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O P V S C V L A

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ARCHÆOLOGICA

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2005

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OPVSC. ARCHÆOL. VOL. 29 STR. / PAGES 1–374 ZAGREB 2005.

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FILOZOFSKI FAKULTET  
SVEUČILIŠTA U ZAGREBU  
FACULTY OF PHILOSOPHY,  
UNIVERSITY OF ZAGREB

RADOVI ARHEOLOŠKOG ZAVODA  
PAPERS OF THE DEPARTMENT  
O F A R C H A E O L O G Y

UDK 902-904

ISSN 0473-0992



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Jacqueline BALEN

## KOSTOLAČKI HORIZONT NA VUČEDOLU

## THE KOSTOLAC HORIZON AT VUČEDOL

Izvorni znanstveni članak / Original scientific paper

UDK: 902.2(497.5 Vučedol)"2003/2004"

903.4(497.5-37 Vukovar)

903'1(497.5-37 Vukovar)

Primljeno / Received: 29. 11. 2005

Prihvaćeno / Accepted: 11. 04. 2005.

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*Sustavnim istraživanjima Vučedola, jednog od važnijih eneolitičkih lokaliteta, potvrđeno je postojanje kulturnih horizonta badenske, kostolačke i vučedolske kulture. 2003. i 2004. godine kampanje su bile usmjerene upravo na istraživanje kostolačkoga kulturnog sloja, koji obiluje cijepanim litičkim nalazima i riječnim školjkama, što nam sugerira način privrede i prehrane. Istraživanjima je potvrđena gradnja nadzemnih objekata te kulture. U ovome radu obrađena je građa pronađena u nadzemnim objektima i jednoj otpadnoj jami.*

*Ključne riječi: Vučedol, eneolitik, kostolačka kultura, stambeni horizonti, nadzemni objekti, organizacija naseља, materijalna ostavština*

Sustavna istraživanja Vučedola, jednog od najvažnijih eneolitičkih lokaliteta na području današnje Hrvatske, potvrdila su postojanje kulturnih horizonta badenske, kostolačke i vučedolske kulture. Iskapanjima na Vučedolu-Vinogradu Streim vođenima od 1984. do 1990. ustanovljen je vrlo "jak" kostolački sloj, ali bez nalaza nadzemnih objekata. Iskapanje su samo cilindrične jame koje nisu služile kao

*Systematic research at Vučedol, one of the more important Eneolithic sites, confirmed the existence of the Baden, Kostolac and Vučedol cultural horizons. The 2003 and 2004 seasons were dedicated to research of the Kostolac cultural stratum, which abounds in knapped lithics and river shells, suggesting modes of economic life and diet. Research has confirmed that this culture constructed above-ground structures. This work contains an analysis of materials found in such structures and a waste pit.*

*Key words: Vučedol, Eneolithic, Kostolac Culture, residential horizon, above ground structure, settlement organisation, material heritage*

Systematic research at Vučedol, one of the most important Eneolithic sites in the territory of today's Croatia, has confirmed the existence of Baden, Kostolac and Vučedol cultural horizons. A very "strong" Kostolac stratum was ascertained during excavations at Vučedol, at the Streim Vineyard, conducted from 1984 to 1990, although without any finds indicating above-ground structures. All that was excavated were cylindrical pits not used

stambeni objekti (Durman 1984: 36; 1985: 32; 1987: 24, 25; 1987a: 35–36; Durman & Forenbaher 1989: 33; Težak-Gregl 1996: 58–59) te vanjska otvorena ognjišta, vatrišta i slične konstrukcije od nabijena lesa s taracom od keramike (Milićević 1987: 118). Od 2001. nastavilo se sa sustavnim istraživanjima Vučedola u iskopnome bloku III, radnoga naziva sonda V-87. Tijekom 2003. i 2004. godine kampanje su bile usmjerene upravo na istraživanje kostolačkoga kulturnog sloja (Balén 2004: 65).<sup>1</sup>

Kostolački sloj u sondi V-87 debljine je oko 40 cm i nalazi se ispod sivo-smeđega nivelacijskoga vučedolskoga sloja debljine između 30 i 50 cm.<sup>2</sup> Riječ je o crvenkasto-smeđem “masnom” sloju s komadićima kućnoga ljepa u sastavu i s velikim brojem nalaza keramike, riječnih školjki i litike (cijepane kamene građe, uglavnom jezgri i sječiva). Mjestimično se u sloju uočavaju naboji žuta lesa nejednake debljine. Vjerojatno je riječ o tragovima podnica kuća kostolačke kulture koje su sasvim uništene kasnijim ukopavanjima vučedolskih jama. Još jedan razlog velike uništenosti i nemogućnosti definiranja kostolačkih objekata jest njihova gradnja nad starijim badenskim jamama u koje su mjestimično utonule i propale.

U sondi V-87 dokumentirano je desetak kostolačkih jama, dva nadzemna objekta (sigurno su definirane dvije kuće – br. 23 i 24, a dvije “mrlje” žuta naboja ne mogu se sa sigurnošću definirati kao objekti) i jedno ognjište na otvorenom.

Iako je poznato da kostolačka kultura gradi čvrste nadzemne objekte, ovi su objekti zasad prvi pouzdano determinirani nadzemni objekti nositelja te kulture na prostoru Hrvatske.

## NADZEMNI OBJEKTI 23 I 24

Objekt 23 smješten je u □ 54–55, 63–65, 74 (kote: 108,95–109,03). Osnova kuće od žuta je nabijena lesa, mjestimično s tragovima gorenja. Riječ je o nepravilnu naboju, mjestimično vrlo tanku, a mjestimično (□ 65) debljine 30 cm. Objekt je sasvim uništen mlađim, vučedolskim jamama (sl. 1). U naboju kuće 23 pronađena je plitka kalotasta zdjela (T. 1: 1) ukrašena ubodima postavljenima u metope i ispunjenima bijelom inkrustacijom. Plitka kalotasta zdjela predstavlja najtipičniji oblik posude kostolačke kulture, prisutan na gotovo svim nalazištima.

<sup>1</sup> Zahvaljujem Aleksandru Durmanu, voditelju istraživanja, i Ruži Marić, ravnateljici Gradskoga muzeja Vukovar, na materijalu ustupljenu za objavu.

<sup>2</sup> Debljina sloja varira zbog pada terena od juga prema sjeveru.

for housing (Durman 1984: 36; 1985: 32; 1987: 24, 25; 1987a: 35–36; Durman & Forenbaher 1989: 33; Težak-Gregl 1996: 58–59), and outdoor open hearths, fireplaces and similar constructions made of packed loess, with tile terraces (Milićević 1987: 118). Since 2001, systematic research at Vučedol resumed in excavated block III, with the working designation test pit V-87. During 2003 and 2004, work was dedicated to exploration of the Kostolac cultural stratum (Balén 2004: 65).<sup>1</sup>

The Kostolac stratum in test pit V-87 is approximately 40 cm thick, and it lies beneath a grey-brown, levelled Vučedol stratum that is between 30 and 50 cm thick.<sup>2</sup> This is a reddish-brown “greasy” stratum containing wattle and daub fragments and a large quantity of pottery, river shells and lithics (knapped materials, mainly cores and blades). Swaths of yellow loess of uneven thickness can be discerned in parts of the stratum. These are probably traces of the floors in Kostolac culture homes that were entirely destroyed during subsequent digging of the Vučedol pits. Another reason for the destruction and inability to identify Kostolac structures is that they were constructed over older Baden pits, into which they sank and collapsed.

Roughly ten Kostolac pits, two surface structures (two houses were unambiguously identified: no. 23 and 24, while two yellow “stains” cannot be identified as structures with any certainty) and one outdoor hearth were identified in test pit V-87.

Even though it is known that the Kostolac culture constructed firm surface structures, these structures are for now the first reliably identified above-ground buildings made by members of this culture in Croatia’s territory.

## SURFACE STRUCTURES 23 AND 24

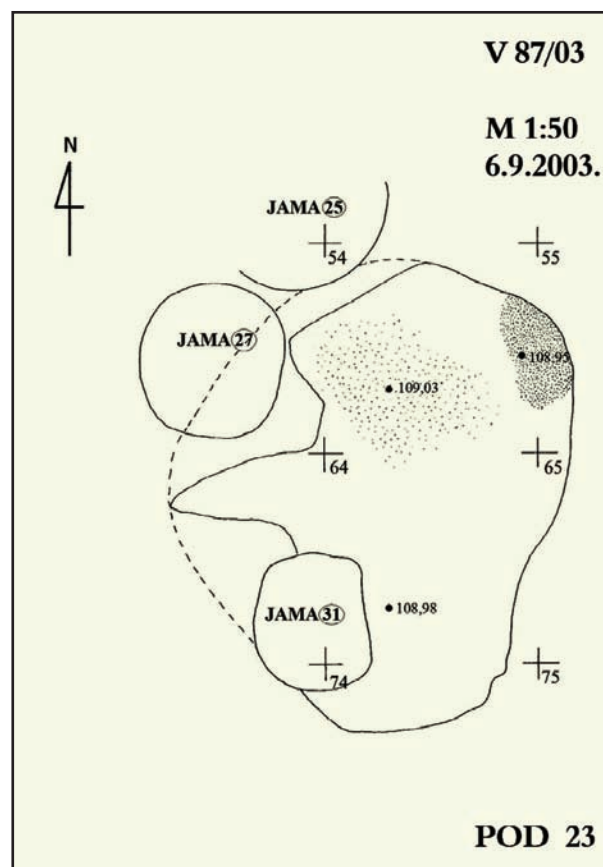
Structure 23 is located in □ 54–55, 63–65, 74 (elevation: 108.95–109.03). The house’s foundation is made of yellow, packed loess, with traces of burning in places. This is an irregular layer, very thin at places, and 30 cm thick at some places (□ 65). The structure has been entirely destroyed by more recent, Vučedol pits (Fig. 1). A shallow, calotte-shaped bowl (T. 1: 1) was found in the strand of house 23; it

<sup>1</sup> I would like to thank Aleksandar Durman, excavation director, and Ruža Marić, director of the Vukovar City Museum, for making the materials available for publication.

<sup>2</sup> The thickness of the stratum varies due to the terrain’s south-to-north gradient.



Pod utjecajem kostolačke kulture takav tip zdjela pojavljuje se i u ranoj fazi vučedolske kulture. Razlikujemo nekoliko varijanata toga tipa posuda; neki primjerci imaju izraženu udubinu na dnu (*omphalos*), a karakteristično je da su sve varijante ovoga tipa ukrašene (Tasić 1979: 254; Nikolić 2000: 49 – tip II).



Slika 1. Tlocrt objekta 23 (crtež: A. Solter, 2003).

Figure 1. Floor-plan of structure 23 (drawing by A. Solter, 2003).

Nadzemni objekt 24 uspjelo se gotovo u potpunosti definirati, iako je i on mjestimično propao u stariji jamski objekt te je probijen trima vučedolskim jamama (sl. 2). Objekt 24 smješten je u sjeveroistočnome dijelu sonde V-87 u □ 17–19, 26–29, 36–39, 46–49, 57. Osnova kuće od žuta je nabijena lesa, mjestimično s tragovima gorenja. Naboj lesa nije svuda iste debljine (kote: 108,60–108,40), a to se može objasniti činjenicom da je kostolački objekt sagrađen točno iznad starijih (badenskih) jama te da je zbog urušavanja mjestimično obnavljan. Objekt je dimenzija 6 x 7 m, s napomenom da nijedan rub objekta nije ustanovljen.

Na Gomolavi, jedinome većem istraženom kostolačkom naselju, kuće su pravokutna oblika, širine 4–6 m, dužine do 10 m, no loše stanje očuvanosti ne pruža mogućnost potpune rekonstrukcije nijednog od tih objekata (Petrović & Jovanović 2002: 85–86).

is decorated with punctures placed in metopes and filled with white incrustation. The shallow calotte-shaped bowl is the most typical shape of Kostolac culture vessels, present at almost all sites. Influenced by the Kostolac culture, this type of bowl also appears in the early phase of the Vučedol culture. We can distinguish several variants of this type of vessel; some have a marked indentation on the bottom (*omphalos*), while it is characteristic that all variants of this type are decorated (Tasić 1979: 254; Nikolić 2000: 49 – type II).

Surface structure 24 was almost completely defined, even though it also partially collapsed into a pit and three Vučedol pits were dug here (Fig. 2). Structure 24 is located in the north-east section of test pit V-87 at □ 17–19, 26–29, 36–39, 46–49, 57. The basic house is made of yellow packed loess, with traces of burning at places. The thickness of the loess is not uniform (elevation: 108.60–108.40), and this can be explained by the fact that the Kostolac structure was built right above older (Baden) pits, and that it was reconstructed at places after collapsing. The structure's dimensions are 6 x 7 m, although not a single edge of the structure has been ascertained.

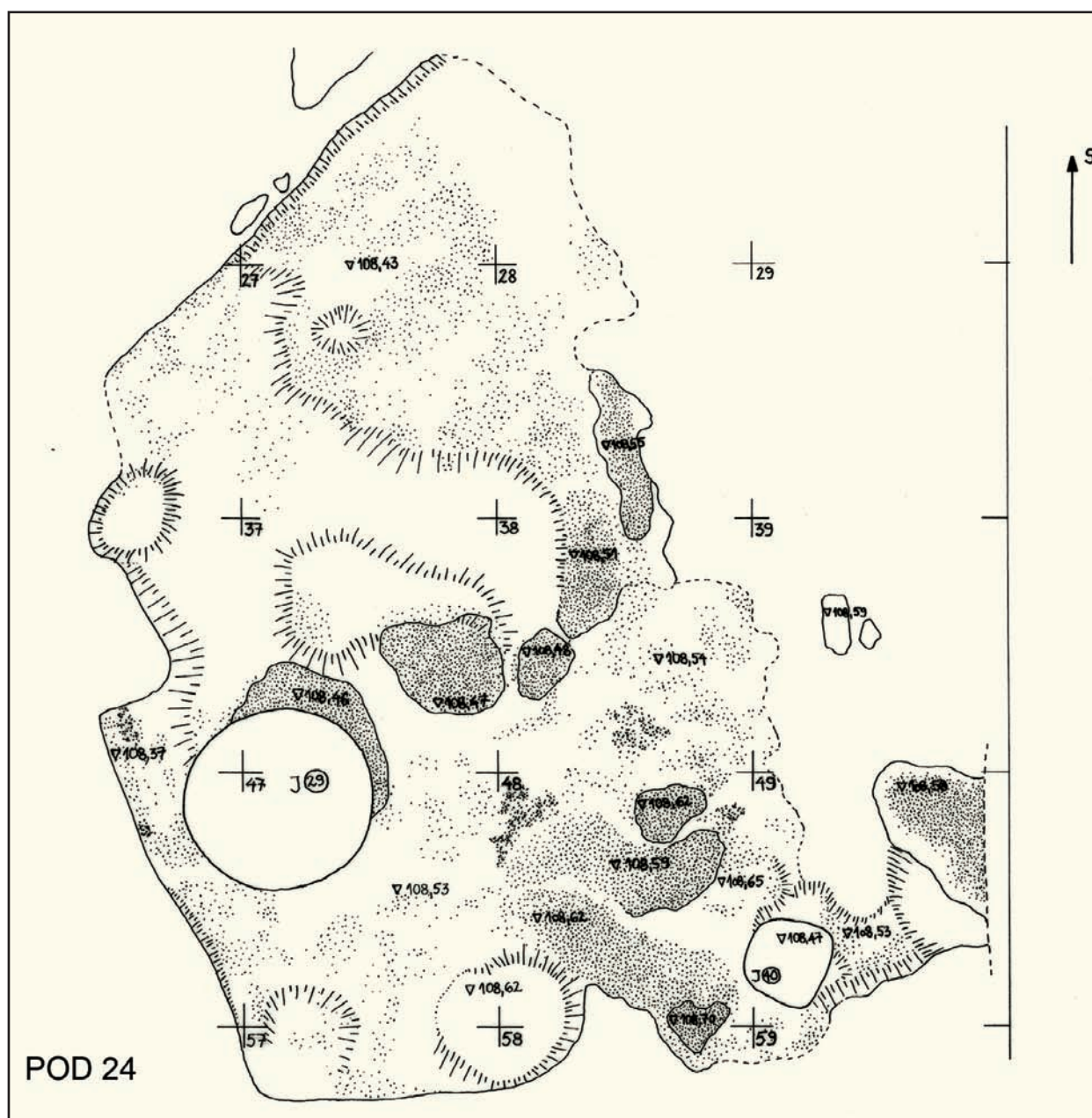
At Gomolava, the only larger Kostolac settlement ever examined, the houses are rectangular, 4–6 m wide, and up to 10 m long, but their poor condition precludes the complete reconstruction of any of these structures (Petrović & Jovanović 2002: 85–86).

Among the materials found in the structure, mostly potsherds with coarse facture, we set aside several typologically representative pottery pieces (T. 1: 2–7).

A vessel fragment (T. 1: 4) and a wide, banded handle (T. 1: 7) belong to the cups. The cup with a banded handle higher than the rim is the most common form of vessel that is linked to the Kostolac Culture. It appears in several variants: a) conical with a flat bottom, like our specimen, b) conical body without a defined bottom, c) concave-rendered body and flat bottom, d) slightly biconical vessel and extended neck (Nikolić 2000: T. XXXIX: 23–26).

A slightly extended vessel rim (T. 1: 3) is part of a calotte-type shallow bowl. The decoration pattern on this example consists of a band on the widest section, and it was made by stamping (using an implement with a triangular cross-section).

The fragment with a tiny tubular handle on the vessel's shoulder (T. 1: 2) belongs to a deeper bowl with a short, conical neck. This type normally has a flat bottom (Nikolić 2000: 49, type IV).



Slika 2. Tlocrt objekta 24 (crtež: M. Perkić, 2003).

Figure 2. Floor-plan of structure 24 (drawing by M. Perkić, 2003).

Među materijalom pronađenim u objektu, uglavnom ulomcima grube fature, izdvojili smo nekoliko tipološki reprezentativnih komada keramike (T. 1: 2–7).

Šalicama pripadaju ulomak posude (T. 1: 4) i traka široka ručka (T. 1: 7). Najprepoznatljiviji oblik posude koji se povezuje s kostolačkom kulturom upravo je šalica s trakastom ručkom koja nadvisuje rub. Javljaju se u nekoliko varijanata: a) konična s ravnim dnom, kakav je i naš primjerak, b) konična tijela bez izražena dna, c) s konkavno izvedenim tijelom i ravnim dnom, d) blago bikonična recipijenta

## PIT 60

A pit was detected beneath structure 24 (pit 60 – □ 47, 57, 48, 58; dig elevation: 108.38; bottom: 107.66; Fig. 3). The pit was filled with grey, ashy, friable soil which was composed of large quantities of lithics and animal remains, as well as a considerable amount of pottery materials typical of the Kostolac culture (Fig. 4).

Among the large number of potsherds found in pit 60 (166 pieces in total), only several fragments exhibited any essential elements that permitted identification of the vessel type or that facilitated their reconstruction. The pots have coarse or smooth



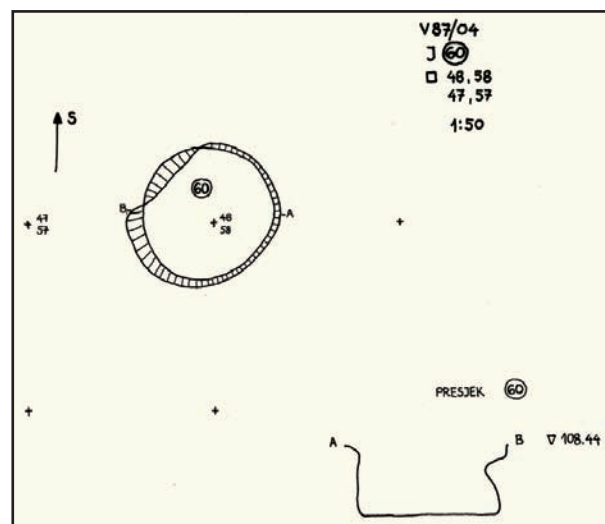
i izvučena vrata (Nikolić 2000: T. XXXIX: 23–26).

Blago izvučeni rub posude (T. 1: 3) pripada plitkoj zdjeli kalotastoga tipa. Dekorativna shema na našem primjerku obuhvaća traku na najširem dijelu, a ukras je izveden žigosanjem (alatkom trokutasta presjeka).

Ulomak s ušicom na ramenu posude (T. 1: 2) pripada dubljoj zdjeli kratka, konična vrata. Ovaj tip uobičajeno ima ravno dno (Nikolić 2000: 49, tip IV).

## JAMA 60

Ispod objekta 24 ustanovljena je jama (jama 60 – □ 47, 57, 48, 58; nivo ukopa: 108,38; dno: 107,66; sl. 3). Zapuna jame je siva, pepeljasta, rahla zemlja u čijem je sastavu osim velike količine litičkog i faunističkog materijala ustanovljeno puno keramičkoga materijala tipična za kostolačku kulturu (sl. 4).



Slika 3. Tlocrt i presjek jame 60 (crtež: A. Solter, 2004).

Figure 3. Layout and cross-section of pit 60 (drawing by A. Solter, 2004).

Od mnoštva ulomaka keramike pronađenoga u jami 60 (166 komada) svega je nekoliko ulomaka imalo bitne elemente po kojima se mogao odrediti tip posude ili prema kojima su se posude mogle rekonstruirati. Lonci su grube ili glatke površine, a zdjele djelomično uglačane, što znači da su tragovi glačanja u vidu tankih pruga vidljivi na vanjskoj površini keramike. Cjelokupan keramički inventar dobre je kvalitete, naime riječ je o keramici normalne tvrdoće. Prevladavaju tamnosivi i tamnosmeđi tonovi. Na nekim ulomcima boja vanjske stijenke varira od oker do smeđih tonova (mrljasto), što je vjerojatnije

surfaces, while the bowls are partially burnished, which means that the traces of burnishing are visible as thin lines on the pottery surface. The quality of the overall pottery inventory is good, as this is pottery with standard firmness. Dark grey and dark brown tones predominate. On some fragments, the color of the outer walls vary from ochre to brown tones (smudged), which probably testifies to burning in a fire rather than a baking technique. The cross-sections also predominantly exhibit dark grey or dark brown tones, but there are fragments in which the cross-section is ochre or red with a visible grey line.

The bowl at T. 2: 3 is a calotte-type bowl, with a slightly curved rim and a rounded lower section, without a defined bottom. Two thirds of the vessel are decorated with an implement that left oval imprints when stamped at an angle.



Slika 4. Keramika u jami 60 (foto: M. Burić, 2004.).

Figure 4. Pottery in pit 60 (photo: M. Burić, 2004).

The other find, typologically and functionally identified as a bowl (T. 2: 2), is a bowl type with an extended, straight neck and a gently expressed profile. In the literature this is specified as a biconical bowl with a concave neck, short shoulder and rounded transition to the lower conus (Nikolić 2000: 49, type IX).

The pots at T. 2: 4–6 are pot types with rounded bodies and flat bottoms. One (T. 2: 5) has a slightly withdrawn rim and plastic applications instead of a handle at the widest section, while the remaining two have curved rimes and plastic applications immediately below the rim.

posljedica gorenja u požaru, nego načina pečenja. Presjek je također uglavnom tamnosivih ili tamnosmeđih tonova, ali ima i ulomaka u kojih je presjek oker ili crvene boje s vidljivom linijom sive boje.

Zdjela na T. 2: 3 pripada tipu kalotastih zdjela, blago je izvijena ruba i zaobljena donjeg dijela, bez izražena dna. Kosim žigosanjem predmetom koji ostavlja ovalan otisak ukrašeno je 2/3 posude.

Drugi nalaz tipološki i funkcionalno determiniran kao zdjela (T. 2: 2) pripada tipu zdjela izvučena, ravna vrata, blago naglašene profilacije. U literaturi se navodi kao bikonična zdjela konkavna vrata, kratka ramena i zaobljena prijelaza u donji konus (Nikolić 2000: 49, tip IX).

Lonci na T. 2: 4–6 pripadaju tipu lonaca zaobljena tijela i ravna dna. Jedan (T. 2: 5) ima blago uvučen rub i plastične aplikacije umjesto ručki na najširem dijelu, dok preostala dva imaju izvijen rub i plastične aplikacije odmah ispod ruba.

Najzanimljiviji tip posude u jami 60 svakako je nalaz šalice (sl. 5, T. 2: 7). Naš primjerak pripada tipu konične šalice bez izražena dna, odnosno ima konus koji se sužava prema dnu. Ručka nije sačuvana. Iako je ovaj tip čest na srijemskim i bosanskim nalazištima (Tasić 1979: 254), nalaz iz jame 60 prvi je takav na nalazištima na prostoru Hrvatske.

U jami je pronađena i cijepana litička industrija (57 komada). Uglavnom je riječ o dotjerujućim odbojcima jezgri, a uočene su i dvije jezgre (jedna za sječiva, jedna za odbojke), nekoliko primarnih odbojaka, pet ulomaka sječiva i polovica oblutka s tragovima odbijanja sječiva.



Slika 5. Nalaz šalice u jami 60 (foto: M. Burić, 2004).

Figure 5. Cup find in pit 60 (photo: by M. Burić, 2004).

The most interesting vessel type in pit 60 is certainly the cup find (Fig. 5, T. 2: 7). Our example is a conical-type cup without a defined bottom, i.e. it has a conus that narrows toward the bottom. The handle has not been preserved. Although this type is frequent at sites in Srijem and Bosnia (Tasić 1979: 254), the find from pit 60 is the first from sites in Croatia.

Evidence of knapped lithic industry (57 pieces) was also found in the pit. Generally these are core-trimming flakes, and two cores (one for a blade, one for a flake), several primary flake tools, five blade fragments and half of a pebble with traces of blade incisions were observed.

The analysis of animal remains from pit 60 has shown the following: with reference to mammals, the remains of domesticated animals predominate (*Bos taurus*, *Ovis/Capra*, *Canis cf. familiaris*), while there are only two bones of wild animals (*Bos cf. primigenius*, *Martes* sp.). It could not be ascertained as to whether the porcine remains (*Sus* sp.) belonged to a domesticated or wild animal. The most numerous are bones and teeth of domesticated cattle (*Bos taurus*), while only a single tibia indicates a possible wild species: the aurochs (*Bos cf. primigenius*). The osteological porcine finds belong to a single adult animal, a male (boar), and one younger animal (suckling pig). The remains of a pup and adult dog (*Canis cf. familiaris*) were identified, while fragmentary bones were specified as belonging to a sheep or goat (*Ovis/Capra*) and a marten (*Martes* sp.).

With reference to birds, only the skeletal remains of a wild duck (*Anas platyrhynchos*) were found.

About a dozen shells and many fish bones and scales were found in the pit.

Little evidence of cutting meat, in the form of short incisions, were found on four fragments. No traces of burning were observed, except for possible charring on the fragment of a cervical vertebrae from a domesticated bovine.<sup>3</sup>

C-14 dating resulted in a calibrated specification of 3100–2880 BC.<sup>4</sup>

<sup>3</sup> Analysis of animal remains was conducted by Siniša Radović and Vesna Malez from the Department of Palaeontology and Quaternary Geology at the Croatian Academy of Arts and Science, for which I am sincerely grateful. A total of 40 mammalian and avian skeletal remains were examined. Seventeen mammalian bone fragments and teeth and one avian bone fragment were taxonomically classified.

<sup>4</sup> The analysis was conducted at Beta Analytic Inc., Miami, Florida; identification no: Beta-201767, non-calibrated date: 4350 +/- 60 BP.

Analiza faunističkih ostataka iz jame 60 pokazala nam je sljedeće: među sisavcima prevladavaju ostaci domaćih životinja (*Bos taurus*, *Ovis/Capra*, *Canis cf. familiaris*), dok su divlje životinje (*Bos cf. primigenius*, *Martes sp.*) zastupljene sa samo dvjema kostima. Za ostatke svinje (*Sus sp.*) nije bilo moguće utvrditi pripadaju li domaćoj ili divljoj formi. Najbrojnije su kosti i zubi domaćega goveda (*Bos taurus*), dok svega jedna tibija upućuje na moguću divlju formu – pragovedo (*Bos cf. primigenius*). Osteološki nalazi svinja pripadaju odrasloj jedinki, mužjaku (nerast), a jedna mlađoj (odojak). Ustanovljeni su ostaci jednoga mlađeg i jednog odraslog psa (*Canis cf. familiaris*), a po jedna fragmentarna kost pripisana je ovci ili kozi (*Ovis/Capra*) i kuni (*Martes sp.*).

Ptice su zastupljene sa svega jednim skeletnim ostatkom divlje patke (*Anas platyrhynchos*).

U jami je također pronađeno desetak školjaka te mnoštvo kostiju i ljusaka riba.

Oskudni tragovi rezanja mesa u obliku kratkih ureza ustanovljeni su na četirima fragmentima. Nisu uočeni tragovi gorenja, osim moguće nagorenosti na fragmentu cervikalnoga kralješka domaćega goveda.<sup>3</sup>

Analizom kostiju C-14 metodom dobiven je kalibrirani datum 3100–2880. god. pr. Kr.<sup>4</sup>

## ZAKLJUČAK

Nosioci kostolačke kulture na Vučedolu imali su dugotrajno sjedilačko naselje u kojem su se bavili zemljoradnjom, stočarstvom i lovom, a blizina Dunava uvelike je orijentirala privredu na ribolov te sakupljanje školjaka. Obrada kamena (rožnjaka) također je zauzimala važno mjesto u privredi kostolačke kulture. Vjerojatno je i dio sirovinskoga kamenog materijala bio sakupljan na obalama rijeke. Određena pak uniformnost tipova posuda upućuje na jednostavniju prehranu.

Iako se za kostolačku kulturu može reći da je njezina osnovna kulturna i stilska odrednica keramičko posuđe vrlo dobre fature i kvalitete, ta se kultura

<sup>3</sup> Analizu faunističkih ostataka obavili su Siniša Radović i Vesna Malez iz Zavoda za paleontologiju i geologiju kvartara HAZU, na čemu im najsrdačnije zahvaljujem. Ukupno je obrađeno 40 skeletnih ostataka sisavaca i ptica. Taksonomski je određeno 17 fragmenata kostiju i zuba sisavaca te jedan fragment kosti ptice.

<sup>4</sup> Analiza je napravljena na Beta Analytic Inc., Miami, Florida; identifikacijski broj: Beta-201767, nekalibrirani datum: 4350 +/- 60 BP.

## CONCLUSION

The exponents of the Kostolac Culture at Vučedol had a long-term sedentary settlement where they engaged in agriculture, animal husbandry and hunting, while the vicinity of the Danube River largely oriented the economy toward fishing and shellfish gathering. Stonework (chert) also played a vital role in the Kostolac Culture economy. Some of the raw stone was probably collected on the banks of the river. The uniformity of vessel types, on the other hand, indicates a simpler diet.

Although one can say of the Kostolac Culture that its basic cultural and stylistic feature is pottery with very good facture and high quality, this culture is more associated with decoration techniques and decorative composition than with forms. Three basic functional vessel forms have been distinguished, which we can find in structures 23 and 24 and in pit 60, and these are a bowl, a pot and a cup.<sup>5</sup> Pots most often have a coarse facture and they are undecorated, except for plastic applications. The pot types with a narrow opening (amphora) is very useful for holding liquids. The neck prevents spillage and makes pouring easier. Bowls and cups have transitional or fine facture. Bowls are generally decorated, and the decorations are filled with white incrustation. Bowls with large diameters were probably used to prepare and serve food. The widest sections of shallow bowls often have four small tubular handles in groups of two, which makes them easier to grip, while they hung more steadily if the handles were used to hang them. Calotte-shaped bowls could have been used as a ladle for liquids (or food?) because they are small, shallow and the indentation on the bottom makes it simple and above all practical to hold them. Cups were probably used for drinking or, thanks to their large handles, as ladles for liquids.

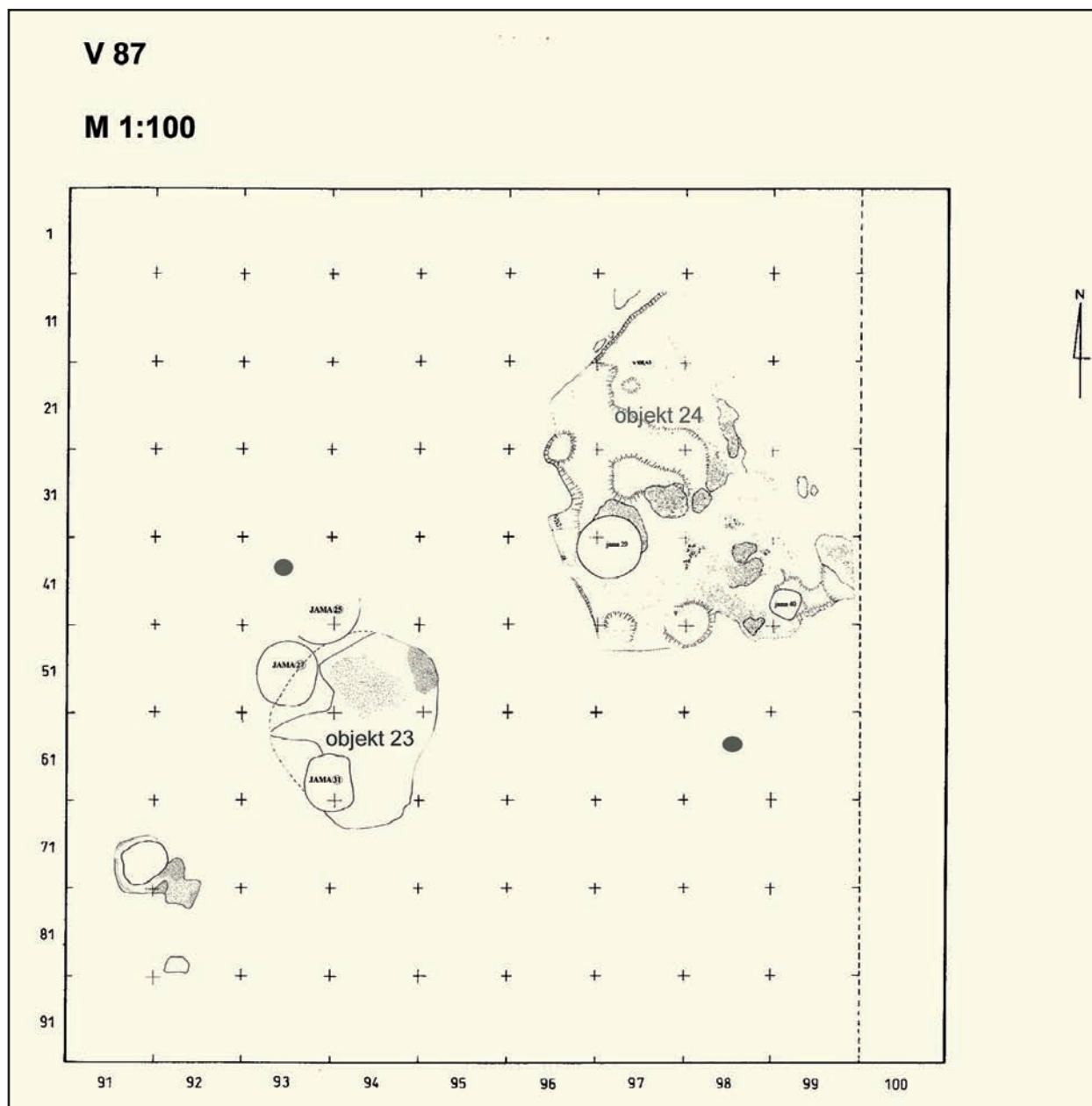
The economic orientation of any population, including that of the Kostolac culture, can be relatively well discerned by analysing the material heritage found in pits. Pits were mostly used to dispose of waste, but also for storage. A stone grindstone, a pot and a large bowl (Težak-Gregl & Durman 1985: 2) were found in one pit/store from the excavation block I (V-84). All of this suggests a soil cultivation-based economy, which was proven to exist at Gomolava (Van Zeist 1979: 16, T. 1). Pit 60, based on

<sup>5</sup> For typology examples, see: Nikolić 2000: 48–50, T. XXXIX; Petrović & Jovanović 2002: 228–233. For a Kostolac Culture typology made on the basis of published finds and a review of materials held in various museums in Croatia, see: Balen 2002: 40–51.



više povezuje s tehnikama ukrašavanja i kompozicijom ukrasa nego s oblicima. Izdvojena su tri osnovna funkcionalna oblika posuda, kakve nalazimo i u objektima 23 i 24 te u jami 60, a to su zdjela, lonac i šalica.<sup>5</sup> Lonci su najčešće grube fature i nisu ukrašeni, osim plastičnim aplikacijama.

the composition of animal finds and damage to the bones, and based on an analysis of lithics, indicates that it was a waste pit.



Slika 7. Plan sonde V-87 s ucrtanim objektima 23 i 24 i ognjištem u □ 71. Sivim krugovima u □ 48 i □ 63 označena su mjesta gdje su pronađene jezgre (crtež: A. Solter, 2006).

Figure 7. Layout of test pit V-87 with drawings of structures 23 and 24 and hearth at □ 71. The grey circles at □ 48 and □ 63 designate the places where cores were found (drawing by A. Solter, 2006).

<sup>5</sup> Za primjere tipologije vidi: Nikolić 2000: 48–50, T. XXXIX; Petrović & Jovanović 2002: 228–233. Za tipologiju kostolačke keramike napravljenu na osnovi objavljenih nalaza te uvidom u građu koja se čuva u različitim muzejima na području Hrvatske vidi: Balen 2002: 40–51.

The large quantity of lithics in pit 60 suggests that stone was probably worked somewhere in its vicinity and that the refuse was thrown here. Cer-

Tip lonca sa suženim otvorom (amfora) čini posudu naročito pogodnom za čuvanje tekućina. Naime vrat sprečava da tekućina iscuri te olakšava izlivanje. Zdjele i šalice prijelazne su ili fine fakture. Zdjele su uglavnom ukrašene, a ukras je ispunjen bijelom inkrustacijom. Zdjele velika promjera najvjerojatnije su služile u pripremi i posluživanju hrane. Plitke zdjele na najširem dijelu često imaju postavljene četiri ušice i to grupirane po dvije, što omogućava lakši prihvata, a i posude su stabilnije visjele ako su ušice služile za ovjes. Kalotaste zdjele mogle su se upotrebljavati za grabljenje tekućine (ili hrane?) jer su male, plitke, a udubina na dnu omogućuje jednostavno te nadasve praktično držanje u ruci. Šalice su najvjerojatnije služile za piće ili, zbog velike ručke, za grabljenje tekućine.

Orijentacija ekonomije svake populacije, pa tako i kostolačke, relativno se dobro može sagledati upravo analizom materijalnoga nasljeđa pronađenoga u jamama. Jame su većinom služile kao otpadne, ali ima i spremišta. U jednoj jami-spremištu iz otkopnoga bloka I (V-84) otkriven je dio kamenoga žrvnja, lonac i velika zdjela (Težak-Gregl & Durman 1985: 2). Sve to sugerira zemljoradnički tip privrede koji je dokazan i na Gomolavi (Van Zeist 1979: 16, T. 1). Jama 60 prema sastavu faunističkih nalaza i oštećenjima na kostima te prema analizi litičkoga materijala upućuje na to da je riječ o otpadnoj jami. Velika količina litičkoga materijala u jami 60 sugerira nam da je u njezinoj neposrednoj blizini možda obrađivan kamen te da je otpadni materijal bačen u nju. Da je u ovome dijelu naselja obrada kamena bila intenzivna potvrđuju nam još neki nalazi. Naime unutar sloja koji pripada kostolačkoj kulturi na dva su mjesta (□ 68, ∇ 109,10; sl. 6 i □ 43, ∇ 108,35; Fig. 7) pronađene nakupine jezgri. Sve su jezgre složene jedna na drugu, u radijusu od oko 50 cm. Riječ je o jezgrama za izradu sječiva – neke jezgre još nisu obrađene cijepanjem, dok su na nekima vidljivi tragovi odbijanja sječiva. Ova dva “depoa” vjerojatno su bila pohranjena kao sirovina, ali ne smijemo isključiti ni mogućnost da su bila pripremljena za transport. Analiza cijepane građe iz Vučedola bit će predmetom posebne studije, ali smatramo potrebnim i ovom prigodom naglasiti da nam kostolački sloj, bogat litičkim materijalom, otvara niz pitanja o socio-ekonomskoj djelatnosti te populacije. Spacijalnom analizom moći će se utvrditi organizacija unutar naselja; je li sirovina rabljena unutar pojedinoga “domaćinstva” ili je zajedničko dobro.<sup>6</sup> Dva

tain other finds in this part of the settlement also indicate that stone working was intense here. In a stratum belonging to the Kostolac Culture, deposits of cores were found at two sites (□ 68, ∇ 109.10; Fig. 6 and □ 43, ∇ 108.35; Fig. 7). All of the cores were placed one over the other, within an approximately 50 cm radius. These are cores to make blades – some cores were not made by knapping, while blade incisions are visible on some of them. These two “depots” were probably stored as raw materials, but we should not exclude the possibility that they were prepared for transport. A special study will be dedicated to an analysis of knapped materials from Vučedol, but I believe it is necessary to take to this opportunity to stress that the Kostolac stratum, rich in lithics, opens up a series of questions on the socio-economic activity of this population. The settlement’s internal organisation can be ascertained by special analysis: whether or not raw materials were used within individual “households” or whether they were a common resource.<sup>6</sup> The two aforementioned discoveries in different and distant quadrants in the same stratum suggest the first assumption.

An analysis of the animal remains from pit 60 confirmed certain hypotheses about the diet of the Kostolac population already made in previous literature. Animal remains from the pit in excavated blocks I and II (test pits V-84 and V-85) at the Strim Vineyard showed that their diet was based on domesticated cattle and, to a lesser extent, on hunting of wild game and birds (Miščin 1986; Jurišić 1988: 20; Malez 1995: 28, T. 1). The vicinity of the river indicates the importance of riparian fauna to the diet, which was confirmed by an analysis of the micro-fauna. An analysis showed that carp, catfish and pike were the predominant fish in the Kostolac stratum, while of shells the predominant is molluscs (Paunović & Lajtner 1995: 34, Fig. 1). The extent to which fish and shellfish were actually a component of the diet is difficult to say because the quantity gathered does not reflect the actual quantity of those consumed, and the shellfish, besides food, were also used to decorate pottery.

The concentration of Kostolac structures (pits and buildings) is much lower than that of the Vučedol and Baden cultures. It has already been noted that about ten Kostolac pits, two surface structures and one outdoor hearth were documented in test pit V-87, which is visibly less when compared with the

<sup>6</sup> Ovakva različita uporaba sirovinskoga materijala uočena je na dva nalazištima vinčanske kulture, vidi: Voytek 2000, 271–273; za eksploatacijama sirovinskoga materijala tijekom eneolitika vidi: Šošić & Karavanić 2005.

<sup>6</sup> Such different uses of raw materials was observed at two Vinče Culture sites; see: Voytek 2000, 271–273; for exploitation of raw materials during the Eneolithic, see: Šošić & Karavanić 2005.





Slika 6. Nalaz jezgri u kostolačkome sloju, □ 68, ▽ 109,10 (foto J. Balen, 2003)

Figure 6. Core find in the Kostolac stratum, □ 68, ▽ 109,10 (photo: J. Balen, 2003)

spomenuta nalaza u različitim i udaljenim kvadrantima u istome sloju sugeriraju nam prvu postavku.

Analiza faunističkih ostataka iz jame 60 potvrdila nam je u literaturi već poznate postavke o vrsti prehrane kostolačke populacije. Faunistički ostaci iz jama u otkopnim blokovima I i II (sonde V-84 i V-85) na Vinogradu Streim pokazali su da je prehrana temeljena na domaćoj stoci te u manjoj mjeri na lovu divljih životinja i ptica (Miščin 1986; Jurišić 1988: 20; Malez 1995: 28, T. 1). Blizina rijeke upućuje na značajnu ulogu riječne faune u prehrani, što je analizom sakupljene mikrofaune i potvrđeno. Analiza je pokazala da u kostolačkome sloju dominiraju šaran, som, štuka, a od mekušaca školjke (Punović & Lajtner 1995: 34, sl. 1). U koliko su mjeri ribe i školjke stvarno rabljene u prehrani teško je reći jer sakupljena količina ne odražava stvarnu količinu konzumiranih primjeraka, a školjke su osim u prehrani imale primjenu i u ukrašavanju posuda.

Koncentracija kostolačkih objekata (jama i kuća) puno je manja od onih vučedolske i badenske kulture. Već je rečeno da je u sondi V-87 dokumentirano desetak kostolačkih jama, dva nadzemna objekta i jedno ognjište na otvorenom, što je vidno manje u usporedbi s 20 vučedolskih kuća i 30-ak jama ili pak 50-ak badenskih jama, dvije nadzemne kuće i jednom zemunicom. Dosadašnje stanje istraživosti omogućuje nam dvije hipoteze. Jedna bi bila da su unutar kostolačkoga naselja postojali veći slobodni

twenty Vučedol houses and approximately thirty pits or roughly fifty Baden pits, two above-ground buildings and pit house. The current state of research leaves us with two hypotheses. One is that within the Kostolac settlement there were already larger open spaces, or that individual households occupied a much larger surface than those in the Vučedol culture, for which the average household size was computed to an average of less than 100 m<sup>2</sup> (Forenbaher 1995: 22–23). The other hypothesis is that the Kostolac settlement – as opposed to the Vučedol settlement, where the floors of houses were made to form a ring at the edge of a plateau – was more oriented toward its central part.

The question also arises as to the duration of the Kostolac settlement at Vučedol. The calibrated absolute dates obtained on the basis of two samples from excavation block II from 1985 are 3300–2900 BC. (Horvatinčić *et al.* 1990: T. 1). The calibrated date obtained from the excavation block III, pit 60 is 3000–2880 BC. This date corresponds to the dates from Gomolava, which run between 3108–2877 BC (Petrović & Jovanović 2002: 298). Even though somewhat longer period (3300–2700 BC) were suggested for the duration of the Kostolac Culture, due to two important “joints” in the calibration curve between 3300–3100 BC and 2900–2600 BC, the shorter value of 3000/2900–2800/2700 BC was proposed for the Kostolac culture (Forenbaher 1993: 246–247; Bojadžijev 1992: 397). This is why we also believe that it is more realistic to assume a somewhat shorter duration for the Kostolac settlement – approximately 200 years. If we assume that the life span, i.e. duration of a single construction phase, as in the case of the Vučedol Culture, was approximately 75 years (Forenbaher 1995: 22–23), we should have two to three Kostolac Culture construction phases. As we have already noted, due to the much smaller concentration of Kostolac structures, which were almost entirely destroyed by more recent construction activities (terrain levelling by the Vučedol population, house construction and digging of pits during the Vučedol cultural horizon and pits during the Bronze Age), it is quite difficult to register the number of Kostolac Culture construction phases. Nonetheless, it is precisely structure 24 and pit 60, which is older than the structure because it was below floor level, that confirm the existence of two residential (building) horizons, although in subsequent excavation quadrants the situation may greatly differ.

As to the question of whether the existence of two construction horizons confirms the existence of two phases (classical and late) of the Kostolac Culture, we can find the answer by analysing the pottery

prostori, odnosno da su pojedina domaćinstva zauzimala puno veću površinu od onih vučedolske kulture, za čije je domaćinstvo izračunato da u prosjeku zauzima manje od 100 m<sup>2</sup> površine (Forenbaher 1995: 22–23). Druga je hipoteza da je kostolačko naselje – za razliku od vučedolskoga, kojega su podovi kuća građeni prstenasto po rubu platoa – bilo orijentirano više prema svome središnjem dijelu.

Nameće nam se također pitanje o dugotrajnosti kostolačkoga naselja na Vučedolu. Dobiveni kalibrirani apsolutni datumi na osnovi dvaju uzoraka iz iskopnoga bloka II iz 1986. godine jesu 3300–2900. god. pr. Kr. (Horvatinčić *et al.* 1990: T. 1). Dobiveni kalibrirani datum iz iskopnoga bloka III iz jame 60 je 3000–2880. god. pr. Kr. Ovaj datum poklapa se s datumima iz Gomolave, koji se kreću oko 3108–2877. god. pr. Kr. (Petrović & Jovanović 2002: 298). Iako su za trajanje kostolačke kulture ponuđeni datumi koji obuhvaćaju nešto duže razdoblje (3300–2700. god. pr. Kr.), zbog dvaju je važnih “koljena” u kalibracijskoj krivulji između 3300–3100. god. pr. Kr. i 2900–2600. god. pr. Kr. za kostolačku kulturu predložena kraća vrijednost, koja iznosi 3000/2900–2800/2700. god. pr. Kr. (Forenbaher 1993: 246–247; Bojadžijev 1992: 397). Stoga i mi smatramo da je realnije pretpostaviti nešto kraće trajanje kostolačkoga naselja – oko 200 godina. Ako pretpostavimo da je životni vijek, tj. trajanje jedne građevinske faze, kao i u slučaju vučedolske kulture, oko 75 godina (Forenbaher 1995: 22–23), trebali bismo imati dvije do tri građevinske faze kostolačke kulture. Kako smo već naveli, zbog puno manje koncentracije kostolačkih objekata, koji su pritom gotovo sasvim uništeni mlađim građevinskim djelatnostima (nivelacija terena od strane vučedolske populacije, gradnja kuća i iskop jama u razdoblju vučedolske kulture te jama iz razdoblja brončanoga doba), dosta je teško registrirati broj građevinskih faza kostolačke kulture. Ipak, upravo nam objekt 24 i jama 60, koja je starija od objekta jer je ukopana ispod razine poda, potvrđuju postojanje dvaju stambenih (građevinskih) horizontata, uz napomenu da u sljedećim otkopnim blokovima situacija može biti bitno drugačija.

Na pitanje da li postojanje dvaju građevinskih horizontata potvrđuje postojanje dviju faza (klasične i kasne) kostolačke kulture odgovor možemo tražiti u analizi keramičke građe iz navedenih objekata. Ona je pokazala posve standardan keramički materijal kostolačke kulture, u kojem su zastupljeni za tu kulturu karakteristični oblici: zdjela, šalica i lonac. Šalice bez izražena dna na Gomolavi su najzastupljenije upravo u klasičnoj fazi te kulture (Petrović & Jovanović 2002: 230). Ukras na zdjeli pronađenoj u jami (T. 2: 3) također pripada klasičnoj fazi te kulture (Stapelfeldt 1997: 161–163). Međutim ukras na zdjeli (T. 1: 3) iz objekta 24 stilski je bliži ornamentalnoj

material from the aforementioned structures. They showed the entirely standard pottery of the Kostolac culture, in which the forms typical of this culture were represented: a bowl, a cup and a pot. Cups without a defined bottom at Gomolava are the most common precisely in the classical phase of this culture (Petrović & Jovanović 2002: 230). The decoration on the bowl found in a pit (T. 2: 3) also belongs to the classical phase of this culture (Stapelfeldt 1997: 161–163). However, the decoration on the bowl (T. 1: 3) from structure 24 is stylistically closer to the ornamental scheme of the late phase of the Kostolac culture (*ibid.*, 162–163; Nikolić 2000: 52). Even though this find suggests that at Vučedol there were settlements not only from the classical but also from the late phase of the Kostolac Culture, based on the excessively meagre number of samples we still cannot assert this with any certainty.

Another question remains: how large was the Kostolac settlement at Vučedol? It was certainly smaller than the Vučedol Culture settlement. During the Vučedol Culture period, the settlement encompassed the entire complex, i.e. the Streim Vineyard, Kukuruzište and Gradac (a total of 3 hectares) and the Karasović Vineyard. An independent Kostolac stratum has been confirmed for now at the Streim Vineyard location, while after a re-examination of published (and unpublished) materials it was registered at Gradac as well. During excavations at Kukuruzište (Streim's cornfield) and the Karasović Vineyard, Kostolac pottery was found only together with Baden or Vučedol materials (Dimitrijević 1977–78: 3–4; Durman 1982: 4).

Even though thirty-four Kostolac sites have been registered in Croatia's territory up to the present (Balén 2002a: 36–43), it is excavations at Vučedol that can provide us with new knowledge on the Kostolac Culture: from a chronology to the organisation of life within the settlement. Through an analysis of the inventory of two Kostolac houses and the waste pit examined in 2003 and 2004, we concentrated on certain problems tied to this above all interesting cultural manifestation.

shemi kasne faze kostolačke kulture (*ibid.*, 162–163; Nikolić 2000: 52). Iako nam ovaj nalaz sugerira da je na Vučedolu postojalo naselje ne samo iz klasične, nego i iz kasne faze kostolačke kulture, na osnovi premala uzorka ne možemo sa sigurnošću to još tvrditi.

Ostaje i pitanje – koliko je bilo veliko kostolačko naselje na Vučedolu? Sigurno je bilo manje od onoga vučedolske kulture. Za trajanja vučedolske kulture naselje je obuhvaćalo čitav kompleks, tj. Streimov vinograd, Kukuruzište i Gradac (ukupno 3 hektara) te Karasovićeve vinograde. Samostalan kostolački sloj zasad je iskopavanjima potvrđen na položaju Vinograd Streim, a revizija objavljenog (i neobjavljenog) materijala registrirana je i na Gradcu. Pri iskopavanjima na Kukuruzištu Streim i Vinogradu Karasović kostolačka keramika pronađena je samo zajedno s badenskim ili vučedolskim materijalom (Dimitrijević 1977–78: 3–4; Durman 1982: 4).

Iako su na prostoru Hrvatske do danas evidentirana trideset i četiri kostolačka lokaliteta (Balen 2002a: 36–43), upravo nam daljnja istraživanja Vučedola mogu pružiti nova saznanja o kostolačkoj kulturi – od kronologije do organizacije života unutar naselja. Kroz analizu inventara dviju kostolačkih kuća i otpadne jame istraženih 2003. i 2004. godine osvrnuli smo se na neke probleme vezane uz tu nadasve zanimljivu kulturnu manifestaciju.



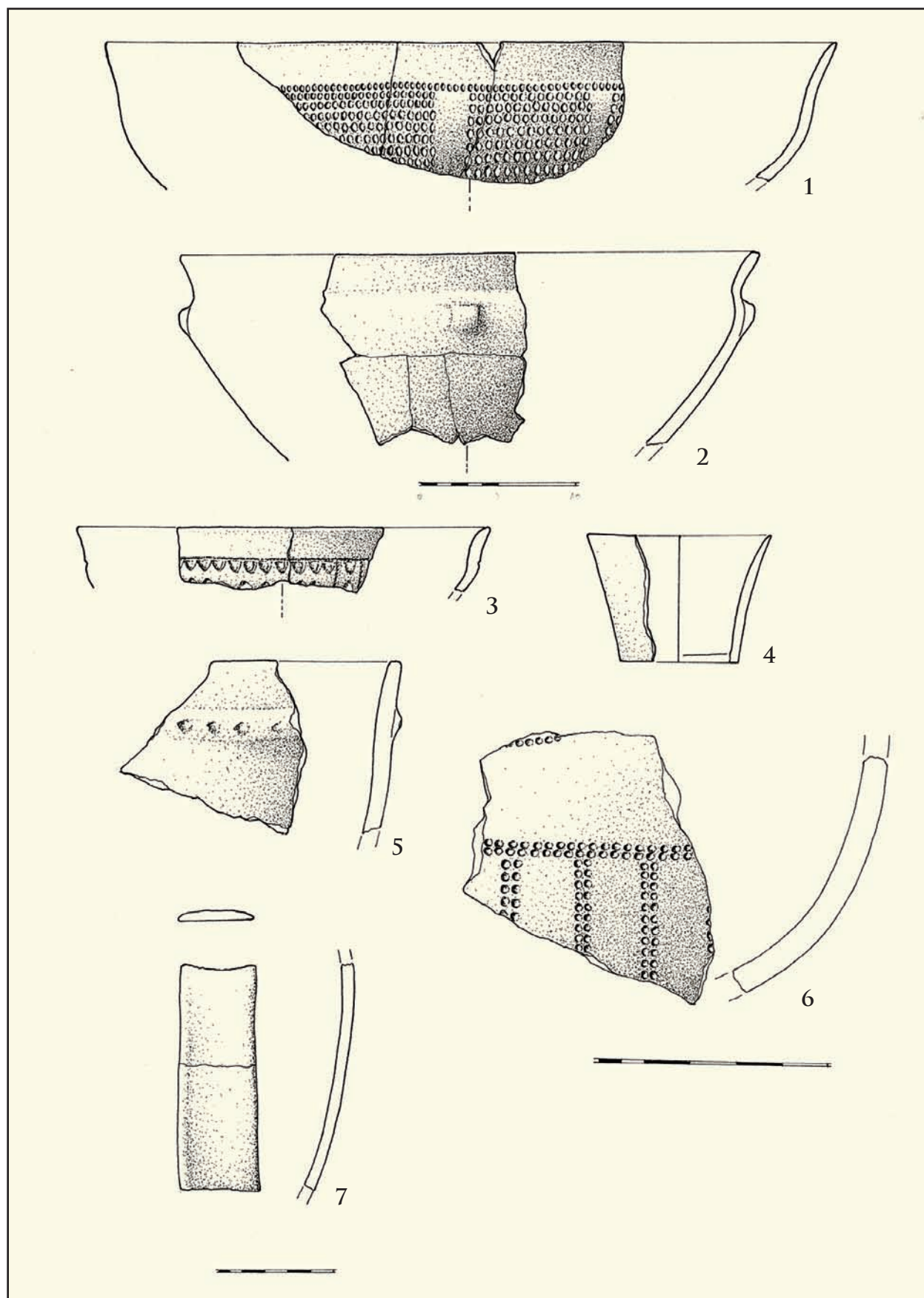


Tabla 1. 1: keramika iz objekta 23; 2-7: keramika iz objekta 24 (crtež M. Galić, 2005).<sup>7</sup>

Plate 1. 1: pottery from structure 23; 2-7: pottery from structure 24, (drawing by M. Galić, 2005).

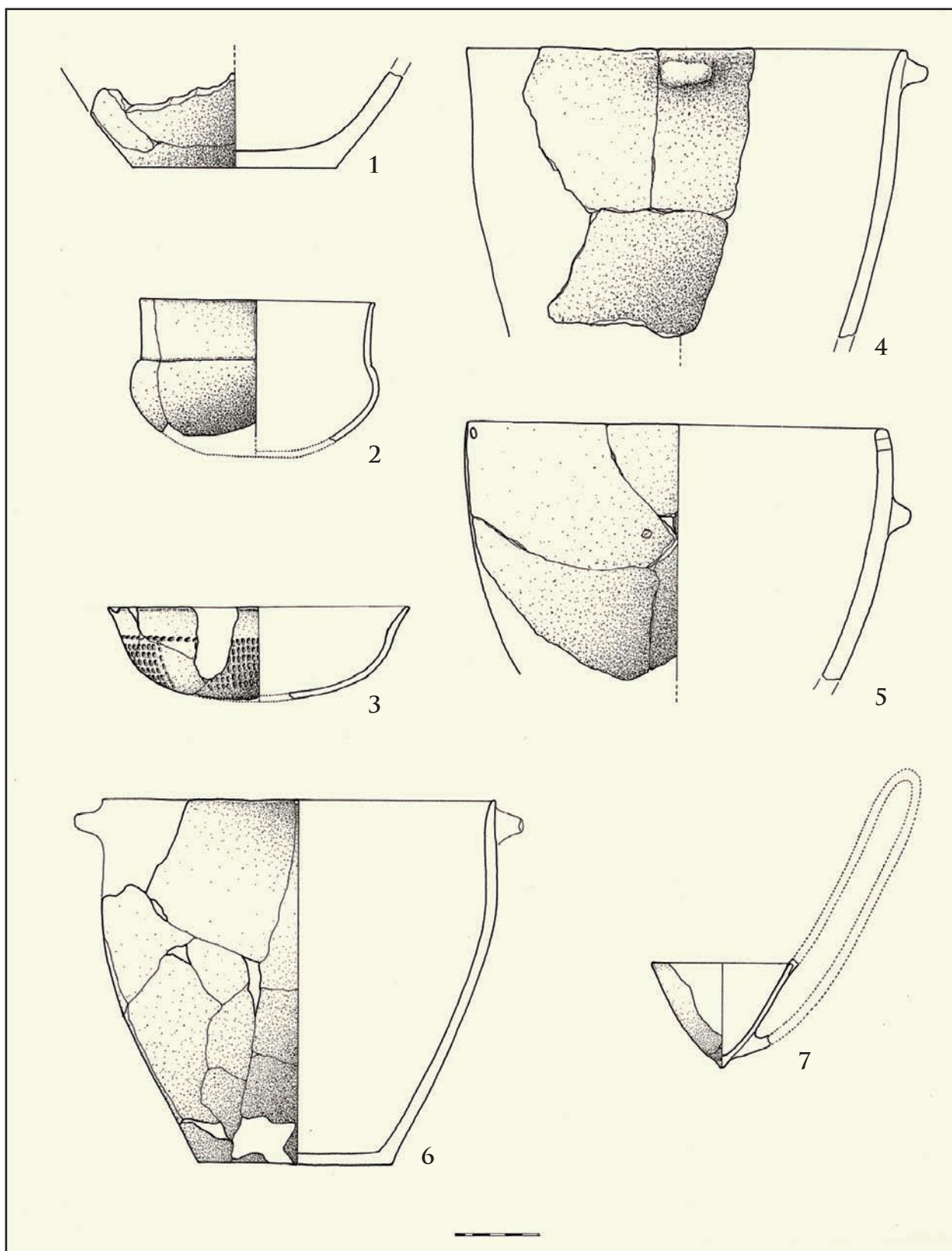


Tabla 2. 1-7: keramika iz jame 60 (crtež M. Galić, 2005).

Plate 2. 1-7: pottery from pit 60 (drawing by M. Galić, 2005).



## KRATICE / ABBREVIATIONS

OA	<i>Opuscula Archaeologica</i> , Zagreb
ObHAD	<i>Obavijesti Hrvatskog arheološkog društva</i> , Zagreb
PJZ	A. Benac (ed.), <i>Praistorija jugoslovenskih zemalja</i> , Sarajevo
VAMZ	<i>Vjesnik arheološkog muzeja u Zagrebu</i> , Zagreb

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