

REZULTATI PODVODNOGA ARHEOLOŠKOG ISTRAŽIVANJA NALAZIŠTA POD NARAT U UVALI LUČINA U BRBINJU NA DUGOM OTOKU

RESULTS OF THE UNDERWATER ARCHAEOLOGICAL INVESTIGATION OF THE POD NARAT SITE IN LUČINA BAY AT BRBINJ ON DUGI OTOK

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Godine 2013. rekreativni ronilac iz Brbinja otkrio je podmorsko arheološko nalazište u uvali Lučina u naselju Brbinj na Dugom otoku. O otkriću je obavijestio arheologe iz Međunarodnog centra za podvodnu arheologiju u Zadru, koji su potvrdili da je riječ o novovjekovnom lokalitetu. Većina pronađenoga arheološkog materijala sastoji se od ostataka građevinskih elemenata poput opeke i žbuke, ali i brojnih ulomaka keramike, stakla, lula za duhan te drugih manjih artefakata. Tijekom tri arheološke kampanje lokalitet je u cijelosti istražen i dokumentiran. Utvrđeno je da je riječ o heterogenom otpadu koji je vjerojatno služio za stabilizaciju broda tijekom plovidbe, a potom je izbačen u uvalu Lučina prije ukrcanja tereta. Na temelju pronađenih predmeta lokalitet se datira u ranu drugu polovicu 18. stoljeća.

KEY WORDS:

*Brbinj, Pod Narat,
modern era, ballast,
urban refuse, underwater
archaeological
investigation*

In 2013 a recreational diver from Brbinj discovered an underwater archaeological site in Lučina Bay by the settlement of Brbinj on the island of Dugi Otok. He notified archaeologists from the International Centre for Underwater Archaeology in Zadar, who confirmed that the site dates to the modern era. Most of the recovered archaeological material consists of remains of building elements such as brick and mortar, as well as numerous fragments of pottery, glass, tobacco pipes and other small artefacts. Over the course of three archaeological campaigns the site was investigated and documented in its entirety. It was established that the deposit represents heterogeneous refuse that was probably used to stabilise a vessel during navigation, after which it was dumped in Lučina Bay prior to the loading of cargo. The finds date the site to early in the second half of the 18th century.

UVOD

Naselje Brbinj smješteno je na istočnoj obali Dugog otoka u zadarskom arhipelagu. Prvi pisani spomen Brbinja potječe iz 12. stoljeća,¹ a naselje se razvilo između uvala Jaz i Lučina. Tijekom srednjeg vijeka u uvali su djelovale solane, čiji su ostaci i danas vidljivi u plitkom moru. U novovjekovnom razdoblju istočni Jadran bilježi intenzivan pomorski promet i trgovinu, što potvrđuju brojni arheološki nalazi s morskog dna.

U podmorju uvale Lučina u Brbinju na Dugom otoku 2013. otkriveno je neobično podmorsko arheološko nalazište.² Na osnovi tog otkrića, djelatnici Međunarodnog centra za podvodnu arheologiju u Zadru 2019. u sklopu programa *Podvodno arheološko rekognosciranje zadarske županije 2019.* pregledali su prostor i ustanovili da je riječ o vrlo zanimljivom nalazištu.

INTRODUCTION

The settlement of Brbinj lies on the eastern coast of Dugi Otok in the Zadar Archipelago. The earliest written reference to Brbinj dates to the 12th century,¹ and the settlement developed between the Jaz and Lučina Bays. During the medieval period saltworks operated in Lučina Bay, the remains of which are still visible in the shallow waters. In the modern-era period the Eastern Adriatic saw intensive maritime traffic and trade, as confirmed by numerous archaeological finds from the seabed.

In 2013 an unusual underwater archaeological site was discovered on the seabed of Lučina Bay by Brbinj on Dugi Otok.² On the basis of this discovery, staff of the International Centre for Underwater Archaeology in Zadar inspected the area in 2019 as part of the Underwater Archaeological Reconnaissance of Zadar County 2019 programme and established that it was a highly interesting site.



SLIKA 1. Pozicija nalazišta Pod Narat u uvali Lučina (snimio: R. Surić)

FIGURE 1 Position of the Pod Narat site in Lučina Bay (photo by R. Surić)

¹ SMIČIKLAS 1904: 273–275.

² Lokaciju je otkrio mještanin Brbinja Marin Odvitović, a o pronalasku je obavijestio Maju Kaleb, tada studenticu arheologije.

¹ SMIČIKLAS 1904: 273–275.

² The location was discovered by Marin Odvitović, a resident of Brbinj, who reported the find to Maja Kaleb, then an undergraduate archaeology student.

NALAZIŠTE POD NARAT

Locirano oko 30 m od istočne obale uvale Lučina na dubini od svega 2,5 m (sl. 1), eliptično nalazište prostire se na muljevitom morskom dnu u dimenziji od 5,8 × 4,5 m (sl. 3). Podvodnim pregledom (sl. 2) na njemu su uočeni raznovrsni arheološki nalazi poput opeka, krovnog crijepa te ulomaka keramike, stakla, kamena i kostiju. Preliminarnom tipološkom analizom prikupljenih površinskih nalaza ustanovljeno je da se nalazište može datirati u razdoblje novog vijeka. Nalazište je na morskom dnu izolirano od drugih sličnih nalazišta koja su kasnije otkrivena u podmorju uvale Lučina. Naime, višegodišnjom provedbom programa podvodnog pregleda otkriveno je još 28 pojedinačnih nalazišta ove vrste u uvali Lučina.³

Na osnovi vizualnog i površinskog pregleda ni na osnovi pronađenih površinskih nalaza u tom se trenutku nije moglo defini-

POD NARAT SITE

Located approximately 30 m from the eastern shore of Lučina Bay at a depth of only 2.5 m (Fig. 1), the elliptical site extends across the silty seabed over an area measuring 5.8 × 4.5 m (Fig. 3). Underwater inspection (Fig. 2) recorded a variety of archaeological finds, including bricks, roof tiles, pottery fragments, glass fragments and pieces of stone and bone. A preliminary typological analysis of the collected surface finds established that the site could be dated to the modern era. On the seabed, the site is separated from other such sites that were later discovered in the waters of Lučina Bay. Namely, over several years of the underwater survey programme's implementation, a further 28 individual sites of this type have been discovered in Lučina Bay.³

Following a visual and surface inspection, as well as examination of the recovered surface



SLIKA 2. Inicijalni arheološki pregled nalazišta Pod Narat (snimio: R. Surić)

FIGURE 2 Initial archaeological inspection of the Pod Narat site (photo by R. Surić)

³ SURIĆ, VIDULIĆ 2021: 55–56. Podaci o ostalim nalazištima u uvali Lučina trenutno su neobjavljeni, ali su poznati autorima.

³ SURIĆ, VIDULIĆ 2021: 55–56; data on the other sites in Lučina Bay are currently unpublished, but known to the authors.

rati karakter nalazišta. Zbog tih, ali i drugih važnih faktora odlučeno je da će se na njemu provesti podvodno arheološko iskopavanje s primarnim ciljem definiranja karaktera nalazišta.

Na osnovi arheološkog iskopavanja zaključeno je da se nalazište može interpretirati kao novovjekovna balastna hrpa. Nalazišta poput ovog svjedoče o nekadašnjim mjestima ukrcaja tereta u brod. Iz brodova se u nekim slučajevima odbacivao balast neposredno prije ukrcaja željenog tereta, koji bi potom preuzeo ulogu balasta u stabiliziranju broda za daljnju plovidbu. U slučaju ovog nalazišta može se zaključiti da je heterogeni otpadni materijal korišten za stabilizaciju broda. Takva nalazišta zabilježena su na desecima pojedinačnih lokacija duž istočne obale Jadrana.⁴

ARHEOLOŠKO ISTRAŽIVANJE

Odmah po otkriću nalazište je doživjelo i prvu arheološku obradu, naime još 2013. obradila ga je Maja Kaleb u svojem završnom prvostupničkom radu.⁵ Arheološko istraživanje nalazišta Pod Narat u uvali Lučina započelo je 2019., kada je napravljen arheološki pregled nalazišta, a u nastavku iste godine započeto je arheološko iskopavanje.⁶ Istraživanja su nastavljena 2020.⁷ i 2021.⁸ Lokalitet je prije početka iskapanja fotogrametrijski dokumentiran (sl. 3), a potom i georeferenciran.

Tijekom kampanje 2019. otvorene su dvije povezane arheološke sonde dimenzija 2 × 2 m, ukupne površine 8 m² (sl. 4). Nalazi su

finds, it was not possible to define the character of the site. Because of these and other significant factors it was decided to carry out an underwater archaeological excavation, with the primary aim of determining what its character was.

On the basis of the archaeological excavation, it was concluded that the site can be interpreted as a modern-era ballast heap. Sites of this kind testify to locations where cargo was once loaded onto vessels. In some cases, ballast was discarded from ships immediately before the loading of the intended cargo, which would then assume the role of ballast in stabilising the vessel for onward navigation. In the case of this site, it can be concluded that the heterogeneous refuse had been used to stabilise the vessel. Such sites have been recorded at dozens of individual locations along the eastern Adriatic coast.⁴

ARCHAEOLOGICAL INVESTIGATION

Immediately after its discovery, the site received its first archaeological treatment: in 2013 it was analysed by Maja Kaleb in her undergraduate thesis.⁵ The archaeological investigation of the Pod Narat site in Lučina Bay began in 2019, when an archaeological inspection of the site was carried out, and later that same year archaeological excavation commenced.⁶ The work continued in 2020⁷ and 2021⁸. Before excavation began the site had been documented by photogrammetry (Fig. 3) and subsequently georeferenced.

During the 2019 campaign two connected archaeological trenches measuring 2 × 2 m were opened, with a total area of eight square

⁴ BEKIĆ, SURIĆ 2015: 14; 2016: 14; SURIĆ 2019: 56–57; 2021: 75–76.

⁵ KALEB 2013: 10–11.

⁶ SURIĆ 2019: 56–57.

⁷ SURIĆ 2020: 60–61.

⁸ SURIĆ, VIDULIĆ 2021: 55–57. Voditelj arheološkog istraživanja u sve tri kampanje je bio Roko Surić, a zamjenik voditelja Luka Bekić, obojica iz MCPA-a Zadar.

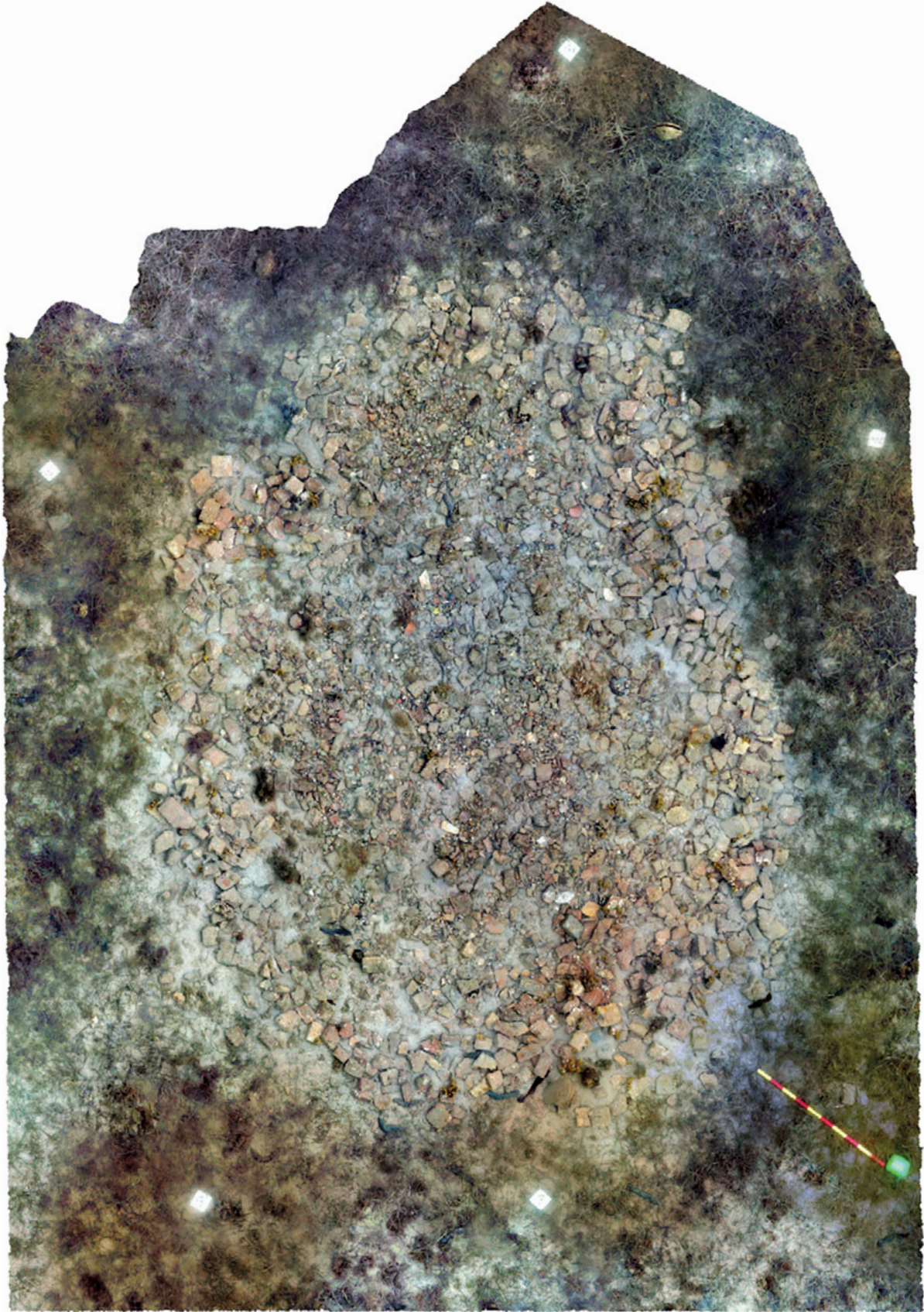
⁴ BEKIĆ, SURIĆ 2015: 14; 2016: 14; SURIĆ 2019: 56–57; 2021: 75–76.

⁵ KALEB 2013: 10–11.

⁶ SURIĆ 2019: 56–57.

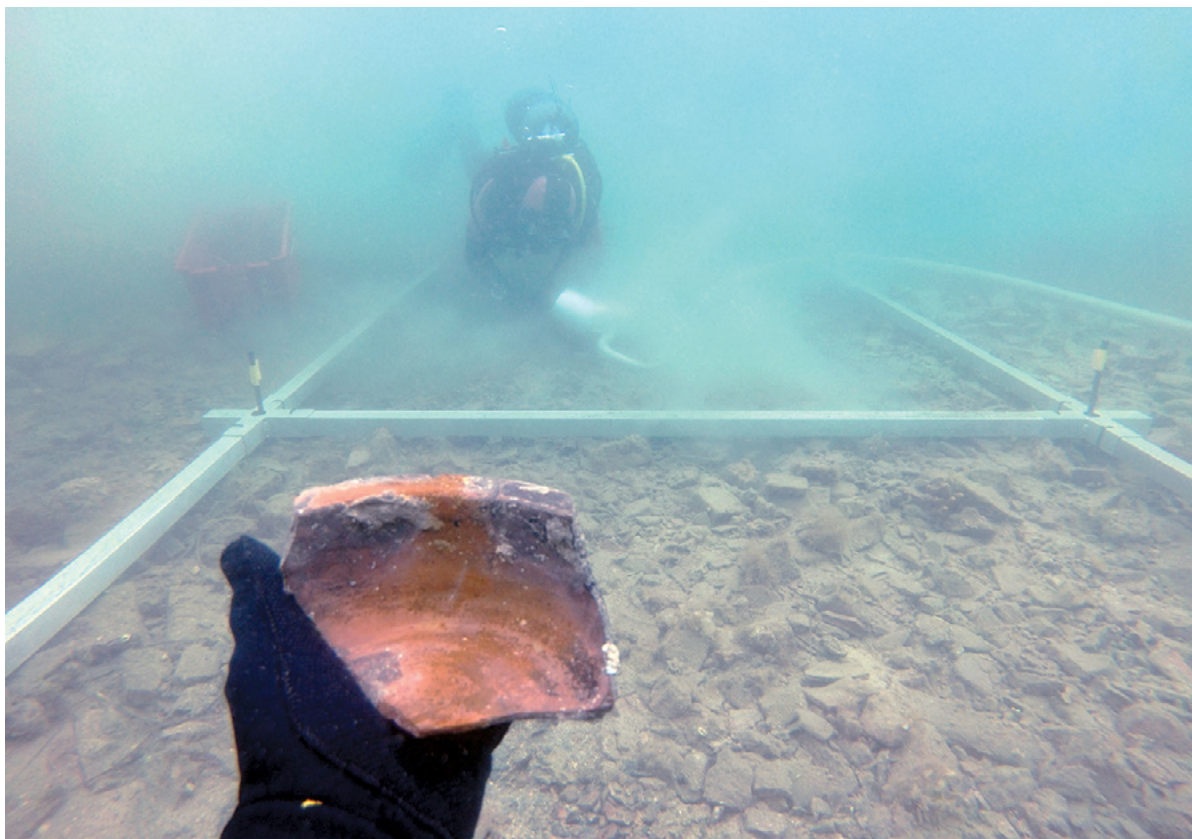
⁷ SURIĆ 2020: 60–61.

⁸ SURIĆ, VIDULIĆ 2021: 55–57; the excavation director for all three campaigns was Roko Surić, with Luka Bekić as deputy excavation director; both are from the International Centre for Underwater Archaeology in Zadar.

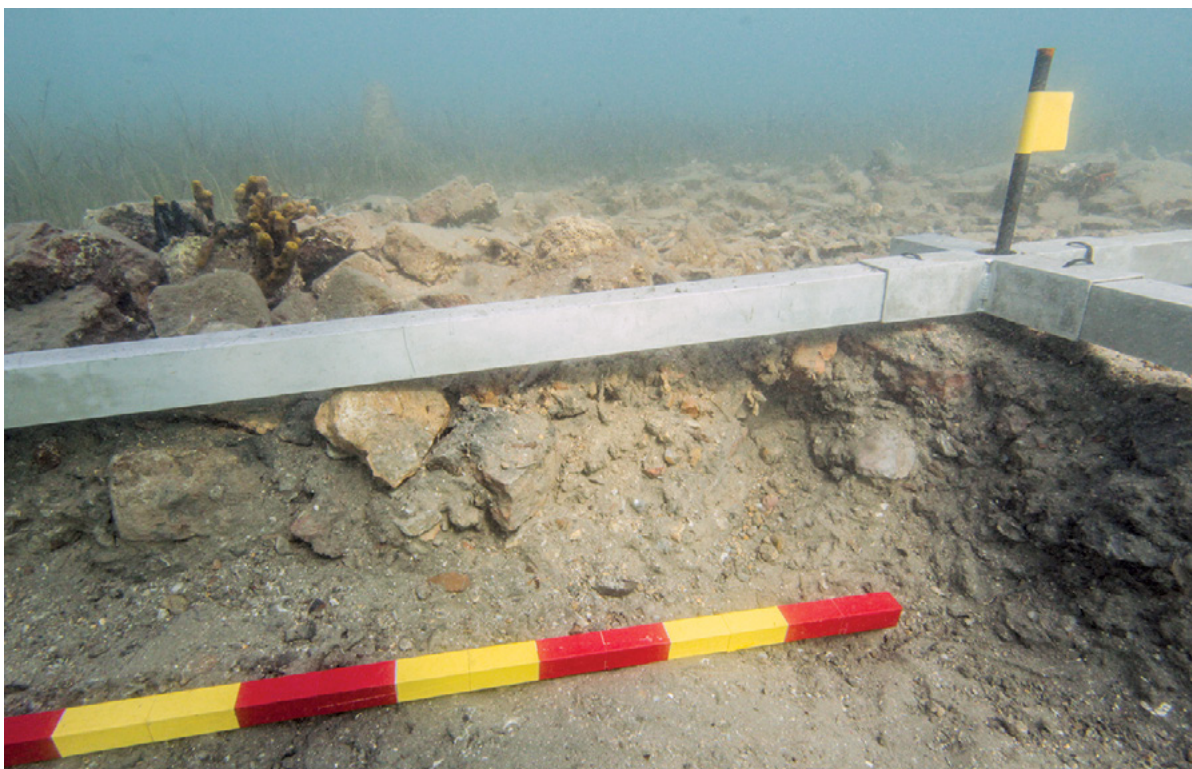


SLIKA 3. Ortofotografija nalazišta Pod Narat (izradio: R. Surić)

FIGURE 3 Orthophotograph of the Pod Narat site (produced by R. Surić)



SLIKA 4. Podvodno arheološko istraživanje nalazišta (snimila: M. Kaleb)
FIGURE 4 Underwater archaeological investigation of the site (photo by M. Kaleb)



SLIKA 5. Profil sonde A nakon što je u potpunosti istražena (snimio: R. Surić)
FIGURE 5 Profile of trench A after full investigation (photo by R. Surić)

vađeni iz mora, a potom su dokumentirani, sortirani, fotografirani, prebrojeni i izvagani. Sediment je uklanjan s pomoću vodene sisaljke. Debljina sloja u središtu iznosi do 50 cm, a ispod njega se nalazi sterilni mulj (sl. 5).

U kampanji 2020. odustalo se od rova i lokalitet se tretirao kao jedinstveni stratigrafski sloj. Artefakti i sediment vađeni su u košarama i prosijavani na obali, kako bi se osigurala maksimalna preciznost u prikupljanju i najmanjih nalaza. Prelazak na sustav prosijavanja omogućio je preciznije prikupljanje sitnoga arheološkog materijala. Posebna pažnja posvećena je tragovima korištenja, sekundarnog paljenja i trošenja, što je pomoglo u interpretaciji konteksta nalaza. Zahvaljujući detaljnoj

metres (Fig. 4). The finds were lifted from the sea and then documented, sorted, photographed, counted and weighed. Sediment was removed using a water dredge. The thickness of the deposit in the centre reached up to 50 cm, beneath which lay sterile silt (Fig. 5).

In the 2020 campaign the trench structure was abandoned and the site was treated as a single stratigraphic layer. Artefacts and sediment were collected in baskets and sieved on shore to ensure maximum precision in recovering even the smallest finds. The switch to a sieving system enabled more precise recovery of small archaeological material. Special attention was paid to traces of use, secondary burning or wear, which assisted in interpreting the context of the finds. Thanks to the detailed documentation



SLIKA 6. Dokumentiranje arheoloških nalaza na obali (snimila: Z. Pinjušić)

FIGURE 6 Documentation of archaeological finds on shore (photo by Z. Pinjušić)

dokumentaciji koja je vođena tijekom sve tri arheološke kampanje, moglo se lakše doći do zaključka o zastupljenosti raznih vrsta arheološkog materijala, a to je u konačnici dovelo do završne interpretacije ovog zanimljivog nalazišta.

ARHEOLOŠKI MATERIJAL

Tijekom tri arheološke kampanje lokalitet je u potpunosti istražen, pri čemu je na dnu ostao samo sloj sterilnog mulja i pijeska ispod hrpe balasta. Ukupno je prikupljeno više od 18 000 pojedinačnih nalaza, ukupne mase 2387 kg. Većina je materijala građevinski otpad koji čine: opeke, crijep, obrađeno kamenje i velika količina žbuke. Uz to su pronađeni brojni ulomci keramike, stakla, keramičkih lula za duhan, kostiju, metalnih predmeta, školjki i životinjskih ostataka.

Osim manjeg broja sačuvanih opeka, većina građevinskog materijala bila je fragmentirana. Strategija potpunog prikupljanja omogućila je pokušaj rekonstrukcije cjelovitih predmeta, a rezultat se najbolje vidi na najbrojnijoj skupini nalaza – keramici, gdje je od 11 849 ulomaka keramike naknadno bilo moguće spojiti tek njih devet. Mnogi ulomci pokazuju tragove sekundarnog izgaranja i trošenja, uključujući zaobljene rubove, što upućuje na to da su predmeti, po svemu sudeći, prethodno bili odbačeni na urbanom otpadu, a potom su ukrcani na brod u funkciji brodskog balasta te su u konačnici izbačeni u uvalu Lučina prije ukrcaja tereta u brod.

Utilitarna keramika

Najveći broj keramičkih ulomaka pripada skupini utilitarne, odnosno keramike za svakodnevnu upotrebu. Tisuće pronađenih ulomaka, zajedno s ostatkom balasta, služile su isključivo za stabilizaciju broda. Većina ulomaka izgubila je dijagnostičke značajke poput dekoracije, što je otežalo tipološku analizu. Ulomci

maintained throughout all three archaeological campaigns, it was possible to reach conclusions more readily regarding the representation of different categories of archaeological material, which ultimately led to the final interpretation of this noteworthy site.

ARCHAEOLOGICAL MATERIAL

Over the course of the three archaeological campaigns the site was investigated in its entirety, leaving only the layer of sterile silt and sand beneath the ballast heap. More than 18,000 individual finds were collected, with a total mass of 2,387 kg. The majority of the material consists of building debris, including bricks, roof tiles, worked stone and large quantities of mortar. In addition, numerous fragments of pottery, glass, ceramic tobacco pipes, bones, metal objects, shells and faunal remains were recovered.

Aside from a small number of preserved bricks, most of the building material was fragmentary. The strategy of complete recovery made it possible to attempt the reconstruction of whole objects, the results of which are most evident in pottery (the most numerous category of finds), where, from 11,849 fragments, just nine vessels could subsequently be reconstructed. Many fragments show traces of secondary burning and wear, including rounded edges, indicating that the objects had most likely initially been discarded as urban refuse, subsequently taken onboard the vessel to serve as ballast and finally dumped in Lučina Bay prior to cargo loading.

Utilitarian pottery

The largest number of ceramic fragments belongs to the group of utilitarian pottery, as used in everyday life. The thousands of recovered fragments, together with the rest of the ballast, served solely to stabilise the vessel. Most fragments have lost diagnostic features such as decoration, which made typological

s očuvanim stilskim elementima mogu se podijeliti u dvije osnovne skupine: grubu kuhinjsku keramiku i stolno posuđe.

Gruba kuhinjska keramika zastupljena je s nekoliko stotina ulomaka, među kojima se ističu ulomci kotlova izrađeni od gline grube fature (T. I/1). Takve lonce karakterizira okruglo tijelo i istaknute ušice za vješanje iznad vatre. Kotlovi grube fature relativno su čest nalaz na jadranskim nalazištima, a datiraju se u razdoblje od 15. do 18. stoljeća.⁹ U skupinu grube keramike može se svrstati i ulomak tubularne ručke tave (T. I/5) s proširenim i profiliranim vanjskim rubom. Takve ručke javljaju se na tavama različitih oblika, a proizvode se od sredine 16. do početka 18. stoljeća.¹⁰

Pronađen je jedan ulomak manjeg lonca finije fature i tankih stijenci s izvijenim obodom i dosjedom za poklopac (T. I/2). Unutrašnjost mu je glazirana smeđom glazurom koja djelomično prelazi preko oboda na vanjštinu posude. Na osnovi svih karakteristika može se zaključiti kako pronađeni ulomak spada u skupinu neukrašene *invetriate*. U istu keramičku skupinu spadaju i ulomci tava od finije gline s prozirnom olovnom glazurom u unutrašnjosti (T. I/3, 4). Pronađeni ulomci posuđa *invetriata* mogu se datirati u šire razdoblje od 16. do 18. stoljeća.¹¹

Mnogi ulomci pokazuju tragove uporabe u vidu izgaranja na vanjskoj strani i ostatke izgorjelog sadržaja (T. I/2). Takvi tragovi potvrđuju da je bila riječ o posudu za kuhanje koje je korišteno, a potom odbačeno. Zbog dugotrajne uporabe sličnih oblika u različitim regijama, teško je precizno odrediti mjesto proizvodnje ili vremenski okvir.

Stolno posuđe zastupljeno je s oko četiri tisuće ulomaka, a dodatni broj može se pripisati toj skupini na temelju oblika i kvalitete gline.

analysis more difficult. Fragments preserving stylistic elements can be divided into two basic groups: coarse kitchenware and tableware.

Coarse kitchenware is represented by several hundred fragments, among which sherds of cauldrons made of clay with coarse fabric stand out (Pl. I/1). Such pots were characterised by a rounded body and pronounced lugs for suspension over a fire. Cauldrons with a coarse fabric are relatively common finds at Adriatic sites and are dated to the period from the 15th to the 18th century.⁹ Also belonging to the group of coarse pottery is a fragment of a tubular pan handle (Pl. I/5) with an expanded and profiled exterior edge. Such handles occur on pans of various shapes and were produced from the mid-16th to the early 18th century.¹⁰

A single fragment of a smaller pot with a finer fabric, with thin walls, an everted rim and a lid seat was found (Pl. I/2). Its interior is coated with a brown glaze that partly runs over the rim onto the vessel's exterior. On the basis of all its characteristics it can be concluded that the fragment belongs to the group of undecorated *invetriata*. The same ceramic group also includes fragments of pans made of finer clay with a transparent lead glaze on the interior (Pl. I/3, 4). The recovered *invetriata* fragments can be dated broadly to the period from the 16th to the 18th century.¹¹

Many fragments show traces of use in the form of burning on the exterior and remnants of burnt contents (Pl. I/2). Such traces confirm that the vessels had been used for cooking before being discarded. Because similar forms were used over long periods in different regions, it is difficult to determine the place of production or the chronological range with precision.

Tableware is represented by around four thousand fragments, with additional pieces attributable to this group on the basis of form and clay

⁹ CUNJA 2004: 74–75, kat. br. 13–18; BRADARA, SACCARDO 2007: 20–21, kat. br. 1–2; SURIĆ, VIŠNJIĆ 2014: 212, kat. br. 1–8.

¹⁰ BRUNETTI 1992: 52, T. X/10; CUNJA 2004: 71–74, kat. br. 13–18; GUSAR, MEŠTROV 2015: 385, kat. br. 1.

¹¹ CUNJA 2004: 84–86.

⁹ CUNJA 2004: 74–75, Cat. No. 13–18; BRADARA, SACCARDO 2007: 20–21, Cat. No. 1–2; SURIĆ, VIŠNJIĆ 2014: 212, Cat. No. 1–8.

¹⁰ BRUNETTI 1992: 52, Tav. X/10; CUNJA 2004: 71–74, Cat. No. 13–18; GUSAR, MEŠTROV 2015: 385, Cat. No. 1.

¹¹ CUNJA 2004: 84–86.

Najzastupljenija je talijanska kasna keramika *sgraffito* (T. I/6–10) s više od 700 primjeraka. Dekoracije su izvedene urezivanjem i bojama poput žute i zelene, a oblici uključuju zdjele, zdjelice, tanjure i boce. Ova keramika potječe iz radionica u regiji Veneto, od kraja 16. do kraja 17. stoljeća.¹²

Zanimljivi su primjerci s dekoracijom izvedenom tehnikom *a punta e stecca*, s glazurom u zelenoj i žutoj boji (T. I/11–13). Pronađeno je gotovo 400 takvih ulomaka, također pripisanih venetskim radionicama iz 16. i 17. stoljeća.¹³

Među majolikom najbrojniji su bijeli, nedekorirani ulomci s debelom glazurom *smalto* (T. I/14, 15), a pronađeno ih je više od 800 komada. Ova keramika bila je raširena od 16. do 20. stoljeća diljem Italije,¹⁴ što otežava precizno datiranje. Slični primjeri neukrašenih majoličkih tanjura pronađeni su na više nalazišta na istočnoj jadranskoj obali,¹⁵ a pripisuju se radionicama Friulija i Emilije-Romagne iz 18. stoljeća.¹⁶ Dva ulomka majolike iz Brbinja na sebi imaju plavu dekoraciju s euharistijskim motivima (T. I/16, 17; sl. 7). Izravna analogija za brbinjske ulomke nije pronađena, no bijeli majolički tanjuri s izdvojenim oslikanim motivom plave boje na obodu bili su popularni diljem Italije u razdoblju od kraja 16. do početka 19. stoljeća.¹⁷

Skupina majolike uključuje i ulomke sa stiliziranom dekoracijom u stilu *compendiario*, među kojima se ističe motiv *a coroncina* (T. II/1–4). Takvi primjerci pripisuju se radionicama u Castelli (Abruzzo) iz 18. stoljeća.¹⁸

¹² BRADARA, SACCARDO 2007: 34; GUSAR 2010: kat. br. 279–300.

¹³ MUNARINI 1990: 149.

¹⁴ GUSAR 2010: 176; GUSAR, VISKOVIĆ 2012: 9.

¹⁵ SURIĆ, VIŠNJIĆ 2014: 219, kat. br. 51–52; GUSAR, MEŠTROV 2015: 390, kat. br. 18–19.

¹⁶ BORTOLOTTI 1979: kat. br. 51–52; GELICHI, LIBRENTI 1997: 204, sl. 17/1–8.

¹⁷ RICCI 2014: 85–87, kat. br. IV.1.56–57; 87–95, kat. br. IV.1.58–59.

¹⁸ TROIANO, VERROCCHIO 2002: 224, 231, 236.

quality. The most numerous category is late Italian *sgraffito* ware (Pl. I/6, 7, 8, 9, 10), with more than 700 examples. The decoration was executed by incision and in colours such as yellow and green, and the forms include bowls, small bowls, plates and bottles. This pottery derives from workshops in the Veneto region and dates from the late 16th to the late 17th century.¹²

Notable examples include vessels decorated in the *a punta e stecca* technique, with green and yellow glaze (Pl. I/11, 12, 13). Almost 400 such fragments were recovered, likewise attributed to Venetian workshops of the 16th and 17th centuries.¹³

Among the majolica the most numerous are the white, undecorated fragments with a thick *smalto* glaze (Pl. I/14, 15), of which more than 800 pieces were found. This type of pottery was widespread from the 16th to the 20th century across Italy,¹⁴ which complicates precise dating. Similar examples of undecorated majolica plates have been found at several sites along the eastern Adriatic coast,¹⁵ and are attributed to workshops in 18th-century Friuli and Emilia-Romagna.¹⁶ Two majolica fragments from Brbinj bear blue decoration with Eucharistic motifs (Pl. I/16, 17; Fig. 7). A direct analogy for the Brbinj fragments has not been identified, but white majolica plates with a distinct painted blue motif on the rim were popular throughout Italy from the late 16th to the early 19th century.¹⁷

The majolica group also includes fragments with stylised *compendiario* decoration, among which the *a coroncina* motif is prominent (Pl. II/1–4). Such examples are attributed to workshops in 18th-century Castelli (Abruzzo).¹⁸

On fifteen plate rim fragments there is blue

¹² BRADARA, SACCARDO 2007: 34; GUSAR 2010: Cat. No. 279–300.

¹³ MUNARINI 1990: 149.

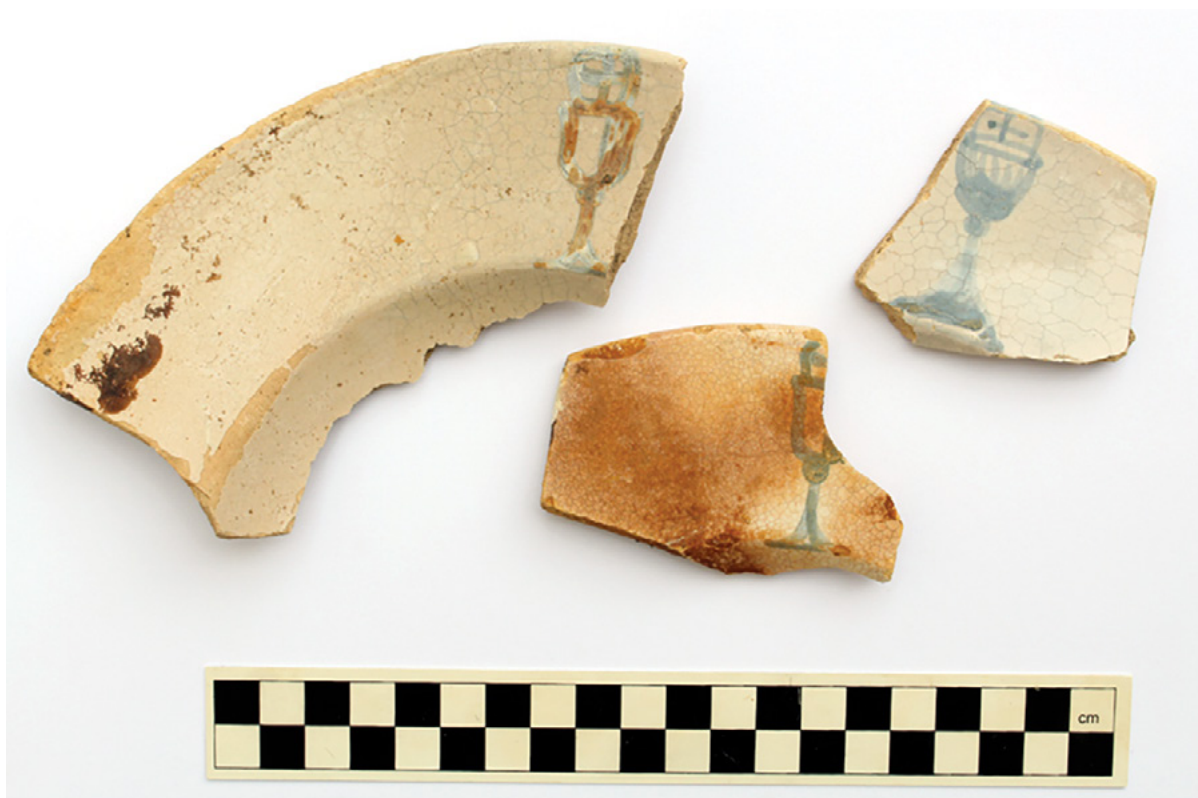
¹⁴ GUSAR 2010: 176; GUSAR, VISKOVIĆ 2012: 9.

¹⁵ SURIĆ, VIŠNJIĆ 2014: 219, Cat. No. 51–52; GUSAR, MEŠTROV 2015: 390, Cat. No. 18–19.

¹⁶ BORTOLOTTI 1979: Cat. No. 51–52; GELICHI, LIBRENTI 1997: 204, Fig. 17/1–8.

¹⁷ RICCI 2014: 85–87, Cat. No. IV.1. 56–57; 87–95, Cat. No. IV.1. 58–59.

¹⁸ TROIANO, VERROCCHIO 2002: 224, 231, 236.



SLIKA 7. Oslíkana invetriata nepoznate provenijencije (snimio: R. Surić)

FIGURE 7 Painted invetriata of unknown provenance (photo by R. Surić)

Na petnaest ulomaka s rubova tanjura nalazi se dekoracija u plavoj boji – viseći lukovi i stilizirane girlande s tri točke (T. II/5). Ova keramika proizvodila se u radionicama Emilije Romagne¹⁹ i Abruzza²⁰ u 18. stoljeću, no nije moguće sa sigurnošću odrediti točnu provenijenciju ulomaka iz Brbinja.

Posebno važan nalaz čine 24 ulomka tanjura tankih stijenki s bijelom glazurom i plavom dekoracijom cvjetnih motiva (T. II/6–9). Riječ je o proizvodima tvornice *Antonibon* iz Nove u regiji Veneto, koji su izrađivani od 1728. do 1738.²¹ Ovi nalazi potvrđuju da lokalitet nije mogao nastati prije 1728.

Skupini keramike *invetriata* s olovnom glazurom pripadaju zanimljivi ulomci s unutarnjom cvjetnom dekoracijom izvedenom bijelom engobom i zelenom bojom (T. II/10–12). Njihovo podrijetlo zasad nije

decoration consisting of hanging arches and stylised garlands with three dots (Pl. II/5). This pottery was produced in workshops in Emilia-Romagna¹⁹ and Abruzzo²⁰ in the 18th century; however, it is not possible to determine with certainty the precise provenance of the fragments from Brbinj.

A particularly significant find comprises twenty-four fragments of thin-walled plates with a white glaze and blue floral decoration (Pl. II/6–9). These are products of the Antonibon factory at Nove in the Veneto region, manufactured between 1728 and 1738.²¹ These finds confirm that the site cannot have been formed before 1728.

The group of *invetriata* pottery with lead glaze includes noteworthy fragments with interior floral decoration executed in white engobe and green pigment (Pl. II/10–12). Their

¹⁹ GELICHI, LIBRENTI 1997: 212, 215, sl. 18/3.

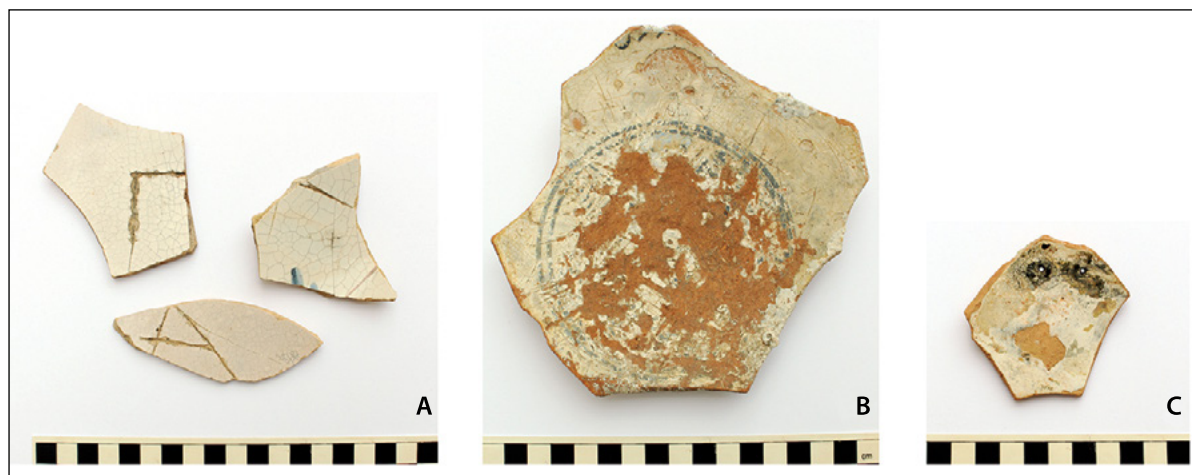
²⁰ TROIANO 2004: 125, sl. 5; VERROCCHIO 2007: 58, 61–62, sl. 3.

²¹ MARINI 1990: 278.

¹⁹ GELICHI, LIBRENTI 1997: 212, 215, Fig. 18/3.

²⁰ TROIANO 2004: 125, Fig. 5; VERROCCHIO 2007: 58, 61–62, Fig. 3.

²¹ MARINI 1990: 278.



SLIKA 8. Tragovi korištenja vidljivi na keramičkim ulomcima (snimio: R. Surić)
 FIGURE 8 Use-wear traces visible on ceramic fragments (photo by R. Surić)

utvrđeno.

Također su pronađeni brojni ulomci keramike *invetriata marrone* s tamnosmeđom do crnom glazurom, većinom pripisani posudama tipa *scaldino*, odnosno prijenosnim grijalicama (T. II/13, 14). Jedan primjerak ima reljefnu dekoraciju s motivima vitica, cvijeća i anđela (T. II/13). Takvi predmeti nisu česti na jadranskim lokalitetima, ali su poznati u Laziju, Toskani i Abruzzu krajem 18. i početkom 19. stoljeća.²²

Neki ulomci pokazuju jasne tragove uporabe: urezane oznake (sl. 8/A), ogrebotine nastale rezanjem ili struganjem po tanjuru (sl. 8/B), pa čak i probušene rupe (sl. 8/C) koje ukazuju na naknadne intervencije. Sve to potvrđuje da je riječ o odbačenim predmetima, a ne o novoj robi namijenjenoj prodaji.

Fina keramika

Fina keramika pronađena kod Brbinja rijetko se pojavljuje na podmorskim lokalitetima. Na ovom novovjekovnom nalazištu balasta zastupljeno je stolno posuđe izrađeno od porculana, kamenine i osmanske keramike iz Kütahye,

Porculan tipa *Batavia* zastupljen je s 22

provenance has not yet been determined.

Numerous fragments of *invetriata marrone* ware with dark brown to black glaze were also recovered, mostly attributed to vessels of the *scaldino* type, that is, portable heaters (Pl. II/13, 14). One example bears relief decoration with motifs of tendrils, flowers and an angel (Pl. II/13). Such objects are not common at Adriatic sites but are known in those from Lazio, Tuscany and Abruzzo in the late 18th and early 19th centuries.²²

Some fragments display clear traces of use: incised marks (Fig. 8/A), scratches caused by cutting or scraping on a plate (Fig. 8/B), and even pierced holes (Fig. /C), indicating later alterations. All of this confirms that the objects were discarded items rather than new goods intended for sale.

Fine ware

The fine pottery from the Brbinj excavation is seldom encountered at underwater sites. At this modern-era ballast deposit, tableware made of porcelain, stoneware and Ottoman ceramics from Kütahya is represented.

Batavia-type porcelain is present in the form of twenty-two fragments of cups (Pl. III/1) and saucers (Pl. III/2). It is characterised by brown glaze

²² CRYPTA BALBI 3: 485, br. 799–802; VEROCCHIO 2002: 370–371, sl. 380/1, 381, 382.

²² CRYPTA BALBI 3: 485, N. 799-802; VEROCCHIO 2002: 370-371, Figs. 380/1, 381, 382.

ulomka šalica (T. III/1) i tanjurića (T. III/2). Karakterizira ga smeđa glazura na vanjskoj strani i plava dekoracija ispod prozirne glazure na unutrašnjem dijelu. Naziv potječe od luke Batavia (današnja Jakarta), preko koje se keramika prevozila. Proizvodnja se odvijala u Jingdezhenu (provincija Jiangxi) tijekom dinastije Qing (1644. – 1911.), a u Europi je bila popularna u 18. stoljeću, osobito zahvaljujući uvozu Nizozemske istočnoindijske kompanije.²³ Ulomci iz Brbinja datiraju se u kraj 17. i prvu polovicu 18. stoljeća, na osnovi sličnih primjeraka koji su pronađeni u istraživanjima brodoloma *Cà Mau*²⁴ i *Geldermalsen*²⁵.

Šest ulomaka plavo-bijelog porculana (T. III/3) s početka 17. stoljeća, vjerojatno iz kasne dinastije Ming (razdoblja od Wanli do Chongzhen), uključuju fragmente dna s prstenastim postoljem, dijelove tijela i jedan rub. Dekoracija u nijansama plave na bijeloj podlozi izvedena je nemarno, s mutnim kobaltnim tonovima. Slični primjerci pronađeni su u arheološkim istraživanjima u Lisabonu i Coimabri u Portugalu.²⁶

Osam ulomaka tankih stijenki pripada porculanu tipa *Wucai* (T. III/4) koji karakterizira uporaba zelenih, žutih, crvenih i tirkiznih dekoracija, a ispod glazure nalazi se ukras u kobaltnoplavoj boji.²⁷ Primjeri iz Brbinja ulomci su šalica, a datiraju iz ranoga 17. stoljeća. Vanjska dekoracija prikazuje zelene vitice i cvjetove s bež laticama i crvenim prašnikom, a na unutrašnjosti se nalaze tri paralelne crvene linije i lanac sitnih prstenova uz rub.

Jedan ulomak dna tanjurića pripada kineskom porculanu *Imari* (T. III/5), proizvedenom u Jingdezhenu. Unutarnji ukras tanjurića prikazuje motiv cvijeća i lišća u crvenoj i pla-

on the exterior and blue decoration beneath a transparent glaze on the interior. The name derives from the port of Batavia (present-day Jakarta), through which this pottery was shipped. Production took place in Jingdezhen (Jiangxi Province) during the Qing dynasty (1644–1911), and the ware was popular in Europe in the 18th century, particularly through imports by the Dutch East India Company.²³ The fragments from Brbinj date to the late 17th and first half of the 18th century, on the basis of similar examples recovered from the *Cà Mau*²⁴ and *Geldermalsen*²⁵ shipwreck investigations.

Six fragments of blue-and-white porcelain (T. III/3) from the early 17th century, probably from the late Ming dynasty (from the Wanli to the Chongzhen periods), include base fragments with a ring foot, body sherds and one rim. The decoration in shades of blue on a white ground is of negligent execution, with blurred cobalt tones. Similar examples have been found in archaeological investigations in Lisbon and Coimbra in Portugal.²⁶

Eight thin-walled fragments belong to *Wucai*-type porcelain (Pl. III/4), characterised by the use of green, yellow, red and turquoise decoration, while beneath the glaze there is cobalt-blue ornamentation.²⁷ The Brbinj examples are cup fragments dating to the early 17th century. The exterior decoration shows green tendrils and flowers with beige petals and red stamens, while on the interior there are three parallel red lines and a chain of small rings along the rim.

A single base fragment of a small saucer belongs to Chinese *Imari* porcelain (Pl. III/5), produced in Jingdezhen. The interior decoration of the saucer shows a motif of flowers and leaves in red and blue with added gilding. Following the instructions of European clients, Chinese potters sought to skilfully imitate the Japanese

²³ *Dutch East India Company* ili skraćeno VOC prema *Vereenigde Oostindische Compagnie*; LI 2012: 23.

²⁴ LI 2012.

²⁵ JÖRG 1986.

²⁶ DIAS *et al.* 2013.

²⁷ COLOMBAN *et al.* 2017: 2.

²³ *Dutch East India Company* abbreviated VOC from *Vereenigde Oostindische Compagnie*; LI 2012: 23.

²⁴ LI 2012.

²⁵ JÖRG 1986.

²⁶ DIAS *et al.* 2013.

²⁷ COLOMBAN *et al.* 2017: 2.

voj boji s dodatkom pozlate. Slijedeći upute europskih naručitelja, kineski keramičari nastojali su vješto oponašati japanski stil u trobojnoj paleti *Imari*,²⁸ no njihova kompozicija motiva redovito teži simetriji, za razliku od slobodnijega japanskog stila. Ova vrsta porculana u velikim je količinama po narudžbi uvožena u Europu od kraja 17. pa gotovo kroz cijelo 18. stoljeće.

Jedan ulomak dna porculanske šalice (T. III/6) prikazuje središnji cvjetni motiv u željezno-crvenoj boji na unutrašnjoj strani, a na vanjskoj se strani nalazi oznaka *Huaya* u plavoj boji s dvostrukim kružnim linijama. Slične oznake pronađene su u samostanu Santana u Lisabonu. Oznaka prikazuje simboliku „raznih blaga”, karakterističnu za Jingdezhen tijekom vladavine Kangxija iz dinastije Qing (1661. – 1722.).²⁹

Neoslikana glazirana kamenina zastupljena je s 28 ulomaka, uključujući tanjuriće, zdjelice i šalice (T. III/7). Pronađeni su i ulomci ručki, rubova i tijela posuda. Neki primjerci imaju zadebljanja ili urezane paralelne linije kao dekoraciju. Slična reljefna keramika pronađena je i u Novigradu kod Zadra.³⁰ S obzirom na tehniku izrade i nedostatak oslikane dekoracije, moguće je da su primjerci iz Brbinja nastali prije 1750. godine.

Četiri ulomka pripadaju keramici iz Kütahya (T. III/8), drugog najvažnijeg središta proizvodnje pločica i keramike u Osmanском Carstvu nakon Iznika. Iako su se proizvodni centri u Izniku i Kütahyi neko vrijeme razvijali paralelno, početkom 17. stoljeća kvaliteta proizvoda iz Iznika opada, a proizvodi iz Kütahye postižu znatno višu tržišnu cijenu.³¹ Tri ulomka imaju unutarnju dekoraciju u obliku žutoga pješčanog sata s uzorkom ribljih ljuski, crvenosmeđim točkama i naglašenim crnim obrubom.³² Jedan od tih

style in the three-colour Imari palette,²⁸ although their motif composition tends towards symmetry, in contrast to the freer Japanese style. This type of porcelain was imported into Europe in large quantities on commission from the late 17th through almost the entire 18th century.

One base fragment of a porcelain cup (Pl. III/6) displays a central floral motif in iron red on the interior, while on the exterior there is a Huaya mark in blue with double concentric lines. Similar marks have been found at the Santana monastery in Lisbon. The mark represents the symbolism of the “miscellaneous treasures”, characteristic of Jingdezhen during the Kangxi reign of the Qing dynasty (1661–1722).²⁹

Unpainted glazed stoneware is represented by twenty-eight fragments, including saucers, small bowls and cups (Pl. III/7). Fragments of handles, rims and vessel bodies were also recovered. Some examples have thickenings or incised parallel lines as decoration. Similar relief pottery has been found at Novigrad near Zadar.³⁰ Given the manufacturing technique and the absence of painted decoration, it is possible that the Brbinj examples date to before 1750.

Four fragments belong to ceramics from Kütahya (Pl. III/8), the second most important centre of tile and pottery production in the Ottoman Empire, after Iznik. Although the production centres in Iznik and Kütahya had developed in parallel for some time, at the beginning of the 17th century the quality of Iznik products declined, while those from Kütahya commanded significantly higher market prices.³¹ Three fragments have interior decoration in the form of a yellow hourglass with a fish-scale pattern, reddish-brown dots and a pronounced black outline.³² One of these fragments is additionally decorated with a motif of green serrated leaves, which are sometimes interpreted as

²⁸ GOH 2020: 1.

²⁹ XIONG *et al.* 2022: 122.

³⁰ GUSAR 2021: 160, 171.

³¹ BILGI 2006: 9, 13–14.

³² BILGI 2006: 26, 37–38.

²⁸ GOH 2020: 1.

²⁹ XIONG *et al.* 2022: 122.

³⁰ GUSAR 2021: 160–171.

³¹ BILGI 2006: 9, 13–14.

³² BILGI 2006: 26, 37–38.



SLIKA 9. Potpuno očuvani primjer zdjelice te šalice s tanjurićem keramike iz Kütahye s početka 18. stoljeća iz kolekcije Suna i İnan Kıraç (preuzeto iz: BILGI 2006: 36)

FIGURE 9 Fully preserved example of a bowl and of a cup with saucer of early 18th-century Kütahyia pottery from the Suna and İnan Kıraç collection (taken from BILGI 2006: 36)

ulomaka dodatno je ukrašen motivom zelenih nazubljenih listova, koji se ponekad tumače kao prikaz nara. Četvrti ulomak potječe s posude s reljefnom dekoracijom, od koje je sačuvan dio oboda. Na vanjskoj strani i uz rub prikazan je cvijet izveden crnim linijama i crvenim kružićima, s crnim polukrugovima sa strane koji dodatno ukrašavaju cvijet. Tijelo sačuvanog ulomka posude također je dekorirano s vanjske strane floralnim i vegetabilnim motivima, uz moguću prisutnost uzorka pješčanog sata kao kod prethodno opisanih primjeraka. Posude ovog tipa s identičnom dekoracijom datiraju se u prvu polovicu 18. stoljeća (sl. 9).³³ Četvrti ulomak s reljefnom dekoracijom prikazuje cvijet izveden crnim linijama i crvenim točkama, okružen polukružnim motivima. Ova vrsta keramike datira iz prve polovice 18. stoljeća.

Lule za duhan

Na balastnoj gomili u Brbinju tijekom istraživanja MCPA Zadar pronađen je 271 ulomak lula. U prethodnim istraživanja na istoj gomili nađeno je još 17 ulomaka.³⁴ U cjelokupnom broju od 288 lula zastupljeno je 16 ulomaka lula tipa *Polesine* i 272 koje

a representation of a pomegranate. The fourth fragment derives from a vessel with relief decoration, of which part of the rim is preserved. On the exterior and along the rim a flower is depicted in black lines with small red circles, accompanied by black semicircles that further embellish the motif. The body of the preserved vessel fragment is likewise decorated on the exterior with floral and vegetal motifs, with the possible presence of an hourglass pattern similar to that on the examples described above. Vessels of this type with identical decoration date to the first half of the 18th century (Fig. 9).³³ The fourth fragment with relief decoration shows a flower executed in black lines and red dots, surrounded by semicircular motifs. This type of pottery dates to the first half of the 18th century.

Tobacco pipes

During the MCPA Zadar investigation of the ballast heap at Brbinj, 271 pipe fragments were recovered. In earlier investigations at the same heap seventeen other fragments had been found.³⁴ In the total assemblage of 288 pipes, sixteen fragments belong to *Polesine*-type pipes and 272 to English types. Such a ratio is highly

³³ BILGI 2006: 26–38.

³⁴ KALEB 2013: 23–25.

³³ BILGI 2006: 26–38.

³⁴ KALEB 2013: 23–25.

pripadaju engleskim tipovima. Ovakav je omjer vrlo neuobičajen za standardne statističke omjere nalaza lula u jadranskom podmorju.

Radionice lula na području Velike Britanije prilično su dobro istražene i za njih postoje brojni pokazatelji, ne samo materijalni nego i arhivski. Za kasnije tipove, kakvi se pronalaze na Jadranu, karakterističan oblik ima dugi tuljac koji je paralelan s vrhom čašice. Oznake proizvođača nanosene su na središnji dio čašice u smjeru pušača, a ponekad imaju i reljefne oznake na bočnim stranama stopice. Na Jadranu se prilično često mogu naći lule tipičnoga engleskog oblika, ali njihova količina u Brbinju zaista je upečatljiva. Zanimljivo je da gotovo sve takve lule na Jadranu, pa i u Brbinju, imaju pečatnu oznaku sa slovima WM. Ovaj pečat nalazi se na čašici lule, u smjeru pušača. Pečata ima više inačica, a promjeri su im od 9 do 15 mm. Na stopici se nalaze reljefna slova iznad kojih je kruna (T. IV). Na desnoj strani stopice, u pogledu pušača, stoji okrunjeno slovo M. S desne strane stopice može se naći okrunjeno slovo W, također orijentirano prema pušaču. Često su kalupi netočno izrađeni ili je lula loše otisnuta pa se slova ne mogu razaznati, a još češće nedostaje kruna (T. IV/1535, 1541). Ponekad su i slova i kruna vrlo detaljno izrađeni (T. IV/1574).

S obzirom na to da je na pečatu obično riječ o inicijalima majstora, nije teško zaključiti čije su to lule bile. Iz literature je dobro poznato da je engleska obitelj Manby bila generacijama jedna od najvećih proizvođača lula u Londonu. Lule su proizvodili od kraja 17. do druge polovine 18. stoljeća.³⁵ Dokumentirana su dva Richarda i četiri Williama Manbyja. Prema obliku, lule koje se nalaze u Jadranu pripadale bi Williamu Manbyju IV., a njegovo se djelovanje datira otprilike od 1740. do 1770.³⁶

³⁵ PEARCE 2013: 71.

³⁶ PEARCE 2013: sl. 1.

unusual in comparison with standard statistical distributions of pipe finds in the Adriatic underwater context.

Pipe-making workshops in Great Britain are relatively well researched, and there is abundant evidence for them, both material and archival. For later types – of the kind found in the Adriatic – the characteristic form has a long stem that runs parallel to the top of the bowl. Manufacturers' marks were applied to the central part of the bowl (facing the smoker), and sometimes also appear as relief marks on the lateral sides of the heel. Pipes of typical English form are relatively common in the Adriatic, but their quantity at Brbinj is truly striking. Interestingly, almost all such pipes in the Adriatic, including those from Brbinj, bear a stamped mark with the letters WM. This stamp is located on the bowl of the pipe (facing the smoker). Several variants of the stamp exist, with diameters ranging from 9 to 15 mm. On the heel there are relief letters surmounted by a crown (Pl. IV). On the right side of the heel (from the smoker's perspective) is a crowned letter M. On the left side of the heel there may be a crowned letter W, likewise oriented towards the smoker. The moulds were often poorly made, or the pipe was badly impressed, so the letters cannot be distinguished, and even more frequently the crown is missing (Pl. IV/1535, 1541). Occasionally both the letters and the crown are rendered in very fine detail (Pl. IV/1574).

Since such a stamp generally consists of the maker's initials, it is not difficult to determine whose pipes these were. It is well known from the literature that the English Manby family were for generations among the largest pipe manufacturers in London. They produced pipes from the late 17th to the second half of the 18th century.³⁵ Two Richard Manbys and four William Manbys are documented. On the basis of the pipe form, the examples found in the Adriatic would be those of William Manby IV, whose working period is estimated to have been between 1740

³⁵ PEARCE 2013: 71.

Lule Williama Manbyja koje su u velikom broju doprle na jadransko tržište proučio je Albert Halmos.³⁷ Zahvaljujući njegovim istraživanjima, poznato je da je u Veneciji djelovala tvrtka *Manifattura Tabacchi* koja je imala monopol na trgovinu duhanom, ali i drugim proizvodima povezanim s duhanom, uključujući lule. Prvi trag o lulama u dokumentima zasad potječe iz 1777., kada se navodi da Girolamo Manfrin ima monopol na uvoz i distribuciju lula zapadnog tipa.³⁸ To u praksi znači da su u službenoj prodaji u Veneciji bile dopuštene samo lule engleskog tipa, što potvrđuju i onodobne slike, koje ilustriraju ljude koji puše isključivo lule zapadnog tipa.³⁹

Pri radovima na komunalnoj infrastrukturi Venecije 70-ih i 80-ih godina 20. stoljeća na položaju *Manifatturre* u četvrti Cannareggio pronađene su tisuće polomljenih, ali nekorištenih lula s oznakama WM.⁴⁰ Tipološkom klasifikacijom izdvojeno je 27 inačica pečata WM na osnovi 288 sačuvanih primjeraka. Pečati se razlikuju na četiri primjerka s različitim ukrasima pokraj inicijala WM te na 25 pečata označenih brojevima od WM 1 do WM 25.⁴¹ Nejasno je imaju li razlike u brojevima na pečatima veze s kronološkim serijama ili serijama paralelno izrađivanima u više pogona. Potonje je također moguće, jer je poznat i volumen uvoza ovih proizvoda. Tako se iz jednog dokumenta može iščitati da su u Veneciju 1790. i 1791. uvezene 63 624 lule, a samo 1792. čak 118 266 komada lula.⁴²

U Brbinju je zastupljeno otprilike šest različitih skupina pečata. Na njima su prikazani inicijali WM, a ispod i iznad biljni

and 1770.³⁶

The pipes of William Manby that reached the Adriatic market in large numbers were studied by Albert Halmos.³⁷ Thanks to his research it is known that the company *Manifattura Tabacchi* operated in Venice, holding a monopoly on the trade in tobacco as well as other tobacco-related products, including pipes. The earliest reference to pipes in documentation currently dates to 1777, when it was stated that Girolamo Manfrin held the monopoly on the import and distribution of western-type pipes.³⁸ In practice this meant that only English-type pipes were permitted for official sale in Venice, as confirmed by contemporary images depicting people smoking exclusively western-type pipes.³⁹

During work on Venice's municipal infrastructure in the 1970s and 1980s, thousands of unused but broken pipes bearing the WM mark were discovered at the site of the *Manifattura* in the Cannaregio district.⁴⁰ Typological classification distinguished twenty-seven variants of the WM stamp among the 288 preserved examples. Four variants differ in the presence of various ornaments beside the initials WM, while twenty-five stamps are marked with numbers from WM 1 to WM 25.⁴¹ It is unclear whether the differences in numbering correspond to chronological series or to series produced in parallel at multiple workshops. The latter is also possible, given the known volume of imports of these products. One document records that 63,624 pipes were imported into Venice in the years 1790 and 1791, and as many as 118,266 pipes in 1792 alone.⁴²

Approximately six different stamp groups are present at Brbinj. They show the initials WM, with a vegetal motif above and below. The first

³⁷ HALMOS 2013.

³⁸ HALMOS 2013: 51–53.

³⁹ HALMOS 2013: 53, sl. 5.

⁴⁰ HALMOS 2013: 53–57.

⁴¹ HALMOS 2013: 53, sl. 10. Premda na nalazištu *Manifattura* u Veneciji nisu pronađeni pečati s brojevima 3 i 23, za njih se zna da su postojali. Pečat WM 23 zastupljen je na nalazištu u Brbinju (kat. br. 1541).

⁴² HALMOS 2013: 58.

³⁶ PEARCE 2013: Fig. 1.

³⁷ HALMOS 2013.

³⁸ HALMOS 2013: 51–53.

³⁹ HALMOS 2013: 53, Fig. 5.

⁴⁰ HALMOS 2013: 53–57.

⁴¹ HALMOS 2013: 53, Fig. 10; although stamps numbered 3 and 23 were not found at the *Manifattura* site in Venice, their existence is known. The stamp WM 23 is represented at the Brbinj site (cat. 1541).

⁴² HALMOS 2013: 58.

motiv. Prva predstavlja male (promjera 9 do 11 mm) jednostavne pečate s okvirom u punoj crti (T. V/1537, 1543, 1553, 1558), a druga slične, ali veće pečate (13 do 16 mm) (T. V/1538, 1542, 1545–1547, 1550, 1556, 1559). Treća su skupina pečati koji kružni okvir imaju izveden nazubljenim kotačićem (*roulette*), a inicijali su također okruženi biljnim motivom (T. V/1544, 1548, 1549, 1551, 1552, 1554, 1555, 1557, 1573). Slijede skupine koje umjesto donjega biljnog motiva imaju brojeve serija. U Brbinju su zastupljeni pečati iz serija 19 (T. V/1535) i 23 (T. V/1541).

Nakon 1792. Mletačka Republika dozvolila je Severinu Meydelu iz gradića Oriaga da započne s proizvodnjom lula engleskog oblika u svojim radionicama, kako bi se ukinuo uvoz iz Engleske. Njegove lule bile su poput lula WM, ali su na pečatu nosile prikaz mletačkoga krilatog lava. Ovaj novi monopol nije dugo trajao jer je Mletačka republika propala 1797., kao i ta domaća proizvodnja lula, stoga su lule s lavom vrlo rijedak nalaz, a u Hrvatskoj još nije pronađena ni jedna.

Kad je riječ o početku uvoza lula WM u Veneciju, o tome zasad nisu pronađeni arhivski podaci. No prema tipološkim osobinama lula koje je proizvodila obitelj Manby,⁴³ lule WM na Jadranu odgovaraju oblicima iz sredine i druge polovine 18. stoljeća. Tako se može reći da se lule s oznakama WM koje se pronalaze u Jadranu mogu otprilike datirati u razdoblje od najranije 1740. do najkasnije 1792.

No dvije lule s gomile u Brbinju ne pripadaju lulama WM. Lula engleskog oblika bez oznaka (T. IV/1564) izdvojena je od ostalih engleskih lula iz balastne gomile. Osim što nema nikakav pečat ili drugu oznaku proizvođača, čašica joj je izdužena, a stopica zašiljena, poput ostruge. Lule ovakvog oblika Oswald pripisuje svojem tipu 9A, koji dati-

group comprises small (9–11 mm in diameter) simple stamps with a solid-line border (Pl. V/1543, 1553, 1558, 1537), and the second comprises similar but larger stamps (13–16 mm) (Pl. V/1538, 1542, 1545–1547, 1550, 1556, 1559). The third group consists of stamps whose circular border is executed with a toothed wheel (*roulette*), with the initials likewise surrounded by a vegetal motif (Pl. V/1544, 1548, 1549, 1551, 1552, 1554, 1555, 1557, 1573). These are followed by groups that, instead of a lower vegetal motif, have series numbers. At Brbinj the stamps represented belong to series 19 (Pl. V/1535) and series 23 (Pl. V/1541).

After 1792 the Venetian Republic permitted Severino Meydel from the town of Oriago to begin producing pipes of English form in his workshops, with the aim of ending imports from England. His pipes resembled the WM pipes but bore on the stamp the image of the Venetian winged lion. This new monopoly did not last long, as the Venetian Republic collapsed in 1797, as did this domestic pipe production; consequently, pipes bearing the lion are very rare finds, and not one has yet been discovered in Croatia.

As for the beginning of WM pipe imports into Venice, no archival data have so far been identified. However, based on the typological features of the pipes produced by the Manby family⁴³, the WM pipes found in the Adriatic correspond to forms from the mid and second half of the 18th century. Thus, it may be said that the WM-marked pipes recovered in the Adriatic can be approximately dated to the period from no earlier than 1740 to no later than 1792.

However, two pipes from the heap at Brbinj do not belong to the WM group. An English-type pipe without any marks (Pl. IV/1564) was separated from the other English pipes from the ballast heap. In addition to lacking any stamp or other maker's mark, its bowl is elongated and the heel is pointed and spur-like. Oswald attributes pipes of this form to his type 9A, which he dates

⁴³ PEARCE 2013.

⁴³ PEARCE 2013.

ra u razdoblje od 1680. do 1730.⁴⁴ Tako je to najstarija lula u Hrvatskoj koja se može pripisati engleskim radionicama. Drugi je ulomak gornji rubni dio čašice lule koji ima trag ukrašavanja nazubljenim kotačićem (T. IV/1567). Ovaj način ukrašavanja ne javlja se kod lula WM, ali je inače dosta zastupljen kod drugih proizvođača, posebice u ranijim vremenima, prije 18. stoljeća.

Još jedna pronađena lula zapadnog oblika pripisuje se nizozemskoj proizvodnji (T. IV/1556). Oznaka proizvođača na dnu pete prikazuje djetelinu s tri lista. Lule s oznakom djeteline s tri lista izrađivalo je deset proizvođača lula u razdoblju od druge polovice 17. do prve polovice 19. stoljeća, a većina, šest proizvođača, u 18. stoljeću.⁴⁵ Na temelju karakteristika reljefnog prikaza djeteline i dimenzija pete, brbinjska lula najsličnija je lulama koje su se proizvodile od 1740. do 1770.

Osim engleskih lula, na gomili u Brbinju pronađeno je i 16 ulomaka lula tipa *Polesine* (T. VI), što čini samo oko 5 % cijelog uzorka. Te su lule inače vrlo čest nalaz duž istočne jadranske obale. Vrlo su karakterističnog oblika i izrade, jer su, za razliku od velike većine ostalih lula, izrađivane prostoručno, a ne putem kalupa. Također, važno je da su izrađivane od tri dijela. Zasebno su se formirali čašica, tijelo i tuljac. Ta su tri dijela bila sastavljena, odnosno ručno su lijepljeni u cjelinu dok su još bili mokri. Zbog svoje izrade imaju specifičan oblik, pa je tako njihovo tijelo često zdepasto i neujednačeno, a čašica poput lonca ili tegle. Tuljac je uglavnom širok i nema naglašeno prstenasto zadebljanje.

U literaturi se opisuju kao proizvod mjesnih lončara iz područja pokrajina Polesine i Padovana.⁴⁶ Nazivaju se i lončarskim lulama (*Al tornio, Pipe dei pignattari*), jer su ih pro-

to the period from 1680 to 1730.⁴⁴ It is therefore the oldest pipe in Croatia that can be attributed to an English workshop. The second fragment is the upper rim portion of a pipe bowl that shows traces of decoration made with a toothed wheel (Pl. IV/1567). This method of decoration does not occur on WM pipes but is otherwise well represented among other manufacturers, especially in earlier periods, prior to the 18th century.

Another western-type pipe recovered at the site is attributed to Dutch production (Pl. IV/1556). The maker's mark on the base of the heel depicts a three-leaf clover. Pipes bearing the three-leaf clover mark were produced by ten pipe makers from the second half of the 17th century to the first half of the 19th century; six of these were active in the 18th century.⁴⁵ On the basis of the characteristics of the relief clover motif and the heel dimensions, the Brbinj pipe is most similar to those produced between 1740 and 1770.

In addition to the English pipes, 16 fragments of Polesine-type pipes were found in the Brbinj heap (Pl. VI), accounting for only about 5 % of the entire assemblage. These pipes are otherwise a very common find along the eastern Adriatic coast. They are highly distinctive in form and manufacture because, unlike the great majority of pipes, they were made by hand rather than in moulds. It is also significant that they were produced in three separate parts. The bowl, the body and the stem were each formed individually. These three parts were then joined by hand while still wet. Because of this method of manufacture, they have a characteristic appearance: the body is often squat and irregular, and the bowl resembles a pot or jar. The stem is generally broad and lacks a pronounced ring-like thickening.

In the literature they are described as the products of local potters from the Polesine and Padovana regions.⁴⁶ They are also referred to as potters' pipes (*al tornio, pipe dei pignattari*), because they were made by potters, who would

⁴⁴ OSWALD 1961: 60, 61.

⁴⁵ VAN DER MEULEN 2003: 43.

⁴⁶ BOSCOLO 2000: 45, 46.

⁴⁴ OSWALD 1961: 60, 61.

⁴⁵ VAN DER MEULEN 2003: 43.

⁴⁶ BOSCOLO 2000: 45, 46.

izvodili lončari te uz svoje posuđe nosili na tržnice i sajmove na prodaju. Njihove su se radionice nalazile uz tok rijeke Pad, u regiji Polesino kod grada Roviga ili regiji Basso Padovano, južno od grada Padove. Datacija izrade ovih lula nije sasvim jasna. Očito je da se lule u početku proizvode usporedo s ćozotskim lulama, od druge polovine 17. stoljeća, ali čini se da ih se ne nalazi u arheološkim cjelinama od kraja 19. stoljeća nadalje.

Građevinski otpad

Najveći dio arheološkog materijala prikupljenog tijekom istraživanja hrpe balasta na lokalitetu Pod Narat čini građevinski otpad. Od ukupne mase dokumentiranog materijala (2387 kg) građevinski otpad čini 1697 kg, odnosno 71 %. Ova skupina obuhvaća opeke, crijep i žbuku. Prikupljeno je ukupno 5099 komada, pri čemu je većina nalaza fragmentirana, a samo je nekoliko opeka sačuvano u cijelosti (T. II/15–17).

U mensiokronološkim radovima koji se bave analizom opeka iz Venecije navodi se da su za određivanje tipova opeka i njihovu dataciju od velike važnosti regulative u kojima su propisane dužnosti proizvođača i distributera, aspekti proizvodnje te kvalitete i dimenzija opeka.⁴⁷ Neke opeke nalazišta Pod Narat sačuvane su u dovoljnoj mjeri da se može pretpostaviti njihova datacija. Pronađena je opeka dimenzija 17 × 7,8 × 5,4 cm. Takve opeke u literaturi se često interpretiraju kao *altinelle*, odnosno srednjovjekovne opeke koje imaju inspiraciju u kasnoantičkim opekama. Njihova upotreba u arhitekturi najintenzivnija je od 12. do 14. stoljeća.⁴⁸ Pronađena su i tri primjerka čije su dimenzije 18,5/19 × 9/9,7 × 6,4/6,7 cm (T. II/16). Za takve opeke nije pronađena izravna analogija. Moguće je da je, kao u prethodnom slučaju, riječ o varijanti opeke *altinella*, ali isto je tako

take them, along with their pottery, to markets and fairs for sale. Their workshops were located along the course of the river Po, in the Polesine region near the town of Rovigo or in the Basso Padovano region, south of the city of Padua. The dating of the manufacture of these pipes is not entirely clear. It is evident that production began alongside Chioggia-type pipes in the second half of the 17th century, but they do not seem to appear in archaeological assemblages from the late 19th century onwards.

Building debris

The largest portion of the archaeological material recovered during the investigation of the ballast heap at the Pod Narat site consists of building debris. Of the total mass of documented material (2,387 kg), building debris accounts for 1,697 kg, or 71 %. This group comprises bricks, roof tiles and mortar. A total of 5,099 pieces were collected, most of them fragmentary, with only a few bricks preserved in their entirety (Pl. II/15–17).

Mensiochronological studies that analyse bricks from Venice note that regulations prescribing the duties of producers and distributors, manufacturing aspects and brick quality and dimensions are of great importance for determining brick types and their dating.⁴⁷ Some bricks from the Pod Narat site are sufficiently preserved to allow a tentative estimation of their date. A brick measuring 17 × 7.8 × 5.4 cm was recovered. In the literature such bricks are often interpreted as *altinelle*, that is, medieval bricks whose inspiration lies in late antique bricks. Their use in architecture is most intensive between the 12th and 14th centuries.⁴⁸ Three further examples measure 18.5/19 × 9/9.7 × 6.4/6.7 cm (Pl. II/16). No direct analogy for these bricks was identified. It is possible that, as in the previous case, they represent a variant of the *altinella* brick, but it is equally possible that they came to Venice

⁴⁷ VAROSIO 2001; SQUASSINA 2011.

⁴⁸ VAROSIO 2001: 51–52; SQUASSINA 2011: 248–250.

⁴⁷ VAROSIO 2001; SQUASSINA 2011.

⁴⁸ VAROSIO 2001: 51–52; SQUASSINA 2011: 248–250.



SLIKA 10. Opeka s ostatkom žbuke (snimio: R. Surić)
 FIGURE 10 Brick with mortar adhering (photo by R. Surić)

moгуće da je riječ o opekama koje su u Veneciju dospjele iz nekog drugog proizvodnog središta, što je bio čest slučaj u venecijanskoj gradnji.⁴⁹

Opeka dimenzija 24,7 × 11,2 × 5,2 cm (T. II/15) najveća je od pronađenih opeka na nalazištu Pod Narat. Opeke tih dimenzija nalazimo inkorporirane u zgrade u Veneciji iz 16. stoljeća.⁵⁰

Pronađena je i jedna neobično tanka opeka čija duljina nije u potpunosti sačuvana, a izmjerene su dimenzije > 14 × 13,4 × 2,5 cm (T.

from another production centre, which was a frequent occurrence in Venetian construction.⁴⁹

A brick measuring 24.7 × 11.2 × 5.2 cm (Pl. II/15) is the largest of all the bricks found at the Pod Narat site. Bricks of these dimensions are found incorporated into buildings in Venice dating to the 16th century.⁵⁰

An unusually thin brick was also recovered, whose full length is not preserved; its recorded dimensions are >14 × 13.4 × 2.5 cm (Pl. II/17). No analogy for such a thin brick has so far been identified.

⁴⁹ VAROSIO 2001: 50.

⁵⁰ SQUASSINA 2011: 251–252.

⁴⁹ VAROSIO 2001: 50.

⁵⁰ SQUASSINA 2011: 251–252.

II/17). Analogija za tako tanku opeku do sad nije pronađena.

Pronađeni primjerci opeka nisu imali funkciju proizvoda u trgovini, već su se na morskom dnu našli zajedno s drugim otpadom. Takvu interpretaciju potvrđuje i datacija pronađenih opeka u dosta ranije razdoblje. Opeke su na smetlište mogle dospjeti nakon rušenja zidanih objekata kao građevinski otpad odnosno šuta.

Žbuka sačuvana u grudama bila je dokumentirana i vagana, a rasuta se žbuka nije mogla precizno odvojiti od morskog sedimenta pa nije zasebno evidentirana. Ipak, pretpostavlja se da je upravo ta rasuta žbuka činila znatan dio ukupne mase broškog balasta. Izvorna žbuka pronađena je na nekim opekama (sl. 10; T. II/15) i crijepovima, što još jednom upućuje na to da je građevinski materijal s ovog nalazišta ostatak nakon rušenja objekata, a ne kao neiskorišteni građevinski materijal namijenjen trgovini.

Staklo

Na nalazištu u Brbinju pronađeno je nekoliko stotina ulomaka staklenih posuda, ali, na žalost, to su sve vrlo mali ulomci, koje je teško sa sigurnošću tipološki odrediti. Od njih je izdvojeno stotinjak koji imaju vidljive istaknutije tehničke i tipološke karakteristike. Ulomci se mogu razdvojiti u nekoliko skupina, prema karakteru posuda kojima su pripadali.

Prvo su to ostaci kružnih stopica zdjelica ili pehara (T. VII/1). Na dva se ulomka zbog širine recipijenta može reći da je riječ o zdjelicama ili širokim peharima, a za slabije se očuvane ulomke to ne može tvrditi. Potonji su moguće i obodi stopica nekih kaleža na visokim nogama.⁵¹

Par ulomaka stakla ima vrlo izražene boje (T. VII/2). Jedan je od bijeloga neprozirnog stakla, koji na sebi ima i tragove crvene boje, koja je očito trag ukrašavanja. Takvo bijelo

The recovered bricks did not have the function of traded products but ended up on the seabed together with other refuse. This interpretation is further supported by the considerably earlier date of the bricks. Bricks could have reached a waste dump after the demolition of masonry structures, as construction debris or rubble.

Mortar preserved in lumps was documented and weighed, while loose mortar could not be separated precisely from the marine sediment and was therefore not recorded separately. Nevertheless, it is assumed that this loose mortar constituted a significant portion of the total mass of the ship's ballast. Original mortar was found adhering to some of the bricks (Fig. 10; (Pl. II/15) and tiles, which again indicates that the building material from this site represents debris from demolished structures rather than unused construction material intended for trade.

Glass

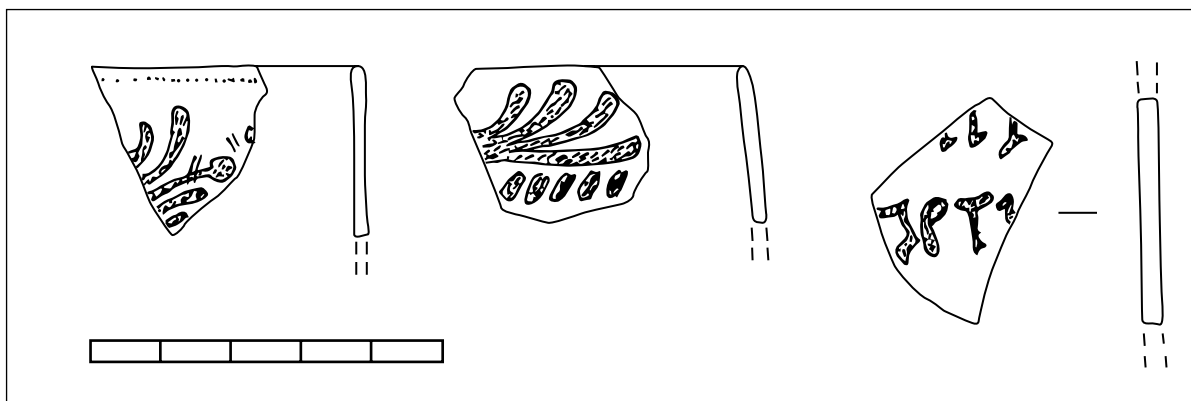
Several hundred fragments of glass vessels were recovered at the Brbinj site, but unfortunately these are all very small pieces that are difficult to classify typologically with certainty. Around one hundred fragments with more pronounced technical and typological features were separated for analysis. The fragments can be divided into several groups, according to the type of vessels to which they belonged.

The first group comprises the remains of circular bases of bowls or goblets (Pl. VII/1). On two fragments, the width of the container allows them to be identified as small bowls or wide goblets, whereas this cannot be stated for the rather poorly preserved pieces. The latter may also represent the bases of long-stemmed chalices.⁵¹

A few glass fragments display very distinctive colours (Pl. VII/2). One is of white opaque glass and bears traces of red colouring, clearly the remains of painted decoration. Such white glass is known as *vetro lattimo*, and vessels of this type

⁵¹ BEKIĆ 2014: sl. 19.

⁵¹ BEKIĆ 2014: Fig. 19.



SLIKA 11. Detalji gravura na čašama i ravnom ulomku (nacrtao: L. Bekić)

FIGURE 11 Details of engravings on glasses and on the flat fragment (drawing by L. Bekić)

staklo zove se i *vetro lattimo*, a posude su redovito ukrašavane bojama.⁵² U Veneciji se to staklo počelo proizvoditi sa željom da podsjeća na porculan, od 16. stoljeća, a nastavlja se proizvoditi barem do 18. stoljeća. Drugi je ulomak obod čaše, gotovo neprozirne tamnoplave boje. Takve plave čaše proizvodile su se u Veneciji tijekom 16. stoljeća.⁵³

Zatim je tu skupina oboda posuda koji na sebi imaju aplicirane bijele neprozirne staklene trake (T. VII/3). Neki od ovih ulomaka vjerojatno pripadaju otvorima boca, a drugi pripadaju čašama, odnosno kaležima. Uporabne boce s takvim bijelim apliciranim obodima L. Bekić svrstava u boce tipa 1B i mogu se datirati u razdoblje od kraja 16. do početka 18. stoljeća.⁵⁴ Izvjesno je da se i tako ukrašene čaše mogu datirati u isto razdoblje.

Obodima čaša pripadaju i brojni ulomci bezbojnog ili blijedo obojenog stakla (T. VII/4). Čaše su bile različitih veličina i oblika, neke debljih, ali većina prilično tankih stijenki. Osim bezbojnih tankih čaša, pronalaze se i plavkaste čaše okomitog profila (T. VII/7).

Bezbojne čaše ravnog profila (T. VII/5) vjerojatno pripadaju skupini tzv. čeških čaša koje se mogu datirati u 18. stoljeće.⁵⁵ Među njima su vrlo zanimljivi ulomci ukrašeni gravurom

were regularly decorated in colour.⁵² In Venice this glass began to be produced in the 16th century, with the intention of imitating porcelain, and production continued at least into the 18th century. The second fragment is the rim of a glass vessel in an almost opaque dark blue. Blue glasses of this type were produced in Venice during the 16th century.⁵³

Next is a group of vessel rims bearing applied white opaque glass trails (Pl. VII/3). Some of these fragments probably belong to bottle mouths, while others come from drinking glasses or chalices. Utility bottles with such applied white rims are classified by L. Bekić as type 1B and can be dated from the late 16th to the early 18th century.⁵⁴ It is likely that similarly decorated glass vessels can be dated to the same period.

Numerous fragments of colourless or pale-coloured glass belong to the rims of drinking vessels (Pl. VII/4). The glasses varied in size and form, some with thicker but most with rather thin walls. In addition to colourless thin-walled glasses, bluish glasses of vertical profile also occur (Pl. VII/7).

Colourless glasses of straight profile (Pl. VII/5) probably belong to the group of so-called Czech glasses, which can be dated to the 18th century.⁵⁵ Among them are very interesting fragments decorated by engraving (Fig. 11). Two fragments

⁵² BOVA 2010: Ib 75, 76.

⁵³ BOVA 2010: I. 64.

⁵⁴ BEKIĆ 2014: 15, sl. 3, sl. 30.

⁵⁵ BEKIĆ 2014: 46, sl. 25, sl. 30.

⁵² BOVA 2010: Ib 75, 76.

⁵³ BOVA 2010: I. 64.

⁵⁴ BEKIĆ 2014: 15, Fig. 3, Fig. 30.

⁵⁵ BEKIĆ 2014: 46, Fig. 25, Fig. 30.

(sl. 11). Dva ulomka pripadaju gornjim dijelovima čaša, a na njima su nacrtani biljni motivi, lišće i cvijeće. Ti ulomci mogli bi se možda datirati i u ranije razdoblje, u kasno 17. stoljeće, sukladno nekim sličnim primjerima ukrašavanja.⁵⁶ Na trećem ulomku nalaze se slova pisana u gotičkom stilu, u dva reda. Jedno slovo ima na sebi tragove bijele boje, pa je moguće da su i ostala imala boju na sebi. Na žalost, natpis je prekratak za čitanje, a na temelju oblika ulomka ne može se odrediti oblik posude.

Dva ulomka pripadaju nožicama pehara ili kaleža. Prvi ulomak na T. VII/8 pripada jednostavnijem peharu na visokoj šupljaj nozi, poput nekih primjeraka s Gnalića iz kraja 16. stoljeća.⁵⁷ Ulomak prikazan pokraj njega izrađen je sasvim drugačije, nožica je punog profila, a na najdužem dijelu četvrtastog presjeka. Po svemu sudeći, to je proizvod neke od srednjoeuropskih radionica iz 18. stoljeća. Vrlo vjerojatno ovo vrijedi i za bezbojnu zavijenu oblu ručicu.

Jedan dio ulomaka čaša ima ukrašene stijenke reljefnim rebrima ili kapljicama (T. VII/6). To nisu aplicirani ukrasi, nego su izvedeni obradom same stijenke. Ulomci smeđe boje (rebro) i zelenkaste boje (kapljica) na lijevoj strani vjerojatno su proizvodi venecijanskih radionica. Takvi ukrasi tipični su za 15. i 16. stoljeće.⁵⁸ Veći ulomci prozirnog stakla ne mogu se opisati kao rebrasti jer im stijenke nisu različite debljine, već su im rebra izvedena ravnanjem površine stakla. Ti ulomci pripadaju tzv. češkim čašama kakve se mogu datirati u 18. stoljeće.

Na T. VII/9 nalaze se ulomci dna različitih čaša. Dva prva ulomka zasigurno pripadaju tzv. ljubičastim čašama čunjastog oblika koje se mogu datirati u drugu polovinu 17. i 18. stoljeća.⁵⁹ Treći ulomak ima tanje stijenke i zaobljen prijelaz iz tijela u dno. Ulomci u do-

belong to the upper parts of glasses and bear drawn vegetal motifs, leaves and flowers. These fragments may perhaps be dated earlier, to the late 17th century, in line with some comparable examples of decoration.⁵⁶ A third fragment bears letters written in Gothic-style letters, arranged in two lines. One letter shows traces of white paint, so it is possible that the others were also painted. Unfortunately, the inscription is too short to be read, and the shape of the fragment does not allow the vessel form to be determined.

Two fragments belong to the stems of goblets or chalices. The first fragment in Pl. VII/8 belongs to a simpler goblet on a tall hollow stem, similar to some examples from the Gnalić shipwreck, dating to the late 16th century.⁵⁷ The fragment shown beside it is made quite differently – its stem is of solid profile, with a square cross-section along the longest part. It is, by all indications, a product of one of the Central European workshops of the 18th century. This is also very likely the case for the colourless twisted rounded handle.

A number of fragments of glasses have walls decorated with relief ribs or drops (Pl. VII/6). These are not applied decorations but were formed by working the vessel wall itself. The brown-coloured (rib) and greenish (drop) fragments on the left are probably products of Venetian workshops. Such decorations are typical of the 15th and 16th centuries.⁵⁸ Larger fragments of colourless glass cannot be described as ribbed because their walls are not of differing thickness; instead, their “ribs” were produced by flattening the glass surface. These fragments belong to the so-called Czech glasses, which can be dated to the 18th century.

In Pl. VII/9 there are fragments of the bases of various drinking vessels. The first two fragments certainly belong to the so-called purple drinking glasses of conical form, which can be dated to the

⁵⁶ CIAPPI 2010: sl. 5, 6; SEDLAČKOVA, ROHANOVA 2015: 40, sl. 3.

⁵⁷ LAZAR, WILLMOTT 2006: sl. 19.

⁵⁸ BOVA 2010: sl. 12–17; BEKIĆ 2014: sl. 26–27.

⁵⁹ BEKIĆ 2014: sl. 24, 30.

⁵⁶ CIAPPI 2010: sl. 5, 6; SEDLAČKOVA, ROHANOVA 2015: 40, Fig. 3.

⁵⁷ LAZAR, WILLMOTT 2006: Fig. 19.

⁵⁸ BOVA 2010: Il. 12-17; BEKIĆ 2014: Fig. 26-27.

njem redu najvjerojatnije pripadaju već spomenutim „češkim čašama” iz 18. stoljeća.

Dijelovi tijela i dna boca četvrtastog i višekutnog presjeka (T. VII/10) uglavnom pripadaju uporabnim bocama.⁶⁰ Manji i delikatniji ulomci mogu se pripisati bočicama posebne namjene. To bi mogle biti boce s mirisima ili lijekovima.

Pronađeno je i više ulomaka dna boca okruglog presjeka, od kojih su češće one malih dimenzija (T. VII/11). Od tih su bočica sačuvani i ulomci gornjih dijelova (T. VII/12, 13). Količina je ulomaka bočica u sveukupnom uzorku znatna. Vrlo su neobični uski obodi boca koji imaju „odrezan” vrh (T. VII/13). Čini se da to nije trag otvaranja, odnosno odčepljivanja boce, nego trag nekog specifičnog načina izrade ovih bočica.

Vrlo su zanimljivi ulomci zelenkastih posuda koje imaju aplicirane izdužene ručice na svojem tijelu (T. VII/14). Još u ranobizantsko doba bile su vrlo raširene otvorene uljanice – svjetiljke koje su bile ovješene o te ručice. Tradicija izrade takvih svjetiljki nastavila se i u 16. stoljeću.⁶¹

Tri ulomka mogu se odrediti kao četvrtasto prozorsko staklo (T. VII/15).⁶² Četvrti ravni ulomak na toj slici mogao bi biti i trokraki razdjelnik između okruglih okvira stakla. Nađeno je i sedam ulomaka kružnoga prozorskog stakla s naglašenim dvostrukim rubovima (T. VII/16), kakvi su poznati iz brojnih nalazišta.⁶³ Na kraju valja spomenuti da je pronađena i jedna staklena perlica crvene boje.

Kad je riječ o staklenim nalazima iz Brbinja, većina onih koji se mogu datirati pripadaju 18. stoljeću, premda jedan dio potječe iz 17. stoljeća, a možda čak i ranije. Većinom su to venecijanski proizvodi, ili barem sjevernojadranski, s nekoliko primjeraka iz čeških odnosno srednjoeuropskih radionica. Gledajući

second half of the 17th, and the 18th century.⁵⁹ The third fragment has thinner walls and a rounded transition from body to base. The fragments in the bottom row most likely belong to the Czech glasses of the 18th century mentioned above.

Parts of the bodies and bases of bottles with square and polygonal cross-sections (Pl. VII/10) mostly belong to utilitarian bottles.⁶⁰ Smaller and more delicate fragments may be attributed to small specialised bottles, possibly scent or medicine bottles.

Several fragments of bottle bases of circular cross-section were also found, more frequently those of small size (Pl. VII/11). Fragments of the upper parts of these small bottles were also preserved (Pl. VII/12, 13). The quantity of bottle fragments in the overall assemblage is considerable. Very unusual are the narrow bottle rims with a “cut-off” top (Pl. VII/13). This does not appear to be a trace of opening or uncorking but rather evidence of a specific manufacturing method for these miniature bottles.

Also noteworthy are the fragments of greenish vessels bearing small applied elongated handles on their bodies (Pl. VII/14). In the Early Byzantine period, open oil lamps – suspended by such handles – were already widespread. The tradition of producing such lamps continued into the 16th century.⁶¹

Three fragments can be identified as square window glass (Pl. VII/15).⁶² A fourth flat fragment in the same plate could be a three-armed divider between circular window panes. Seven fragments of circular window glass with pronounced double rims were also found (Pl. VII/16), examples of which are known from numerous sites.⁶³ Finally, a single red glass bead was also recovered.

Regarding the glass finds from Brbinj, most of the datable pieces belong to the 18th century, although some originate from the 17th century and

⁶⁰ BEKIĆ 2014: sl. 4.

⁶¹ BOVA 2010: Ib. 87.

⁶² BOVA 2010: I. 73.

⁶³ BOVA 2010: I. 72; Ib. 88.

⁵⁹ BEKIĆ 2014: Fig. 24, 30.

⁶⁰ BEKIĆ 2014: Fig. 4.

⁶¹ BOVA 2010: Ib. 87.

⁶² BOVA 2010: I.73.

⁶³ BOVA 2010: I.72; Ib. 88.

na ovo staklo kao cjelinu, primjećuje se velik broj finih čaša i kaleža te bočica, vjerojatno za lijekove ili mirise. Uočava se nedostatak većih uporabnih boca za piće iz tog vremena, koje su česte u lukama i sidrištima. Ova cjelina stoga ukazuje na otpad iz intime nekih gospodskih kuća, daleko od miljea gostionica i lučkih postrojenja.

Metal

Nekoliko metalnih nalaza pronađenih u gomili, osim korodiranih željeznih čavala, pripadaju kućanskim potrepštinama. Kao prvo, to su dva recipijenta malih žlica (T. VIII/1) od bakrene slitine. Sudeći po dimenzijama, to su bile žličice za čaj (ili kavu), čije je uživanje u Mletcima u modu ušlo tijekom 17. stoljeća. Nažalost, drške nisu sačuvane, ali po tipološkim osobinama recipijenta i ostatka dosjeda drške može se predmnijevati da su izrađene u prvoj polovini 18. stoljeća.⁶⁴

Najzanimljiviji su brončani ili mjedeni predmeti prikazani na T. VIII/2. Na lijevoj je strani prikazana jedna manja pojasna kopčica, od koje je sačuvana tek polovica. Prema obliku pripada ovalnim kopčama s probijanim okvirom za umetanje odvojene osovine. Takve su se kopčice upotrebljavale na obuču krajem 17. i početkom 18. stoljeća.⁶⁵ Predmet na desnoj strani nožica je neke posude, izrađena od mjedi, u obliku životinjske šape, vjerojatno lavlje. Ovakve nožice služile su kao postolja za svijećnjake, razne posude i kutije ili čak namještaj poput sanduka. Nažalost, korištene su kroz dugo razdoblje, od 17. pa sve do 20. stoljeća, pa ih je teško datirati bez samog predmeta kojem su služili.

Od bakrenih slitina još su tri predmeta (T. VIII/4): bakrena žica, privjesak i tuljac. Privjesak je izrađen od neke kovanice, koja je namjerno izlizana i oguljena da ostane samo okrugla pločica, koja je potom i probijena u

perhaps even earlier. They are mostly Venetian products, or at least northern Adriatic, with a few examples from Czech or other Central European workshops. Viewed as a whole, the assemblage shows a large number of fine drinking glasses and chalices and of miniature bottles, probably for medicines or perfumes. There is a noticeable absence of larger utilitarian drinking bottles of the period, which are common in harbours and anchorages. The assemblage therefore points to refuse originating from the domestic sphere of certain patrician households, far removed from the milieu of taverns and port facilities.

Metal

Among the few metal finds recovered from the heap, apart from corroded iron nails, some belong to household items. Foremost among these are the bowls of two small spoons (Pl. VIII/1) of copper alloy. Judging from their dimensions, these were tea (or coffee) spoons, which came into use with the growing popularity of tea and coffee consumption in Venice during the 17th century. Unfortunately, the handles have not been preserved, but on the basis of typological features of the bowl and the remnant of the handle junction, it may be assumed that they were made in the first half of the 18th century.⁶⁴

The most interesting bronze or brass objects are shown in Pl. VIII/2. On the left is a small belt buckle, of which only half has been preserved. In terms of its form, it belongs to the oval buckles with a pierced frame for inserting a separate pin. Such buckles were used on footwear in the late 17th, and early 18th century.⁶⁵ The object on the right is the foot of a vessel, made of brass, in the shape of an animal paw, probably that of a lion. Feet of this kind served as supports for candlesticks, various vessels and boxes, or even furniture such as chests. They were used over a long period – from the 17th through to the 20th century – so without the object they belonged to, they are un-

⁶⁴ JACKSON 1892: 142–143.

⁶⁵ WHITEHEAD 1996: 101, br. 662.

⁶⁴ JACKSON 1892: 142, 143.

⁶⁵ WHITEHEAD 1996: 101, No. 662.

svrhu ovjesa. Nažalost, nije moguće ni naslutiti doba kovanja ovog novca. Tuljac uz otvoreni dio ima navoj pa se po tome može zaključiti da je to gornji dio pera za pisanje.

Tri kositrena ulomka (T. VIII/3) možda predstavljaju ostatke kositrenih čepova staklenih boca ili, što je vjerojatnije, ostatke kositrenih kutijica, bolje reći, kapsula. U njima je vjerojatno bila mast terijak (*teriacca*). Neke od njih imale su na svojoj gornjoj plohi i oznake sadržaja i proizvođača. Nažalost, kapsula iz Brbinja nema nikakvih oznaka. Pripravak terijak postao je popularan tijekom 16. stoljeća, a cijena jedne kapsule bila je prilično velika. U Veneciji je tijekom 17. stoljeća bilo više ljekarni koje su imale dozvolu za proizvodnju i prodavanje te ljekovite masti. Tijekom 18. stoljeća potražnja za ovom masti znatno je opala.⁶⁶

Kamen

Od kamenih je predmeta na gomili nađeno najviše alatki od kamena rožnjaka (T. VIII/6). Ovaj jednostavan, ali važan predmet svakodnevno se upotrebljavao u kućanstvu, ali i vani. Često bi se nalazio u kožnoj vrećici ili maloj drvenoj kutiji s drugom opremom za paljenje vatre. To je obvezno bilo željezno kresivo, uglavnom u obliku lire, te neki suhi materijal za početno potpaljivanje, poput suhe gljive. Udaranjem kamena o kresivo izbijala bi iskra, koja bi potpalila suhi materijal, čime bi se dalje palilo prema potrebi. Ovakvi rožnjaci upotrebljavali bi se dok se nisu sasvim potrošili, da se njima više nije moglo baratati. Na mnogima iz Brbinja vidi se polumjesečasti trag od trošenja i očito je da su namjerno odbačeni.

Vrlo je važan predmet i kameni brus (T. VIII/5). Izrađen je od manjega izduženog kamena pješčenjaka. Kamen je crvenkaste boje i vrlo fine granulacije, što ukazuje da su se na njemu oštrile delikatne oštrice, vjerojatno

fortunately difficult to date accurately.

Three further objects are made of copper alloys (Pl. VIII/4). These consist of a copper wire, a pendant and a tube. The pendant was made from a coin that was deliberately worn down and scraped so that only a round disc remained, which was then pierced for suspension. Unfortunately, it is not possible even to approximate the date when the coin was struck. The tube has a thread at its open end, allowing it to be identified as the upper part of a writing pen.

Three tin fragments (Pl. VIII/3) may represent the remains of tin stoppers for glass bottles, or – more likely – the remains of tin boxes, that is, capsules. They probably once contained teriaca ointment. Some such capsules bore marks of contents and the producer on their upper surface. Unfortunately, the capsule from Brbinj has no markings. Teriaca ointment became popular during the 16th century, and a single capsule was quite expensive. In Venice during the 17th century there were several pharmacies licensed to produce and sell this medicinal ointment. During the 18th century demand for it declined significantly.⁶⁶

Stone

Among the stone objects from the heap, the most numerous are a kind of chert tool (Pl. VIII/6). This simple but important object was used daily in households as well as outdoors. It was often kept in a leather pouch or a small wooden box together with other fire-lighting equipment. This typically included an iron striker – usually lyre-shaped – and some dry tinder material, such as amadou. Striking the chert against the iron produced a spark that ignited the tinder, from which a fire could then be kindled as needed. Such cherts were used until they were completely worn down and could no longer be handled effectively. Many examples from Brbinj show a crescent-shaped wear trace, clearly indicating deliberate discard.

Another very important object is a whetstone

⁶⁶ INGLOTT 1986: 35.

⁶⁶ INGLOTT 1986: 35.

britve. Na kraju, tu je i jedan manji komad mramorne pločice (T. VIII/7). Mramor je sitnozrnati, bijele boje s delikatnim crvenim proslajima. Ova je pločica mogla biti ugrađena u pod, ali s obzirom na svoju debljinu, vjerojatnije je bila dio ukrašenog zida, kakvih je bilo u venecijanskim palačama.

Kost

Na gomili balasta u Brbinju pronađene su brojne životinjske kosti, ali nekoliko ih je obrađeno u uporabne predmete. Tako su pronađena dva koštana puceta s jednom rupom za privezivanje na odjeću (T. VIII/8). Ovakva puceta izrađivana su od duge ravne životinjske kosti, koja bi onda bila izrezana u kružnom obliku. U Brbinju je pronađen i jedan trokutasti komad kosti (T. VIII/8, u sredini), koji je trag upravo tog izdvajanja okruglih komada kostiju za izradu puceta. Velik broj koštanih puceta i ostataka kostiju preostalih od njihova izdvajanja pronađen je i u bivšem samostanu i vojarni sv. Nikole u Zadru.⁶⁷ Stratigrafski gledano, na tom se nalazištu masovna izrada puceta pripisuje vojnom sloju s kraja 18. i početka 19. stoljeća, premda ih se pojedinačno nalazi i u grobovima iz 17. i 18. stoljeća.⁶⁸

Uz to su pronađena još dva pažljivo obrađena komada kosti prikazana na T. VIII/9. Oba su izdužena i šuplja, ali im je namjena drugačija. Predmet prikazan na lijevoj strani fotografije s proširenjem na gornjem, plosnatijem dijelu, očito je drška nekog željeznog nožića, vilice ili žlice. S desne je strane okrugli izduženi tuljac koji na svojem otvorenom dijelu ima navoje. Najvjerojatnije je to gornji dio nekog pera za pisanje kojem nedostaje donji dio.

Svi ovi predmeti od metala, kamena i kosti, poput staklenih ulomaka, svjedoče uglavnom o svakodnevnom životu u kućanstvima 18. stoljeća.

(Pl. VIII/5). It is made from a small, elongated piece of sandstone. The stone is reddish in colour and of very fine grain, indicating that delicate edges – probably razors – were sharpened on it. Finally, there is a small fragment of a marble tile (Pl. VIII/7). The marble is fine-grained and white, with delicate red banding. This tile could have formed part of a floor, but given its thickness it was more likely part of a decorated wall, such as those found in Venetian palaces.

Bone

Numerous animal bones were found in the ballast heap at Brbinj, but several had been worked into utilitarian objects. Two bone buttons with a single hole for sewing onto clothing were recovered (Pl. VIII/8). Such buttons were made from long, straight animal bones, which were then cut into circular shapes. Also found at Brbinj was a triangular piece of bone (Pl. VIII/8, centre), representing the waste left over from cutting out circular blanks for button manufacture. A large number of bone buttons and the residual bone pieces left from their production were also discovered in the former monastery and barracks of St Nicholas in Zadar.⁶⁷ Stratigraphically, the mass production of buttons at that site is attributed to the military phase of the late 18th and early 19th centuries, although individual examples also occur in graves of the 17th and 18th centuries.⁶⁸

In addition, two further carefully worked bone objects were found, shown in Pl. VIII/9. Both are elongated and hollow, but their functions differ. The object on the left side of the photograph, with a widening at the upper, flatter end, is clearly the handle of a small iron knife, fork or spoon. On the right is a round, elongated tube with threads at its open end. It is most likely the upper part of a writing pen, missing its lower portion.

All these items of metal, stone and bone, like the glass fragments, testify primarily to everyday life in 18th-century households.

⁶⁷ VRKIĆ 2017: 152, sl. 1, T. 1, 2.

⁶⁸ VRKIĆ 2017: 153.

⁶⁷ VRKIĆ 2017: 152, Fig. 1, Pl. 1, 2.

⁶⁸ VRKIĆ 2017: 153.

ZAKLJUČAK

U tri kampanje arheološkog istraživanja na nalazištu Pod Narat u Brbinju te kasnijom analizom pronađenoga arheološkog materijala došlo se do zaključka kako je riječ o ostacima novovjekovne balastne hrpe. Metodom prikupljanja svih arheoloških nalaza omogućeno je donošenje konkretnih zaključaka povezanih s količinom i brojem pojedinih nalaza na arheološkom nalazištu. Heterogeni arheološki materijal koji je pronađen tijekom istražnih radova može se okarakterizirati kao novovjekovni gradski otpad, a znatna količina luksuznog materijala upućuje na veliko urbano središte iz tog razdoblja. Na osnovi zanimljivih i indikativnih detalja došlo se do pretpostavke da je najvjerojatnije riječ o gradskom otpadu iz Venecije, iako ovu tezu još treba potvrditi daljnjim istraživanjima.

Pronađeni se nalazi okvirno datiraju u razdoblje od 16. do druge polovice 18. stoljeća, pri čemu su nalazi lula WM i nizozemske lule za duhan osobito važni za precizniju dataciju lokaliteta u razdoblje nakon 1740., ali prije 1792.

Na osnovi provedenih istraživanja može se iznijeti hipoteza da je u nekom trenutku nakon 1740. brod bez tereta ukrcao heterogeni otpad, najvjerojatnije u Veneciji, koji je poslužio kao balast za put prema Dugom otoku. Po dolasku u uvalu Lučina balast bi bio izbačen, nakon čega je brod mogao ukrcati teret po koji je i došao, a stabilizacija tereatom omogućena mu je sigurnu plovidba natrag. Vrsta tereta koja je u Brbinju ukrcana u brod zasad nije poznata. Opisanim bi se procesom luka polaska riješila dijela nakupljenog otpada, a brod je mogao ploviti bez komercijalnog tereta jer je bio stabiliziran balastom. Istraživanje balastne hrpe na lokalitetu Pod Narat predstavlja važan segment u definiranju karaktera sličnih nalazišta koja su prisutna na niz lokacija na istočnom Jadranu.

CONCLUSION

Across the three archaeological campaigns conducted at the Pod Narat site in Brbinj, and through the subsequent analysis of the recovered material, it was concluded that the deposit represents the remains of a modern-era ballast heap. The method of collecting all archaeological finds enabled the drawing of definite conclusions regarding the quantity and number of individual finds at the site. The heterogeneous archaeological material recovered during the investigation can be characterised as modern-era urban refuse, and the considerable quantity of luxury goods points to a major urban centre of that period. On the basis of several interesting and indicative details it has been hypothesised that the refuse most likely originated in Venice, although this thesis still requires confirmation through further research.

The finds can be broadly dated to the period from the 16th to the second half of the 18th century, with the WM tobacco pipes and the Dutch pipe being particularly important for narrowing the date of the site to after 1740 but before 1792.

Following the conducted investigations, it may be hypothesised that at some point after 1740 a vessel without cargo took on heterogeneous refuse, most likely in Venice, to serve as ballast for the voyage to Dugi Otok. Upon arrival in Lučina Bay the ballast would have been jettisoned, after which the vessel could load the cargo for which it had come; once stabilised by the cargo, it could return safely. The type of cargo taken aboard at Brbinj is not yet known. Through the process described, the port of departure was relieved of part of its accumulated refuse, while the vessel could sail without commercial cargo because it was stabilised by ballast. The investigation of the ballast heap at the Pod Narat site represents an important step in defining the character of similar sites present at numerous locations along the eastern Adriatic.

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TABLE 1. *Utilitarna keramika* (izradio: R. Surić)

PLATE 1 *Utilitarian pottery* (made by R. Surić)



TABLA 2. *Utilitarna keramika* (izradio: R. Surić)
PLATE 2 *Utilitarian pottery* (made by R. Surić)



TABLA 3. *Fino keramičko posuđe* (izradio: M. Kaleb)
PLATE 3 *Fine ware* (made by M. Kaleb)



TABLA 4. *Lule za duhan* (izradio: L. Bekić)
PLATE 4 *Tobacco pipes* (made by L. Bekić)

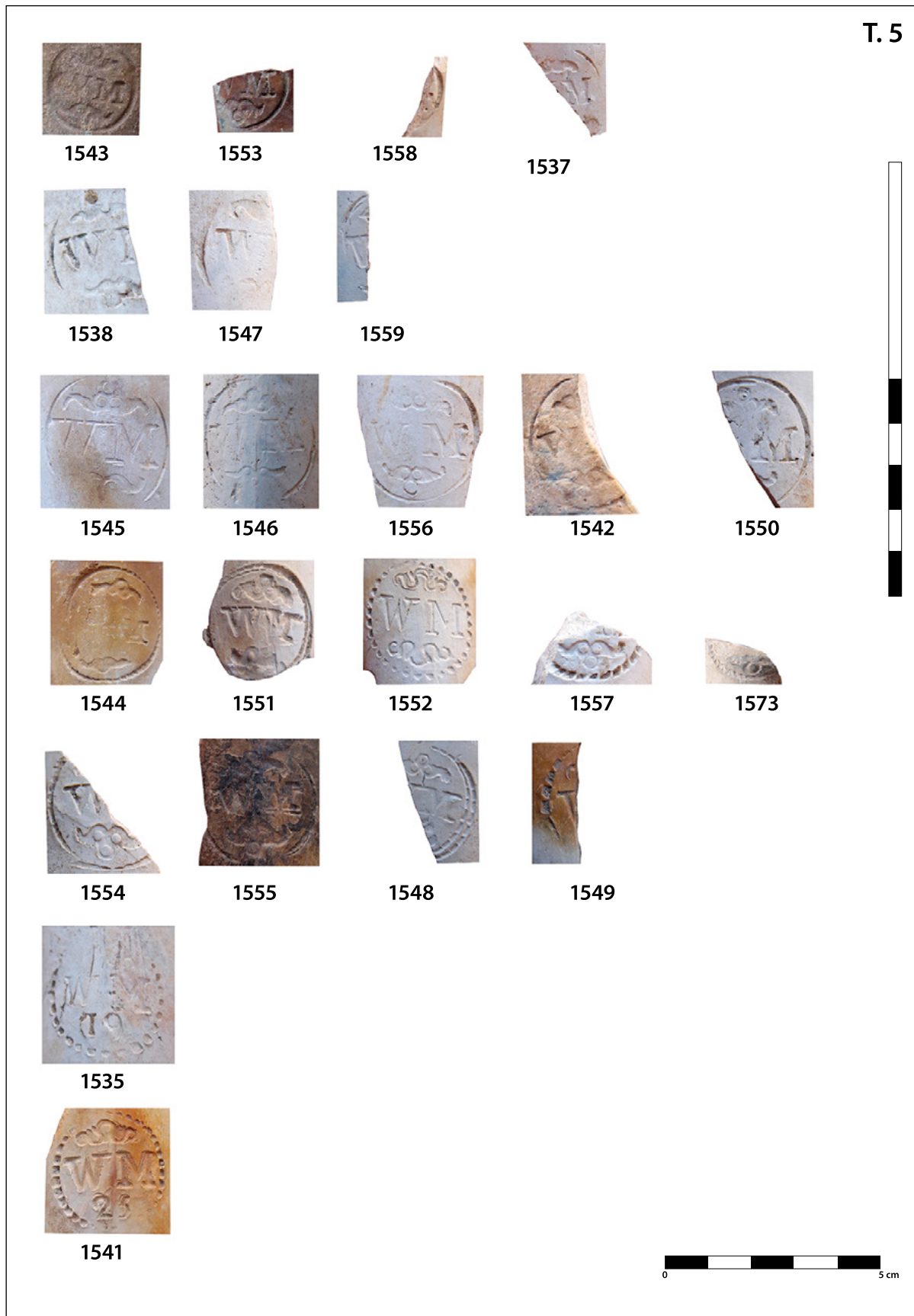


TABLA 5. *Lule za duhan* (izradio: L. Bekić)
PLATE 5 *Tobacco pipes* (made by L. Bekić)

T. 6



1536



1540



1539



1560



1561



1562



1563



TABLA 6. *Lule za duhan* (izradio: L. Bekić)
PLATE 6 *Tobacco pipes* (made by L. Bekić)



TABLE 8. *Stakleni nalazi* (izradio: L. Bekić)
 PLATE 8 *Glass finds* (made by L. Bekić)



TABLA 8. Metalni, kameni i koštani nalazi (izradio: L. Bekić)
PLATE 8 Metal, stone and bone finds (made by L. Bekić)