Pieces of people in the Pavlovian: burials, body parts and bones in the earlier Upper Palaeolithic

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Abstract

The rich earlier Mid Upper Palaeolithic (Pavlovian) sites of Dolní Věstonice I and II and Pavlov I (~32,000–~30,000 cal BP) in southern Moravia (Czech Republic) have yielded a series of human burials, isolated pairs of extremities and isolated bones and teeth. The burials occurred within and adjacent to the remains of structures ('huts'), among domestic debris. Two of them were adjacent to mammoth bone dumps, but none of them was directly associated with areas of apparent discard (or garbage). The isolated pairs and bones/teeth were haphazardly scattered through the occupation areas, many of them mixed with the small to medium-sized faunal remains, from which many were identified post-excavation. It is therefore difficult to establish a pattern of disposal of the human remains with respect to the abundant evidence for site structure at these Upper Palaeolithic sites. At the same time, each form of human preservation raises questions about the differential mortuary behaviours, and hence social dynamics, of these foraging populations and how we interpret them through an archaeological lens.

Key words: Upper Palaeolithic, burial, discard, garbage, Europe, taphonomy, mortuary

The mortuary customs of (foragers and farmers) have a deep significance from the fact that in them are revealed much of the philosophy of the people by whom they are practiced. Early beliefs concerning the nature of human existence in life and after death, and the relations of the living to the dead, are recorded in these customs. . . . all these and like considerations have led in every tribe to a body of customs of exceeding

interest as revealing the opinions, the philosophy of the people themselves. (J. W. Powell, 1880)¹

Introduction

The Mid Upper Palaeolithic (the Gravettian; ~35,000–~25,000 years cal BP) across Europe has been known for over a century as yielding a series of intentional burials, single, double or multiple graves in which the individuals were variably covered with ochre, decorated with beads of shell, tooth and/or ivory and occasionally accompanied with portable art objects and/or pieces of technology.² The individuals' ages-at-death ranged from infancy to older adulthood, but the available sample is biased towards adult and late adolescent males.³ Some of the richest and most elaborate Palaeolithic burials are known from Europe in this time period, but other interments received little or no decoration. They provide a reflection of the highly successful and complex hunter-gatherer adaptations of these Late Pleistocene populations, from the Mediterranean and Atlantic littorals to the steppes of Russia.⁴

Less attention has been given to the occasional isolated human skeletal or dental remains in Gravettian sites, beyond palaeontological description, with the implicit inference that they derive from bodies abandoned on the surface, disturbed by subsequent human activity and/or scavenged by carnivores. However, the identification, both in the field during excavation and the excavated faunal collections, of a large series of partial or isolated human remains at the earlier Gravettian (defined in Central Europe as the Pavlovian) sites of Dolní Věstonice I and II and Pavlov I in southern Moravia dated to 33,000–29,500 years cal BP⁵ have raised questions as to the diversity of mortuary behaviour at these sites.⁶ These closely related sites have also yielded intentional human burials, as well as an abundance of archaeological evidence on the occupations of these Palaeolithic localities.⁷

It is therefore appropriate to reconsider the natures and contexts of these human remains, from burials to bones (and teeth), and their possible behavioural implications. Of primary relevance, given the focus here on human remains and localities of discard, are the relationships of the final resting places of the human remains to the distributions of structures (huts, hearths, pits, etc.) and other debris at these sites. In the Gravettian, and in the Palaeolithic more generally, these concerns raise a series of questions regarding the use of space in habitation areas, the manner of discard of humanly generated debris (mostly animal bones and stone/bone/antler artefacts), whether specific zones of discard (garbage dumps) existed, how one would delimit those zones and (eventually) what might be the relationships between those zones, on the one hand, and the burial, manipulation or simple abandonment of human remains, on the other hand. In more recent time periods, zones of discard are routinely designated and are usually readily identifiable as such archaeologically; in the Palaeolithic these distinctions are not always evident, for reasons of human behaviour, site re-use, differential preservation and geological erosion. Therefore, investigating the distributions of human remains relative to both site structures and apparent discard areas presents interpretive complexities. It also raises some basic concerns as to how (or whether) people delimited and designated their garbage

Figure 1 Aerial view of the northern end of the Pavlov hills, with the town of Pavlov and the locations of the Dolní Věstonice I (DV I) and Pavlov I and II (P I, P II) sites indicated. The site of Dolní Věstonice II (and the village of Dolní Věstonice) are to the right, around the curve of the Pavlov hills. The modern lake, created in the 1980s, would have been the meandering Dyje River and associated marshy terrain. (Jiří Svoboda, 2016).

dumps, and therefore how (or whether) they considered the placing of the dead among them as denigrating discard.

The archaeological context

The sites of Dolní Věstonice I and II and Pavlov I are located at a similar elevation on the northern slopes of the Pavlov Hills, overlooking the Dyje River valley in southern Moravia ($48^{\circ} 53' \text{ N}$, $16^{\circ} 40' \text{ E}$) (Figure 1). These three large sites (Figures 2 and 3), along with the nearby smaller localities of Dolní Věstonice IIa and III, Pavlov III, IV and VI, and Milovice IV, represent open-air localities that were repeatedly occupied by mobile foragers between $\sim 32,000$ and $\sim 30,000$ years ago. Although the occupations at these localities span a number of centuries, they represent a culturally coherent set of activities in terms of subsistence, site utilisation, technology (organic, ceramic and lithic), personal decoration and artistic expression.⁸ It is therefore appropriate to consider them together.

Dolní Věstonice I (Figures 1 and 2) was investigated, and variably systematically excavated, from the 1920s to the 1970s, by a plethora of scholars.⁹ Although it is an extensive and rich site, the variable quality of the excavations over fifty years means that the contextual information for the human remains is inconsistent. Pavlov I

(Figures 1 and 3) was originally excavated in the 1950s and 1960s by B. Klíma, and then in 2014–16 by Jiří Svoboda. It is exceptionally rich, represents multiple occupations of the locality and provides an abundance of contextual data for the human remains.¹⁰ Dolní Věstonice II (Figure 3) was excavated in the 1980s and 1990s by B. Klíma and Jiří Svoboda. It furnishes full contextual data for the human remains but was a less intensively utilised locality.¹¹

These sites contain the foundations of a series of irregular but often approximately circular ‘huts’, generally identified by a central hearth depression and a variable ring of faunal (bones and teeth) remains and artefacts around the hearth. There are separate accumulations of faunal remains, the most obvious of them being areas with an abundance of mammoth bones. Although these faunal accumulations can be viewed as ‘garbage dumps’, the presence of archaeological debris across much of the sites’ surfaces implies that the process of differential accumulation was more one of people clearing central activity areas than one of discarding faunal and artefactual remains in designated zones. The distributions of human activity and discard areas are further obscured in places by the movement of occupation areas across the sites’ surfaces through the successive utilisation of the sites by these mobile foraging groups. It is nonetheless possible, particularly for Pavlov I and Dolní Věstonice II, to consider the relationships of the human remains to the archaeological materials.

The human remains

The human remains from Dolní Věstonice (DV) and Pavlov (Pav) consist of five intentional burials, three associated pairs of otherwise isolated hands and feet, five sets of two to nine associated teeth, a probable pair of metacarpals and seventy-two isolated bones or teeth. Three calottes, most of the teeth and some of the cranial (skull) and postcranial (trunk and limb) fragments were identified as human during excavation. However, the majority of the isolated postcrania and the pairs of hands or feet were identified from among the excavated Dolní Věstonice II and Pavlov I faunal remains.

The burials

The human burials consist of three single adult graves (DV 3 and 16, and Pav 1), a child’s burial (DV 4) and a side-by-side triple burial (DV 13 to 15).

The DV 3 female, ~40 years old, was buried in a strongly flexed position with carnivore teeth and red ochre pigment, and covered with an incised mammoth scapula (shoulder blade). It was found within the K1 settlement unit of the DV I site, adjacent to hearths and among occupation debris (Figure 2). It was close to, but separate from, a large mammoth bone deposit. The DV 4 burial of a child, also from the DV I site, consisted of fragmentary human remains below a mammoth scapula with charcoal, ochre and arranged fox teeth, probably on head gear, apparently within a habitation area (Figure 2).

The DV 13–15 triple burial, of three late adolescent to young adult males (the middle one of whom was pathological), was in a shallow grave in the upper part of the DV II site (Figure 3). The grave was dug into the hillside with the heads

Figure 2 Overall plan of the Dolní Věstonice I site with the various excavation locations through much of the twentieth century (A), and a detail of the eastern portion of the locality (B) with the mammoth bone dump to the left and the habitation area to the lower right. The dots with numbers indicate the locations of human remains. The locations of the DV 3 and 4 burials are indicated with orange arrows; the locations of the DV 1 and 2 calottes (cranial vaults) are indicated with grey arrows. The detailed plan (B) provides an indication of the density of faunal and other remains on these sites. (Jiří Svoboda and Erik Trinkaus, 2018).

Figure 3 Plans of the Dolní Věstonice II site (above) and the Pavlov I site (below). To the left (A and C) are plans with the settlement units indicated in grey and labelled K# or S# (for those identified by Klíma or Svoboda, respectively). To the right (B and D) are the site plans with the locations of the majority of the human remains indicated, by specimen number. Orange arrows: burials; black arrows: pairs of hands or feet; grey arrow: the DV 11 calotte. (Jiří Svoboda and Erik Trinkaus, 2018).

buried up-slope and the feet close to the surface – the upper surfaces of the bones have extensive root-etching, especially those of DV 14. The grave was immediately adjacent to the K9 settlement area and apparently had a wooden structure over it to protect the bodies. The bodies were accompanied by concentrations of ochre, pierced carnivore teeth and an incised bone. The surrounding area produced a hearth and a range of domestic debris, emphasising the proximity of the burial to the site's structures.

The DV 16 skeleton of an older (40–50 year old) male, from the western portion of the DV II site, was lying slightly flexed on the original occupation surface, within the residential unit S1 (Figure 3). It was deposited within the dark sediment of the occupation unit and accompanied by carnivore teeth and domestic debris from the residential unit.

The last burial, that of Pav 1 from the Pav I site, consists of the partial remains of a ~40 year old male, which was buried 1–2 metres north of settlement unit K12 (Figure 3) and 5–7 metres east of a mammoth bone deposit. It was covered with an incised mammoth scapula, but post-depositional geological disturbance in a gully makes it unclear whether artefacts other than domestic debris were originally associated with the body.

The cortical bones of these human skeletons are generally well preserved, but most of the crania sustained warping from sediment pressure (all except Pav 1) and most of the trabecular bone (e.g., vertebral bodies, articular ends of long bones) was extensively eroded, porous and fragmentary (especially for DV 3 and 16). The compaction of the remains was due to the accumulation of aeolian sediment (loess) subsequent to burial and decomposition, but it was exacerbated by the porousness and fragility of the bones subsequent to decomposition of the associated soft tissue. In general, these processes were more pronounced at the DV I and II sites than at Pav I. Except for the erosional disturbance of the Pav 1 remains and the loss of some of the hand and foot bones of DV 13 and 14 (the outer bodies in the triple burial), the burials appear to have sustained little damage or disturbance other than sediment compression and osseous tissue deterioration.

Therefore, all of the human burials appear to have been immediately adjacent to or within the settlement structures of the Dolní Věstonice and Pavlov sites. DV 3 and Pav 1 were not far from mammoth bone dumps, but it is difficult to argue that any of them were buried within an explicit zone of discard.

The body parts

The isolated body portions from the Pav I site consist of the partial right and left hand skeletons of one individual (Pav 31) and the variably complete right and left pedal arch skeletons of two other individuals (Pav 37 and 38) (Figure 4). They were identified as human in the faunal collections, so their precise *in situ* positions and arrangements are not known. The first, however, is from one square in the south-eastern portion of the site, adjacent to settlement unit K2 (see Figure 3), associated with some ochre. The latter two are from the central area of Pav I, in an area for which the detailed site plans of the late B. Klíma are missing (see Figure 3). Human remains close to Pav 31 include only an immature hand phalanx (Pav 29); Pav 37 may well be associated with an isolated patella, Pav 35; and Pav 38 may (less likely) be associated with an isolated metacarpal 2 (Pav 36) found further away in Pav I Centre (Figure 5). These possible associations are based on morphology, size, preservation and proximity considerations,¹² but they cannot be confirmed, given the available remains. The Pav 31, 37 and 38 pairs were otherwise separate from other human remains.

All of the Pav 31, 37 and 38 bones exhibit extensive root etching (see Figure 4). In addition, they have the erosion and porosity usually associated with the burial of bones with attached soft tissue.¹³ At least Pav 37 exhibits articular facets lacking the sediment encrustation found elsewhere on the bones, indicating that some of the bone were in close articulation *in situ*.¹⁴ They are therefore likely to have entered the site's deposits as largely intact, and fleshed, hands or feet. There is no evidence

Figure 4 Dorsal views of the right and left skeletons of the Pav 31 hands, and the Pav 37 and 38 feet. Pav 31 has matching pairs for the trapezia (lower left), the metacarpals 1 and 2, and the pollical (thumb) proximal phalanges. Pav 37 is missing only the right cuboid bone and metatarsal 5 from its tarsometatarsal skeletons. Pav 38 has matching pairs for the tali, calcanei and metatarsals 4. (Erik Trinkaus, 2018).

of carnivore activity or cut marks on the bones, although the eroded surfaces may obscure such evidence.

Individual partial foot skeletons of carnivores are known from the Dolní Věstonice–Pavlov sites, but pairs of them separate from other portions of the skeleton are unusual at these sites.¹⁵ Pairs of fur-bearing carnivore feet (notably lions) may be associated through the process of skinning, and the remains of wolves and, most frequently, foxes are relatively abundant at Dolní Věstonice–Pavlov.¹⁶ Because humans are not fur-bearing beings it appears unlikely that these human pairs derive from such processes. For these reasons, the presence of these otherwise isolated pairs of hands or feet at Pavlov suggests human manipulation of the associated bodies, either the intentional displacement of the hand and foot pairs or the mortuary removal of the other portions of the skeletons, with the small manual and pedal bones (and perhaps the Pav 35 patella) being left behind.

Figure 5 Examples of isolated bones and teeth from the DV II and Pav I sites.

They include the DV 11 calotte (in inferior view), the Pav 2 maxilla, the Pav 3 mandible, the Pav 25 (pierced) and 30 lower incisors, the DV 50 and 56 proximal radii, the DV 57 proximal ulna, the Pav 36 metacarpal 2, the Pav 29 and 33 immature middle hand phalanges, the Pav 34 and 35 patellae, the DV 40 and 43 femoral shafts, the DV 55 distal tibia, the DV 48 fibula, the DV 54 calcaneus, the DV 63 metatarsal 4, and the DV 52 hallucal proximal phalanx. Note the different degrees of root etching, from minimal (Pav 29 and 33) to pronounced (DV 48, 50, 52 and 55). The piercing of the Pav 25 root for suspension is evident. (Erik Trinkaus, 2018).

The bones (and teeth)

At the same time, these sites have yielded an abundance of partial bones and teeth, almost all of them anatomically isolated (Figure 5). Two metacarpals from DV II (DV 58 and 59) may come from one hand, DV 7, 9 and 31 from DV I consist of two to three associated teeth, and DV 36 from DV II retains nine teeth of an infant. The

other isolated remains include twenty-seven teeth (two-thirds from Pav I and not including naturally shed deciduous teeth), fourteen pieces of crania or mandibles, and thirty-three postcranial elements (twenty-seven of them from DV II) (note that 61 per cent of the DV I elements were destroyed in 1945).

The various isolated elements from the DV I site were scattered through the occupations areas (see Figure 2). A number of the ones for which provenances are known derive from the vicinity of the DV 3 burial. Three of the Pav I elements (Pav 2 to 4) come from the area of the Pav 1 burial in the north-western part of the site, but most of the remainder derive from the south-eastern portion around the K4, K10 and K11 structures (see Figure 3). A tooth (Pav 10) comes from near structure K6, and a patella and metacarpal (Pav 34 and 36; see Figures 3 and 5) derive from the less densely occupied central area. All of these remains therefore derive archaeologically from the general faunal debris scatters in and around the various 'hut' structures identified within DV I and Pav I.

The larger number of isolated remains from the DV II site (see Figure 5) were variably found associated with the 'hut' structures (see Figure 3). Two pieces of femur (DV 40 and 43) were within the S1 structure, about one metre from the DV 16 burial. A series of teeth and postcranial pieces were found in other structural units, usually within a one-metre radius of the central hearths (DV 33, 39, 41–43, 47, 51, and 52, as well as the DV 36 set of infant teeth). A few other elements were more peripherally located, but none was far from 'hut' structures with their hearths (especially K5–K7, S3, S4 and S8). Given the mixture of these human remains with faunal remains within and around the various structures at the DV II site, there appears to be a consistent association of them with either casual discard zones or primary occupation areas. The same applies to their distribution where it is well documented at the Pav I site, especially in the south-east area, and for where sufficient data exist for the DV I site.

These isolated human remains, similar to the faunal remains from these sites, exhibit a variety of dry bone fractures and general erosion of the margins, both indicating damage after decomposition. They are extensively root etched (see Figure 5; see esp. DV 40, 43, 48, 50, 52, 55 and 58–59, and Pav 36), as are most of the faunal remains¹⁷ and portions of the human burials,¹⁸ indicating that the bones were close to the surface in the Pleistocene. Their condition, as with the faunal remains, suggests that they were generally scattered on the surfaces of the Dolní Věstonice–Pavlov sites and eventually buried by accumulating aeolian sediment (loess). None of these human bones exhibits either cut marks or carnivore gnawing marks; however, the faunal remains from these sites have very few of either form of damage, 1.70 per cent exhibiting cut marks and 0.13 per cent with carnivore tooth marks (pooled Pav I, DV I and DV II faunal remains; $n = 30,691$).¹⁹

The only definite evidence of human manipulation of the isolated elements are four teeth, DV 8 from DV I (lost in 1945) and Pav 15, 25 and 39 from Pav I (see Pav 25 in Figure 5), that were pierced through the root in the same manner as the pierced carnivore teeth associated with the burials (through mesiodistal root thinning followed by rotary piercing). Similar modifications for suspension of isolated human teeth are known from two western European Gravettian sites (Abri Pataud

and Les Vachons), as well as from several Early Upper Palaeolithic sites.²⁰ DV 8 and Pav 39 come from the margins of the excavated areas but nonetheless close to structures (see Figures 2 and 3); at least Pav 25 was with the other isolated remains in Pav I Southeast.

There are also three calottes, DV 1 and 2 from DV I and DV 11 from DV II (see Figure 5), which have been interpreted as intentionally modified containers.²¹ It is unclear whether they were so altered and used (the first two were destroyed in 1945 and cannot be reassessed, and the last has a relatively common breakage pattern around its margin; see Figure 5). They were all found close to burials (DV 3 for the former two, and DV 13–15 for the last) (see Figures 2 and 3).

Discussion

The final resting places of the human remains at the Pavlovian sites of DV I and II and Pav I, therefore, consist of intentional burials, paired isolated body portions and an abundance of scattered skeletal and dental elements. Each category has its cultural implications, and each one has its associations with the structural features of these three localities.

With respect to the distributions of the human remains relative to site structures and the distributions of the other artefactual and biological remains on the sites, it needs to be kept in mind that the primary areas of the sites are palimpsests of repeated occupations of the localities. The Pavlov Hills rising above these sites are a prominent topographical feature of the otherwise rolling southern Moravian landscape (see Figure 1) and they were a focus of human activity and archaeological site formation through the earlier Upper Palaeolithic. Although these three sites are bracketed within a relatively short time period (at least from a Palaeolithic perspective), it is difficult to assess the extents to which the 'hut' structures and hearths were strictly contemporaneous, the extents to which the accumulated faunal and artefactual debris was intermixed with successive sojourns at the sites and the extents to which the primary activity areas became (or followed the use of the same space as) discard zones.

The only areas that are distinct as 'garbage' dumps are the massive mammoth bone accumulations at the edges of the occupation zones DV I and Pav I. But then, mammoth bones are sufficiently large as to be encumbering, whereas the remains of smaller animals would be less of a hindrance.

The burials were decorated with ochre and carnivore (fox and/or wolf) teeth, and (in three cases) covered with incised mammoth scapulae. Additional cultural elements may have been associated with the burials, but it is difficult to determine to what extent the additional artefacts or faunal remains mixed with the burials were intentional grave goods, as opposed to being part of the background debris on the sites. All of the burials were placed within the settlement areas, adjacent to or (as in the case of DV 16) within clearly evident 'hut' structures. Two of them, DV 3 and Pav 1, were adjacent to mammoth bone dumps, but they were not actually among those bones.

The ultimate origins of the broken, scattered and isolated human bones are unclear. They appear to have been treated in the same manner as the scattered small to medium-sized faunal remains across the sites. Yet, only three of the elements, the DV 1, 2 and 11 calottes, would have been readily apparent as human in the past. The final positions of the isolated remains range from within structures, to adjacent to burials and structures, to the peripheries of the occupation zones. There does not appear to be a pattern in their distributions relative to the site structures, except for Pav I where they appear to have been more common in the more intensively occupied south-eastern and north-western portions of the site (see Figure 3).

It therefore appears likely that the separate skeletal/dental elements (all except the pierced teeth and the naturally shed deciduous ones) are primarily the remains of human cadavers which were left on the surfaces of the sites, to decompose, to disarticulate and to be buried by loess, together with the faunal remains left on the surfaces. If there was any manipulation of these human elements, such as the intentional removal or displacement of skeletal elements after decomposition, it is not evident from these bones and teeth. Almost all portions of the skeleton are represented, from neurocrania and teeth, to rib pieces, to long bone sections, to hand and foot bones. There are no disarticulation marks on the human bones, although such marks are also rare on the faunal remains. It is therefore not possible to determine why some individuals (young and old, male and female) were ritually buried, whereas other bodies suffered a different fate. One possible, but untestable, explanation is that the individuals died when the ground was frozen and the social group moved on before they could be buried. One might expect such abandoned bodies to be scavenged. Yet, at least the DV 13–15 and DV 16 burials were close to the surface (as indicated by root etching on their bones), and they show no evidence of carnivore disturbance. Moreover, carnivore tooth marks are absent from the human remains and rare on the faunal remains. Scavenging therefore does not appear to have been common at these sites.

In any case, other Mid Upper Palaeolithic sites with burials (for example, Sunghir, Paglicci, Cussac, Předmostí, Krems-Wachtberg and probably Cro-Magnon and Miesslingtal), both open-air and cave-rockshelter sites, have yielded isolated human bones/teeth as well as burials;²² frozen ground would have been present at five of these sites but not at Paglicci in southern Italy or deep in the Grotte de Cussac in south-western France. There are also various other Gravettian sites, without burials, that have yielded isolated human remains,²³ and there do not appear to be consistent differences (where this can be assessed, given variable preservation and excavation details across sites) between the utilisations of those sites during the Gravettian and the ones that have yielded burials. Interestingly, at the large and complex Pavlovian site of Předmostí, also in Moravia, it appears that the area for the burials was on the periphery of the primary occupation zone, although isolated human bones occurred as well among the cultural debris.²⁴ At Sunghir in northern Russia, as at Dolní Věstonice–Pavlov, there does not appear to have been any separation of the occupation areas, the burials and the isolated remains.²⁵

It is also unclear what processes account for the three pairs of hands or feet from Pav I. As mentioned, articulated partial animal feet (especially of carnivores) are

known from the Pavlovian and other Gravettian sites, but finding isolated pairs is exceptional. The apparent explanation is the manipulation of either these human body portions or the other elements of the bodies. Removal or formal deposition of human skeletal elements has been inferred for other Mid Upper Palaeolithic remains,²⁶ the clearest example being the inclusion of the Sunghir 4 adult human femur with the Sunghir 2 and 3 burials.²⁷ Intentional manipulation of human anatomical portions is well known archaeologically,²⁸ ethnohistorically,²⁹ as well as in contemporary societies.³⁰ These three pairs from Pavlov plus the pierced teeth (and possibly the calottes) may well provide additional archaeological examples. The distributions of the pairs, pierced teeth and calottes are varied, but they are generally similar to those of the isolated elements throughout these Pavlovian sites.

Conclusion

The human remains from the sites of DV I and II and Pav I therefore raise questions as to why there was differential treatment of the individuals involved and the relationships of their remains to areas of discard (garbage zones). The answers probably involve a complex mix of social dynamics among these mobile foraging populations and the varied and varying sedimentological conditions of the sites where their remains were left. What is nonetheless apparent is that there does not appear to be a consistent association between these human remains and the discard/abandonment of cultural and dietary refuse. The associations of two of the burials with the mammoth bone dumps are uncertain, given that hearths and structures are also adjacent to those osseous accumulations. Moreover, some of the human body parts and isolated skeletal/dental elements do not exhibit consistent associations with features (hearths, 'hut' structures, etc.) across the sites. Is the lack of association a cultural reflection of these Pavlovian peoples, or is it an indirect effect of the repeated use of these locations and the resultant Palaeolithic palimpsests? And what might the degree of differential treatment of the dead tell us about the level of social complexity of these very successful central European foragers of the Mid Upper Palaeolithic?

These questions emphasise the basic concerns in interpreting the distributions of human remains (whether burials, body parts or bones) at these Upper Palaeolithic sites. How does one delimit areas of discard (garbage zones) in these sites, and in many other archaeological (or ethnographic) contexts? Are we imposing standards of spatial organisation and sanitation on past peoples, ones which may have little relevance for mobile foraging populations, among other groups? When we consider the distributions of human remains relative to our perceptions of their site structures, are we imposing cultural values as to where it is appropriate to bury or abandon one's dead? Even when seen through the layers of site re-use palimpsests and geological disturbance, the apparent lack of a human-to-garbage pattern at these Pavlovian sites may well serve us best to make us ask whether we should even see a patterned relationship, whether differential disposal of the dead reflects differential denigrating discard.

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Notes

- 1 J. W. Powell, 'Preface', in H. C. Yarrow (ed.), *Introduction to the Study of Mortuary Customs among the North American Indians* (Washington, DC, Smithsonian Institution – Bureau of Ethnology, 1880), pp. iii–vi; see also (for more recent discussions) L. R. Binford, 'Mortuary Practices: Their Study and Their Potential', *Memoirs of the Society for American Archaeology*, 25 (1971), 6–29; M. Parker-Pearson, *The Archaeology of Death and Burial* (College Station, TX, Texas A&M University Press, 2000); J. A. Tainter, 'Mortuary Practices and the Study of Prehistoric Social Systems', in *Advances in Archaeological Method and Theory* 1 (San Diego, Academic Press, 1978), pp. 105–41.
- 2 See inventories and discussions in D. Henry-Gambier, 'Comportement des populations d'Europe au Gravettien: pratiques funéraires et interprétations', *Paléo*, 20 (2008), 165–204; P. Pettitt, *The Palaeolithic Origins of Human Burial* (London, Routledge, 2011); E. Trinkaus, A. P. Buzhilova, M. D. Mednikova and M. K. Dobrovolskaya, *The People of Sungir: Burials, Bodies and Behavior in the Earlier Upper Paleolithic* (New York, Oxford University Press, 2014); E. Trinkaus 'The Pathological People of Dolní Věstonice and Pleistocene Human Abnormalities', in S. Sázelová, M. Novák and A. Mizerová (eds), *Forgotten Times and Spaces* (Brno, Institute of Archeology of the Czech Academy of Sciences, Brno, Masaryk University, 2015), pp. 123–31.
- 3 Trinkaus et al., *The People of Sungir*; see also Henry-Gambier, 'Comportement des populations d'Europe au Gravettien'.
- 4 See chapters in W. Roebroeks, M. Mussi, J. Svoboda and K. Fennema (eds), *Hunters of the Golden Age* (Leiden, University of Leiden Press, 2000).
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