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Mesolithic cremations as elements of secondary mortuary rites at Vlasac (Serbia)

Dušan Borić[1], Jelena Raičević[2], Sofija Stefanović[2]
1 Cardiff School of History and Archaeology, Cardiff University, Cardiff, UK
BoricD@cardiff.ac.uk
2 Department of Archaeology, Belgrade University, Belgrade, Serbia
smstefan@f.bg.ac.yu

ABSTRACT – *In the course of recent excavations of the Mesolithic-Neolithic site of Vlasac, new light has been shed on the mortuary practices and ritualistic behaviour of the Danube Gorges foragers on the basis of human remains with evidence of diverse treatments of dead human bodies. While the majority of burials from the site were found as articulated and some as disarticulated inhumations, there were also several cremation burials. The aim of this paper is to present the analyses of these burned remains, which were excavated in the course of 2006–2007 field seasons in the Danube Gorges. Some of the cremation pits contained calcified human bones, with charcoal and fragments of broken and burned projectile points. These contexts are compared with similar cremation pits found during the first excavations at Vlasac and other sites in the region in 1970–1971. Finally, we examine a series of plausible interpretations in order to sketch a belief system that was part of these funerary practices at Vlasac throughout the 7th millennium BC.*

IZVLEČEK – *Nova izkopavanja mezolitsko-neolitskega nadišča na Vlascu in sledovi različnih ravnanj z umrlimi ponujajo nove poglede na pogrebne prakse in rituale pri nabiralcih v Donavski soteski. Poleg skeletnih pokopov so bili odkriti tudi žgani grobovi. V članku predstavljamo rezultate analiz žganih ostankov, ki so bili izkopani v letih 2006–2007. V nekaterih kremacijskih jamah so bile odkrite kalcifirane človeške kosti, oglje in prelomljene in ožgane puščične osti. Te kontekste smo primerjali s podobnimi kremacijskimi jamami, odkritimi med prvimi izkopavanji na Vlascu in drugih najdiščih v regiji v letih 1970–1971. Preučili smo verjetne interpretacije verovanj, ki so bila povezana s pokopnimi praksami na Vlascu v 7. tisočletju BC.*

KEY WORDS – *cremations; secondary mortuary practice; Mesolithic; Vlasac; the Danube Gorges*

Introduction

Cremation burials in the archaeological record usually come from later prehistoric periods in Europe, particularly the Bronze Age. Cremations also characterise the later mortuary record of many parts of the Roman Empire in the 3rd century AD. Yet, in some regions of Europe, cremations as a form of mortuary practice date back to the Mesolithic. Among other cases, cremations have been found at Oirschot V in the Netherlands (*Arts 1987*), Franchthi Cave in Greece (*Cullen 1995*) and in the Mesolithic levels of several sites in the Danube Gorges of the north-central Balkans (see *Radovanović 1996.187–219; Srejović and Letica 1978*). In the latter region, most recently, new excavations at the site of Vlasac in the Upper Gorge of the Danube (*Borić 2006; Borić et al. 2008*) revealed several new cremation pits with burned human bones. These instances indicate mortuary rituals focused on secondary burning of defleshed human bones as part of a particular mortuary behaviour of Late Mesolithic-Early Neolithic (*c.* 7500–5900 calBC) settlers in this region. This paper presents evidence that demonstrates the conclusion that still flesh-covered and intact human bodies were not burned and left in these locations *in situ*, and that we are dealing with a specific, previously unrecognised form of secondary mortuary practice, which

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involved burning bones from older burials.

In this paper, we first present the archaeological contexts with burned human remains found in the course of new excavations at Vlasac (2006–2007). Second, we focus on the material from the old excavations of the site (*Srejović and Letica 1978.18–27*) by combining physical anthropology inferences with previously unpublished details of particular archaeological contexts. One should keep in mind that the 1970 and 1971 campaigns were salvage excavations conducted at an accelerated pace over a large area with excavation standards different to those common today. Hence, the observations made in the course of the new excavations at Vlasac serve as valuable guidelines on how to treat comparable instances from previous excavations at the site. In the final instance, these sets of data are compared in an attempt to reconstruct recurring patterns in the evidence and to suggest a range of possible meanings associated with Mesolithic cremations and secondary mortuary practices in general.

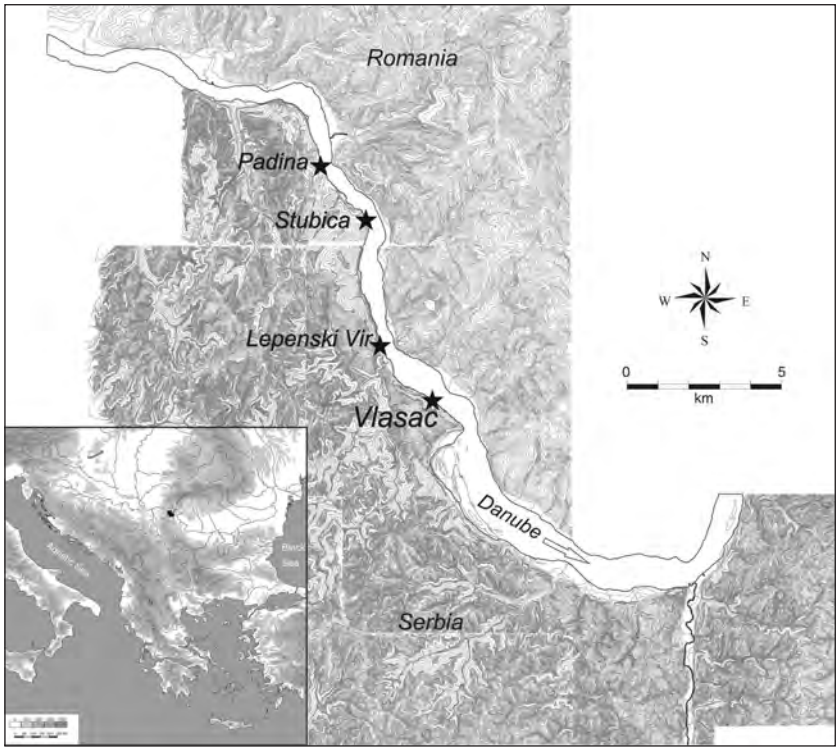


Fig. 1. Map of the Upper Gorge of the Danube, with principal Mesolithic and Neolithic sites.

The site and its setting

Vlasac is situated approx. 3km downstream from the type-site of Lepenski Vir in the Upper Gorge of the Danube, on the Serbian side of the river. It is one of the key settlements among a number of Mesolithic and Neolithic sites found along the Danube banks in this specific landscape zone (Fig. 1). The site was first excavated in 1970–1971 by D. Srejović and Z. Letica (*1978*). New excavations at Vlasac were begun in 2006 and are ongoing (*Borić 2006; 2008; Borić et al. 2008*). The resumed work at the site has covered an area of 326m², investigating a 63m stretch of the new riverbank section created after 1971 in the probably peripheral, southernmost part of the site (Fig. 2). Spatially, this new work takes place upslope from the excavation area that was investigated in 1970–1971. During these first excavations, the zone next to the original riverbank profile, up to a height of around 70 m asl, was sampled for archaeological remains with a number of trenches. Since 1971, the Danube has risen, due to the building of the hydroelectric dam, and largely covered the previous excavation zone. The current riverbank was created by continuous erosion, which destroyed a portion of the site with archaeological remains. In Fig. 2, we show an estimated relationship between the old and new excavation areas, which remains provisional for the time being.

Radiometric evidence suggests that the site was more or less continuously occupied from the Early Mesolithic, from around 9500 calBC, but the intensity of occupation, judging from the number of radiocarbon dates, is greatest from the mid-8th millennium calBC. This Late Mesolithic occupation/use of the site covers the period from around 7500 to 6200 calBC. New research at Vlasac has also indicated that the site was continuously used throughout the transformational/Early Neolithic period (*c.* 6200–5900 calBC). Finally, there is clear evidence from the new as well as the old excavations that human groups also frequented the site in the course of the regional Middle Neolithic (*c.* 5900–5500 calBC). During the Middle Neolithic phase, the first pottery appears in Vlasac, while the evidence of contact with Early Neolithic groups through the acquisition of novel material culture, among other kinds of exchanges, are documented in the period 6200–5900 calBC (*Borić et al. 2008.Ap-*

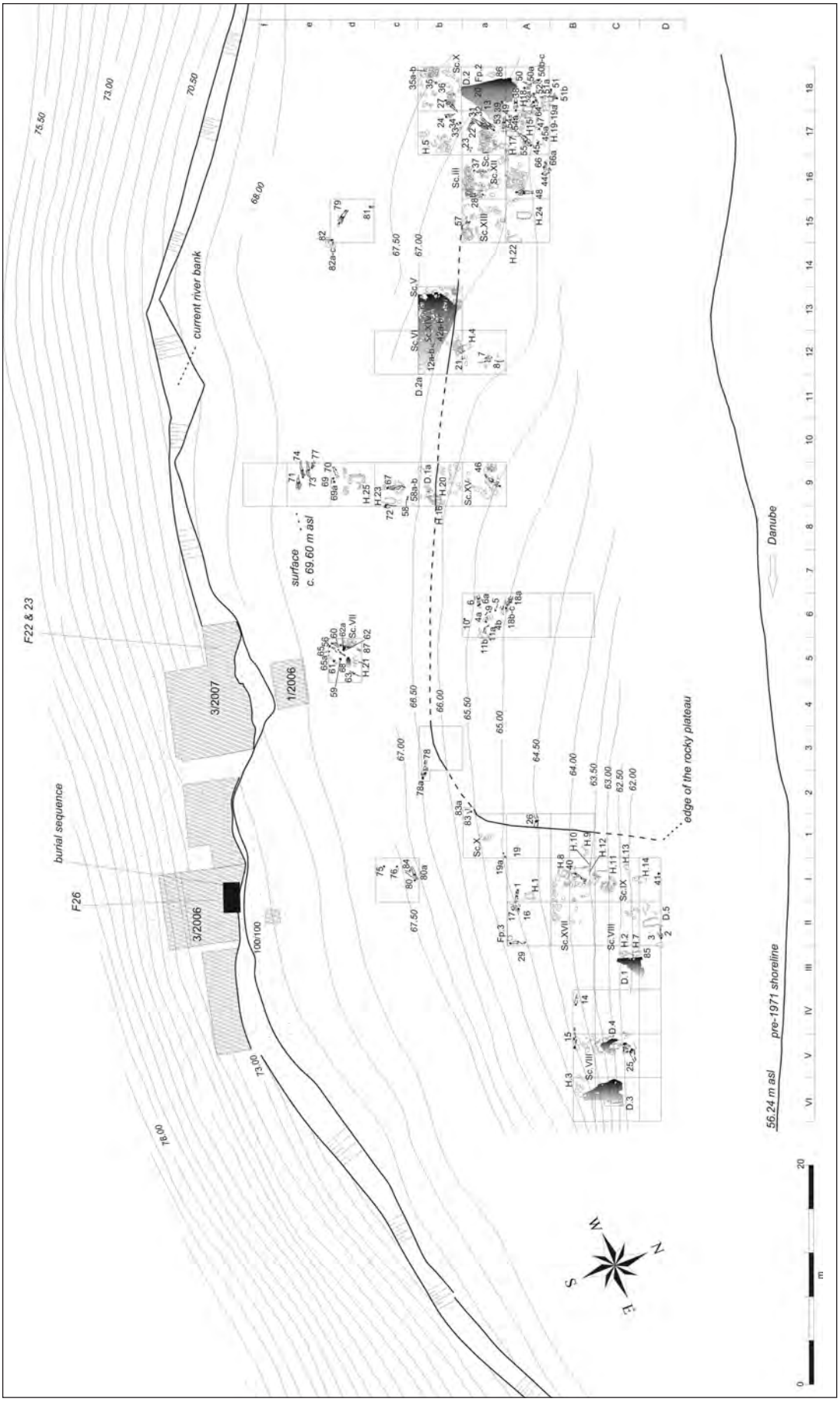


Fig. 2. Vlasac site plan showing an approximate relation between excavation areas excavated in 1970–1971 and areas excavated in 2006–2007 (hatched); D. – dwelling; H. – stone-lined hearth; Fp. – fireplace; Sc. – stone construction; [just number] – burial.

pendix; for a regional chronology see *Borić 2008.Tab. 1; Borić and Miracle 2004; Borić and Dimitrijević 2007; 2009*).

Apart from numerous burials (see below), domestic features were also recognised at the site, such as trapezoidal dwellings and rectangular stone-lined hearths. Numerous utilitarian artefacts were found across the site, but primarily in relation to dwelling structures. Among several classes of objects found are a typical knapped stone industry characterised by splintered pieces, numerous scrapers and end-scrapers, and (rarely) trapezes, among other typological groups, primarily made of locally available flint, along with a substantial use of quartz implements; a large collection of bone, antler and ivory tools; and, ground stone tools in the form of pestles, mortars and some specific tools such as stone clubs/fish-stunners (see *Antonović 2006; Borić 2002b; Kozłowski and Kozłowski 1982; Radovanović 1996; Srejović and Letica 1978*).

Fig. 3. River bank section of Trench 3/2006, with visible burned cremation contexts 97 and 146 and disarticulated tibia H130 (see Fig. 5).

Burials at Vlasac

Numerous burials have been found at Vlasac, shedding light on the complexity of mortuary rites practiced by the communities that inhabited the site over several Mesolithic millennia. The total number of formal burials at Vlasac excavated in 1970–1971 comprises 87 graves, containing either 119 individuals (*Nemeskéri 1978*) or 164 individuals (*Roksandić 1999; 2000*). There are further 17 formal burials which were excavated in 2006–2008, while the minimum number of individuals (MNI) for this assemblage is 16 (*Stefanović n.d.*). There are also a number of disarticulated, scattered human remains found across the site. Among the buried individuals are adults, children and neonates, all buried mostly as extended inhumations, although some semi-flexed and one seated burial in a lotus position were also found (*Borić 2006; Borić et al. 2008; Borić and Stefanović 2004; Radovanović 1996; Srejović and Letica 1978.53–82*). On the basis of the tight body position of some skeletal inhumations, it is possible to suggest that in a number of instances the corpse was wrapped before burial (*cf. Duday et al. 1990; Nilsson Stutz 2003; Roksandić 2001*).

While some burials did not have any associated grave constructions, a number of inhumations were covered or encircled by unmodified blocks of stone, or had somewhat carefully fashioned stone plaques covering the body; in some instances specially selected stones (sometimes of red colour) were placed beneath the head of the deceased. Burials were also frequently associated with dwelling zones and were interred over abandoned buildings or around stone-lined rectangular hearths. However, there are examples of burials found immediately beneath such rectangular hearths (for instance, Burials 51a and 51b underneath Hearths 19 and 19a).

Fig. 4. Articulated remains of Burial H136 and the cut of cremation pit context 115 that damaged this older inhumation.

Possible grave goods, usually in the form of bone implements, are noted

Fig. 5. Refitted fragmented tibia H130 and a burned shaft fragment from context 115. This disarticulated and partly burned bone can be connected with primary articulation H136.

Fig. 6. Burned human clavicle from cremation context 115 in Trench 3/2006. The clavicle might have belonged to individual H136.

in a few burials, while occasional unmodified animal bones found in burials cannot be related to formal burial practices with any certainty (*Borić 2002b.Appendix 6*). On the other hand, body adornment in the form of beads/appliqués accompanied a number of Late Mesolithic/transformational burials, most frequently consisting of a large number of appliqués of pharyngeal teeth of the Cyprinidae family (carp). Such body decoration was also reported for the site of Schela Cladovei (*Boroneanț 1990*), a site located some 80km farther downstream from Vlasac and belonging to the same Late Mesolithic material culture tradition. Along with Cyprinidae teeth appliqués, another type of appliqués of marine snails, primarily *Cyclope neritea* and sporadically *Collumbela rustica*, were also found in a number of burials (see *Borić 2002b; 2006; 2007a; 2007b*). Most recently, Spondylus and red and white limestone beads have been found in transformational phase burials (*c.* 6200–5900 calBC) (*Borić 2007b: 2008*).

Another particularity of the mortuary practices found at Vlasac is the occurrence of cremated human bones. It is possible to distinguish three basic types of such contexts: (i) oval pits with *in situ* burning of human bones directly associated with skeletal inhumations found a) above cremated remains or b) partly damaged by cremation pits; (ii) oval pits with *in situ* burning of human bones not found directly associated with skeletal inhumations, but in their vicinity; and, (iii) isolated fragments of cremated bones found in the burial fill of skeletal inhumations. Similar instances of cremation 'burials' were found both in the course of old and new excavations at the site, and in the following text, we focus on this type of mortuary practice. We believe that the careful recording of contextual details in the course of most recent excavations at the site enables us to understand the complexity of the particular instances of cremation burials recorded in 1970–1971, and hence we describe the most recent findings first. Before the discussion of contextual associations, we first provide a short guide to the analytical procedure followed when examining burned human remains.

Material and methods

The analyses focused on the number and weight of bone fragments, variation in colour as an approximate indicator of temperature and duration of bone exposure to the heat, and, where possible, identification of the minimum number of individuals, sex and age criteria. Macroscopic bone morphology observation and comparative techniques were used in the examination of bone fragments. The state of preservation of the skeletal material from Vlasac varies significantly. Bones vary from being extremely fragmented, with the majority of fragments being less

Fig. 7. Articulated inhumation Burial H81 and cremated pit context 115.

than 5cm, to some containing almost completely preserved bones. Only in one instance (individual H60 from new excavations), when the deceased was partly burned, were certain burned bones found in their primary anatomical articulation *in situ*. In all other burial contexts, burned bones were disturbed, fragmented and found in piles or in oval burial pits.

Fig. 8.* In situ *cremated remains of juvenile individual Burial H60, with some cremated cranial fragments of an adult individual, most likely the skull of individual H63.

In total, there are 56 contexts with burned human skeletal remains at Vlasac. From the 2006–2007 excavations, there are 38 contexts, while 18 contexts are from 1970–1971 (Appendix 1). Only in few instances was it possible to determine the number of individuals in a particular cremation context (*e.g.* burned remains of both a juvenile and an adult in the cremation pile labelled H60). From the 1970–1971 excavation campaigns, in only one context (Burial 54a) could two adult individuals be distinguished. In all other contexts, estimating the MNI had its limitations. Despite the absence of duplicate skeletal elements, a small number of bones and the nature of their fragmentation made more precise determination difficult. Since in most cases, we examined incomplete skeletal remains with fragments (less than 3cm long) originating from long bones, aging techniques and measurements relevant for determining sex could not be applied. However, burned juvenile bones or bones of individuals under the age of 14–16 were not detected during the examination. In only one burial (H60; 14–16 years old) could age and sex be determined with some certainty on the basis of burned bones.

The assemblage of burned remains demonstrates a variety of colours and bone textures. As Shipman *et al.* (*1984*) point out, colour is not a sole indicator of burning temperature, and should not be the only analytical tool when examining burned osteological remains. However, it can be a rough guideline for establishing an approximate range of temperatures, conditions of bones and/or environmental conditions at the time when a cremation event took place (*Walker et al. 2008*). In our analyses, we took into consideration the surface colours recorded using the Munsell Soil Colour chart (*Munsell Soil Company Inc. 1954*), and we further compared them with five stages suggested on the basis of the research undertaken by Shipman *et al.* (*1984.311, Tab. 2*). Based on the colour of the bones found in Vlasac cremation contexts, it is possible to suggest that bones underwent the first four stages described by Shipman *et al.* Stages II, III and IV apply to most of the dental and osteological remains from Vlasac. According to

Fig. 9. Close-up of the pile of cranial fragments of a juvenile (H60) and an adult (H63). The arrow indicates the proximity of the unburned right humerus of individual H63 found under this pile of cremated bones.

Fig. 10. Close-up of burned bones found directly beneath the legs of skeletal inhumation Burial H53.

these stages, temperatures from 285°C to 440°C produce white, pinkish grey, dark grey, brown and black colours, while temperatures from 525°C to up to approximately 800° can produce light grey, grey, medium blue and bluish grey colours.

After the fire is extinguished, fracture patterns, shrinkage and warping of the fragments should indicate whether bones were flesh-covered, defleshed but not completely dry ('green') bones, defleshed – anhydrous, boiled or baked (*Whyte 2001.438*). We suggest that bones at Mesolithic Vlasac were most frequently burned with no soft tissues on them, since they exhibit longitudinal cracks and fractures (*cf. Whyte 2001.439*). Apart from indications based on the colour and surfaces of the burned bones, such a conclusion is also supported by contextual evidence: the process of preparing bones for burning can be recognised at some locations on the site (see below). Although it is often hard to distinguish among small and heavily burned fragments, among the dominantly human burned remains, there were occasional burned animal bones (*e.g.* occasional fish bones and a phalanx of red deer from Burial 54a).

Cremated human bones from the 2006–2007 excavation campaigns[1]

There are 17 formal burial contexts with human bones recognised on the basis of the presence of complete or partially articulated skeletons, with a minimum number of 16 individuals (*Stefanović n.d.*), while 30 additional contexts were associated with disarticulated human bones. In total, 38 contexts contained burned human remains. However, cremated human remains were found in two particular zones of the site excavated in 2006 and 2007 (Fig. 2). The two zones also contained clusters of skeletal inhumations. The first zone – with the majority of these contexts – is located in Trench 3/2006 and the other in Extension Trench 3/2007.

Trench 3/2006

At this location there is a complex sequence of skeletal inhumations associated with concentrations of cremated human bones. Similar to other instances

Fig. 11. Skeletal inhumation H232 placed on top of cremation pit F26.

1 New and ongoing fieldwork at Vlasac started in 2006 through a collaborative project between the Departments of Archaeology of Belgrade University, Serbia, and the Department of Archaeology, University of Cambridge, UK, and with Miloš Jevtić and Dušan Borić as principal investigators. We would like to acknowledge the funding received for the archaeological excavations at the site of Vlasac through the British Academy grants (SG–42170 and LRG–45589) and the McDonald Institute for Archaeological Research, University of Cambridge grants in the period 2006–2007.

Fig. 12. Cross-section of cremation pit F26, with stratified fill contexts 260, 249 and 251 (a) and context 249 exposed with a stone slab context 259 (b).

from the old and new excavations at Vlasac, this cluster of burials is found in a depression, which might have been a natural formation, but subsequently adjusted by fashioning its sides. It was first used as a habitation zone, since a flint, quartz and bone concentration was found within a layer of palaeosol (context 222). This layer is currently radiometrically undated, but is probably of earlier Mesolithic date, *i.e.* it must be older than the date for one of the earliest burials, H136, which is dated to the first half of the 7th millennium calBC (see below). On top of this initial habitation zone, there was a red burned dwelling floor (context 149). One can only speculate that the outline of the floored area might have been of trapezoidal shape on the basis of the shape of the preserved floor level and by analogy with such contemporaneous dwellings found at Vlasac in 1970–1971. Here, the first pits with *in situ* cremated bones seem to have been dug into sterile deposits immediately around this Late Mesolithic dwelling floor, which had only a partially preserved rear part, while the Danube has eroded away its front part. These pits might have been dug only upon the abandonment of the dwelling floor and its covering by a sterile layer of soil (context 132). Two oval pits with *in situ* cremated human bones (contexts 97 and 146 [see Appendix 1] found on the eastern gradient of the depression at slightly different levels), as well as the infill of the burial sequence above the dwelling floor, were seen in section on the eroded portion of the riverbank immediately upon the start of work at Vlasac in 2006 (*Borić 2006; 2008; Borić et al. 2008. Figs. 5, 8–10*) (Fig. 3).

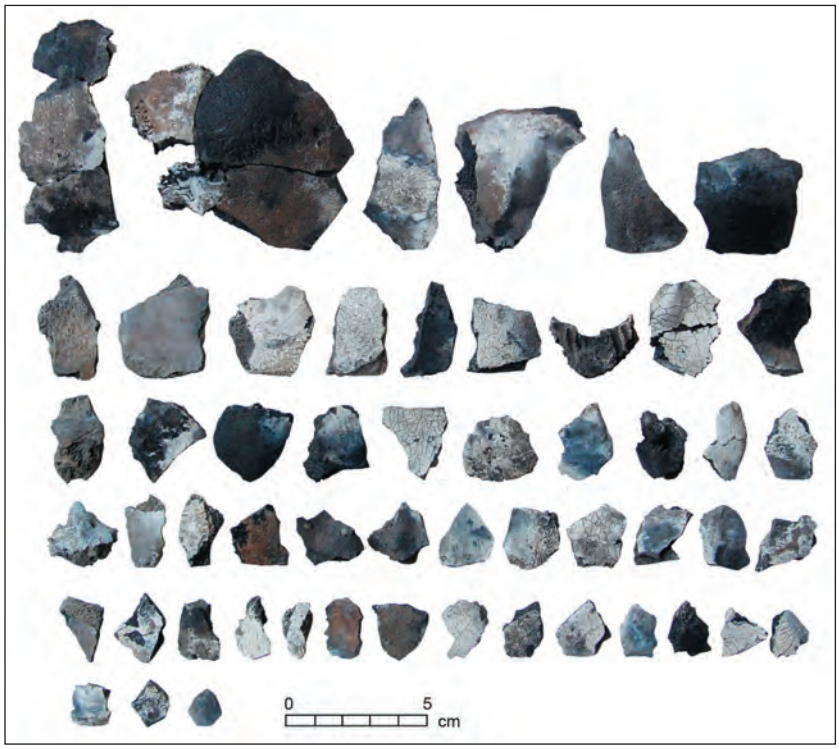


Fig. 13. Burned cranial fragments from cremation pit F26 (Trench 3/ 2006, Vlasac).

Once this floor surface (context 149) had been abandoned, eight inhumations of adults, children and neonates were placed one above the other, with the same body orientation, in supine extended positions. In addition, one of the earliest burials found

Fig. 14. Burned bone projectiles found in F26 (Trench 3/2006, Vlasac).

here, placed at the south-eastern side of the cut fashioned for the (trapezoidal) dwelling floor, was a child burial (H297; around 1 year old), associated with more than 400 Cyprinidae teeth appliqués modified by making V-shaped cuts on their roots to facilitate easier sewing to the cloths that adorned the deceased, along with 21 appliqués of *Cyclope neritea* marine snails. The knees were covered by a large, specially chosen stone. All these mortuary elements may connect H297 with the first burial discovered in 2006, H2, suggesting these two burials were contemporaneous (H2 is dated to 6775–6475 calBC at 95 per cent confidence, or 6681–6530 calBC at 68 per cent confidence after correcting for the freshwater reservoir effect: for details of all AMS dates, see *Borić et al. 2008.Appendix*). However, H297, although in the immediate vicinity of the vertical sequence of burials, was not in a direct stratigraphic relation with the other burials and was not damaged by subsequent digging. It also had an unusual body orientation, with the head pointing north-east.

Within the vertical burial sequence in Trench 3/2006, older burials had usually been partially disturbed by later digging and the subsequent cremation of the disturbed human remains. While it is difficult to reconstruct with certainty the remains of which burials are found within the earliest cremation pits, partly due to the loss of other burials that might have been destroyed by erosion, one could speculate that these first pits contained the bones of such older burials. On the other hand, it is clear that one of the damaged burials found at the bottom of the vertical sequence of burials, an old adult female (H136) was disturbed by a later pit in which this individual's bones were probably burned *in situ* (context 115). Only the feet and the right tibia and fibula of this individual were found unburned in their primary articulation (Fig. 4). As a consequence of this disturbance, some disarticulated and unburned bone fragments of this individual were probably scattered in the vicinity of the burial's resting place, as is most probably the case with an unburned left tibia diaphysis (context H130) (*Stefanović n.d.*). Burial H136 is directly AMS dated to 6775 to 6473 calBC at 95 per cent confidence, or 6684 to 6530 at 68 per cent confidence (after correcting for the freshwater reservoir effect; see *Borić et al. 2008*). From context 115, the cremated proximal anterior parts of the left and right tibiae, and a fragmented left tibia labelled H130, probably come from Burial H136 (Fig. 5). Other scattered and unburned finds from context 115 might also have come from individual H136: a very gracile clavicle, which is morphologically identical as a cremated fragment in context 115 (Fig. 6). A total of 19 permanent burned teeth were found that also might have belonged to individual H136. Although incomplete, among the burned bones, ribs, carpals and phalanges were recovered with a 5mm sieve and the flotation of sediments from context 115. There were fragments of burned bone projectiles, which seem to have been a recurrent feature of these pits with burned human bones (see Appendix 1), and we will later discuss the possible meaning of such associations (see below).

Fig. 15. Skeletal inhumation Burial H244 (Feature 22) prior to excavation, and pit F23 (fill 242 and cut 243), which contained burned human remains and* Cyclope neritea *marine snails.

The burned teeth in this context do not differ from the burned bones – their surfaces are smooth and glassy, with black colour dominating the crowns and roots, indicating a lower temperature and heat (*Schmidt 2008. 58*), probably about 360–440°C (*Shipman et al. 1984.311*). Slight transverse fracturing on the roots is observed and uniform black colouration could indicate that the teeth were probably burned with no soft tissues around them, since teeth protected in the sockets tend to be multicoloured (*cf. Schmidt 2008.63*). Small maxillar and mandibular fragments among the burned bones of context 115 again suggest that perhaps the whole head of H136 was burned here.

Fig. 16. The upper part of the body of Burial H244 (Feature 22) with the damage done to its torso and the burned humerus left in its supposed* in situ *location.

Above this cremation pit context 115, an adult male individual, Burial H81, was interred. In its primary articulation, only the left half of the pelvis, the whole left leg and the right leg beneath the knee are preserved (Fig. 7). From the position of the deceased's legs, it could be inferred that at least lower limbs might have been wrapped at the time of burial, as the ankles are touching, while the feet were found in the upright position due to the effect of the wall (*Borić 2006*). H81 is now also directly dated by OxA–20762 to 6639 to 6440 calBC at 95 per cent confidence, or 6590 to 6468 calBC at 68 per cent confidence (after correcting for the freshwater reservoir effect), confirming its stratigraphic position in relation to H136. The bones of this individual were disturbed by the digging of the burial pit for the younger burial, H63, which is above H81, but slightly horizontally displaced to the north along the same axis.

Burial H63 is a young female adult between 25 and 30 years of age (*Stefanović n.d.*). A number of bones were found in the infill of the burial pit of H63. On the basis of morphological and metrical characteristics of these disturbed remains, one can suggest that these body parts are the bones of an adult male, and can be with some certainty connected to H81. Moreover, the presence of particular bones missing from H81 (skull fragments, right femur, left humerus) strongly suggest that these bones are disarticulated body parts of H81. While disarticulated bones of H81 were not burned *in situ*, perhaps some of the unaccounted for bones were burned in Feature 26, found to the south of this main burial area. This oval pit contained cremated human bones and was superposed by a primary skeletal inhumation (H232). We describe this feature in more detail below.

Fig. 17. Hearths 15 and 18 and Burials 45 (AA–57778), 53, 54, 54a, (OxA–5823) and 49 (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

The younger burial, H63, found above H81, and containing some of the disarticulated body parts of H81, is directly dated to 6232 to 6018 calBC at 95 per cent confidence, or 6212–6066 calBC at 68 per cent confidence (after correcting for the freshwater reservoir effect, see *Borić et al. 2008*), and is thus at least two cen-

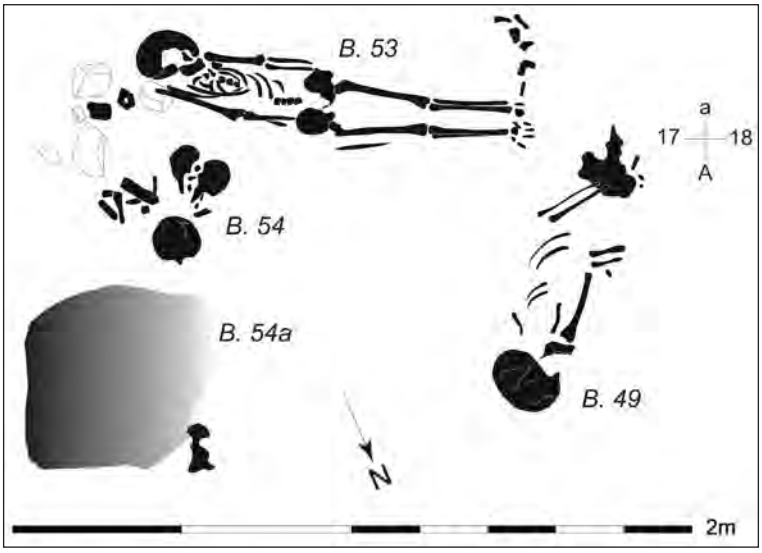


Fig. 18. Sketch of Burial 54, with cremation zone 54a and primary articulations Burials 49 and 53 (redrawn after* Srejović and Letica 1978.70*).

turies older than H81 (see Fig. 32). This may suggest a restrictive set of criteria for particular individuals to be buried in this location over a long period of time, while, at the same time, there seems to have been a clear recognition of this particular burial place by a social group within a larger community that repeated several times the same set of burial customs (see *Borić in press*). The skull of H63 was removed possibly after the decomposition of the soft tissues, since neither the cervical vertebrae nor the atlas were disturbed. H63 bears no traces of exposure to fire, and is much more complete than both H136 and H81. Parts of the primary articulations of a juvenile (H153) and a sub-adult individual (H60) were found over H63, while her left ulna, radius, femur, part of left pelvis and lumbar vertebrae were removed when a burial pit was dug here for the interment of two neonate burials (H62 and H69). All these disarticulated body parts of H63 were subsequently placed in the infill of the last inhumation in the group burial – H53 (see below). Modified Cyprinidae teeth appliqués were found on both sides of the neck and partly below the left scapula of H63, suggesting some sort of headdress adorning the deceased. A large Spondylus bead and red and white limestone beads found associated with this burial (*Borić 2006; 2007b; 2008*) confirm its radiometric date, placing it in the transformational phase in the Danube Gorges, parallel with the Early Neolithic time span of the wider region of the north-central Balkans (see *Whittle et al. 2002; 2005*).

An important discovery for the theme of this article is the subadult Burial H60, possibly a young female individual (14–16 years old), placed directly on top of H63. H60 was largely burned by cutting another oval pit in this part of the burial place. This was *in situ* burning, which almost completely destroyed the lower limbs and lower torso of H60, while the bones of the upper torso (clavicles, rib cage and cervical vertebrae and scapulae) were found in their primary articulation, although parts of these bones were also affected by fire and appear partly burned (Fig. 8). In the course of the cremation process, some bones (pelvis and lower limbs) of individual H60 were heavily burned. By the content, number and weight of fragments, one could infer a deliberate cremation of the exhumed bones of individual H60 *in situ*. It is of some interest to note that the skull of this individual was detached from its primary location, similarly to the removal of the skull of H63. The disarticulated position of the broken atlas of this individual may suggest that the head was severed while the bones of H60 were still fleshcovered or defleshed but not completely dry.

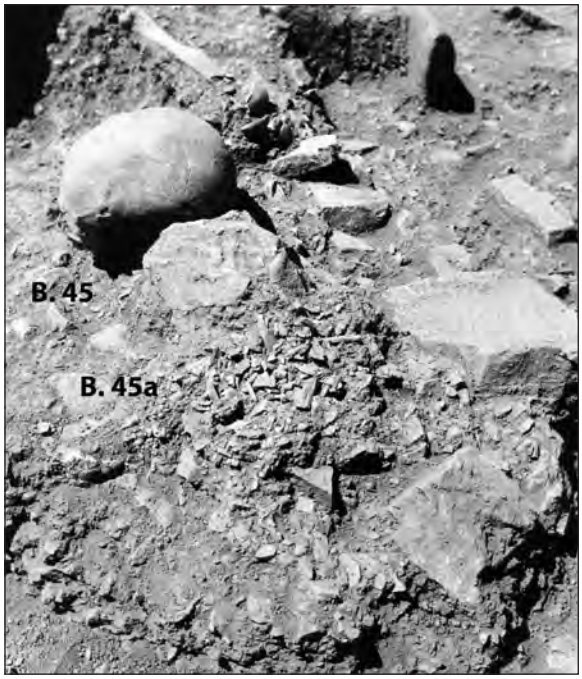
In this last pile of burned bones, of which most belonged to H60 in this location, closer to the area where the heads of H63 and H60 should have been found, there were also cranial fragments of an adult individual as well as of a juvenile (Fig. 9). It is likely that these fragments indicate that, after the removal of the heads of H63 and H60, these skulls were burned here, the remains of which are found in the pile of cremated remains. The following bones of young female (?) individual H60 were present: twelve cranial fragments with unobliterated coronar and sagital sutures, and two fragments of occipital bone with external occipital protuberance and unfused sutural edges. The following fragments comprised the cranium of individual H63: four fragments of frontal bone, with parts of orbit; a fragment of the right temporal bone with zygomatic process; two fragments of the petrous part of the temporal bone, with internal auditory meatus; the apex of the right mastoid process and incomplete left mastoid process; a fragment of the lingual surface of left mandible with teeth sockets; a left fragment of a mandible with the third molar, and one fragment of the body of a mandible, with the part of a socket for the third molar and visible mylohyoid line and groove. Although most of the fragments are incomplete, their

Fig. 19. Skeletal inhumation Burial 45 and cremated Burial 45a found behind the head of Burial 45 (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

general appearance indicates that they belong to an adult female.

On the other hand, the individual in Burial H21, represented by an isolated skull with mandible and the upper portion of the torso of a smaller child (2 years ± 8 months), on the basis of its age and the general condition of the bones, probably belonged to the postcranial bones found as a partially preserved primary articulation marked as H153, also placed on top of H63. If this is the case, the upper torso and head of this child were also removed but not burned, and placed in the form of a structured deposit, probably upon closing the whole burial location (see below; *Borić 2006*). This removal of body parts probably took place when the skulls of H63 and H60 were removed and subsequently burned. All these actions were probably undertaken immediately before a new skeletal inhumation was buried here.

The old adult individual Burial H53 is placed along the same axis as other, older burials in this location, but in the opposite direction to all other burials, *i.e.* with the head pointing upstream the Danube, instead of the previous rule of orienting the deceased with heads pointing downstream. As mentioned above, the interment of this burial might have directly been connected with the series of events just described – of detaching the skulls of earlier burials and the burning of H60 and probably parts of H63 (the head) and possibly also parts of the child, H153. The legs of the old adult individual, H53, were found lying directly on the pile of burned bones designated as H60 (Fig. 10). The burial fill of this last inhumation, H53, at this location also contained a number of bones from previously disturbed contexts,



but primarily the complete left femur, fragments of the left pelvis and the lumbar vertebrae of individual H63. On top of one thin stone plaque that covered the pelvis of H53, a red deer skull with antlers was found as part of the ritualistic/structured closing of this location. This red deer skull was placed symmetrically with the already mentioned skull of child individual H21 (probably equivalent to the articulated post-cranial remains labelled as H153) (see *Borić in press*). The red deer skull has directly been dated in the range 6006 to 5838 calBC at 95 per cent confidence, or 5984–5891 calBC at 68 per cent confidence (*Borić et al. 2008*). After this burial, the whole location was covered by large blocks of stone and 'closed'. The final infill of this burial location beneath the stone blocks, *i.e.* its uppermost layer, contained a number of burned human remains, which must have originated from the disturbance of older contexts with burned human remains, along with disarticulated unburned fragments of human bone.

Feature 26 in Trench 3/2006

On the southern side of the described depression, 1.5m to the south of the vertical sequence of burials, another skeletal inhumation, H232 (young female adult, Feature 21), was discovered in 2007. The orientation of this burial followed the same general orientation as the rest of the burials in the vertical sequence. Due to the gradient of the terrain in the southernmost part of the depression, the position of this burial was semi-seated, while its pelvis was placed directly on top of a zone with intensely burned human remains found in an oval pit lying directly

beneath H232 (Fig. 11). The pit (Feature 26) had an East-West orientation. The cut (context 252) was 100 by 60cm in diameter and 50cm deep. Three distinct fills were separated in the cross-section of this feature (contexts 249, 251 and 260). These differences mark the intensity of burning in the pit, from the trampled layer (context 251) on top of which H232 was placed – the most intense zone of burning found in the middle layer (context 249) and the diffused burning (context 260) that affected the surrounding sediment on pit's edges (Fig. 12). While some burned bones from this pit were recorded *in situ*, most were hand-collected or picked up by sorting the heavy residue after the flotation of the sediment from this feature. The flotation procedure also allowed for the recovery of a concentration of palaeobotanical remains, primarily stones of cornelian cherry (*Cornus mas*), which were also noted in relation to some burials during the first excavations at Vlasac (*e.g.* Burial 49; *Srejović and Letica 1978. 55*). This concentration of cornelian cherries found in F26 probably occurred accidentally, being still attached to branches used for firewood, but one should not exclude the possibility that the fruit was deliberately thrown into this feature. Their presence probably indicates the autumn for the timing of the cremation event. Most recently, one of these cherry stones from context 249 was directly AMS dated by OxA–20 702 in the range 6636–6476 calBC at 95 per cent confidence, or 6596–6502 calBC at 68 per cent confidence. This date could be taken as the date for the cremation pit, but also for the burial of H232, if one assumes that the interment of this individual took place immediately after the cremation of bones, which their stratigraphic superimposition suggests. Comparing the heights of burials H81 (*c.* 7.25 m asl) and H232 (*c.* 7.30 m asl), which were both found at approximately the same level above cremated contexts, as well as the completely overlapping dates obtained for the likely interments of these two individuals, one may suggest that these events possibly took place around the same time, utilising an older burial, H136, as the substance for burning in cremation pits beneath both burials.

Fig. 20. Skeletal inhumation Burial 47 and cremated bones Burial 47a (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

Total recovery of the burned human remains from cremation pit F26 was attempted, and these include: 511 fragments of burned bones weighing almost 600 grams that were hand collected; 199.6 grams from a 5mm sieve; 647.8 grams from a 3mm sieve; and 47.8 grams from the flotation of sediments. The length of fragments recovered by flotation ranged between 0.5mm and 20mm (Appendix 1). Multiple colours on the burned bones are noticeable – varying from black to light blue and grey, to partially burned bones. It is possible that not all the bones were exposed to the same temperature, probably due to their different positioning within a pyre and fluctuations in temperature that occur naturally. Also, bones could be partly burned or differ in colour due to draft and lack of fuel (*Walker et al. 2008.129*). Since the dimensions of cremation pit F26 do not suggest that a whole adult body could have been buried in it, it is most likely that some already defleshed bones were dug up from their primary position and then burned here.

On the basis of the anthropological examination of the burned remains

from this feature, it is possible to conclude that there are no duplications of skeletal elements to indicate the presence of more than one person, although the high fragmentation of bones might be misleading in this respect. The majority of fragments originate from long bones, but three fragments of vertebrae and more than 60 cranial fragments are also present, indicating that almost the whole skeleton or at least all the parts of a human skeleton might have been cremated here. Also, one mandibular fragment, 28mm long, is present, with preserved lingual surface and with mental spines and sockets for both canines and all incisors, indicating an adult person. However, the cranial fragments were the best preserved and are the best for sex and age determination. Cranial suture closures, observed on four fragments, indicate that the individual was of adult age, over 50 years old (Fig. 13). Due to high fragmentation and the absence of diagnostic anatomical features on the post-cranial skeleton for sex determination, the gracility of bones was the only indicator to suggest a possible female. In an attempt to answer the question about whose bones were burned in F26, one may thus recognise the possibility that the disturbed bones of adult female H136 might also have found their way into this cremation pit and not only into the previously mentioned context 115. This conclusion is corroborated by the stratigraphic positions of these burial features, their proximity, anthropological observations on the burned human remains and their comparisons with the preserved skeletal inhumation of H136, which was found in its primary articulation.

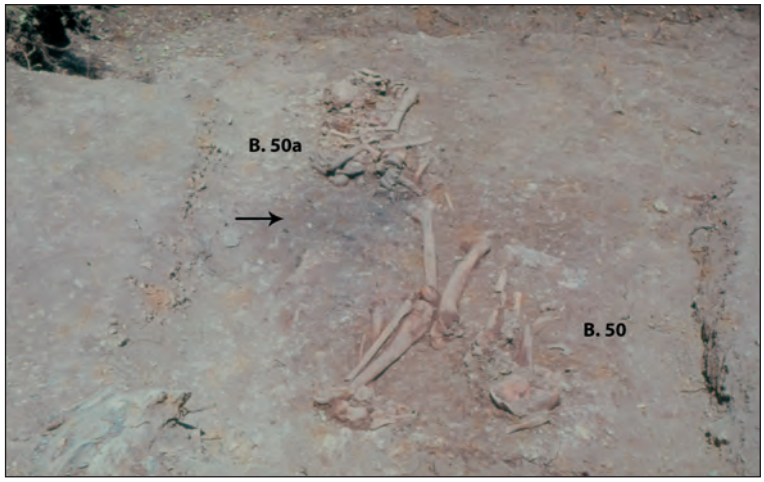


Fig. 21. Skeletal inhumation Burial 50a, with dislocated right femur and traces of burning in this zone of disturbance; next to it, the disturbed skeleton of Burial 50.

Among the recovered fragments are an ulna and a radius that can be articulated. It is important to note that the fracture patterns observed are not those originating from the bone shattering prior to burning (*Mays 1998.214*). Furthermore, a post-depositional disturbance could not result in either such traces or in the high degree of fragmentation. One bone fragment shows cutting traces made while the bone was still heated, while others show traces of blunt force trauma on the edges, which may indicate that the bones were first cut and then smashed. In this particular case, we suggest that the mechanical breakage of the bones was done when the bones were being prepared for cremation. Thus, we could assume that some time after the initial inhumation, defleshed bones of the deceased were taken from the primary burial and intentionally fragmented in order to be subsequently burned in the pit. J. Kinley (*1994.342*) states that high fragmentation of burned bones in cremations cannot be taken as an indication of the state of burned remains at the time of deposition. Any movement while they were hot, their interment, as well as the subsequent excavation and post-excavation conditions would affect the bones and most likely increase their fragmentation. For a small quantity of bones we could say that they suffered some very limited fragmentation in the course of the excavation and through their post-excavation treatment, but deliberate pre-incineration fragmentation in a number of cremation burials at Vlasac is very likely. Some instances of burials from the 1970–1971 excavations at Vlasac support this conclusion (see below).

Eleven fragments of burned bone projectiles (Fig. 14) were found in the same feature, commingled with burned human remains. One fragment was found beneath an unworked stone slab (context 259) placed within the cremation pit, while nine other fragments came from the most intense zone of burning in the middle of the pit.

Extension Trench 3/2007

There is only one instance in the part of the site where another cluster of skeletal inhumations was found with the evidence of, first, post-mortem damage to a skeletal inhumation and, second, subsequent burning of the disturbed human remains and associated finds. It relates to Burial H244 (Feature 22) and pit Feature 23 (fill 242 and cut 243) (Fig. 15), found in close proximity to two other skeletal inhu-

Fig. 22. Distal tibia fragment that refits with a burned shaft fragment from Burial 50.

mations, Features 25 (H254) and 27 (H267). The individual labelled as H244 is a female, around 40 years old. This skeleton was damaged by a disturbance that damaged most of the torso, leaving only distal parts of the arms and parts of the lumbar vertebrae. The mandible was also not found, and one could suggest that perhaps the retrieval of the mandible of this individual was the cause of the disturbance. Curiously, a black burned and fragmented right humerus was found in a place where it would be expected anatomically, but no other traces of *in situ* burning were noticed in this location (Fig. 16). Further, a pit with a dark grey deposit and some burned human remains was recognised as Feature 22 (fill 242 and cut 243) in the immediate vicinity of H244, *i.e.* behind its head, but at a somewhat lower level. In total, 236 fragments weighing 64.4 grams were collected from the pit. Apart from six cranial fragments (longest fragment 28mm), with no sutures, all other fragments come from long bones. Due to the high degree of fragmentation (the longest post-cranial bone is 22mm) and the absence of anatomical features for sex and age determinations, matching these fragments with the mentioned skeletal inhumations in the vicinity is very difficult. Pit F22, with remains that do not indicate intense burning *in situ*, also contained 9 burned *Cyclope neritea* marine snails. It is possible that these appliqués, along with burned bone fragments, originate from disturbed burial H244, and that some of these remains ended up in this burial pit by secondary redeposition, while the primary location for their burning might have been outside the currently preserved riverbank, on the edge of which this concentration of burials was found.

Summary of findings for the 2006–2007 cremated remains

Previously described instances of cremation 'burials' discovered in the course of the 2006–2007 excavation seasons suggest both some recurrent patterns in the appearance of cremated human bones, but also indicate a certain degree of variability that does not allow for a single interpretive scenario. The recurrent pattern found in the burial zone within Trench 3/2006 suggests disturbances being made only to certain parts of older burials, frequently the head and torso, while legs and feet were occasionally preserved. Disturbed bones were probably deliberately broken in smaller portions prior to burning. Given the degree of burning and the presence of charcoal in these pits, the fire must have been burned for a relatively long period, perhaps several days

Fig. 23. Burned cranial fragments from cremation pit Burial 35.

(*C. A. I. French, pers. comm.*). Such events of digging through and disturbing previous burials and the subsequent fragmentation and final burning of these bones might have taken place as a required practice of (ritual) preparation for the interment of the newly deceased, since the skeletal inhumations seem to have been placed directly on top of burned remains. Only in one case (Burial H60) was it possible to unequivocally determine that bones of more than one individual were jointly cremated. The superimposition of these cremation pits with skeletal inhumations and their vertical stratigraphic relations with other features in Trench 3/2006, further aided by a number of radiometric dates now available, suggest that the basic elements of the same mortuary/ritualistic practice might have remained unaltered for at least the last 800 years of the 7th millennium calBC. In the course of this period, this burial location was used for interments of a selected number of community members, which might have belonged to a particular social (kin?) group. Some changes seen in the appearance of ornament novelties around 6200 calBC did not alter the basic mortuary ritual of secondary re-burial and cremation (see below).

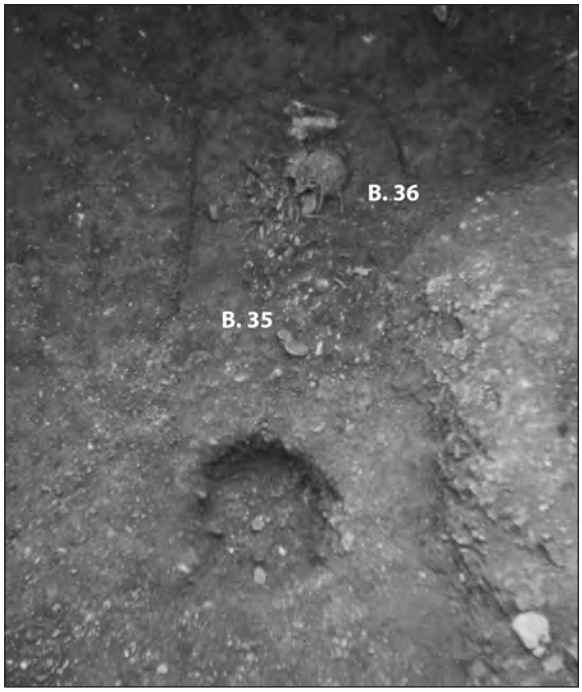


Fig. 24. Excavated cremation pit of Burial 35 and the pile of bones with the head on top labelled as Burial 36 (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

Cremated bones from the 1970–1971 excavation campaigns

In the course of 1970–1971, 19 burials with cremated human bones were recorded across the excavated area as i) piles of bones (Burials 35, 45a, 47a, 65a, 58a and 68), ii) contents of oval pits (Burials 11b, 54a, 85 and 86, while the last two were marked as found in 'fireplaces'), or iii) as isolated bones found within the burial fills of some skeletal inhumations (Burials 36, 45, 50, 50a, 50b, 51a, 52, 55 and 67) (see Appendix 1). A number of physical anthropologists have examined the human remains from the 1970–1971 excavations at Vlasac (*Nemeskéri 1978; Nemeskéri and Lengyel 1978; Nemeskéri and Szathmary 1978; Menk and Nemeskéri 1989; Mikić 1981; 1992; Roksandić 1999; 2000*). Although these authors comment briefly on the cremation burials, detailed analyses of these remains have never been undertaken, leaving this phenomenon with neither an adequate description nor an appropriate interpretative framework.

There are some problems with the collection of cremated bones excavated at Vlasac in 1970–1971. One burial (Burial 85) with cremated remains is missing from the collection. Also, the labelling for Burials 65 and 65a is confused: Burial 65a was originally described in the source publication as a round pit, 0.25m in diameter, with calcified human bones (*Srejović and Letica1978.61*), while in the preserved collection the label 'Burial 65a' is used for adult unburned human bones, and the label 'Burial 65' is used for cremated remains. The source publication also fails to mention cremation bones found in the burial fills of skeletal inhumations.

The cremated remains excavated in 1970–1971 could also, slightly differently, be divided into another three groups. The first group would comprise defined cremation contexts (pits or piles) containing only burned human bones (Burials 11b, 35, 45a, 47a, 54a, 58a, 65, 68 and 86). The second group comprises burials where burned bones are found associated with primary articulated skeletons (Burials 50 and 50a). The third group is made up of sporadic bone fragments (less than five per burial) that might have accidentally come to rest in burial fills from disturbed cremations nearby (Burials 36, 45, 50b, 51a, 52, 55 and 67). The observations presented below are made on the basis of published information (*Srejović and Letica 1978*), as well as re-examined material and documentation available at the Faculty of Philosophy, Belgrade University. We will not use the original excavator's phasing of burials for phases Vlasac I–III, since it has recently been shown that, bearing in mind the colluvial character of formation

processes at Vlasac, one could not sustain the excavator's stratigraphic understanding of the site, and a thorough revision of all associated features is required. Such a new understanding of formation processes and the stratigraphy of the site is based both on new field research and an increasing suite of new radiometric measurements dating secure contexts from old excavations (*Borić et al. 2008*).

In a number of cases, we were able to connect the defined cremation pits and piles that contained burned human remains with nearby disturbed skeletal inhumations, the bones of which were burned. However, we could not be absolutely sure in each particular case that the cremated bones were from skeletons in the vicinity of which they were found. Even when diagnostic parts exist, due to the shrinkage when exposed to fire and the high degree of fragmentation of burned and unburned bones, it was hard to find fragments that can be refitted. However, in a small number of instances, we were able to conjoin unburned bone remains from the inhumations with burned fragments of bones found in cremations.

In the following, we describe particular contextual associations. While piles or pits with cremated human bones were found in different parts of the area

Fig. 25. Section above Burial 11b in square a/6 (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

excavated in 1970–1971, their presence is prominent in the area where a number of other habitation and mortuary activities were also concentrated, *i.e.* in the western part of the site, in front of, behind and on the western side of Dwelling 2 (see Fig. 2). We shall describe these instances first.

Space around Dwelling 2 (Western sector)

In square A/17, located in front of the wider side of trapezoidal Dwelling 2 and overlapped Hearths 15, 17 and 18, a complex sequence of overlapped and truncated skeletal inhumations was found (Fig. 17). Among these burials are some of those that the excavators recognised as cremation burials, frequently in association with, or in relation to skeletal inhumations. We describe each of these features below.

Burial 86 (Dwelling 2)

At the same level as the floor of Dwelling 2 and next to the western side of this floor (0.4m away from the floor), there was an oval pit (0.8 by 0.35m) marked as 'Fireplace 2'. It contained a thick layer of charcoal and ash, as well as calcified human bones. These bones were marked as Burial 86. This feature contained 464 post-cranial fragments, the majority of which originate from long bones of the lower extremities, but the head of a radius, a glenoid cavity (scapula), three fragments of ribs, one vertebra and two phalanges indicate that bones from the upper part of the body were burned here. There were also 75 very fragmented cranial (calotte) fragments, and only one fragment of the mandible ramus (46.4mm). Cranial as well as post-cranial fragments do not show diagnostic criteria for aging or sexing of these skeletal remains. Among the burned human bones, one burned unmodified Cyprinidae tooth appliqué was found.

The excavators indicate that this oval pit must have been dug only after the construction of Dwelling 2 (*Srejović and Letica 1978.22*). This is similar to the case of the so-called 'Fireplace 1', which contained Burial 85 associated with Dwelling 1 at the Eastern sector of the site (see *Borić et al. 2008.Fig. 14*). In both cases, it could be problematic to assume that these were the actual fireplaces of these dwellings. Instead, it is more likely that, similarly to the described instances from the new excavations at the site found in Trench 3/2006 (see above), Burials 85 and 86 associated with Dwellings 1 and 2 are cremation pits connected primarily with the burning of human bones. For the absolute dating of these first trapezoidal dwellings at Vlasac, new radiometric dates indicate the first two centuries of the 7th mil-

lennium calBC, while the cremation pits might have been somewhat later. For instance, a roe deer skull with antlers found at the floor of Dwelling 2 was dated in the range of 7047 to 6699 calBC at 95 per cent confidence, or at 7033–6821 calBC at 68 per cent confidence (*Borić et al. 2008*). Although found approximately at the same level as the floors of these two dwellings, it is likely that these cremation pits were created after these dwelling spaces had ceased to be used for everyday activities.

Burial 54a

Cremation Burial 54a was found in an ellipsoidal pit containing burned human bones next to Burial 54 (Fig. 18). Burial 54 is a disarticulated inhumation of an adult male, over the age of 50, whose bones were placed in a pile above Burial 53 (see Fig. 17).

The total of 336 burned bone fragments, weighing 527 grams, were recovered from Burial 54a. There were 32 cranial and 304 post-cranial bones exhibiting similar colours: from blue, dark grey to white and black. However, some bones were also reddish in colour, not caused by the fire, but possibly due to the treatment by ochre. Fragments of calotte, vertebrae and some long bone fragments have a thin layer of reddish dust and direct red pigmentation on the surface. A mandible condyle, part of the mandible body, and one premolar indicate that this cranial fragment belonged to an adult. Among the burned bones in Burial 54a, part of a scapula (glenoid cavity) was found. The left scapula of the individual in Burial 54 is missing this part of the bone, and the fragmented part of the glenoid cavity is probably the one found among burned bones in the cremation pit of Burial 54a. In the cremation pit infill, an unburned flint, an unmodified third phalanx of a red deer, and a burned bone projectile were found.

On the edge of cremation pit of 54a, there was a right pelvis of another adult (male), over the age of 30 (Fig. 18). One of the fragments missing from the pelvis was found inside the pit, partly burned. After a close examination of the content of Burial 54a and comparisons with surrounding skeletal inhumations, we conclude that the bones of two different individuals can be identified. One of these individuals could be connected to the disturbed bones found in the secondary position and labelled Burial 54. This assumption is likely on the basis of the close spatial connection between these two burials and the bone fragments that can be conjoined. The other individual is identified by the presence of burned bone fragments and parts of the unburned pelvis, but to no other

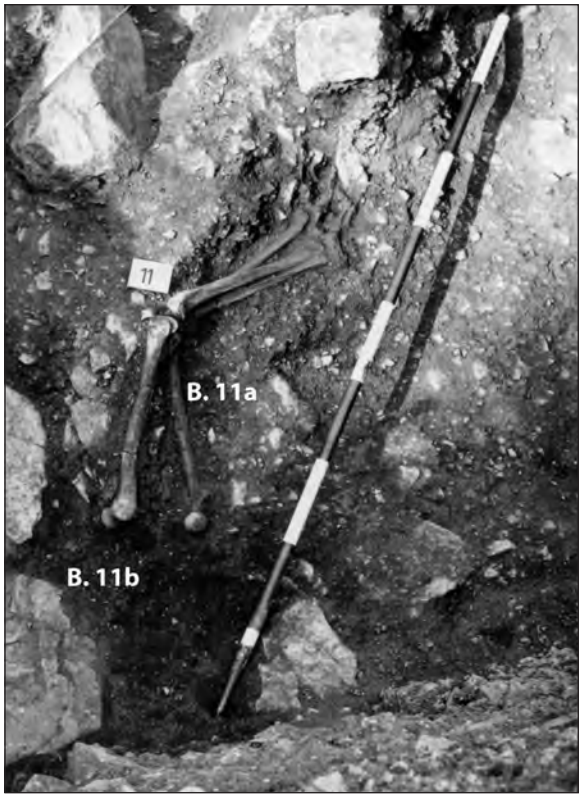


Fig. 26. Partly preserved skeletal inhumation Burial 11a and cremation pit Burial 11b, which damaged the upper part of the body of individual 11a (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

articulated or disarticulated skeleton in the vicinity can this additional pelvis be assigned, and we must assume that this individual was not preserved in any articulated primary position in this zone of the site.

Burial 54 is dated in the range of 7024 to 6394 calBC at 95 per cent confidence, or 6678 to 6454 calBC at 68 per cent confidence (after correcting for the freshwater reservoir effect), and the whole sequence could possibly be assigned to the mid-7th millennium calBC (*Borić et al. 2008*).

Burial 45a

A heap of cremated bones – labelled Burial 45a – was found just above the head of Burial 45 (Fig. 19); 45a also had a burned bone fragment in its infill along with 410 unmodified Cyprinidae teeth appliqués around the head of the deceased. Only the head, a clavicle, right humerus and some vertebrae of this individual were found in their primary articulation. Burned human bones along with burned Cyprinidae teeth appliqués were found in the pile defined as Burial 45a, next to the head of Burial 45 (*Srejović and Letica 1978.58*). Burned post-cranial fragments belong to long bones, and only two frag-

ments of ribs and one of a phalanx were present. Cranial fragments do not show any suture closures, and like the post-cranial fragments, the absence of any identifiable features prevents us from providing sex or age determinations. At this stage we could only speculate that some of the disturbed and missing bones of Burial 45 might have been burned and placed in this pile behind the deceased's head, while the presence of cranial fragments among these bones would indicate that the head of some other individual must also have been burned here. Burial 45 is dated in the range of 6654 to 6411 calBC at 95 per cent confidence, or 6591 to 6462 calBC at 68 per cent confidence (after correcting for the freshwater reservoir effect) (*Borić et al. 2008*).

Burial 55

Two burned bones were found, placed in virgin soil, in the burial fill of skeletal inhumation Burial 55 (*Srejović and Letica 1978.60*). One fragment is unidentifiable and less than 10mm long. The other is a calcified fragment of a long bone, 39mm long, probably part of a radius. These fragments might have come from Burials 45 and 45a – since the interment of Burial 55 considerably damaged Burial 45 (Fig. 17) – and possibly also the burned remains of Burial 45a. On the other hand, some of these burned bones might also have come from Burial 54a (see above), since the feet of Burial 55 were beneath this cremation pit, so the burned human remains in the fill of Burial 55 might have been intrusions from the later burial.

Burial 47a

Burial 47a exhibits a pattern that is almost identical to the one found in Burial 45a. Again a pile of burned bones marked as Burial 47a was found behind the head of skeletal inhumation Burial 47 (Fig. 20). This pile was 0.25m in diameter, and among traces of charcoal and ash, burned human bones as well as burned Cyprinidae appliqués were found. The assemblage contains highly fragmented and unidentifiable fragments of twenty-four cranial and 105 post-cranial long bones. While it is difficult to link the burned bones with the skeleton of Burial 47 – which consisted only of the head, vertebrae and pelvis – traces of ochre on one of the fragments of burned bones were detected. At the same time, the vertebrae of the skeleton of Burial 47 were also coloured with ochre (*Srejović and Letica 1978.59*).

Burials 50 and 50a

Burial 50a consists of a partially disturbed skeletal inhumation, with legs crossed at the ankles (*Srejović and Letica 1978.59–60*). In one of the previously unpublished photos of this burial, one notices that the right leg and the right arm had been disturbed, *i.e.* dislocated from their primary position, and that precisely in the location of this disturbance one can follow dark traces of burning (Fig. 21). This instance indicates that the disturbed bones of Burial 50a were probably burned, even including the bones of Burial 50, which was only partially preserved. Among the burned bones found in the fill of Burial 50a, 138 post-cranial fragments are from long bones only, with the longest bone fragment being 45mm long. One left metatarsal and tarsal, and one hand phalanx were found complete and unburned. Two fragments of a burned mandible and a calcified tooth were recovered, as well as one fragment of a cranial bone with observable suture. Although very fragmented and with no criteria for sex determination, all the bones are robust and it is possible to suggest, therefore, that they belonged to an adult. In the burial fill, one burned unmodified Cyprinidae tooth was found along with traces of ochre.

Fig. 27. Burned and fragmented projectiles from Burial 11 (after* Borić 2002b.Appendix 6*).

In the case of Burial 50, the partly preserved leg bones found in articulation had traces of breakage. In the fill of Burial 50, 147 fragments of post-cranial burned bones show traces of intentional breakage. A distal fragment of a tibia can be refitted with a burned fragment from Burial 50 (Fig. 22). Although burned fragments are partly mixed and calcified with fragments of other bones, the dimensions and morphological resemblance of the burned tibia shaft and the unburned tibia from Burial 50 suggest that the skeleton of Bu-

rial 50 was partly burned here. Other burned bones, however, are highly fragmented, with the largest bone fragment being 52mm long, and cannot be used for sex or age determinations. Among the burned bones, besides fragments of long bones of lower extremities, one phalanx and a fragment of a radius were found. A fragment of an epiphysis shows a red pigmentation that could be from ochre. The legs of the skeletons in Burial 50a and 50b had traces of ochre, and Burial 50 was reportedly found in 'reddish soil' (*Srejović and Letica 1978.59–60*).

Burials 52, 51a and 50b had fewer than five burned bone fragments, and these could perhaps be interpreted as intrusions from disturbed contexts of burning now located in Burial 50a. One fragment from Burial 50b shows traces of ochre.

Burial 35

Burial 35 is in the area behind Dwelling 2 (*Srejović and Letica 1978.55*). It was in the vicinity of another fire installation marked as 'Fireplace 4'. In this circular pit (0.39 by 0.34 m), 32 cranial and 372 post-cranial fragments were recovered, exhibiting variations in colour due to different degrees of exposure to fire. Post-cranial skeletal material differs from the rest of the cremated bones from Vlasac since there are more calcified bones (white predominates), indicating exposure to higher temperatures or longer exposure to heat. The assemblage of bones consists of fragments of vertebrae, ribs, a left ulna, a pelvis, a scapula, metacarpals, metatarsals, a humerus, sacrum, right talus and left patella, and unidentifiable fragments of long bones. Such a composition indicates that different bone elements from both sides of the skeleton were burned. Cranial fragments show an uneven intensity of burning on the inner and outer sides of the skull, and even different intensities of burning on specific parts of the skull (Fig 23). Eleven fragments belonging to the occipital and parietal bones on the outer lamina are burned (black in colour), while their inner lamina is untouched by fire. One occipital fragment (57x56mm), with an external occipital protuberance, shows a fine borderline of burning on the outer lamina. Fragments of frontal bones, two maxillar and three mandibular fragments are completely burned (light brown, grey and blue) and even calcified (white). On those calcified frontal bone parts, the separation of external and internal laminae can be observed. Given the colours observed on the bone fragments, it is reasonable to suspect that part of the preserved (not broken) cranium with mandible was placed upside-down on the pile of post-cranial bones which were more consumed by fire. Thus, the lower temperature changed only the outer parts of skull bones.

Fig. 28. Burial 9 in square 6/a: fragmented bones were placed in a pile encircled by several long bones and stones; Burial 11a in the foreground (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

This cremation burial was found in the immediate proximity of Burial 36 (Fig. 24), which contained a pile of disarticulated broken bones over an area of 0.5 by 0.4m with a head being placed on top of this pile. It is possible to assume that some of the bones from secondary Burial 36 were burned in the pit of Burial 35, although due to their fragmentation, it was not possible to ascertain this connection.

Central sector

Burials 11b and 9 (square a/6)

Cremation Burial 11b (the diameter of the cremation pit was 0.7m, depth 0.4m, associated with lumps of ochre) is found in the central part of the Vlasac terrace, where the layer of sediments is rather thin, since it is located on the border of the rocky plateau (see *Borić et al. 2008.4–5, Fig. 2*). The thickness of sediments in this square, as well as the cross-section of this burial pit, are visible in the previously unpubli-

shed section above Burial 11b (Fig. 25). There are a number of skeletal inhumations of articulated and disarticulated burials in the vicinity: Burials 4a, 4b, 6, 6a, 5, 9, 10, 11a, 18a, 18b and 18c. One of the burials in this group, Burial 6, has been AMS dated in the range 6600 to 6235 calBC at 95 per cent confidence, or 6558 to 6266 calBC at 68 per cent confidence (after correcting for the freshwater reservoir effect). By analogy, the remainder of the burials in this location could also be dated to this general chronological framework (*Borić et al. 2008*).

Next to the cremation zone of Burial 11b, partly articulated Burial 11a was found. In fact, the cremation pit of Burial 11b damaged the upper part of Burial 11a, of which only the lower limbs were preserved (Fig. 26). Due to the general morphological resemblance of cranial fragments and those of upper limbs present in Burial 11b, with the preserved lower limbs of Burial 11a, we can suggest that the bones of Burial 11a were burned inside the cremation pit of Burial 11b (similarly to previously described contexts from Trench 3/2006: Burial context H136, which was cut by a cremation pit context 115 or H60, see above). Besides the legs of Burial 11a, fragments of burned projectiles were found (*Borić 2002b.Appendix 6; Srejović and Letica 1978.69*), as well as some other discarded artefacts, among which was one unburned broken tool made from wild boar tusk. It is not unlikely that the burned projectiles (Fig. 27) were actually burned in the cremation pit of Burial 11b. The practice of burning projectile points has been attested in several other cremation burials at Vlasac.

In the context of cremation burials, it is of interest to mention Burial 9, found in the same quadrant as Burials 11a–b. Burial 9 was found in a natural rocky depression, encircled by larger stone blocks (Fig. 28). The excavators suggest that the spinal column of this individual had been twisted so that the pelvis rested on the skull. In Fig. 28 one can notice the disarticulation of this skeleton, with the longer bones encircling those that were intentionally fragmented and placed in the middle of this pile. We have suggested already that once the bones were taken out of their

Fig. 29. High fragmentation of bones found on a pile labelled as Burial 9.

primary inhumations, they were frequently deliberately fragmented and placed in a pile before being burned. Thus, burial 9 can be considered as an example of such preparation of defleshed (dry) bones, either for burning or simply for burial in a fragmented state (Fig. 29). In this case, parts of long bones were heavily fragmented, never burned, but buried on the pile alongside some of the remaining complete long bones of this individual. This case, like the previously described Burial 36, may also indicate ways of preparing bones for cremation.

Fig. 30. Burial 56 and cremation zone Burial 65 next to section e4–e5 (photo: Centre for Archaeology, Faculty of Philosophy in Belgrade).

Burial 58a (square b/9)

Burial 58a (0.62 by 0.4m of dark burning) comprises another concentration of cremated bones found beside partly preserved skeletal inhumation Burial 58. Burial 58 had its legs preserved, in articulation beneath the knees and crossed at the ankles (similar to Burial 50a, see Fig. 21), while only the left femur was preserved, and was extended into section b8–c8, such that the rest of the potentially preserved body remained unexcavated. Beside the right femur of Burial 58, cremated Burial 58a was found, suggesting that some of the bones of Burial 58 might have been burned here. In addition, the skeletal remains of a neonate, Burial 58b, were found next to the right side of Burial 58 in the proximity of Burial 58a (*Srejović and Letica 1978.64, Fig. 93*). These burials were found approximately at the same level (64.83m), with neighbouring Hearth 20 (at 64.81m asl), which was overlapped by Hearth 16. Such a position may indicate that these burials were placed at the rear of a possible dwelling structure, of which these hearths were part, upon the dwelling's abandonment. A bone and charcoal samples from the layer between the two hearths have provided overlapping ranges: 6638 to 6479 and 6634 to 6474 calBC at 95 per cent confidence, respectively (*Borić et al. 2008.15–16*). Burial 58a contains very fragmented calcified cranial and post-cranial bones. Among nineteen fragments of cranial bones, two were recognised as temporal, two as occipital and two are unidentifiable fragments with observable sutures and visible traces of sutura metopica. These characteristics, along with the presence of one fragment of the inner part of a mandible, with open sockets but no teeth or roots present, indicate the presence of an adult. All the cranial fragments differ in size, with the longest fragment being 41.6mm long. Among 153 post-cranial bone fragments, apart from one unburned phalanx, two fragments of ribs and two pelvic fragments (non-indicative for sex or age determinations), all other fragments come from long bones. The longest fragment is 50mm long. These fragments can not be reliably connected with the skeletal remains of disturbed Burial 58 or 58b.

Burials 65 and 68 (square d/5)

Burials 65 (circular surface 0.25m in diameter) and 68 (0.9 by 0.4 m) had smaller amounts of the calcified burned bones of two adult individuals found in the vicinity of Burial 56 (*Srejović and Letica 1978. 61*). We have already indicated that there was an error in the labelling of the disarticulated bones marked in the source publication as Burial 65 and the burned bones marked as Burial 65a, since on the original labels of this material in the collection we examined, these burials are inversely marked. Here, we are being true to the original labelling of the material and hence use label 'Burial 65' for the cremation and 'Burial 65a' for the unburned skeletal parts, thereby differing from the source publication. In a previously unpublished photo of Burial 56, on the right, next to section e4–e5 where Burial 65a was found, one notices a surface with dark burning that can be related to the *in situ* burning of Burial 65 (Fig. 30). Due to the high fragmentation of burned bones, it is not possible to draw any firm conclusions about where these burned bones might have originated, but it is very likely that they could be connected to the disarticulated bones of Burial 65a found

in their immediate vicinity. Burial 68, on the other hand, cannot be easily connected with any partially articulated skeleton in its immediate vicinity. These features were found in the vicinity and beneath the level of neighbouring stone construction VII and Hearth 21 (see Fig. 2).

Burial 67

One fragment of burned human bone was found in skeletal inhumation Burial 67 (square c/9) (Appendix 1). It is likely that this fragment was accidentally deposited in the burial by the re-deposition of soil that contained burned bones in the vicinity of this burial.

Burial 85 and Dwelling 1 (Eastern sector)

Burial 85 (ellipsoidal, 0.75 by 0.4 by 0.25m) was not found in the preserved collection of osteological remains from the 1970–1971 excavations of Vlasac. As previously mentioned when discussing Burial 86, found beside Dwelling 2, after the examination and review of the numerous contextual instances related to the cremation burials at Vlasac, Burial 85 is also probably not a fireplace of Dwelling 1. It should rather be interpreted as yet another cremation pit that might have been cut after the construction and use of Dwelling 1. However, one should notice that the excavators mention a lot of charcoal, ash, fish bones, fragments of a human skull, and other calcified bones associated with this feature (*Srejović and Letica 1978.18*). Since these bones were not preserved, it is impossible to comment on the fact noted in the source publication that these remains represent a 3–5-year-old child (*Srejović and Letica 1978.57*). Two dates obtained on animal bones found on the floor of Dwelling 1 give ranges of 7163 to 6818 and 7042 to 6699 calBC at 95 per cent confidence respectively (*Borić et al. 2008.12–14, Fig. 14*).

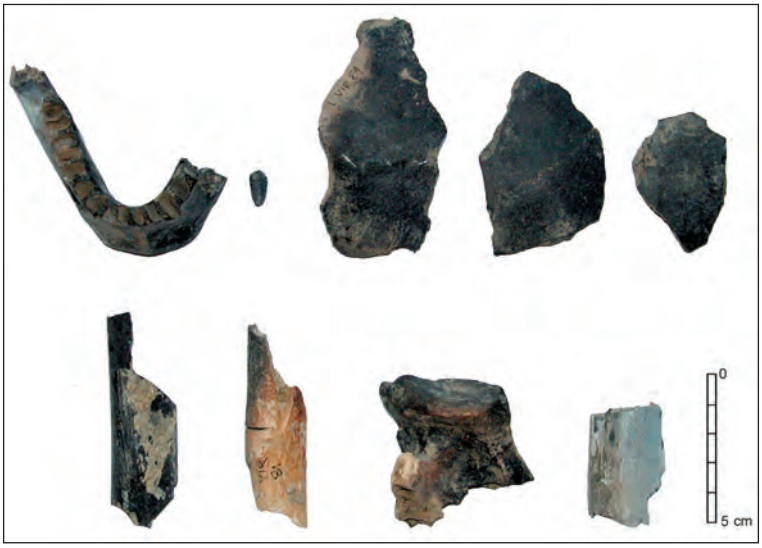


Fig. 31. Burned cranial and postcranial fragments of Burial 81 from Lepenski Vir.

Summary for 1970–1971 cremation burials at Vlasac

The absence of cranial sutures, epiphyses and, in most cases, dental material, reduced the possibility for exact age estimations. An exception to this pattern was Burial 54a, with two male individuals identified on the basis of their pelvic bones. In the source publication of Vlasac, the authors state: "*...cremated remains always have the opposite sex from the skeletal inhumations beside which they were found*" (*Srejović and Letica 1978.76*). However, diagnostic criteria for the determination of sex were often lacking in the examined assemblage of cremated bones. Hence, only the robustness of the preserved bones could be taken as an indicator. However, this is further complicated by the shrinkage of bones, since the exposure to temperatures affects bones, causing them to lose from 15 to 30 per cent of their mass and thus to become smaller (*Mays 1998.215*). In this light, we must reject the suggested patterning of opposite sex regarding cremated remains and the skeletal inhumations where these cremations were found.

Unlike the previously described 2006–2007 cremation 'burials', in the examples from 1970–1971, cremations were not superposed by skeletal inhumations. However, there are obvious similarities in the practice of partially or completely disarticulating older burials through secondary mortuary rites and the subsequent *in situ* burning of such disarticulated bones. The practice of intentionally fragmenting the disarticulated bones of older burials seems to have occurred prior to their burning, as in the case of the unburned but intentionally piled and fragmented bones of Burials 9 and 36 in the vicinity of which other burned burials were found – Burials 11b and 35 respectively (see above). Charcoal, dark layers of soil and ash were present in most of the cremations. The ritualistic nature of burning human bones might be the main reason for performing this practice near skeletal inhumations. There are also two examples of ellipsoidal cremation pits with burned remains la-

belled as Burials 85 and 86, previously interpreted as Fireplaces 1 and 2 and associated with Dwellings 1 and 2, respectively, in each case found along the dwelling's longer, western sides. We suggest that these features were not fireplaces related to the day-to-day use of these spaces, but more probably cremation pits similar in nature to those found in association with skeletal inhumations as described in a number of instances in this paper. However, one should be cautious in this respect and allow for the possibility that, although similar in form and content to other cremation pits, the association of these features with the two dwellings might have signified a slightly different kind of secondary mortuary ritual from other described instances. Moreover, among the described instances of secondary mortuary practices involving the intentional cremation of human bones, one could suggest several different types of mortuary and/or ritualistic behaviours. Such a variety of practices – underlined by a very similar material signature – may indicate individual choices made in adjusting an existing burial and or ritual custom to momentary circumstances and needs. On the basis of the existing radiometric evidence, this type of mortuary/ritualistic practice characterised the Late Mesolithic at Vlasac in the course of the 7th millennium calBC.

Comparative examples and possible meanings

The closest comparative examples for cremations from Vlasac are from neighbouring Lepenski Vir. A number of burials had occasional fragments (no more than four small fragments per burial) of burned bones in the burial fill (Burials 32a, 45a, 54d, 87 and 93). However, there is only one example, Burial 81, which contains a burned mandible and several cranial and post-cranial bones, which might be evidence of a possible *in situ* burning of human bones similar to the described instances from Vlasac (Fig. 31).

In the course of the early prehistory of Eurasia, cremation burials were occasionally reported from sites found from the Near East to western Europe and Scandinavia. The earliest known cremations come from Natufian culture contexts in the Levant. In the back of Kebara Cave, the remains of twenty-three cremated individuals were excavated by Turville-Pitre in 1931 (*Bar-Yosef and Sillen 1993.205–208*). The examined material demonstrates a high state of fragmentation, but as the authors point out, the burning of the bones was preceded by their desiccation and fragmentation. The authors suggest that the burning temperature might have been between 200 and 600°C (*Bar-Yosef and Sillen 1993.207*). Also in the context of the Natufian culture, at Wadi Hammeh 27, in Jordan, sixteen burned human cranial fragments were found scattered among the refuse of Structures 1 and 2 (*Webb and Edwards 2002.117*). At this site, a single, semi-flexed burial was found on top of what turned to be a collective burial containing five other individuals. This last burial in the sequence, Homo 1, was laid over an oval pit containing burned sediments, while limestone plates had been deliberately placed on the deceased's thorax. Five individuals found in a small pit beneath Homo 1 were the remains of secondary burials. One of these, Homo 3, had a necklace with 27 Dentalium shell fragments under the mandible, and traces of ochre on the bones (*Webb and Edwards 2002.109*).

The most relevant comparative example in the wider region of the Balkans for the cremations found in the Danube Gorges is the Lower to the Upper/Final Mesolithic sequence at Franchthi Cave in Greece (*Cullen 1995.277–278; Jacobsen and Cullen 1981*). The total of the examined human remains from Franchthi indicate between 15 and 34 individuals for Mesolithic levels, represented by both fully articulated burials, as well as many human bone scatters. A Mesolithic primary inhumation of a male, Fr 1, was found above a group burial location containing five inhumations (Fr 2–6) and two cremations of young adults (Fr 7 and Fr 8) in Trench G1, near the present entrance to the cave, next to the cave wall. The male individual, Fr 1, was buried in a shallow pit with an ashy deposit, in a semi-contracted position, with the pelvis and chest covered by stones (*Cullen 1995.275*). Below Fr 1, five inhumations (Fr 2–6) were found, having probably been placed in semi-contracted positions. They were found in a reddish sediment with shells, animal bones, and associated with a hearth (*Cullen 1995.276*). Radiometric dates (P–2096: 8710±100 BP; P–2106: 8730±90 BP; P–2107: 8530±90 BP) from the wood charcoal at this level indicate a period between *c.* 8000–7600 calBC. However, due to the problem of 'old wood' and the uncertain association of charcoal and burials, it is possible that the burials are somewhat younger than this date. Among these remains, two individuals, a male and female (Fr 7 and Fr 8), were recognised as deliberately cremated at high temperatures (400–1100°C). Cullen and King suggest that the bones were burned while still articulated and with the bones still covered with flesh (*Cullen 1995.277*). Cullen points out that the cremations at Franchthi yielded a small percentage of cremated bones, but

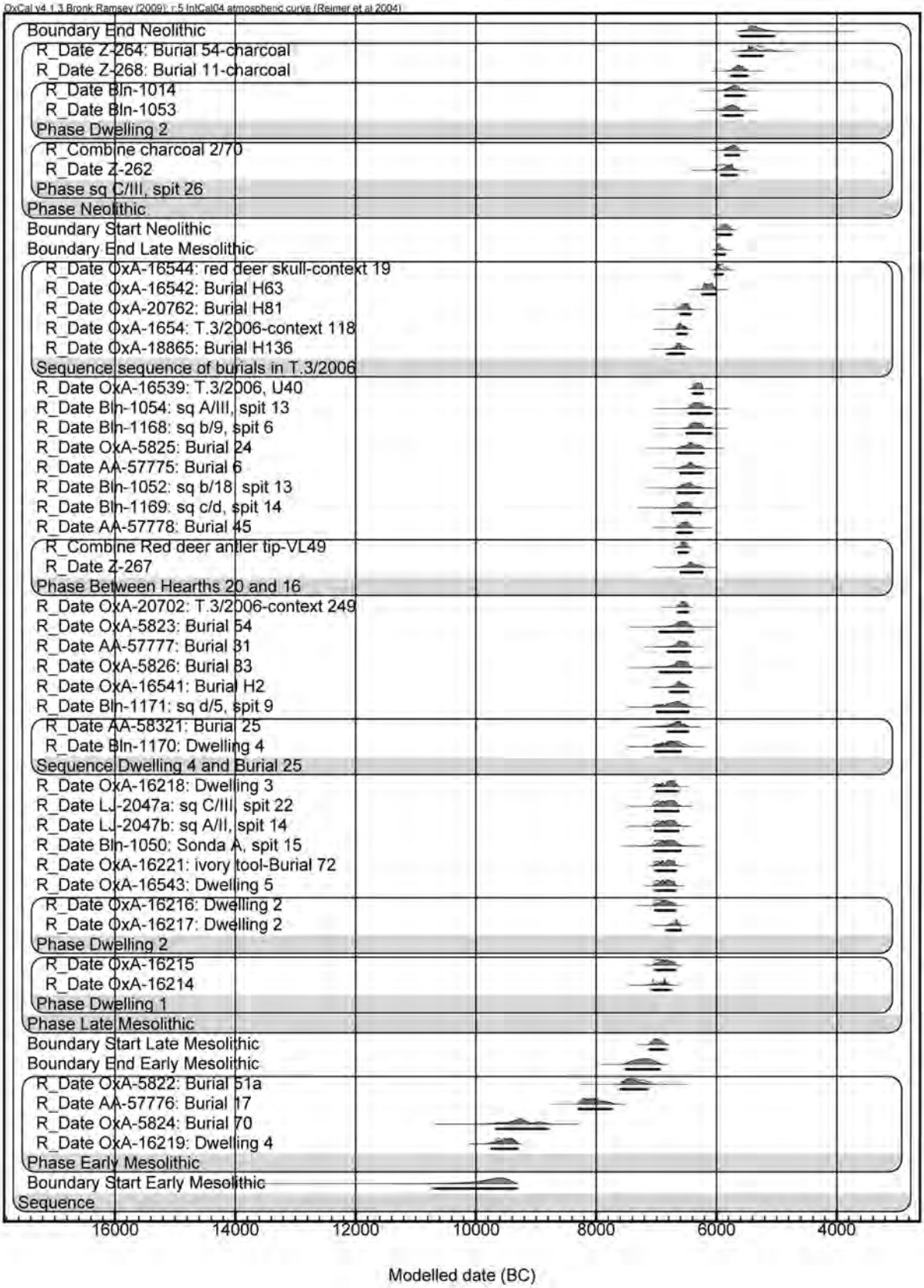


Fig. 32. Probability distributions of dates from Vlasac. The outline distributions show the likelihoods derived only from the calibration of dates. The solid distributions show results when stratigraphic constraints are imposed. The bars under distributions show the 68.2 and 95.4 per cent ranges from the analysis (see Appendix 2 for details). Dates were calibrated using OxCal v. 4.0.5 (*Bronk Ramsey 1995; 2001*) and modelled within the Bayesian statistical framework (*cf. Bayliss et al. 2007; Buck et al. 1996*).

that very small fragments might have been lost through excavations or even flotation of the sediment. Hence it is suggested that possibly whole bodies might have been cremated in these instances (*Cullen 1995.278*). Besides cremations and inhumations, scattered human bones were found in the Mesolithic levels of the cave. Apart from the presence of cremations, one aspect that further connects the Mesolithic sequence at Franchthi with previously described examples from the Danube Gorges, and also with some other contemporaneous sites across the Balkans, is the type of ornament found in the burials. In one of the Upper Mesolithic units at Franchthi, 67 *Cyclope neritea* and Dentalium beads accompany an infant and a 3–6-year-old child (*Cullen 1995. 277*). Probably as the type of personal adornment favoured in the Mesolithic, *Cyclope neritea* and Dentalium beads were also found with individuals Fr 1–8. These species were in use at Franchthi until the end of the Mesolithic period, when they were replaced by *Cerithium vulgatum* (*Cullen 1995.282*).

Two Mesolithic sites in northern Europe, Pomorsko 1 and Wieliszew VII, yielded several cremated remains (*Sulgostowska 2006.193–203*). At Pomorsko in western Poland, the remains of a child and some additional burned fragments were recovered, while at Wieliszew in north-eastern Poland, only a single male individual was cremated. Discussing Mesolithic mobility in this regional context, it was suggested that cremations might have been practiced during seasonal expeditions, and that easier transportation of the deceased over long distances might have been facilitated in this way (*Sulgostowska 2006.197*).

Nicolas Cauwe (*2001.147–163*) mentions cremated human remains from the Early Mesolithic site of Abri des Autores in southern Belgium. In this rockshelter, a collective tomb consisting of five adults was found. Underneath this group burial, the remains of six children were found, alongside the cremated bones of an adult. All of the deceased, including the secondary burial of the cremated individual, had undergone a selection and manipulation of skeletal remains. Fragments or whole bones were removed from and moved within the tomb, suggesting the making of complex links between the deceased and the living (*2001.157*).

The burned human bones of an individual, aged 10–13, buried next to and also within the pit where the cremation took place were found at the Middle Mesolithic settlement of Oirschot V, the Netherlands (*Arst and Hoogland 1987.172–189*). Also, at the Late Mesolithic site of Dalfsen, only a small amount of human calcinated bones were excavated from pits containing domestic refuse (*Smits and van der Plicht 2009.55–85*). In Vedbaek Fjord, in eastern Denmark, one deposit at Gøngehusvej 7 revealed the remains of five cremated bodies; this has been interpreted as a collective burial during an annual gathering, since the deceased were in different stages of decay by the time of cremation (*Fowler 2004.134*).

In southern Sweden, burned human bones were found at the Late Mesolithic site of Skateholm I (Graves 11 and 20) as well as at Skateholm II (Grave XVIII) (*Fahlander 2008.29–45; Nilsson Stutz 2003. 327–328*). Of the total of 87 excavated burials from both sites, damage inflicted upon older burials, possibly including secondary mortuary practices, is described for Burials 4, 7, 13 and 28. In addition, in the case of Grave 13, arrowheads pointing towards the deceased were found in the burial fill. This instance has been interpreted as an act of aggression directed at the dead individual (*Fahlander 2008. 38*).

Conclusions

Considering the combined data from old excavations with data from new excavations in Vlasac, it appears that cremations were elements of secondary mortuary rites, very often directly related to the interment of the newly deceased. The burning of the bones rarely involved just one deceased. At Vlasac, contexts in which burned bones are found demonstrate direct exposure to fire and intentional burning. Burials from the new excavations, but also reanalyses of instances from the 1970–1971 excavations, suggest that the majority of burned bones are found burned *in situ*, near the complete or partly preserved skeletal inhumations. Only small concentrations of burned bones were found scattered with no traces of burning *in situ*. On the basis of the current radiometric dating evidence for a number of contexts associated with cremation burials (see Fig. 32 and Appendix 2), we must reject previous conclusions that cremation practices were restricted to the so-called 'early phase' burials at Vlasac (*Radovanović 1996.218*), or phase I as defined by Srejović and Letica (*1978*). Our current evidence suggests that the practice was prominent throughout the 7th millennium BC (*Borić et al. 2008*; see Appendix 2).

There are some remaining questions: how and why did the community at Vlasac make choices with regard to what part of the body of the deceased to

burn or which individual would undergo such a cremation process? Although whole skeletons might have sometimes been cremated, it seems that in a number of instances where one finds a clear association of a cremation with a particular disturbed skeleton, it was the torso and head that were more frequently disarticulated and burned than the lower limbs or, at least, all parts of lower limbs (*e.g.* Burials H136, H244, H81, 11b). Burial 50a may be a possible exception to this pattern. There are no elements to suggest that either the sex or age of the deceased played an important role in decisions about which individuals should be exhumed, disarticulated and burned, since individuals of both sexes and all ages, including older juveniles, were chosen. Perhaps only neonates did not undergo this process, but the patterning here may be skewed due to the issue of the preservation of neonate bones in cremations, or because the small number of neonate bones were not considered sufficient for such secondary mortuary practices of burning.

We could ask whether such particular choices mattered at all. For instance, the chronological sequence of overlapped cremations found in the course of new excavations at the site may be suggestive of a long period between particular burials (see Fig. 32). Here, the issue of people's memory of particular individuals buried at a particular location becomes important. For instance, can we expect that people would remember a particular individual and would dig into an old burial due to their continuing social contact with the deceased (her/his character, remembered biography, virtues and/or vices), or does the deceased become a rather anonymous person from the past who, through such acts of disarticulation and burning, are transformed into even more anonymous entities (*e.g.* spirits, ghosts, enemies, etc.), and their disarticulation and possibly also their burning triggering a 'happy forgetting' (*cf. Borić in press*)?

One could speculate that purification before the newly deceased was interred was a reason to burn human bones. This could be an explanation for instances recorded in 2006–2007 in Trench 3/2006, when skeletal inhumations were often found placed on top of cremation pits that disturbed and burned bones of older burials. However, in Trench 3/2007 in relation to F22, we recorded an instance in which a skeletal inhumation Burial H244 had been disturbed by digging into its upper torso and by removing and burning the deceased's bones, which were probably placed in nearby pit F23, behind the head of the deceased. The pit contained burned bones and burned *Cyclope neritea* appliqués. Hence, disturbing older burials and the burning of bones in the latter case suggests a different type of motivation from those instances where a newly deceased was interred over a cremation. What, then, could be a reason for the partial or complete disturbance and disarticulation of older burials, or for creating patches of small surfaces with burned human remains left beside skeletal inhumations (*e.g.* Burials 47 and 45a), as evidenced in most of the instances from the 1970–1971 excavations at Vlasac? One could suggest two different speculative positions, which are not mutually exclusive. First, as the simplest interpretive solution, the burning of older, probably already defleshed burials (sometimes only parts of older skeletons) or of intentionally fragmented heaps of bones of one or several individuals in the vicinity of new burials might have related to the ritual practice of purifying a place needing preparation for a newly deceased individual, since many burials were not interred in virgin soil, but in places where there had already been a number of other interments. The issue of ritual purity in the choice of the resting place of the deceased in this case might have been paramount, if one assumes that the burial ground was considered 'polluted' by the remains of previous burials.

The second position would go a step further in speculative interpretation. We could assume that such acts of disarticulation and burning were intended to restrict the remaining powers of defleshed, but still articulated bodies, which might have been understood as dangerous and still possessing voluntariness. There are other elements of mortuary practices at Vlasac that suggest the placing of restrictions on the physical capacities of the deceased: possibly by tying (especially the legs) or wrapping bodies prior to burial, or the placing of large rocks on the knees of the deceased (*Borić 2006; Srejović and Letica 1978.passim; cf. Roksandić 2001* for the site of Padina), as if such acts were meant to restrict the possible resurrection and movement of the dead. In a world in which the dead might have been understood as changing the terms of their alliance and affinities with the living community over the passage of time since their death, as many ethnographic instances indicate (*e.g. Taylor 1993; Vilaça 1992; 2000*), it might have been important to assure the intentional forgetting of the dead and the restriction of their powers through specific ritualistic practices, which involved, first, the disarticulation of bones, and, second, their fragmentation and thorough destruction through burning. If one accepts such an in-

terpretive framework, one could explain why in certain instances the damage was done to a particular burial by disarticulating and partly fragmenting the bones of some of the deceased even without burning them (*e.g.* Burials 9 and 36), or in those instances where the disarticulation procedure was followed by burning, with no obvious association of burning with the interment of a newly deceased (*e.g.* Burials H244/F. 22, 11, etc.). In addition, while the presence of broken and burned projectile points in a number of cremation pits might have been related to primary grave goods of articulated burials that were eventually disarticulated and cremated and thus commingled with human bones, it is also possible that bone projectiles were intentionally placed in secondary mortuary contexts, perhaps supporting the offered interpretation of a 'predatory' move against the dead. However, should we assume, by the same token, that if some of the older dead turned into dangerous, hostile spirits that required mastery, and the exercise of the force of disarticulation and burning of their physical remains, that those left untouched in their primary articulations were the 'unproblematic' dead? Moreover, why were only parts of their physical presence damaged and subsequently left in particular, formally designated cremation contexts next to articulated burials? Finally, who was being protected by these practices of burning – the living or the newly deceased placed buried with older burials?

It is exceptional that the clearest examples of the described secondary mortuary practices, which involved the burning of old burials, are seen at the site of Vlasac and not at other contemporaneous sites in the Danube Gorges. Some elements of the same mortuary ritual could perhaps be observed in currently unpublished mortuary evidence from Lepenski Vir, but perhaps also in instances of burning found at the site of Hajdučka Vodenica in the Lower Gorge of the Danube (*Jovanović 1984*). It is possible that the communities inhabiting each of these sites, although sharing general attributes of the material culture and worldview characteristic of the period, also had their particular ways of going about their everyday business, which also involved specific burial customs, rituals and beliefs. A fascinating point remains, however, in that the form of these practices, if not their 'original' meanings, remained unaltered throughout the 7th millennium calBC at Vlasac, surviving the great culture change that brought elements of the Neolithic world to the Danube Gorges' foragers.

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Appendix 1. Contexts with cremated bones from Vlasac.

Context	Context description	Area/ quadrant	Number of fragments	Weight (g)	Colour of burned bones	Associations
VLASAC 1970–1971 excavation campaigns						
B. 11b	Burned bones found in oval pit, 0.70m in diameter, 0.40m in depth; pit cut Burial 11a above lower limbs; surrounded by limestone blocks/large rocks.	a/6	193 Cranial: 14 Postcranial: 179	327 Cranial: 22 Postcranial: 305	Light blue and grey	5 burned animal bone fragments; charcoal
B. 35	Surface with burned bones 0.39 by 0.34m; beside the rear of Dwelling 2 and Fireplace 4.	b/18	464 Cranial: 92 Postcranial: 372	1110.9 Cranial: 220 Postcranial: 890.9	Black; light black and gray; partly burned bones	Unio sp.
B. 36	On the surface of 0.50 by 0.40m skull of Burial 36 was placed on a pile of smashed human bones among which also burned bones were found.	b/18	Postcranial: 3	Postcranial: 3.2	Grey	–
B. 45	Partly preserved skeletal inhumation	A/17	Postcranial: 1	Postcranial: 1.4	Light reddish-yellow	Cyprinidae teeth; ochre
B. 45a	Burned bones were discovered surrounded by limestone blocks on the surface of 0.30m in diameter; located behind the skull of Burial 45.	A/17	100 Cranial: 15 Postcranial: 85	227.5 Cranial: 32.2 Postcranial: 195.3	White; light blue and grey	410 burned Cyprinidae teeth
B. 47a	Burned bones located behind the skull of Burial 47; round surface (0.25m in diameter)	A/17	128 Cranial: 24 Postcranial: 104	111 Cranial: 30 Postcranial: 81	Light blue and grey; light red	Charcoal; ash; Cyprinidae teeth; 8 burned animal bone fragments
B. 50	Partly preserved skeletal inhumation	A/18	Postcranial: 147	Postcranial: 379	Light blue and grey	One unburned human tooth; 13 burned animal bone fragments
B. 50a	Partly preserved and damaged skeletal inhumation; Cyprinidae teeth and ochre underneath the skeleton.	A/18	145 Cranial: 7 Postcranial: 138	245 Cranial: 12 Postcranial: 233	White; light blue and grey	Cyprinidae teeth; 10 burned animal bone fragments; ochre
B. 50b	Partly preserved skeletal inhumation underneath Burial 50a with traces of ochre on feet.	A/18	Postcranial: 4	Postcranial: 13.4	White; blue; light reddish	Ochre
B. 51a	Disturbed and partly preserved skeletal inhumation	A/18	Postcranial: 2	Postcranial: 2.8	Grey	–
B. 52	Upper part of skeletal inhumation; Hearth 19 cut the lower limbs and pelvis of the deceased.	A/18	Postcranial: 1	Postcranial: 1.2	Black	–
B. 54a	Ellipsoidal pit (0.70 by 0.55 by 0.20m) with bones of two adult individuals; Burial 54 beside it found in secondary position and the other individual is identified by fragments of burned bones and unburned pelvis that was found at the edge of the pit	A/17	336 Cranial: 32 Postcranial: 304	527 Cranial: 66 Postcranial: 461	White; light blue and grey	Burned bone projectile; third phalanx of red deer; flint
B. 55	Skeletal inhumation with its feet beneath Burial 54a	A/17	Cranial: 2	Cranial: 5	Light reddish-yellow	–
B. 58a	Burned bones on the surface of 0.62 by 0.40m beside disturbed Burials 58 and 58b, above Hearth 23.	c/9	172 Cranial: 20 Postcranial: 152	280 Cranial: 48.2 Postcranial: 231.8	Black; light black and grey; light reddish-yellow	Charcoal

Appendix 1. Continued ...

Context	Context description	Area/ quadrant	Number of fragments	Weight (g)	Colour of burned bones	Associations
B. 65	Surface 0.25m in diameter with burned bones located beneath Dwelling VII and Hearth 21.	d/5	Postcranial: 14	Postcranial: 63.8	Black; light black and grey	–
B. 67	Skeletal inhumation beneath Hearth 23	c/9	Postcranial: 1	Postcranial: 0	Black	–
B. 68	Located beneath Dwelling VII and Hearth 21, surface with burned bones (0.90 by 0.40m).	d/5	Postcranial: 75	Postcranial: 80.8	Black; light black and grey	–
B. 86	Burned human bones found in Fireplace 2 (ellipsoidal pit 0.80 by 0.35m, 0.15m in depth).	a/18	539 Cranial: 75 Postcranial: 464	626 Cranial: 103 Postcranial: 523	Black; light black and grey; light red	One burned Cyprinidae teeth
VLASAC 2006–2007 excavation campaigns						
13	Fill over the stone construction on top of which Early-Middle Neolithic Starčevo pottery was found.	T. 3/2006	Cranial: 1	Cranial: 2.2	Light blue	Flint
19	Dark fill of Burial H21 and of the upper layer of the burial sequence (likely equivalent to contexts 24 and 44).	T. 3/2006	Cranial: 2	Cranial: 2.6	White	Flint; beads; pottery fragments; antler tool
24	Upper infill of burial sequence underneath large blocks covering child skull H21 and red deer skull (likely equivalent to contexts 19 and 44).	T. 3/2006	Cranial: 2	Cranial: 9.6 + 4 from sieve	Black	Burned and unburned human bones; flint; Cyprinidae teeth; fragment of deer jaw
29	Layer covering the structured deposition of red deer skull	T. 3/2006	Postcranial: 2	Postcranial: 6.2	White	Burned and unburned human bones; antler beam fragment; flint; flint in red deer skull
44	Context 44 is fill of dark soil in the upper layer of the burial sequence (likely equal to contexts 19 and 24).	T. 3/2006	47 Cranial: 6 Postcranial: 41	850.2 Cranial: 30 Postcranial: 50.2	Black; light black and gray; light reddish-yellow	Spondylus; limestone beads
50	Fill of Burial H53	T. 3/2006	Postcranial: 113	+ 72 from flotation Postcranial: 110.4	White; black; light blue	Limestone beads
51	Layer of fill of F2 covering the surface south from burial Feature 3 and enclosed by context 65.	T. 3/2006	Postcranial: 83	Postcranial: 37.5	White; black; light blue	Cyprinidae teeth; burned animal bone; yellow mineral
54	Layer of soil beneath the fill of Feature 2	T. 3/2006	Postcranial: 34	Postcranial: 14.1	White; black; light blue	Pebble
55	Layer of soil beneath the fill of Feature 2	T. 3/2006	Postcranial: 211	Postcranial: 71.6	White; black; light blue	–
59	Layer beneath Burial H53	T. 3/2006	Postcranial: 54	Postcranial: 20.4 + 124.8 from flotation	White; black; light blue	Cyprinidae teeth and beads disturbed from Burial H63
B. H60	Partly cremated juvenile (14–16 years) placed over individual H63	T. 3/2006	919 Cranial: 196 Postcranial: 723	1173 + 447.8 from flotation Cranial: 425 Postcranial: 748	Black; light black and grey; partly burned bones	Limestone beads; Spondylus bead; perforated Cyprinidae teeth

Context	Context description	Area/ quadrant	Number of fragments	Weight (g)	Colour of burned bones	Associations
64	Layer above legs of H63 and beneath Burial H53; containing burned human bones.	T. 3/2006	38 Cranial: 5 Postcranial: 33	6.8 Cranial: 2 Postcranial: 4.8	White; black	Cyprinidae teeth; carnivore canine; burned rock; flint
87	Layer between the northern boundary of Burial H63 and the edge of the eroded riverbank north-facing profile	T. 3/2006	Postcranial: 8	Postcranial: 5.4	Black	Perforated Cyprinidae teeth
97	Fill with burned bones visible on the eroded north-facing profile	T. 3/2006	Postcranial: 3	Postcranial: 1.8	White; light blue	–
109	Ashy soil beneath layers of dark soil labeled as contexts 54 and 55	T. 3/2006	Postcranial: 5	Postcranial: 1.4	White	Ash; limestone; fish bones
110	Layer of olive-brown soil beneath Burial H81	T. 3/2006	Postcranial: 55	Postcranial: 53.2	White; black; light blue	Flint
111	Layer connected to Feature 2	T. 3/2006	Postcranial: 2	Postcranial: 1	White	Cyprinidae teeth; fish bones; bird bone
115	Fill with burned bones	T. 3/2006	1052 Cranial: 66 Postcranial: 986	769 Cranial: 83 Postcranial: 686	White; black; light black and grey	Fragments of human unburned fibula; antler tool; animal phalanx; cut Cyprinidae teeth; flint; burned rock; burned bone projectile
118	Layer of compact brown soil; bottom of Feature 2	T. 3/2006	115 Cranial: 4 Postcranial: 111	47.2 Cranial: 6 Postcranial: 41.2	White; black; light black and grey	Bone projectile; fish bones; quartz; flint
132	Layer of soil next to the eroded north-facing profile; dark soil	T. 3/2006	34 Cranial: 4 Postcranial: 30	16.6 Cranial: 3 Postcranial: 13.6	Black; white	–
137	Sediment of burned wood beneath context 118, possibly part of context 115	T. 3/2006	Postcranial: 33	Postcranial: 12.7	Black	Burned wood; two burned rocks
138	Brown-greyish soil just under and around the rocks found in context 115	T. 3/2006	Postcranial: 19	Postcranial: 18.3	White; black	Flint
142	Layer of light brown yellowish soil which is part of the fill surrounding Burial H136	T. 3/2006	Postcranial: 13	Postcranial: 6.4	White; black; light blue	Fragments of red deer antler; quartz; limestone; red rock
144	Layer with charcoal beneath context 142	T. 3/2006	11 Cranial: 1 Postcranial: 10	9 Cranial: 3 Postcranial: 6.4	Black; light black and grey	Cyprinidae teeth; burned animal phalanx; one carnivore canine
146	Fill with burned bones visible on the eroded north-facing riverbank profile	T. 3/2006	40 + 13 unburned frag. Cranial: 7 Postcranial: 33	22.4 + 77.2 from sieve Cranial: 4.8 Postcranial: 17.6	Black	two fish bones; burned clay soil

Appendix 1. Continued ...

Context	Context description	Area/ quadrant	Number of fragments	Weight (g)	Colour of burned bones	Associations
147	Layer associated with stone plaque within context 145 (yellow largely sterile soil above dwelling floor context 149)	T. 3/2006	296 Cranial: 9 Postcranial: 287	84.2 Cranial: 7.2 Postcranial: 77	White; black; light black and grey	–
230	Feature 21; fill of Burial H232	T. 3/2006	Cranial: 8	Cranial: 21.4	Black	Cyprinidae teeth
237	Feature 20; fill of pit context 241 containing disarticulated bones of dog and red deer and stone	T. 3/2007	Cranial (?): 1	Cranial (?): 1.8	White; blue	Fragments of dog and red deer bones
242	Greyish fill of a pit (Feature 23); in the vicinity of burial Feature 22	T. 3/2007	236 Cranial: 6 Postcranial: 230	64.4 Cranial: 14.2 Postcranial: 50.2	White; black; light black	Worked bone; marine shell; Cyprinidae tooth; stone
B. H244	Skeleton in Feature 22 with the damaged torso; skeletal inhumation within fill 235 and cut 263	T. 3/2007	Postcranial: 12	Postcranial: 59.6	Black	–
249	Part of Feature 26; charcoal-rich fill containing burned human bones	T. 3/2006	221 Cranial: 60 Postcranial: 161	465 + 847.4 from sieve and 47.8 from flotation Cranial: 162 Postcranial: 303	White; black; light black and grey	Charcoal; fish bones; burned bone projectile
251	Part of Feature 26; trampled layer beneath Burial H232 (Feature 21)	T. 3/2006	Postcranial: 1	Postcranial: 1	White; light blue	Charcoal
253	Part of Feature 25; fill of a skeletal inhumation visible in the riverbank section in T. 3/2007 with skeleton H254	T. 3/2007	Postcranial: 42	Postcranial: 7.6	White; blue	Cyprinidae teeth; worked bone; red stone; flint
256	Artificial spit within quadrants 73/101 and 74/101 containing mixed material from burial Feature 25 and surrounding sediment context 257	T. 3/2007	Postcranial: 46	Postcranial: 7.8	White; blue	–
260	Part of Feature 26; lower layer of burned deposit within the cremation pit	T. 3/2006	299 Cranial: 21 Postcranial: 278	133 Cranial: 26 Postcranial: 107	White; black; light black and grey	Burned bone projectiles
261	Brown grey gravelly silt fill found above dark grey material with burned bones (context 242)	T. 3/2007	232 Cranial: 5 Postcranial: 227	94 Cranial: 4.6 Postcranial: 89.4	White; black; light black and grey	–
262	Layer of apparently sterile gravelly silt; small amount of finds from sieving sediment from quadrant 73/101 probably represent material from context 261 in front of pit context 243	T. 3/2007	Postcranial: 6	Postcranial: 2	White; blue	–
273	Pale grey silt and very abundant limestone rubble on the riverbank section	T. 1/2007	Postcranial: 1	Postcranial: 1	White	–

Appendix 2. Modelled and unmodelled radiometric dates from Vlasac at 68 and 95 per cent confidence and probability. Dates were calibrated using OxCal v. 4.0.5 (*Bronk Ramsey 1995; 2001*) and modelled within the Bayesian statistical framework (*cf. Bayliss et al. 2007; Buck et al. 1996*). For the source of dates, see *Borić et al. 2008*; OxA–20702 (charred cornelian cherry stone from F 26) and OxA–20762 (H81) are published here for the first time.

Name	Unmodelled (BC/AD) from	to	%	from	to	%	Modelled (BC/AD) from	to	%	from	to	%	A	C
Boundary End Neolithic							–5480	–5240	68,2	–5610	–5050	95,4		98,3
Interval Duration Neolithic							350	640	68,2	200	870	95,4		99,7
R_Date Z–264: Burial 54–charcoal	–5470	–5210	68,2	–5490	–5060	95,4	–5490	–5330	68,2	–5620	–5230	95,4	83,6	99,5
R_Date Z–268: Burial 11–charcoal	–5720	–5550	68,2	–5770	–5480	95,4	–5720	–5560	68,2	–5760	–5480	95,4	101,6	99,8
R_Date Bln–1014	–5800	–5620	68,2	–5970	–5530	95,4	–5780	–5620	68,2	–5860	–5530	95,4	107,3	99,8
R_Date Bln–1053	–5870	–5660	68,2	–5990	–5610	95,4	–5810	–5650	68,2	–5890	–5570	95,4	108,8	99,7
Phase Dwelling 2														
R_Combine charcoal 2/70	–5810	–5660	68,2	–5890	–5620	95,4	–5790	–5660	68,2	–5860	–5620	95,4	106,2	99,8
R_Date Z–262	–5990	–5790	68,2	–6040	–5710	95,4	–5860	–5730	68,2	–5920	–5670	95,4	86,1	99,8
Phase sq C/III, spit 26														
Phase Neolithic														
Boundary Start Neolithic							–5930	–5800	68,2	–5980	–5750	95,4		99,8
Boundary End Late Mesolithic							–6000	–5920	68,2	–6020	–5860	95,4		99,9
Interval Duration Late Mesolithic							950	1120	68,2	870	1200	95,4		99,8
R_Date OxA–16544: red deer skull–context 19	–5990	–5890	68,2	–6010	–5830	95,4	–6010	–5950	68,2	–6030	–5900	95,4	89,5	99,9
R_Date OxA–16542: Burial H63	–6220	–6060	68,2	–6240	–6010	95,4	–6220	–6060	68,2	–6240	–6020	95,4	100,3	99,9
R_Date OxA–20762: Burial H81	–6590	–6460	68,2	–6640	–6430	95,4	–6560	–6450	68,2	–6600	–6430	95,4	106,1	99,9
R_Date OxA–1654: T.3/2006–context 118	–6650	–6530	68,2	–6660	–6480	95,4	–6640	–6530	68,2	–6650	–6500	95,4	103,8	100
R_Date OxA–18865: Burial H136	–6690	–6520	68,2	–6780	–6470	95,4	–6690	–6590	68,2	–6820	–6540	95,4	104,7	99,8
Sequence of burials in T.3/2006														
R_Date OxA–16539: T.3/2006, U40	–6370	–6240	68,2	–6400	–6220	95,4	–6370	–6240	68,2	–6400	–6220	95,4	99,9	99,9
R_Date Bln–1054: sq A/III, spit 13	–6420	–6220	68,2	–6470	–6080	95,4	–6420	–6220	68,2	–6470	–6080	95,4	100,1	99,8
R_Date Bln–1168: sq b/9, spit 6	–6430	–6240	68,2	–6500	–6090	95,4	–6430	–6240	68,2	–6500	–6090	95,4	99,9	99,8
R_Date OxA–5825: Burial 24	–6510	–6250	68,2	–6650	–6220	95,4	–6510	–6250	68,2	–6640	–6220	95,4	100	99,7
R_Date AA–57775: Burial 6	–6560	–6260	68,1	–6600	–6230	95,4	–6560	–6260	68,2	–6610	–6230	95,4	99,9	99,7
R_Date Bln–1052: sq b/18, spit 13	–6590	–6390	68,2	–6650	–6250	95,4	–6590	–6390	68,2	–6650	–6250	95,4	100	99,6
R_Date Bln–1169: sq c/d, spit 14	–6610	–6430	68,2	–6750	–6250	95,4	–6610	–6430	68,2	–6740	–6250	95,5	100,4	99,6
R_Date AA–57778: Burial 45	–6600	–6460	68,2	–6660	–6410	95,4	–6600	–6460	68,2	–6660	–6410	95,4	100	99,7
R_Combine Red deer antler tip–VL49	–6600	–6500	68,2	–6640	–6470	95,4	–6600	–6500	68,2	–6640	–6470	95,4	99,8	99,9
R_Date Z–267	–6500	–6260	68,2	–6600	–6230	95,4	–6500	–6260	68,2	–6600	–6230	95,4	99,8	99,7

Appendix 2. Continued ...

Name	Unmodelled (BC/AD) from	to	%	from	to	%	Modelled (BC/AD) from	to	%	from	to	%	A	C
Phase Between Hearths 20 and 16														
R_Date OxA–20702: T.3/2006–context 249	–6600	–6500	68,2	–6640	–6470	95,4	–6600	–6500	68,2	–6640	–6470	95,4	99,9	99,9
R_Date OxA–5823: Burial 54	–6680	–6450	68,2	–7030	–6390	95,4	–6660	–6450	68,2	–6950	–6380	95,4	102,1	99,7
R_Date AA–57777: Burial 31	–6650	–6480	68,2	–6830	–6430	95,4	–6650	–6490	68,2	–6820	–6440	95,4	100,9	99,7
R_Date OxA–5826: Burial 83	–6690	–6470	68,2	–7030	–6430	95,4	–6680	–6470	68,2	–6940	–6420	95,4	102,4	99,7
R_Date OxA–16541: Burial H2	–6690	–6520	68,2	–6780	–6460	95,4	–6690	–6520	68,2	–6780	–6470	95,4	100,4	99,8
R_Date Bln–1171: sq d/5, spit 9	–6900	–6500	68,2	–7040	–6470	95,4	–6830	–6530	68,2	–6990	–6470	95,4	104,1	99,8
R_Date AA–58321: Burial 25	–6810	–6530	68,1	–7030	–6480	95,4	–6710	–6510	68,2	–6810	–6470	95,4	111,2	99,8
R_Date Bln–1170: Dwelling 4	–7000	–6530	68,2	–7040	–6490	95,4	–6920	–6640	68,2	–7020	–6590	95,4	103	99,9
Sequence Dwelling 4 and Burial 25														
R_Date OxA–16218: Dwelling 3	–6990	–6680	68,2	–7030	–6650	95,4	–6900	–6680	68,2	–7010	–6640	95,3	105,2	99,8
R_Date LJ–2047a: sq C/III, spit 22	–7030	–6680	68,2	–7050	–6640	95,4	–6920	–6660	68,2	–7030	–6630	95,4	102,1	99,8
R_Date LJ–2047b: sq A/II, spit 14	–7030	–6690	68,2	–7050	–6640	95,4	–6920	–6680	68,2	–7030	–6640	95,4	101,8	99,9
R_Date Bln–1050: Sonda A, spit 15	–7030	–6690	68,2	–7090	–6570	95,4	–6920	–6660	68,2	–7030	–6590	95,4	103,1	99,8
R_Date OxA–16221: ivory tool–Burial 72	–7030	–6690	68,2	–7040	–6680	95,4	–6920	–6690	68,2	–7010	–6680	95,4	102,1	99,9
R_Date OxA–16543: Dwelling 5	–7030	–6700	68,3	–7040	–6690	95,4	–6920	–6690	68,2	–7020	–6680	95,4	100,2	99,9
R_Date OxA–16216: Dwelling 2	–7040	–6820	68,2	–7050	–6690	95,4	–6960	–6760	68,2	–7020	–6690	95,4	96,6	99,9
R_Date OxA–16217: Dwelling 2	–6760	–6630	68,2	–6900	–6590	95,4	–6760	–6630	68,2	–6830	–6590	95,4	101,1	99,9
Phase Dwelling 2														
R_Date OxA–16215	–7030	–6770	68,2	–7050	–6690	95,4	–6950	–6710	68,2	–7020	–6690	95,4	97,1	99,9
R_Date OxA–16214	–7080	–6830	68,2	–7170	–6810	95,4	–6970	–6820	68,2	–7070	–6770	95,4	71,6	99,8
Phase Dwelling 1														
Phase Late Mesolithic														
Boundary Start Late Mesolithic							–7070	–6910	68,2	–7120	–6850	95,4		99,6
Boundary End Early Mesolithic							–7370	–7050	68,2	–7510	–6950	95,4		99,9
Interval Duration Early Mesolithic							2150	2790	68,2	1910	3560	95,4		99,7
R_Date OxA–5822: Burial 51a	–7520	–7180	68,2	–7580	–7080	95,4	–7550	–7320	68,2	–7600	–7160	95,4	104,4	99,7
R_Date AA–57776: Burial 17	–8260	–7950	68,2	–8290	–7740	95,4	–8260	–7950	68,2	–8290	–7740	95,4	100	99,7
R_Date OxA–5824: Burial 70	–9650	–8920	68,2	–9760	–8800	95,4	–9450	–8920	68,2	–9660	–8810	95,4	105,3	99,6
R_Date OxA–16219: Dwelling 4	–9660	–9390	68,2	–9760	–9320	95,4	–9630	–9330	68,3	–9750	–9310	95,4	100	99,8
Phase Early Mesolithic														
Boundary Start Early Mesolithic							–9910	–9400	68,2	–10690	–9320	95,4		97,4
Sequence														

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