LOUISE HUMPHREY · ALISON FREYNE · ABDELJALIL BOUZOUGGAR

MIND THE GAP: FUNERARY BEHAVIOUR DURING THE IBEROMAURUSIAN

Abstract

Archaeological sites in Morocco and Algeria preserve a rich record of mortuary behaviour. There is a marked proliferation of visible funerary activity in the Late Pleistocene associated with the Iberomaurusian (Later Stone Age). This includes evidence of funerary caching, deliberate burial, evidence for processing of the human body including removal of soft tissues and application of ochre, curation and secondary burial, and incorporation of a range of funerary items. Among the most impressive of these burial objects are horns cores from Barbary sheep, bovids and gazelles. Funerary contexts vary in scale from sites with just one or two individuals to sites with dozens of burials of all age groups spanning several generations or longer. These larger sites can be envisaged as places that have come to be associated with the dead. Despite a large number of archaeological investigations over more than a century, there is at present an interval of around 8,000 years between the onset of the Iberomaurusian at ~25,000 cal BP and the earliest dated human burials. It remains to be seen whether this "gap" is real and whether it reflects a genuine transition in the treatment of the dead in the later part of the Iberomaurusian.

Keywords

Later Stone Age, Morocco, Algeria, burial, funerary caching, post-mortem manipulation

INTRODUCTION

The Iberomaurusian is a Later Stone Age (LSA) industry represented at archaeological sites across North West Africa dating between ~ 25,000 cal BP and ~ 12,600 ka cal BP (Hogue and Barton, 2016). The period is associated with a proliferation of human mortuary contexts, revealing complex and varied patterns of funerary behaviour, and culminating in the appearance of the earliest cemeteries in Africa (Humphrey et al., 2012). Grotte des Pigeons at Taforalt in eastern Morocco is of particular importance due to the extensive archaeological investigations undertaken during the 1950s and more recently by a team from INSAP in Morocco and institutions from the UK, France, Germany and Spain. Elaine Turner (**Fig. 1**) has been part of this project team from the onset and has undertaken the massive task of recording and interpreting the large mammalian fauna from the Iberomaurusian and earlier archaeological contexts across the site (Turner, 2019). The faunal remains associated with a series of intersecting burials located in a small alcove at the back of the cave (Sector 10) were of particular interest, and included horn cores, jawbones and other objects that had been carefully placed alongside the bodies of the deceased or surrounding and overlying their graves.

In this paper, we review Iberomaurusian funerary activity at sites in North West Africa, starting at the Atlantic coast in Morocco and travelling east through Morocco and into Algeria (**Fig. 2**). Only a few of the burials attributed to the Iberomaurusian are from securely dated contexts, and only one site has burials that are directly dated by radiocarbon dates on human bone (Humphrey et al., 2014). Some burials and isolated bones and teeth have been attributed to the Iberomaurusian by association with diagnostic lithic assemblages. Dental and skeletal characteristics have also been used as supportive evidence including robust skeletal features or tooth evulsion, a cultural modification involving deliberate removal of teeth from one

In: S. Gaudzinski-Windheuser · O. Jöris (Eds.), The Beef behind all Possible Pasts. The Tandem-*Festschrift* in Honour of Elaine Turner and Martin Street. Monographien des RGZM 157 (Mainz 2021). DOI: 10.11588/propylaeum.950.c12573

Fig. 1 Elaine Turner excavating one of the Ammotragus horn cores that surrounded the burial Individual 5 at Sector 10 at Grotte des Pigeons, Taforalt. – (Photo: Louise Humphrey).

or both jaws during the lifetime of an individual. Evulsion of one or typically both maxillary central incisors is considered characteristic but not diagnostic of the Iberomaurusian period (De Groote and Humphrey, 2016). Following evulsion, the alveolar bone that surrounded the lost teeth gradually remodels to form a ridge. The mandibular anterior teeth often form a distinctive arch caused by uneven wear of the anterior dentition and continued emergence of the lower incisors (Humphrey and Bocaege, 2008). Although this type of dental modification continued into subsequent cultural phases in the Maghreb, the nature of the intervention diversified, and often involved a larger number of incisors from both upper and lower jaws. In some cases, direct dating of human bone may be the only way to establish the age of the burials with any certainty, but this is not always possible due to the poor physical condition of the bones. In this review, we have omitted several sites where the dating is disputed and others, such as Taza and Tamar Hat in Algeria, which have yielded only isolated bones or teeth.

WESTERN MOROCCO

Iberomaurusian funerary deposits have been uncovered during excavations of a series of caves and rock shelters along the Atlantic Coast in western Morocco. Excavations at El Harhoura 2 revealed a well-preserved skeleton of a young adult male (H3) in layer 2 (Oujaa and Lacombe, 2012). The body appeared to have been tucked into an existing empty space between boulders with no evidence for preparation of a pit

or any other structure to accommodate the body, so strictly speaking this is an example of funerary caching rather than a burial (Pettitt, 2011). The body was placed on an east-west orientation with the head towards the west, but given the advantageous use of an existing crevice, this orientation may have been incidental. The body rested on the right side with the head tilted to the side. The legs were flexed at the knees and slightly elevated compared to the rest of the body, resting on a rocky surface with the feet wedged against a small heap of rocks. The skeleton remained in anatomical articulation indicating decomposition in a filled space. The upper right central incisor was completely missing but the upper left central incisor had broken at the base of the crown leaving the root in the jaw (Oujaa and Lacombe, 2012). The skeleton has not been directly dated but is derived from a level assigned to the Iberomaurusian (Stoetzel et al., 2014). Layer 2 has also yielded two isolated teeth and several isolated hand and foot bones (Oujaa and Lacombe, 2012).

A few kilometres to the north at Dar-es-Soltane I, bones representing an adult male and a juvenile with an estimated age of 10-12 years were recovered from beneath a large rock that separated layer C from the overlying layer B. The adult finds comprised a fragmentary cranial vault with three finger bones of the left hand cemented against the left side of the cranium, three teeth, vertebral and rib fragments, and several ankle and foot bones. The juvenile was represented by parts of the cranial vault and several teeth. The two individuals were attributed to the Iberomaurusian based on their robusticity and presence in level C1 (Vallois, 1951).

Excavations at the neighbouring site of Dar-es-Soltane II yielded two partial skeletons and a fragmentary mandible, found in couche 3 in 1971 (Debénath, 1972, 2000). The more complete skeleton, of a young female, was found in a highly flexed position on the left side, with the left side of the face resting on the right hand. The body had been placed on a slab of rock and covered with smaller stones. No funerary objects were found in direct association with the burial but a large stone with a concave surface showing traces of red ochre was found close to the head. Remains of a second individual found nearby were too poorly preserved and incomplete to infer the original body position, and it is possible that the skeleton had been pushed aside to make space for the subsequent deposition (Debénath, 2000). Couche 3 has been dated to 13.4 ± 0.7 ka (OSL4-X2402) (Schwenninger et al., 2010). The adult female had experienced loss of both maxillary central incisors and the left maxillary lateral incisor during life with complete remodelling of the alveolar bone, and this is likely to have been caused by tooth evulsion.

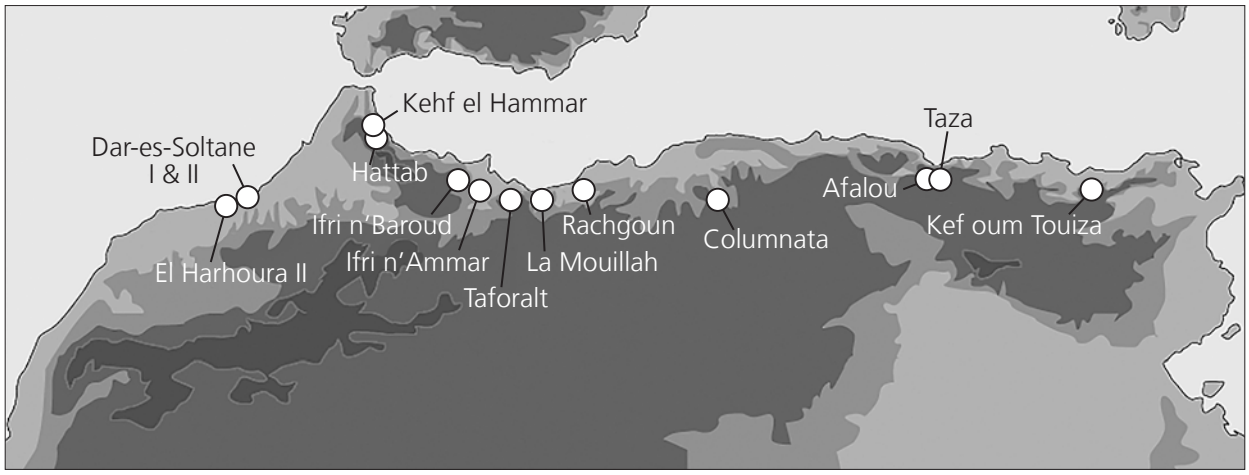

Fig. 2 Map of key sites with Iberomaurusian funerary contexts.

NORTH AND WEST MOROCCO

Moving away from the Atlantic coast, a remarkably complete skeleton of a young adult male was found at Hattab II Cave in northwestern Morocco. The body was placed in a flexed position on its left side with an approximately north-south orientation in a well-defined burial pit adjacent to the rear wall of the cave (Barton et al., 2008). The burial appeared undisturbed with most of the skeleton in anatomical articulation indicating that the body was covered soon after death, presumably by backfilling the burial pit. The burial incorporated several decorative or functional objects considered to be funerary items. The most culturally diagnostic of these was a small bladelet core of Iberomaurusian type found resting on the right femur. A marine shell located within the grave fill must have been transported from the coast, at least 10 km away. A vertebra of a large mammal was found in direct contact with the thoracic region of the skeleton. Two bone points were located within the grave fill including one found adjacent to the left ribcage that might have been used to secure some form of covering. Finally, a gazelle horn core was located directly above the skeleton close to the left knee. The burial was dated indirectly at 8,900 ± 1,100 years BP on the basis of a thermoluminescence age determination on a burnt lithic artefact from the burial fill (Barton et al., 2008). This date is unexpectedly recent but the inferred pattern of teeth evulsion is consistent with an Iberomaurusian attribution. Both upper central incisors were absent and the alveolar bone at the front of the maxilla had remodelled to form a sharp ridge, consistent with tooth evulsion some years prior to death. The mandibular teeth exhibited a pattern of differential wear and emergence that is characteristic of individuals who had experienced evulsion of the upper central incisors (Humphrey and Bocaege, 2008). Isolated bones and teeth found elsewhere at the site may indicate the presence of further disturbed burials.

Several isolated human bone fragments were recovered during excavations at the nearby cave site of Kehf el Hammar in 2002 (Barton et al., 2005). The finds represent at least five individuals, including an infant, a child aged about 7 years, an adolescent, a young adult and an older adult. The bones have not been dated either directly or by association but the young adult is represented by a fragment of the right side of the maxilla showing evulsion of the upper central incisor, which is consistent with an Iberomaurusian attribution.

Ifri n'Ammar is a rock shelter in north eastern Morocco with a deep sequence of archaeological deposits. The site has yielded five Iberomaurusian burials, including four infants and an adult male (Mikdad et al., 2002). Radiocarbon dates on charcoal from the infant burials range from 12,290 ± 133 BP to 11,009 ± 144 BP (Moser, 2003; Linstädter et al., 2012). The infants were buried side by side near the left side wall of the shelter. Three of them were arranged with the head orientated to the north, suggesting deliberate placement of the body and each of these burials was marked by a block of stone placed directly above the body but separated by a few centimetres of sediment (Mikdad et al., 2002). The unexpected arrangement of the bones of the fourth infant suggested that the body may have been decapitated and partially dismembered prior to burial (Ben-Ncer, 2004a). A photograph of the adult burial at Ifri n'Ammar reveals that the body was placed in a seated position with the lower limbs flexed and parted at the knees and the feet resting at the base of the burial close to the pelvis. The upper limbs were folded across the body with the wrists meeting just in front of the hips (Eiwanger, 2006). The sternum had slipped downwards to rest against the lower vertebrae. The cranium was found lying on its side immediately above the pelvis and right forearm and may have fallen into this position during decomposition. The position of the cranium and sternum indicate the presence of an empty space during decomposition and suggest that the seated body may have been covered, leaving a temporary void between the upper body and parted lower limbs.

The nearby rock shelter of Ifri n'Baroud yielded a single Iberomaurusian burial of an adult female (Ben-Ncer, 2004b). The body was placed in a seated position in an oval pit with a diameter of about 60 cm. The legs were flexed in front of the body, tilted slightly towards the right with the knees uppermost. The lower left

arm and hand rested alongside the body at the base of the pit. The close anatomical articulation of the bones suggests that the body decomposed in a gradually filling space. The mandible was found in a disturbed context at a higher level and several bones were absent including the cranium, all of the right arm bones and the left humerus. This may reflect intentional or unintentional disturbance of the burial during subsequent human activity at the site or burrowing (Ben-Ncer 2004b). Charcoal located close to the burial has yielded radiocarbon dates between 9,677 ± 60 BP and 12,198 ± 65 BP (Ben-Ncer, 2004b; Görsdorf and Eiwanger, 1999).

Grotte des Pigeons at Taforalt is located in North East Morocco, close to the border with Algeria (Barton et al., 2019). Archaeological investigations between 1952 and 1954 revealed a remarkable assemblage of burials in two areas towards the back of the cave designated Necropolis I and Necropolis II (Roche, 1963). Recent study of the osteological assemblage (Belcastro et al., 2010; Mariotti et al., 2009; Aoudia Chouakri, 2013) and photographs and plans of some of the burials (Mariotti et al., 2014) has revealed further insights into funerary behaviour at the site. Many of the burials excavated by Roche contain multiple individuals (Ferembach et al., 1962) and at least one (Grave XV) comprises of a large collection of non-articulated bones in secondary position (Mariotti et al., 2014). Further excavations between 2005 and 2016 revealed the partially articulated skeletons and an isolated skull belonging to eight adults and six infants representing a succession of individual primary burials (Humphrey et al., 2019a). All of the adults apart from the isolated skull (Individual 10) had undergone ablation of the upper central incisors. The burials were tightly packed in the deepest recess of the cave (referred to as Sector 10), and are situated below or adjacent to the burials excavated in the 1950s. Six of the burials in Sector 10 have been directly dated to between 12,485 ± 80 BP (OxA-16689) and 12,255 ± 50 BP (OxA-23779) suggesting that they took place over several generations (Humphrey et al., 2014).

Where articulations have been preserved enough to identify body position, the legs are always flexed, usually tightly at the knee, and ranging from loosely flexed at the hips to tightly flexed against the torso. The bodies were placed in a seated or reclining position, or on their side. Bodies may have been wrapped or tied to maintain a seated position. This may have been for practical purposes, as the amount of space to manoeuvre the body within the burial area would have been limited. Despite this the bodies were placed with care, including those of infants. In most cases individuals were buried facing broadly towards the entrance of the cave, and hence facing towards those conducting the burial. The degree of anatomical articulation indicated that the bodies were covered by sediment during decomposition, but some settling occurred within the burials. In several seated burials the skull, usually with two or three cervical vertebrae still in articulation, had collapsed forwards or fallen to the base of the grave due to a weakness of the neck during decomposition, suggesting an open space in front of the body.

Two features appear to differentiate Taforalt from other Iberomaurusian funerary contexts. One of these relates to the treatment of the body after death, which includes defleshing, dismemberment, and direct application of ochre to bones or bone fragments. Grave XII is particularly complex with extensive cut-marks on an adult and two children suggesting defleshing and possible dismemberment, and unhealed depressed cranial fractures on an adult and child suggesting perimortem violence (Belcastro et al., 2010). Although incontrovertible, the evidence for post-mortem manipulation and secondary burial is sporadic and so far only seen amongst burials closer to the cave opening (Necropolis I).

The burials at Sector 10 are also remarkable for the range and diversity of associated fauna and other objects. Many of the burials were associated with horn cores, placed either alongside the body, around the edges of the burial pit or directly overlying the body or cover stone (**Fig. 3**). At least two of the graves excavated by Roche (Grave I and IV) and one in Sector 10 (Individual 5) were overlain by an arrangement of Barbary sheep horn cores surrounding or held in place by a large stone (Roche, 1953a, 1953b; Turner, 2019).

Horn cores from a large bovid were found in association with the burials of Individuals 1 and 13 (Humphrey et al., 2012; Turner, 2019) and burial XX from Necropolis I was, apparently uniquely, overlaid by an antelope skull with horn cores (Mariotti et al., 2014). Animal jaws and teeth were recorded in several burials including a fox mandible found alongside the left foot and another canid jaw by the pelvis of Individual 14 and horse teeth associated with Individuals 1 and 12. Other burial items include marine shells (Freyne, 2019), several species of large bird (Cooper, 2019), bone tools (Desmond et al., 2018) and ochre stained grinding tools (Humphrey et al., 2019a).

ALGERIA

Two exceptionally important sites in Algeria have yielded human osteological assemblages representing dozens of individuals. Excavations at Columnata carried out between 1938 and 1959 revealed a series of burials from the Iberomaurusian, Columnatian and Neolithic, incorporating partial skeletons and isolated skeletal elements from numerous adults and subadults (Cadenet, 1957; Maître, 1965; Chamla, 1970). Nine of the burials, incorporating 13 individuals, were considered to be Iberomaurusian (Maître, 1965). However, the stratigraphy of the site is unusual and the burials have not been dated, and the attribution of burials to a particular period is now considered insecure (Aoudia Chouakri, 2013). It is notable that one individual previously considered to be Iberomaurusian (3-VI-1938: H1/a) had undergone evulsion of all eight incisors. This pattern of tooth evulsion is not otherwise documented during the Iberomaurusian and is more typical of later periods (Humphrey and Bocaege, 2008).

Excavations at Afalou Bou Rhummel in Algeria between 1927 and 1929 revealed human bones in two different stratigraphic horizons (Arambourg et al., 1934). A substantial deposit of human bones representing nearly 50 individuals, spread over an area of about 34 m × 4 m and reaching a thickness of up to 75 cm was found at a depth of about 3 m (Arambourg et al., 1934). Only six of the skeletons were found in anatomical association, and some of those were incomplete due to disturbance or truncation by subsequent depositions or other agents. Two of the adults lay on their backs with their lower limbs folded against the chest and one of these appears to have been clutching the body of a child, pointing towards a purposeful arrangement of the bodies. No burial items were identified. Arambourg discussed three possible explanations for the assemblage but none of these can fully account for the distribution and representation of skeletal elements. The first suggestion, that the bodies had been lowered or dropped onto the cave floor through an opening in the roof of the cave (described as a chimney from the shelter above), is unlikely because the closely articulated position of some of the bodies demonstrates that they were covered by sediment prior to decomposition. The second suggestion was that some of the skeletons were secondarily deposited in the cave following partial or complete decomposition elsewhere, and this may account for the under representation of post-cranial bones. The third suggestion, that the bodies were deposited at the site following a massacre is perhaps least likely as it does not account for the varied extent of anatomical articulation or uneven representation of bones. A more plausible explanation is that the deposit accumulated through a succession of closely spaced burials, with earlier remains truncated or pushed aside to make space for later burials. More than 2 m below the main assemblage, a complete adult male skeleton (H28) was found in an extended position with the right hand resting across the pelvis. A lump of crushed iron oxide was found on top of the cranium, together with a piece of polished bone. The fragmentary cranium of a child (H16) was found close to the feet but it is unclear whether this association was deliberate (Arambourg et al., 1934).

Fig. 3 Horn cores associated with burials in Sector 10 at Grotte des Pigeons, Taforalt. **a** *Ammotragus* horn core alongside the articulated knee of Individual 14; **b** Large bovid horn core alongside the crania of Individuals 13 and 14. – (a photo: Louise Humphrey; b photo: Paul Berridge).

Subsequent excavations at Afalou revealed a further assemblage of eight partially articulated human bones in a small niche on the southern wall of the rock shelter (Hachi, 1996, 2006). The bones closest to the front of the alcove were disordered and lacking anatomical associations, but at least four of the skeletons retained some anatomical connections between the vertebrae and ribs, revealing that the bodies had been deliberately placed on their back or side in a highly contracted position. These burials have now been assigned to layer IV, which is dated between 13,120 ± 370 BP (Alger 0008) and 12,020 ± 170 BP (Gif 6532) (Hachi, 1996, 2006). At a much deeper level, in layer X, two human skeletons (HIX and HX) and the skeleton of a macaque were found close to the south wall of the rock shelter (Hachi, 2006). The less complete skeleton (HIX) was represented by parts of the spine, ribs and pelvis and the right upper arm and was buried lying on the back. The second skeleton (HX) was almost complete and separated from the HIX by a limestone slab. The body had been placed in an outstretched position on the left side with the left hand in front of the pelvis. The right arm was tightly flexed with the right hand close to the chin and holding a bone knife. The body had been placed on two large grindstones with traces of red ochre, one close to the pelvis and the other in the shoulder area. The burials from layer X (Hachi, 2006) and the double burial from the first phase of excavations (Arambourg et al., 1934) have not been directly dated but are likely to be the earliest human burials known for the Iberomaurusian (Hachi, 2006; Aoudia Chouakri, 2013).

Rachgoun is an open-air marine shell midden in Algeria, situated about 800 m from the current shoreline. The partial skeletons of several adults were found at Rachgoun between 1953 and 1966 (Camps, 1966). Many of the human bones were uncovered opportunistically during agricultural and construction work. Details of funerary context are limited and it is uncertain how many individuals are represented. Camps recorded parts of the H1 skeleton *in situ* during a visit to the site in 1954 and inferred that the body had been placed on the side in a flexed position. There was an accumulation of non-burnt stones approximately 70 cm thick and 1.5 m long directly above the space occupied by the H1 skeleton. During the same visit, Camps observed an assemblage of long bone fragments with traces of ochre on the proximal left femur, particularly on the greater trochanter. Camps inferred that the body had rested on the right side and was covered with significant quantities of ochre, which adhered to the more prominent and uppermost parts of the skeleton. Camps revisited the site in 1964 and conducted a small-scale excavation of the remaining parts of the H4 skeleton that had not been disturbed and damaged by previous works at the site. The body had been placed lying on the back with the left arm outstretched alongside the body and parallel to the vertebral column. The orientation of the proximal part of one femur implied that the leg had been flexed with knee upwards. Several months later another partial skeleton was found, represented by a mandible and a femur and tibia in anatomical connection with the leg flexed and knee pointing upwards, suggesting a similar body position to H4 (Camps, 1966). No associated items were reported for any of the burials and they have not been dated. A sparse microlith industry recovered at the site was reported as similar to the Iberomaurusian industry from the upper level at Taforalt (Camps, 1966). Three maxillae (H1, H2 and H4) exhibited evulsion of the upper central incisors, with one adult male (H3) also showing evulsion of both upper central and the upper right lateral incisor. Three mandibles recovered at the site including those of H1 and H4 lacked tooth evulsion (Camps, 1966). Individuals H1, H2, and H3 were reported as skeletally robust and resembling individuals from other Iberomaurusian sites, whereas the H4, a female, was gracile and considered to be more typical of skeletons from later sites in the region (Chamla, 1966).

The site of La Mouillah in Algeria encompasses three small rock shelters, less than 5 m deep. Human bones were recovered from at least two of these shelters during excavations by Barbin between 1908 and 1910 (Balout, 1954; Hachi, 2006). The rock shelters appear to have been reserved for funerary purposes with most other archaeological materials at the site recovered from deposits in front of the shelters (Hachi, 2006). In one of shelters human bones representing an unspecified number of individuals were found on a layer

of ashes, snail shells and flat stones. Three other individuals were recovered from a smaller shelter. These skeletons were almost complete and found in anatomical connection with the bodies extended to the knee and the legs bent. Several flat, heated stones had been placed on the bodies, in the lumbar, abdominal or chest regions. All three individuals had been buried with an east-west orientation, with the heads to the west. One of the shelters appeared to have been sealed by large rocks (Hachi, 2006). Early reports indicate that fragmentary remains of at least 12-13 adults and three juveniles were recovered (Balout, 1954). More recently Aoudia Choukari (2013) has reevaluated the assemblage and identified at least seven immature individuals, including three foetuses, two infants and two children. The human bones have not been dated but the lithic industry and fauna from deposits in front of the rock shelters are consistent with the Iberomaurusian (Balout, 1954). Many of the adults exhibited evulsion of the upper incisors, typically the upper centrals, consistent with an Iberomaurusian attribution (Marchand, 1936).

At Kef-oum-Touiza a burial of a young adult male was discovered opportunistically in 1938 alongside a road cutting at the base of a sandstone cliff. The body was placed in a crouched position with the legs tightly flexed against the trunk and the hands crossed on the legs (Balout and Briggs, 1949). No ochre or burial items were reported. The skeleton has not been dated but the relatively sparse lithic assemblage collected at the site was consistent with the Iberomaurusian. Unusually for this period, the maxilla appeared to lack tooth evulsion, but this may reflect the unusual natural configuration of the anterior dentition (Humphrey and Bocaege, 2008). The maxilla had both incisors present on the left side but only one double rooted and exceptionally broad tooth on the right side. This may be a fused central and lateral incisor, giving the appearance of a single tooth crown, or an exceptionally wide single incisor with two roots.

SUMMARY

The sites described in this review demonstrate a diversity of Iberomaurusian funerary contexts, but some consistencies are apparent. The majority of Iberomaurusian funerary deposits have been found in caves and rock shelters or, in the case of Kef-oum-Touiza, at the base of a cliff. It is unclear whether this is an archaeological bias or genuinely reflects the preferences and behaviour of the Iberomaurusians, but it is worth noting that the only open-air burial site reported here (Rachgoun) was discovered during construction work. Relatively few authors have reported on the presence or absence of burial pits. Deliberate modification of a site prior to placement of the body, typically by digging a grave, is considered a key factor in identification of a burial, as distinct from funerary caching (Pettitt, 2011). Identification of the boundaries of a burial pit is also important for other reasons. Burials may extend into a lower stratigraphic level and may be inadvertently linked to the wrong cultural horizon if the original boundaries of the burial pit are not detected archaeologically. Recognition of the edges of a burial pit can help demonstrate which objects are securely linked to a burial. This information may be lacking due to the circumstances of discovery (e. g., Rachgoun) or the nature of deposits (e. g., burials in ashy deposits at Taforalt). Research has shown that some bodies were placed in a pre-existing rocky fissure or niche (El Harhoura 2, and some individuals at Afalou) during the Iberomaurusian, but a degree of anatomical connection was maintained in all of these cases indicating that the bodies had been covered prior to decomposition and not simply abandoned.

Many publications report the extent and nature of anatomical articulation, which is relevant for identification of a primary deposition, establishing the position of the body and ascertaining whether a body decomposed in an empty, partially or completely filled space. Most bodies were placed in flexed or contracted position, either on their side or back, or seated or reclining. Some bodies may have been bound or

wrapped to achieve or retain this position. Several primary single burials have been identified (e. g., Hattab, Ifri Baroud), but other sites have yielded relatively complete and articulated skeletons alongside disturbed burials and scattered human bones, suggesting successive depositions in a restricted area with previous remains disturbed or pushed aside to accommodate subsequent burials (Taforalt, Afalou, Dar-es-Soltane II). Deliberate modification and manipulation of the body before or after decomposition appears to be relatively unusual during the Iberomaurusian. The unusual distribution of the skeletal elements of infant IV at Ifri n'Ammar has been interpreted as evidence for decapitation and dismemberment prior to burial (Ben Ncer, 2004a). At Taforalt there is evidence for cut-marks, suggesting defleshing or dismemberment, and direct application of pigments to bones and bone fragments after decomposition (Belcastro et al., 2010), but only a few individuals were treated in this way (Aoudia Choakri, 2013). Interestingly, these behaviours appear to pre-empt the diversity of mortuary treatments afforded to the dead in later periods, particularly during the Capsian.

Most of the sites include the burials or disarticulated remains of more than one individual. The distribution of articulated, partially articulated and disarticulated human bones suggests that many Iberomaurusian funerary contexts represent individual primary burials or a succession of primary burials, in a restricted amount of space, with the implication that these spaces were designated as spaces for the dead that were distinct and apart from the areas designated for the living. The presence of skeletal elements with indisputable evidence for post-mortem manipulation clearly represents a diversification of funerary treatment, which could be interpreted as evidence that selected body parts were returned to a significant location for secondary burial. The shared funerary treatment and spatial proximity of two infant siblings buried at Taforalt further reinforces the sense of importance attached to the place of the burial and reveals that kinship contributed to the patterning of funerary behaviour during the Iberomaurusian (van de Loosdrecht et al., 2018; Humphrey et al., 2019b).

Placement of a stone, grindstone or pile of stones above or adjacent to a burial has been reported at numerous sites including Dar-es-Soltane II, Taforalt, Ifri n'Ammar, La Mouillah, Rachgoun and Afalou. These stones may serve to protect the body from disturbance, identify the location of the burial or commemorate the deceased. Many Iberomaurusian burials are associated with other burial items, both functional and decorative, which must have had a symbolic significance or a personal value to the deceased. Marine shells were included in burials at two sites in Morocco (Taforalt, Hattab II). Horncores were also found in association with the burials at these sites. The diversity of fauna, both mammalian and avian, observed at Taforalt has not been recorded at any other site (Turner, 2019; Cooper, 2019). The use of ochre was noted at Dar-es-Soltane II, Taforalt and Rachgoun. Mineral deposits were found alongside the earliest two burials at Afalou (Hachi, 2006). Bone tools were recorded with burials at Taforalt, Hattab II and Afalou, including the remarkable case of HX at Afalou, buried clutching a bone tool (Hachi, 2006). No other site displays the diversity of burial objects recorded at Taforalt, but it is likely that the prevalence and range of burial items at other sites has been underreported. In some cases, burial objects may have been overlooked due to the circumstances of recovery, and at other sites funerary objects may have been displaced by subsequent burials.

Most of the burials that have been dated belong to the later part of the Iberomaurusian. The infant burials from Ifri n'Ammar are dated between 12,290 ± 133 BP and 11,009 ± 144 BP (Moser, 2003). The burials from Sector 10 at Taforalt are slightly earlier with dates spanning the period 12,485 ± 80 BP (OxA-16689) to 12,255 ± 50 BP (OxA-23779), and it is likely that the burials from Necropolis I closer to the front of the cave are more recent (Humphrey et al., 2019a). At least two sites in Algeria have yielded isolated bones or burials from earlier Iberomaurusian horizons that have been dated indirectly by radiocarbon dates on other materials. An isolated skull of a female with evulsion of the upper central incisors from Taza Cave I in Algeria was found close to the base of a horizon dated between 16,100 ± 1,400 BP and 13,800 ± 30 BP (Meier et al., 2003). The burials from level III (Arambourg, 1934) and level X (Hachi, 2006) at Afalou are also likely

to be earlier than the directly dated burials at Taforalt. There remains at present a significant temporal hiatus between the onset of the Iberomaurusian at ~25,000 cal BP and the earliest well dated burials and it is hoped that further archaeological investigation will fill or explain this gap.

REFERENCES

Aoudia Chouakri, L., 2013. *Pratiques funéraires complexes: réévaluation archéoanthropologique des contextes ibéromaurusiens et capsiens (paléolithique supérieur et épipaléolithique, Afrique du Nord-Ouest)*. PhD Thesis. University of Bordeaux, Bordeaux.

Arambourg, C., Boule, M., Vallois, H.V., Verneau, R., 1934. *Les Grottes Paléolithiques des Beni-Segoual (Algérie)*. Mémoire des Archives de l'Institut de Paléontologie 13. Masson, Paris.

Balout, L., 1954. Les hommes préhistoriques du Maghreb et du Sahara: Inventaire descriptif et critique. *Libyca* 2, 214-424.

Balout, L., Briggs, L.C., 1949. Tête osseuse du Kef-Oum-Touiza. *Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord* 40, 64-70.

Barton, N., Bouzouggar, A., Collcutt, S.N., Humphrey, L. (Eds.), 2019. *Cemeteries and Sedentism in the Later Stone Age of NW Africa: Excavations at Grotte des Pigeons, Taforalt, Morocco*. Monographien des Römisch-Germanischen Zentralmuseums 147. Verlag des Römisch-Germanischen Zentralmuseums, Mainz.

Barton, R.N.E., Bouzouggar, A., Humphrey, L.T., Berridge, P., Collcutt, S.N., Gale, R., Parfitt, S., Parker, A.G., Rhodes, E.J., Schwenninger, J.L., 2008. Human burial evidence from Hattab II Cave (Oued Laou-Tétuoan, Morocco) and the question of continuity in Late Pleistocene-Holocene mortuary practices in Northwest Africa. *Cambridge Archaeological Journal* 18, 195-214.

Barton, R.N.E., Bouzouggar, A., Collcutt, S.N., Gale, R., Higham, T.F., Humphrey, L.T., Parfitt, S., Rhodes, E., Stringer, C.B., Malek, F., 2005. The Late Upper Palaeolithic occupation of the Moroccan northwest Maghreb during the last glacial maximum. *African Archaeological Review* 22, 77-100.

Belcastro, M.G., Condemi, S., Mariotti, V., 2010. Funerary practices of the Iberomaurusian population of Taforalt (Tafoughalt, Morocco, 11-12,000 BP): the case of Grave XII. *Journal of Human Evolution* 58, 522-532.

Ben-Ncer, A., 2004a. L'Ibéromaurusien et la violence… Cas des sites de Taforalt et d'ifri n'Ammar. In: Roksandic, M. (Ed.), *Violent interactions in the Mesolithic: evidence and meaning*. BAR International Series 1237. Archaeopress, Oxford, pp. 47-51.

Ben-Ncer, A., 2004b. Etude de la sépulture ibéromaurusienne d'Ifri n'Baroud (Rif oriental, Maroc). *Antropo* 7, 177-185.

Cadenet, P., 1957. Fouilles à Columnata, campagne 1956-57. La nécropole. *Libyca* 5, 49-81.

Camps, G., 1966. Le gisement de Rachgoun (Oranie). *Libyca* 14, 161-181.

Chamla, M.-C., 1966. Note sur les restes humains (H4) découverts à Rachgoun en février 1964. *Libyca* 14, 182-188.

Chamla, M.-C., 1970. Les hommes épipaléolithiques de Columnata (Algérie occidentale). *Mémoires du centre de recherches anthropologiques préhistoriques et ethnographiques* 15, 5-115.

Cooper, J.H., 2019. The Late Pleistocene avain assemblages from Sectors 8 and 10. In: Barton, N., Bouzouggar, A., Collcutt, S.N., Humphrey, L. (Eds.), 2019. *Cemeteries and Sedentism in the Later Stone Age of NW Africa: Excavations at Grotte des Pigeons, Taforalt, Morocco*. Monographien des Römisch-Germanischen Zentralmuseums 147. Verlag des Römisch-Germanischen Zentralmuseums, Mainz, pp. 313-330.

Debénath, A., 1972. Nouvelles fouilles à Dar-es-Soltane (Champ de tir d'E1 Menzeh) prés de Rabat (Maroc). *Bulletin de la Société préhistorique française* 69, 178-179.

Debénath, A., 2000. Le peuplement préhistorique du Maroc: done nées récentes et problèmes. *L'Anthropologie* 104, 131-145.

De Groote, I., Humphrey, L.T., 2016. Characterizing evulsion in the Later Stone Age Maghreb: Age, sex and effects on mastication. *Quaternary International* 413, 50-61.

Desmond, A., Barton, N., Bouzouggar, A., Douka, K., Fernandez, P., Humphrey, L., Morales, J., Turner, E., Buckley, M., 2018. ZooMS identification of bone tools from the North African Later Stone Age. *Journal of Archaeological Science* 98, 149-157.

Eiwanger, J., 2006. Skelett eines *Homo sapiens* aus Ifri n'Ammar Östliches Rif, Provinz Nador (Marokko). In: Uelsberg, G., Lötters, S. (Eds.), *Roots – Wurzeln der Menschheit*. Katalog zur Ausstellung. Rheinisches Landesmuseum Bonn. Verlag Philipp von Zabern, Mainz, p. 357.

Ferembach, D., Dastugue, J., Poitrat-Targowla, M.J., 1962. *La Nécropole Épipaléolithique de Taforalt (Maroc oriental): Étude des squelettes humains*. Publications du Service des Antiquités du Maroc 18. Edita Casablanca, Rabat.

Freyne, A., 2019. Shell Ornaments. In: Barton, N., Bouzouggar, A., Collcutt, S.N., Humphrey, L. (Eds.), 2019. *Cemeteries and Sedentism in the Later Stone Age of NW Africa: Excavations at Grotte des Pigeons, Taforalt, Morocco*. Monographien des Römisch-Germanischen Zentralmuseums 147. Verlag des Römisch-Germanischen Zentralmuseums, Mainz, pp. 420-428.

Görsdorf, J., Eiwanger, J., 1999. Radiocarbon datings of Late Palaeolithic, Epipalaeolithic and Neolithic sites in Northeastern Morocco. In: *^{14}C et archéologie: 3ème Congrès International = ^{14}C and archaeology; Lyon, 6-10 avril 1998*. Mémoires de la Société préhistorique française 26. Pôle éditorial archéologique de l'Ouest, Rennes, pp. 365-369.

Hachi, S.,1996. L'Ibéromaurusien, découverte des fouilles d'Afalou (Bédjaîa, Algérie). *L'Anthropologie* 100, 55-76.

Hachi, S., 2006. Du comportement symbolique des derniers chasseurs Mechta-Afalou d'Afrique du Nord. *Comptes Rendus Palevol* 5, 429-440.

Hogue, J.T., Barton, R.N.E., 2016. New radiocarbon dates for the earliest Later Stone Age microlithic technology in Northwest Africa. *Quaternary International* 413, 62-75.

Humphrey, L.T., Bocaege, E., 2008. Tooth evulsion in the Maghreb: chronological and geographical patterns. *African Archaeological Review* 25, 109-123.

Humphrey, L.T., Bello, S.M., Turner, E., Bouzouggar, A., Barton, R.N.E., 2012. Iberomaurusian funerary behaviour: Evidence from Grotte des Pigeons, Taforalt, Morocco. *Journal of Human Evolution* 62, 261-273.

Humphrey, L.T., De Groote, I., Morales, J., Barton, R.N.E., Collcutt, S.N., Ramsey, C.B., Bouzouggar, A., 2014. Earliest evidence for caries and exploitation of starchy plant foods in Pleistocene hunter-gatherers from Morocco. *Proceedings of the National Academy of Sciences* 111, 954-959.

Humphrey, L.T., Freyne, A., Berridge, P.J., Berridge, P., 2019a. Human Burial Evidence. In: Barton, N., Bouzouggar, A., Collcutt, S.N., Humphrey, L. (Eds.), 2019. *Cemeteries and Sedentism in the Later Stone Age of NW Africa: Excavations at Grotte des Pigeons, Taforalt, Morocco*. Monographien des Römisch-Germanischen Zentralmuseums 147. Verlag des Römisch-Germanischen Zentralmuseums, Mainz, pp. 443-482.

Humphrey, L.T., Freyne, A., van de Loosdrecht, M., Hogue, J.T., Turner, E., Barton, N., Bouzouggar, A., 2019b. Infant funerary behavior and kinship in Pleistocene hunter-gatherers from Morocco. *Journal of Human Evolution* 135, 102637.

Linstädter, J., Eiwanger, J., Mikdad, A., Weniger, G.-C., 2012. Human occupation of Northwest Africa: A review of Middle Palaeolithic to Epipalaeolithic sites in Morocco. *Quaternary International* 274, 158-174.

Maître, C., 1965. Inventaire des hommes fossiles de Columnata (Tiaret) déposés au CRAPE. *Libyca* 13, 9-26.

Marchand, H., 1936. Les hommes fossiles de la Mouillah (Oran). *Revue Anthropologique* 46, 239-253.

Mariotti, V., Condemi, S., Belcastro, M.G., 2014. Iberomaurusian funerary customs: new evidence from unpublished records of the 1950s excavations of the Taforalt necropolis (Morocco). *Journal of Archaeological Science* 49, 488-499.

Mariotti, V., Bonfiglioli, B., Facchini, F., Condemi, S., Belcastro, M.G., 2009. 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. *Journal of Human Evolution* 56, 340-354.

Meier, R.J., Sahnouni, M., Medig, M., Derradji, A., 2003. Human Skull from the Taza locality, Jijel, Algeria. *Anthropologischer Anzeiger* 61, 129-140.

Mikdad, A., Moser, J., Ben-N'cer, A., 2002. Recherches préhistoriques dans le gisement d'Ifri n'Ammar au Rif oriental (Maroc). *Beiträge zur Allgemeinen und Vergleichenden Archäologie* 22, 1-20.

Moser, J., 2003. *La Grotte d'Ifri n'Ammar. 1: L'Ibéromaurusien*. Forschungen zur Allgemeinen und Vergleichenden Archäologie 8. Linden Soft, Köln.

Oujaa A., Lacombe J.P., 2012. L'occupation humaine paléolithique de la région de Témara: les grottes d'El Harhoura 2 et d'El Mnasra. In: El Hajraoui, M.A., Nespoulet, R., Debénath, A., Dibble, H.L. (Eds.), *La Préhistoire de la région de Rabat-Témara. Villes et Sites Archéologiques du Maroc, Royaume du Maroc.* Ministère de la Culture, Institut National des Sciences de l'Archéologie et du Patrimoine, Rabat, pp. 136-149.

Pettitt, P., 2011. *The Palaeolithic origins of human burial*. Routledge, London.

Roche, J., 1953a. Note préliminaire sur les fouilles de la grotte de Taforalt (Maroc Oriental). *Hespéris* 40, 89-116.

Roche, J., 1953b. La grotte de Taforalt. *L'Anthropologie* 57, 375-380.

Roche, J., 1963. *L'Epipaléolithique Marocaine*. Fondation Calouste Gulbenkian, Lisbon.

Schwenninger, J.-L., Collcutt, S., Barton, N., Bouzouggar, A., El Hajraoui, M.A., Nespoulet, R., Debénath, A., Clark-Balzan, L., 2010. A new luminescence chronology for Aterian cave sites on the Atlantic coast of Morocco. In: Garcea, E.E.A. (Ed.), *South-Eastern Mediterranean Peoples between 130,000 and 10,000 Years Ago*. Oxbow Books, Oxford, pp. 18-36.

Stoetzel, E., Campmas, E., Michel, P., Bougariane, B., Ouchaou, B., Amani, F., el Hajraoui, M.A., Nespoulet, R., 2014. Context of modern human occupations in North Africa: Contribution of the Témara caves data. *Quaternary International* 320, 143-161.

Turner, E., 2019. Large Mammalian Fauna. In: Barton, N., Bouzouggar, A., Collcutt, S.N., Humphrey, L. (Eds.), 2019. *Cemeteries and Sedentism in the Later Stone Age of NW Africa: Excavations at Grotte des Pigeons, Taforalt, Morocco*. Monographien des Römisch-Germanischen Zentralmuseums 147. Verlag des Römisch-Germanischen Zentralmuseums, Mainz, pp. 239-308.

Vallois, H.V.,1951. Les réstes humains de la grotte de Dar es-Soltan. In: Ruhlmann, A. (Ed.), *La grotte de préhistorique Dar es-Soltan*. Collection Hésperis 11. Institut des Hautes Etudes Marocaines, Larose, Paris, pp. 187-202.

van de Loosdrecht, M., Bouzouggar, A., Humphrey, L., Posth, C., Barton, N., Aximu-Petri, A., Nickel, B., Nagel, S., Talbi, E., El Hajraoui, M., Amzazi, S., Hublin, J.-J., Pääbo, S., Schiffels, S., Meyer, M., Haak, W., Jeong, C., Krause, J., 2018. Pleistocene North African genomes link Near Eastern and sub-Saharan African human populations. *Science* 360, 548-552.

Louise Humphrey
Alison Freyne
The Natural History Museum
Department of Earth Sciences
Centre for Human Evolution Research
GB - Cromwell Load, London SW7 5BD
l.humphrey@nhm.ac.uk

Abdeljalil Bouzouggar
Institut National des Sciences de l'Archéologie
et du Patrimoine
angle rues 5 et 7
cité Al-Irfane, Soussi
MO - Rabat