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DE FACTO REFUSE OR STRUCTURED DEPOSITION? HOUSE INVENTORIES OF THE LATE NEOLITHIC VINČA CULTURE

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Abstract. – The goal of this paper is to determine whether there are reasons to believe that inventories from the Late Neolithic Vinča culture houses do not represent systemic assemblages and to offer an interpretation of household assemblage variation. Pottery inventories from Vinča culture houses were compared to the ethnographically recorded range of variation in household inventory size. The discard equation was used to make projections of the accumulated assemblages from house assemblages for comparison with empirically observed accumulated assemblages. It is concluded that in general there is no reason to reject the assumption that Vinča household inventories reflect systemic assemblages. Moreover, the patterns of inventory variability can be meaningfully interpreted in social terms.

Key words. – Neolithic; Vinča culture, formation processes, house inventory.

Where preserved, house remains and their inventories have always been an important class of data for inferring various aspects of past societies and formation processes of the archaeological record. This claim especially holds for the Late Neolithic and Early Copper Age contexts in South-eastern Europe where collapsed dwellings were conserved by fire.¹ Houses were usually built using the wattle and daub technique. When such houses are exposed to fire and high temperatures, the mud from the walls transforms into a bright red-orange daub.² Due to the brick like properties of fired daub, Neolithic houses are often very well preserved, since the walls have usually collapsed inwards and formed a coherent rubble which seals the inventory.³

The fact that houses were burned in almost every discovered settlement resonated with migrationist

explanations of the Late Neolithic/Early Copper Age transition in South-eastern Europe. According to these theories, changes in material culture, subsistence, settlement patterns and burial rites which occurred in the Copper Age were a consequence of a large migration of a new ethnic element – the Indo-European population coming from the Black Sea steppes.⁴ In some versions

¹ Bailey 1999; Bailey 2000; Chapman 1999; Stevanović 1997; Stevanović and Tringham 1997; Tringham 2005.

² Schaffer 1993; Stevanović 1997.

³ e.g., Benac 1971; Brukner 1962; Glišić 1964; Jovanović and Glišić 1961; McPherron and Srejović 1988; Nikolov 1989; Petrović 1993; Schier 2006; Stevanović 1997; Todorović 1981; Tringham *et al.* 1992; Tringham *et al.* 1985; Tripković, B. 2007.

⁴ Garašanin 1982a; Gimbutas 1977; Jovanović 1979a; 1979b; Mallory 1991; Tasić 1983.

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of this hypothesis, colonisation was seen as a series of aggressive raids resulting in conflagration and the destruction of entire Late Neolithic villages. The most drastic and vivid account of this kind was proposed by Gimbutas, which saw patriarchal and warlike Indo-Europeans invading the peaceful and matriarchal population of the Old Neolithic Europe.⁵ It should be noted that migrationist explanations have remained very popular among archaeologists of the traditional culture-historical orientation.

In the seventies and eighties, alternative explanations were offered both for Late Neolithic/Early Copper Age transition and settlement conflagration. These new views were advocated mainly by researchers from Anglo-American academic circles, where the impact of processual archaeology has been strong. In short, culture change was conceived as an internal process,⁶ while house destruction was seen as a result of accidental fires⁷ or internal conflict.⁸

The processual approach went hand in hand with an advanced methodology and concern for formation processes. As a result of experimental research, it was soon realised that the observed intensity of house burning is very difficult, if not impossible to replicate experimentally without additional fuel and effort in fire maintenance⁹, thus making the hypotheses of accidental fires or fires started in conflicts very unlikely. This prompted researchers to conclude that houses were burned intentionally, although not as the collateral damage of warfare, but as a deliberate symbolic, ritual and social practice.¹⁰ The idea of intentional house burning as an ideological and symbolic act was usually framed in a postprocessual explanatory scheme. In this perspective, deliberate house burning was one of the elements which defined the social arena where various kinds of relations (e.g., within and between households, genders, and generations) were negotiated and contested. This change of perspective has close parallels in Americanist archaeology where old interpretations of house burning due to practical reasons such as warfare or accident have been supplanted by interpretations where house burning is seen as ritual behaviour and a distinct mode of abandonment.¹¹

Following this line of thought, Chapman proposed that, in addition to the intentional destruction of the building, a further symbolic statement was made by depositing a special assemblage (a “mortuary set”) into the house.¹² He argued that the quantity and diversity of uncovered house inventories exceeded the normal range of artefacts used in everyday household practices:

“Criterion (9): there are such large quantities of objects, especially ceramics, in the burnt structure that this exceeds the quantity of a normal household assemblage... The final criterion refers to the accumulation of such large quantities of objects that this deposition amounts to a group offering prior to deliberate destruction rather than a daily household assemblage.”¹³

This kind of behaviour would make sense in the light of Chapman’s fragmentation and enchainment theory.¹⁴ The central point of this theoretical perspective is that material culture plays a crucial role in mediating and representing social relations in the Neolithic and Copper Age of South-eastern Europe. Fragmentation and enchainment are key processes. By fragmenting an object and giving its parts to other social actors (living people or ancestors), a social link is established, an enchainment. In enchainment, objects are more than mere tokens of relationships, they are supposed to define and convey the very personhood of the individual giving or receiving the object. In this way, the enchainment process may suggest a different concept of personhood. Instead of the Western concept of an integral individual, an alternative personhood is constructed (fractal individual, *dividual* self) which is at the same time individual and collective, “connected to other people through the extension of artefacts”.¹⁵ In theory, fragmentation, enchainment and *dividual* do not always coincide¹⁶, but in Chapman’s theories regarding the Neolithic and Copper Age of South-eastern Europe they are usually tightly linked. According to Chapman, the “structured deposition”¹⁷ of objects into the house prior to its deliberate destruction may be understood as

⁵ Gimbutas 2007.

⁶ Bankoff and Greenfield 1984; Bankoff and Palavestra 1986; Bankoff and Winter 1990; Chapman 1981; Kaiser and Voytek 1983; McPherron and Christopher 1988; Tringham 1992; Tringham and Krstić 1990.

⁷ McPherron and Christopher 1988.

⁸ Glišić 1968.

⁹ Bankoff and Winter 1979; Gheorghiu 2011; Schaffer 1993; Stevanović 1997.

¹⁰ Bailey 2000; Borić 2008; Chapman 1999; Stevanović 1997; Stevanović and Tringham 1997; Tringham 1991; 1994; 2005.

¹¹ Walker 2002; Wilshusen 1986.

¹² Chapman 1999; 2000a, 224.

¹³ Chapman 1999.

¹⁴ Chapman 2000a; Chapman and Gaydarska 2007.

¹⁵ Chapman 2000a, 28–29.

¹⁶ Brittain and Harris 2010.

¹⁷ Richards and Thomas 1984.

an enchainment (and fragmentation) working on two levels: 1) individual objects which form inventories of other households 2) fragments of objects whose other parts would be kept outside the burnt house.¹⁸ In this way, members of the community would create a link to a deceased person – e.g. if the motive for the deliberate house destruction is the death of a prominent member of the community¹⁹ – or to ancestors in general, if the house destruction is viewed as a structured deposition of the house and its inventory to the ancestral world, objectified by the accumulated strata of a settlement mound.²⁰

This paper investigates two related issues: 1) Chapman's hypothesis of the structured deposition of pottery into the house 2) the variability of Vinča culture household inventories. The first research task is to explore whether there is reason to suspect that house inventories are ordinary household assemblages or whether they represent symbolic deposits, as Chapman claims. The second research task is to attempt to interpret the variation in size and structure of household inventories in social terms. More concretely, this research will address the following issues:

1. Is the quantity of material in house inventories unusually large?

2. Is there a correspondence between the structure of house assemblages and accumulated assemblages from the cultural layers?

3. Is it possible to offer a meaningful social interpretation based on patterns of inventory variability?

Since pottery makes up the bulk of all Late Neolithic house inventories, analysis will be focused on this class of artefacts. This problem will be explored by using data on house inventories from Vinča culture sites.

THEORETICAL BASIS

The issue of Late Neolithic house inventories can be formulated in terms of Schiffer's behavioural archaeology.²¹ Schiffer makes an important distinction between the *systemic* and *archaeological* context of an artefact. Artefacts are in a systemic context when they are participating in a behavioural system, e.g., a cooking vessel is in its systemic context when someone is preparing a meal in it, or when it is simply stored in a kitchen waiting to be used for food preparation. Archaeological context refers to artefacts which interact only with the environment of the archaeological record. Artefacts enter the archaeological record from the systemic

context by various processes of discard. Depending on the mode of discard or abandonment, deposited artefacts may belong to different categories of refuse. Two refuse categories which are of crucial importance for the purposes of this paper are *de facto* refuse and ritually deposited assemblage. *De facto* refuse consists of objects which, although still usable or reusable, are left behind when an activity area or structure is abandoned. A ritually deposited assemblage is a collection of objects which may or may not be associated in the systemic context, but which are purposefully brought together and deposited as a part of symbolic or ritual act.

Although Schiffer's concepts have been vigorously debated and questioned, especially the validity of *cultural transforms*²², the theoretical and methodological framework of behavioural archaeology is adequate for this particular research problem. Even Chapman and Gaydarska,²³ despite their strong post-processual orientation, acknowledge that Schiffer's concepts are of key importance in studying the fragmentation and deposition of items in the Balkan Neolithic and Copper Age contexts.

Therefore, it can be claimed that, regardless of the general theoretical orientation and the side which one might take in a Schiffer-Binford debate²⁴, it should not be problematic to assert that it is of great importance for further social analysis to determine whether the inventory of a house was actually a set of objects used in everyday activities. This is because correlations between inventory attributes and anthropological variables have been established for living (systemic) inventories only. It was demonstrated in several studies that attributes of house inventories (e.g., quantity and diversity) are more or less reliable correlates of anthropologically relevant variables such as household size, household structure, and household social and economical status.²⁵ Therefore, if these correlates are to be used for inferring the

¹⁸ Chapman 1999, 121.

¹⁹ Chapman 1999.

²⁰ Chapman 2000b.

²¹ LaMotta and Schiffer 1999; Schiffer 1972; Schiffer 1976; Schiffer 1987; Schiffer 1995.

²² Binford 1981; Binford 1987.

²³ Chapman and Gaydarska 2007, 71–79.

²⁴ Binford 1981; Binford 1987; Schiffer 1985.

²⁵ Arnold 1988; Arthur 2002; 2006; 2009; Castro *et al.* 1981; Deal 1998; Hayden and Cannon 1982; Hildebrand and Hagstrum 1999a; Nelson 1981; Schiffer *et al.* 1981; Smith 1987; Tschopik 1950.

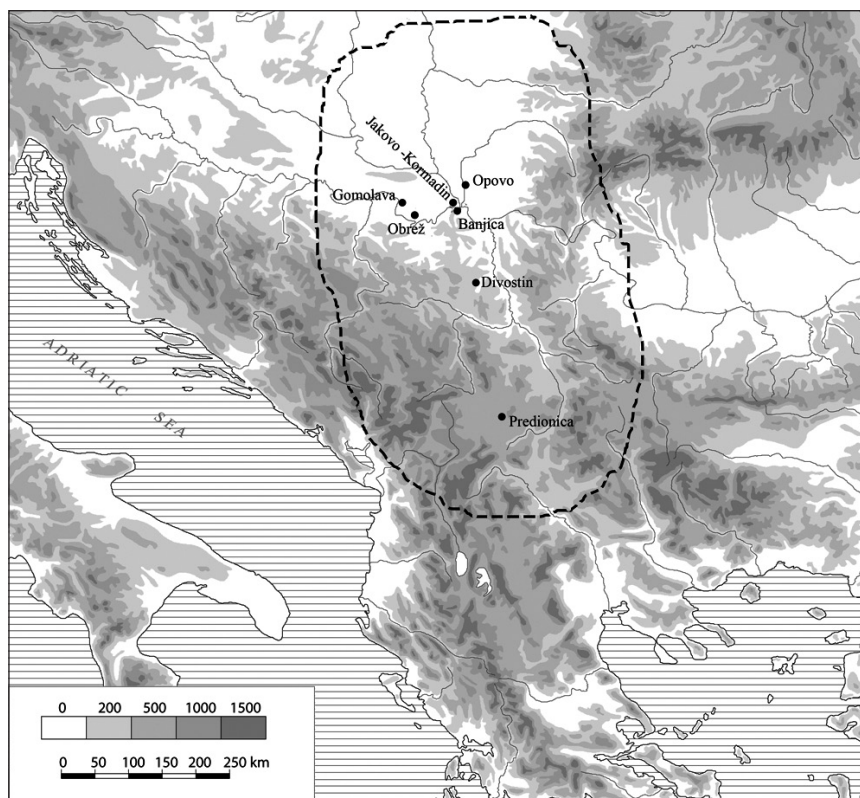


Fig. 1. Approximate distribution of the Vinča culture with sites relevant for this paper

Сл. 1. Оквирно простирание винчанске културе са локалитетима који се помињу у шексту

past, the validity of an inventory as a systemic variable must first be established. In other words, inventory attributes may be used as indicators of the aforementioned dynamic aspects only if the inventory itself represents *de facto* refuse.

ARCHAEOLOGICAL BACKGROUND AND DATA ON HOUSE INVENTORIES

The Vinča culture is a Late Neolithic culture which extends across the Central Balkans covering an area of around 300 km² (Fig. 1) and encompassing Central Serbia, Kosovo, southern parts of Vojvodina, Transylvania, Oltenia, eastern parts of Bosnia and northern parts of Macedonia.²⁶ Extending across such a large area, it is one of the most geographically dominant archaeological phenomena in South-eastern Europe in the Late Neolithic. The anthropological reality which stands behind the apparent uniformity of material culture across this vast area (characteristic black pottery and clay figurines) is not yet understood, but it would be

erroneous to hastily equate this archaeological entity with a single ethnic, political or linguistic unit.²⁷ Therefore, the safest way to proceed is to understand the term culture as a technical label denoting an archaeological phenomenon.

The Vinča culture sites are usually permanent agricultural settlements ranging in size from hamlets to villages with relatively large population sizes.²⁸ In general, faunal and botanical evidence show that most Vinča communities subsisted on a mixed economy typical for the temperate European climate²⁹: agriculture based on cereals³⁰ animal husbandry dominated by domestic animals such as cattle, pig, sheep and goats, and accompanied, in a smaller or larger percentage, by

²⁶ Brukner 2003; Chapman 1981; Garašanin 1973; 1979; 1982b.

²⁷ Renfrew 1974.

²⁸ Porčić 2011a.

²⁹ See Barker 1985; Bogaard 2004.

³⁰ Borojević 2006; Bottema and Ottaway 1982; van Zeist 2002.

Phase (Milojčić 1949)	Phase (Garašanin 1979)	Range (cal. BC)
Vinča A	Vinča-Turdas I	5400/5300 - 5200
Vinča B	Vinča Turdas II – Gradac	5200 - 5000
Vinča C	Gradac – Vinča-Pločnik I	5000/4950 - 4850
Vinča D	Vinča-Pločnik IIa, IIb	4850 – 4650/4600

Table 1. The absolute and relative chronology of Vinča culture (after Borić 2009).

Табела 1. Абсолютна и релативна хронологија винчанске културе (према Borić 2009)

wild species such as red deer, roe deer and wild pig.³¹ It should be emphasised that this is only a general statement, especially where animal husbandry is concerned. Individual faunal assemblages varied in structure between sites and at sites such as Petnica and Opovo, wild species dominated.³²

One more thing needs to be made clear about terminology. The Vinča culture is traditionally labelled as a Neolithic culture, but recent research has shown that metallurgy was present from the very beginning of its duration³³, so, strictly speaking it is a Copper Age culture. However, this is not relevant for the issues explored in this paper, so the traditional label will be kept for the sake of consistency and compatibility with literature.

Relative chronology was established on the basis of pottery typology from the stratigraphic sequence of the eponymous site at Vinča–Belo Brdo near Belgrade, Serbia. Two similar and compatible relative chronological sequences (Table 1) were proposed by Garašanin³⁴ and Milojčić³⁵, dividing the span of the Vinča culture into four major phases. Absolute dates for the Vinča culture and its phases were taken from Borić's 2009 paper³⁶ and are reproduced in Table 1. In calendar years, the Vinča culture began in 5400/5300 BC and ended in about 4650/4600 BC.³⁷

Only sites with published data on house inventories were included in the analysis. In total there are 7 sites with basic information on house inventories: Banjica, Divostin, Gomolava, Jakovo–Kormadin, Obrež–Beletinci, Opovo, Predionica (Fig. 1).

Banjica is located in the suburbs of Belgrade, near Avala Mountain. An area of 750 m² has been investigated in several campaigns (1955–1957; 1979; 1998). Five building horizons were recorded.³⁸ In total, 11 houses have been excavated and published so far.³⁹

Chapman⁴⁰ gave pottery counts for most of the houses, however, there is no mention of these house inventories in the original publication⁴¹ and these pots could not be traced in the Banjica collection kept at the Belgrade City Museum.⁴² For this reason, these inventories are excluded from the analysis, because it is most probable that Chapman erroneously attributed the pottery to houses – a very likely error given the poor state of documentation and the fact that the original excavation was carried out in the fifties. The only house with a certain and published inventory from Banjica is House 2/79 which belongs to the latest phase of the settlement – the Vinča D phase.⁴³ Only complete or restorable vessels from the house were taken into account.

Divostin is located in Central Serbia and was excavated by a joint American and Serbian archaeological team.⁴⁴ The total area of the site is estimated to be 15 hectares and an area of 2480 m² was excavated. There

³¹ Blažić 2011; Bökönyi 1988; Dimitrijević 2008; Greenfield 1986; Legge 1990; Orton, D. 2008; Russell 1993.

³² See Orton, D. 2008; 2010.

³³ Borić 2009; Radivojević *et al.* 2010.

³⁴ Garašanin 1951.

³⁵ Milojčić 1949.

³⁶ Borić 2009.

³⁷ Borić 2009.

³⁸ Todorović and Cermanović 1961; Tripković, B. 2007.

³⁹ Todorović 1981; Todorović and Cermanović 1961; Tripković, B. 2007.

⁴⁰ Chapman 1981.

⁴¹ Todorović and Cermanović 1961.

⁴² B. Tripković, personal communication 2011.

⁴³ Todorović 1981; Tripković, B. 2007.

⁴⁴ McPherron and Srejšević 1988.

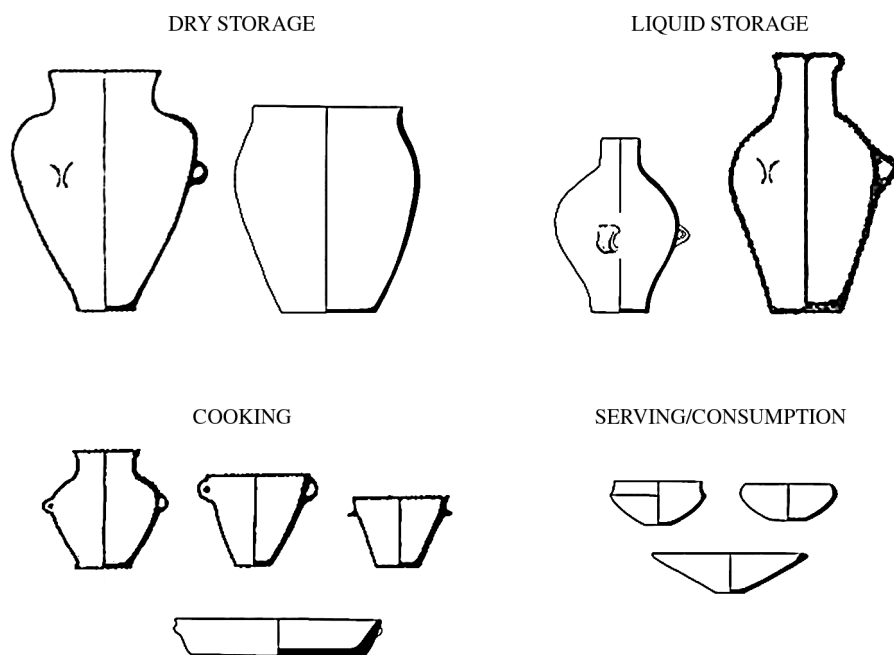


Fig. 2. Typical forms of functional classes of Vinča pottery.

Сл. 2. Типични облици функционалних класа винчанске керамике

were two Vinča D horizons, Divostin IIa and Divostin IIb, spanning, in total, 300–400 years.⁴⁵ There were 17 houses from the Vinča period. Only postholes are preserved from the Divostin IIa phase, while collapsed house rubble with sealed inventories was found in the Divostin IIb horizon. Houses 13, 14, 15, 16, 17, and 18 were included in the present analysis since they were completely excavated. House 12 was also completely excavated but it was excluded from the analysis because it was severely damaged.⁴⁶

The results of archaeomagnetic analysis of the house inventories suggest that the Divostin IIb houses were all destroyed in a single accidental fire event.⁴⁷ However, the results of archaeomagnetic analysis of the burnt daub suggest that houses 14 and 16 burned at different times.⁴⁸

Gomolava is a tell site, situated on the left bank of the Sava river. The total area of the Gomolava tell was estimated⁴⁹ to be 18400 m², of which 5000 m² (27.17%) was excavated.⁵⁰ There were three Vinča culture horizons: Gomolava Ia, Gomolava Iab, and Gomolava Ib, spanning a period of circa 350 years, from around 5000 to 4650 ca. BC.⁵¹ A total of 31 houses were uncovered at Gomolava. Only house remains from the Gomolava Ib settlement were well preserved, due to fire. In total, 24 houses were excavated in this horizon,

but only a single house (House 4) has so far been published.⁵²

Jakovo–Kormadin is a site located in Jakovo village, in the vicinity of Belgrade. The site area is estimated to be 4.5 hectares.⁵³ There is a single Vinča D horizon at this site. 399 m² were excavated and two houses, destroyed by fire, were uncovered – one completely (House 2) and the other one only partially (House 1). The inventory of the completely excavated House 2 was published in detail.⁵⁴

Obrež is a site located in Srem, 40 km west of Belgrade. The total area of the site was estimated to be 18.2 hectares, while only 290 m² were excavated.⁵⁵ The

⁴⁵ Borić 2009.

⁴⁶ Bogdanović 1988.

⁴⁷ McPherron and Christopher 1988, 478.

⁴⁸ Bucha and McPherron 1988, 386.

⁴⁹ van Zeist 2002.

⁵⁰ Brukner 1988.

⁵¹ Borić 2009.

⁵² Petrović 1992; 1993.

⁵³ Ristić-Opačić 2005.

⁵⁴ Jovanović and Glišić 1961.

⁵⁵ Brukner 1962.

Vinča culture horizon is dated to the Vinča D phase. A single house was excavated and published. However, the pottery inventory of the house was not published in detail – only the total vessel count was given.

Opovo is a site located in the Serbian part of Banat, 20 km north of the small town of Pančevo. The area of the site is estimated to be 5 hectares, and an area of 380 m² was excavated in great detail by the joint American and Serbian team.⁵⁶ The site is dated to the Vinča C phase. The contents of 3 out of 6 houses have so far been published.⁵⁷

Predionica is a site located in the vicinity of Priština. There were two Vinča culture horizons: 1) earlier, dated to the Vinča B phase 2) later, dated to the Vinča C phase. The inventory of House 1 from the later phase of Predionica was published.⁵⁸ Most of the house area was excavated, so this house was also included in the sample.

Pottery from house floors is the most numerous artefact class found in houses (usually over 90% of all items). It is also the only data class which has been published completely and in sufficient detail. For these reasons the analysis will focus on pottery as the major inventory component.

Vessels from houses are usually complete or can be reconstructed from fragments. They usually have traces of secondary burning (intense red colour) – a consequence of the fire that consumed the houses. Pottery from house contexts is classified into three major functional classes – storage, cooking and serving/consumption vessels. The classificatory scheme developed by Madas⁵⁹ for vessels from Divostin was used as a basis for classification for other sites, as well. Madas recognised four major functional classes: dry storage, liquid storage, cooking and serving vessels. For the purposes of this paper, the dry storage and liquid storage categories were collapsed into a single category of storage vessels.

The most typical forms of functional classes are presented in Figure 2. Storage vessels are usually represented by large pithoi, jars (dry storage) or amphorae (liquid storage); cooking vessels by pots and casseroles; serving/consumption vessels by bowls and plates. It is acknowledged that equating function and form is often problematic.⁶⁰ However, the forms of different classes, as defined here, differ so sharply, so it can be safely assumed that there is, at least, a general correspondence between function and form – e.g., it is not likely that a half meter tall pithos had been used as a serving or consumption vessel. Data on house inventories are presented in Tables 2–3.

GENERAL METHODOLOGY

According to Chapman, house inventories from many Late Neolithic contexts in the Balkans were too large, which prompted him to conclude that these inventories were not representative of everyday or systemic assemblages. In other words, these assemblages were unusual, in Chapman's opinion. However, if something is to be labelled as unusual, there has to be some standard against which the comparison is made – a frame of reference. Chapman does not mention any referential frame, so it can be assumed that it is only the sheer size of certain house assemblages which led him to conclude that they were unusual. Are there any other reasons to think that Vinča house assemblages are not reflections of systemic assemblages?

It is parsimonious to start with a null hypothesis that assemblages are *de facto* refuse. The next step will be to compare these assemblages to an ethnographically known range of variation. The goal is to determine whether the average size of available assemblages from Vinča houses falls within the ethnographically known range of variation. Cross-cultural data on average pottery assemblage size were collated from Mills⁶¹ and Varien and Mills.⁶²

If the average Vinča culture household assemblage size falls within the known range of variation, this means that, from the perspective of that particular referential frame, there is no case to answer. To avoid confusion, this still *does not prove* that these are systemic assemblages. It only shows that there is nothing unusual about them in the perspective of this particular referential frame. If, on the other hand, the archaeological assemblages fall outside the ethnographically known range of variation, then it can be said that they are, indeed, unusual but this still does not prove that they are not systemic assemblages. So, by performing this kind of analysis, what is tested is only the claim that there is something unusual about Vinča house assemblages. The more relevant test of the null hypothesis comes in the second step, which answers the second

⁵⁶ Tringham *et al.* 1992; Tringham *et al.* 1985.

⁵⁷ Tringham *et al.* 1992.

⁵⁸ Glišić 1964.

⁵⁹ Madas 1988.

⁶⁰ Rice 2005, 211–212.

⁶¹ Mills 1989.

⁶² Varien and Mills 1997.

Site	Phase	House	Floor Area (m ²)	Storage	Cooking	Serving	Total	Reference
Divostin	Vinča D	13	70.74	9	8	20	37	McPherron & Srežović 1988a, Tripković 2009a ^b
Divostin	Vinča D	14	93.60	8	17	16	41	McPherron & Srežović 1988a, Tripković 2009a ^b
Divostin	Vinča D	15	94.60	11	5	12	28	McPherron & Srežović 1988a, Tripković 2009a ^b
Divostin	Vinča D	16	52.08	9	4	7	20	McPherron & Srežović 1988a, Tripković 2009a ^b
Divostin	Vinča D	17	65.54	3	4	11	18	McPherron & Srežović 1988a, Tripković 2009a ^b
Divostin	Vinča D	18	44.24	5	5	9	19	McPherron & Srežović 1988a, Tripković 2009a ^b
Banjica	Vinča D	2/79	40	10	16	14	40	Tripković 2007
Gomolava	Vinča D	4	37.26	1	9	6	16	Petrović 1993
Jakovo	Vinča D	2	31.49	4	18	3	25	Jovanović and Glišić 1961
Obrež	Vinča D	1	34.18	–	–	–	40	Brukner 1962
Predionica	Vinča C	1	34	6	3	10	19	Glišić 1964

Table 2: The structure of pottery assemblages from Vinča houses included in this study

^a Vessel counts for Divostin were made by the author directly from the maps published in the Divostin monograph (McPherron & Srežović 1988) – only vessels which were strictly inside houses were included (vessels which appear to be inside postholes or beneath the line of the wall, were excluded), and these counts may differ slightly from counts given in McPherron and Srežović (1988) and Tripković (2009a).

^b House floor areas for Divostin were calculated based on house dimensions as measured and reported by Tripković (2009a).

Табела 2. Структура керамичких збирки из винчанских кућа које су укључене у ову студију

House	Variables	Cooking	Dry Storage	Liquid Storage	Serving/Consumption	Total
2	N (fragments)	144	44	25	161	374
	m(g)	7166.67	3666.67	3666.67	3666.67	18166.67
3	N (fragments)	161	50	22	203	436
	m(g)	7000	2333.33	1000	4000	14333.33
5	N (fragments)	81	150.00	56.00	83	370
	(g)	10000	14000	8333.33	4000.00	36333.33

Table 3. House inventories from Opovo (after Tringham, et al. 1992, 376, Figure 11); Vinča C phase (Tringham, et al. 1992; Tringham, et al. 1985)

Табела 3. Кућни инвентари из Опова (према Tringham, et al. 1992, 376, Figure 11); Винча С фаза (Tringham, et al. 1992; Tringham, et al. 1985)

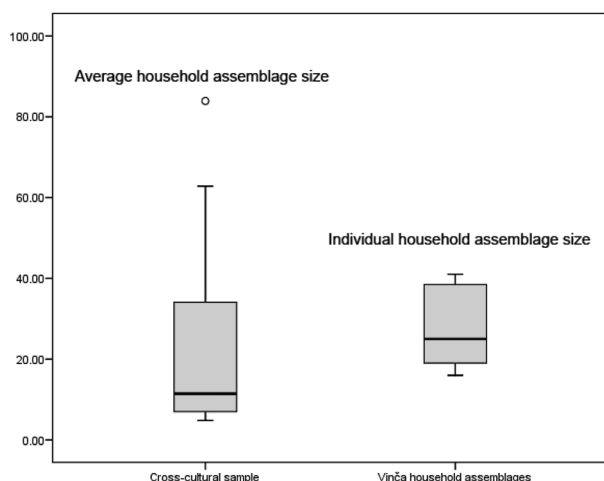


Fig. 3. Box plot of ethnographically recorded range of variation in average household assemblage size (data from Mills 1989; Varien & Mills 1997) and archaeologically recorded distribution of individual Vinča culture house assemblage sizes (data from Table 2)

Сл. 3. Кућнијасџи гујаирам еџноџрафски забележеноџ расџона варијаџије џросечних величина кућноџ инвенџара (џодаџи из Mills 1989; Varien and Mills 1997) и археолошки забележене дисџтрибуџије величине инвенџара џојединаџних кућа винчанске кулџуре (џодаџи из Табеле 2)

question about the correspondence of house inventories with cultural layer assemblages.

The second question can be elaborated along these lines: if discovered house inventories were *de facto* refuse or systemic inventories, then it should be expected that the structure of pottery assemblage from the cultural layer (accumulated assemblage) would correspond to the structure of house assemblage when differential use-life of different pottery classes is accounted for.

The relationship between systemic assemblages and accumulated assemblages is the focus of accumulation studies.⁶³ The idea is to use Schiffer's discard equation⁶⁴ to project the structure of accumulated assemblages from the structure of house assemblages. The projected structure of the accumulated assemblage is then compared to the observed (empirical) structure of pottery assemblage from the cultural layer.

The third research question is related to the variation of household inventory size and house floor area. The first step is to look for patterns in the relationship between pottery assemblage size and house floor area. The second step is to see whether these patterns can be meaningfully interpreted in social terms.

VINČA ASSEMBLAGE SIZE COMPARED TO CROSS-CULTURAL RANGE OF VARIATION

The box-plot in Figure 3 shows: 1) the distribution of average household pottery assemblage sizes from the available cross-cultural data 2) the distribution of individual household assemblage sizes based on archaeological data presented in Table 2. The cross-cultural mean is 25.35 vessels per household and the standard

deviation is 26.72. The average size of Vinča culture house assemblages is 27.54 vessels, and the standard deviation is 10.7. It is apparent from Figure 3 that the average size of Vinča household assemblages is well within the cross-cultural range of variation of mean household assemblage sizes. Moreover, it belongs to a group with smaller assemblage sizes – there are many societies where the mean number of pots per household is much larger than the largest individual Vinča assemblage.

Obviously, the quantity of Vinča household pottery assemblages should be viewed as neither unusual nor demanding any special explanation in the light of ethnographically recorded variation. Even when assemblages from individual houses are inspected, extreme outliers cannot be found – no individual assemblage contains more than 50 vessels (Table 2, Fig. 3). There are even opposite cases in Vinča culture archaeology – houses with unusually small assemblages, such as the house from Medvednjak where only 3 vessels were found in the house.⁶⁵

ACCUMULATION ANALYSIS

The Vinča culture accumulated assemblages come mostly from cultural layers and pits. Cultural layers are artefact and ecofact rich deposits within which house

⁶³ Lightfoot 1993; Mills 1989; Pauketat 1989; Schiffer 1976; Schiffer 1987; Varien and Mills 1997; Varien and Potter 1997.

⁶⁴ Schiffer 1976; 1987.

⁶⁵ Galović 1975.

features are inserted and subsurface features are cut, and they are a common feature of Late Neolithic settlements.⁶⁶ Thinking about the accumulated assemblages coming from pits or undefined cultural layers, brings into focus the theoretical issue of cultural and practical logic.⁶⁷ Are accumulated assemblages from Vinča sites the products of cultural or practical reason? Chapman views assemblages coming from pits as meaningful and yet another example of structured deposition⁶⁸—an idea which seems to be supported by empirical evidence in some cases.⁶⁹ Moreover, Chapman’s explanation of cultural layer assemblages is given in terms of cultural logic. As Chapman describes it, the typical Balkan Late Neolithic and Copper Age village or farm was:

“... another kind of ambience in which a walk around a settlement involved avoiding the larger, if not sharper, materials lying on the ground and was dominated by the smells of decomposing human faeces, vegetal and animal matter ... The basic image of NCA settlements is of people living on top of, or within, what most twentieth century archaeologists would call a ‘refuse tip’. The implication of this striking picture is that of the proximity of residents to their discarded objects and food remains rather than strict segregation of ‘refuse’ into ‘rubbish’ pits.”⁷⁰

According to this interpretation, people in Late Neolithic villages were guided by their traditional ethos of keeping household possessions close to the house, rather than the twentieth century rules of rubbish disposal.

Chapman’s interpretation may or may not be true, but it demonstrates one very important thing: this kind of refuse disposal is not practical but purely cultural only if we look at it from our own cultural context.⁷¹ From the perspective of people living in the Late Neolithic villages, such behaviour was guided by practical reasons as well because it served as a means to achieve two goals: to dispose of broken items and to affirm the household ideology. Therefore, in the context of the present paper, the issue of whether accumulated assemblages resulted from behaviour guided by practical or cultural reasons is not relevant because whatever the idea behind the specific pattern of pottery discard was, whether it was guided only by the need to throw away used items or there was an additional ideological and symbolic statement involved, the end result is the same when the process of pottery accumulation is being considered. Accumulated assemblages from Vinča sites come from various places within sites and potential biases in relation to discard practices were almost certainly averaged out over the long term during

which the accumulation took place (usually more than 100 years).

In order to link the household assemblages to accumulated assemblages, Schiffer’s discard equation is used. The discard equation has the following form:⁷²

$$T = (S * t) / L$$

where T is the total number of discarded vessels of a certain functional class in the accumulated assemblage; S is the systemic number – the average number of vessels of that particular class in use; t is the duration of a site; L is the average use-life of an artefact class under consideration.

One needs to know the values of these variables in order to project T. However, if the goal is to project a structure of the accumulated assemblage in terms of relative frequencies of artefact classes, then one only needs to know the average use-life of each class, since the relative frequencies of classes in the accumulated assemblage will remain constant through time⁷³, and the relative frequencies of S for each class can be determined from the available house inventories. So the only thing which is needed is the use-life value for each functional class. These values can be estimated from ethnoarchaeological research.

The second problem is that in almost all cases only sherd counts were given for the cultural layer. Therefore, the projected assemblage structure needs to be expressed in sherds, not in complete vessels, in order to be comparable to assemblages from cultural layers and pits. The problem is that different classes break into different numbers of sherds. In the absence of experimental and empirical data, fragmentation rates will have to be estimated (except for Opovo where house inventories are already given as sherd counts). What is known is that larger vessels usually break into more fragments.⁷⁴ The estimate has to be consistent with this

⁶⁶ Chapman 2000c.

⁶⁷ Hutson and Stanton 2007; Walker 2002.

⁶⁸ Chapman 2000b.

⁶⁹ Tripković, A. 2011; Tripković, B. *et al.* 2011

⁷⁰ Chapman 2000c, 356.

⁷¹ See Hutson and Stanton 2007 for an excellent discussion of this issue.

⁷² Schiffer 1976; 1987.

⁷³ Mills 1989.

⁷⁴ Chase 1985.

	Storage	Cooking	Serving/Consumption
Average fragment mass (g)	92	74	27
Average fragment thickness (mm)	12	10	6
Area of an average vessel (mm ²)	405853	157883	62699

Table 4: Values of parameters needed for fragmentation ratio estimation

Surface areas of average vessels are calculated from pottery drawings given by Madas (1988), while fragment attributes were calculated from Opovo data (Tringham, et al. 1992) and a pottery assemblage from Vinča D horizon of the Vinča–Belo Brdo site (recorded by the author)

Табела 4. Параметри пошребни за оцењивање количника фрагментације

finding, so storage vessels should break into more sherds than cooking vessels, and cooking vessels should break into more sherds than serving/consumption vessels.

To summarise, the accumulation analysis will consist of several steps:

1. Estimation of average use-life values for each functional class on the basis of ethnoarchaeological research.

2. Estimation of relative fragmentation rates for functional classes.

3. Projecting the accumulated assemblage and assessing the fit.

Estimating average use-life

Varien and Mills reviewed the ethnoarchaeological literature on average use-lives of pottery functional classes and they reported the median values for different functional classes.⁷⁵ The median use-life for dry storage containers is 7.5 years; 5 years for liquid storage; 1.7 years for cooking vessels; and 1.2 years for serving/consumption vessels. For the purposes of this paper, dry and liquid storage categories were grouped into a single category, and it was decided to set the average use-life for the dry and liquid storage category at 7 years. Cross-cultural medians of 1.7 and 1.2 years are used for cooking and serving/consumption vessels, respectively.

Estimating relative fragmentation rates

It can be shown that if one can make reasonable estimates of the average fragment mass, average fragment thickness and average vessel surface area for each functional class, the average number of fragments per vessel may be roughly estimated.

The average fragment masses for each functional class were calculated using available data from litera-

ture⁷⁶ and from my own research. The average fragment thickness and mass for each vessel class was calculated from a small Vinča D pottery assemblage from the Vinča–Belo Brdo site.⁷⁷ The values of parameters are given in Table 4.

If the simplification is made that the shape of a fragment may be approximated by a thin cuboid, the average fragment mass (mfr) for each functional class may be expressed as:

$$\text{mfr} = \text{tfr} * \text{pfr} * \text{d} \text{ (Equation 1)}$$

where tfr is the average fragment thickness, pfr is the area of the larger face of the fragment (approximated by a cuboid) and d is the specific density of ceramic material.

Average surface areas for each vessel class were calculated using data from Divostin. Several representative vessel shapes (coming from complete or reconstructed vessels) were chosen for each class and their surface areas were calculated on the basis of profile drawings given in the Divostin monograph.⁷⁸ The calculation proceeds in the following manner: 1) coordinates of several points (5–13) from the vessel profile drawing are taken 2) when the lines connecting each two points on a profile are rotated around the axis of the vessel, the vessel shape may be approximated by a series of cone segments 3) the lateral surface area of each cone segment is calculated 4) the total lateral surface area of

⁷⁵ Varien and Mills 1997.

⁷⁶ Tringham et al. 1992.

⁷⁷ Recorded by the author, see Porčić 2010.

⁷⁸ Madas 1988.

the vessel is calculated by summing the individual segments 5) the vessel bottom surface area is calculated as an area of a circle 6) the vessel's total surface area is derived by summing the total lateral surface area and the bottom surface area.

The surface area of each individual cone segment is calculated using this formula⁷⁹:

$$2\pi \int_{x_i}^{x_{i+1}} y_i(x) \sqrt{1 + b_i^2} dx = 2\pi \sqrt{1 + b_i^2} \left[a_i(x_{i+1} - x_i) + \frac{b_i}{2} (x_{i+1}^2 - x_i^2) \right]$$

(Equation 2)

Variable x refers to the values of profile points along the vertical dimension of the vessel (height), while variable y refers to the distance of a profile point from the vertical axis of the vessel. Parameters a_i and b_i are the intercept and the slope of the lines connecting each two adjacent points along the vessel profile.

The procedure for the calculation of surface area will be demonstrated with the example of the vessel profile in Figure 4. The coordinates of 8 points were taken along the vessel profile. The axes in Figure 4 are inverted – the x axis is vertical, and the y axis is horizontal. Each two points are connected with straight

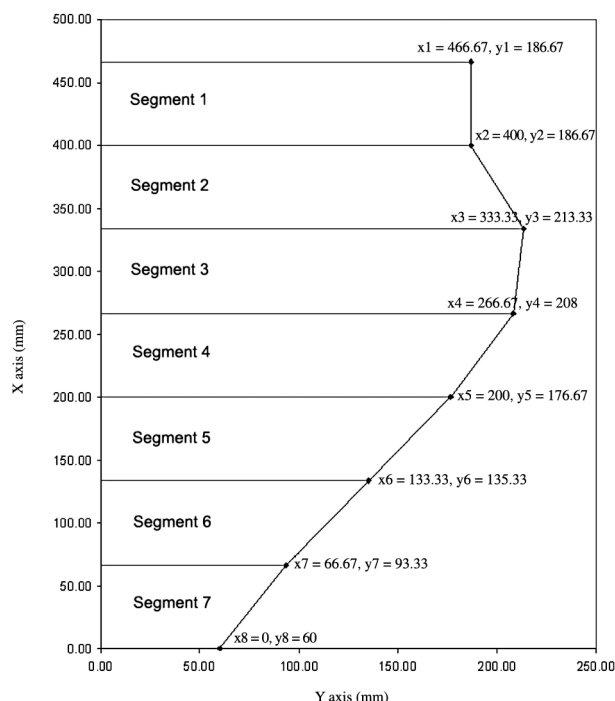


Fig. 4. A worked example of Equation 2 – calculating the lateral surface area of a vessel.

Сл. 4. Пример коришћења једначине 2 – рачунање површине посуде

lines thus creating the polygon approximation of the original vessel profile. The lateral surface area of the vessel is divided into 7 segments. Equation 2 gives the lateral surface area of each segment. For example, the surface area of Segment 2 is calculated by substituting the coordinates into the formula. There are two additional parameters in the formula which are needed to calculate the surface area of Segment 2: the intercept (a) and the slope of the line (b) connecting the point with coordinates x_2, y_2 (400, 186.67) and the point with coordinates x_3, y_3 (333.33, 213.33). The slope of the line connecting two points is given by the following formula: $b = (y_3 - y_2) / (x_3 - x_4) = (213.33 - 186.67) / (333.33 - 400) = -0.4$. The intercept of the line is calculated in this way: $a = y_3 - b * x_3 = 213.33 - (-0.4) * 333.33 = 346.66$. When these values are substituted into Equation 2 the surface area of Segment 2 can be calculated:

$$2\pi \sqrt{1 + (-0.4)^2} \times [346.66 \times (333.33 - 400) + \frac{-0.4}{2} \times (333.33^2 - 400^2)] = 90229.32 \text{ mm}^2$$

The surface areas of the remaining segments are calculated in a similar fashion and summed to get the total lateral surface area of the vessel. The total surface area of the vessel is calculated by summing the total lateral surface area and the surface area of the bottom of the vessel (the area of a circle with the radius equal to the radius of the bottom of the vessel).

The surface area of a vessel (P_v) can also be approximated in terms of individual fragments:

$$P_v \approx N * p_{fr}$$

where N is the average number of fragments per vessel. From Equation 1 it follows that $p_{fr} = m_{fr} / (t_{fr} * d)$.

Therefore:

$$P_v \approx N * [m_{fr} / (t_{fr} * d)]$$

$$N \approx (P_v * t_{fr} * d) / m_{fr}$$

Since the goal of projecting is to calculate the relative frequencies of classes in an accumulated assemblage, the only parameter that needs to be known is the fragmentation ratio:

$$N_2 / N_1 = (P_{v2} * t_{fr2} * m_{fr1}) / (P_{v1} * t_{fr1} * m_{fr2})$$

Note that d (specific density of ceramic material) cancels out of the equation when the ratio is calculated.

⁷⁹ Based on Adnadević and Kadelburg 1998, 219–229.

For convenience, the serving/consumption class will be set as the reference class. Two ratios are then calculated – “cooking : serving/consumption” and “storage : serving/consumption” fragmentation ratio. The resulting ratios are 1.53 and 3.79 for “cooking : serving/consumption” and “storage : serving/consumption” ratio, respectively.

Assessing the fit

A direct comparison between the empirical and projected assemblages is possible only in the case of Opovo where descriptive, statistical and typological analysis of the pottery from the cultural layer is available.⁸⁰ In all other cases the comparison will have to be made indirectly by comparing projected assemblages with empirical assemblages from different sites. This is a reasonable compromise because the structures of accumulated assemblages are relatively stable across different sites (Table 5) – roughly 50–70% serving/consumption vessels (bowls, plates, cups), 20–30% cooking vessels (pots, jars, casseroles), 5–20% storage vessels (amphorae and pithoi). The rank order of vessel class proportions is, in most cases, the same – serving/consumption vessels are most numerous, cooking vessels are ranked second, and the storage vessels are the least numerous in most of the observed accumulated assemblages.

If the projected and empirical structures match, then there is no reason to doubt that house inventories are *de facto* refuse. For reasons explained below, precise matching criteria cannot be defined. Only a general criterion can be defined to distinguish between the match and mismatch between the observed and projected assemblages: we can say that the projected assemblage generally matches the observed assemblage if the ranking of proportions of functional vessel classes is the same as in most empirically observed accumulated assemblages. For example, the projected and observed accumulated assemblages will be considered to match if the projected assemblage displays such structure that serving vessels are the most numerous, followed by cooking and storage vessels, respectively.

If the assemblages do not match, then there are three possible explanations: 1) house inventories are not systemic inventories 2) the assumptions are wrong 3) house samples are not representative. Statistical tests are not used here for two reasons: 1) this is mainly exploratory research 2) data quality is very poor so it would be inappropriate to simulate precision and rigor by using formal tests where conditions for their appli-

cation are not met. For example, it would be inappropriate to statistically test for the fit between the projected assemblage and observed assemblages given that the classification of vessels and potsherds into classes is not strictly the same between sites and researches. The data on empirically observed accumulated assemblages from Table 5 are collated from various sources and authors working with classificatory schemata, which are only comparable in general. Most of them are almost certainly biased (usually the proportion of bowls is inflated given the high rate of identification of this vessel class), as a result of the fact that protocols for estimating the relative frequencies of classes, using cumulative rim proportions or recording potsherd weight,⁸¹ are rarely, if ever, used in the primary analysis of pottery from Vinča culture sites. The data sets are comparable in general, but this general correspondence is not sufficient to warrant the use of statistical techniques which require strictly comparable units. Even in the case of Opovo, where data on household and cultural layer assemblage is present, it would be erroneous to use the *chi squared test* because the observed accumulated assemblage should not be expected to match the projected assemblages exactly, even if the household assemblages from excavated houses were systemic. This is because the excavated assemblage from the cultural layer almost certainly contains a fraction of pottery, which was accumulated from other houses and other parts of the site, not to mention the fact that the potsherd counts are slightly biased for different vessel classes given their differential potential for identification. For example, bowl fragments usually have preserved diagnostic parts such as rims and complete profiles due to their relatively low height-to-width ratio, which makes them more likely to be identified in spite of their small fragment size. The general implication is that there is an amount of error built into the observed assemblage in relation to the projected assemblage, which, *a priori*, makes an exact match unlikely. Standard interpretation of the statistical significance would be misleading in such a situation. Therefore, the degree of (mis)match between empirical and projected assemblages should only be used in a qualitative manner as a measure of our suspicion that household assemblages are not *de facto* refuse.

⁸⁰ Tringham *et al.* 1992.

⁸¹ See Orton, C. 1980; Orton, C. *et al.* 1993.

Site/horizon	Assemblage structure	Reference
Crkvine-Mali Borak	Serving 70%	(Spasić 2011)
	Cooking 15%	
	Storage 5%	
	Other 5%	
Opovo – horizon 1	Serving 50%	(Tringham, et al. 1992)
	Cooking 39%	
	Storage 8%	
	Other 3%	
Opovo – horizon 2	Bowls 75%	(Tringham, et al. 1992)
	Cooking 20%	
	Storage 3%	
	Other 2%	
Opovo – horizon 3	Serving 69%	(Tringham, et al. 1992)
	Cooking 22%	
	Storage 6%	
	Other 3%	
Grivac IV	Serving 53.2%	(Nikolić 2004)
	Cooking 20%	
	Storage 26.8%	
Grivac V	Serving 66.22%	(Nikolić 2004)
	Cooking 13.57%	
	Storage 20.21%	
Grivac VI	Serving 36.04%	(Nikolić 2004)
	Cooking 32.43%	
	Storage 31.53%	
Benska Bara	Serving 73.04%	(Truhović & Vasiljević 1983)
	Cooking 20.47%	
	Storage 6.49%	

Table 5. Accumulated assemblage structures from Vinča culture sites

Табела 5. Структуре акумулираних збирки (збирки из слоја) са винчанских локалитетима

Site	Cooking	Serving	Storage
Banjica	45.74	37.06	17.20
Gomolava	59.38	36.65	3.97
Divostin	30.83	49.77	19.40
Jakovo	77.64	11.98	10.38
Predionica	18.91	58.35	22.75

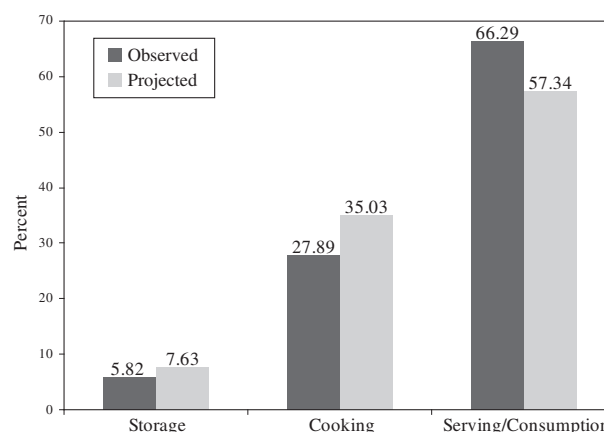


Table 6. Projected accumulated assemblages (simple projection)

Fig. 5. Opovo – projected and observed assemblages

Табела 6. Пројектоване структуре акумулираних збирки (проста пројекција)
Сл. 5. Опово – пројектоване и емпиријски забележене структуре збирки из слоја

Results of accumulation analysis

The projected accumulated assemblages for sites included in this study are shown in Table 6. Opovo is the only site where projected and empirical assemblages can be compared directly (Fig. 5). There is a general match in projected and observed accumulation structure in the cases of Divostin, Opovo and Predionica. This means that the ordering of relative frequencies of functional classes is consistent with the ordering observed in other Vinča accumulated assemblages (Table 5), or with the actual accumulated assemblage in the case of Opovo. Projected assemblages from Banjica, Gomolava and Jakovo–Kormadin do not match, not even in general, with the structure of other Vinča assemblages.

The results of the accumulation analysis are not as clear cut. Some projected assemblages conform to the observed ones, and some do not. It is important to note that all of the projections which do not match the empirical structure are based on single house assemblages. Unlike them, two out of the three projected assemblages which generally do match the observed ones are based on six (Divostin) and three (Opovo) house assemblages, which makes these projections more representative and reliable. Obvious exceptions are assemblages from Jakovo and Gomolava, and, to a lesser extent, Banjica. Simple projections based on house assemblages from Gomolava and Jakovo do not produce anything that resembles the empirically recorded accumulation assemblage structures. There may be several explanations for the assemblages from Jakovo and Gomolava:

1. They come from single houses, so they still may be systemic assemblages, but not representative of an entire settlement. It should be kept in mind that accumulated assemblages reflect the inventories from all of the households in the settlement – differences in assemblage structures between individual households are averaged out in the accumulation assemblage. Therefore, it can be expected that the individual household will produce an accumulation assemblage similar in structure to the accumulation assemblage of the entire settlement, only if that particular house inventory is sufficiently similar to the average house inventory for that settlement.

2. The inventories of Jakovo and Gomolava are, indeed, systemic; they are representative of the entire settlement, although this cannot be confirmed since the descriptive statistics of the accumulated assemblages are not available for these particular sites.

3. Inventories are not systemic assemblages. They are ritually deposited assemblages.

4. House inventories are not complete systemic assemblages. They are *de facto* refuse, but the light objects such as bowls were curated⁸² – taken away from the house before abandonment.

It is not possible at this moment to tell which of these explanations is more probable. Therefore, no unequivocal conclusion can be made regarding these particular sites where structured deposition is concerned.

⁸² *Sensu* Binford 1979.

**PATTERNS OF ASSEMBLAGE SIZE
AND HOUSE FLOOR AREA VARIATION
– THE HOUSEHOLD ARCHAEOLOGY
OF VINČA CULTURE HOUSES**

Is there any other available frame of reference which would enable the archaeologist to identify unusual assemblages? This paper focused only on the external criteria – external in the sense that house inventory attributes were compared against attributes measured in domains external to the houses themselves (ethnographic records and accumulated assemblage). However, it is possible to use an internal criterion which would enable the archaeologist to recognise unusual assemblages in relative terms – relative to other assemblages. One such criterion would be the ratio of total vessel count to house floor area. Figure 6 shows the scatter-plot with total vessel count and house floor area. It is apparent that there are extreme outliers such as houses from Obrež and Banjica, and somewhat less pronounced outliers such as the house from Jakovo and house 17 from Divostin. Obrež, Banjica, and, to a lesser extent, Jakovo, are outliers because their pottery inventories are too large for their house floor areas. They are too large only in relative terms because such a claim would not be possible if there were no houses from Divostin with nearly equal pottery assemblage sizes (houses 13 and 14) and much higher house floor areas, and if there were no houses with almost equal house floor area and smaller assemblage sizes (Gomolava, Predionica, Divostin 18, Divostin 16).

Does this finally offer any evidence which might support the structured deposition of pottery vessels in Banjica, Obrež and Jakovo? It might, if one were willing to accept the assumption that all Vinča culture sites should have equal average household assemblage sizes and that they should have an equal vessel count to house floor area ratio. Such an assumption would be very close to the traditional culture-historical essentialism, which equates archaeological phenomena with ethnographic phenomena. However, this assumption is probably not true given the large territory of Vinča culture and given the great differences between various Vinča sites in household size⁸³, subsistence⁸⁴ and perhaps, but less likely, marital residence patterns.⁸⁵ But even if this assumption of cultural uniformity was true, the conclusion that some houses are unusual because they do not conform to the pattern (constant assemblage size to house floor area ratio) or because they differ in assemblage size from other houses, does not necessarily

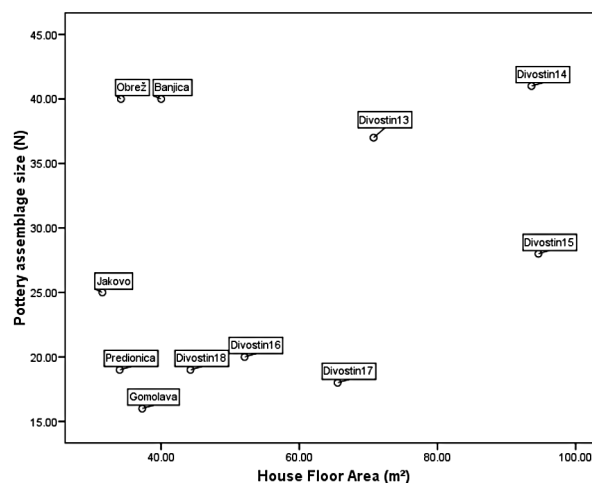


Fig. 6. Scatterplot of pottery assemblage size and house floor area of Vinča culture houses

Сл. б. Графикон који представља величину керамичкој инвентара винчанских кућа у односу на њихову површину

follow. Ethnoarchaeological studies have shown that pottery assemblage sizes may differ greatly between, and within, villages belonging to the same culture and society in the ethnographic sense.⁸⁶ Ethnoarchaeology also shows that the correlation between total assemblage size and household size (reflected in house floor area) may not always be present for a variety of reasons.⁸⁷

If there is no reason to reject the null hypothesis that the majority of Vinča house inventories are more or less faithful reflections of systemic inventories, then their properties may be used as correlates of anthropological phenomena of interest (e.g., household size, wealth, status). The archaeological study of the variability of house inventories might lead to socially relevant information.⁸⁸ Given the lack of large scale excavations, the full potential of household archaeology cannot be fully exploited at most Vinča sites. However, modest steps in this direction have been made for the site of Divostin.⁸⁹ An attempt will be made to interpret the

⁸³ Porčić 2010; Tripković, B. 2009a.

⁸⁴ Orton, D. 2008.

⁸⁵ Porčić 2011b.

⁸⁶ Arnold 1988; Arthur 2006; 2009.

⁸⁷ Arnold 1988; Deal 1998.

⁸⁸ e.g., Shelach 2006.

⁸⁹ Porčić 2010; Tripković, B. 2009a; 2009b.

variability in pottery inventories from Divostin houses. The reader should bear in mind that these are only tentative interpretations since the data limitations resulting from the poor state of research are considerable.

In Divostin, the correlation between pottery assemblage size and house floor area is relatively high and marginally significant ($r = 0.712$, one-tailed $p = 0.053$, see Fig. 6). What are the social implications of this correlation? Ethnoarchaeology shows that the correlation between total assemblage size and household size (reflected in house floor area) usually ranges from 0.3–0.5⁹⁰, but may not always be present for various reasons.⁹¹ Moreover, two studies show that the number of serving vessels may be the most reliable indicator of household size, even when the correlation between household size and the total pottery count is not significant.⁹² Correlation between the number of serving vessels and house floor area in Divostin is moderate, but not significant at the 0.05 level ($r = 0.547$, one-tailed $p = 0.131$), which is not surprising, given the low sample size. Can this convergence of two independent household size indicators such as house floor area and pottery assemblage size be used to derive a socially meaningful interpretation? The answer is positive, but the reasons for such an answer are not simple, since the relationship between house floor area and inventory on one side, and socio-economic variables on the other, is rather complex.⁹³

First of all, house floor area is a correlate of household size on the settlement level, not on the individual household level – average house floor area is an indicator of average household size⁹⁴, but individual house floor area is usually not an indicator of individual household size.⁹⁵ This is because the size of an individual household is not a constant – it is a variable which changes during the household life cycle (new members are born, some members die, some leave the house etc.). However, there are situations where differences in house floor area between groups of houses within a settlement might be interpreted as differences in household sizes. If variability in individual household sizes within a settlement is sufficiently large, this would be reflected in the house floor area. Likewise, if the architecture tracks the household size more closely – e.g., a new space is built and added to the existing house to accommodate new members – house floor area can be used as an indicator of individual household sizes. B. Tripković makes a good case for household continuities in Divostin, particularly for houses 13, 14, and 15.⁹⁶ In his opinion, these three houses were

expanded by building additional rooms. Tripković analysed features such as ovens, furniture (fixed clay containers and banks) and floor plaster layers, and concluded that the structure of the house was modular, leading to a hypothesis that each room might have housed a single nuclear family within a larger household unit residing in the house. He also noted that the reason for house expansion might have been the higher production level of these households. From this perspective, differences in pottery assemblage sizes between houses might be interpreted as differences in household sizes.

What are the social implications of these differences? Returning to the issue of correlates, ethnoarchaeological research shows that the quantity of pottery may correlate with the social status of the household.⁹⁷ Correlation between the quantity of pots and social status may be explained by the fact that higher social status often entails the organisation of social food consumption events, such as feasts. Serving and consumption vessels are particularly important in such contexts.⁹⁸ The observed pattern is additionally reinforced by the fact that a copper bracelet was found in House 14.⁹⁹ The social significance of copper items in Vinča culture contexts is not fully understood¹⁰⁰, but the presence of a copper bracelet and copper pearls as grave goods in the Late Vinča culture graves in Gomolava, where only males of differing ages from a single patri-line were interred¹⁰¹, may suggest that copper items were important status markers.¹⁰²

This suggests that variation in assemblage sizes may be related to both household size and social status. This is not a surprising find. On the contrary, in light of what is known from the domain of theories of

⁹⁰ Arnold 1988; Arthur 2009; Hildebrand and Hagstrum 1999b; Nelson 1981.

⁹¹ Arnold 1988; Deal 1998.

⁹² Arthur 2009; Hildebrand and Hagstrum 1999a.

⁹³ Hayden and Cannon 1982; Wilk 1982.

⁹⁴ Brown 1987, Porčić 2012.

⁹⁵ e.g. Wilk 1982.

⁹⁶ Tripković, B. 2009b.

⁹⁷ Deal 1998, 102.

⁹⁸ Blitz 1993; Costin and Earle 1989; Nelson 1981; Potter 2000; Smith 1987.

⁹⁹ Borić 2009; McPherron and Srejović 1988.

¹⁰⁰ Greenfield 1999; Orton, D. 2008, 268.

¹⁰¹ Stefanović 2008.

¹⁰² Borić 1996.

peasant economy and the domestic mode of production,¹⁰³ it makes good sense. Differences in production levels between households may arise as a result of chance fluctuations in individual household demography through time¹⁰⁴, but the true question is how are these temporary and ephemeral advantages and disadvantages translated into more permanent status differences. One possible way of solving the problem of stochastic fluctuations in the labour force and creating a basis for status and wealth accumulation is to make larger households.¹⁰⁵ In this way, fluctuations in the labour force are smoothed by the intergenerational structure of complex households. This scenario is also consistent with Tripković's idea of household extension and continuity.¹⁰⁶ This means that the observed patterns may reflect the underlying social process of incipient ranking and social differentiation.¹⁰⁷

GENERAL DISCUSSION AND CONCLUSION

In general, it can be concluded that there is no reason to suspect that Vinča house assemblages reflect systemic inventories. This does not mean that all of the inventories are *de facto* refuse or perfect reflections of a systemic inventory. After all, there is no reason to believe, *a priori*, that all Late Neolithic houses were abandoned for the same reason and in the same manner. What this paper claims is that not enough evidence has been found so far that would justify the claim that the particular house inventories analysed in this study are not systemic. Moreover, it was demonstrated that patterns of variation in household assemblages can be meaningfully interpreted in social terms in the case of Divostin.

If it is granted that, at least, assemblages from Divostin, Opovo and Predionica are *de facto* refuse and do reflect a systemic inventory, what are the implications of this conclusion on scenarios of house abandonment proposed by Chapman, Stevanović and Tringham? Does this conclusion contradict the hypothesis that houses were intentionally burnt? Not necessarily. It may be consistent with deliberate house burning – inhabitants might have simply left the entire inventory inside the deliberately destroyed house. The house would have “died” along with its contents. This could be a symbolic statement, as well, just as Chapman hypothesised, although in this scenario, it was made with an ordinary, everyday assemblage.

In the light of new theoretical and conceptual developments regarding the distinction between cultural reason and practical reason, it is becoming apparent that there is no sharp dichotomy between these two domains.¹⁰⁸ As Hutson and Stanton note¹⁰⁹, practical logic is best viewed as embedded within cultural logic. Furthermore, the two may, and often do, coincide – an action may be both practical and have a unique culturally determined meaning at the same time. For these reasons, the term *de facto* refuse may be ambiguous in the context of the present research problem. In its most strict sense, *de facto* refuse implies that it is a product of practical reason – it is a refuse that was left behind for practical reasons (e.g., to get away from a fire or a raid, to move to a new location). However, in the context of this paper, the term *de facto* refuse primarily means that the archaeological house inventory is the reflection of the systemic inventory, regardless of the reasons for its placement into the house. This means that, in the technical sense, the everyday household assemblage left inside the deliberately burnt house as a kind of symbolic statement (e.g. as envisioned by Chapman), would still be a *de facto* refuse. In this way, the distinction between *de facto* refuse and structured deposition may be blurred, but this is of no relevance for the central question of whether house inventories can be viewed as reflections of systemic inventories.

Such a conclusion may seem to be anticlimactic, but it should be emphasised that the purpose of this paper was not to prove or disprove the hypothesis that houses were burned intentionally, but to answer the specific question of whether there are reasons to believe that household pottery inventories from these particular Vinča culture sites do not reflect systemic inventories. Chapman presented many other lines of evidence (burnt human and animal bodies inside houses, the presence of altars and figurines), which make his hypothesis of deliberate house burning in the Late Neolithic and Early Copper Age compelling¹¹⁰, especially when

¹⁰³ Chayanov 1986; Sahlins 1972.

¹⁰⁴ Pauketat 1996.

¹⁰⁵ Hammel 2005.

¹⁰⁶ For a good theoretical discussion of household continuity see Blanton 1995.

¹⁰⁷ See Price and Feinman 1995; 2010; Wason 1994.

¹⁰⁸ Chapman 2000b, 2000c; Hutson and Stanton 2007; Walker 2002; Wilk 1996.

¹⁰⁹ Hutson and Stanton 2007, 141.

¹¹⁰ Chapman 1999.

combined with research undertaken by Stevanović¹¹¹. However, this paper was not about the intentional burning of houses, it was only about the claim that pottery inventories from houses do not reflect systemic assemblages. The burden of proof is always on the one who makes the claim, so the fact that poor data and the poor state of research of Vinča sites do not allow the structured deposition to be rejected conclusively cannot be used as an argument in favour of the structured deposition hypothesis.

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¹¹¹ Stevanović 1997.

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Резиме:

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***DE FACTO* ОТПАД ИЛИ СТРУКТУРИСАНА ДЕПОЗИЦИЈА? КУЋНИ ИНВЕНТАРИ КАСНОНЕОЛИТСКЕ ВИНЧАНСКЕ КУЛТУРЕ**

Кључне речи. – неолит, винчанска култура, формациони процеси, кућни инвентари.

Остаци кућа и кућних инвентара представљају веома значајну класу археолошких података за реконструкцију различитих аспеката праисторијских друштава. Њихов значај је посебно изражен у археологији касног неолита на тлу Балкана. У том контексту, кључне су две повезане хипотезе које су у великој мери утицале на истраживања у овој области: 1) хипотеза Мирјане Стевановић и Рут Трингам да су куће спаљиване намерно, и 2) хипотеза Цона Чепмена да кућни инвентари каснонеолитских кућа не представљају инвентаре који су били у свакодневној употреби (системски инвентари), већ наменски скупљене и депоноване збирке приликом ритуалног уништења куће. Друга хипотеза заснива се на Чепменовој оцени да је број посуда које су пронађене у каснонеолитским кућама изненађујуће велик.

У овом раду биће размотрена Чепменова хипотеза о структурисаној депозицији, тј. истраживачко питање на које овај рад одговара јесте: да ли имамо разлога да верујемо да инвентари винчанских кућа не одражавају свакодневне инвентаре? Основна идеја је да се успоставе упоредни оквири у односу на које ће бити процењено да ли су винчански керамички инвентари „необични“, тј. да ли имамо разлога да сматрамо да се не ради о збирци посуда из свакодневне употребе. Први упоредни оквир јесте величина инвентара, тј. укупан број посуда у кући.

Да би се одговорило на истраживачко питање, распон величина инвентара винчанских кућа упоређен је са распонем инвентара етноархеолошки забележених збирки из различитих култура. Други упоредни оквир јесте структура инвентара, у смислу пропорционалне заступљености функционалних класа. Поставља се питање да ли структура керамичких збирки из кућа одговара структури керамичких

збирки из културног слоја када се узме у обзир просечан употребни век за сваку функционалну класу.

Резултати прве анализе показују да је величина инвентара винчанских кућа у распону етноархеолошки забележене варијације. Резултати друге анализе указују на то да постоји добра кореспонденција између структуре кућних инвентара и инвентара из културног слоја, макар када је реч о боље документованим локалитетима попут Дивостина и Опова.

С обзиром на то да резултати обе анализе сугеришу да у односу на два поменута упоредна оквира нема разлога да се сумња у то да су винчански инвентари мање или више веран одраз керамичких збирки које су биле у свакодневној употреби, поставља се питање какви су обрасци варијације квантитета и структуре керамичких инвентара у односу на неке друге атрибуте кућних остатака, као што је, на пример, површина куће? Такође, поставља се и питање интерпретације тих образаца у антрополошким терминима. Установљено је да на локалитету Дивостин постоји позитивна корелација између површине куће и величине керамичког инвентара. Овакав образац може се интерпретирати као последица разлика које постоје између кућа у величини домаћинства и у њиховом друштвеном статусу. Остаје нејасно да ли су уочене разлике ефемерне природе у једном претежно егалитарном друштву или указују на почетак процеса учвршћивања неједнакости и повећања комплексности винчанских друштава.

Општи закључак ове студије јесте то да, са становишта овде коришћених упоредних оквира, нема разлога да се закључи да су винчански керамички инвентари из кућа необични, тј. да не одражавају структуру системских инвентара. Штавише, образцима варијације кућних инвентара може се дати специфична антрополошка интерпретација.