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DICERORHINUS ETRUSCUS BRACHYCEPHALUS (PERISSODACTYLA, MAMMALIA) FROM THE PLEISTOCENE OF SUBPIATRA (ŢEŢCHEA VILLAGE, BIHOR COUNTY, ROMANIA)

VLAD CODREA*, ZOLTÁN CZIER**

ABSTRACT — Some dental and post-cranial pieces belonging to the *Dicerohinus etruscus brachycephalus* subspecies are described. They were discovered in the filling of a small pot-hole located in the neighborhood of the Subpiatra village (Ţeţchea, Bihor county) completely destroyed by the mining works in a quarry with mesozoic limestones. The deposit age is included into the MmQ— 3b biozone (J. Agusti & alt., 1987), taking account both the accompanying micomammalian fauna (M. Venczel, 1990) and the stage rather advanced of the rhinoceros subspecies.

Introduction The Enterprise for Cement and Building Agents from Aleşd (Bihor county, W. Romania), one of the most important of this kind in Europe — if the existing capacity is taken into consideration — is located at about 40 *Km* east of Oradea, on the railroad linking Oradea from Cluj (Fig. 1).

The limestone necessary for the fabrication process is extracted from a big quarry situated in the proximity of the entreprise, at about 5 *Km* south-west of Aleşd, on a hill called „Coasta cu pietriş". In this area, the relief developed on mesozoic limestones is marked by the presence of some karstic phenomena: several caves, insurgences and exsurgences, a.s.o., being already known.

The limestone is obtained from the quarry by dynamiting large amounts of rock in charging galleries. In June 1989, with the occasion of such an explosion, besides the usually displaced limestone blocks, some breccia fragments, containing a great number of vertebrate fossil remains, especially mammals, could be also noticed. The information obtained later from the miners performing the task, indicated that the explosion affected a small pot-hole. The explosion practically blew to pieces the small karstic recipient and the filling material was spread on a vast surface of the open-pit-bench. The pot-hole, which we called the Subpiatra pot-hole is not mentioned in the Romanian speologic inventary (C. Goran, 1982), so we don't have any mapping to illustrate its morphologic aspect. Moreover it's not impossible that the pot-hole referred to, be already filled up.

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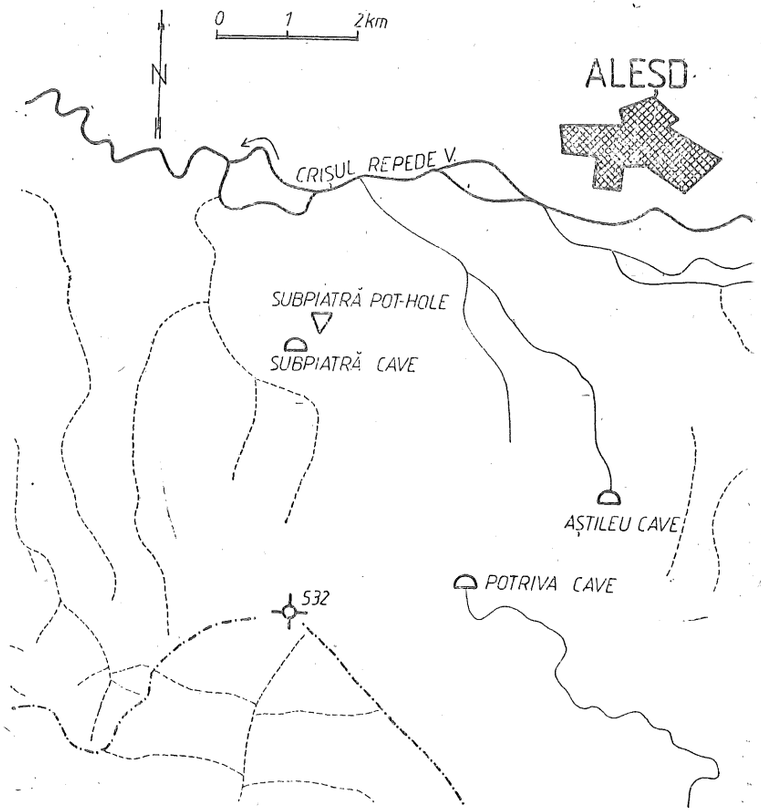


Fig. 1 — Location of Subpiatra pot-hole.

The bones, most of them damaged by the explosion, are cemented in a reddish clayey matrix.

The material collected by one of us (Z. C.) consists of about 200 samples, which are at present under preparation, restauration and cataloguing.

However, each phase proves to be extremely laborious, the skeleton fragments have to be detached from a thoroughly cemented matrix and soaked in a polymer as soon as they are detached.

The aim of the present paper is to describe some rhinoceros materials, whose presence we consider to be significant when characterizing the Subpiatră thanatocenosis. We consider them of extreme importance both for chronostratigraphic dating and paleoenvironmental reconstruction.

ORD. *Perissodactyla* OWEN, 1848
PARVORD. *Ceratomorpha* WOOD, 1937
SUPERFAM. *Rhinocerotoidea* OWEN, 1845
GRANDFAM. *Rhinocerotida* OWEN, 1845
SUBFAM. *Rhinocerotinae* OWEN, 1845
TRIBE *Rhinocerotini* OWEN, 1845
SUBTRIBE *Dicerorhinina* RINGSTROM, 1924
GENUS *Dicerorhinus* GLOGER, 1841
Dicerorhinus etruscus brachycephalus (Schroeder, 1903)

Material: Right maxillary fragment with **D 3/ — M 2/** (BCMO NS — 17202; Table I figs. 1—3); humerus fragment (BCMO NS — 17204); femur fragment (BCMO NS — 17203; Table II, figs. 1—2). The material belongs to the Țării Crișurilor Museum, Oradea.

Table I

Compared dimensions of upper dentition in Dicerorhinus etruscus brachycephalus *(mm)*:

	D 3/		D 4/		M 1/	
	L	W	L	W	L	W
		ant. post.		ant. post.		ant. post.
Subpiatra	—	— 40.6	47.0	44.7 40.3	—	55.5 50.6
Mosbach[1]					45.9	53.6 —
					46.0	56.0 —
					49.0	63.0 —
					43.0	60.0 —
					42.0	53.0 —
Mauer[1]					44.0	54.0 —
					44.0	57.0 —
					47.0	56.0 —
Le Vallonet[1]					44.0	— —
					42.5	56.0 —
Venta Micena[1]					cca 45.0	51.2 —
					cca 42.0	48.0 —
Vergranne[2]	46.5	46.5	51.0	48.0	56.0	60.5 —
			56.0	47.0	51.0	56.0 —
					52.5	55.0 —
Western Europe[3]	36.0—46.5	33.5—46.5	44.0—58.0	43.5—56.5	47.5—60.0	44.5—63.0
Brasov (= Brassó)[4]					54.0—56.1	58.0—59.3

1 — J. Vte. Santafe — Llopis & Ma L. Cassanovas-Ciadellas (1987)
2 — C. Guérin (1983)
3 — C. Guérin (1980)
4 — F. Toula (1909)

Description of materials.

D 3/ — is mesially damaged, the first half of the protoloph, parastyle and the whole area of the paracone being destroyed. However, in the remaining part of the ectoloph, a fold of the mesostyle can be noticed. Crista and anticrochet are missing; the crochet is large and is

very close to the wall of the protoloph. A distal cingulum is visible and palatally a rest of cingulum, located in the opening of the median valley can be noticed. There is no external cingulum.

D 4/ — is the only intact tooth. The ectoloph is characterized by the presence of a prominent fold of the paracone which continues vertically up to the crown basis. Large mesostyle and a rather discret metacone fold. Mesial and distal cingulums. The distal cingulum, like in the previous tooth contributes to the closing of the postfosette. Crista and anticrochet are absent in this case too. Simple, large crochet, very close to the posterior wall of the protoloph, therefore the two dental walls do not merge. We can practically talk about the existence of a closed „medifosette". The protocone constriction is rather strong. Median valley is almost straight, large with no sinuosities, approximately as deep as the postfosette. A small rest of the palatal cingulum changes on its last part the direction of the median valley so that, exactly on the palatal edge of the tooth, this valley becomes confluent with the posterior groove of the protocone constriction.

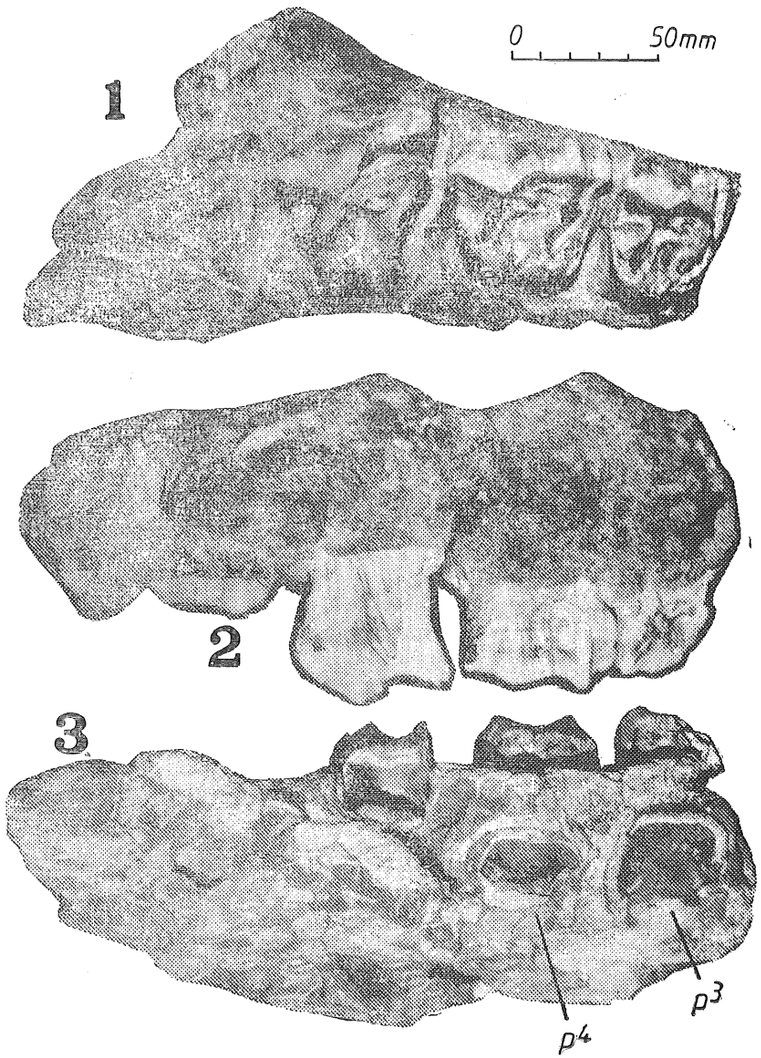
M 1/ — was partially destroyed by a fissure which also fragmented the maxillary bone. The damage is very similar to that of **D 3/**, affecting approximately the same portions. In the remaining ectoloph fragment a very poorly expressed fold of the metacone is visible towards the top of the crown. It disappears towards the collet. Slightly divergent metastyle. Regarding the cingulums, only the distal one can be noticed under the form of a sinuous crest that blocks the postfossette of a triangular contour as well as a palatal cingulum consisting of the alignement of small tuberculi, that closes the opening of the median valley. Only a large, simple, long and pointed crochet is present in this case, too. Straight median valley as deep as the postfossette. The protocone constriction is present.

M 2/ — The molar was in full process of eruption. Sharp parastyle, large fold of the paracone, protruding mesostyle rapidly decreasing vertically to the crown basis. The protocone constriction is absent. Long and pointed crochet. Antecrochet present only in the lower half of the dental wall.

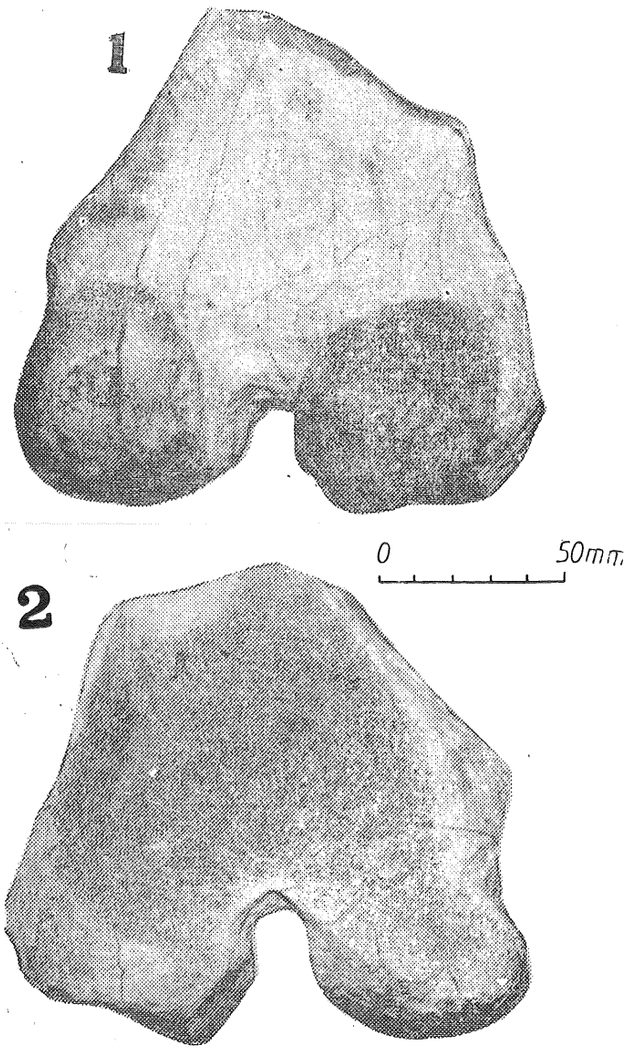
Dimensions: according to the adjoined table.

The post-cranian pieces from the Subpiatra inventary are much too fragmentary to be of any use. The only dimension which can be taken into consideration is the transversal superarticulary diameter of a left femur = 131,2 *mm*. However, we have to emphasize that these materials belong to a young specimen too, and thus we cannot exclude the possibility that it may be originate from the same specimen whose maxillary fragment was already presented.

Comparisons and discussions. In the case of Subpiatra occurrence, like in most Romanian discoveries of fossil rhinoceros, we are in the presence of a poorly sampled material. The few existent fragments are not well-preserved, either being partly damaged, as well already mentioned, a fact that makes their assignement rather difficult.



Pl. I. — **Dicerorhinus etruscus brachycephalus** (Schroeder). Subpiatra, Bihor County Right **D 3/—M 2/**: Fig. 1 — occlusal view; Fig. 2 — buccal view; Fig. 3 — palatal view; **P 3/** and **P 4/** located under **D 3/** and **D 4/** are visible.



Pl. II. — **Dicerorhinus etruscus brachycephalus** (S c h r o e d e r). Subpiatra, Bihor County. **Left** femur, distal fragment: F i g. 1 — posterior view; F i g. 2 — anterior view (damaged).

Very recently, M. V e n c z e l (1990) signaled the following list of micromammals from the same occurrence: *Talpa minor, Talpa sp., Sorex minutus, Drepanosorex margaritodon, Allocricetus bursae, Cricetus cricetus praeglacialis, Mimomys savini, Pliomys episcopalis, Lagurus pannonicus, Pitymys-Microtus,* which entitled him to speak of a Lower Biharian age, the Templomhegy phase (D. J á n o s s y, 1979). The absence from the assemblage of the genus *Allophaiomys*, the coexistence of the *Pitymys* and *Microtus* genera, as well as the existence of *Mimomys savini* indicate the MmQ-3b biozone (J. A u g u s t i & a l., 1987). The author adds to the micromammals some herpetofaunistic elements which suggest a well-forested environment. We may conclude this is the 21 mammalian biozone described by C. G u é r i n (1980) in an attempt to complete M e i n's biozones. At this level, according to C. G u é r i n (1980) only two rhinoceros species are present in Europe: *Dicerorhinus merki* and *D. etruscus* with the *brachycephalus* subspecies. The distinction between them is easily realized if the dental characteristics are considered. While comparing it to *D. hemitoechus*, with which it coexists in a short interval from the second half of 22 Guérin's biozone it differs by a more reduced hypsodonty. In the Subpiatra material the hypsodonty can be noticed in **M 1/**, where is only slightly worn, affecting the paracone. Though it's a rather hypsodont form, the tooth height is however smaller than that of *D. hemitoechus* (C. G u é r i n, 1980; Tab. 124). The specific diagnosis based on the ectoloph configuration seems debatable in this case, especially because there are filiation affinities between the two congeneric forms, both the *brachycephalus* subspecies and *hemitoechus* species having a common ancestor (C. G u é r i n, 1982).

Moreover, for the material under discussion we dispose of a single complete ectoloph profile, more exactly that of **D 4/** (fig. 2). For the rest, only profile fragments can be emphasized: the posterior segments of the **D 3/** and **M 1/**. **M 1/** is very close to the materials discovered at Venta Micena (MmQ-2a), i.e. in Lower Biharian deposits (J. A u g u s t i, 1986). In Lam. II fig. 1 (J. V t e. S a n t a f e-L l o p i s & M a L. C a s a n o v a s C l a d e l l a s, 1987), a well-defined crochet is visible, while the antecrochet is missing. The palatal cingulum is absent here, but it may appear like in the Subpiatra fragments, under the form of some vestigial remains.

Concerning the dimensional aspect, the Subpiatra specimen is very close, especially in case of **M 1/**, to the dimensions signaled at Vergranne (C. G u é r i n, 1983), a younger deposit included in the 22 Guerin's biozone. On the other hand, the milk teeth are much smaller at Subpiatra specimen.

F i g. 2 — Ectoloph profile of **D4/**

Compared to older deposits (i.e. Voigstedt, Mosbach, Mauer, Le Vallonet, Venta Micena) the length of **M 1/** is greater, but the width is more restraint (see table).

Finally, **M 1/** is close both dimensionally and morphologically (ectoloph configuration, existence of vestigal remains of palatal cingulum) to that discovered in the cave north of Bartolomeu Church from Brașov (= Gesprengberg Hill = Fortyogó hegy; F. Toula, 1909). Fl. Heller (1959) assigns the deposit under discussion to a new age he called Brassoicum its occurrence being chronologically situated between Gombaszag and Erpfingen.

In the case of **M 2/** the profile could be emphasized only from the ectoloph fragment situated just under the crest line of the dental wall, the tooth being in full eruption when the animal died. From the available data we have to underline the similarity between our profile lines and those figurated by Guérin (1980) from Le Vallonet and Saint Prest (both 20 biozone). However, considering its hypsodonty, the Subpiatra rhinoceros is a more evolved form than those of Le Vallonet and Saint-Prest, which belong to an earlier age (MmQ-3a biozone).

It would be interesting to clarify the taphonomic aspects of the Subpiatra pot-hole. More precisely, we don't know what kind of filling clogged up the pot-hole: was it accumulated in a short or in a longer period of time? In the first case it would mean we are in the presence of a quasi-contemporaneous fauna, while in the second, a succession of faunistic assemblage is supposed to exist. From what we analyzed up to the present, the first possibility seems plausible, because no other element suggests a different model. A final conclusion may be obtained only when the whole material is entirely examined.

In Western Europe, *Dicerorhinus etruscus brachycephalus* has a temporal extension phased between the 20—22 Guérin's biozones (C. Guérin, 1980, 1982). Here it disappears in the upper part of the 22 biozone, which corresponds to the terminal episode of Mindel glaciation. However, it seems that moving eastward, its existence extends so that in Caucasus it reaches the Upper Pleistocene (C. Guérin & F.G. Barychnikov, 1982), having a favourable ecological refuge. This situation couldn't be signaled, up to the present in Romania.

(translated from Romanian by Margareta Petruț)

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