation surface of the trochlea, the phalanx considered herein is most probably an element of the III digit (radius) and represents the middle phalanx of the hand (fig. 2). In this specimen no traces of conrescences are observed. The phalanx from Przeworno-2 has almost the same size (table 1) and general morphology as the middle phalanx of the III digit of right manus of *Ch. grande* from Devinská Nová Ves in Czechoslovakia. The identification of the sides is rather difficult on two considered phalanges due to their almost symmetrical structure. The trochlear keels, however, slightly differ from each other, e.g. the lateral keel is somewhat lower than the medial one.

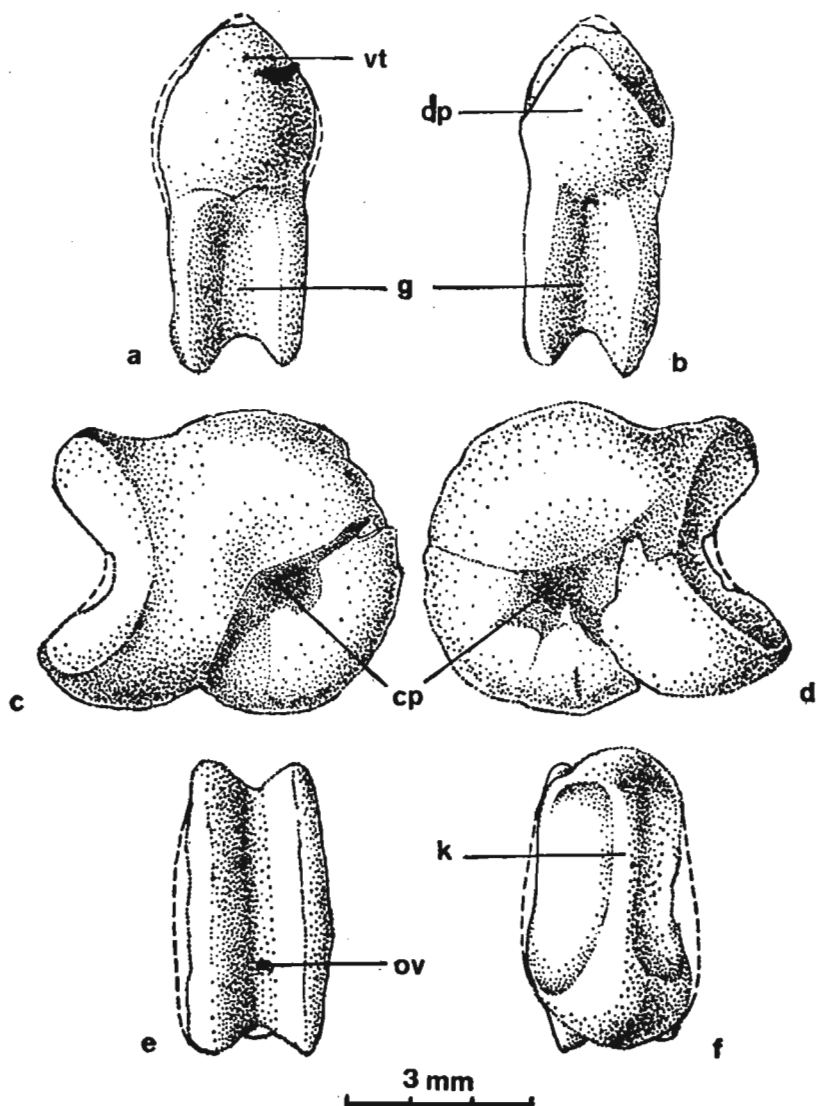


Fig. 2. *Chalicotherium grande* (de Blainville, 1849), Przeworno-2, Lower Badenian. Right middle phalanx of the III digit of the hand; a volar surface, b dorsal surface, c lateral side, d medial side, e distal surface, f, proximal surface. Abbreviations: cp central pit, dp dorsal process, g groove, k keel, ov opening for the vessel, vt volar tuber.

Some asymmetry occurs also in width of the two proximal articular facets. This is also the case with the middle phalanx of the Lower Miocene *Ch. rusingense* Butler, 1965 from Africa (Butler 1965: 213, fig. 18 left: R. 136.49), which, apart from its smaller dimensions, is generally similar to those from Devinská Nová Ves and Przeworno-2. In Butler's opinion the middle phalanges of *Ch. rusingense* and *Ch. grande* are indistinguishable, except for their size.

In its morphology, the phalanx considered is also similar to those of *Ch. grande*

Table 1

Comparative dimensions (in mm) of the middle phalanges of the III digit in *Chalicotherium grande* from Przeworno 2 and Devinská Nová Ves

	Przeworno 2	Devinská Nová Ves Zapfe 1979: 167	
		Min.	Max.
The greatest proximal width of the volar tuber	e. 30.0	28.0	35.0
The greatest proximal dorso-palmar height	46.0	41.5	50.0
The greatest length parallel to the palmar surface	60.0	51.0	62.5
Distal width of the trochlea	e. 27.0	23.7	29.5
The greatest distal dorso-palmar height of the trochlea	50.0	46.2	53.5

e. — estimated

presented by Koenigswald (1932) from Tutzing at Sandberger Sea and Staetzling near Augsburg, differing, however, in its slightly smaller size. In all these phalanges, the proximal and trochlear heights are 50 mm. The differences can result from ontogenetic age.

The phalanx from Przeworno-2 closely resembles also those described by Colbert (1934: fig. 14 k, m,) as *Macrotherium* sp. from Mongolia (Tun Gur formation, Upper Miocene).

*Age and geographical range.* — The oldest European chalicotherian forms known hitherto came from faunistical complexes of biozone MN 3 and 5 (Mein 1976, Savage and Russell 1983) of Burdigalian and Helvetian times, e.g. the time of appearance and evolution of anchitherian fauna with *Anchitherium aurelianense* (Cuvier, 1822). In the Sansan (MN 6), Steinheim (MN 7), and Anwil (MN 8) this group is represented by *Chalicotherium grande* (Wehrli 1939, Bielayeva 1954, Schaefer and Zapfe 1971, Zapfe 1979). Later, in the Vallesian faunistical division (zones MN 9 and 10) another species, *Ch. goldfussi* (Kaup, 1883) is known. The last European chalicotherians belong to the genus *Ancylotherium* and occur in the zone MN 12 (Turolian fauna).

In the East Europe, chalicotherians are known beginning with the zone MN 9 (fauna of Gritsev, Khmel'nitskij region, Ukraine) until the zone MN 11 (fauna of Novoukrainka, Odessa region). The fauna from Gritsev, attributable to the Kalfinsk complex of the zone MN 9 (Korotkievich, in press), includes remains of *Chalicotherium* sp. (Korotkievich et al. 1985). The latest chalicotherian representatives, *Ancylotherium pentelicum* Gaudry et Lartet, is known from the Turolian fauna of Grebienniki subdivision of the Berislav faunistic complex (Korotkievich, in press) corresponding to the zone MN 11. It is notheworthy that Przeworno-2, dated at slightly older age than Gritsev, represents the easternmost European locality of relatively old, early Badenian chalicotherian fauna (zone MN 5—6?).

## REFERENCES

- BIELAYEVA, E. L. 1954. Chalicotheres of the Soviet Union and Mongolia. — *Trudy Paleont. Inst. SSSR*, 55, 44—84. (in Russian)
- BUTLER, P. M. 1965. East African Miocene and Pleistocene chalicotheres. — *Bull. Brit. Mus. Nat. Hist.*, 10, 7, 163—237.
- COLBERT, E. H. 1934. Chalicotheres from Mongolia and China in the American Museum. — *Bull. Amer. Mus. Nat. Hist.*, 67, 8, 353—387.
- GALEWSKI, K. and GŁAZEK, J. 1973. An unusual occurrence of the Dytiscidae (Coleoptera) in the siliceous flowstone of the Upper Miocene Cave Przeworno, Lower Silesia, Poland. — *Acta Geol. Polonica*, 23, 3, 445—461.
- GŁAZEK, J., OBERC, J. and SULIMSKI, A. 1971. Miocene vertebrate faunas from Przeworno (Lower Silesia) and their geological setting. — *Acta Geol. Polonica*, 21, 3, 473—516.
- GŁAZEK, J. and SZYNKIEWICZ, A. 1987. Stratygrafia młodotrzeciorzędowych i staroczwartorzędowych osadów krasowych oraz ich znaczenie paleogeograficzne. — *Problemy młodszego neogenu i eoplejstocenu w Polsce*, 113—130. Ossolineum. Wrocław. (English summary)
- KOENIGSWALD, G. H. v. 1932. *Metaschizotherium fraasi* n. g., n. sp., ein neuer Chalicotheriidae aus dem Obermiozän von Steinheim am Albruch — *Palaeontographica*, Suppl., 8, 8, 1—24.
- KOROTKIEWICH, E. L. (in press). History of the *Hipparion* fauna formation in Eastern Europe. — *Naukova Dumka* (in Russian).
- KOROTKIEWICH, E. L., KUSHNIRUK, V. N., SEMENOV, J. and TCHEPALYGA, L. 1985. A new locality of the Middle Sarmatian vertebrates in Ukraine. — *Vest Zool.*, 3, 81—82 (in Russian).
- KOWALSKI, K. 1967. Rodents from the Miocene of Opole. — *Acta Zool. Cracov.*, 12, 1—18.
- KOWALSKI, K. and ZAPFE, H. 1974. *Pliopithecus antiquus* Blainville, 1839 (Primates, Mammalia) from the Miocene of Przeworno in Silesia (Poland). — *Acta Zool. Cracov.*, 19, 19—30.
- KUBIAK, H. 1982. Die miozänen Wirbeltierfunde von Przeworno (Dolny Śląsk, VR Polen). — *Zt. Géol. Wiss.*, 10, 7, 899—1007.
- MEIN, P. 1976. Biozonation du Neogène Méditerranéen à partir des Mammifères. — *Proc. VI. Congr. RCMNS, Bratislava*, 1975, 2, 18.
- RYZIEWICZ, Z. 1961. A tapir tooth from Nowa Wieś Królewska near Opole. — *Acta Palaeont. Polonica*, 6, 331—338.
- SAVAGE, D. E. and RUSSELL, D. E. 1983. Mammalian Paleofaunas of the World. Addison—Wesley Publ. Comp., 1—432.
- SCHAEFER, H. and ZAPFE, H. 1971. *Chalicotherium grande* Blainv. und *Chalicotherium goldfussi* Kaup. Odontologische und osteologische Unterschiede. — *Verh. Naturf. Ges. Basel*, 81, 151—199.
- WAGNER, R. N. 1913. Tertiär und umlagerte Kreide bei Oppeln (Oberschlesien). — *Palaeontographica*, 60, 175—274.
- WEHRLI, H. 1939. Die Chalicotherien aus den Dinotheriensanden Rheinhessens. — *Mitt. Reichsst. Bodenf. Zweigst. Darmstadt*, 5, 20, 26—33.
- ZAPFE, H. 1979. *Chalicotherium grande* (Blainville) aus der miozänen Spaltenfüllung von Neudorf an der March (Devinská Nová Ves), Tschechoslowakei. — *N. Denkschr. Naturhist. Mus. Wien*, 2, 1—282.

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## NOWE ZNALEZISKO CHALIKOTERIÓW W MIOCEŃSKIM KRASIE POLSKI

*Streszczenie*

Do lat sześćdziesiątych miocenne kręgowce były znane z Polski tylko z sarmatu. W latach siedemdziesiątych po raz pierwszy doniesiono o występowaniu kręgowców w krasowych osadach badeńskich z Przeworna na Dolnym Śląsku (fig. 1; Głazek *et al.* 1971). Wśród szczątków fauny lądowej ze stanowiska Przeworno-2 znaleziono m.in. środkowy człon III palca przedniej kończyny *Chalicoterium grande* (de Blainville) (fig. 2). Jest to dotychczas najdalej na wschód wysunięte stanowisko wczesnobadeńskich (MN 5—?6) chalikoteriów w Europie.