Journal of Human Evolution 56 (2009) 340–354

Contents lists available at ScienceDirect

Journal of Human Evolution

journal homepage: www.elsevier.com/locate/jhevol

Funerary practices of the Iberomaurusian population of Taforalt (Tafoughalt; Morocco, 11–12,000 BP): new hypotheses based on a grave by grave skeletal inventory and evidence of deliberate human modification of the remains

Valentina Mariotti [a,*], Benedetta Bonfiglioli [a], Fiiorenzo Facchini [a], Silvana Condemi [b,1], Maria Giovanna Belcastro [a]

[a] Laboratorio di Bioarcheologia ed Osteologia Forense - Antropologia, Dipartimento di Biologia Evoluzionistica Sperimentale, Università di Bologna, Via Selmi 3, 40126 Bologna, Italy
[b] UMR 6578 – Anthropologie biologique et culturelle, CNRS/Université de la Méditerranée/EFS, Faculté de Médecine – Secteur Nord, 51 Boulevard Pierre Dramard, 13916 Marseille Cedex 15, France

ARTICLE INFO

Article history:
Received 10 March 2008
Accepted 15 January 2009

Keywords:
Taforalt
Funerary practices
Ochre
Epipalaeolithic
Iberomaurusian
Cutmarks

ABSTRACT

The Iberomaurusian necropolis of Taforalt (Morocco, 11–12,000 BP), excavated by Roche in the 1950s, contains 28 multiple graves. The osteological collection has been the focus of many anthropological studies and has been used as a comparative sample for other paleoanthropological investigations. The presence of particular sepulchral structures and the use of ochre testify to complex funerary practices, which have not been adequately investigated thus far. Unfortunately, neither the excavation records nor detailed descriptions of the graves are available today. The aim of this study is to investigate the funerary practices of the population based on examination of the human osteological collection (Institut de Paléontologie Humaine, Paris). The bones of adolescents and adults were inventoried to analyse the contents of each grave and the distribution of intentionally modified specimens (ochre-dyeing, cutmarks). The minimum number of individuals was also calculated. The results suggest that the necropolis is a group of primary and secondary burials, even within the same "grave," of about 40 adolescents and adults. The previous estimate of 86 individuals by Ferembach in 1962 appears to be an overestimation. The presence of red ochre and cutmarks on some bones suggests various rituals, which denote a certain profundity of thinking about life and death. It is possible that the Taforalt cave was a special, perhaps sacred, place where particular rituals were celebrated or where more occasional social or religious events took place. Comparison with other Iberomaurusian and Capsian sites provides evidence of cultural continuity in North Africa for a long period of time. The present study demonstrates that re-examination of human osteological collections deriving from ancient excavations, for which a lack of adequate documentation of the context of the specimens is fairly common, can also provide information about aspects like funerary practices, which are usually investigated on the basis of other sources.

Introduction

The Taforalt (Tafoughalt) human skeletal collection, housed at the Institut de Paléontologie Humaine (IPH) in Paris, derives from excavations of the Taforalt Cave carried out in the 1950s by J. Roche. The cave is about 55 km NW of Oujda (eastern Morocco) at an altitude of 750 m in the mountainous massif of Beni Snassen (Roche, 1953a, 1963, 1976). The cave is oriented east to west and opens to the east. Its shape is almost trapezoidal, with a length of ca. 31 m and a width of 30 m at the opening but narrowing toward the bottom. The cave is situated at the confluence of two important natural communication routes: the coastal plain in an east to west direction and the Moulaya Valley in a north to south direction (Roche, 1953a, 1963, 1976). The cave was discovered in 1908 by Dr. Pinchon, but the first excavations were performed by Ruhlmann in the years 1944, 1945, and 1947. From 1951 to 1955, Roche carried out a systematic excavation of the cave. Further investigations were conducted from 1969 to 1979 to acquire detailed information about the archaeological and geological aspects (Roche, 1976; Raynal, 1979–1980). Since 2003, the excavations have been continued by a team of researchers from the INSAP (Institut National des Sciences de l'Archeologie et du Patrimoine de Rabat), in collaboration with

* Corresponding author.
E-mail addresses: valentina.mariotti@unibo.it (V. Mariotti), silvana.condemi@univmed.fr (S. Condemi).

0047-2484/$ – see front matter © 2009 Elsevier Ltd. All rights reserved.
doi:10.1016/j.jhevol.2009.01.001

the University of Oxford and the Mohamed I University. In 2005, about 10 new graves were discovered in the cave (Aouraghe, pers. comm.). These are not considered in the present study.

Archaeological evidence from the cave shows the presence of Mousterian, Aterian, and Iberomaurusian industries (Roche, 1953a; Bouzouggar et al., 2007). The human remains belong to the Iberomaurusian phase and originate from two necropoles (28 multiple graves, Ferembach, 1962) situated at the bottom of the cave (Roche, 1953a, b, 1963, 1976). The Iberomaurusian occupation (Epipalaeolithic levels) covers a time span of about 11,000 years (21,900 ± 400 BP-10,800 ± 400 BP ^{14}C on charcoal; Roche, 1976). However, based on new dating on cave sequences at Taforalt and other sites, Bouzouggar et al. (2008) think that the earliest Iberomaurusian is unlikely to date much before about 18,000 BP. Radiocarbon dating of charcoal from the upper level of the necropolis yielded an age of 11,900 ± 240 years (Roche, 1959, 1976). Unfortunately, there is no direct dating on the human bones, but according to Roche (1959), the most recent burials could be contemporary with the archaeological level dated to 10,800 ± 400 years (^{14}C).

The term Iberomaurusian was coined in 1909 by Pallary to identify a stone and bone tool industry, including utensils, jewellery, and objects for the preparation of dyes, found in the southern Iberian Peninsula and North Africa (Roche, 1963), although the relationship between the industries of the two continents has largely been refuted by later studies. Nevertheless, the term Iberomaurusian is widely used to indicate a series of blade-based industries distributed in the Maghreb, mainly in the coastal areas, including cultures very distant in space and time (Roche, 1963; Ferembach, 1986a; Barton et al., 2005). Two sites attributed to an eastern variation of Iberomaurusian have been identified in Cyrenaica (Libya; Lubell, 2001). The presence of this culture and its practitioners in Nubia (Egypt and Sudan) has been proposed by some authors but is the subject of debate (Ferembach, 1985, 1986a; Dutour, 1988; Groves and Thorne, 1999; Irish, 2000). Iberomaurusian is also called Oranian or Mouillian, from La Mouillah (Algeria), the type site of the industry (Balout, 1954; Briggs, 1955; Barton et al., 2005; Bouzouggar et al., 2008). Although other terms have been proposed to replace "Iberomaurusian" (Epipalaeolithic: Roche, 1963; late Upper Palaeolithic: Barton et al., 2005), the name remains in widespread use to indicate both the type of industry and the people who created it (Irish, 2000).

The anthropological study of the human remains from Taforalt was entrusted to H. Vallois and then D. Ferembach, who published the first results in 1959 (Ferembach, 1959). The definitive study, with the contribution of J. Dastugue for palaeopathological conditions and M.-J. Poitrat-Targowla for dental alterations, was published as a monograph in 1962 (Ferembach et al., 1962). Throughout the years, the Taforalt collection has been the focus of many anthropological studies (Dastugue, 1958a, b, 1959a, b; Chopineaux, 1974; Zouak, 1991; Szwebel-Chikli, 1993; Riond, 2000; Balzeau and Badawi-Fayad, 2005; etc.). Indeed, it has been fundamental for reconstruction of the peopling of North Africa, for studies on the origin of modern humans, and as a comparative sample for other paleoanthropological investigations (Ferembach, 1962, 1985, 1986a, b; Bräuer, 1984, 1992; Dutour, 1988; Bräuer and Rimbach, 1990; Bermudez de Castro, 1991; Lahr, 1994; Lahr and Wright, 1996; Groves and Thorne, 1999; Irish, 2000; Kéfi et al., 2005; Voisin, 2006; etc.), as well as for reconstruction of the life-style of the Iberomaurusians (Ferembach et al., 1962; Ferembach, 1986a; Mariotti et al., 2002, 2004a; Belcastro et al., 2003; Bonfiglioli et al., 2004). Its extraordinary importance is due to several factors:

1) Numerical size of the sample: about 86 individuals according to Ferembach (1962);
2) State of preservation: the bones are generally well preserved, both in terms of completeness of single bones and condition of the bone surface, very important for the assessment of features such as enthesis development, some pathological signs (subperiosteal reactions, etc.), and traces of manipulation of the cadaver (cutmarks, etc.);
3) Chronological position in the transition from the late Pleistocene to early Holocene;
4) Signs of cultural practices, including intentional evulsion of one or both upper central incisors practised before or during adolescence (Briggs, 1955; Ferembach, 1962, 1986a), cranial trephination (Dastugue, 1959a, 1962), red ochre use (Roche, 1963), and the treatment of corpses (Merriman, 2003; Belcastro et al., 2006a, b).
5) Burial context: the skeletons/bones were found in graves organised in different manners, attesting to the presence of funerary rituals with evident symbolic importance (association with mouflon horns or skulls, ochre use, etc.; Roche, 1953a, b, 1963).

Since 1999, our research group has conducted a complete anthropological analysis of the Taforalt human skeletal remains to investigate the cultural, economic, and social aspects of the population. The first investigations dealt with dento-alveolar lesions and skeletal markers of activity (Bonfiglioli et al., 2004; Mariotti et al., 2004a), characters for which we have standardised scoring methods (Mariotti, 1998; Bonfiglioli, 2002; Belcastro et al., 2004; Mariotti et al., 2004b, 2007) already used for the study of prehistoric, protohistoric, and historical collections (Belcastro and Mariotti, 2000; Belcastro et al., 2001, 2006c; Mariotti, 2001; Mariotti and Belcastro, 2001). In these first studies, we became aware of a fundamental gap in the information available in the literature: the unavailability of excavation details specifically regarding the human remains. Despite the detailed stratigraphic and archaeological information (Roche, 1953a, 1963, 1976), there were only a few mentions of the graves (cf. Roche, 1953a, b, 1963). Roche (pers. comm.) left the "cahier de fouille" with the Moroccan authorities and it can no longer be found. Since we are dealing with multiple graves and we do not know the position of the bones when they were excavated, it is often impossible to recognise individuals. This poses two problems. The first concerns the interpretation of the bio-archaeological data, since all the features (skeletal markers of activity, pathological signs, etc.) should be interpreted in the light of the overall individual condition, especially the age and sex. Attribution of these two biological parameters to single postcranial bones not associated with cranial or pelvic remains is rather uncertain. The second problem concerns the study of funerary practices. This subject is very important since we identified some incongruities in the grave numbers recorded on the single bones (in Roman numerals). In particular, some bones probably belonging to the same individual have different grave numbers (also noticed by Ferembach, 1962). This prompted us to conduct a detailed analysis of the contents of each grave, deducible from the number reported on the specimens and partly traceable in the inventory published by Ferembach in the 1962 monograph. The analysis of the single bones also revealed the presence of characters related to funerary practices that had never been studied systematically (ochre, cutmarks). Therefore, even though the use of Roman numerals could have led to errors, it seemed reasonable to infer that parts of the same individual were actually in different graves as a result of funerary practices, which were probably diversified and consisted of complex rituals.

The aim of the present study was to test this hypothesis and to record all possible evidence of funerary practices at Taforalt using an approach based on analysis of the complete inventory of bones