

PRELIMINARY DATA CONCERNING THE BIG MAMMALIAN FAUNA FROM THE SUBPIATRĂ PLEISTOCENE DEPOSITS, BIHOR COUNTY (ROMANIA)

Vlad CODREA¹, Zoltán CZIER²

ABSTRACT

On the occasion of some customary dynamiting activities, performed in June 1989 at the limestone quarry which supplies the Enterprise for Cement from Alesd, a series of breccia fragments containing vertebrate bones could be noticed. Thus, it was discovered that the explosion destroyed a small, probably filled up, pot-hole. The following taxa have been identified there up to the present: Carnivora - *Ursus deningeri* von Reichenau, *Meles sp.* (?*thorali* Viret); Proboscidea - an elephant with trogontheroid features; Perissodactyla - *Equus sp.* (big size), *Dicerorhinus etruscus brachycephalus* (Schroeder); Artiodactyla - cf. *Praealces latifrons* (Johnson), *Capreolus capreolus süssenbornensis* (Kahlke), *Cervus sp.* (elaphus size), *Caprinae* indet., *Bison cf. priscus* Bojanus, *Sus scrofa* Linné. A list of micromammals (VENCZEL, 1990) can be added to the big mammalian fauna. The elements already discovered suggest the MmQ - 3b biozone (AGUSTÍ et al., 1987).

Key words: Lower Pleistocene, Vertebrate paleontology, Mammals, Western Romania.

DONNÉES PRÉLIMINAIRES CONCERNANT LA GRANDE FAUNE DE MAMMIFÈRES DES DÉPÔTS PLÉISTOCÈNES DE SUBPIATRĂ, DÉPT. DE BIHOR (ROUMANIE)

RÉSUMÉ

En juin 1989, dans la carrière où on exploite des calcaires mésozoïques utilisés par l'Entreprise pour Ciment d'Alesd, un petit aven a été dynamité. Le matériel qui le colmatait s'est avéré très riche en débris squelettiques. On a identifié jusqu'à présent les taxons suivants: Carnivora - *Ursus deningeri* von Reichenau, *Meles sp.* (?*thorali* Viret); Proboscidea - un éléphant trogonthéroïde; Perissodactyla - *Equus sp.* (taille grande), *Dicerorhinus etruscus brachycephalus* (Schroeder); Artiodactyla - cf. *Praealces latifrons* (Johnson), *Capreolus capreolus süssenbornensis* (Kahlke), *Cervus sp.* (taille elaphus), *Caprinae* indet., *Bison cf. priscus* Bojanus, *Sus scrofa* Linné. Une liste de micromammifères peut y être ajoutée (VENCZEL, 1990). Ces éléments suggèrent l'appartenance de la taphocénose à la biozone MmQ - 3b (AGUSTÍ et al., 1987).

Mots clés: Pléistocène inférieur, Paléontologie des vertébrés, Mammifères, L'Ouest de la Roumanie.

Bihor county is very well-known for its Lower and Middle Pleistocene occurrences containing big mammalian remains. The discoveries from Șomleu Hill, Betfia, not far from Oradea, are relevant in this respect (KORMOS, 1911, 1914; KRETZOI, 1941; TERZEA, JURCSÁK, 1968; a.s.o.) The de-

posits are represented there by the argillaceous material filling the fissures from the Cretaceous limestones or existing in former caves presently destroyed. The faunas discovered there were of basic importance for the description of a relevant age, the Biharian.

1. Univ. „Babeș-Bolyai”, Cat. Geologie-Paleontologie, str. Kogălniceanu 1, R-3400 Cluj-Napoca, Romania.

2. Muzeul „Țării Crișurilor”, Secția Științe Naturale, Bd. Dacia 1, R-3700 Oradea, Romania

Recently, the discovery of a new deposit of this kind was added to those already known from this county.

The mesozoic limestone quarry which is the source of raw material for the Cement Enterprise from Alesd, lies on the borders of the Subpiatră village (Tețchea area), on a hill called „Coasta cu pietriș”. In this area, the relief developed on the mesozoic limestones is characterized by remarkable karstic phenomena: several caves as well as exurgences and insurgences are already known (RUSU, 1988).

In June 1989, as a consequence of some massive dynamiting activities carried on in the above mentioned quarry, a karstic recipient, probably a small, clogged-up pot-hole was destroyed. The filling material consisting of a bone breccia was spread on a vast surface.

Some members of the Natural Sciences Section of the "Tării Crișurilor" Museum, Oradea, were successful in their activity of collecting and saving a great part of this material. Subsequently, a part of it was prepared and the conclusions drawn from studying it have been discussed in some already published papers: we have to mention here the herpetofauna and the micromammalian remains (VENCZEL, 1990) or perissodactyls (CODREA, CZIER, 1991).

After processing and identifying a great part of this material, we are able to draw the following list of big mammals:

Carnivora: Ursus deningeri von Reichenau

Meles sp. (? thorali Viret)

Proboscidea: an elephant with trogontheroid features.

Perissodactyla: Equus sp. (large size)

Dicerorhinus etruscus brachycephalus (Schroeder)

Artiodactyla: cf. Praevalces latifrons (Johnson)

Capreolus capreolus süssenbornensis (Kahlke)

Cervus sp. (elaphus size)

Caprinae indet.

Bison cf. priscus Bojanus

Sus scrofa Linné.

There are only two, rather damaged cranial fragments belonging to a bear: a right hemimandibula fragment, representing the symphysis, a broken canine and a short part of the horizontal ramus corresponding to the diastema; a palate fragment with a damaged right canine.

Ursus deningeri has a less frequent occurrence in Romania. In Bihor county, the species seems to be present at the fossiliferous sites Betfia V and VII (TERZEA, JURCSÁK, 1968). At Betfia V appeared also *U. ? mediterraneus*.

A skull - calvarium and mandibula connected - proves the existence of the genus *Meles* in taphocenosis. Unfortunately, post-depositional processes affected drastically the skeletal remains. Thus, the splanchnocranial bones are sagittally displaced, while the posterior end of parietals as well as the occipital bone are displaced to the right relatively to the sagittal plane. The *Meles* remains from Subpiatră could belong to the species *M. thorali* (= *M. atavus* Kormos), discovered at Betfia too.

As far as the Proboscideans are concerned, some molar fragments prove the presence of an elephant with trogontheroid features in this area. If we consider the hypsodont pattern, the enamel thickness (1.8 mm) as well as the lamellar frequency (DLI = 7.2) we can speak of a specimen with evolved characteristics. An elephant with trogontheroid features is also present in the Betfia VII occurrence (TERZEA, JURCSÁK, 1968).

A symphysis fragment in which the substitution process of lacteal dentition was not finished indicates the presence of a horse in taphocenosis. The incisor dimensions suggest the presence of a large sized specimen. However, in order to determine the specific assignment, it would be very useful to have at least elements of the jugal dentition, which are absent up to the moment. Moreover, the horse does not occur frequently in this area, missing from the Betfia deposits (TERZEA, JURCSÁK, 1968) and being present only sporadically in occur-

rences of similar age from Hungary (JÁNOSSY, 1979).

The latest rhinoceros remains discovered in the Subpiatră quarry do not add any further data to those already presented (CODREA, CZIER, 1991): it is a quite evolved specimen of the subspecies mentioned in the list, characterized by a dentition with marked hypsodont tendency. Up to the present, the fragments prove the existence of at least two individuals in taphocenosis. All teeth belong to juvenile stage, with elements of functional milk dentition.

The *Cervidae* are quite diversified in forms and numerically they dominate the assemblage. The skeleton fragments already discovered determine us to think of forms similar to those of the *elaphus* group, as far as the size is concerned. The deer *C. c. süssenbornensis* as well as *Praealces latifrons* are also present.

The fragments assigned to bison are not abundant at Subpiatră either: we have only two distal metacarpal epiphyses. Both of them are remarkable for their extremely large size, which allows a clear delimitation from *B. schoetensacki* (SALA, 1987; MOYÀ-SOLÀ, 1987). As sexual dimorphism is very strongly manifested in the case of the bison, expressed by considerable size differences, we estimate that our material belonged to male specimens.

RĂDULESCU & HERMANN (1971) presented the occurrences of this genus in our country. Owing to its size, the Subpiatră bison may be related to the discoveries from the mindelian loess at the Araci quarry in the Baraolt Basin (RĂDULESCU & KOVÁCS, 1966) characterized by the same large size.

The Caprinae are represented by a mandibular fragment consisting of a segment of the horizontal ramus with heavily worn P/3 - M/1. The high degree of wear as well as the lack of some more clearly diagnostic bones make difficult even a generic assignment as it is not easy to decide if this fragment belongs to the genus *Capra*, *Ovis* or *Hemitragus*. Tooth dimensions enable us to suppose that it could belong to the genus *Capra*, however larger than *C. ibex* (BOUCHUD, 1972) and much larger than *C. alba*, a species described from Lower Pleistocene de-

posits older than those from Subpiatră (MOYÀ-SOLÀ, 1987). Teeth are bigger than those of *Hemitragus* too (BONIFAY, 1975).

Some jaw and maxillary fragments prove the existence of four specimens belonging to *Sus scrofa*. Tooth dimensions are big, exceeding those of the specimens from Megalopolis (MELENTIS, 1965).

We may conclude that there was a small pot-hole at Subpiatră which functioned as a „natural trap“, to use BRUGAL & JAUBERT (1991) terminology. The large number of herbivorous with predominant suid and cervid specimens as well as the existence of some anatomical connexions are powerful arguments which favor this kind of model. However, the less favorable context in which this material was collected and the fact that not all the items are already processed, makes it difficult for us to draw any final conclusion.

The age of this deposit as well as the isochronous or non isochronous character of the whole filling material have to be determined. The time interval when this karstic recipient was clogged up has to be more sharply determined and also we have to make sure if we are not dealing with faunas from different stratigraphic levels, mixed by the explosion. Therefore, we estimate that the occurrence under discussion could be situated somewhere between Betfia V (in which the genera *Allophaiomys* and *Mimomys* coexist) and the end of Betfia VII (including *Mimomys* but without *Arvicola*, and very probable *Dicerorhinus hemitoechus* as well as an elephant with trogontheroid features). The faunal list agrees with the biozone MmQ-3b (AGUSTÍ *et al.*, 1987). However, for some elements, we cannot exclude a more recent age. Obvious similarities exist also with the best-known tiraspolian faunas from Rotbav - Dealul Țiganilor and Feldioara-Carieră (RĂDULESCU & SAMSON, 1985).

As far as the biotope is concerned we may notice that most of mammalian species as well as the herpetofauna are forest-dwellers, preferring well forested areas in-

cluding water - covered surfaces. We must mention, however, that some representants, as the elephant and bison break this rule.

If we consider the climatic aspect, the results of the informative analyses performed on some argillaceous minerals indicate a temperate wet and rather warm climate. The X 4D analysis on oriented samples of the av-

erage fraction from the matrix revealed a mineralogical assemblage of type I/S interstratified (50%), with I (25%), K(20%), Q(5%), goetit (traces). This assemblage shows the existence of a highly altered material which offers arguments for the type of climate mentioned above.

REFERENCES

- AGUSTÍ, J., MOYÀ-SOLÀ, S., PONS-MOYÀ, J. (1987) La sucesion de Mamíferos en el Pleistoceno inferior de Europa: proposicion de una nueva escala bioestratigrafica. *Paleont. y Evol. Mem. esp.*, 1, Sabadell, pp. 287-295.
- CODREA, V., CZIER, Z., (1991) *Dicerorhinus etruscus brachycephalus* (Perissodactyla, Mammalia) from the Pleistocene of Subpiatră (Tețchea village, Bihor County, Romania). *Studia Univ. "Babeș-Bolyai"*, XXXVI/2, Cluj-Napoca, pp. 33-41.
- BONIFAY, M. F. (1975) „*Hemitragus bonali*“ Harlé et Stehlin „*Caprinae*“ de la Grotte de l'Escale (Saint-Estève-Janson, Bouches du Rhône). *Quaternaria*, XVIII, Roma, pp. 215-302.
- BOUCHUD, J. (1972) Les grands herbivores rissiens des "Abîmes de la Fage" en Corrèze (Cervidés, Rupicaprinés, Suidés et Equidés). *Nouv. Arch. Mus. Hist. nat.*, fasc. 10, Lyon, pp. 33-59.
- BRUGAL, J.-P., JAUBERT, J. (1991) Les gisements paléontologiques pléistocènes à indices de fréquentation humaine: un nouveau type de comportement de prédation ?. *Paléo*, 3, pp. 15-41 (tiré-à-part).
- JÁNOSSY, D. (1986) *Pleistocene vertebrate faunas of Hungary*. Akad. Kiadó, Budapest, 208 p.
- KORMOS, T. (1911) A Püspökfürdői Somlyóhegy pleistocén faunája Biharvármegyében. *Földt. Közl.*, 41, Budapest, pp. 739-742
- KORMOS, T. (1914) Harom új ragadozó a Püspökfürdő melletti Somlyóhegy preglaciális rétegeiből. *Magy. k. Földt. Int.Évk.*, XXII/3, Budapest, pp.205-226.
- KRETZOI, M. (1941) Die unterpleistozäne Säugetierfauna von Betfia bei Nagyvárad. *Földt. Közl.*, 71 Budapest, pp.308-335.
- MELENTIS, J. K. (1965) Studien über fossile vertebraten Griechenlands. 6. *Sus scrofa* L. aus dem Jungpleistozän des Beckens von Megalopolis im Peloponnes (Griechenland). *Ann. Géol. Pays Hellén.*, Athènes, pp.436-444.
- MOYÀ-SOLÀ, S. (1987) Los bovidos (Artiodactyla, Mammalia) del yacimiento del Pleistoceno inferior de Venta Micena (Orce, Granada, Espana). *Paleont. y Evol., Mem. esp.*, 1, Sabadell, pp.181-236.
- RĂDULESCU, C. & KOVÁCS, A. (1966) Contribuții la cunoașterea faunei de mamifere fosile din Bazinul Baraolt (Depresiunea Brașov). *Lucr. Inst. Speol. "E. Racoviță"*, VII, București, pp.231-253.
- RĂDULESCU, C. & HERMANN, W. (1971) Observations sur les Bovidés du Quaternaire supérieur de Transylvanie. *Trav. Inst. Spéol. "E. Racovița"*, X, București, pp. 313-331.
- RĂDULESCU, C. & SAMSON, P. (1985) Pliocene and Pleistocene mammalian biostratigraphy in southeastern Transylvania (Romania). *Trav. Inst. Spéol. "E. Racovița"*, XXIV, București, pp.85-95.
- RUSU, T. (1988) *Pe urmele apelor subterane. Carstul din M-ții Pădurea Craiului*. Ed. Dacia, Cluj-Napoca, 256 p.
- SALA, B. (1987) *Bison schoetensacki* Freud. from Isernia la Pineta (early Mid-Pleistocene-Italy) and revision of the european species of bison. *Paleont. Ital.*, LXXIV, Pisa, pp.113-170.
- TERZEA, E. & JURCSÁK, T. (1968) Bemerkungen über die mittelpleistozänen Faunen von Betfia. *Ber. deutsch. Ges. geol. Wiss., A, Geol. Palaont.*, 13, 3, Berlin, pp.381-390.
- VENCZEL, M., (1990), Date asupra herpetofaunei fosile de la Subpiatră (jud. Bihor). *Crisia*, XX, Oradea, pp.543-552.

