

TRADITIONAL POTTERY MAKING FROM THE ETHNOARCHAEOLOGICAL POINT OF VIEW

Scientific Research and Safeguarding of Intangible Heritage



НАРОДНИ МУЗЕЙ



TRADITIONAL POTTERY MAKING FROM THE ETHNOARCHAEOLOGICAL POINT OF VIEW

**Scientific Research and Safeguarding
of Intangible Heritage**

Proceedings of the First International Conference

*Traditional Pottery Making from
the Ethnoarchaeological Point of View, Belgrade 2011*



NATIONAL MUSEUM
Belgrade 2014

Publisher

*National Museum in Belgrade
www.narodnimuzej.rs*

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PREPRESS

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PRINT

PUBLIKUM

NUMBER OF COPIES

500

ISBN

978-86-7269-161-0

COVER PHOTO

Aca DJORDJEVIĆ

*The Conference and the Proceedings were realised with support of the
Ministry of Culture and Information of the Republic of Serbia*

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POTTERY ETHNOARCHAEOLOGY AND ARCHAEOLOGY OF THE NEOLITHIC*

Abstract: Pottery fragments are the most numerous finds on Neolithic sites throughout the Central Balkans. Chronological systems in Neolithic archaeology are based upon ceramic forms and ornamental techniques. Unfortunately, many other aspects of pottery have been neglected. Pottery ethnoarchaeology, along with experimental and interdisciplinary research, must be used as the main source of information about certain aspects of production and use of ceramic vessels, as well as in the reconstruction of social organisation, labor division and labor investment in ceramic production, vessel use-life, breakage and discard patterns, among others. A methodology of use-wear trace identification – abrasion, carbon deposition and surface attrition – on Early Neolithic pottery from the site of Blagotin was established according to the results of ethnoarchaeological research among traditional communities. Ethnoarchaeological evidence was also the main source of information in researching technological aspects of pottery production such as forming techniques and firing procedures, as well as the emergence of standardisation and craft specialisation in the production of Late Neolithic pottery from Vinča.

Key words: pottery, Neolithic, ethnoarchaeology, forming techniques, pottery use, pottery production

Ethnoarchaeological pottery studies have been abundant during last few decades. Nevertheless, many disagreements regarding the actual purpose and topics of pottery ethnoarchaeology are still present among researchers. Pottery ethnoarchaeology is often seen as a means to aid archaeological understanding (Kramer 1985: 77–78; Arnold P. J. III 2000: 106), therefore the objective of ethnoarchaeological

research should be to help understand the past (Reid et al. 1975). This is why the focus of ethnoarchaeology should be on archaeologically motivated questions (Skibo 1992a: 29). Furthermore, combined ethnoarchaeological, experimental and interdisciplinary research is often regarded as the most desirable approach in understanding past human behavior (e.g., Skibo 1992b).

It is regrettable, therefore, that Neolithic pottery, especially from the Balkans, has rarely, if at all, been studied and analysed from a point of view other than cultural history, where the main focus has been on building chronological systems based upon the supposed evolution of ceramic forms and ornamental techniques. There are many published works with elaborate typologies (for example, Schier 1996), but other aspects of pottery, unfortunately, have been completely neglected. It must be stressed that pottery vessels were not static objects: they were manufactured, used and discarded as part of a variety of activities and they entered the archaeological record by a variety of processes. So, the questions arise – what do we *actually* know about Neolithic pottery; and how can pottery ethnoarchaeology contribute to our limited knowledge?

The main issues in pottery studies – ethnoarchaeological, as well as archaeological – can be divided into several groups:

1. The pottery production sequence: raw material procurement strategies, processing of raw materials (including

* This article results from the project No. 177020 funded by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

clay body and organic and non-organic inclusions), forming techniques, firing and post-firing procedures. Ethnoarchaeological research is very important in the analysis of the spatial organisation of production (Arnold P. J. III 1991b; Deal 1998), since activity zones related to pottery manufacture are completely lacking, or are not presently recognised in Neolithic archaeological contexts.

2. Pottery use and discard patterns, vessel use-life, breakage and replacement rates and pottery assemblage formation processes.

3. Since the potters themselves are “invisible” in the archaeological record, ethnoarchaeological research concerning the organisation of pottery production, labor investment and division can provide a theoretical framework for archaeological interpretation. It should be emphasised that issues related to full and part-time potters are of crucial importance in archaeological research concerning the emergence of craft specialisation.

It must be emphasised that this division does not include all of the issues covered in ethnoarchaeological pottery studies, but only topics relevant to the present state of research and possible guidelines for future investigations in the Neolithic archaeology of the Central Balkans, i. e. Early Neolithic Starčevo culture and Late Neolithic Vinča culture.

Forming techniques

Rich ethnoagraphic evidence, along with archaeological methods of identifying some steps in the forming sequence, provide us with means to identify and reconstruct pottery forming operations. Separate Neolithic forming procedures (coiling, drawing and pinching, as well as combined

techniques and surface modifications after primary vessel building) have been discussed elsewhere (Vuković 2010a; Vuković 2011c), so only selected important issues regarding hand-made pottery will be emphasised here.

First of all, a common practice amongst traditional pottery-making communities is the use of convex molds – most often broken or damaged vessels (for example Frank 1994, 2007; Deal 1998). The procedure includes pressing the clay body to the mold using the fingers or by beating with an anvil-like implement; parting agents – sand, powdered clay or ash, must be used to prevent the clay body sticking to the mold. This procedure leaves surface markings similar to the paddle-and-anvil technique: i.e. a series of facets on the exterior of the vessel (Rye 1981: 81, 84). This procedure can be identified on Late Neolithic Vinča bowls with uneven surfaces resulting from beating wet clay with some kind of tool (Fig. 1).

In pottery technologies not using the potter’s wheel, supports are also used as a means of rotation; a vessel in the plastic stage of forming must be supported in order to eliminate unwanted deformation, and, flat supports also enable rotation of the vessel during forming, so the potter doesn’t have to move around the vessel, but can remain static. While the base of the vessel is in a plastic condition, it will take impressions from the surface on which it rests. Flat surface supports include mats, the impressions of which are very common

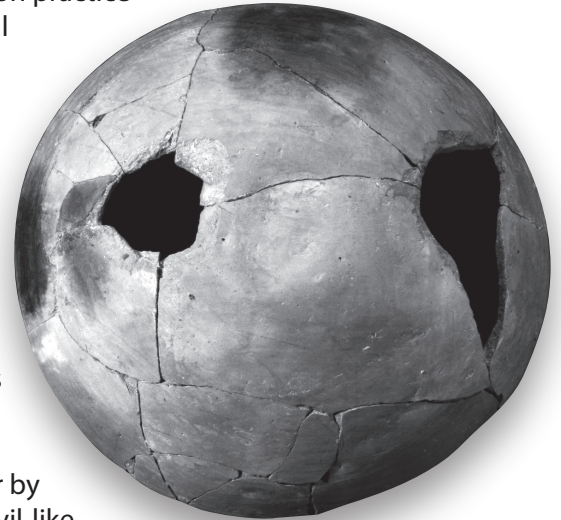


Fig. 1

Late Neolithic Vinča bowl with uneven surfaces resulting from beating wet clay with some kind of tool, probably as a consequence of convex mold usage

on Vinča pottery bases. It seems, however, that Neolithic potters did not favor mat impressions – there are many examples showing that they were erased with some kind of tool after the pot had been removed from the support, while the base was still wet (Fig. 2). Very interesting are mold supports. Examples of molds include broken vessels, some of which could have been filled with sand.

This method of forming and rotation can be recognised on some heavily abraded Vinča pot bases.

Thus, ethnoarchaeological evidence concerning the usage of molds and supports gives us several important issues to consider: identification of forming technique; presence of some kind of material which is not necessarily added as an inclusion to the clay body, but is a parting agent used during manufacture or filling of the mold; secondary use of broken vessels as molds and means of rotation. The identification of storage locations of such pots in the archaeological record could be tricky, but instructive in the reconstruction of manufacturing locations and activity zones, as well as the organisation of domestic space.

Pottery use

One of the important issues in ethnoarchaeological research concerns use-alterations: their identification, distribution and frequency, as well as the reconstruction of activities in which they occurred (Hally 1983, 1986; Skibo 1992b; Schiffer, Skibo 1989). According to such ethnoarchaeological research methods and its conclusions, a functional analysis of Early Neolithic

pottery from Blagotin (central Serbia) was conducted, focusing on the identification, distribution and frequency of use-wear traces and surface accretions (Vuković 2009, 2010b, 2011a). A basic division was established between traces that were caused by mechanical damage to the pottery surface – abrasion processes during cooking, cleaning, storing and manipulating of pots – and a kind of damage, so-called surface pitting or surface erosion, caused by non-abrasive processes, mainly chemical processes occurring within the contents of the vessel. A high rate of acidity develops from the production and storage of food such as porridges, bread and beer and causes erosion of the interior surface of vessels. Surface accretion refers to carbon deposits on the interior surfaces and sooting clouds on external surfaces. Carbon deposits are caused by the charring of food, while sooting clouds reveal how the pot was positioned over a fire and suggest the manner of cooking. Finally, oxidation discoloration on the exteriors may also indicate how the pot was positioned over a fire.

The results of functional analyses revealed weaknesses in traditional typologies. It showed that hemispherical bowls were used as cooking-pots, with intensive carbon deposition on the whole interior except the base suggesting wet-mode cooking (boiling and simmering), while sooting clouds on the exteriors showed that the vessels were not used on an open fire, but above it. Marks of abrasion on the interiors may have been caused by abrasive action during washing, but it is more likely that they were caused by stirring the contents during cooking with some kind of utensil.

The presence of carbon deposits on the base of pots suggests heating of foods

Fig. 2

Vinča pot base with mat impressions that were "erased" after the vessel had been removed from its support

in dry-mode, such as parching seeds. Surprisingly, this kind of use-wear trace appears only on small bowls made in fine fabric, with no visible oxidized patches, so it is concluded that the vessels were not positioned on an open fire, but above it.

Non-abrasive processes such as fermentation are identified on a group of open vessels, or bowls, of medium dimensions. Finally, vessels that would normally be grouped with cooking-pots in traditional typologies did not show any use-wear traces, so were attributed to the functional class of storage.

Ethnoarchaeological evidence of pottery use is, therefore, unavoidable in Neolithic archaeology and the results of functional analyses conducted according to methods established in ethnoarchaeological research showed several important issues: first, the weakness of traditional classification, which is misleading and points interpretations towards a dead-end; second, several functional classes of pottery vessels can be identified; third, food preparation techniques can be reconstructed, including the manner of cooking and position of vessels over a heat source, food-processing techniques such as soaking and fermentation, as well as some activities not related to food preparation, such as washing and storing of pots.

Use-life, breakage and replacement rates, and pottery assemblage formation processes

Pots are “mortal” (Shott 1996) and their use-life depends on many factors (Foster 1960; Arnold D. 1985). Ceramic census data – the number of vessels simultaneously used in one household (Arnold D. 1985: 155–157), ceramic longevity (vessel use-life in years)

(e.g. 152–154, tables 6.2, 6.3; DeBoer 1974; David 1972), breakage and replacement rates – all provided by ethnoarchaeological research, seem to be critical in understanding ceramic assemblage formation processes. The principle, “the larger the vessel, the longer it lasts” (cf. Arnold D. 1985: 153), seems logical, as large pots cannot be moved easily and are relatively stationary. Indeed, the correlation between use-life and vessel size has been confirmed in pottery assemblages from many traditional societies (David 1972; Shott 1996). Nevertheless, if data showing use-lives and censuses from different parts of the world are compared, no regularity is established, partly because replacement rates differ from one community to another. It should be stressed, however, that an even more important factor in vessel longevity is frequency of use (Arnold P. J. III 1991b: 72; Foster 1960: 608; Rice 1987: 298). Generally speaking, vessels that are often handled and moved around are more prone to breakage, and consequently have a short use-life. Thus, as a rule, vessels used in food and drink preparation and consumption have the shortest use-life.

Statistical analysis revealed dramatic differences in the frequencies of fine bowls between Early and Late Neolithic ceramic assemblages. In order to reveal the reason for such differences, ethnoarchaeological data concerning use-life and breakage patterns were considered (Vuković 2010b). Early Neolithic fine pottery is rare, representing 6% of the whole assemblage, while Late Neolithic fine pottery is very common, making up 71% of the assemblage. The following conclusions may be drawn (see Table 1): Late Neolithic fine bowls were in frequent use, with high breakage and replacement rates, which is typical for

Table 1

Differences in use-frequency, use-life and breakage and replacement rates between Early and Late Neolithic pottery

	Early Neolithic	Late Neolithic
Frequency of fine bowls	6%	71%
Use-life	long	short
Breakage rate	low	high
Replacement rate	low	high
Use-frequency	infrequent	extremely frequent
Typical for:	storage	serving

pots with the function of serving and consuming foods and drinks. On the other hand, Early Neolithic fine bowls have low breakage and replacement rates, supporting the argument that they did not perform roles in serving or consuming foodstuffs. In fact, it indicates their stationary position; bearing in mind that use-wear traces indicating storage are present on these bowls, it must be concluded that they had a utilitarian role. Traces in the form of notches and abrasions on the necks of vessels suggest that they were covered, further supporting the storage function. It must be assumed that food kept in small quantities such as seeds, dried herbs, etc., was stored in these vessels. Such changes in the use-mode of fine pottery indicates differences in the life-styles of the Early and Late Neolithic, which may be related with the degree of sedentariness practiced by the communities.

Social aspects of pottery production

Social dimensions of pottery production are the most intriguing issues in pottery studies, especially for early prehistoric pottery communities. The issues of major concern in reconstruction of social organisation are: Who are the potters; What is their social status, and; How was pottery production organised? As noted above, potters themselves are invisible in the archaeological record, leaving

ethnoarchaeological data as the only source of information that can be used in the reconstruction of social relations in prehistory.

Pottery standardisation is a central topic in researching pottery production, artisan skill and craft specialisation. Standardisation is defined as the reduction of variability in the shapes, dimensions and decoration of pottery vessels (Rice 1996: 202); this reduction in diversity (Mills 1995: 204) refers not only to the products themselves, but also to production procedures, which implies simplification of production techniques (Rice 1981: 220). According to the results of many ethnoarchaeological research enquiries, pottery standardisation is a result of increased levels of routine and motor skills of the artisan, which may, but not necessarily, reflect pottery craft specialisation (Longacre 1999). Ethnoarchaeological research has shown that the presence of standardisation can be quantified using statistical data. The most common method is by the calculation of coefficients of variation, and many ethnoarchaeological researchers (Arnold P. J. III 1991a; Longacre 1999; Roux 2003) have argued that values of coefficients of variation between 2 and 5 indicate high degrees of standardisation. It is very important to emphasise that investigations have also shown the effect of cumulative blurring, manifested in higher CV values. This can be a consequence of the possibility

that the sample subject to analysis contained the products of several artisans, as well as of several production events. Secondly, increased values of the coefficient of variation can result from the creation of etic categories defined by researchers, in contrast to emic categories distinguished by producers.

Bearing in mind the results of ethnoarchaeological research, the analysis of standardisation was applied to Neolithic pottery from four archaeological sites (two Early Neolithic – Blagotin and Lepenski Vir, and two Late Neolithic – Vinča and Motel Slatina) (Vuković 2010a, 2011b). Although some difficulties occurred, especially concerning the limited availability of all relevant metric parameters – i.e. the absence of a sufficient number of whole vessels – statistical calculations led to very interesting conclusions. While Early Neolithic values showed random or non-standardized production (Table 2), as expected, values for Vinča pottery revealed a relatively high level of standardisation, which was primarily recognised in the values of coefficients of variation for two kinds of bowls (Table 3). Other functional classes showed lower values of CV compared with Early Neolithic vessels, but they do

not indicate standardisation.

Standardisation in pottery assemblages necessary leads to discussion about craft specialisation and the organisation of pottery production. Issues regarding craft specialisation represent arguably the most complex research topic in pottery studies. Different models to explain specialisation have been proposed and differences between strictly archaeological and ethnoarchaeological points of view are striking. In archaeological studies, craft specialisation is often accepted as an indicator of social complexity (Rice 1981: 219; Blackman et al. 1993: 60). It is considered as an adaptive process in the dynamic interrelationship between non-industrialised society and its environment, wherein the productive activities are regulated or regularised, and access to resources is restricted (Rice 1981: 220). It is also considered as a process of intensification of production (Rice 1996: 177), describing the investment of labor and capital toward the production of a particular good or service, leading to a person producing *more* of that commodity, and *less* of others, than he or she consumes. It is also considered to be the production of surpluses for exchange (cited from Blackman et al.

		Rim diameter		Shoulder diameter		Wall thickness	
		Blagotin	Lepenski Vir	Blagotin	Lepenski Vir	Blagotin	Lepenski Vir
S-profiled vessels	Mean	<i>n</i> =60 18.45	<i>n</i> =136 19.9081		<i>n</i> =31 24.7581	<i>n</i> =62 6.73	<i>n</i> =136 8.57
	SD	6.36443	6.31465		5.64339	1.57	2.139
	CV (%)	34.50	31.72		22.8	23.32	24.96
Hemi-spherical bowls	Mean	<i>n</i> =22 13.6818	<i>n</i> =35 14.1714	<i>n</i> =19 14.4474	<i>n</i> =34 16.4706	<i>n</i> =22 4.5	<i>n</i> =35 5.89
	SD	2.78408	3.56441	3.02405	3.23789	0.859	1.207
	CV (%)	20.35	25.15	20.93	19.66	19.08	20.5
Conical bowls	Mean	<i>n</i> =68 30.0588	<i>n</i> =183 38.0000			<i>n</i> =57 9.3	<i>n</i> =183 11.87
	SD	12.69020	9.72521			2.044	2.584
	CV (%)	42.22	25.6			21.98	21.77

Table 2
CV values for Early Neolithic pottery

Type/ functional class	Rim and shoulder diameter ratio			Internal and external shoulder diameter ratio	
Bowls with inverted rim	Vinča	mean= 0.922383587	CV (%)= 3.11	mean= 1.099257	CV(%)= 2.22
		SD= 0.028755553		SD= 0.024407	
	Motel Slatina	mean= 0.932364646	CV(%)= 5.02	mean= 1.075418464	CV(%)= 3.8
		SD= 0.046815648		SD= 0.040922928	
Bowls with pronounced carinated shoulder	Vinča	mean= 0.920525308	CV(%)= 7.7 (6.86)	mean= 1.070343759	CV(%)= 2.81
		SD= 0.070864426		SD= 0.030133304	
	Motel Slatina	mean= 0.979351201	CV(%)= 5.04	mean= 1.099134965	CV(%)= 3.68
		SD= 0.049365429		SD= 0.040510489	

Table 3
CV values for Late
Neolithic bowls
(after Vuković 2011:
table 4)

1993: 60–61). Thus, the main aspects of specialisation are “input” and “output”; i. e. the amount of time (part-time vs. full-time artisans), labor and other resources invested in the manufacture and distribution of products.

Ethnoarchaeological considerations about specialisation, on the other hand, are somewhat different. Specialisation involves a small number of producers provisioning a larger number of consumers (Arnold P. J. III 2000: 112), which means the manufacture of goods for distribution outside the artisan’s household (Costin 2000: 378), or production for distribution to other households on more than a sporadic basis (such as reciprocal gift-giving) (Stark 1995: 233). In other words, the main difference between non-specialised and specialised potters is: production for meeting the needs of a potter’s household vs. production for exchange.

Considerations of craft specialisation as a rule include discussions about labour-investment; i.e. part-time and full-

time potters. Part-time producers are individuals whose economic strategies combine pottery-making with other tasks, while full-time artisans devote all their energy and labor to a single craft (Costin, Hagstrum 1995: 620). Therefore, it is not surprising that full-time potters are often connected with specialised craft in many archaeological models of organisation of production. However, ethnoarchaeological research has shown that part-time potters still can be specialists.

Many theoretical models of production organisation are present in the literature; some of them developed during ethnoarchaeological research, while others are based on archaeological investigations (for example Rice 1981; Sinopoli 1988; Santley et al. 1989). In all of the models little attention has been paid to domestic production; i. e. pottery-making within the household. Therefore they are called “monolithic”, since household production is usually defined as a small-scale manufacture

requiring little labour or technological investment, involving part-time potters (Feinman 1999: 81–83). Only a few models do not exclude the simultaneous existence of multiple levels of specialisation within the same community (Costin, Hagstrum 1995; Santley et al. 1989), although such phenomena are confirmed ethnographically (Curet 1993). Nevertheless, pottery production within prehistoric communities, especially Neolithic, seems very hard to “fit” into existing models. So, what can we say about Early and Late Neolithic pottery production? Did it really amount to small-scale production by part-time potters whose products were meant to be consumed only by members of the potter’s household? Does the presence of standardisation in vessel dimensions from Late Neolithic assemblages indicate only the presence of highly-experienced potters with highly-developed motor skills, or does it maybe reflect the initial stages of craft specialisation? Although it is very difficult to answer these questions, ethnoarchaeological research may shed some light in understanding Neolithic pottery production.

It seems that there is little doubt that pottery production within Neolithic communities existed at a household level. Early Neolithic pottery manufacture, with the absence of standardisation and other clues to indicate the production process, can be reasonably identified as unspecialised household production, where potters produced vessels for their own use. On the other hand, it seems that during the Late Neolithic some changes in pottery production occurred, represented by the emergence of partial standardisation reflected in the uniformity of dimensions of fine bowls, as well as the relative uniformity in the

dimensions of bowls from two distant settlements (Vinča and Motel–Slatina). The latter may indicate the existence of a wider distribution of produced goods or the same perception of vessel size at a regional level; i.e. the existence of a measurement system as one of prerequisites for the development of trade.

“Dispersed household specialisation”, identified among prehistoric cultures of the American Southwest as the manufacture of goods by family producers beyond their household needs, thereby requiring the establishment of exchange relationships with other families (Hagstrum 1995: 288), has been ethnographically confirmed (e.g. Gosselain 1992). Pottery is made by specialists, since only a restricted number of women make pottery; they are not full-time artisans, and each potter occasionally makes pots, sometimes for her own needs, sometimes for exchange. This kind of household specialisation could easily be attributed to Late Neolithic pottery production. Nevertheless, the presence of partial standardisation should not be neglected.¹ Therefore, the coexistence of small-scale unspecialised household pottery production and initial specialisation must be taken into account.

Finally, another of the important issues in pottery studies is the identity of potters. With the exception of finds of potter’s graves – unfortunately none in the Balkans – the only source of information about the identity of potters, their gender, age and

¹ *It must be stressed that partial standardization must be taken with reservations because sample didn't contain sufficient number of whole vessels; besides, high CV values may result from the presence of vessels of different dimensional classes in the sample, as a consequence of high material fragmentation.*

social status, is ethnoarchaeological research. Data obtained from numerous ethnoarchaeological studies show that women dominate non-specialised modes of pottery production, since their activities in other daily tasks do not allow them to move away from the household, so they can simultaneously be involved in pottery manufacture and other activities, such as nursing of children, food gathering and even agriculture (Arnold D. 1985: 103). On the other hand, the sexual division of labour in pottery production shifts with the introduction of the potter's wheel and establishment of pottery production as an important source of income (e.g., Birmingham 1975; Underhill 2003; Rye, Evans 1976).

It seems that there is little doubt about the gender of potters in the Early Neolithic, since non-specialised household production tends to correlate with the involvement of women in the potter's craft. But what about the initial stages of specialisation, presumed for the Late Neolithic? Again, ethnoarchaeological research can be applied to answer this question. A rough division of craft production between non-specialised = female and specialized = male seems to be too simplified. Ethnoarchaeological and ethnographic research in Africa showed that female potters can be specialists at the household level of specialization. In such cases a small number of women is involved in the potter's craft, producing pottery for wider distribution outside their households; they are part-time potters also involved in agriculture and other domestic activities, with potting carried out within the household as a part of the domestic routine (Dietler, Herbich 1989: 148–150; Eldridge 1991: 716; Frank 1994; Beier 1980: 48). Thus, specialised production at the household level tends to be connected

with female potters, thereby suggesting the gender of Late Neolithic potters.

Concluding remarks

The role of pottery ethnoarchaeology is, as has been shown, very important in Neolithic pottery studies. However, only a limited number ethnoarchaeological topics of potential use in the interpretation of Neolithic life have been explored here, with the aim of highlighting aspects of research neglected in Neolithic archaeology of the Central Balkans and to open new questions for future elaboration. More interdisciplinary research is needed to draw final conclusions, especially regarding the organisation of pottery production and its relationship with the wider social organisation of Neolithic communities.

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CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

902(4-12)(082)
39(4-12)(082)

INTERNATIONAL Conference Traditional Pottery
Making from the
Ethnoarchaeological Point of View (1 ; 2011 ;
Beograd)

Traditional Pottery Making from the
Ethnoarchaeological Point of View : scientific
research and Safeguarding of Intangible Heritage : :
: proceedings of the First International Conference,
Belgrade, [10th to 12th June] 2011. / [editor Biljana
Djordjević]. - Belgrade : National Museum, 2014
(Belgrade : Publikum). - 217 str. : ilustr. ; 30 cm

Tekst štampan dvostubačno. - Tiraž 500. -
Napomene i bibliografske
reference uz radove. - Bibliografija uz svaki rad.

ISBN 978-86-7269-161-0

a) Археологија - Југоисточна Европа - Зборници
b) Етнологија -
Југоисточна Европа - Зборници

COBISS.SR-ID 212159756





ISBN 978-86-7269-161-0



9 788672 691610