Theoretical and Applied Karstology, **16** (2003), pp. 77–81

Rapid communication

The oldest modern humans in Europe

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Abstract

Several human bones were discovered in 2002 in a new cave in south-western Romania. ^{14}C datings placed them 35,000 years ago, as the oldest remains of modern humans in Europe. Anthropological studies revealed modern and unique archaic features of these inhabitants which are described together with their regional archaeological and anthropological context.

Key words: fossil modern human, archaeology, anthropology, Romania.

Les plus anciens humains modernes d'Europe

Résumé

Quelques ossements humains ont été découverts en 2002 dans une grotte nouvelle au sud-ouest de la Roumanie. Les datations à radiocarbone ont fourni l'âge de 35.000 ans — représentant ainsi les restes fossiles de l'homme moderne les plus anciens d'Europe. Les études anthropologiques ont révélé des caractéristiques modernes et archaïques uniques de ces habitants, qui sont décrites dans leur contexte archéologique et anthropologique régional.

***Mots-clés**: homme moderne fossile, archéologie, anthropologie, Roumanie.*

The discovery

The hypothesis of repeated dispersals of human populations from Asia to Europe, by following the Danube's corridor has been suggested based upon archeological evidence. The discovery of a well preserved human mandible in a new cave of south-western Romania (*Peştera cu Oase*), in 2002, by three speleologists, Ştefan Milota, Adrian Bîlgăr and Laurenţiu Sarcina, confirms that there is still much to discover in terms of archeology and anthropology in this part of Europe. The morphology of the cave and the importance of fossil mammal bone deposit was decisive in the scientific valorization of the discovery. For the moment, no archeological excavations have taken place within the cave, and most of the fossil specimens are Late Pleistocene cave bear (*Ursus spelaeus*) young and adults.

The human mandible

Since it was a surface find in the middle of the cave, two samples were taken from the human mandible (*Oase 1*) and directly dated with AMS radiocarbon. The resultant ages were

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more than 35,200 years BP (Oxford Radiocarbon Accelerator Unit (United Kingdom) (OxA-11711) and respectively, 34,290 (+970, –870) years BP (Centre for Isotope Research, Radiocarbon Laboratory, Groeningen, The Netherlands) (GrA-22810), which produced a combined age of 34,950 (+990, –890) years BP (TRINKAUS *et al*., 2003a).

The age determinations from the two laboratories are statistically the same, and the modest difference in the results is due to the contrasts in molecular mass obtained from the two bone samples. The resultant age of ca. 35,000 BP places the mandible, *Oase 1*, in the overlap time of the late initial Upper Paleolithic and the Early Aurignacian archeological assemblages, and the European oxygen isotope stage 3 context. Moreover, it becomes the oldest remain of a modern fossil human of Europe. The importance of the discovery is given also by the morphological features described in TRINKAUS *et al.* (2003a). The mandible (Fig. 1) presents a derived early modern human feature (the prominent tuber symphyseos) and others that places it closer to the modern humans of Late Pleistocene age (overall proportions, more mesial mental foramen, narrow lateral corpus, retromolar space absence, symmetrical mandibular incisure, lateral incisure crest and small superior medial pterygoid tubercle).

Beside these, some of the features are exceptional, such as the wide ramus, both absolutely and relative to mandibular length, indicating a long temporal fossa and anterior positioning of the zygomatic bone. This pattern has been described only among several much earlier archaic humans and north African early modern humans. Another unusual aspect which approaches the mandible to the archaic humans of Africa (of late Middle Pleistocene) is the megadontia. The five molars still preserved on the mandible are exceptionally large, especially the third molars (Fig. 1). Another unusual feature unknown among humans preceding Oase 1 and that suggests affinities with Neanderthals of the late Middle and Late Pleistocene is the lingual bridging of the mandibular foramen. This argues for the contribution of the Neanderthals to the modern human subsequent populations (TRINKAUS *et al*., 2003a).

Other cranial remains

An anterior cranial skeleton (*Oase 2*) (Fig. 2 and 3) and a complete left temporal bone (*Oase 3*) of a second and respectively third human individual were discovered in the same cave during the maping expedition in 2003 (TRINKAUS *et al*., 2003b). The morphological parallels with the mandible strongly suggest that they are of the same age, between 34,000 and 36,000 BP, even if the bones have not yet been carbon dated (a sample from *Oase 2* is in process).

The anthropological context

Culturally contemporaneous with Oase 1, but slightly more recent, are the human bones from two other Romanian caves: *Muierii* and *Cioclovina*.

Fig. 1. Oblique view of the human mandible (Oase 1).
Vue oblique de la mandibule humaine (Oase 1).
(photo E. Trinkaus)

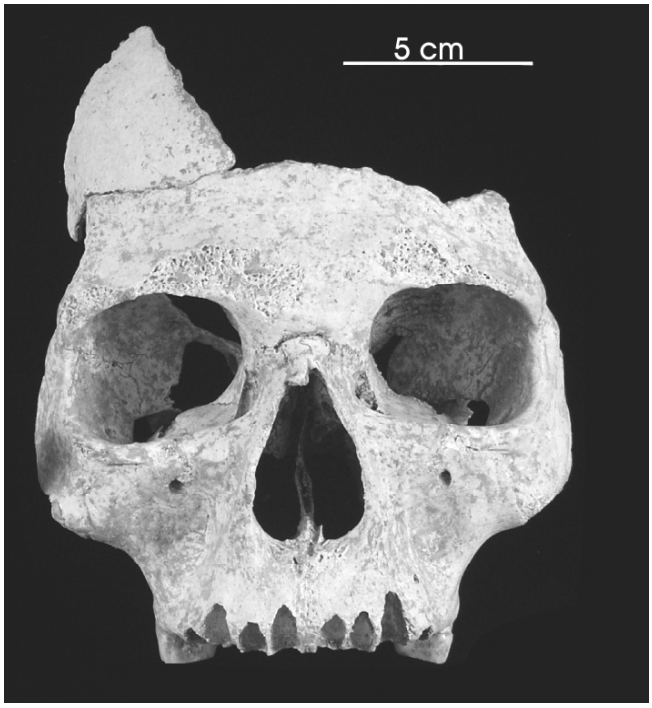

Fig. 2. Anterior view of the Oase 2 anterior cranial skeleton.
Vue antérieure du crâne antérieur Oase 2.
(photo E. Trinkaus)

Fig. 3. Occlusal view of the Oase 2 palate and molars.

Vue occlusale de la bolte palatine et des molaires de Oase 2.

(photo E. Trinkaus)

In 1952, in Muierii Cave (Gorj county, southern Romania) several human bones were discovered: a partially destroyed skull, the right half of a mandible, a fragment of a scapula and a tibial diaphysis, possibly belonging to the same individual. The mandible was directly dated by ^{14}C to 30,150 ± 800 BP (LuA-5228) (PĂUNESCU, 2000). Unfortunately there is no complete morphological analysis of the bones.

The other discovery, from Cioclovina Cave (Hunedoara county, central-western Romania), is a fragment of a skull, discovered accidentaly in 1940–1941. In the same site and associated with the skull, Aurignacian lithic tools and cave bear skulls were found (RAINER & SIMIONESCU, 1942). The association between the human sull remains and the Aurignacian artifacts have been debated for a long time (CÂRCIUMARU, 1999; CHURCHILL & SMITH, 2000), but a recent direct radiocarbon date on the skull of 29,000 ±700 BP (LuA-5229) (PĂUNESCU, 2002) places it within the later Aurignacian.

The archeological context

The archaeological literature mentions, for south-western Romania, several sites that belonged to the Palaeolithic period, as for example those in the caves *Livadiţei*, *Hoţilor*, and the open-air sites *Tincova*, *Românești-Dumbrăviţa* and *Coşava*. Even if they have uncertain stratigraphic position and poor lithic material, they can be assigned to a non-Levallois Mousterian facies of poor and lacking bifaces, but rich in sidescrapers (PĂUNESCU, 1992; 2000). The only criterion for this integration was the techno-typological analysis of the lithic industry, while the stratigraphic position indicated even a later period. Moreover, another element that complicates the facts is the lack of any elements of absolute chronology, and the material, the quartzite, that made it very difficult to made typical forms for the tools.

In a larger context, this industry is analogous with the Mousterian of Erd (Hungary), where quartzite represents 75% of the lithic raw material.

Chronologically, the Mousterian horizons with quartzite tools identified in Southern Carpathians are between 49,500 ± 3,200/ 2,100 BP (GrN 13002) in *Cioarei* Cave, and 29,700 ±1,700/ 1,400 BP in *Gura Cheii-Râşnov* Cave (PĂUNESCU, 1984; 1988; 1989; 1991; HONEA, 1991; 1993).

The Aurignacian has been studied in the archaeological sites of *Românești–Dumbrăviţa, Tincova* and *Coşava*. One of the first elements used by Mogoşanu to integrate the sites in a larger geographical context was the presence of Dufour bladelets (including Font-Yves points) in the Palaeolithic of south-western Romania (MOGOŞANU, 1967; 1968; 1978), which represent 22.73% at Tincova and 7.02% at Românești– Dumbrăviţa.

From the resultant analysis it appears that the Aurignacian of south-western Romania belongs to the same cultural area of central-eastern Europe (MOGOŞANU, 1978; PĂUNESCU, 1984; 1992), representing a later period compared with the Aurignacian settlements of eastern Romania (PĂUNESCU, 1984; 1989; 1993; 1998; 1999; CHIRICA & BORZIAK, 1996). Therefore many of the data have to be reanalysed in the context of the revival of archaeological research in this part of Europe.

The Upper Palaeolithic of south-western Romania, as it is understood today, is represented by cultural evidence at the border of the great Central European techno-complex.

Final remarks

The oldest modern human of Europe is very young compared with the modern humans found in many other regions of the world. For example, early modern humans are known from *c*.100 ka BP in Ethiopia (Day & Stringer, 1982; Fleagle, *et al*., 2003), and Israel (Holliday, 2000; Kaufman, 2002). The currently dated European humans are younger: 34 ka BP in the Czech Republic, 32–33 ka BP in Germany and France, 31 ka BP in Britain, and the Muierii and Cioclovina remains from Romania already mentioned (Svoboda *et al*., 2002; Conrad & Bolus, 2003; Dujardin, 2003; Stringer, 1990).

The discovery of the human bones in Peştera cu Oase, next to or associated with the deposits of mammal bones, raises the problem of their origin. The cave could have been used as a place for burials, or it could have been a natural trap for the animals, or they could have been deposited and rearranged by water, especially during the last glacial period. The random positioning of some of the human bones sustains the last hypothesis, but the position of the mandible inside the cave not associated with the animal bones remains unexplained. Moreover, there are some cave bear skulls and thighbones with deliberate positioning, as for example on the top of some rock (Fig. 4) or in niches, very similar with those found in Grotte de Chauvet (France). Other supposed arrangements are covered by a thin layer of calcite and systematic studies need to be undertaken.

Fig. 4. A thighbone (arrow) on the top of a rock inside the cave.
Un fémur (voir la flèche) sur un bloc de la grotte.
(photo: L. Sarcina)

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received: 15 November 2003
revised: 12 December 2003
accepted: 12 December 2003