
TIPOLOŠKE I STILSKE KARAKTERISTIKE KERAMIČKIH NALAZA RANOG NEOLITIKA IZ KONJEVRATA

THE TYPOLOGICAL AND STYLISTIC CHARACTERISTICS OF THE EARLY- NEOLITHIC POTTERY FOUND IN KONJEVRATE

U radu su predstavljene tipološke i stilske karakteristike keramičkih nalaza ranog neolitika iz Konjevrate. Riječ je o keramičkim nalazima otkrivenim na nalazištu ranog neolitika smještenom neposredno uz crkvu sv. Ivana, na mjestu današnjeg groblja u Konjevatima. Istraživanja pod vodstvom M. Menđušića provedena su 1988. – 1990. i 1998. godine. Keramički materijal pohranjen je u Muzeju grada Šibenika, a pripada tipičnom repertoaru kulture *impresso* keramike. Na temelju stilsko-tipološke analize i radiokarbonskih datuma moguće ga je pripisati samom početku ranog neolitika istočnog Jadrana.

Cljučne riječi: rani neolitik, Konjevrate, srednja Dalmacija, kultura *impresso* keramike, keramika

This paper presents the typological and stylistic characteristics of the Early-Neolithic pottery finds from Konjevrate. The pottery was found at the Early-Neolithic site located in the immediate vicinity of the St. John's Church, at the present-day cemetery in Konjevrate. The excavation campaigns of 1988-1990 and 1998 were led by M. Menđušić. The ceramic material belongs to the typical repertoire of the Impressed Ware culture. It is stored in the Šibenik City Museum. Based on the stylistic and typological analyses and radiocarbon dating, it can be attributed to the very beginning of the Early Neolithic of the Eastern Adriatic.

Key words: Early Neolithic, Konjevrate, Central Dalmatia, Impressed Ware culture, pottery

UVOD

Neolitičko nalazište u Konjevratima arheološkoj je javnosti poznato gotovo tri desetljeća.¹ Za njegovo otkriće najzaslužniji je fra Milan Ujević, veliki zaljubljenik u arheologiju i nekadašnji župnik u Konjevratima. On je 1988. godine prikupio arheološki materijal otkriven prilikom kopanja grobnica pokraj tamošnje crkve sv. Ivana te o tome obavijestio tadašnjeg kustosa prapovijesne zbirke Muzeja grada Šibenika Marka Menđušića koji je proveo istraživanja 1988. – 1990. i 1998. godine. Od otkrića i istraživanja nalazišta do danas prikupljena arheološka građa, međutim, nije cjelovito i sustavno obrađena ni publicirana.² Ovaj rad posvećen je samo jednoj kategoriji nalaza s tog nalazišta, onoj keramičkoj.³ Riječ je o ukupno 9658 keramičkih ulomaka nad kojima su provedene tipološka i stilska analiza. Time je obrađena cjelokupna keramička građa prikupljena od otkrića i prvog istraživanja nalazišta 1988. do zadnjih istraživanja provedenih 1998.⁴ Važno je naglasiti kako prilikom iskopavanja u Konjevratima nije vršeno prosijavanje. Shodno zastarjeloj metodologiji iskopavanja, sveukupnu količinu prikupljenog materijala treba uzeti s rezervom.

Kroz četiri istraživačke kampanje istraženo je ukupno 160 – 175 m² na užem području oko crkve.⁵ Riječ je o segmentu jednog jednoslojnog naselja ranog neolitika. Veći dio tog nalazišta uništen je uslijed ukopavanja grobnica ukolo crkve te prilikom recentnih obrada zemljišta. Prema dostupnim podacima, evidentno je da se ispod humusnog sloja debljine 25-30 cm nalazi sterilna zdravica. U sterilnu zdravicu na jednom je istraženom dijelu nalazišta ukopan (polu)zemunički objekt dubine 70-90 cm.⁶ Objekt nije otkriven niti istražen u cijelosti.⁷ Valja naglasiti da većina otkrivene građe potječe upravo iz zapune ukopanog objekta, čak 95 %, dok

INTRODUCTION

The archaeological public has been familiar with the Neolithic site in Konjevrate for almost three decades.¹ Most of the credits for its discovery go to Friar Milan Ujević, a big archaeology enthusiast and former parish priest in Konjevrate. He was the one to collect the archaeological material found during grave-digging work carried out by the side of the local St. John's Church. He also notified of the find the then curator of the Prehistoric Collection of the Šibenik City Museum, Marko Menđušić, who would carry out the excavations between 1988 and 1990 and in 1998. However, no complete and systematic analysis of the archaeological evidence found so far has been made or published since the discovery and excavations.² This paper is dedicated to only one category of the finds from the site – the pottery.³ Accounting for all the ceramic finds collected between the discovery of the site and the first excavation campaign (1988-1990) and the last campaign (1998), it includes a total of 9,658 ceramic fragments that have undergone typological and stylistic analyses.⁴ Importantly, no sifting was done during the excavations in Konjevrate. As the excavations were done using an obsolete methodology, we cannot be certain about the exact quantity of the material collected.

The overall area of approx. 160-175m² was explored in four campaigns in the immediate vicinity of the church.⁵ It is a segment of a single-layered early Neolithic settlement. Most of the site was destroyed by grave-digging activities around the church and by recent tilling. According to the available information, it is clear that a sterile soil lies underneath the 25-30cm-thick humus layer. A 70-90cm-deep (semi)dugout-like structure is cut into the sterile soil in one of the explored areas of the site.⁶ The structure has only been partially explored so far.⁷ We should point out here that most of the discovered material comes from the backfill

1 M. Menđušić, 1990.

2 Osim keramičkog materijala na nalazištu u Konjevratima otkriven je jedan kameni žrvanj, jedna koštana alatka (usporediti bilješku 10) i velika količina lomljenog litičkog materijala. Obrada i objava litičkog materijala je u tijeku (S. Kačar /u tisku/; N. Mazzucco *et al.*, 2018).

3 Ovaj rad temelji se na diplomskom radu pod naslovom *Stilske i tipološke karakteristike keramičkih nalaza ranog neolitika iz Konjevrate*, autorice M. Korić. Rad pod mentorstvom izv. prof. dr. sc. Daria Vujevića obranjen je 26. ožujka 2018. na Odjelu za Arheologiju Sveučilišta u Zadru.

4 Osim dnevnika iskopavanja, fotodokumentacije i crtežne dokumentacije, u pisanju rada korištena su dva preliminarne izvještaja (M. Menđušić 1990; 1999) i dva članka preglednog karaktera (M. Menđušić, 1998; 2005). Emilu Podrugu, kustosu Muzeja grada Šibenika, zahvaljujemo na ustupljenim podacima i mogućnosti objave keramičkog materijala te na pomoći i sugestijama pri pisanju rada.

5 Gotovo sve istražene sonde smještene su južno od crkve (sonda bb, sonde I – VIII), dok su se sonda IX i jedna sonda bez oznake nalazile nešto zapadnije. U potonjim sondama utvrđeni su isključivo sterilni slojevi. Točne dimenzije istraženih površina zbog nepodudarnih podataka u dnevniku iskopavanja nije moguće utvrditi.

6 Osim od istraživača nalazišta (M. Menđušić, 1998), ovaj je objekt obrađen u sklopu članka posvećenog neolitičkim nepokretnim nalazima na šibenskom području (E. Podrug, 2013, 192-194).

7 E. Podrug, 2013, 192.

8 Ukopani objekt otkriven je u sondi bb, te sondama I – III. Valja napomenuti kako u postotak ulaze i pojedini nalazi iz humusnog sloja u neposrednoj blizini ukopanog objekta, s obzirom na to da nalazi unutar sondi nisu odvajani po kontekstu (unutar ili izvan ukopanog objekta).

1 M. Menđušić, 1990.

2 In addition to the ceramic material, the Konjevrate finds include one grindstone, one bone tool (cf. note 10) and a large quantity of flaked stone artefacts. The analysis and publishing of the lithic material is in the process (S. Kačar /soon to be printed/; N. Mazzucco *et al.*, 2018).

3 This paper is based upon M. Korić's graduation thesis entitled *Typological and stylistic characteristics of ceramic finds from the early Neolithic site Konjevrate*. Under the mentorship of Associate Professor Dario Vujević, PhD, the thesis was defended at the Department of Archaeology of the University of Zadar on 26 March 2018.

4 Besides the excavation logs, photographs and drawings, two preliminary reports (M. Menđušić 1990; 1999) and two review articles (M. Menđušić, 1998; 2005) were used for this paper. We are particularly indebted to Emil Podrug, curator at the Šibenik City Museum, for allowing us to use the information about and publish the ceramic material, as well as for the assistance and suggestions given during the writing of the paper.

5 Almost all explored trenches are located south of the church (Trench bb, Trenches I – VIII), and Trench IX and one undesignated trench are located to the west. Only sterile soil was found in the latter ones. Due to disparate data in the excavation log, the exact dimensions of the explored areas cannot be established.

6 Besides by the leader of the excavations at the site (M. Menđušić, 1998), this structure was also analyzed by the author of an article dedicated to the immovable Neolithic finds in Šibenik area (E. Podrug, 2013, 192-194).

7 E. Podrug, 2013, 192.

je u okolnom devastiranom humusnom sloju otkriveno svega 5 % materijala od ukupne građe. Iskopavanje je provedeno prema standardima arbitrarnog pristupa, s otkopnim slojevima debljine 15-25 cm. Kako je depozit potpuno koherentan, odnosno u cijelosti pripada jednoj fazi kulturnog razvoja ranog neolitika, strategija istraživanja i metoda iskopavanja ne utječu na analizu prikupljenog keramičkog materijala. Razlike u karakteru i/ili funkciji keramičkih nalaza otkrivenih unutar i izvan ukopanog objekta nisu evidentirane. Naprotiv, usporedba prikupljenog keramičkog materijala potvrđuje potpunu ujednačenost tehnoloških, stilskih i tipoloških karakteristika cjelokupne prikupljene keramičke građe.

METODOLOŠKI PRISTUP

U analizu ukupno 9658 prikupljenih keramičkih ulomaka pripisanih ranom neolitiku, odnosno kulturi *impresso* keramike, zbog velike razlomljenosti nije uvršteno 1076 ulomaka. Provedene analize daju jasnu sliku njihovih tipoloških i stilskih karakteristika te omogućuju definiranje relativno kronološke pozicije neolitičkog nalazišta u Konjevratima i njegova relativno kronološkog odnosa prema drugim ranoneolitičkim nalazištima istočnog Jadrana.

Zbog izuzetne tehnološke ujednačenosti, umjesto konvencionalne podjele na grubu i finu keramiku, keramička građa iz Konjevrate podijeljena je na ukrašenu i neukrašenu keramiku. Keramika je izrađena od gline s većom količinom primjesa među kojima dominira smrvljeni vapnenac, a rjeđe je zastupljen i usitnjeni kalcit.⁹ Primjese se podjednako naziru na vanjskim i na unutarnjim površinama stijenki, kao i u njihovom presjeku. Glačanje nije provedeno s namjerom postizanja sjaja, već običnog poravnanja stijenki.¹⁰ Kao posljedica nedovoljnog ili nemarnog glačanja na nekim se ulomcima naziru neravnine. One se naziru na obje površine stijenke, bez obzira na to radi li se o ukrašenim ili o neukrašenim ulomcima. Na manjem broju ulomaka sačuvan je premaz od pročišćene razrijeđene gline koji je nanošen u svrhu sprječavanja poroznosti posude i olakšavanja glačanja. Boja stijenki varira isključivo u nijasama smeđih tonova. Vanjska i unutarnja površina stijenke na većini su ulomaka ujednačene boje, ali ima i primjeraka kod kojih je vanjska površina svjetlija, a unutarnja tamnija. Na vanjskim površinama manjeg broja posuda izmjenjuje

of the dugout-like structure – as much as 95%⁸ – while only 5% of the material was discovered in the devastated humus layer around. The excavations were carried out arbitrarily; the excavated layers were 15-25cm thick. As the deposit is fully coherent – entirely belonging to a single phase of the cultural development of the Early Neolithic – the research strategy and excavation method have no effect on the analysis of the ceramic material collected. No differences in the character and/or function of the pottery found inside and outside the dugout have been established. Conversely, comparison of the individual pieces of the ceramic material confirms a total uniformity of the technological, stylistic and typological characteristics of the entire ceramic material collected.

METHODOLOGICAL APPROACH

Due to their very small size, 1,076 fragments were not included in the overall number of 9,658 analyzed specimens attributed to Early Neolithic (Impressed ware culture). The analyses provided a very clear picture of typological and stylistic characteristics and thus enabled defining of the relative chronological position of the Early Neolithic site in Konjevrate and the relative chronological relation between this site and other Early Neolithic sites in Eastern Adriatic.

Due to its exceptional technological uniformity, the Konjevrate ceramic material cannot be conventionally divided into coarse and fine pottery; instead, it is divided into decorated and undecorated pottery. The ceramics are made from clay with substantial quantity of admixtures – mostly crushed limestone, but fine calcite can also be found.⁹ The admixtures are equally visible on inner and outer surfaces of vessel walls. Polishing was done not to achieve a luster, but merely to smoothen up the walls.¹⁰ As a result of insufficient or inadequate polishing, uneven areas can be seen on some fragments. They are visible on both surfaces of the wall, regardless whether a fragment is decorated or undecorated. A slip made of purified and diluted clay – applied in order to prevent the vessel's porosity and facilitate polishing – has been preserved on a few

9 Ukupno 25 keramičkih ulomaka s neolitičkog nalazišta u Konjevratima uključeno je u analizu petrografskih i mineraloških karakteristika koju je provela M. Spataro. Rezultati analize potvrđuju da su za njihovu izradu korišteni lokalni izvori sirovine bliski po sastavu (M. Spataro, 2002, 104-113).

10 S obradom, tj. glačanjem moguće je povezati jednu koštanu alatku. Radi se o djelomično sačuvanoj glačalici dužine 4,4 cm. Sačuvan je distalni kraj alatke s lučnim, koso zasječenim vrhom. Tragovi brušenja mogu se uočiti na čitavoj dužini vanjske strane te djelomično s unutrašnje. Na desnoj je strani unutrašnje površine dio dijafize kosti zasječen, što može predstavljati tragove rezanja iz prve faze izrade koštanog alata. S obzirom na to da nedostaje proksimalni dio alatke, nije moguće odrediti o kojoj se kosti radi, osim da pripada skupini cjevastih kostiju.

8 The dugout structure was discovered in Trench bb and in Trenches I – III. It should be noted here that the percentage includes individual finds from the humus layer in the immediate vicinity of the structure, bearing in mind that the finds within individual trenches were not grouped by their context (inside or outside the dugout).

9 A total of 25 pottery fragments from the Neolithic site in Konjevrate underwent the petrographic and mineralogical analysis carried out by M. Spataro. The results of the analysis confirm that local raw materials with similar chemical composition were used for this pottery (M. Spataro, 2002, 104-113).

10 A bone tool can be associated with the processing – polishing – of this vessels. It is a partially preserved, 4.4cm-long polisher. The distal end of the tool, with an arched, canted point. Traces of grinding can be seen along the entire length of the outer surface and on parts of the inner side. On the right side of the inner surface, part of the bone's diaphysis is cut; this could be a trace of cutting from the first phase of the bone tool's making. As the proximal part of the tool is missing, we cannot make an accurate identification of the bone. We can only tell it is a tubular bone.

se nekoliko različitih nijansi smeđe boje, što je posljedica različitog dotoka zraka pri pečenju. U presjeku posuda debljih stijenki rijetko su ujednačeni tonovi, što upućuje na niske temperature i kratak vremenski period pečenja. Potvrda tome su fragmenti kaolinita koji se ne mogu sačuvati ako je posuda pečena na temperaturi višoj od oko 500-600 °C.¹¹

Tipološki i stilski odredivo je 4963 ili oko 51 % ukupne keramičke građe. Riječ je o ulomcima oboda, dna, ručki i ukrašenim stijenkama posuda. Osim posuda, evidentirane su jedna keramička žlica te tri ulomka kojima nije moguće utvrditi točan oblik ni funkciju.

Kod stilske analize pažnja je posvećena tehnikama ukrašavanja i raznovrsnim motivima. Na temelju motiva, odnosno predmeta korištenih pri njihovom izvođenju, izdvojene su sljedeće tehnike ukrašavanja: utiskivanje, urezivanje, ubadanje, štipanje i ukrasi izvedeni drugim tehnikama. Postotak zastupljenih tehnika nije ujednačen.

TIPOLOŠKA ANALIZA

Keramičke posude

Na temelju sačuvanih tipoloških ulomaka izdvojeni su sljedeći oblici keramičkih posuda: lonci, zdjele, tanjuri i šalice.¹² Zbog velike fragmentiranosti statistički odnosi zastupljenih oblika nisu utvrđeni.

Lonci se javljaju u sljedećim varijantama:

- ovalni lonci otvora u ravnini s trbuhom (T. I, 1-4)
- ovalni lonci uvučenog otvora (T. I, 5-6).

Promjer njihova otvora iznosi između 20 i 30 cm, a dna su isključivo ravna.

Među zdjelama izdvojene su sljedeće kategorije i varijante:

- konične zdjele široka otvora (T. II, 1-4; 7-8; T. III, 1-2) i ponekad blago izvijenog oboda (T. II, 5-6)
- kuglaste zdjele s izrazito uvučenim gornjim dijelom (T. III, 3-4)
- duboke zdjele izduženog tijela, blago uvučenog otvora (T. III, 5-6; T. IV, 1-3)
- bikonične zdjele (T. IV, 4-5)
- zdjela uvučenog gornjeg dijela, cilindričnog niskog vrata i ravnog oboda (T. IV, 6).

Prosječni promjer otvora zdjela iznosi između 15 i 25 cm. Među izdvojenim kategorijama zdjela prevladavaju kuglaste i konične, dok su bikonične zdjele iznimno rijetke. Duboke zdjele blago uvučenog otvora od sličnih lonaca razdvojene su na temelju manjeg promjera otvora. Zdjela uvučenog gornjeg dijela koji blago prelazi u niski cilindrični vrat jedini je takav primjerak zabilježen na ovom nalazištu (T. IV, 6). Tipološki je bliska formama kasnog neolitika.¹³

fragments. The colors on walls are all shades of brown. On most fragments, the inner and outer wall surfaces are of an identical color, but there are specimens with lighter outer surface and darker inner surface. A few vessels have outer surfaces with several various shades of brown – a result of varying air inflow during firing. Uniform shades are seldom visible in cross-sections of vessels with thick walls, which indicates low temperatures and short firing periods. Fragments of kaolinite are evidence of it, because they cannot endure the firing temperatures of 500-600 °C.¹¹

The typology and style of 4,963 specimens (51% of the overall ceramic material) can be established. These are fragments of rims, bases and handles and decorated vessel walls. In addition to the vessels, one ceramic spoon and three fragments of undeterminable shapes and functions were also recorded.

The stylistic analysis was particularly focused on decoration techniques and diverse motifs. Based on the motifs – and the tools used for their execution – the following decoration techniques were identified: impressing, incision, stitching, pinching and others. These techniques are represented in varying percentages.

TYOLOGICAL ANALYSIS

Ceramic vessels

Based on the typological fragments preserved, the following shapes of ceramic vessels were identified: pots, bowls, plates and cups.¹² Due to the very small size of the fragments, the percentage share of each shape was not established.

The following sub-types of pots are found:

- oval pots with mouth flush with belly (Pl. I, 1-4),
- oval pots with inverted mouth (Pl. I, 5-6).

The diameters of their mouths vary between 20 and 30cm. Bases of all of them are flat.

As regards the bowls, the following categories and sub-types are found:

- conical bowls with wide mouths (Pl. II, 1-4; 7-8; Pl. III, 1-2) and – sometimes – slightly curved rims (Pl. II, 5-6),
- globular bowls with their upper part markedly inverted (Pl. III, 3-4),
- deep bowls with elongated bodies and slightly inverted mouths (Pl. III, 5-6; Pl. IV, 1-3),
- biconical bowls (Pl. IV, 4-5),
- bowls with inverted upper parts, cylindrical low necks and flat rims (Pl. IV, 6).

On average, the diameters of the bowls' mouths vary between 15 and 25cm. Predominant among the sub-categories of the bowls are globular and conical bowls;

11 M. Spataro, 2002, 104-113.

12 Tipovi posuda navedeni su prema: P. M. Rice, 1987, 211-222.

13 Š. Batović, 1979, T. XCV, 8.

11 M. Spataro, 2002, 104-113.

12 Vessel types specified according to P. M. Rice, 1987, 211-222.

Šalicama su pripisane posude manjih dimenzija i tanjih stijenki od prethodnih kategorija posuda. Osim koničnih i polukuglastih (T. IV, 9), javljaju se šalice blago uvučenog gornjeg dijela.

Skupini tanjura pripisan je samo jedan ulomak od kojeg je sačuvano ravno dno koje prelazi u izrazito otvoreni recipijent (T. V, 2).

Na temelju raspoloživa materijala izdvojeno je nekoliko vrsta dna: ravna dna, konkavno udubljena dna te prstenaste i cilindrične noge. Ravna dna javljaju se u dvije varijante: s ravno odrezanim krajevima (T. V, 1-2) i ona dodatno proširena dodavanjem gline po rubovima (T. V, 3-4). Obje varijante uglavnom se mogu povezati s loncima. Konkavno udubljena dna najčešće pripadaju zdjelama, jednako kao što je to slučaj i sa prstenastim (T. V, 5) i cilindričnim nogama (T. V, 6) kakve su tipične u srednjem neolitu istočnog Jadrana.

Od ručki su najbrojnije trakaste, modelirane apliciranjem dužih ili kraćih traka gline na stijenku posude (T. VI, 4-5). Postavljene su vertikalno ili horizontalno, najčešće na središnjem dijelu posude, te sačinjavaju 79 % od ukupno 56 fragmentirano ili cjelovito sačuvanih ručki. Ručkama izvedenim perforiranjem zadebljane stijenke (tzv. subkutane ručke) pripada 21 % od ukupnog broja. One nisu morale isključivo služiti kao ručke, već i kao ušice za provlačenje konopa. Osim jedva naznačenih perforiranih zadebljanja (T. VI, 1-2), javljaju se i veća zadebljanja polukružnog presjeka (T. VI, 3). Većina je horizontalno postavljena i to pretežito na zdjelama.

Među keramičkim materijalom iz Konjevrate evidentirana je i jedna bradavičasta aplikacija (T. XI, 3). S obzirom na male dimenzije, vjerojatno je imala dekorativnu ulogu.

Kružne perforacije, promjera oko 5 milimetara, evidentirane su na ukupno 11 keramičkih ulomaka iz Konjevrate. Perforirane su s unutarnje ili s obje strane stijenke prije pečenja, a smještene su ispod oboda (T. II, 7) ili na donjem dijelu posude. Kroz perforacije izvedene na gornjem dijelu posude mogao se provući tanji konop za vješanje ili prijenos posude. Funkcija perforacija izvedenih na donjem dijelu posude vjerojatno je bila drugačija. One su mogle biti korištene za izlivanje tekućine.¹⁴

OSTALI KERAMIČKI PREDMETI

Osim posuda, među keramičkim materijalom iz Konjevrate izdvojene su jedna žlica i tri ulomka kojima nije moguće utvrditi točan oblik. Od keramičke žlice sačuvana je samo cilindrična drška koja prelazi u konkavno oblikovan recipijent (T. XI, 2). Izrađena je od pročišćene gline. Ona je najstariji do sad poznati primjerak keramičke žlice u neolitu istočnog

biconical ones are very rare. Deep bowls with slightly inverted mouths have smaller mouth diameters than the pots similar to them. A bowl with an inverted upper part slightly transitioning to a low cylindrical neck is the only such specimen found at this site (Pl. IV, 6). Typologically, it resembles the forms typical of the Late Neolithic.¹³

Some vessels have smaller dimensions and thinner walls than the above mentioned categories. These vessels were identified as cups. In addition to conical and semi-globular ones (Pl. IV, 9), cups with slightly inverted upper part can also be found.

Only one fragment was identified as belonging to a plate. Only a flat bottom transitioning to a markedly open receptacle has been preserved (Pl. V, 2).

Several types of vessel bases were identified in the available ceramic material: flat bases, concave bases, ring feet and cylinder feet. Flat bases come in two sub-types: those with ends cut in straight line (Pl. V, 1-2) and those widened by adding clay on the edges. The concave bases usually belong to bowls, and so do the ring feet (Pl. V, 5) and cylinder feet (Pl. V, 6) typical of the Middle Neolithic of Eastern Adriatic.

As regards the handles, strap handles account for the most of them. They were modelled by applying long or short straps of clay on a vessel wall (Pl. VI, 4-5). Positioned vertically or horizontally, usually on the central section of a vessel, they account for 79 percent of a total of 56 fragmented or completely preserved handles. The handles executed by perforating the thickened walls (so-called subcutaneous handles) account for the remaining 21 percent of them. They did not necessarily serve as handles only – they could have been used as string holes, too. Besides barely visible perforated thickenings (Pl. VI, 1-2), more pronounced thickenings with semi-circular section can also be found (Pl. VI, 3). Most of the handles are horizontal, usually on bowls.

One appliqué wart (Pl. XI, 3) was also found in the Konjevrate ceramic material. Considering that it is rather small, it probably had a decorative purpose.

Circular perforations with a 5mm-diameter were found on 11 ceramic fragments from Konjevrate. They were perforated before firing from the inside or from both sides of the wall; they are located underneath the rim (Pl. II, 7) or on the lower part of the vessel. A thin string could have been threaded through the perforated holes on the vessel's upper part in order to hang or transport the vessel. The perforations on the lower part probably had another purpose. They could have been used for pouring the liquid contained in the vessel.¹⁴

13 Š. Batović, 1979, Pl. XCV, 8.

14 Š. Batović, 1966, 60; B. Marijanović, 2009, 72.



Slika 1. Četvrtasti recipijent iz Konjevrate

Figure 1. Square-shaped receptacle from Konjevrate

foto / photo: M. Parica

12

Jadrana.¹⁵ Naime, sve ostale dosad otkrivene keramičke žlice pripadaju srednjem i kasnom neolitiku.¹⁶

Od klasičnog keramičkog repertoara ranog neolitika odudara i ulomak male noge (T. XI, 1). Izrađena je od dobro pročišćene gline. Visine je 2 cm, dok njezin promjer iznosi 1,5 cm. Kojoj vrsti predmeta pripada, nije moguće odrediti, iako tipološki nalikuje nogama kulturnih ritona na četiri noge,¹⁷ a u manjoj mjeri i donjem dijelu ranoneolitičke antropomorfne figurine iz Pokrovnika.¹⁸

Oblikom, obradom površine i pažljivo izvedenim ukrašom od svih ostalih keramičkih nalaza iz Konjevrate razlikuje se fragmentirani recipijent na nozi četvrtastog presjeka (Sl. 1; T. XII; T. XIII). Izrađen je od pročišćene gline sa sitnim primjesama usitnjenog vapnenca i kalcita. Zbog neujednačenog pečenja na njegovim unutarnjim i vanjskim površinama fino uglačanih stijenci izmjenjuje se više nijansi smeđe boje. Od sačuvane noge recipijent se konično širi do otvora koji završava ravnim obodom. Sudeći prema promjeru otvora, vjerojatno je riječ o recipijentu koji je originalno stajao na tri noge, iako nije posve isključeno ni da su u pitanju četiri noge. Recipijent je bogato ukrašen urezivanjem, utiskivanjem i bijelom inkrustacijom sačuvanom tek djelomično. Ukrašena je cijela vanjska površina, osim unutarnje strane noge. Plitkim urezivanjem oštrog instrumenta pažljivo su

OTHER CERAMIC ITEMS

In addition to ceramic material, the Konjevrate collection includes a spoon and three fragments the exact shape of which was not possible to establish. Only a cylindrical handle transitioning to a concave receptacle remains of the spoon (Pl. XI, 2). It is made of purified clay. It is the oldest known specimen of ceramic spoon in the Neolithic of Eastern Adriatic.¹⁵ All other ceramic spoons discovered so far belong to the Middle and Late Neolithic.¹⁶

A fragment of a small foot (Pl. XI, 1) also stands out from the classical ceramic repertoire of the Early Neolithic. Made of purified clay, it is 2cm high and has a 1.5cm diameter. It is not possible to establish to what type of implement it belonged, although there is a typological resemblance to the feet of four-footed rhyton used for cult purposes;¹⁷ to a lesser extent, it also resembles the lower part of the Early Neolithic anthropomorphic figurine from Pokrovnik.¹⁸

Distinctive by its shape, finely worked surface and refined decorations, a fragmented receptacle with a square-section foot (Fig. 1; Pl. XII; Pl. XIII) stands apart among all other Konjevrate pottery finds. Made of purified clay, it contains admixtures of fine limestone and calcite. Due to uneven firing, several alternating shades of brown can be seen on both inner and outer surfaces of its well-polished walls. From its preserved foot, the receptacle conically widens to a mouth ending with a flat rim. Based on the mouth diameter, it was probably a receptacle that originally stood on three feet, although we cannot rule out the possibility

15 Na nalazištu Crno vrilo evidentiran je sličan keramički ulomak. Međutim, zbog njegove fragmentiranosti tipološku interpretaciju treba uzeti s velikom rezervom (B. Marijanović, 2009, T. XXVI, 7).

16 K. Horvat, 2015.

17 Š. Batović, 1979, T. LXXXV.

18 A. M. T. Moore *et al.*, 2007, fig. 7.

15 Similar ceramic fragment was found at Crno vrilo site. However, due to its small size, its typological interpretation should be taken with reserve (B. Marijanović, 2009, Pl. XXVI, 7).

16 K. Horvat, 2015.

17 Š. Batović, 1979, Pl. LXXXV.

18 A. M. T. Moore *et al.*, 2007, fig. 7.

izvedene kose paralelne linije koje tvore mrežu sastavljenu od rombova. Preko rombova prelaze četiri paralelna vodorravna niza izvedena utiskivanjem ruba narebrne školjke, vjerojatno čančice. Utisci su raspoređeni u polja rombova iz čijih okvira ponegdje izlaze, zbog čega se stječe dojam da je potonji ukras izveden s manjom preciznošću od ukrasa izvedenog urezivanjem. Analogija konceptijskoj jedinstvenom ukrasu na kojem je kombinirana tipična *impresso* tehnika s bijelom inkrustacijom i karakterističnim danilskim motivom romba u neolitiku istočnog Jadrana zasad nema. Tipološki, gotovo su mu istovjetni fragmentirano sačuvani recipijenti na tri i četiri noge iz Pokrovnika, koji su prema istraživaču tog nalazišta protumačeni kao žrtvenici.¹⁹ Osim dobro poznatih žrtvenika stračevačkog tipa,²⁰ diljem jugoistočne Europe i Bliskog istoka evidentirani su brojni četvrtasti recipijenti na više nogu tipološki bliski primjerku iz Konjevrate.²¹ Međutim, osim primjeraka iz Pokrovnika, izravnu analogiju primjerku iz Konjevrate ne predstavlja ni jedan od njih.

STILSKA ANALIZA

Kako je ranije navedeno, keramička građa iz Konjevrate podijeljena je u dvije kategorije: ukrašenu i neukrašenu keramiku. Omjer navedenih kategorija gotovo je ujednačen. Prvoj pripada 49 %, a drugoj 51 % od ukupnog broja analiziranog keramičkog materijala (Sl. 2). Ukras je izveden isključivo na vanjskoj površini stijenke. Prema sačuvanim ulomcima evidentno je da se pretežito ukrašavala čitava vanjska površina posuda, rjeđe samo predio trbuha i/ili vrata. Iznimno rijetko ukras je izveden na ručkama i/ili obodu.

Od tehnika ukrašavanja zastupljene su: utiskivanje, ubadanje, urezivanje, štipanje i ukrasi izvedeni drugim tehnikama. Kombiniranje različitih tehnika iznimno je rijetko. Utiskivanje je najzastupljenija tehnika ukrašavanja, dok su motivi izvedeni urezivanjem, ubadanjem, štipanjem i drugim tehnikama ukrašavanja sekundarne pojave ukrasnog sustava ranoneolitičkog nalazišta u Konjevratima (Sl. 2).

UTISKIVANJE

Utiskivanje različitih instrumenata

33 % ukrašene keramike iz Konjevrate predstavljaju ulomci na čijim se stijenjkama izmjenjuju dublji i plići otisci kružnih, četvrtastih i trokutastih oblika izvedeni utiskivanjem raznovrsnih unaprijed pripremljenih ili priručnih drvenih, koštanih i/ili kremenih predmeta (Sl. 2). Ti su ukrasi najčešće raspoređeni u horizontalne i vertikalne nizove koji prekrivaju cijelu vanjsku površinu posude ili samo trbuh posude.

that it could have had four feet. It is richly decorated by incision, impressing and with only partly preserved white incrustation. The entire external surface is decorated, except the inner side of the foot. By using a sharp instrument, shallow diagonal parallel lines were carefully made in such way so as to form a network of rhombs. Crossing the rhombs are four parallel horizontal arrays made by impressing the edge of a ribbed shell, probably cockle. The impressions are distributed in the rhombic fields and occasionally protrude from them. As a result, it seems that the latter decoration was executed with less precision than the decoration executed by incision. No analogies to this conceptually unique decoration that combines the typical *impresso* technique with white incrustation and rhomb motif characteristic for Danilo Culture have been found in Eastern Adriatic yet. Typologically, the fragmented three-footed and four-footed receptacles from Pokrovnik – interpreted by the researcher of that site as altars – are almost identical to it.¹⁹ Besides the well-known altars of the Starčevo type,²⁰ numerous square-shaped receptacles with multiple feet, typologically close to the Konjevrate specimen, have been recorded in Southeastern Europe and Middle East.²¹ However, apart from the Pokrovnik specimens, not one of them can be seen as a direct analogy with the Konjevrate specimen.

STYLISTIC ANALYSIS

As we have mentioned earlier, the Konjevrate ceramic material is divided in two categories: decorated and undecorated ceramics. The share of each category is almost the same: 49% and 51%, respectively, of a total number of the ceramic material analyzed (Fig. 2). The decorations are executed on the external surface of the wall only. The preserved fragments clearly indicate that entire external surface of a vessel would usually be decorated; only rarely would it be decorated partially (belly and/or neck). Very rarely, the decoration can be found on the handles and/or rim.

The following decoration techniques are represented: impressing, stitching, incision, pinching and other techniques. Combinations of these techniques are very rare. The most frequent technique is impressing. Motifs were executed by incision, stitching, pinching and other decorating techniques belonging to the secondary phenomena of the decorating system of the Early Neolithic site in Konjevrate (Fig. 2).

19 Valja naglasiti da je istoj skupini nalaza u Pokrovniku na osnovu fature, tipologije i ukrasa pripisano i nekoliko nogu (Z. Brusić, 2008, 47-48, T. XLVII, 1, 2; T. XLVIII, 2-4, 6-7).

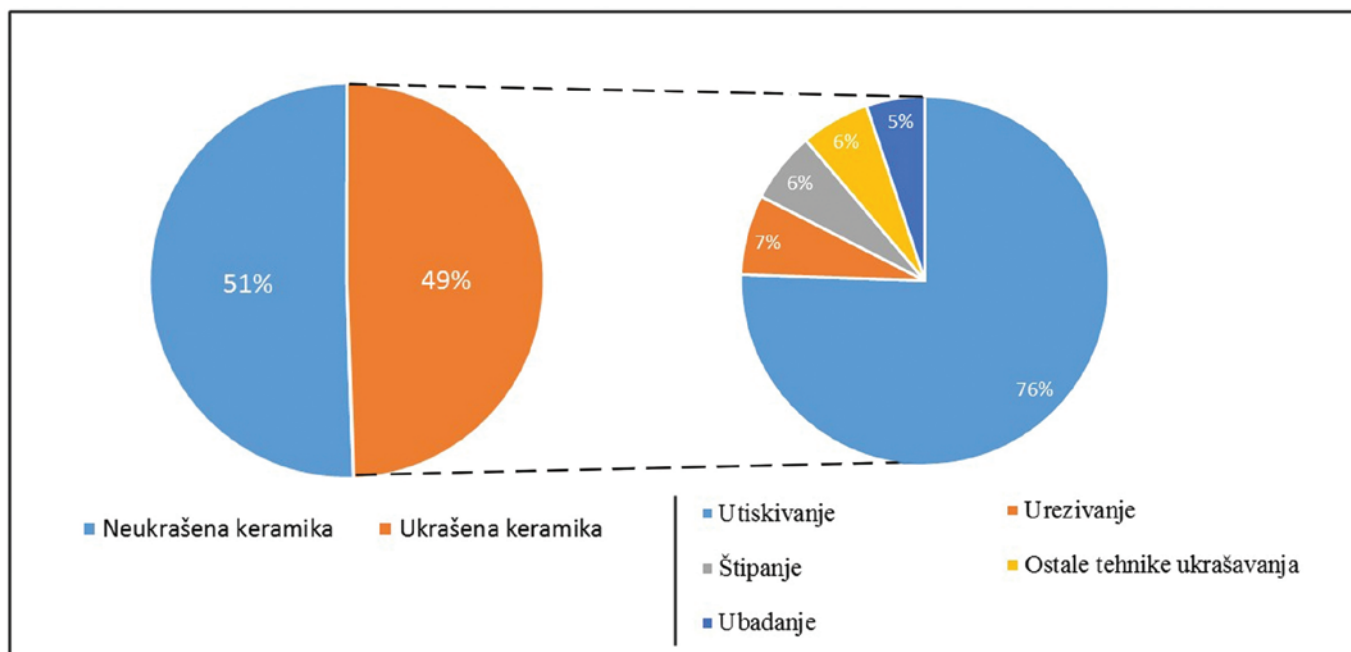
20 K. Minichreiter, 2002; A. Benac, 1973.

21 E. Bánffy, 1997; H. Todorova, 2003, fig. 9; H. Schwarzberg, 2005; 2006; G. Naumov et al., 2009, T. 87-88, sl. 8.3.5; B. Marijanović, 2012, 43.

19 It should be pointed out that a few receptacle feet have also been attributed to the Pokrovnik finds, based on their fabric, typology and decorations (Z. Brusić, 2008, 47-48, Pl. XLVII, 1, 2; Pl. XLVIII, 2-4, 6-7).

20 K. Minichreiter, 2002; A. Benac, 1973.

21 E. Bánffy, 1997; H. Todorova, 2003, fig. 9; H. Schwarzberg, 2005; 2006; G. Naumov et al., 2009, Pl. 87-88, fig. 8.3.5; B. Marijanović, 2012, 43.



Slika 2. Omjer ukrašene i neukrašene keramike i zastupljenost tehnika ukrašavanja

Figure 2. Ratio of decorated and undecorated pottery and shares of decorating techniques

izradila / made by: M. Korić

14

Samo kod jednog ulomka je, osim na vanjskoj stijenci, ukras te vrste izveden i na obodu (T. VII, 1). Ulomci kod kojih je utiskivanje izvedeno bez unaprijed određene kompozicije vrlo su rijetki, kao i oni kod kojih utisci formiraju određeni motiv poput trokuta (T. VII, 2). Manjom količinom zastupljeni su i primjeri na kojima se može uočiti komponiranje motiva u režnjeve, koji se razlikuju orijentacijom samih motiva (T. VII, 4). Posebnu skupinu čine ulomci na kojima se izmjenjuju duboki i gusto zbijeni utisci povezani u neku vrstu paralelnih linija. Reljefni, vrlo pažljivo izveden ukras (T. X, 4) vjerojatno je izveden gustim i preciznim utiskivanjem nekog predmeta u glinu.

Utiskivanje školjaka

U kvantitativnom smislu za prethodnom skupinom ukrasa tek neznatno zaostaje ukras izveden utiskivanjem školjaka (oko 32 %). U toj skupini ukrasa razlikujemo utiskivanje izvedeno nenarebrenim i narebrenim školjkama. Ukrasi izvedeni utiskivanjem nenarebrene školjke karakteristični su po lučnom obliku. Prema motivima, evidentno je da su utisci izvedeni na nekoliko načina. Prvu vrstu motiva tvore nepovezani otisci nenarebrenih školjaka poredani u horizontalne ili vertikalne nizove (T. VII, 6). Otisci su često međusobno odvojeni jedan od drugoga. Rjeđe su u pitanju gusto zbijeni otisci izvedeni bez međuprostora (T. VIII, 1). Na rijetkim primjercima kompozicija je gotovo kaotična s isprepletenim nizovima otisaka različitih orijentacija. Rub

IMPRESSING

Impressing of various instruments

The fragments containing deep and shallow impressions of round, square and triangular shapes executed by impressing various special or everyday wooden, bone and/or flint-stone objects (Fig. 2) account for 33 percent of the decorated pottery from Konjevrate. These decorations are usually arranged in horizontal and vertical arrays covering the entire external surface of a vessel or only its belly. Only one fragment contains such decoration not only on the external wall, but also on the rim (Pl. VII, 1). The fragments on which impressing was executed without choosing a pattern in advance are very rare, and so are those on which impressions form triangular motifs (Pl. VII, 2). The specimens on which motifs are composed in lobes – differing by the orientation of these motifs – are also not particularly numerous (Pl. VII, 4). A special group contains fragments with alternating deep and densely grouped impressions connected in some sort of parallel lines. The relief decoration, very carefully executed (Pl. X, 4), was probably made in such way that an object was impressed in clay densely and with precision.

Impressions made with shells

Accounting for approx. 32 percent of the overall finds, the decorations executed by impressing shells are only slightly lagging behind the above mentioned group of decorations. There are two subtypes of the shell-made decorations: those made using non-ribbed shells and those made using ribbed shells. The decorations made with non-ribbed shells have a distinctive arched shape. The motifs indicate that the impressions were made in a number of ways. The first group of motifs includes unconnected impressions made with non-ribbed shells, arranged in horizontal or

školjke uglavnom je jednolično utisnut, pa motivi rijetko variraju u svojoj formi. Iznimku predstavlja nekolicina ulomaka s dvodijelnim lučnim otiskom (T. VII, 5). Svaki pojedinačni otisak je jednoličan te je nesumnjivo izveden u jednom potezu. Iako nalikuju otiscima nenarebrenih školjaka napuknutog kraja, moguće je i da su izvedeni nekim drugim, nama nepoznatim instrumentom. Sljedećoj skupini ukrasa pripadaju otisci nenarebrenih školjaka međusobno spojenih na jednom, a razmaknuti na drugom kraju (T. VII, 3). Motivi imaju karakterističan izgled slova „V“, ponekad preklopljenog. Osim u vertikalne redove, motivi izvedeni na taj način mogu biti i sučelice postavljeni. Najdekorativnijoj skupini ukrasa izvedenih utiskivanjem nenarebrenih školjki pripadaju cik-cak trake nastale međusobnim spajanjem krajnjih dijelova ruba školjke (T. VII, 7). Kao i u prethodnim primjerima, otisci su raspoređeni u paralelno koncipirane nizove prema vodoravnoj ili dijagonalnoj osi, a u rijetkim slučajevima otisci se preklapaju ili su raspoređeni u gusto zbijene linije koje čine svojevrsan mrežasti motiv.

Ukrasi izvedeni rubom narebrenih školjke komponirani su istovjetno onima izvedenim utiskivanjem ruba nenarebrenih školjke. Riječ je o vodoravnim redovima, cik-cak linijama, rjeđe gusto zbijenim otiscima bez određenog reda (T. VIII, 2, 7).

Ovoj skupini također se može pripisati nekoliko primjeraka ukrašenih horizontalnim nizovima ovalnih, rebrastih otisaka (T. X, 6). Vjerojatno je riječ o ukrasu izvedenom utiskivanjem kućice puža.

Utiskivanje prsta/nokta

Po zastupljenosti, ova je tehnika ukrašavanja na trećem mjestu u skupini ukrasa izvedenih utiskivanjem. Ukrasi izvedeni utiskivanjem nokta prepoznaju se po kratkim, zaobljenim i relativno plitkim udubljenjima na površini posude. U najvećem broju slučajeva radi se o gusto zbijenim, horizontalnim nizovima otisaka koji prekrivaju čitavu površinu, od oboda do dna (T. IV, 10; T. VIII, 5). Rjeđe se javljaju vertikalni nizovi ili otisci različitih orijentacija.

Ukrasi izvedeni utiskivanjem prsta, s druge strane, ostavljaju dublja i šira udubljenja na površini posude. Načela komponiranja ukrasnih motiva gotovo su identična kao i kod utiskivanja nokta. Osim utiskivanja prsta, evidentirani su i ulomci na kojima je ukras izveden blagim povlačenjem prsta po površini (T. VIII, 4). Zanimljiv je jedan ulomak posude gdje je ovom tehnikom ukrašen i sam obod, što je rezultiralo svojevrsnim reljefnim ukrasom (T. VIII, 6). Na jednom ulomku utiskivanje prsta kombinirano je sa štipanjem (T. VIII, 3).

Štipanje

Ukrasi izvedeni tehnikom štipanja nisu osobito brojno zastupljeni u ukrasnom sustavu Konjevratu (Sl. 2). Međutim, zbog svojevrsnog reljefnog ukrasa oni su vrlo dekorativni. Kao i kod utiskivanja prsta i nokta, ukras izveden štipanjem

vertical arrays (Pl. VII, 6). The impressions are often separated from each other. Densely made impressions with no space between them are rather rare (Pl. VIII, 1). Few are the specimens with a chaotic composition consisting of intertwined arrays of impressions of various orientations. As shell-edge impressions are mostly identical, the motifs rarely vary in form – the exception being a few fragments decorated with two-part arched impressions (Pl. VII, 5). Every individual impression is the same – undoubtedly they were all made with a single motion of the hand. Although they look like having been made with a shell with a broken edge, it is possible that they were made with some other, unknown instrument. The second group of decorations includes the impressions made with non-ribbed shells connected on one side and spaced out on the other (Pl. VII, 3). Characteristically, the motifs are V-shaped. The “V” is sometimes overlapped. These motifs are found arranged in vertical arrays as well as opposing each other. The most decorative group of impressions made with non-ribbed shells includes the zig-zag ribbons created by interconnecting the most extreme points of a shell’s edge (Pl. VII, 7). As in the above mentioned examples, the impressions are arranged in horizontal or diagonal parallel arrays; only rarely they overlap or are arranged in dense lines forming a network-like pattern.

The decorations made with the edge of a ribbed shell are arranged in the same way as those impressed using non-ribbed shells: in horizontal arrays, in zig-zag lines and – rarely – densely arranged with no visible pattern (Pl. VIII, 2, 7).

A few specimens decorated with horizontal arrays of oval, ribbed impressions (Pl. X, 6) can also be classified in this group. This type of impressions was probably made with a snail’s shell.

Impressions made with finger/nail

The specimens decorated using this technique are the third most numerous ones among the impressed ware. The decorations made with nail impressions are distinctive by their short, round and relatively shallow recesses on a vessel’s surface. In most cases, vessels are decorated with dense horizontal arrays of impressions covering the entire surface, from the rim to the base (Pl. IV, 10; Pl. VIII, 5). Vertical arrays or impressions of various orientations are also found, but rarely.

On the other hand, the impressions made with a finger are deeper and wider. The composition of these motifs follows almost identical principles as of those impressed with a nail. There is also a number of fragments decorated by slightly pulling a finger along the surface (Pl. VIII, 4). Also interesting is a fragment with a rim decorated using this technique: a relief of a sort was thus created (Pl. VIII, 6). Combined finger impressions and pinching decorations can be seen on one fragment (Pl. VIII, 3).

može biti dublje ili pliće izveden, a ukrasi su komponirani u vertikalne nizove. Nemarno izvedeno štipanje evidentirano je na samo jednom ulomku (T. IX, 2). Iako djeluje kako je ovom vrstom ukrasa uglavnom prekrivena čitava površina posude, na jednom primjerku sa sačuvanim obodom nalazi se neukrašeni dio između samog oboda i početka ukrasa (T. IX, 1).

Urezivanje

Po zastupljenosti, tehnika urezivanja na drugom je mjestu u ukrasnom sustavu keramike iz Konjevrate (Sl. 2). Ukrasi su u toj kategoriji izvedeni na dva načina: urezivanjem oštih i urezivanjem tupih instrumenata. Potonji ukras često prodire dublje u površinu stijenke. Oštri rubovi slomljenih školjaka te kremene i koštane alatke samo su neki predmeti pogodni za izvođenje ove vrste ukrasa.

Kod urezivanja oštrim instrumentom motivi se sastoje uglavnom od jednostavnih kratkih ureza raspoređenih u horizontalne i vertikalne nizove (T. IV, 7) ili različito orijentirane ureze (T. IX, 3). Iznimku čini ulomak na kojem kratki, oštri urezi tvore geometrijsku kompoziciju (T. IX, 5). Na sačuvanom fragmentu posude može se razaznati oblik trokuta, no nije moguće odrediti cjelokupni izgled kompozicije.

Ukrasi izvedeni urezivanjem tupih instrumenata također se sastoje od snopova pravocrtnih linija koje pokrivaju čitavu površinu posude. Linije su raznih dubina i orijentacija, no sve tvore pravocrtnu motive (T. IX, 4).

Posebno je zanimljiv ulomak fine fature kod kojeg je ukras izveden utiskivanjem pravilnog izduženog instrumenta u horizontalnim nizovima koje obrubljuje linija izvedena urezivanjem oštrog instrumenta (T. IX, 6). Sam ukras izveden je iznimno detaljno i precizno, bez prelaženja okvira motiva. Sličan ukras izveden je na još jednom ulomku lošije fature od prethodno opisanog ulomka (T. X, 1).

Ubadanje

U kategoriju ukrasa izvedenih ubadanjem ubrojani su ulomci kod kojih su motivi izvedeni ubadanjem oštrog, šiljatog instrumenta u vanjsku površinu stijenke. Njihova je karakteristika veća dubina u odnosu na širinu izvedenog ukrasa/motiva. Riječ je o tehnici srodnoj utiskivanju zastupljenoj s oko 5 % (Sl. 2). Gusti ubodi najčešće su komponirani u paralelne linije (T. X, 2) ili su nasumično izvedeni. Osim jednoličnog ubadanja jedne strane jednog instrumenta, također su zastupljeni i ulomci posuda kod kojih je ukras izveden ubadanjem različitih dijelova jednog ili dvaju različitih instrumenata (T. X, 3). Tako se na manjem broju ulomaka uz okrugle ubode javljaju i oni četvrtastog oblika. Dinamičnosti kompozicije kod nekih je primjeraka pridonio drukčiji intenzitet ubadanja, posljedica čega je kombinacija plićih i dubljih uboda.

Pinching

The decorations done by pinching account for only a small share of the decorations on the Konjevrate pottery (Fig. 2). However, due the fact that they resemble a relief, they are very decorative. Like in the finger and nail impressing techniques, the decorations created by pinching can be deep or shallow and are arranged in vertical arrays. Inattentive pinching can be seen on only one fragment (Pl. IX, 2). The decorations of this type usually cover the entire surface of a vessel. However, on one specimen with a preserved rim, there is an undecorated part between the rim and the beginning of the decorated area (Pl. IX, 1).

Incision

The specimens decorated using the incision technique are the second most numerous ones among the Konjevrate pottery (Fig. 2). The decorations in this category are rendered in two ways: by using sharp instruments and blunt instruments. The latter ones often penetrate deeper into the wall's surface. Sharp edges of broken shells and flintstone and bone tools are but a few of the objects suitable for making such decorations.

The motifs made with a sharp instrument usually consist of simple short incisions arranged in horizontal and vertical arrays (Pl. IV, 7) or in incisions of various orientations (Pl. IX, 3). An exception here is a fragment with short, sharp incisions forming a geometrical composition (Pl. IX, 5). The shape of a triangle can be discerned on the preserved fragment of a vessel, but it is not possible to reconstruct the entire composition.

The decorations incised with blunt instruments also consist of bundles of straight lines covering the entire surface of a vessel. The lines have different depths and orientations, but they all form straight-line motifs (Pl. IX, 4).

Particularly interesting is a fragment with fine fabric, decorated by impressing a symmetrical, elongated instrument in horizontal arrays trimmed with a line incised using a sharp instrument (Pl. IX, 6). The decoration as such is rendered very minutely and accurately, without crossing the frame of the motif. A similar decoration can be found on another fragment, but the fabric of this fragment is of a lower quality (Pl. X, 1).

Stitching

The decorations from this category include the fragments with motifs executed by stitching. The stitching was done on the external surface of a vessel's wall, using a sharp, pointed instrument. Characteristically, the depth of these decorations/motifs is bigger than their width. This technique is similar to the impressing technique and it accounts for some 5 percent of the decorations on the Konjevrate pottery. The densely made stitches are usually arranged in parallel lines (Pl. X, 2) or randomly. Besides the monotonous stitching with only one side of one instrument, there

Ukrasi izvedeni drugim tehnikama

Tehniku ukrašavanja i način izvođenja ukrasa kod oko 6 % ukrašenih ulomaka s nalazišta u Konjevratima nije moguće sa sigurnošću utvrditi. Povlačenjem nekog instrumenta po površini stijenke posude ukrašena je mala količina ulomaka (T. X, 5, 7). Na temelju provedenog eksperimenta nije isključeno da je riječ o zubu preživača (Sl. 3). Na sljedećem primjeru ukras je mogao biti izveden povlačenjem poleđine narebrne školjke (T. X, 8). Tome odgovaraju pravilne paralelne linije slične morfologiji školjaka, što je također potvrđeno eksperimentom (Sl. 3).



Slika 3. Primjeri ukrašavanja povlačenjem životinjskih zubi i poleđine školjke

Figure 3. Examples of decorations rendered by pulling animal teeth and back of a shell

foto / photo: M. Korić

KULTURNI I KRONOLOŠKI ODNOSI

Po tipološkim i stilskim karakteristikama, keramička građa iz Konjevrata dobro se uklapa u sliku keramičke produkcije ranog neolitika istočnog Jadrana, poznatu po jednostavnim i malobrojnim oblicima, raznovrsnim tehnikama ukrašavanja i bogatstvu ukrasa.²² Tipološka skromnost u Konjevratima očituje se u dominaciji dubokih lonaca i koničnih zdjela, tipičnih tipoloških predstavnika kulture *impresso* keramike istočnog Jadrana, posebno njezinih ranijih razvojnih stupnjeva.²³ Uz navedene oblike, zastupljeni su i neki nestandardizirani oblici poput bikoničnih zdjela (T. IV, 4-5), zdjele uvučenog gornjeg dijela i cilindričnog niskog vrata (T. IV, 6) i cilindrične noge (T. V, 6). Riječ je o oblicima koji su u pojedinačnim primjercima evidentirani na brojnim ranoneolitičkim nalazištima,²⁴ a koji su uobičajena pojava srednjeg

are also fragments decorated by using various parts of a single instrument or two different instruments (Pl. X, 3). Thus, on a small number of fragments, square stitches can be found together with round stitches. In some specimens, the dynamic quality of the composition was achieved with different intensities of stitching, resulting in a combination of shallow and deep stitches.

Decorations executed using other techniques

In some 6 percent of the Konjevrate fragments, the technique used for their decorations cannot be established positively. A small number of fragments were decorated by pulling an unidentified instrument on their surface (Pl. X, 5, 7). Based on an experiment, it is possible that the instrument was actually a tooth of an herbivore (Fig. 3). The decoration on the next example could have been made by pulling the back of a ribbed shell (Pl. X, 8). The fact that the straight parallel lines resemble the morphology of shells corroborates the theory. It was also confirmed by an experiment (Fig. 3).

CULTURAL AND CHRONOLOGICAL RELATIONS

By its typological and stylistic characteristics, the Konjevrate ceramic material fits well in the picture of the pottery production of the Early Neolithic in Eastern Adriatic, known by its simple and scarce shapes, varied decoration techniques and numerous decorations.²² The typological scarcity of the Konjevrate material is reflected in the domination of deep pots and conical bowls – typical representatives of the impressed ware culture of Eastern Adriatic, particularly of the earlier phases of its development.²³ In addition to the above mentioned shapes, some other, non-standardized shapes such as biconical bowls (Pl. IV, 4-5), bowls with an inverted upper part and a cylindrical low neck (Pl. IV, 6) and cylindrical feet (Pl. V, 6) can also be found. These are the shapes observed on individual specimens found on numerous Early Neolithic sites,²⁴ typical of the Middle Neolithic in that region.²⁵ Interestingly, they appear throughout the Early Neolithic, not just in its final phases or, according to Š. Batović, in the Proto-Danilo phase.²⁶ Their occurrence is important for observing the typological compatibility of the impressed ware and Danilo culture pottery. In this context, the specimens attributed to the impressed ware culture should be observed as typological

22 Š. Batović, 1966, 58-68; 1979, 489-509; J. Müller, 1994, 77-86, 102-162; B. Čečuk – D. Radić, 2005, 71-77; Z. Brusić, 1995, 4-8; 2008, 38-46; B. Marijanović, 2005, 30-31; 2009, 63-92.

23 Š. Batović, 1979, 500, 504.

24 Š. Batović, 1966, T. XXVI, 2, 4; J. Champan *et al.*, 1996, fig. 136; B. Čečuk – D. Radić, 2005, T. 23, 3; Z. Brusić, 2008, T. XIII, 4; T. XX, 1; K. Horvat, 2015a, T. 4, 4; T. 6, 6.

22 Š. Batović, 1966, 58-68; 1979, 489-509; J. Müller, 1994, 77-86, 102-162; B. Čečuk – D. Radić, 2005, 71-77; Z. Brusić, 1995, 4-8; 2008, 38-46; B. Marijanović, 2005, 30-31; 2009, 63-92.

23 Š. Batović, 1979, 500, 504.

24 Š. Batović, 1966, Pl. XXVI, 2, 4; J. Champan *et al.*, 1996, fig. 136; B. Čečuk – D. Radić, 2005, Pl. 23, 3; Z. Brusić, 2008, Pl. XIII, 4; Pl. XX, 1; K. Horvat, 2015a, Pl. 4, 4; Pl. 6, 6.

25 J. Korošec, 1959, Pl. XLIX, 4; Pl. L, 1-2; Pl. LXXVI, 4; Pl. LXXXIV, 5-7; Pl. LXXXVI, 1-3; Pl. LXXXVII.

26 Š. Batović, 1979, 508-509, 560.

neolitika istog područja.²⁵ Zanimljivo je da se oni javljaju tijekom čitavog ranog neolitika, a ne samo u njegovim završnim razvojnim stupnjevima, odnosno, prema Š. Batoviću, protodanilskom stupnju.²⁶ Njihova je pojava važna u sagledavanju tipološke podudarnosti keramike *impresso* i danilske kulture. U tom kontekstu, primjerke pripisane kulturi *impresso* keramike treba promatrati kao tipološke uzore kasnijim danilskim formama, kod kojih su poznata i brojna tipološka variranja.²⁷

Stilski gledano, kod keramičke građe iz Konjevrate najzanimljiviji su odnos zastupljenih tehnika ukrašavanja te omjer ukrašene i neukrašene keramike. Čak 51 % prikupljenog keramičkog materijala ukrašeno je tipičnim *impresso* tehnikama, među kojima dominira tehnika utiskivanja sa 76 % (Sl. 2). Ta tehnika ukrašavanja javlja se kroz cijelu kulturu *impresso* keramike, ali je karakteristična za njezine rane razvojne stupnjeve.²⁸ O tome dobro svjedoče nalazišta pripisana upravo tim vremenskim odsjecima ranog neolitika poput Rašinovca²⁹ ili pećine Zemunice kod Biska³⁰. Utisci izvedeni različitim instrumentima na keramici s istih lokaliteta uglavnom su grupirani u višestruke vodoravne redove koje prekrivaju čitavu vanjsku površinu posude ili su raspoređeni kaotično bez reda po čitavoj vanjskoj površini posude, jednako kao što je to slučaj na keramici iz Konjevrate. Valja naglasiti da su na istim nalazištima slabo zastupljeni pravocrtni motivi izvedeni tehnikom urezivanja.³¹ Oni su učestaliji na nalazištima koja ne pripadaju samom početku kulture *impresso* keramike poput Crnog vrila,³² Smilčića³³ ili neolitičkog nalazišta na Gradini u Zemunik Donjem,³⁴ gdje su tom tehnikom ukrašavanja izvedeni linearni pravocrtni motivi nerijetko formirani u ukrasne kompozicije koje nalikuju danilskom ukrasnom sustavu.³⁵ Istovremeno s njima pojavljuju se i ulomci ukrašeni tremolom.³⁶ Na nalazištu u Konjevratima nije pronađen ni jedan ulomak ukrašen tremolo tehnikom, kao ni ukras izveden tehnikom urezivanja koji bi stilski bio blizak danilskim zonalnim ukrasnim koncepcijama. Moguće je stoga keramičke nalaze iz Konjevrate stilski povezati s nalazištima koja pripadaju početnim fazama kulture *impresso* keramike.

Po omjeru ukrašene i neukrašene keramike keramička građa iz Konjevrate gotovo je identična onoj u Rašinovcu i najranijim *impresso* slojevima u Pokrovniku. Zahvaljujući

role models for the subsequent Danilo forms characterized by numerous typological variations.²⁷

In terms of style, the most interesting feature of the Konjevrate ceramic material is the ratio between the decoration techniques as well as the shares of decorated and undecorated pottery. As much as 51 percent of the ceramic material collected was decorated using typical *impresso* techniques, the impressing technique being the most dominant among them (76 percent) (Fig. 2). This technique was present throughout the Impressed Ware culture, but is characteristic of its early developmental phases.²⁸ Evidence of it can be found in the sites associated with these periods of the Early Neolithic, such as Rašinovac²⁹ or Zemunica Cave near Bisko.³⁰ The impressions in ceramics made using various instruments and found on these sites are mostly grouped in multiple horizontal rows that cover the entire surface of a vessel or are scattered chaotically across the entire external surface, like in the case of the Konjevrate pottery. We should note here that not many incised straight-line motifs can be found on these sites.³¹ They are more frequent on the sites not belonging to the early periods of the impressed ware culture, such as Crno vrilo,³² Smilčić³³ or the Neolithic site at Gradina in Zemunik Donji.³⁴ On the pottery from these sites, this technique was used for rendering linear, straight-line motifs which often form decorative compositions resembling the Danilo decorative system.³⁵ At the same time, fragments decorated using tremolo technique also appear.³⁶ As no fragment decorated with this technique has been found in Konjevrate, and neither has the incised decoration the style of which would be close to the Danilo zonal decorative concepts, it is possible to associate the style of the Konjevrate pottery finds with the sites belonging to the early phases of the Impressed Ware culture.

When the ratio of decorated and undecorated pottery is observed, the Konjevrate pottery is almost identical to the one in Rašinovac and the earliest *impresso* layers in Pokrovnik. Thanks to the typological and stylistic analyses of the ceramic material and radiocarbon dating, the Neolithic site in Rašinovac was dated to the very beginning of the 6th millennium BC,³⁷ chronologically corresponding with the earliest *impresso* layers in Pokrovnik.³⁸ On the latter site, like in Konjevrate and Rašinovac, the percentage of

25 J. Korošec, 1959, T. XLIX, 4; T. L, 1-2; T. LXXVI, 4; T. LXXXIV, 5-7; T. LXXXVI, 1-3; T. LXXXVII.

26 Š. Batović, 1979, 508-509, 560.

27 Š. Batović, 1979, 540-547.

28 Š. Batović, 1979, 500.

29 E. Podrug *et al.*, 2017.

30 R. Šošić Klindžić *et al.*, 2015, 21.

31 R. Šošić Klindžić *et al.*, 2015, 21; E. Podrug *et al.*, 2017.

32 B. Marijanović, 2009, 76-77.

33 Š. Batović, 1966, 63-64.

34 B. Marijanović – K. Horvat, 2016, 52.

35 Š. Batović, 1979, 542-544.

36 Š. Batović, 1979, 506, 508; Z. Brusić, 2008, 45, 78-79; B. Marijanović – K. Horvat, 2016, 52.

27 Š. Batović, 1979, 540-547.

28 Š. Batović, 1979, 500.

29 E. Podrug *et al.*, 2017.

30 R. Šošić Klindžić *et al.*, 2015, 21.

31 R. Šošić Klindžić *et al.*, 2015, 21; E. Podrug *et al.*, 2017.

32 B. Marijanović, 2009, 76-77.

33 Š. Batović, 1966, 63-64.

34 B. Marijanović – K. Horvat, 2016, 52.

35 Š. Batović, 1979, 542-544.

36 Š. Batović, 1979, 506, 508; Z. Brusić, 2008, 45, 78-79; B. Marijanović – K. Horvat, 2016, 52.

37 S. McClure *et al.*, 2014, Pl. 1.

38 S. McClure *et al.*, 2014, Pl. 1.

stilsko-tipološkoj analizi keramičkog materijala i radiokarbonskim datumima, neolitičko nalazište u Rašinovcu pripisano je samom početku 6 tisućljeća pr. Kr.³⁷ te je vremenski izjednačeno s najranijim *impresso* slojevima u Pokrovniku.³⁸ Na potonjem nalazištu postotak ukrašenosti kao i kod Konjevrate i Rašinovca iznosi oko 50 %, a zatim ravnomjerno opada prema kraju ranog neolitika, odnosno srednjem neolitiku.³⁹ S tom promjenom, u ukrasnom sustavu kulture *impresso* keramike iz Pokrovnika sporadično se pojavljuju neki oblici tipični za danilsku kulturu, poput bikoničnih zdjela kakve su potvrđene i u Rašinovcu i u Konjevratima.

Osim podudarnosti stilskih i tipoloških karakteristika navedena tri lokaliteta također su i vremenski podudarna. Potvrđuju to tri nova radiokarbonska datuma zahvaljujući kojima je moguće vremenski datirati ukopani objekt iz Konjevrate, a samim time i nalaze prezentirane u ovom radu.⁴⁰ To je vrlo važno jer su dva ranije dobivena i objavljena datuma dala široke vremenske okvire koji prekrivaju i rani i srednji neolitik,⁴¹ unatoč činjenici da je sva prikupljena keramička građa iz Konjevrate pripisana ranom neolitiku. Ovdje valja naglasiti kako uzorci na kojima su temeljene starije analize potječu iz potpovršinskih slojeva, odnosno kontaktne zone između intaktnog sloja i recentnim obradama zemljišta uništenih slojeva.⁴² Upravo iz tog razloga prema dobivenim rezultatima zadržana je velika rezerva te je provedena nova analiza. Uzorci za nove analize potječu iz zapune (polu)zemuničkog objekta, odnosno iz intaktnog sloja u kojem je prikupljeno oko 95 % arheološkog materijala. S obzirom na siguran arheološki kontekst uzoraka i priličnu izjednačenost dobivenih datuma, istraženi dio ranoneolitičkog naselja u Konjevratima moguće je staviti u približan vremenski raspon između 5980 i 5730 god. pr. Kr.⁴³ Naravno, na temelju starijih radiokarbonskih datuma ne treba isključiti postojanje nalazišta srednjeg neolitika u blizini ranoneolitičke mikrolokacije ili čak zadržavanja tradicije kulture *impresso* keramike u razdoblju srednjeg neolitika,⁴⁴ što je posvjedočeno na zapadnoj obali Jadrana.⁴⁵ Realnu mogućnost postojanja nalazišta srednjeg neolitika u blizini ranoneolitičke pozicije u Konjevratima potvrđuju brojna

decorated fragments is around 50 percent. Then it evenly drops towards the end of the Early Neolithic – in other words, in the Middle Neolithic.³⁹ Parallel with this change, some shapes typical of the Danilo culture (such as the biconical bowls confirmed in Rašinovac and Konjevrate) sporadically appear in the decorative system of the Pokrovnik impressed ware culture.

The three above mentioned sites are comparable not only by the stylist and typological characteristics, but also by time periods. This was confirmed with three new radiocarbon datings that helped date the Konjevrate dugout structure and, automatically, the finds presented in this paper.⁴⁰ This is very important because two earlier datings were less accurate: their results stretched over both Early and Middle Neolithic,⁴¹ despite the fact that the entire archaeological evidence found in Konjevrate had been identified as belonging to the Early Neolithic. We should underline here that the samples on which these earlier analyses were based came from subsurface layers – in other words, from the contact zone between the intact layer and the layers recently destroyed by tilling.⁴² This is why the results obtained were taken with a big dose of salt and a new analysis was made. The samples used in the new analysis came from the backfill of the (semi)dugout structure, which means from the intact layer in which 95 percent of the archaeological evidence was excavated. Given the certainty of the archaeological context of the samples and the very similar dating results, the researched part of the Early Neolithic settlement in Konjevrate can be roughly dated the period between 5980 and 5730 BC.⁴³ Naturally, based on the earlier radiocarbon dates, we should not rule out the possibility that a Middle Neolithic site exists somewhere in the vicinity of the Early Neolithic microlocation or even that the tradition of the Impressed Ware culture was preserved in the Middle Neolithic,⁴⁴ for which evidence was found on western Adriatic coast.⁴⁵ Numerous Neolithic settlements in northern and central Dalmatia that thrived over two – or even all three – cultural phases of the Neolithic, confirm the possibility that a Middle Neolithic site exists in

37 S. McClure *et al.*, 2014, T. 1.

38 S. McClure *et al.*, 2014, T. 1.

39 S. McClure *et al.*, 2014, 1030, fig. 5.

40 Profesoric dr. sc. Sarah B. McClure, voditeljica znanstvenog projekta „Dairying, Transhumance and Environmental Impact/Resilience cultural and biological approaches to domestic animal management in Neolithic Dalmatia, Croatia“ (BCS-0422195) u okviru kojeg su dobiveni svi datumi iz Konjevrate, zahvaljujemo na mogućnosti korištenja podataka koji su u velikoj mjeri pridonijeli boljem sagledavanju i tumačenju keramičke građe iz Konjevrate.

41 S. McClure *et al.*, 2014, Pl. 1.

42 Sama činjenica da je datum dobiven na temelju uzorka iz „mladeg“ konteksta (otkopni sloj I; UCIAMS-116203) dao stariji datum (5629-5537 BC) od naizgled „starijeg“ konteksta (otkopni sloj III; UCIAMS-119838; 5218-5037 BC) potvrđuje da je riječ o uzorcima iz poremećenog/sekundarnog konteksta (S. McClure *et al.*, 2014, T. 1.).

43 S. B. McClure – E. Podrug – D. J. Kennett, 2018. Radiocarbon Dates from Konjevrate, Croatia. Dataset.doi: <https://doi.org/10.18113/S15S77>

44 S. B. McClure *et al.*, 2014, 1028.

45 J. Robb, 2007, 170.

39 S. McClure *et al.*, 2014, 1030, fig. 5.

40 We are particularly grateful to Professor Sarah B. McClure, PhD, head of the scientific project “Dairying, Transhumance and Environmental Impact/Resilience cultural and biological approaches to domestic animal management in Neolithic Dalmatia, Croatia” (BCS-0422195) as part of which all the Konjevrate datings were obtained, for allowing us to use the data that have provided a much better insight into and interpretation of the Konjevrate ceramic material.

41 S. McClure *et al.*, 2014, Pl. 1.

42 The very fact that the dating on the basis of a sample from a “later” context (excavated layer I; UCIAMS-116203) gave an earlier date (5629-5537 BC) than the seemingly “earlier” context (excavated layer III; UCIAMS-119838; 5218-5037 BC), confirms that the samples came from a disturbed/secondary context (S. McClure *et al.*, 2014, Pl. 1.).

43 S. B. McClure – E. Podrug – D. J. Kennett, 2018. Radiocarbon Dates from Konjevrate, Croatia. Dataset.doi: <https://doi.org/10.18113/S15S77>

44 S. B. McClure *et al.*, 2014, 1028.

45 J. Robb, 2007, 170.

neolitička naselja sjeverne i srednje Dalmacije na kojima se život odvijao tijekom dviju ili svih triju neolitičkih kulturnih faza.⁴⁶ Radi li se o istom slučaju i u Konjevratima, ostaje pitanje za neka nova istraživanja.

ZAKLJUČAK

Neolitičko nalazište u Konjevratima vrlo je važno u razmatranju ranog neolitika istočnog Jadrana, posebno njegovih početaka. Zahvaljujući stilsko-tipološkoj analizi i novim radiokarbonskim datumima, istražen dio ranoneolitičkog naselja zajedno s keramičkom građom moguće je pripisati početku 6 tisućljeća pr. Kr. Tipološki i stilski, keramička građa iz Konjevrata najbliža je keramičkom repertoaru iz Rašinovca i Pokrovnika. Osim tipološke skromnosti i velikog udjela ukrašene keramike, među keramičkim materijalom iz Konjevrata posebno je zanimljiva pojava nekih oblika tipološki bliskih danilskim formama, što ukazuje na njihov razvojni kontinuitet.

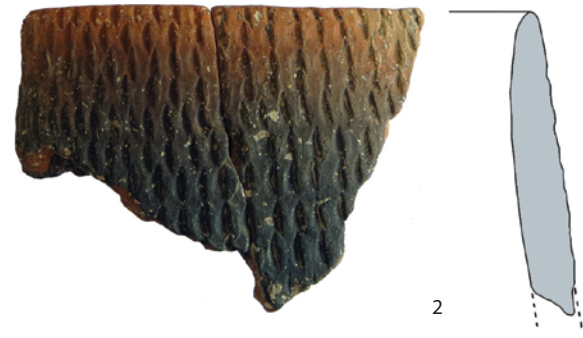
the vicinity of the Early Neolithic position in Konjevrate.⁴⁶ Is it the same case with Konjevrate – that is the question for some new research.

CONCLUSIONS

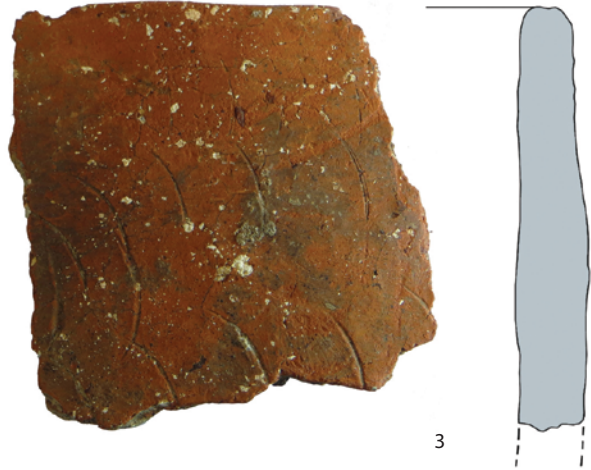
The Neolithic site in Konjevrate is very important for the study of the Early Neolithic in Eastern Adriatic, particularly of its beginnings. Owing to the stylistic and typological analyses and new radiocarbon dating, the explored part of the Early Neolithic settlement and its ceramic material can be dated to the early 6th millennium BC. In terms of its typology and style, the Konjevrate ceramic material resembles the most to the ceramic repertoire from Rašinovac and Pokrovnik. In addition to the modest typology and a large share of decorated pottery, particularly striking in the Konjevrate material are some shapes which are typologically similar to the Danilo.



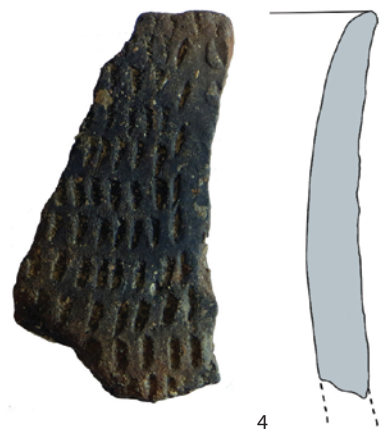
1



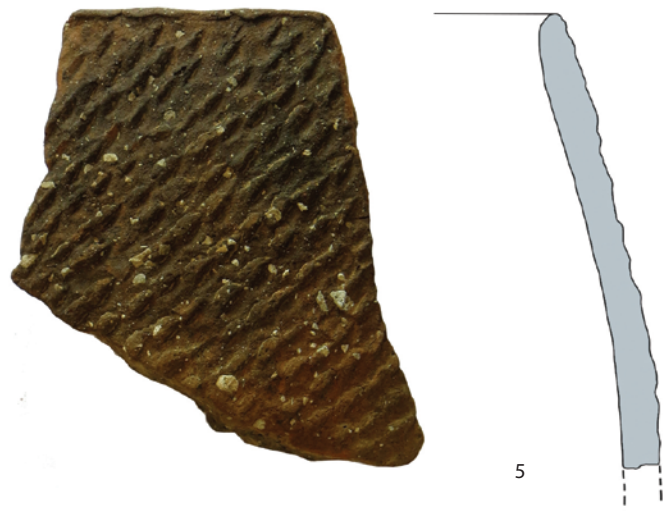
2



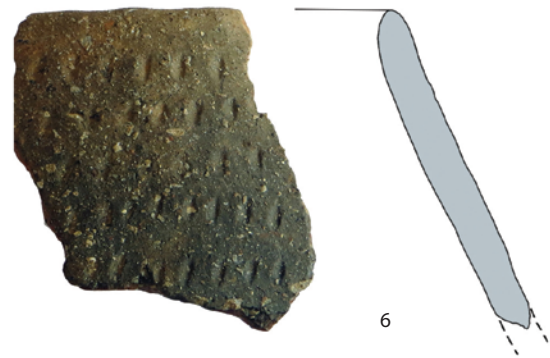
3



4



5

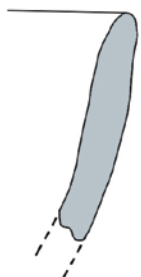


6

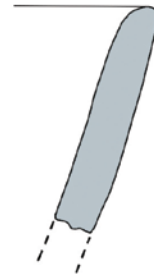




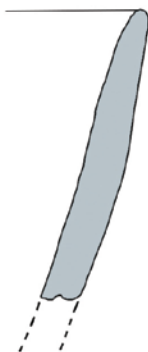
1



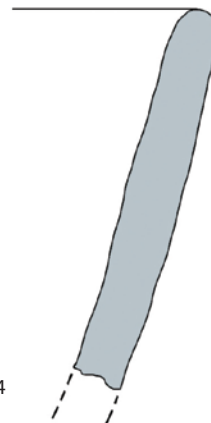
2



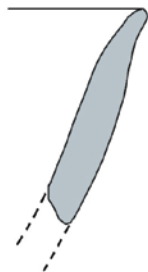
3



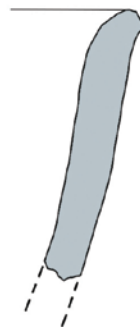
4



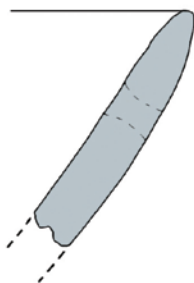
5



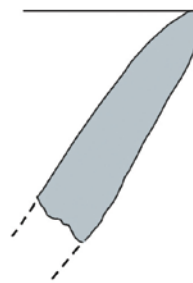
6



7



8



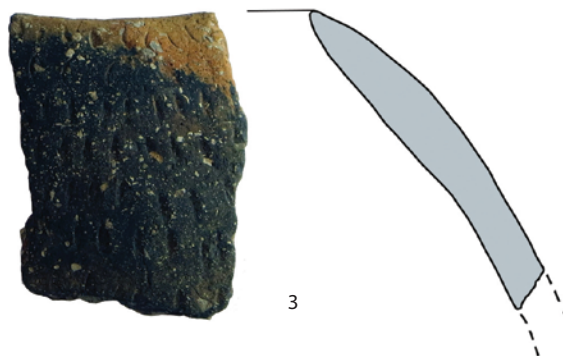
22



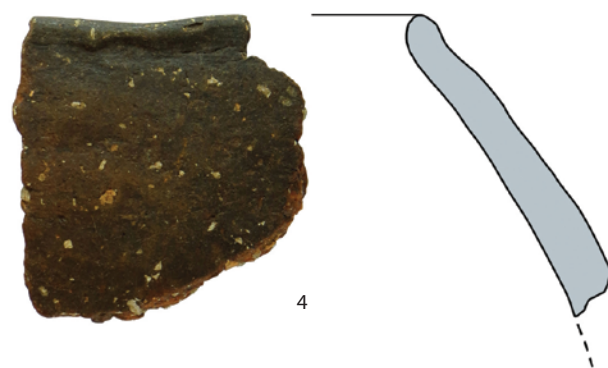
1



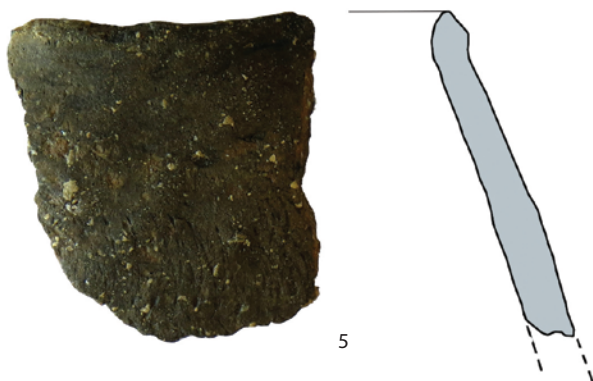
2



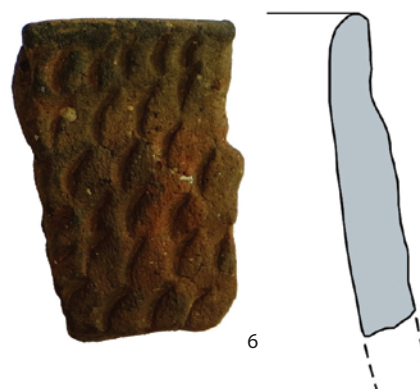
3



4

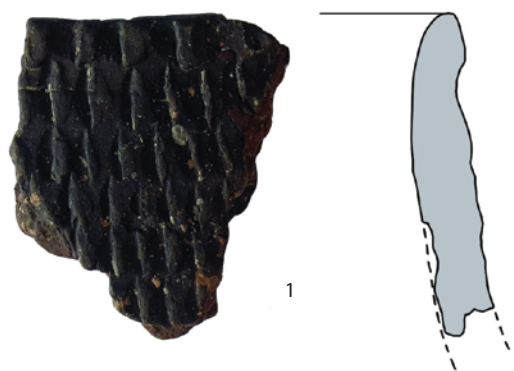


5

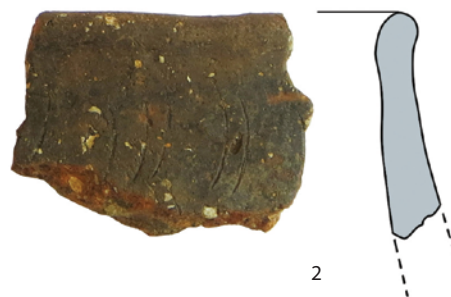


6





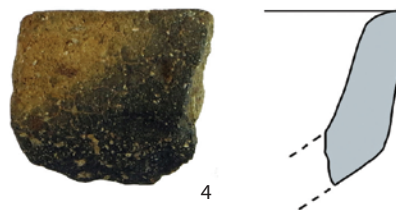
1



2

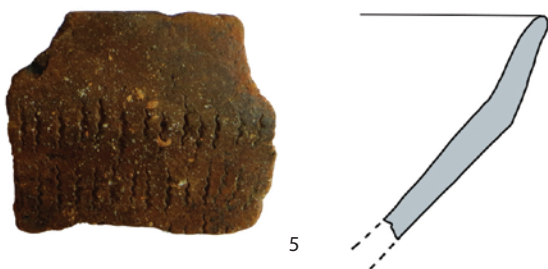


3

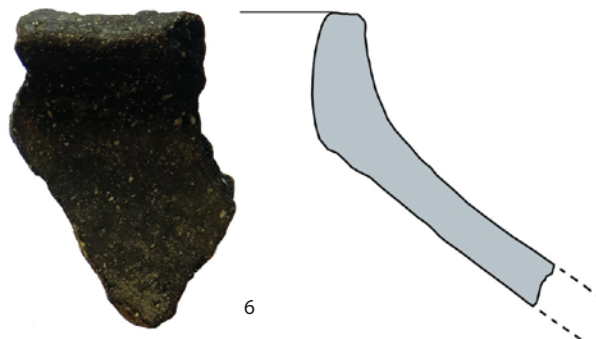


4

24



5



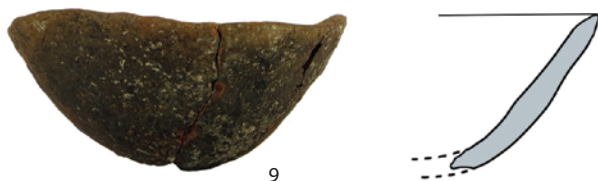
6



7



8

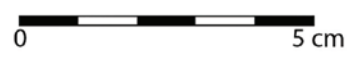
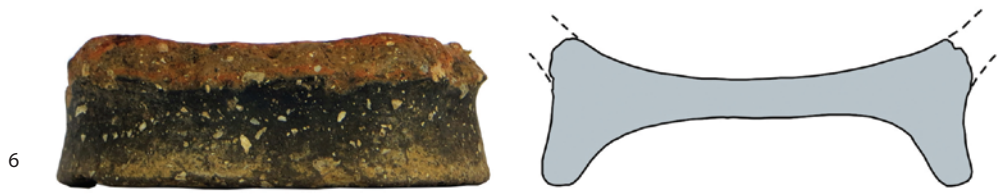
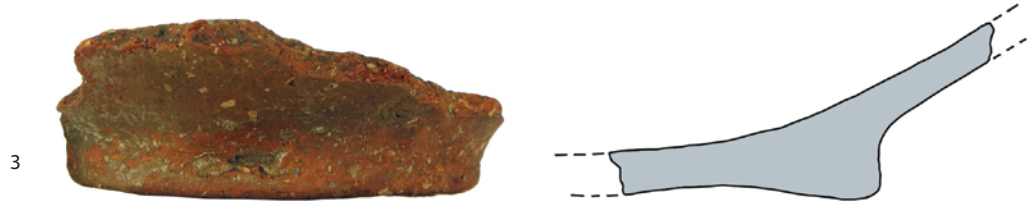
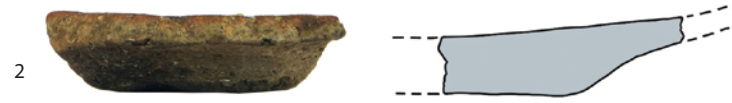
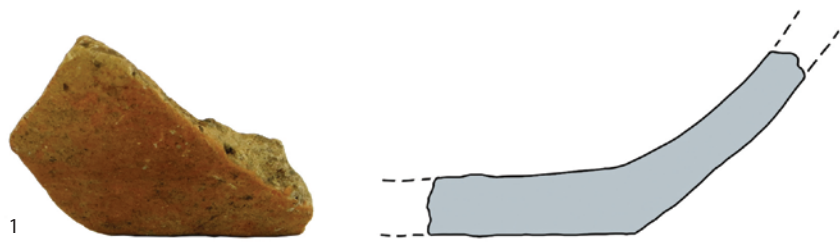


9



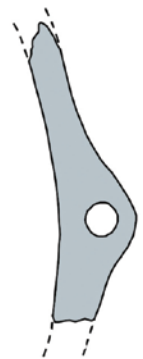
10







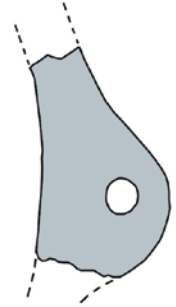
1



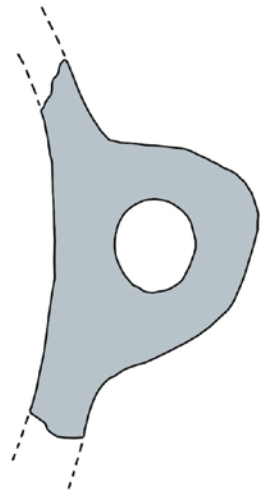
2



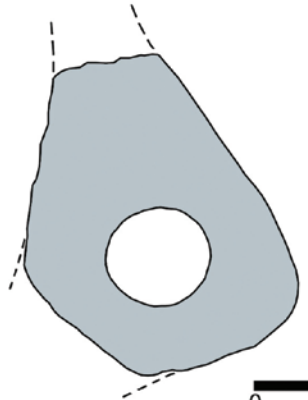
3



4



5





1



2



3



4



5



6



7

27





1



2



3



4



5



6

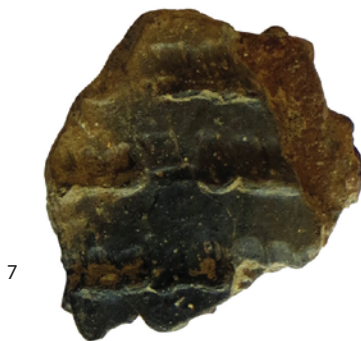
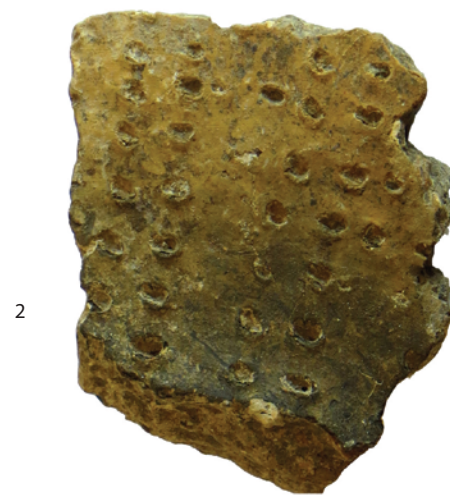
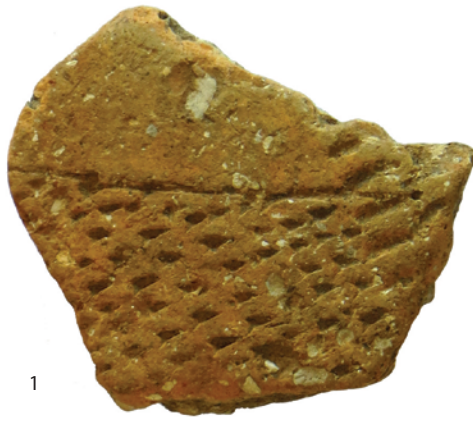


7

28







30



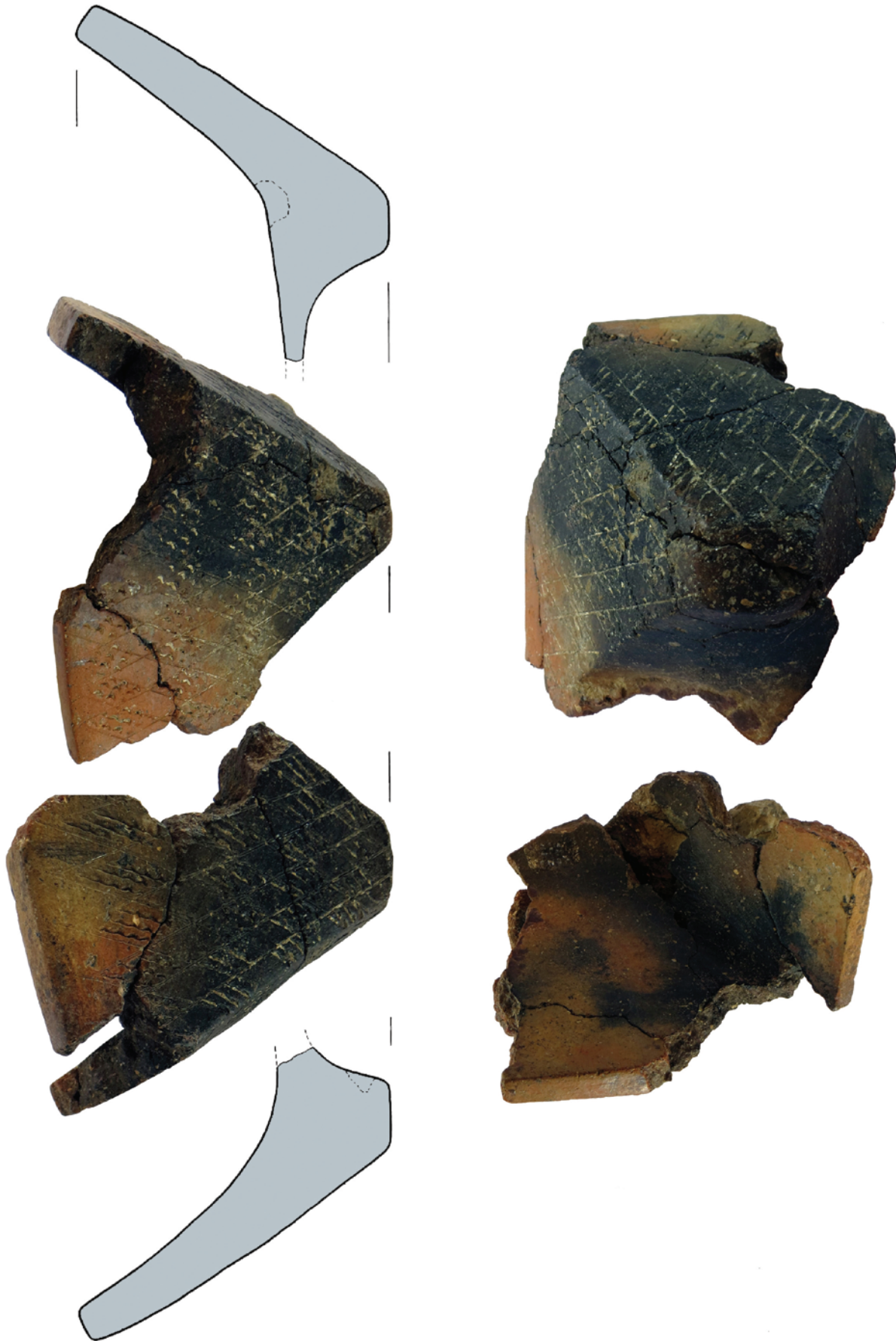
2

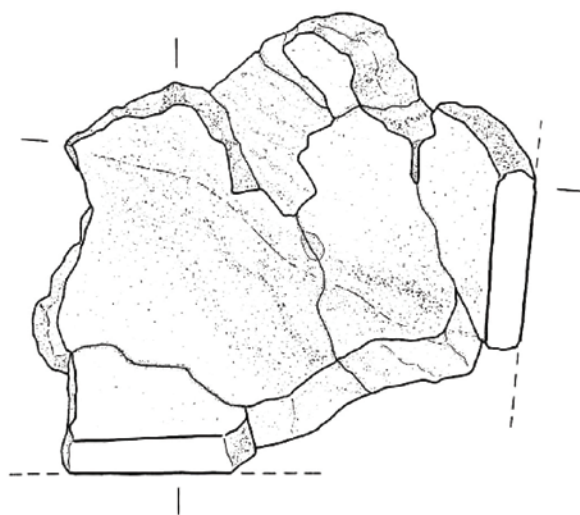
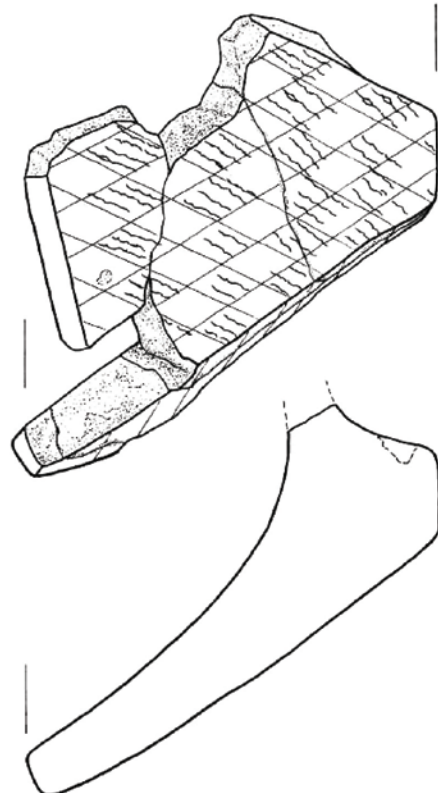
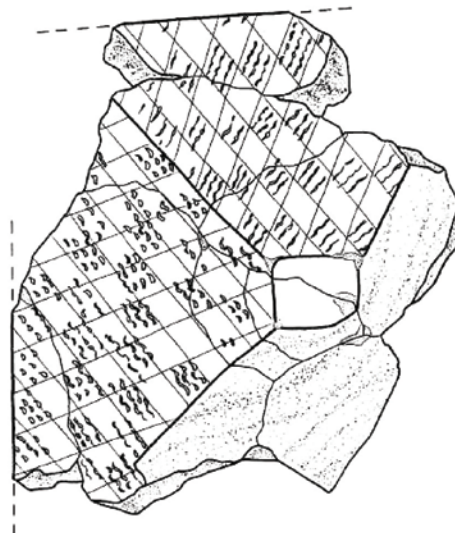
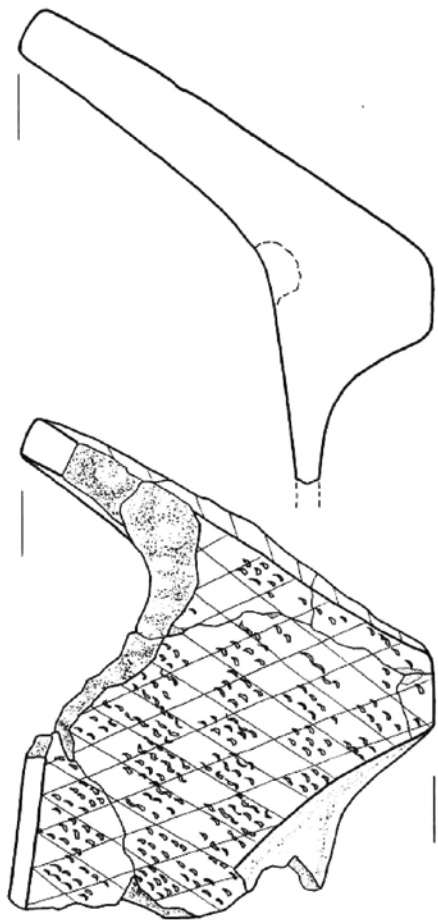


3



32





- Bánffy, E., 1997 – *Cult Objects of the Neolithic Lengyel Culture, Connections and Interpretations*, Budapest, 1997.
- Batović, Š., 1966 – *Stariji neolit u Dalmaciji*, Zadar, 1966.
- Batović, Š., 1979 – *Jadranska zona, Praistorija Jugoslavenskih zemalja II*, Sarajevo, 1979, 473-635.
- Benac, A., 1973 – Obre I – Neolitsko naselje starčevačko – impresso i kakanjske kulture na Raskršću, *Glasnik Zemaljskog muzeja Bosne i Hercegovine* 27-28 (1972-1973), Sarajevo, 1973, 5-171.
- Brusić, Z., 1995 – Naselje iz starijeg neolitika na Vrbici kod Bribira, *Diadora* 16-17 (1994-1995), Zadar, 1995, 1-49.
- Brusić, Z., 2008 – *Pokrovnik, naselje iz neolitika*, Šibenik, 2008.
- Chapman, J. – Shiel, R. – Batović, Š., 1996 – *The Changing Face of Dalmatia, Archaeological and Ecological Studies in a Mediterranean Landscape*, London, 1996.
- Čečuk, B. – Radić, D., 2005 – *Vela spila, Višeslojno pretpovijesno nalazište – Vela Luka, otok Korčula*, Vela Luka, 2005.
- Horvat, K., 2015 – Neolithic ceramic spoons – indicators of dietary distinctiveness in the eastern Adriatic Neolithic?, *Documenta Praehistorica* 42, Ljubljana, 2015, 251-260.
- Horvat, K., 2015a – Polje niže Vrcelja – nalazište ranog neolitika na benkovačkom području, *Vjesnik za arheologiju i historiju dalmatinsku* 108, Split, 2015, 9-35.
- Horvat, K., 2017 – *Ambijentalne osnove naseljavanja istočnog Jadrana – primjer benkovačkog područja*, doktorska disertacija, Sveučilište u Zadru, Zadar, 2017.
- Kačar, S. – The origins of the Neolithic blades industries in Northern Dalmatia (Eastern Adriatic, Croatia): are there generic links to the Mesolithic period?, *Journal of Archaeological Science: Reports*, (u tisku).
- Korošec, J., 1959 – *Neolitska naseobina u Danilu Bitinju, Rezultati istraživanja u 1953. godini*, Prilozi, Zagreb, 1959.
- Marijanović, B., 2005 – *Gudnja, višeslojno prapovijesno nalazište*, Dubrovnik, 2005.
- Marijanović, B., 2009 – *Crno Vrilo I*, Zadar, 2009.
- Marijanović, B., 2012 – *Ravlića pećina, Prapovijesno naselje*, Mostar, 2012.
- Marijanović, B. – Horvat, K., 2016 – Početci naseljavanja na području Zemunika, u: *Zemunik u prostoru i vremenu*, Faričić, J. – Dundović, Z. (ur.), Zadar, 2016, 48-67.
- Mazzucco, N. – Guilbeau, D. – Kačar, S. – Podrug, E. – Forenbaher, S. – Radić, D. – Moore, M. T. A., 2018 – The Time is Ripe for a Change. The Evolution of Harvesting Technologies in Central Dalmatia During the Neolithic Period (6th Millennium cal BC), *Journal of Anthropological Archaeology* 51, New York, 2018, 88-103.
- McClure, S. B. – Podrug, E. – Moore, A. M. T. – Culleton, B. J. – Kennett D. J., 2014 – AMS ¹⁴C Chronology and Ceramic Sequences of Early Farmers in the Eastern Adriatic, *Radiocarbon* 56 (3), Tucson, 2014, 1019-1038.
- Mendušić, M., 1990 – Konjevrate – ranoneolitičko naselje, *Arheološki pregled* 29 (1988), Ljubljana, 1990, 46.
- Mendušić, M., 1998 – Neolitička naselja na šibensko – dnrniškom području, *Područje Šibenske županije od pretpovijesti do srednjeg vijeka, Izdanja Hrvatskog arheološkog društva* 19, Zagreb, 1998, 47-62.
- Mendušić, M., 1999 – Konjevrate – istraživanje neolitičkog naselja, *Obavijesti Hrvatskog arheološkog društva* XXX 3 (1998), Zagreb, 1999, 52-54.
- Mendušić, M., 2005 – Pretpovijesna arheološka topografija prostora župe Konjevrate i Mirlović Zagora, *Konjevrate i Mirlović Zagora – župe Šibenske biskupije, Zbornik radova Znanstvenog skupa Sela šibenskog zaleđa župa Konjevrate i Mirlović Zagora u prošlosti*, Zagreb, 2005, 85-101.
- Minichreiter, K., 2002 – Žrtvenici i idoli starčevačkog naselja na Galovu u Slavanskom Brodu, *Prilozi instituta za arheologiju u Zagrebu* 19, Zagreb, 2002, 11-30.
- Moore, A. M. T. – Mendušić, M. – Smith, J. – Zaninović, J. – Podrug, E., 2007 – Project Early Farming in Dalmatia: Pokrovnik 2006, *Vjesnik Arheološkog muzeja u Zagrebu* 40 (3), Zagreb, 2007, 25-34.
- Müller, J., 1994 – *Das Ostadriatische Frühneolithikum: Die Impresso-Kultur und die Neolithisierung des Adria-raumes*, Berlin, 1994.
- Naumov, G. – Fidanoski, Lj. – Tolevski, I. – Ivkowska, A., 2009 – *Neolitskite zaednici vo Republika Makedonija*, Skopje, 2009.
- Podrug, E., 2013 – Neolitički nepokretni nalazi na šibenskom području, *Diadora* 26-27 (2012-2013), Zadar, 2013, 185-211.
- Podrug, E. – McClure, S. B. – Perhoč, Z. – Kačar, S. – Reed, K. – Zavodny, E., 2017 – Rašinovac kod Ždrapnja (sjeverna Dalmacija) – nalazište ranog neolitika, *Archaeologia Adriatica* 11, Zadar, (u tisku).
- Podrug, E. – McClure, S. B. – Moore, A. M. T. – Culleton, B. J. – Kennett, D. J., 2014 – *New AMS ¹⁴C dates for the Neolithic of Northern Dalmatia (Croatia)*, Preistoria e Protostoria del Caput Adria, XLIX Riunione Scientifica dell'IIPP, poster, Udine, 10. 9. 2014.
- Rice, P. M., 1987 – *Pottery Analysis: A Sourcebook*, University of Chicago Press, 1987.
- Robb, J., 2007 – *The Early Mediterranean Village. Agency, Material Culture, and Social Change in Neolithic Italy*, Cambridge, 2007.
- Schwarzberg, H., 2005 – Prismatic polypod vessels and their way to Europe, u: *How Did Farming Reach Europe?, Proceedings of the International Workshop, Istanbul, 20-22 May 2004*, Lichter, C. (ur.), Dusseldorf, 2005, 255-272.
- Schwarzberg, H., 2006 – A new item for the Neolithic Package? Early Neolithic cult vessels in Anatolia and South-East Europe. u: *Aegean – Marmara – Black Sea: The Present State of Research on the Early Neolithic*, Gatsov, I. – Schwarzberg, H. (ur.), Langenweissbach, 2006, 127-134.
- Spataro, M., 2002 – *The first farming communities of the Adriatic: pottery production and circulation in the early and middle neolithic*, Societa per la preistoria e protostoria della regione Friuli – Venezia Giulia, Museo Civico di Storia Naturale, Quaderno 9, Trieste, 2002.
- Šošić Klindžić, R. – Radović, S. – Težak Gregl, T. – Šlaus, M. – Perhoč, Z. – Altherr, R. – Hulina, M. – Gerometta, K. – Boschian, G. – Vukosavljević, N. – Ahern, J. C. M. – Janković, I. – Richards, M. – Karavanić, I., 2015 – Late Upper Paleolithic, Early Mesolithic and Early Neolithic from the cave site Zemunica near Bisko (Dalmatia, Croatia), *Eurasian Prehistory* 12, Oxford, 2015, 1-44.
- Todorova, H., 2003 – Prehistory of Bulgaria, u: *Recent Research in the Prehistory of the Balkans*, Grammenos, D. V. (ur.), Thessaloniki, 2003, 257-328.