

# Adriatic Neolithic Mortuary Ritual at Grapčeva Cave, Croatia

**Stašo Forenbaher**

Institute for Anthropological Research, Zagreb, Croatia

**Timothy Kaiser**

Lakehead University, Orillia, Ontario, Canada

**Sheelagh Frame**

Kingston, Ontario, Canada

Excavations at Grapčeva Cave in Croatia, a major eastern Adriatic Neolithic site, yielded evidence of ritual activities during the 5th millennium CAL B.C. Structured deposits in the main interior chamber consisted of large burned features containing extremely high frequencies of animal remains and artifacts, including richly decorated Late Neolithic “Hvar-style” pottery, as well as scattered human remains. We argue that Grapčeva was a mortuary ritual site, where feasts, offerings to supernatural powers, and secondary burials took place. At Grapčeva memories were produced and maintained at a time when group histories and genealogies were gaining importance among the newly settled Neolithic food producers of the Adriatic.

**Keywords:** Adriatic, Cave, Hvar, Neolithic, Ritual, Burial

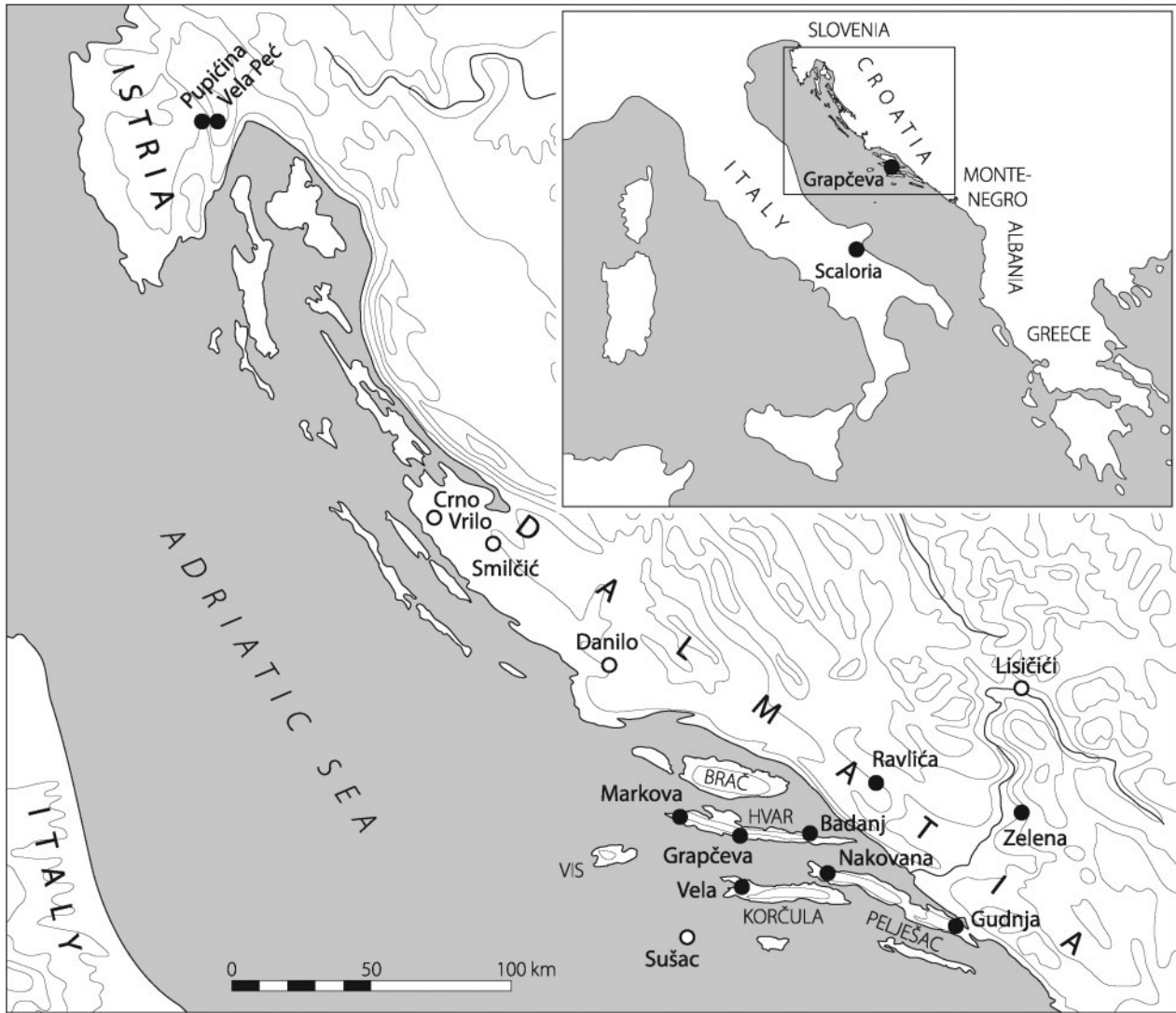
## Introduction

Although Neolithic research has a relatively long and distinguished history in the eastern Adriatic, archaeologists know less about the region than other parts of the Mediterranean world. This is partly because many key sites were excavated before the advent of the kinds of methods that are now standard and which make possible the kinds of questions that elsewhere animate Mediterranean Neolithic research. In this paper, we present new data from one of those sites, Grapčeva Cave, which, set in the context of recent developments in Adriatic archaeology, help us to better understand facets of Neolithic life there. Our particular focus is on the rituals of mortuary practice.

In the mid-20th century, major excavations at the open-air settlements of Danilo (Korošec 1958), Lisičići (Benac 1958), and Smilčić (Batović 1963), as well as at Grapčeva (Novak 1955), Markova (Novak 1959), and Gudnja (Marijanović 2005) caves, demonstrated the presence of Neolithic people; much attention was directed to the sometimes very attractive pottery encountered at these sites. Before radio-carbon dating became routine in eastern Adriatic

archaeology, comparative stylistic analyses of potsherds provided the basis for relative chronologies, as well as for the definition of various archaeological “cultures” that marked the eastern Adriatic Neolithic (Batović 1979). Often coupled with migrationist or diffusionist ideas, pottery was also used in attempts to explain the origins of those cultures. Other classes of data, such as lithic, faunal, or botanical remains, were considered much less interesting and were consistently given the briefest of treatments, often relegated to orphan appendices. Generally, excavation techniques of the day were not designed to collect quantifiable information—a legacy that haunts recent publications of earlier, previously unpublished excavations (e.g. Marijanović 2005; Čečuk and Radić 2005; Brusić 2008).

Fine-grained recovery techniques and complementary analytic approaches began to be introduced in the 1980s, often as a consequence of international collaborative research projects (Müller 1994; Chapman et al. 1996; Gaffney et al. 1997; Miracle and Forenbaher 2006; Forenbaher and Kaiser 2006; Moore et al. 2007a, 2007b). This work opened up a number of major topics



**Figure 1** The Adriatic, showing the location of Grapčeva Cave and other sites mentioned in the text. Black: caves; white: open air sites.

in eastern Adriatic Neolithic archaeology for discussion. Among these, important transitional episodes such as the spread of farming have been hardy favorites (e.g. Müller 1994; Bass 2004; Forenbaher and Miracle 2005) but the unremarkable millennia that followed, lived by “people simply getting on with their own lives” (Robb 2007: 2), have received much less attention. While our knowledge of Neolithic settlements and multi-purpose cave sites has grown steadily, there are still some glaring blanks. Neolithic ritual behavior, mortuary practice in particular, has been especially elusive for eastern Adriatic archaeologists.

Below, we argue that a consideration of the archaeology of Grapčeva Cave and its wider contexts helps to address these gaps in our understanding. Over a period of five centuries during the Late Neolithic (4800–4300 CAL B.C.), feasts were held, offerings were made, and human remains were deposited at Grapčeva. We base our arguments primarily on information from our own small-scale test excavation and augment it, where possible, with

information gleaned from reports published by earlier investigators of the site.

### Location and Morphology of Grapčeva Cave

Grapčeva Cave lies hidden in a hill on the southern coast of the Dalmatian island of Hvar (FIG. 1) in Croatia. From the limestone ridge that is Hvar’s rugged spine, the view south opens towards the neighboring islands of Šćedro, Korčula, Vis, Sušac, and a wide expanse of the Adriatic Sea beyond. A short scramble across a stretch of broken rock brings one to a small hole, inconspicuous among the limestone blocks.

The entrance to Grapčeva Cave opens onto a steeply sloping gully that descends ca. 230 m to a freshwater spring and the small cove of Virak (FIG. 2). Grapčeva’s mouth is almost completely blocked by massive limestone slabs that once formed the vault of a much larger karstic cavern, now partly eroded and buried by roof collapse. While a large part of this paleocavern collapsed in the remote geological past,



**Figure 2** Location of Grapčeva Cave on the southern slope of the island of Hvar, with the Adriatic Sea in the background. Arrow marks the entrance to the cave hidden between the limestone blocks.

the slabs presently blocking the entrance may have shifted somewhat over the last few thousand years. Only an extensive excavation of the rock fall would clarify their exact position in Neolithic times.

Today, one reaches the cave interior by crawling through the westernmost of several short, narrow passages between the limestone slabs (FIG. 3). Beyond, the cave consists of a single chamber that is 25 m wide, 22 m long, and up to 5 m high. It is divided by stalagmitic pillars and curtains into a

number of unequally sized, labyrinthine spaces (FIGS. 4, 5). A passage, completely encased in stalagmitic crust, climbs steeply from the northern end of the chamber, terminating in a dead end after some 10 m.

The chamber itself is an almost ideal sediment trap, containing a thick accumulation of deposits full of archaeological material. Its total surface area is about 390 sq m, of which some 70 sq m are stalagmites, massive stalagmitic crusts, or bedrock. Early explorers reported that, prior to their excavations the entire surface had been covered by stalagmitic crusts ca. 10 cm thick.

### Research History

Excavations with explicit scientific ambitions began at Grapčeva in the late 19th century (Buccich 1885: 1–3; Gasperini 1887: 5, 11–13, 1888; Rutar 1888). Between the two World Wars, intermittent excavations were carried out (Girometta 1923: 120, 1935: 292; Schneider 1927: 99–103; Gamulin 1931: 123), and the owner of the cave also dug there extensively, hoping to use the excavated soil as fertilizer. This is not an uncommon fate among Dalmatian caves.

Grga Novak first dug at Grapčeva on two occasions in 1912 (Novak 1924: 11–13). His large-scale excavations began in 1936 and, at the outbreak of World War II, Novak had excavated a total of 60 sq m, in places to a depth of 3.5 m (Novak 1937: 614, 1949: 149). Only short preliminary reports of those excavations were published at the time (Novak 1940; Rellini 1940), and parts of Novak's documentation and



**Figure 3** T. Kaiser emerging from Grapčeva Cave's narrow entrance.



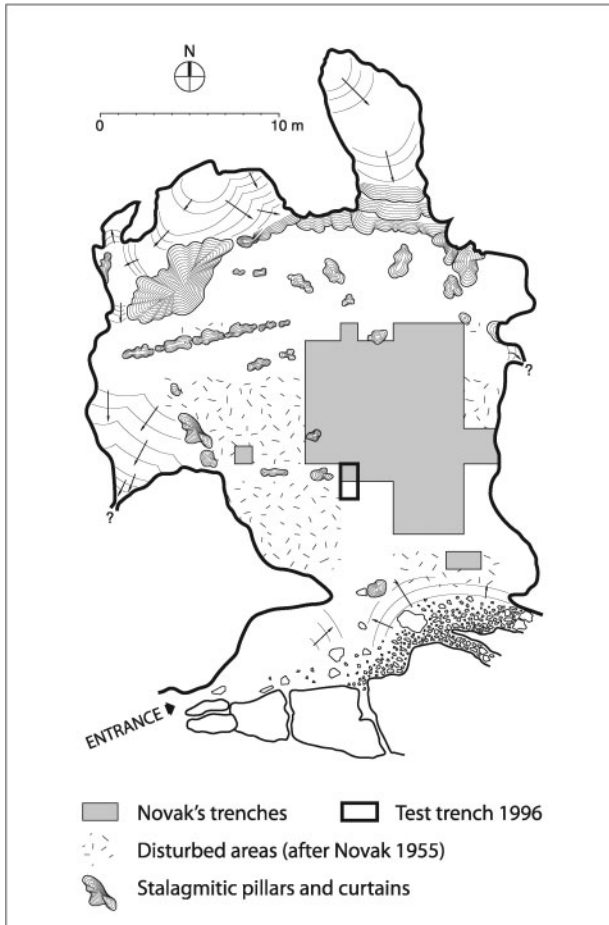


Figure 4 Plan of Grapčeva Cave showing the excavated areas.

finds were lost during the Second World War. Novak continued to excavate from 1947 until 1952, and eventually exposed almost 100 sq m, about one third of the entire site. He dug down “to bedrock” which he encountered at depths ranging from 1.0 to 3.5 m. After

the excavation was completed, the results were published in a lavishly illustrated monograph (Novak 1955), which established the “Hvar Culture” as one of the most important groups in the eastern Adriatic Neolithic (cf. Ehrich 1965: 424; Batović 1979; Trump 1980: 133; Wilkes 1992: 34). Novak proposed that Grapčeva Cave was a place of cult, a sanctuary in which people made offerings to their deities or ancestors.

All of Grapčeva’s excavators recovered and reported their finds in a rather haphazard way. Their creative interpretations of the site were based primarily on unsystematically selected stylistic traits of the pottery. Other classes of evidence were virtually ignored and there were no independent chronometric controls available at the time. For such an important site, so extensively excavated, much was unknown.

The aim of our test excavation, carried out in 1996, was to recover some of the basic information missing about the site by employing current excavation and recovery techniques. Acknowledging that Grapčeva had been heavily excavated, and that little undisturbed accumulation might be left, we decided to excavate as small a test trench as possible at a carefully selected location. The expected thickness of accumulation (ca. 3 m) dictated the minimal surface dimensions of the test trench (1 × 2 m). Novak had published enough information to allow a reconstruction of the horizontal extent of his excavation. We decided to position our trench in Novak’s squares A’6 and A’7, straddling one of the edges of his excavation, at a spot where the underlying strata were thick. As we hoped, in square A’7 we found his backfilled trench, while in square A’6 we encountered undisturbed deposits.



Figure 5 Massive stalagmitic pillars and curtains in the main chamber of Grapčeva Cave.

The small size of our test trench and the resultant small sample sizes imposed serious limits on the interpretation of the recovered evidence. Strictly speaking, the results presented here are representative of only a single point within a fairly large site. Careful comparison with published information from earlier excavations suggests, however, that our test trench is typical of the archaeological situation in the rest of the cave.

### Stratigraphy

The northern half of our test trench (Novak's square A'7) was excavated by Novak only to a depth of about 0.5 m, and was later backfilled. At that depth, Novak encountered the tip of a massive stalagmite. He reduced the width of his excavation accordingly, and continued to dig deeper in a 25 cm wide strip along the northern edge of square A'7. As a result, most of the deposits within our test trench were found intact, except for a few minor disturbances, presumably caused by small burrowing animals (FIG. 6).

At a depth of about 2.6 m below the present day surface, a massive stalagmitic crust, apparently precipitated directly on bedrock, defines the bottom of our excavation. Overlying the crust, stratigraphic units 1420 and 1410 (very compact silt permeated by calcium carbonate; combined thickness is 15 cm) did not yield any evidence of human occupation.

Above these strata is a series of stratigraphic units (from SU 1400 to SU 1310; total thickness is 0.9 m) that consist primarily of angular limestone rocks embedded in very loose black humus. These units contain great quantities of artifacts, animal bones, and wood charcoal. Occasional thin lenses of yellow clay break this accumulation into several horizontal segments. Some of these lenses have clearly defined circular areas burned to a reddish color, which are interpreted as hearths (FIG. 7). The abundant charcoal is a product of in situ combustion, while the angular rocks most likely come from the cave's immediate surroundings and were deliberately brought into the cave. There can be little doubt that this dark, loose layer corresponds to Novak's "Great Layer" (or Layer I) of Grapčeva Cave (Novak 1955: 32–33, figs. 8, 18, and 30).

Above this, the character of the sediment changes radically. It is more compact and of a lighter color; there are numerous, thin, inter-fingered lenses of silty humus, soot, and ash (from SU 1300 to SU 1060; total thickness is 1.1 m), containing relatively few archaeological finds and only a very few stones. Such deposits, suggesting many episodes of low-intensity burning, are very common in caves throughout the region, and probably were formed by the periodic burning of stable layers containing herbivore

droppings (Boschian and Montagnari Kokelj 2000: 340–343). This accumulation roughly corresponds to Novak's Layers III, IV, and V (Novak 1955: 31–32, figs. 8, 18, and 30); a closer correlation with his stratigraphy is not possible. We did not encounter anything resembling his "sterile" Layer II, and there are good reasons to doubt its existence.

Stratigraphic units 1040 and 1030 (with a combined thickness of 30 cm) near the top of the sequence consist of loose brown humus, roughly corresponding to Novak's Layer VI (Novak 1955: 31). The topmost units 1010 and 1000 (with a combined thickness of 15 cm) are backdirt from earlier excavations.

### Phasing and Dating

We divide the cave's stratigraphic sequence into seven main phases and several sub-phases, based on major breaks in stratigraphy and formal traits of pottery (FIG. 6). Phase 0 comprises the deepest contexts with archaeological materials. Relatively scarce pottery finds include an Impressed Ware sherd (Müller 1994), a few sherds decorated by Danilo-style incision (Batović 1979: 541–544), and a polychrome painted sherd of buff-yellow untempered, burnished, evenly fired fineware known as *figulina* (Spataro 2002: 13), suggesting ephemeral visits during the Early and Middle Neolithic (FIG. 8A). Of the two radiocarbon determinations available for this phase, one corresponds to the early 6th millennium CAL B.C. and the other to the early 5th millennium CAL B.C. (TABLE 1).

Phase 1 is represented by a thick layer of loose dark humus and rocks. It contained exceptionally large quantities of potsherds, faunal remains, and charcoal, as well as occasional thin lenses of yellow clay. We divide this phase along the major clay lenses into three sub-phases. Classic, Late Neolithic Hvar bowls (Batović 1979: 599–601) dominate the assemblage. The five available radiocarbon determinations firmly date Phase 1 to the 5th millennium, roughly between 4800 and 4300 CAL B.C. (TABLE 1). The dates do not conform perfectly to the stratigraphic sequence, and one of them,  $6130 \pm 80$  B.P. (Beta 103485) in uncalibrated radiocarbon years, is almost certainly too early. These inconsistencies may be due to the mobility of charcoal within the loosely deposited sediment and/or "old wood effect." Sub-phase 1.1 probably belongs to the first half of the 5th millennium CAL B.C., while Sub-phases 1.2 and 1.3 belong to its second half.

Phase 2 is made up of a series of ash lenses alternating with soil. The relatively small pottery assemblage is best described as plain, generic Hvar (FIG. 8B). This phase has the highest relative abundance of burnished pottery, over half of which was fired in a reducing atmosphere. A conspicuous and

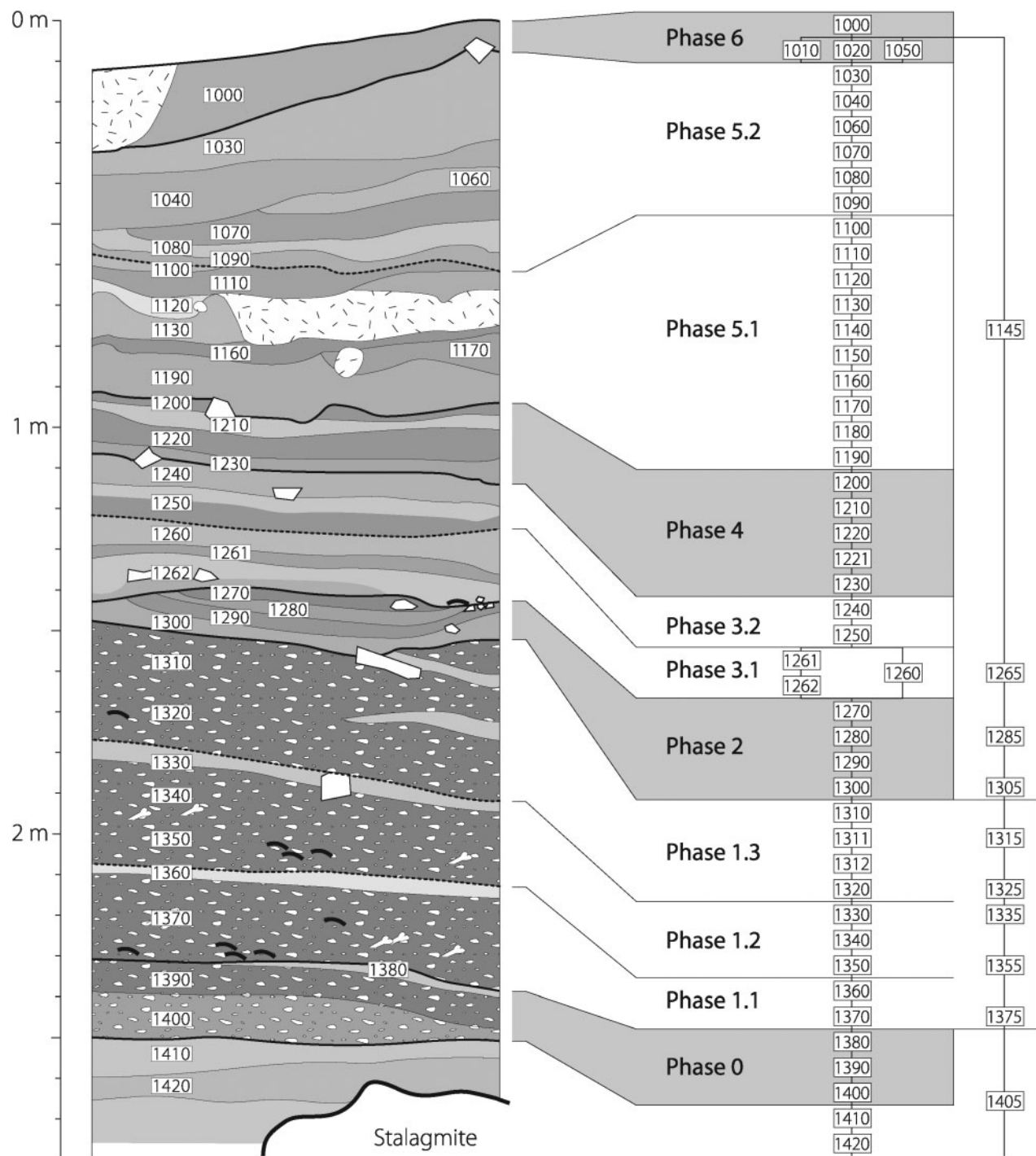


Figure 6 Section, stratigraphic diagram, and phasing of the test trench excavated in 1996.

common novelty is channeled decoration. Two radiocarbon determinations date this phase to near the end of the 5th millennium CAL B.C. (TABLE 1).

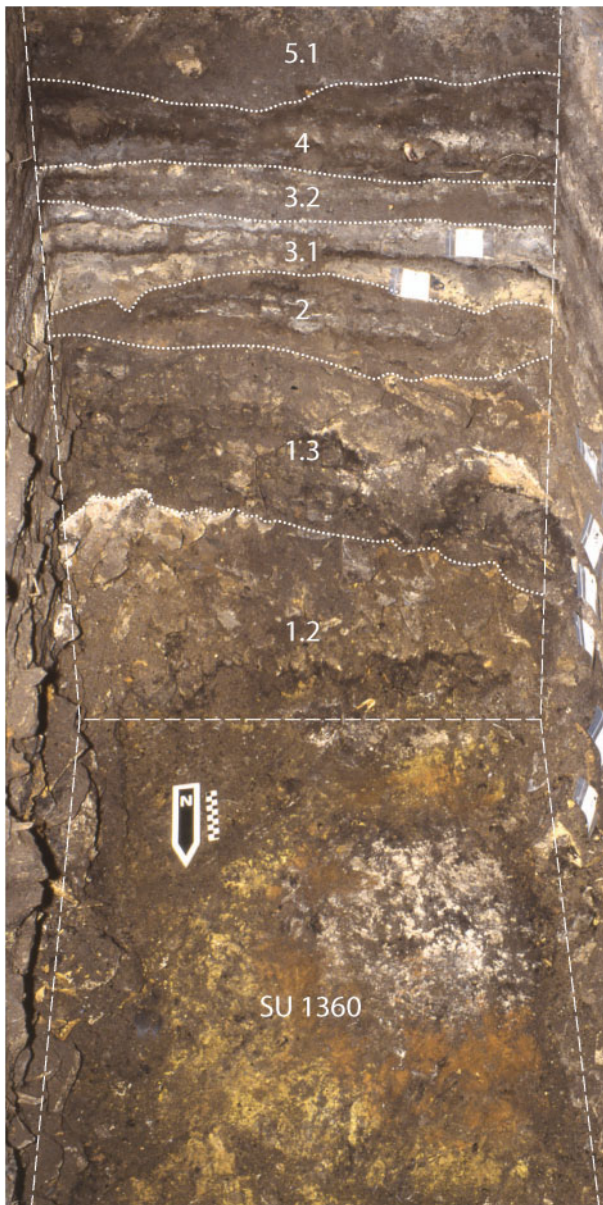
Phase 3 is composed of sediments similar to those of the previous phase. A possible stratigraphic discontinuity separates Sub-phase 3.1 from Sub-phase 3.2. Traditional Late Neolithic vessel shapes and decorative elements, which are still relatively common in the earlier sub-phase, virtually disappear by the later sub-phase. They are replaced by a variety of new vessel shapes and decorative elements (FIG. 8C) that are considered typical of the Early Copper Age “Nakovana” style (Dimitrijević 1979). Two

radiocarbon determinations date Sub-phase 3.1 to the mid-4th millennium CAL B.C. and Sub-phase 3.2 to the late 4th millennium CAL B.C. (TABLE 1).

Phase 4 continues to be composed of the same sorts of sediments as the previous two phases. Its small pottery assemblage is notable for fragments decorated with incised-and-impressed or coil-impressed geometric designs (FIG. 8D), characteristic of the Late Copper Age “Cetina” style (Marović and Čović 1983). Two radiocarbon determinations suggest that this phase may cover much of the 3rd millennium CAL B.C. (TABLE 1).

Phase 5 is represented by a sequence (up to 1.0 m thick), of clearly stratified units. A possible





**Figure 7** A circular hearth (SU 1360) marking the top of Sub-phase 1.1. Visible in the section above it is the loose accumulation of black humus and angular rocks: Sub-phases 1.2 and 1.3, separated by another hearth, overlaid by the soot-and-ash lenses (Phases 2, 3, and 4).

discontinuity separates Sub-phase 5.1 from Sub-phase 5.2. Almost all of the pottery is plain (FIG. 8E). Jars are now about twice as common as bowls, and vessels often have (sometimes elaborate) handles. Sub-phase 5.1 is attributed to the Early Bronze Age, and Sub-phase 5.2 to the Middle Bronze Age. According to radiocarbon determinations, Sub-phase 5.1 belongs to the late 3rd millennium CAL B.C. and Sub-phase 5.2 to the first half of the 2nd millennium CAL B.C. (TABLE 1).

Phase 6 includes backfill from Novak's main excavation trench, backfill from a smaller pit, back-dirt from earlier excavations redeposited on top of the original cave surface, and disturbed soil at the present surface. These contexts are rife with plain non-diagnostic potsherds, as well as animal bones

and mollusks, reflecting the haphazard nature of the early excavators' recovery practices.

### Deposition Rates, Frequencies of Finds, and Rates of Discard

The available radiocarbon dates (TABLE 1) suggest that the 0.9 m thick layer of dark loose and rocky sediment from SU 1390 to SU 1310 accumulated in about 500 years at an average rate of ca. 18 cm per century. The accumulation of the overlying 1.1 m of lighter and more compact ashy sediments from SU 1300 to SU 1040 took about 2500 years at an average rate of ca. 4.4 cm per century. This fourfold drop in the average accumulation rate coincides with the radical change in sediment characteristics at the end of Phase 1.

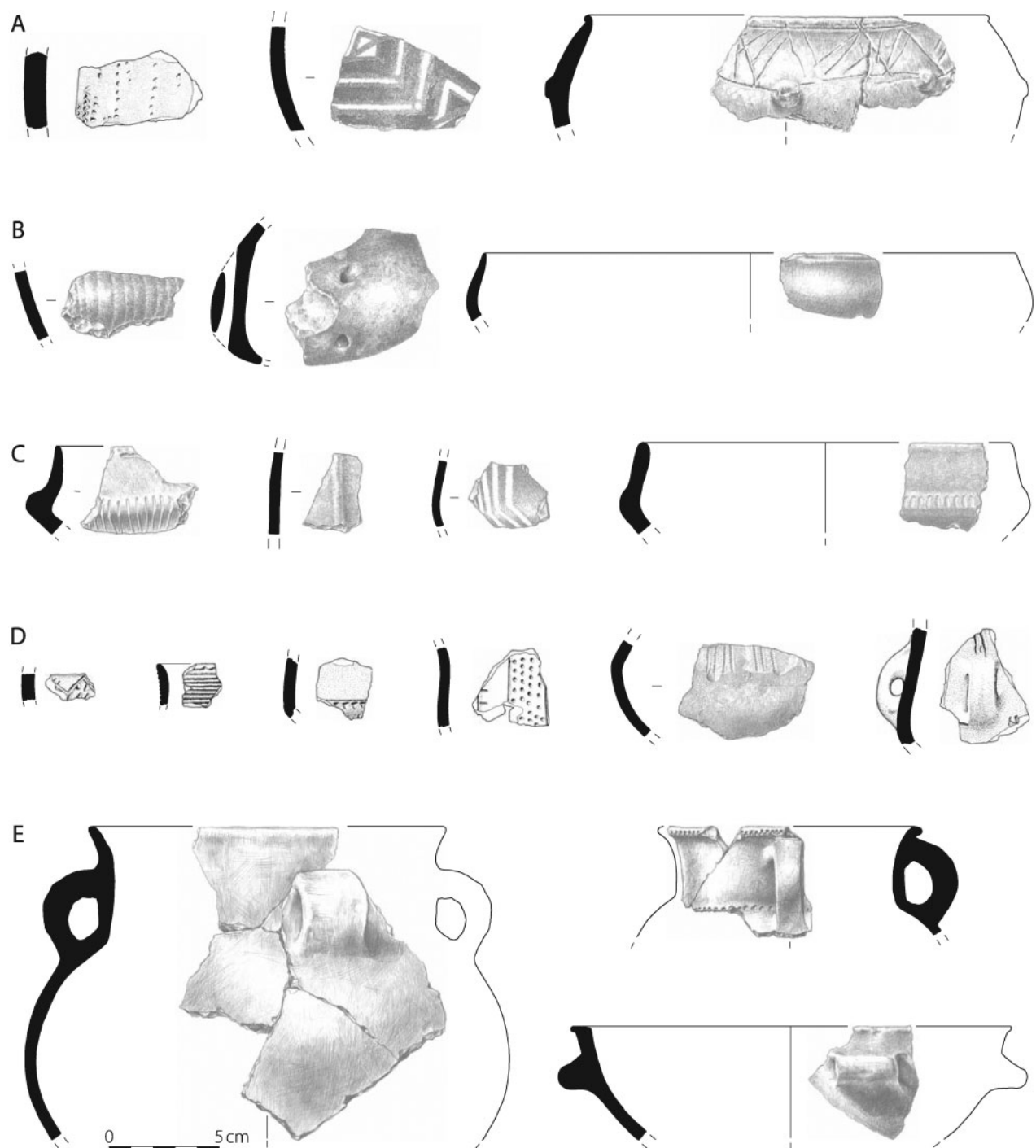
Phase 1 evidently differs from all other phases by the quantity and variety of finds that suggest a more intensive and qualitatively different use of the site. Pottery and animal bones are more frequent in Phase 1 than in any other phase (FIG. 9), and Phase 1 also has the highest density of wood charcoal and plant macroremains (Borojević et al. 2008, figs. 7, 8). This contrast is sharper when one compares average rates of discard, which drop tenfold from over 4 to less than 0.3 kg per sq m per century for pottery and from ca. 1.5 to less than 0.12 kg per sq m per century for animal bones.

Compared to other phases, the potsherds from Phase 1 are larger on average and are decorated more often (FIG. 9). The larger pottery fragments may be the result of different depositional environments, but they may also reflect deliberate breakage, after which the sherds may have been left relatively undisturbed. We were able to reconstruct large parts of several vessels by conjoining sherds (e.g. FIG. 11B, top right), but no complete pots could be reassembled. A 1 × 2 m trench cannot be expected to yield extensive conjoins even if pots were smashed and left in place.

Decorated sherds are not only more frequent in this layer than in the others, but they are also more common at Grapčeva than at other eastern Adriatic Late Neolithic cave sites with comparable data. Fifteen percent of Grapčeva's sub-Phases 1.1 and 1.2 pottery is decorated, as compared to 6% at Pupičina (Miracle and Forenbahe 2005: 262) or 4% at Vela Peć (Forenbahe et al. 2008: 15, table 2).

### Phase 1: Grapčeva's "Great Layer"

The following provides summary information about pottery and lithics, as well as plant, animal, and human remains recovered from Phase 1 of our test trench in Grapčeva Cave (see also Forenbahe and Kaiser 2008 for details on everything but the paleobotanical aspects; see Borojević et al. 2008 for the complete report on plant macroremains).



**Figure 8** A selection of characteristic potsherds from Grapčeva Cave. A) Phase 0; B) Phase 2; C) Phase 3; D) Phase 4; E) Phase 5.

*Pottery*

Phase 1 yielded over 3200 potsherds, 445 of which we considered diagnostic due to their shape, decoration, or both. Vessels were made of the locally available calcareous clays, heavily tempered with crushed marble, calcite and/or limestone. Many vessels were burnished before firing in open fires or fire pits. Most were smudged during firing; others were fired in a reducing atmosphere. Surfaces are often dark, ranging from black to reddish brown, although lighter colors are not unusual. Black burnished pottery is considered a hallmark of the Hvar style.

Wide shallow bowls dominate the assemblage. The four major bowl types differ primarily in the degree of restriction of their mouths (FIG. 10). The slightly restricted (closed) bowl is the most common Late Neolithic vessel shape, accounting for two thirds of all reconstructed vessels. The majority of the bowls are of medium size (rim diameter is 20 cm), although a wide range of sizes is represented. Jars are much less common, and other vessel shapes are very rare.

Decoration is usually located at the rim and immediately below it, often forming a zone that flows around the vessel between the rim and the



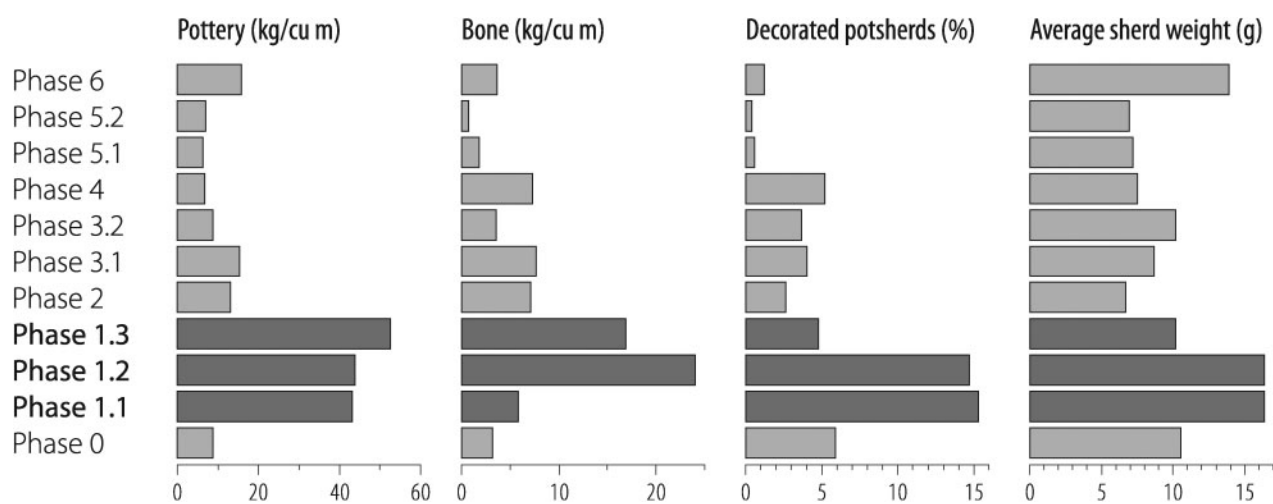


Figure 9 Relative frequency by phase and sub-phase of pottery, animal bone, and decorated potsherds, as well as the average sherd size by phase, in Grapčeva Cave test trench deposits.

shoulder (FIG. 11), consisting of abstract geometric motifs composed of rectilinear, curvilinear, spiral, and complex geometric elements. Roughly one out of 10 sherds is decorated, but this value hides a trend within Phase 1. There is a marked decrease in the frequency of decoration from over 20% in the earliest contexts of Sub-phase 1.1 to less than 3% by the end of Sub-phase 1.3.

The two major decorative techniques, often used in tandem, are incision and painting. Paint, which was always applied after firing, does not adhere to the surface very well, and many sherds exhibit only pale traces of painted designs. Several kinds of pigments were used, most based on either mercury (cinnabar, or mercuric sulfide, HgS) or iron (red ochre, Fe<sub>2</sub>O<sub>3</sub>) (Karšulin 1955: 293; John Twilley, personal communication 2009). While red ochre occurs commonly throughout the region, cinnabar is not as readily available, and must have been obtained through long-distance exchange networks. There are several potential cinnabar sources in the mountainous hinterland of the eastern Adriatic. The well-known

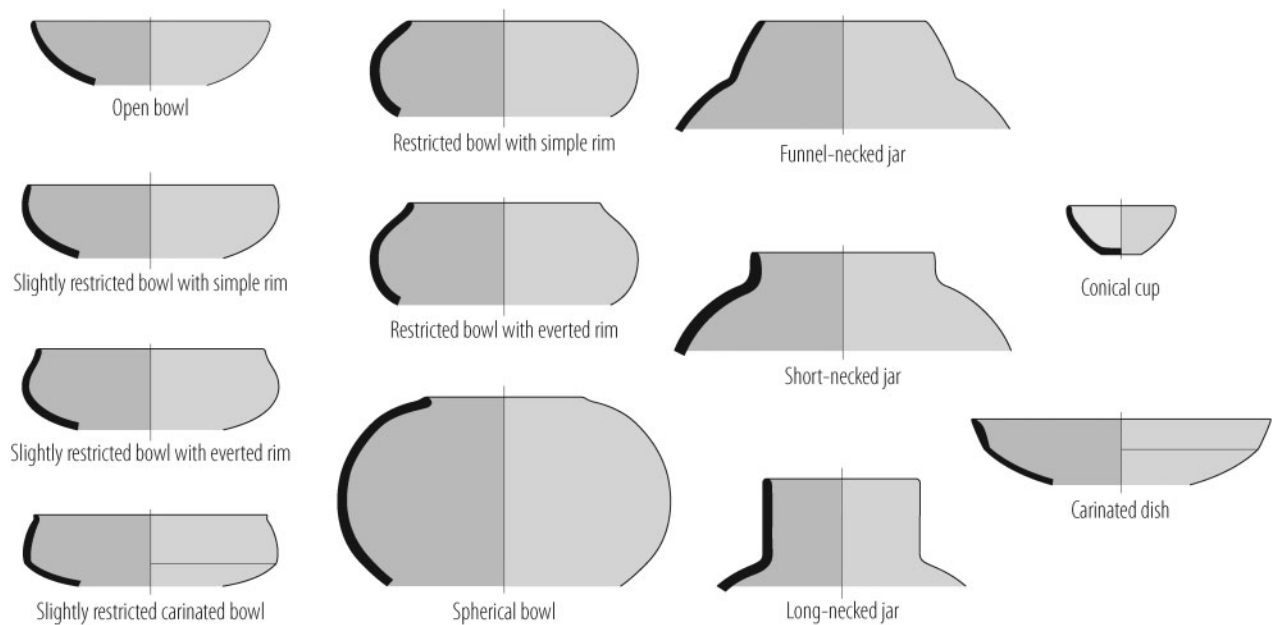
ore deposits at Idrija in Slovenia (Drovenik et al. 1990) and a minor one at Tršće in Croatia (Frančičević-Bilinski et al. 2005) lie relatively far to the northwest. The extensive deposits in the ore-rich central Bosnian mountains, in the areas of Dusina and Čemernica (Jurković 1996; Jurković et al. 1999), are also relatively far inland. Interestingly however, these Bosnian cinnabar sources are located just across the watershed from Lisičići, a major Late Neolithic settlement attributed to “Hvar culture” (Benac 1958), a site that is likewise notable for its location unusually deep in the interior (most Hvar sites are found along or near the Adriatic coast). Finally, several sources have been reported from Montenegro (Ministarstvo za ekonomski razvoj Crne Gore 2008: 23). One of them, Sutomore, is right on the Adriatic coast. Some of these ores have been mined since Late Medieval times, but whether any were exploited in prehistory is as yet unknown.

We did not carry out a physical-chemical analysis of the whole ceramic assemblage. Instead, we classified painted decoration as “red,” “faded,” or

Table 1 Radiocarbon dates from Grapčeva Cave. SU = Stratigraphic unit. All samples are wood charcoal.

Lab no.	Age B.P.	Age CAL B.C.*	SU	Phase	Associated pottery
Beta 103474	3410 ± 110	1879–1529	1040	5.2	Middle Bronze Age
Beta 103475	3480 ± 50	1881–1695	1080	5.2	Middle Bronze Age
Beta 103476	3970 ± 50	2565–2459	1130	5.1	Early Bronze Age
Beta 103477	3880 ± 120	2551–2144	1200	4	Cetina
Beta 103478	4190 ± 50	2882–2678	1220	4	Cetina
Beta 103479	4510 ± 50	3352–3097	1250	3.2	Nakovana
Beta 103480	4700 ± 100	3637–3363	1262	3.1	Nakovana
Beta 106625	5210 ± 40	4041–3972	1280	2	Late Hvar
Beta 103481	5650 ± 100	4584–4359	1290	2	Late Hvar
Beta 103482	5460 ± 60	4350–4249	1310	1.3	Classic Hvar, modest decoration
Beta 103483	5720 ± 70	4686–4460	1320	1.3	Classic Hvar, modest decoration
Beta 103484	5420 ± 70	4340–4167	1330	1.2	Classic Hvar, standard decoration
Beta 103485	6130 ± 80	5226–4861	1350	1.2	Classic Hvar, standard decoration
Beta 103486	5900 ± 60	4838–4712	1370	1.1	Classic Hvar, outlined decoration
Beta 103487	6000 ± 80	4960–4780	1390	0	Polychrome figulina
Beta 103488	7030 ± 60	5987–5811	1400	0	Impressed Ware

\* calibrated 1 SD interval.



**Figure 10** Shapes of vessels from Phase 1 of Grapčeva Cave.

“white,” the first two of which correspond roughly to cinnabar-based and ochre-based pigments, respectively. A common simple and characteristic decoration is a red-painted band along the lip of the rim, its lower edge often demarcated by an incised line. Notably, the “white” paint was never used for these “lip-bands.” A characteristic feature of Sub-phase 1.1 is “outlined decoration.” Here a geometric motif is first incised, then the area outside the motif is burnished, while the interior of the motif is painted a bright red (FIG. 11A). In Sub-phase 1.2, all traditionally recognized Hvar-style decorative traits continue except outlined decoration (FIG. 11B). Rare “white” painted sherds first appear in its topmost stratigraphic unit and continue through the following sub-phase. The pottery from Sub-phase 1.3 is less frequently ornamented, and painted decoration is dominant over incision (FIG. 11C).

While Hvar-style pottery is well known from many sites, only Vela Cave (Čečuk and Radić 2005) offers material comparable in terms of its relatively fine temporal resolution. Grapčeva’s Sub-phases 1.1 and 1.2 roughly correspond to Vela’s Phase 4/2, while Grapčeva’s Sub-phase 1.3 and Phase 2 are equivalent to Vela’s Phases 4/3 and 4/4.

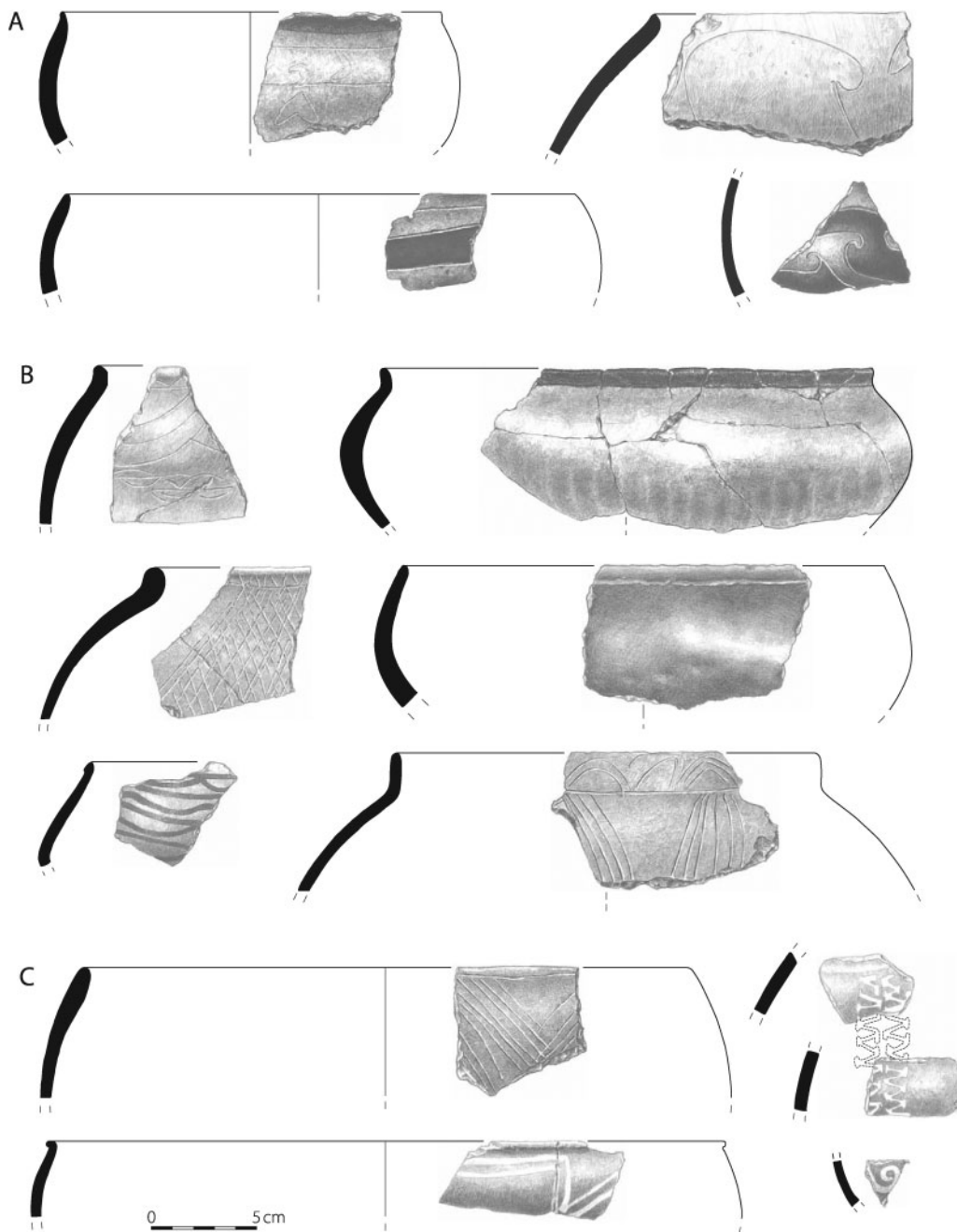
### *Macromammalian fauna*

More than two-thirds of the 1714 bone specimens from Grapčeva that were identified to genus or species were recovered from Phase 1 and include the bones of sheep, goat, cattle, deer, pig, marten, dog, hare, and humans. Although the range of taxa is similar throughout the sequence, there are important differences between the Neolithic and post-Neolithic levels, and there is evidence for the specialized use of the cave during Phase 1.

The uniformity of the species distribution throughout a 2500-year period is remarkable (FIG. 12). Sheep and goat make up between 83% and 85% of the assemblage in every phase, the main change being a shift towards more goats and fewer sheep in post-Neolithic times. Hare and humans are the only species that are restricted in distribution, both occurring primarily in Phase 1 or just above it. There is also some temporal variation in frequency of pigs, which are more common in later levels. Cattle bones are found throughout the sequence, but half of the identified specimens came from two Phase 1 contexts (SU 1310 and SU 1340). The pattern for deer is almost identical to cattle, although they represent the opposite ends of the wild/domestic spectrum.

The faunal assemblage is dominated by post-consumption remains. Initial butchery was carried out elsewhere and there was little processing of the bones after the meat had been consumed. Cattle, deer, and hare appear primarily in the form of limb bones. The element distribution and the cut mark patterns suggest that large joints of meat were roasted and consumed at the site. Hares were apparently skinned elsewhere; or at least no evidence of their pelts was left in the cave. Sheep and goat skeletons are more complete, but their meat-bearing bones are over-represented, while small foot bones and metapodials are underrepresented. Since the latter are preferentially used in manufacturing bone tools, their absence suggests that initial butchery and secondary use of the butchery waste did not take place in the cave.

There is evidence for a preferential selection of left goat limbs and right sheep limbs. The evenly balanced number of those elements strongly suggests that these categories (left/right and sheep/goat) had a cultural significance. The high rate of animals that



**Figure 11** A selection of characteristic potsherds from Phase 1 of Grapčeva Cave. A) Sub-phase 1.1; B) Sub-phase 1.2; C) Sub-phase 1.3.

were culled when very young, with a possible emphasis on young female sheep, may point to another culturally meaningful selection. None of this can be explained by standard herd management strategies or taphonomic pressures. Together with the taphonomic data, this sets Phase 1 deposits apart from those of later phases—they reflect specialized activities rather than simple post-consumption discard (Frame 2008).

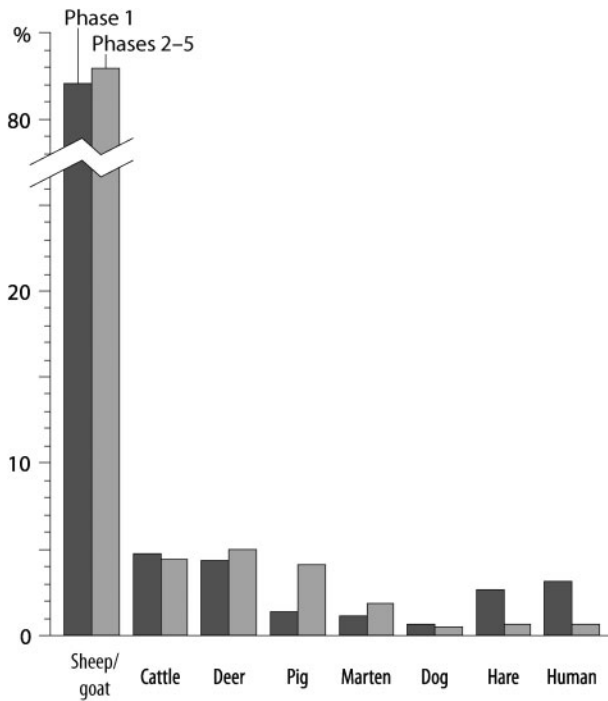
#### *Human remains*

Around the Mediterranean, disarticulated human bones are often found in Neolithic middens, sometimes in addition to complete burials, and sometimes as the only human remains (Malone 2003; Robb

2007). They are usually interpreted as disturbed burials or as casually disposed bodies. Neither explanation seems plausible for Grapčeva. The human bones are clearly part of the same rapid deposition as the animal bones, and yet none of the human skeletons are complete.

Our test trench yielded 77 pieces of human bone (TABLE 2). Of these, only nine small specimens post-dated Phase 1. All body parts are present, but no individual is completely represented. The few articulations tend to be where ligament attachments are strongest. There are surprisingly few carpals, tarsals, or metapodials. These robust and numerous bones are usually among the most common finds, but are easily lost when a skeleton is moved. The low number





**Figure 12** Relative frequency of taxa in Phase 1 and all later phases combined, counted by diagnostic zone (Watson 1979).

of anatomical connections, and the fact that the missing elements cannot be explained as lost through attrition, suggest that the human remains represent secondary burials.

The minimum number of people is seven, estimated from the range of ages: an infant, a young child, a child, an adolescent, an adolescent/young adult, an adult, and a mature adult. The gender of only two could be determined: one is definitely female, and the other is probably female.

A careful survey of old reports (Gasperini 1888; Rutar 1888; Novak 1955; Sakarž 1955) suggests that the distribution of human bones was similar throughout the cave. Most of the bones from prior excavations came from Novak’s “Great Layer.” The total quantity of remains, particularly if measured by the minimum number of individuals represented, is surprisingly high. A precise calculation is impossible due to incomplete information, but an estimate may be offered. Taking into account that disturbed skeletal remains will generally appear less numerous than undisturbed burials in terms of the minimal number of individuals (Robb 1991: 122), Grapčeva probably contained the fragmentary remains of a few dozen people of all ages.

Taphonomically, human bones are very similar to other bones in the faunal assemblage. Two specimens have a slightly polished surface, maybe as a result of having been buried with some of the flesh protecting and oiling the bones; none of these specimens have the end polishing of fractures typical of “pot polish.” Another question raised by the human remains, scattered through what seems to be a feast midden,

is the possibility of cannibalism. This does not necessarily contradict the argument that these bones are a result of burial, as endocannibalism frequently occurs as a part of mortuary rites (Parker Pearson 1999: 52–53). Cannibalism, however, is notoriously hard to demonstrate (White 1992; Robb 1994: 37; Parker Pearson 1999: 54), and it is not surprising that we found no evidence for it in our sample.

*Flaked stone artifacts*

Compared to the pottery, the lithic assemblage of Phase 1 is tiny and unremarkable. Only 16 flaked stone artifacts were recovered: seven retouched tools (FIG. 11), seven pieces of debitage (four flakes and three blade segments), and two amorphous core fragments. They are made of various fine-grained cherts whose sources remain unknown. The absence of debris suggests that flintknapping was a rare activity. The cave was a place where a few finished tools were used and discarded.

The most common tool type is a retouched blade with normal semi-abrupt retouch extending along part or the entire length of one or both lateral edges, converging to a point at the distal end. One example (FIG. 13: 5) resembles Early Neolithic “shell-openers” from Sušac and Coppa Nevigata (Bass 1998: 169, fig. 4), but analogies can also be found at Middle Neolithic settlements such as Danilo (Korošec 1958: plates 53–54), or Late Neolithic settlements such as Lisičići (Benac 1958: plate 3: 13–15). The assemblage does not contain a single scraper, a class of tool that usually dominates Neolithic assemblages (Forenbaher 2006; Forenbaher and Nikitović 2010). Their absence suggests that some of the more common Neolithic domestic activities were not practiced at Grapčeva (Forenbaher 2008a).

*Plant macroremains*

Plant macroremains are more abundant and diverse in Phase 1 than in any other phase. Wild plants heavily outnumber domesticates. Acorn meat fragments, cypress seeds and cone fragments, and juniper berry cones are common, while charred juniper berry cones and almond nutshell fragments appear in this phase only. A few fragments of wood charcoal that were analyzed probably came from juniper and an evergreen oak. Rare crop remains include a few grains of emmer, einkorn, bread wheat, barley, and lentils (Borojević et al. 2008).

Grapčeva’s occupants often brought to the cave wild products from the immediate neighborhood, and, less frequently, processed domesticated crops from more distant fields. Evergreen Mediterranean vegetation was exploited for fuel. Acorns may have been used as buffer food or for their healing properties (attested at least since Classical Antiquity [Vencel 1996]). Wild almonds could have been eaten

after the toxic glycoside amygdaline they contain had been removed by leaching. Like acorns, almond oil may have been used medicinally or in rituals. Juniper’s aromatic foliage and resins were often used in the past for spiritual purposes, burned for incense in temples, and used in traditional medicine.

Ritual at Grapčeva Cave

The earliest visits to Grapčeva Cave took place around 5900 CAL B.C., a time when farming had just been introduced in the southern Adriatic. Its rapid spread is marked today by finds of Early Neolithic Impressed Ware pottery (Forenbaher and Miracle 2005). It seems that Grapčeva was then a rather unimportant point in the Early Neolithic landscape, used only occasionally as a convenient shelter. Sporadic visits to the cave continued during the

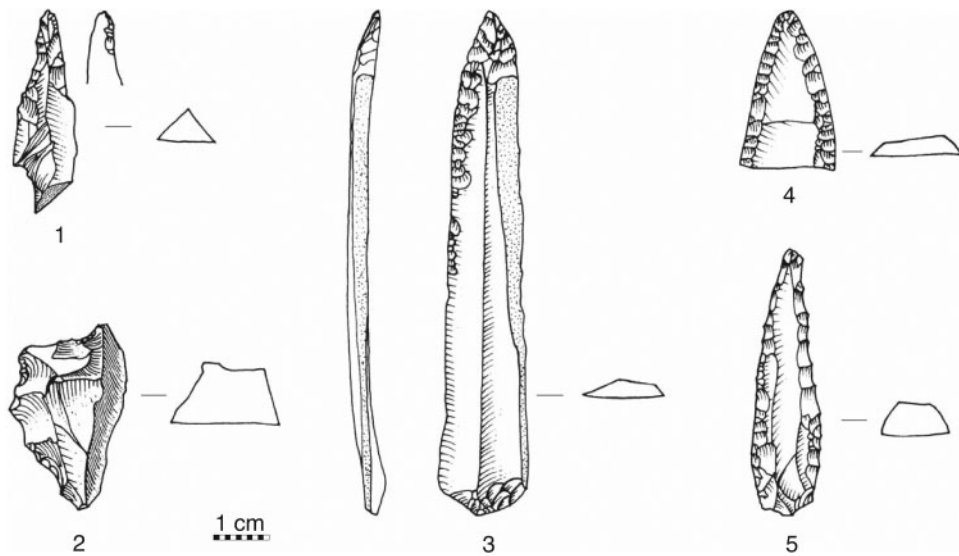
Middle Neolithic (the second half of the 6th millennium CAL B.C.).

Intensive activities began abruptly around 4800 and lasted until about 4300 CAL B.C. (our Phase 1, Novak’s “Great Layer”). During this period, the cave was not just another convenient shelter or sheep pen. Instead, it was used primarily for ritual activities. Its function changed again after ca. 4300 CAL B.C. Beginning with Phase 2, the deposits at Grapčeva Cave are virtually indistinguishable from those commonly encountered at other post-Mesolithic cave sites in the region (Boschian and Montagnari Kokelj 2000; Boschian 2006), and their artifactual contents are unremarkable. Grapčeva was now used as a shelter by shepherds and their flocks.

Some years ago, Renfrew considered four aspects of ritual, “liminality,” “attention focusing,”

Table 2 Human remains from Grapčeva Cave.

Element	Side	n	Age/Sex	Comment
Temporal		2		
Temporal/occipital		1		
Occipital	R	1		Appears polished
Occipital	R	1	Female?	Mastoid process very delicate, appears polished
Occipital		1		
Parietal		1		Burnt
Parietal	L	1	Young	Pre-excavation break along suture, Wurmian bones
Parietal (2 pieces)		1	Child	Age estimate based on size
Maxilla	R	1	Infant	Tiny, immature
Upper incisor	L	1	Adult	Some calculus
Upper first incisor	R	1	Young adult	Overbite
Upper second incisor	R	1	Young adult	Overbite
Lower second incisor	L	1	Adult	Some calculus
Upper canine	L	1	Mature adult	Very worn
Upper canine	L	1	Young – adolescent	No calculus, unworn
Upper canine	R	1	Young adult	Overbite
Lower canine	R	1	Adolescent/Young adult	Unworn
Lower molar 2 or 3	L	1	Young – adolescent	No calculus, unworn
Atlas		4		
Cervical vertebrae		6	30+	2 with slight arthritis
Seventh cervical vertebrae		2		
Thoracic vertebrae		12		
Thoracic vertebrae		1	Child	Small
Lumbar vertebrae		7		3 with arthritis
Lumbar vertebrae		1	30+	Compressed
First or second rib	R	1		
Scapula	R	1	Late adolescent	Olecronon process just fused
Clavicle	R	2		
Clavicle	L	1		
Clavicle	L	1	20+, female	Fused
Humerus	L	1		
Humerus	R	1		
Ulna	L	1	Adult 30+	Hint of degenerative joint disease
Ulna	R	1	Adult 30+	Hint of degenerative joint disease
Radius	R	1	>15, probably adult	23 cm
Radius	L	1		
IV metacarpal	R	1	10–15 years	Unfused epiphysis
IV metacarpal	R	1		
IV metacarpal	L	1		
Intermediate phalanx (hand)		1		
Femur	L	1		
Femur	R	1		
Tibia	R	1	Child	Age estimate based on size
Tibia	R	1	Young child	Very small, some immature bone
Tibia	L	1	Young child	Very small, some immature bone
Talus	R	1		Articulates with below
Calcaneum	R	1		Articulates with above
Proximal phalanx (foot)		1		



**Figure 13** A selection of flaked stone artifacts from Grapčeva Cave. 1) drill; 2) denticulate; 3–5) retouched blades.

“presence of the transcendent,” and “participation and offering,” and proposed a list of potential archaeological correlates of ritual practice (Renfrew 1985: 16–21). With some elaboration and modification (Blake 2005; Renfrew 2007), this approach remains useful in recognizing ritual activities, and is directly applicable to the archaeological evidence recovered from Phase 1 of Grapčeva Cave.

While all caves may be thought of as occupying a liminal zone between the everyday and the underground worlds, its extraordinary location and features of its morphology make Grapčeva a particularly likely candidate for sequestered ritual behavior. Its topographic setting is spectacular, and its entrance is small and well hidden. A short, narrow passage restricts access to the cave’s dark interior, adding to an atmosphere of secrecy. The large main chamber, with its massive stalagmitic columns and curtains, provides a striking setting. Grapčeva shares with certain Italian sites attributes of two of the three major “ritual themes” (“secrecy” and “abnormal water”) identified by Whitehouse (1992) in her study of Neolithic southern Italy, a region that was demonstrably in contact with Dalmatia. Following Whitehouse, a group of Grapčeva’s characteristics (underground situation, hidden location, difficulty of access, darkness, restriction of space) would constitute the “secrecy theme” (Whitehouse 1992: 129), while water behaving abnormally (in our case, moving, dripping, liquid water becoming solid stalagmites) would represent transition and marginality, and be considered as particularly appropriate traits in a place meant for cult use (Whitehouse 1992: 133).

Artifacts or natural objects that might be interpreted as icons or representations of the supernatural were not recovered at Grapčeva. Unlike nearby Nakovana Cave on the neighboring Pelješac Peninsula, where Iron Age/Hellenistic period ceramics

are clustered around a ritual focus (Forenbaier and Kaiser 2006), there is no particular pattern in the spatial distribution of finds in our test trench that would suggest a ritual focus of some kind. Of course, nothing of the sort may ever have existed at Grapčeva; alternatively, spatial patterns in the distribution of artifacts may now be lost, unnoticed by earlier excavators.

The macrobotanical assemblage includes a number of wild plant remains with potential medicinal and ritual uses, such as acorns, juniper berries, and almonds (Borojević et al. 2008). The aromatic, resin-rich juniper foliage may have been burnt as incense. While suggestive, the evidence for the use of plants at Grapčeva as attention-focusing or consciousness-altering devices remains inconclusive.

Most of the evidence related to ritual practice at Grapčeva Cave concerns human participation and offerings to the supernatural. The sediment itself offers the first set of clues. It differs markedly from the usual eastern Adriatic Neolithic cave deposits and their residues of everyday activities. It also differs sharply from all underlying and overlying layers, and it accumulated much more rapidly than those layers. Its overall composition resembles *strutture di combustione* (combustion features) found on many Italian Neolithic sites and interpreted by Robb (2007: 149–152) as earth ovens used to roast large cuts of meat, possibly on a large scale. The construction of such features at Grapčeva would have involved bringing in several metric tons of rocks from the cave’s immediate surroundings, and would have disturbed or purposefully masked the residues of earlier ritual performances (Kyriakidis 2007b: 20). Deliberately constructed hearths are contained within this deposit. Extrapolating from our test trench, and taking into account the information available from earlier excavations, we estimate that



carefully built hearths were constructed at Grapčeva every few years.

In these deposits, pottery is several times more abundant than in other phases of the site; the average rates of pottery discard are an order of magnitude greater than in the later phases. Sherds are relatively large, possibly reflecting deliberate breakage. Vessels were more highly decorated than in other contexts at Grapčeva or at other contemporary eastern Adriatic cave sites (Miracle and Forenbaher 2005: 262; Forenbaher et al. 2008: 15, table 2). About 80% of all sherds indicative of vessel shape come from medium-sized bowls. Many of these had a bright red band painted along the lip. The pigment often used here was made with cinnabar, a poisonous mercury compound. Bowls with cinnabar-painted lips would have been inappropriate for serving or preparation of food. They may have been painted in this way with the explicit intention of preventing utilitarian use, and used for (or as) offerings. However, not all painted bowls were decorated with a mercury-based pigment; in our sample, half were painted with an iron-based colorant. Since sources of cinnabar are comparatively rare, and sources of ochre are common, it is possible that ochre was used as a cheap substitute. Could a casual Neolithic observer tell the difference?

The faunal assemblage provides another set of clues. Like pottery, animal bones are unusually abundant in Phase 1, the average rates of their discard being an order of magnitude greater than in later phases. Much lamb and goat, as well as prime cuts of beef, venison, and hare were brought to the cave, where they were roasted and consumed. The preferential representation of left goat limbs and right sheep limbs, as well as the overrepresentation of young female sheep, suggest symbolically charged behavior. The structured nature of the faunal assemblage suggests that it was created during repeated enactments of a communal cultural event such as a feast.

Phase 1 of Grapčeva Cave contained the disarticulated remains of a few dozen people of all ages. A comparable situation is known from Scaloria, a southern Italian Middle Neolithic cave site (Tinè and Isetti 1980) with the disarticulated remains of some 30 people, as well as a few partially articulated or complete skeletons (Winn and Shimabuku 1988). Robb (2007: 58) has argued convincingly that disarticulation was not a distinct mortuary rite of the Italian Neolithic, but rather a known and expected phase of a burial's future. Most of the scattered human bones, including those at Scaloria (Robb 1991: 114), probably originated with the disturbance of single primary inhumations. At Grapčeva, however, this appears not to have been

the case; there is no evidence of primary burials, disturbed or not. Instead, it seems that selected human bones from a range of individuals were brought to the cave for secondary burial.

Death and burial are at the nexus of cosmological belief, group solidarity, individual and group status, and certain practical factors of economy and settlement (Parker Pearson 1999: 142–147; Robb 1994: 27). That said, the material evidence of mortuary practices, as preserved archaeologically, is rarely easy to interpret. At Grapčeva Cave, while some ritual activities involved the disposal of human remains, other rituals may also have been performed there, and we may not be able to distinguish them all (Kyriakidis 2007b: 15). Still, some ritual patterns seem to stand out.

The evidence comes from a natural setting that is spectacular, and yet sequestered, secretive, and otherworldly. Once every few years, hearths were constructed in the cave and substantial amounts of meat were roasted in earth ovens. There was feasting, with some of the more unusual patterns in the faunal data being best explained by symbolically-charged behavior. Medicinal plants may have been ingested and aromatic shrubs used as incense. Many highly decorated medium-sized bowls, some of them made in such a way as to be dysfunctional, were brought to the cave and permanently taken out of circulation. Disarticulated human bones from a range of individuals were also brought to the cave and deposited there. All of these activities were repeated many times over a period of several centuries.

### **Mortuary Ritual and Neolithic Society in the Eastern Adriatic**

Ritual behavior of any kind is framed and conducted under specific social, cultural, and material conditions, and archaeologists should understand these contexts if they want to make more than superficial sense of any evidence of prehistoric ritual (Kyriakidis 2007a; Marcus 2007). Unfortunately, we know little about eastern Adriatic Neolithic society in general, and still less about mortuary customs in particular. Consequently, we enlarge our discussion by turning to a more extensive body of evidence from Neolithic Italy, an area evidently in contact with the eastern Adriatic region (Forenbaher 2008b).

The eastern Adriatic mortuary evidence is limited to about a dozen formal burials and a number of isolated bones (Zlatunić 2003: 57–68). Information is often sketchy and attributions uncertain, while detailed forensic reports are only rarely available (Mikić 1981). The existing data suggest that cave burials may be rare. Two fairly complete adult skeletons in flexed positions and an isolated mandible were found in the Late Neolithic levels of Vela Cave

(Čečuk and Radić 2005: 160–161). The scattered remains of a child burial were recovered from the Late Neolithic levels of Ravlića Cave (Marijanović 1981: 12–13), while three other caves yielded a few human bones attributable to the Neolithic: Badanj (Benac 1962: 7), Markova (Novak 1959: 53), and Zelena (Benac 1957: 65; Batović 1979: 495).

Primary inhumations are a bit more common at open-air settlement sites, often located near or within structures interpreted as habitations. Smilčić yielded four skeletons in flexed positions: an adult and a child attributed to the Early Neolithic, and two adults attributed to the Middle Neolithic (Batović 1967: 264–270). At Danilo five child burials are attributed to the Middle Neolithic (Korošec 1958: 25–26; Moore et al. 2007a: 17). An adult burial in flexed position at Crno Vrilo (Marijanović 2003) has been assigned to the Early Neolithic. In addition to formal burials, open-air settlements also yielded scattered human remains, including the skull fragments of about 10 different individuals at Smilčić (Batović 1967: 270–272), a single skull fragment at Danilo (Korošec 1958: 26), and a mandible at Lisičići (Benac 1958: 90).

The most commonly reported skeletal elements among the isolated human remains are skull fragments and mandibles. These were once interpreted as evidence of a “Skull Cult” (Benac 1962: 7; Batović 1967: 275) which would be consistent with a more recent claim that skull reburial or curation was sometimes practiced in Neolithic Italy (Robb 1991: 114–115, 2007: 58–60). We suspect, however, that the recovery techniques formerly employed in eastern Adriatic excavations, in which selective pick-up was the rule, biased the sample in favor of easily recognizable skulls and mandibles. In our systematically recovered sample from Grapčeva, skull and mandible fragments are not overrepresented.

The small number of primary inhumations and the complete absence of formal cemeteries in the eastern Adriatic Neolithic cannot be blamed on inadequate research alone. They probably reflect predominant mortuary customs. Neolithic communities may have disposed of their dead in ways that left little archaeological trace. While some of the human bones scattered around settlements and caves may well be remains of disturbed formal burials (Robb 2007: 58), others—like those from Grapčeva—provide clues about different kinds of mortuary practices.

There is some evidence that a few other caves in central Dalmatia were used for mortuary purposes, but the highly unusual contents of its Phase 1 deposits point to Grapčeva’s special significance. This particular cave may have been chosen for staging rituals due to its extraordinary position in the landscape and its suitable internal morphology. The communal feasts that were held there involved an

unusual abundance of otherwise ordinary food items. Some ethnographic studies suggest that in societies where inequalities are weakly developed it is the quantity of food (rather than its style or quality) that expresses the special nature of a ceremonial meal (van der Veen 2003, cf. also Dietler and Hayden 2001). Thus the abundance of ordinary food remains in Phase 1 at Grapčeva may be taken as evidence of ceremonies aimed at reinforcing social homogeneity and/or resisting social ranking.

The feasts were not seasonal: they took place only every few years, possibly in relation to deaths of community members. Grapčeva also served as a communal burial site, providing the setting for ancestral remains to be revisited, augmented, possibly rearranged or even taken away and circulated. These are among the attributes of an ancestor cult (Blake 2005: 112). The apparent mixing of many different individuals strongly suggests a ceremony that reinforces some aspect(s) of a shared group identity. While burial at Grapčeva may have been reserved for members of a local community, the presence of individuals of all ages suggests that it was not restricted to some subset of that community.

Why did ritual activities in Grapčeva begin around 4800 CAL B.C.? Since we know so little about the regional social dynamics of central Dalmatia, we turn to the western side of the Adriatic for clues. There, the transformation of prehistoric societies from Early Neolithic heterarchies to unstable hierarchies in the Bronze Age was a slow and piecemeal process. Robb (2007: 339) has argued that “...the conceptual components of this change arose in several distinct phases in Italy, with...a shift to burial to mediate social relationships in the Late Neolithic and the concept of personal prestige competition via display of valuables in the Copper Age.” The paths taken by the communities involved were complex and followed no single trajectory, since they were made up of variably constrained, locally specific, individual and collective solutions to life’s problems. New social relationships reconfigured the attachments between people, places, and their pasts.

While ritual is very good at reaffirming the status quo, it can also stabilize and reinforce a new social configuration (Renfrew 2007: 118). Thus the social changes that marked the onset of the Italian Late Neolithic in the later 5th millennium CAL B.C. coincided with an overall increase of ritualism in burial (Robb 1994; 1999; 2007). The architectural landscape was transformed from a landscape of villages to a landscape of the dead, in which communal tombs replaced settlements as the physical repositories of the common history of the group.

As these changes began to overtake Italy, on the other side of the Adriatic Grapčeva Cave became a

mortuary ritual focus. Like its Italian counterparts, the cave may have provided a setting for ritual practices during which shared memories were produced and maintained at a time when group history and genealogy were gaining importance.

Why did these activities cease at Grapčeva around 4300 CAL B.C.? This too remains an open question. There are no indications of anything dramatic happening in the eastern Adriatic around that time. Hvar-style pottery continued to be produced throughout the region for many centuries yet, and the radical changes of the Late Copper Age lay over a thousand years in the future. The first monumental structures in the eastern Adriatic's version of a "landscape of the dead"—burial mounds—together with the earliest clear expressions of social ranking, did not appear until some point in the 3rd millennium CAL B.C. As with Italy, these changes were likely the aggregate results of local conditions, choices and events. The explanation for Grapčeva's brief moment as a ritual place lies with the as-yet undiscovered evidence of everyday Neolithic lives on the islands of central Dalmatia.

## Acknowledgments

Archaeological research at Grapčeva Cave was supported by grants from the Committee for Field Archaeology of the Royal Ontario Museum, the National Geographic Society, and York University, and by the Ministry of Science, Education and Sports of the Republic of Croatia (project #196-1962766-2740). We are grateful to Andrew Moore and an anonymous reviewer whose stimulating comments and suggestions improved our paper.

*Stasio Forenbaher (Ph.D. 1997, Southern Methodist University) is a Research Advisor at the Institute for Anthropological Research and Assistant Professor at the University of Zagreb, Croatia. He specializes in the archaeology of post-Mesolithic societies of Mediterranean Europe and their lithic industries. He has conducted field research at a variety of prehistoric sites throughout Croatia. Mailing address: Institute for Anthropological Research, Gajeva 32, HR-10000 Zagreb, Croatia. Email: stasio.forenbaher@zg.t-com.hr*

*Timothy Kaiser (Ph.D. 1984, University of California, Berkeley) is Associate Professor of Anthropology and Interdisciplinary Studies, Lakehead University, Orillia, Ontario. His major research interests are in the archaeology of southeastern Europe, in particular the pre- and proto-history of the eastern Adriatic. Mailing address: Department of Anthropology, Lakehead University—Orillia Campus, 1 Colborne Street West, Orillia, ON L3V 7X5 Canada. Email: tkaiser@lakeheadu.ca*

*Sheelagh Frame (Ph.D. 1998, University of California, Berkeley) has focused her research on*

*faunal remains from post-Mesolithic prehistoric sites in central and eastern Mediterranean and Anatolia. Mailing address: 6 Greensboro Avenue, Kingston, ON K7L 4V1 Canada. Email: sheelagh.frame@gmail.com*

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