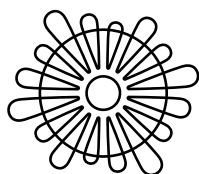


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ŠPILJA KOPAČINA NA BRAČU: NOVI AMS ^{14}C DATUMI I NJIHOVO ZNAČENJE ZA TUMAČENJE KULTURNE STRATIGRAFIJE NALAZIŠTA TE METODOLOGIJE ISKOPAVANJA (1978. – 1993.)

KOPAČINA CAVE ON THE ISLAND OF BRAČ: NEW AMS ^{14}C DATES AND THEIR SIGNIFICANCE FOR THE INTERPRETATION OF THE SITE'S CULTURAL STRATIGRAPHY AND EXCAVATION METHODOLOGY (1978–1993)

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stratigrafija, metodologija
iskopavanja

U radu predstavljamo dva nova AMS ^{14}C datuma dobivena datiranjem koštanih artefakata iz špilje Kopačine (otok Brač), koji predstavljaju važan doprinos razumijevanju kronologije ovoga nalazišta. Dobiveni datumi uspoređeni su s ranijim rezultatima radiokarbonskog datiranja te kritički razmotreni u odnosu na postojeće interpretacije kulturne stratigrafije. Rezultati upućuju na određeni stupanj miješanja slojeva, ponajprije kao posljedicu arbitrarnog sustava iskopavanja provedenog tijekom ranijih kampanja, što ističe potrebu za oprezom pri korištenju rezultatima dosad provedenih kvantitativnih analiza litičke i faunske građe. U širem kontekstu istočnojadranskog mezolitika, novi datumi dodatno dovode u pitanje hipotezu o postojanju pouzdano definiranih mezolitičkih horizonata u Kopačini te potvrđuju važnost revizijskih istraživanja temeljenih na suvremenim metodološkim standardima, uključujući precizno dokumentiranje stratigrafije i integriranu analizu različitih kategorija materijalne kulture.

KEY WORDS:

Kopačina Cave, Brač,
Late Upper Palaeolithic,
Epigravettian, AMS ^{14}C ,
stratigraphy, excavation
methodology

This paper presents two new AMS ^{14}C dates obtained by dating bone artefacts from Kopačina Cave (island of Brač), which constitute an important contribution to understanding the chronology of this site. The obtained dates are compared with earlier radiocarbon dating results and critically assessed in relation to existing interpretations of the cultural stratigraphy. The results indicate a certain degree of stratigraphic mixing, primarily a consequence of the arbitrary excavation system applied during earlier field campaigns; this highlights the need for caution when using the results of quantitative

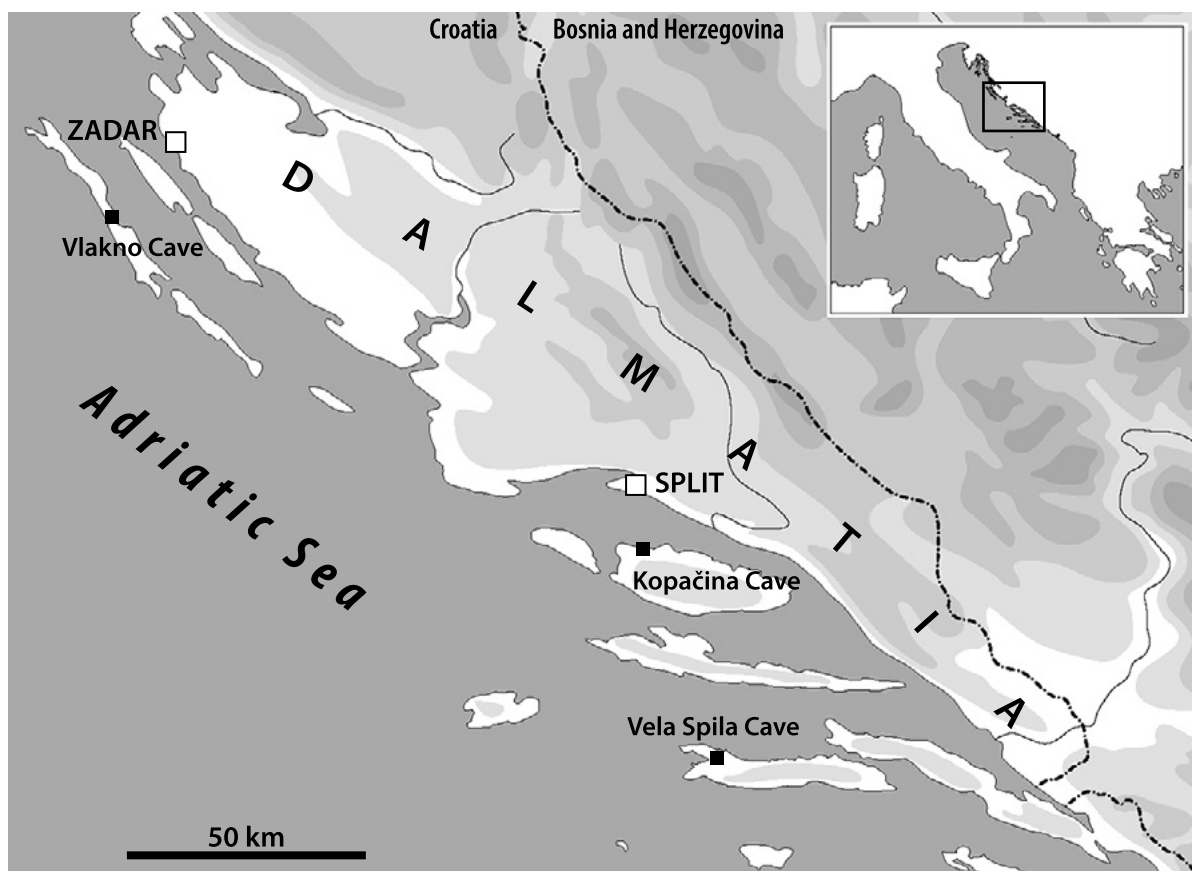
analyses of lithic and faunal assemblages conducted to date. Within the broader context of the eastern Adriatic Mesolithic, the new dates further call into question the hypothesis of the existence of reliably defined Mesolithic horizons at Kopačina and confirm the importance of revisionary research based on modern methodological standards, including precise stratigraphic documentation and the integrated analysis of different categories of material culture.

UVOD

Špilja Kopačina smještena je između Supetra i Donjeg Humca, u sjeverozapadnom dijelu otoka Brača (43°22' N i 16°32' E) na nadmorskoj visini od 220 m s ulazom orijentiranim prema zapadu (karta 1). Špilja se sastoji od ulaznog dijela, obasjanog dnevnim svjetlom tijekom većeg dijela dana, te unutarnjeg, koji je prije uklanjanja sedimenata iz ulaznog dijela bio zatvoren i u potpunom mraku. Ulazna je dvorana nepravilno ovalnog oblika i zauzima površinu od približno 55 m². Strop špilje danas prekriva oko 40 m² ulazne dvorane, definirane prema današnjoj liniji kapanja, dok je u prošlosti vjerojatno prekrivao cijeli ulazni dio. Ulaz u špilju širok je oko 10 m, a visok 3,5 m. Stjenovito dno blago se spušta prema unutrašnjosti špilje, prema sjeveru i istoku. Oko 6 m od ulaza (prema istoku) špilja se sužava na približno 5 m širine te vodi u unutarnju dvoranu

INTRODUCTION

Kopačina Cave is located between Supetar and Donji Humac, in the north-western part of the island of Brač (43°22' N, 16°32' E), at an elevation of 220 m a.s.l., with its entrance facing westwards (Map 1). The cave consists of an entrance chamber, illuminated by daylight for most of the day, and an inner chamber which, prior to the removal of sediment from the entrance area, was blocked and completely dark. The entrance chamber is irregularly oval in shape, with an area of approximately 55 m². Today, the cave ceiling covers about 40 m² of the entrance chamber, defined by the present drip line, whereas in the past it probably covered the entire area. The cave entrance is approximately 10 m wide and 3.5 m high. The rocky floor slopes gently down towards the interior of the cave, to the north and east. Approximately six metres from the entrance (towards the east), the cave narrows to about 5 m in width and



KARTA 1. Položaj špilje Kopačine i nalazišta spomenutih u tekstu (izradio: N. Vukosavljević; karta: S. Forenbaher)

MAP 1 Location of the Kopačina cave and the sites mentioned in the text (made by N. Vukosavljević; map: S. Forenbaher)



SLIKA 1. Špilja Kopačina: 1. pogled na prednji dio špilje; 2. pogled iz unutarnje dvorane prema ulazu (izradio: M. Vuković; snimio: N. Vukosavljević 2006. godine)

FIGURE 1 Kopačina Cave: 1. view of the front part of the cave; 2. view from the inner hall towards the entrance (made by M. Vuković; photo by N. Vukosavljević in 2006)

široku oko 7 m (sjever – jug) i duboku oko 6 m (istok – zapad) (sl. 1). Pri prvom otkriću unutarnja dvorana bila je gotovo posve ispunjena sedimentima pa je pristup bio moguć tek puzanjem.¹

Špilja Kopačina u arheološku je literaturu ušla krajem 19. stoljeća nakon probnih iskopavanja F. Bulića i J. Szombathyja u kojima su pronađeni prapovijesni nalazi (ulomci lončarije, kameni artefakti, ostaci faune i malakofaune).² Naknadna probna istraživanja krajem 50-ih godina 20. stoljeća navela su voditelja istraživanja D. Vrsalovića na zaključak da su u špilji prisutni prapovijesni ostaci koji se mogu datirati u rasponu od mezolitika do bronzanog doba.³ Dugogodišnja sustavna iskopavanja u Kopačini vodio je B. Čečuk od 1978. do 1993. Rezultati su najvećim dijelom objavljeni u obliku sažetih godišnjih izvještaja,⁴ uz jedan opsežniji rad, ali bez detaljne analize arheološke građe.⁵ Revizijska istraživanja provodila su se od 2006. do 2010. i od 2014. do 2018. (voditelj D. Kliškić), ponajprije u predšpiljskom prostoru, gdje su najprije prosijani i uklonjeni sedimenti od ranijih iskopavanja kako bi se došlo do intaktnih slojeva.⁶ Arheološka građa iz intaktnih slojeva još nije sustavno objavljena ni valorizirana.

DOSADAŠNJE SPOZNAJE O ŠPILJI KOPAČINI

Metodologija iskopavanja, radiokarbonsko datiranje i kulturna stratigrafija

Zbog poteškoća u prepoznavanju i razgraničavanju slojeva kasnoga gornjeg paleolitika od onih mezolitičke starosti, sustavna su se

leads into an inner chamber measuring roughly 7 m (north–south) by 6 m (east–west) (Fig. 1). At the time of its initial discovery, the inner chamber was almost completely filled with sediment, and access was possible only by crawling.¹

Kopačina Cave entered the archaeological literature at the end of the 19th century following trial excavations conducted by F. Bulić and J. Szombathy, during which prehistoric finds were discovered (pottery fragments, stone artefacts, faunal and malacofaunal remains).² Subsequent trial investigations conducted in the late 1950s led the excavation director, D. Vrsalović, to conclude that the cave contained prehistoric remains datable to a period spanning the Mesolithic to the Bronze Age.³ Long-term systematic excavations at Kopačina were conducted by B. Čečuk from 1978 to 1993. The results were published largely in the form of concise annual reports,⁴ accompanied by one more extensive paper, but without a detailed analysis of the archaeological assemblage.⁵ Revisionary research was carried out in 2006–2010 and 2014–2018 (directed by D. Kliškić), primarily in the cave entrance area, where sediment from earlier excavations was first excavated and sieved, in order to reach intact layers.⁶ The archaeological material from these intact layers has not yet been systematically published or evaluated.

PREVIOUS RESEARCH ON KOPAČINA CAVE

Excavation methodology, radiocarbon dating and cultural stratigraphy

Due to difficulties in recognising Late Upper Palaeolithic layers and distinguishing them

¹ MIRACLE 1995: 68.

² BULIĆ 1891.

³ VRSALOVIĆ 1960.

⁴ VUKOSAVLJEVIĆ *et al.* 2011. U radu su citirani svi radovi o Kopačini autora B. Čečuka.

⁵ ČEČUK 1996.

⁶ KLIŠKIĆ 2007; 2008; 2009; 2010; 2011; 2015; 2016; 2017; 2018; 2019.

¹ MIRACLE 1995: 68.

² BULIĆ 1891.

³ VRSALOVIĆ 1960.

⁴ VUKOSAVLJEVIĆ *et al.* 2011. Cited in this paper are all publications on Kopačina authored by B. Čečuk.

⁵ ČEČUK 1996.

⁶ KLIŠKIĆ 2007; 2008; 2009; 2010; 2011; 2015; 2016; 2017; 2018; 2019.

iskopavanja provodila arbitrarno, u slojevima debljine 15 do 20 cm, pri čemu su dubine bilježene u odnosu na tadašnju hodnu površinu špilje.⁷ Povremeno su arbitrarni otkopni slojevi bili znatno deblji (i do nekoliko desetaka centimetara), što je razvidno iz oznaka dubine na vrećicama s litičkom građom.⁸ Kombinacija nagnute matične stijene i na nju nataloženih slojeva te arbitrarnog iskopavanja zasigurno je dovela do miješanja arheoloških slojeva različite starosti.⁹ Iskopani sedimenti tijekom istraživanja nisu prosijavani. Opseg problema proizašlog iz neprosijavanja sedimenata najbolje ilustriraju rezultati revizijskih istraživanja u predšpiljskom prostoru Kopačine. Naime, u sedimentima koji potječu iz ranijih iskopavanja, a deponirani su na mjestu postavljanja sonde 1, recentnim iskopavanjem i sustavnim prosijavanjem prikupljene su tisuće kamenih artefakata ukupne mase > 35 kg te vrlo brojni ostaci faune.¹⁰ Za usporedbu ćemo navesti da ukupna masa litičkog skupa nalaza iz iskopavanja provedenih od 1978. do 1993. iznosi nešto manje od 69 kg.¹¹ Ovaj diskrepantni omjer snažno upućuje na to da su prethodne kvantifikacije litičke industrije i izvedeni zaključci bili metodološki uvjetovani.¹²

Stratigrafija špilje Kopačine podijeljena je na tri velike cjeline: kasni gornji paleolitik, mezolitik i brončano doba (ovo potonje potvrđeno samo u unutarnjoj dvorani).¹³ Maksimalna debljina naslaga dosegnuta je u prednjem dijelu (≈ 360 cm), a u unutarnjoj dvorani oko 270 cm. Dosad su bila dostupna četiri radiokarbonska datuma napravljena na različitim uzorcima s različitih dubina, pri čemu za dva uzorka dubina nije poznata (tab. 1). Dva su datirana uzorka kasnogornjopaleolitičke starosti (Z-2403, Z-2404), jedan je

from those of the Mesolithic, systematic excavations were conducted in 15–20 cm arbitrary spits, with depths recorded in relation to the cave floor as it existed at the time.⁷ Occasionally, these arbitrary excavation units were considerably thicker (up to several tens of centimetres), as evidenced by depth labels on bags containing lithic artefacts.⁸ The combination of a sloping bedrock surface, overlying sedimentary deposits, and arbitrary excavation practices undoubtedly resulted in the mixing of archaeological layers of different ages.⁹ Sediments excavated during the investigations were not sieved. The scale of the problem resulting from the lack of sieving is best illustrated by the results of revisionary research conducted in the cave entrance area. Specifically, sediment originating from earlier excavations and deposited at the location of Trench 1 has yielded, through recent excavation and systematic sieving, thousands of stone artefacts with a total mass exceeding 35 kg, as well as very numerous faunal remains.¹⁰ By comparison, the total mass of the lithic assemblage recovered during excavations conducted between 1978 and 1993 amounts to slightly less than 69 kg.¹¹ This discrepant ratio strongly suggests that previous quantifications of the lithic industry and the conclusions derived from them were methodologically conditioned.¹²

The stratigraphy of Kopačina Cave is divided into three major units: the Late Upper Palaeolithic, the Mesolithic and the Bronze Age (the latter confirmed only in the inner chamber).¹³ The maximum thickness of the deposits was recorded in the entrance chamber (≈360 cm), while in the inner chamber it reaches approximately 270 cm. To date, four radiocarbon dates obtained from different samples and different depths have been available, with the depth for two of the samples

⁷ ČEČUK 1996.

⁸ VUKOSAVLJEVIĆ *et al.* 2011: 11, bilj. 17.

⁹ MIRACLE 1995: 71.

¹⁰ KLIŠKIĆ 2008: 444.

¹¹ VUKOSAVLJEVIĆ *et al.* 2011: 13, tab. 2.

¹² VUKOSAVLJEVIĆ *et al.* 2011; VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017.

¹³ ČEČUK 1996.

⁷ ČEČUK 1996.

⁸ VUKOSAVLJEVIĆ *et al.* 2011: 11, n. 17.

⁹ MIRACLE 1995: 71.

¹⁰ KLIŠKIĆ 2008: 444.

¹¹ VUKOSAVLJEVIĆ *et al.* 2011: 13, Tab. 2.

¹² VUKOSAVLJEVIĆ *et al.* 2011; VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017.

¹³ ČEČUK 1996.

mezolitičke (Z-778), a jedan kasnoneolitičke starosti (Z-776). Uzimajući u obzir rezultate radiokarbonskog datiranja i dubine na kojima su pronađeni uzorci (Z-2403, Z-2404), Vukosavljević i suradnici zaključili su da su u Kopačini pouzdano prisutni kasnogornjopaleolitički/epigravetijenski te brončanodobni slojevi, dok mezolitički nisu uvjerljivo potvrđeni.¹⁴ Glavni prijašnji argument za mezolitičku atribuciju bio je ranoholocenski datum (Z-778) na kućicama kopnenih puževa (*Helix* sp.), no pouzdanost takvih datuma vrlo je upitna.¹⁵ Revizijska istraživanja u Kopačini koja su provedena 2000-tih navela su D. Kliškića na zaključak da otkriveni kameni artefakti, prije svega zbog svojeg mikrolitičkog karaktera i geometrijskih formi, kao i koštani artefakti nedvojbeno pripadaju mezolitiku.¹⁶ Za čvrst zaključak nužna je potpora radiokarbonskim datumima te detaljnim tehnološkim i tipološkim analizama. Ovdje bismo željeli naglasiti da ne isključujemo mogućnost da su u revizijskim istraživanjima otkriveni ostaci mezolitičke starosti na nalazištu, ali trenutačno raspoloživi podaci navode na suzdržani oprez i realnu mogućnost da je i u

unknown (Tab. 1). Two of the dated samples are from the Late Upper Palaeolithic (Z-2403, Z-2404), one is Mesolithic (Z-778), and one is from the Late Neolithic (Z-776). Taking into account the radiocarbon results and the depths at which the samples Z-2403 and Z-2404 were recovered, Vukosavljević et al. concluded that Late Upper Palaeolithic / Epigravettian and Bronze Age layers are reliably present at Kopačina, whereas Mesolithic layers have not been convincingly confirmed.¹⁴ The main previous argument for a Mesolithic attribution was an Early Holocene date (Z-778) obtained from terrestrial snail shells (*Helix* sp.); however, the reliability of such dates is highly questionable.¹⁵ Revisionary research carried out at Kopačina in the 2000s led D. Kliškić to conclude that the uncovered stone artefacts – primarily due to their microlithic character and geometric forms – as well as the bone artefacts, undoubtedly belong to the Mesolithic.¹⁶ A firm conclusion, however, requires support from radiocarbon dates and detailed technological and typological analyses. Here we would like to emphasise that we do not exclude the possibility that remains from the Mesolithic were uncovered during the revisionary research at the site, but the currently

TABLE 1 Stari radiokarbonski datumi iz Kopačine. Rezultati kalibrirani uz pomoć OxCal v4.4.4 (Bronk Ramsey 2009) i kalibracijske krivulje IntCal20 (Reimer et al. 2020)

TABLICA 1. Old radiocarbon dates from Kopačina cave. Results calibrated using OxCal v4.4.4 (Bronk Ramsey 2009) and IntCal20 calibration curve (Reimer et al. 2020)

Lab. oznaka / Lab. No.	Materijal / Material	Dubina (cm) / Depth (cm)	Nekal. ps / Uncal. bp	SD	Kal. PS / Cal BP (1 σ)	Kal. PS / Cal BP (2 σ)	Referenca / Reference
Z-2403	životinjska kost / animal bone	140-160	13160	310	16250 - 15320	16890 - 14910	Obelić et al. 1994; Miracle 1995
Z-2404	životinjska kost / animal bone	20-40	11980	270	14250 - 13490	14920 - 13330	Obelić et al. 1994; Miracle 1995
Z-778	ljuštura kopnenog puža <i>Helix</i> sp. / landsnail shell <i>Helix</i> sp.	nepoznato / unknown	9160	100	10490 - 10230	10650 - 10160	Miracle 1995; Čečuk 1996
Z-776	travertin / travertine	nepoznato / unknown	5340	65	6270 - 6000	6290 - 5940	Miracle 1995

¹⁴ VUKOSAVLJEVIĆ et al. 2011: 40–41.

¹⁵ VUKOSAVLJEVIĆ et al. 2011: 12, 40.

¹⁶ KLIŠKIĆ 2009: 649; 2010: 678; 2011: 732; 2015: 665.

¹⁴ VUKOSAVLJEVIĆ et al. 2011: 40–41.

¹⁵ VUKOSAVLJEVIĆ et al. 2011: 12, 40.

¹⁶ KLIŠKIĆ 2009: 649; 2010: 678; 2011: 732; 2015: 665.

ovom slučaju ipak riječ o nalazima kasnogornjopaleolitičke starosti.

Litička industrija i strategije nabave kamene sirovine

Višegodišnjim sustavnim istraživanjima B. Čečuka otkriven je veliki litički skup nalaza.¹⁷ Tehno-tipološke i petrografske analize litičke industrije napravljene su u nekoliko navrata.¹⁸ Prva sustavna tehno-tipološka analiza čiji je cilj bio uključiti u analizu sve raspoložive nalaze obuhvatila je nešto više od 12 000 artefakata. Analizirani su litički nalazi iz prednjeg i stražnjeg dijela špilje. Skup je podijeljen u dvije litičke faze prema tipološkim kriterijima: stariju (300 do 140 cm) s većom učestalošću zakrivljenih šiljaka s hrptom i mlađu (140 do 0 cm) s većom učestalošću pločica s hrptom.¹⁹ Osim spomenutih tipova oruđa, u skupu nalaza zabilježeni su i brojni drugi tipovi, kao što su različita grebala, kružni segmenti, dubila, svrdla itd.²⁰ Zabilježeni tipovi oruđa uobičajeni su za istočnojadranske epigravetijenske skupove nalaza.²¹ Preliminarna petrografska analiza razlikovala je više vrsta rožnjaka i radiolarita te naznačila njihova potencijalna ležišta.²² U kasnijim radovima detaljno je analiziran litički skup nalaza iz prednjeg dijela špilje, kad su obuhvaćeni samo nalazi iz vrećica koje imaju raspon dubine od 20 cm, dok su ostali nalazi isključeni.²³ Kako bi se

available data call for cautious restraint and point to a realistic possibility that these finds may, in fact, also be from the Late Upper Palaeolithic.

Lithic industry and raw material procurement strategies

Long-term systematic excavations conducted by B. Čečuk uncovered a large lithic assemblage.¹⁷ Techno-typological and petrographic analyses of the lithic industry were carried out on several occasions.¹⁸ The first systematic techno-typological analysis, aimed at including all available finds, encompassed slightly more than 12,000 artefacts. Lithic finds from both the outer and inner parts of the cave were analysed. Based on typological criteria, the assemblage was divided into two lithic phases: an older (300–140 cm), characterised by a higher frequency of curved backed points, and a more recent (140–0 cm), with a higher frequency of backed bladelets.¹⁹ In addition to these tool types, the assemblage also includes numerous others, such as various scrapers, circular segments, burins, drills, etc.²⁰ The recorded tool types are typical of eastern Adriatic Epigravettian assemblages.²¹ A preliminary petrographic analysis distinguished several types of chert and radiolarite and indicated their potential source areas.²² In later studies, the lithic assemblage from the entrance chamber was analysed in detail; only finds from bags with a depth range of 20 cm were included, while all other material was excluded.²³ In order to gain

¹⁷ Ranije u tekstu spomenuli smo da je u kasnijim istraživanjima otkriven znatan broj litičkih artefakata koje se preporučilo prikupiti u istraživanjima koja je vodio B. Čečuk.

¹⁸ VUKOSAVLJEVIĆ *et al.* 2011; VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017; PERHOČ 2020. Analize kamene sirovine rezultat su višegodišnjega terenskog i laboratorijskog istraživanja Z. Perhoča. Vidi i PERHOČ 2009a; 2009b; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

¹⁹ VUKOSAVLJEVIĆ *et al.* 2011.

²⁰ VUKOSAVLJEVIĆ *et al.* 2011: 17, tab. 4 i 6.

²¹ e.g. VUJEVIĆ, DILBER 2018; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022; VUKOSAVLJEVIĆ 2023; ARBUTINA, BODRUŽIĆ, VUJEVIĆ 2025.

²² VUKOSAVLJEVIĆ *et al.* 2011.

²³ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017. Analizirane su vrećice sa sljedećim oznakama dubine: 0–20, 20–40, 40–60, 60–80, 80–100, 100–120, 120–140,

¹⁷ Earlier in the text, we noted that later research uncovered a significant number of lithic artefacts that had not been collected during the excavations directed by B. Čečuk.

¹⁸ VUKOSAVLJEVIĆ *et al.* 2011; VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017; PERHOČ 2020. The analyses of stone raw materials are the result of many years of field and laboratory research conducted by Z. Perhoč. S. also PERHOČ 2009a; 2009b; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

¹⁹ VUKOSAVLJEVIĆ *et al.* 2011.

²⁰ VUKOSAVLJEVIĆ *et al.* 2011: 17, Tabs. 4 and 6.

²¹ e.g. VUJEVIĆ, DILBER 2018; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022; VUKOSAVLJEVIĆ 2023; ARBUTINA, BODRUŽIĆ, VUJEVIĆ 2025.

²² VUKOSAVLJEVIĆ *et al.* 2011.

²³ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017. Bags bearing the following depth labels were analysed: 0–20, 20–40, 40–60, 60–80, 80–100, 100–120, 120–140,

dobio što bolji uvid u moguće dijakronijske promjene, cjelokupni stratigrafski slijed podijeljen je u četiri faze (Kopačina I–IV, gdje je faza Kopačina I najstarija) na temelju raspoloživih radiokarbonskih datuma i vertikalne distribucije kamenih artefakata. Ukupno je analizirano 8092 artefakta.²⁴ Litička industrija bazirana je na proizvodnji odbojaka, s tim da treba napomenuti da je postotak iskorištenih pločica i sječiva za proizvodnju oruđa uvijek viši od postotka iskorištenih odbojaka, osim u fazi Kopačina IV. Među jezgrama dominiraju one s jednom udarnom plohom, a znatan je udio i bipolarnih jezgara.²⁵ Petrografskom analizom definirano je pet vrsta sirovine: radiolariti, rožnjaci iz donjoeocenskih vapnenaca, rožnjaci iz srednjoeocenskih vapnenaca, rožnjaci iz gornjokrednih vapnenaca i crni rožnjaci. Kombinacija terenskih istraživanja i petrografskih analiza arheoloških i geoloških uzoraka omogućila je povezivanje sirovine od koje su izrađeni kameni artefakti s mogućim ležištima. Kvantitativno su uočena dva trenda: (1) postupni porast udjela regionalnih sirovina i (2) pad udjela izvanregionalnih sirovina kroz vrijeme, pri čemu je udio lokalnih sirovina relativno stabilan. Navedeni trendovi mogu ukazivati na veća eksploatacijska područja ili kontakte s udaljenijim područjima, a moguće i na viši stupanj mobilnosti u ranijim fazama.²⁶

Strategije preživljavanja

U zooarheološkoj analizi faunskih skupova nalaza otkrivenih od 1982. do 1988. definirane su četiri biostratigrafske jedinice označene kao biozone A–D. Biozona A obuhvatila je dubine od 0 do 40 cm, biozona B od 40 do 110 cm, biozona C od 110 do 160 cm i na kraju biozona D od 160 do 240 cm.²⁷

140–160, 160–180, 180–200, 200–220, 220–240, 240–260, 260–280 i 280–300 cm.

²⁴ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017.

²⁵ VUKOSAVLJEVIĆ, PERHOČ 2017: 169–170.

²⁶ VUKOSAVLJEVIĆ, PERHOČ 2017: 180, sl. 16; 182.

²⁷ MIRACLE 1995: 143, tab. 4.10; 1996.

a clearer insight into possible diachronic changes, the entire stratigraphic sequence was divided into four phases (Kopačina I–IV, where Kopačina I represents the oldest phase), based on available radiocarbon dates and the vertical distribution of stone artefacts. In total, 8,092 artefacts were analysed.²⁴ The lithic industry was based on flake production; however, it should be noted that the proportion of utilised bladelets and blades used for tool production is consistently higher than that of utilised flakes, except in the Kopačina IV phase. Among the cores, single-platform cores predominate, while bipolar cores also represent a significant proportion.²⁵ Petrographic analysis defined five raw-material types: radiolarites, cherts from Lower Eocene limestones, cherts from Middle Eocene limestones, cherts from Upper Cretaceous limestones and black cherts. The combination of field surveys and petrographic analyses of archaeological and geological samples made it possible to link the raw materials used for the manufacture of stone artefacts to potential source areas. Quantitatively, two trends were observed: (1) a gradual increase in the proportion of regional raw materials and (2) a decrease in the proportion of extra-regional raw materials over time, while the proportion of local raw materials remains relatively stable. These trends may indicate larger exploitation territories or contacts with more distant areas and, possibly, a higher degree of mobility in the earlier phases.²⁶

Subsistence strategies

In the zooarchaeological analysis of faunal assemblages recovered between 1982 and 1988, four biostratigraphic units (designated as biozones A–D) were defined. Biozone A represents depths of 0–40 cm, Biozone B 40–110 cm, Biozone C 110–160 cm, and Biozone D 160–240 cm.²⁷

140–160, 160–180, 180–200, 200–220, 220–240, 240–260, 260–280 and 280–300 cm.

²⁴ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ 2017.

²⁵ VUKOSAVLJEVIĆ, PERHOČ 2017: 169–170.

²⁶ VUKOSAVLJEVIĆ, PERHOČ 2017: 180, Fig. 16; 182.

²⁷ MIRACLE 1995: 143, Table 4.10; 1996.

Jelen predstavlja glavnu lovinu u sve četiri biozone, a slijedi ga *Equus hydruntinus*. P. T. Miracle uočio je dvije velike vremenske promjene u analiziranom skupu nalaza. Prva predstavlja znatan pad učestalosti ostataka zeca od biozone D do biozone C te znatan porast učestalosti jelena od biozone B do biozone A.²⁸ Među ostalom lovinom prisutni su i tur, divlja svinja, divokoza/kozorog, zec i mesojedi s niskom učestalošću. Ptica i riba gotovo da i nema.²⁹

U faunskom skupu nalaza iz Kopačine nijedna vrsta velikih sisavaca ne predstavlja jasan pokazatelj određenih paleoekoloških uvjeta, već njihova prisutnost upućuje na postojanje različitih okoliša. Vrste prilagođene hladnim klimatskim uvjetima nisu zabilježene.³⁰

Osobni ukrasi, koštana industrija i ljudski ostaci

Osobni ukrasi otkriveni su u sustavnim iskopavanjima B. Čečuka, ali nisu analizirani i publicirani.³¹ P. T. Miracle navodi da je pri obradi faunskog skupa nalaza iz vrećica s ostacima faune izdvojio različite artefakte među kojima su i probušene morske ljušture.³² U kratkim izvještajima povezanim s revizijskim istraživanjima D. Kliškić donosi fotografije osobnih ukrasa na kojima se jasno prepoznaju perle izrađene od ljuštura morskih puževa *Columbella rustica*,³³ *Tritia* sp.,³⁴ morskog školjkaša (moguće *Glycymeris* sp.),³⁵ ali i onih izrađenih od životinjskih zuba, vjerojatno jelenskih.³⁶ Riječ je o osobnim ukrasima kakvi su otkriveni na brojnim kasnogornjopaleolitičkim i mezo-

Red deer constitute the primary prey species in all four biozones, followed by *Equus hydruntinus*. P. T. Miracle identified two major diachronic changes in the analysed assemblage. The first is a marked decline in the frequency of hare remains from Biozone D to Biozone C, and a significant increase in the frequency of red deer from Biozone B to Biozone A.²⁸ Other hunted taxa include aurochs, wild boar, chamois/ibex, hare, and carnivores, the latter with low frequencies. Birds and fish are virtually absent.²⁹

In the faunal assemblage from Kopačina, no species of large mammal constitutes a clear indicator of specific palaeoecological conditions; rather, their presence points to the existence of diverse environments. Species adapted to cold climatic conditions are not recorded.³⁰

Personal ornaments, bone industry and human remains

Personal ornaments were discovered during the systematic excavations conducted by B. Čečuk, but they were neither analysed nor published.³¹ P. T. Miracle noted that, during the analysis of the faunal assemblage, he separated various artefacts from bags containing faunal remains, including perforated marine shells.³² In brief reports related to the revisionary research, D. Kliškić presents photographs of personal ornaments in which beads made from the shells of marine gastropods *Columbella rustica*³³ and *Tritia* sp.,³⁴ a marine bivalve (possibly *Glycymeris* sp.),³⁵ as well as beads made from animal teeth, probably red deer, can be clearly identified.³⁶ These are personal ornaments of a type documented at numerous Late Upper

²⁸ Mjereno kao % MNE. MIRACLE 1995: 148; 1996: 52.

²⁹ MIRACLE 1995: 148; 1996: 50–52.

³⁰ MIRACLE 1995: 146–148.

³¹ ČEČUK 1996: 18. U radu se samo usputno navodi da je otkriveno tridesetak školjaka, od kojih su neke i probušene, na temelju čega zaključujemo da je riječ o osobnim ukrasima.

³² MIRACLE 1995: 78.

³³ KLIŠKIĆ 2010: 679; 2017: 876; 2018: 871.

³⁴ KLIŠKIĆ 2018: 871.

³⁵ KLIŠKIĆ 2011: 732.

³⁶ KLIŠKIĆ 2009: 649; KLIŠKIĆ 2010: 678; 2016: 793.

²⁸ Measured as % MNE. MIRACLE 1995: 148; 1996: 52.

²⁹ MIRACLE 1995: 148; 1996: 50–52.

³⁰ MIRACLE 1995: 146–148.

³¹ ČEČUK 1996: 18. The paper only briefly notes that around thirty shells were discovered, some of which are perforated, on the basis of which it is concluded that they represent personal ornaments.

³² MIRACLE 1995: 78.

³³ KLIŠKIĆ 2010: 679; 2017: 876; 2018: 871.

³⁴ KLIŠKIĆ 2018: 871.

³⁵ KLIŠKIĆ 2011: 732.

³⁶ KLIŠKIĆ 2009: 649; KLIŠKIĆ 2010: 678; 2016: 793.

litičkim nalazištima istočnojadranske obale.³⁷ Osim usputnih navoda, skup nalaza osobnih ukrasa iz revizijskih istraživanja Kopačine nije analiziran i publiciran.

Koštani artefakti, jednako kao i osobni ukrasi usputno se navode u literaturi, ali nisu analizirani i objavljeni. B. Čečuk navodi i donosi fotografije koštanih artefakata, ali bez podataka o mjestu nalaza, odnosno dubini.³⁸ Među koštanim artefaktima navodi i jedan primjerak s urezima.³⁹ Dodatni primjerci koštane industrije pronađeni su među ostacima faune sisavaca.⁴⁰ D. Kliškić navodi koštane artefakte pronađene u revizijskim iskopavanjima te donosi jednu ilustraciju na kojoj se mogu jasno prepoznati.⁴¹

Ljudski ostaci otkriveni u špilji Kopačini malobrojni su. Nekoliko fragmenata kranijalnih i postkranijalnih dijelova ljudskog kostura zabilježeno je u sloju na dubini od 170 do 190 cm.⁴² Osim ove osnovne informacije, o navedenim nalazima nisu dostupni dodatni podaci. Ako se potvrdi njihova paleolitička starost, špilja Kopačina svrstala bi se među rijetka gornjopaleolitička nalazišta na istočnojadranskoj obali na kojima su pronađeni ljudski kosturni ostaci.⁴³

NOVI AMS ¹⁴C DATUMI

Za AMS ¹⁴C datiranje odabrana su dva koštana artefakta pronađena u iskopavanjima B. Čečuka (sl. 2). Odabrani su među grupom koštanih artefakata pohranjenih na Odsjeku za arheologiju Filozofskog fakulteta Sveučilišta u Zagrebu jer su jedini imali oznaku du-

Palaeolithic and Mesolithic sites along the eastern Adriatic coast.³⁷ With the exception of these cursory mentions, the assemblage of personal ornaments recovered during the revisionary research at Kopačina has not been analysed or published.

Bone artefacts, like personal ornaments, are mentioned only in passing in the literature and have not been analysed or published. B. Čečuk referred to and illustrated bone artefacts, but without information on their findspots or depths.³⁸ Among the bone artefacts, he also mentioned a single specimen bearing incisions.³⁹ Additional examples of bone industry were identified among mammalian faunal remains.⁴⁰ D. Kliškić reported bone artefacts recovered during the revisionary excavations and provides an illustration in which they can be clearly recognised.⁴¹

Human remains recovered from Kopačina Cave are scarce. Several fragments of cranial and postcranial elements of the human skeleton were recorded in a layer at depths between 170 and 190 cm.⁴² Beyond this basic information, no additional data on these finds are available. If they are confirmed to be from the Palaeolithic, Kopačina Cave would rank among the rare Upper Palaeolithic sites along the eastern Adriatic coast at which human skeletal remains have been discovered.⁴³

NEW AMS ¹⁴C DATES

Two bone artefacts recovered during the excavations conducted by B. Čečuk were selected for AMS ¹⁴C dating (Fig. 2). They were chosen from a group of bone artefacts curated at the Department of Archaeology, Faculty of Humanities

³⁷ KOMŠO, VUKOSAVLJEVIĆ 2011; CRISTIANI, FARBSTEIN, MIRACLE 2014; VUKOSAVLJEVIĆ, KARAVANIĆ 2015; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; BORIĆ, CRISTIANI 2019; CVITKUŠIĆ, VUJEVIĆ 2021; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024; CVITKUŠIĆ *et al.* 2024.

³⁸ ČEČUK 1996: 18; 22, sl. 8.

³⁹ ČEČUK 1996: 25–26.

⁴⁰ MIRACLE 1995: 78.

⁴¹ KLIŠKIĆ 2010: 679.

⁴² ČEČUK 1996: 26.

⁴³ MIRACLE 2005: 26; JANKOVIĆ *et al.* 2011; 2012; BORIĆ *et al.* 2024.

³⁷ KOMŠO, VUKOSAVLJEVIĆ 2011; CRISTIANI, FARBSTEIN, MIRACLE 2014; VUKOSAVLJEVIĆ, KARAVANIĆ 2015; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; BORIĆ, CRISTIANI 2019; CVITKUŠIĆ, VUJEVIĆ 2021; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024; CVITKUŠIĆ *et al.* 2024.

³⁸ ČEČUK 1996: 18; 22, Fig. 8.

³⁹ ČEČUK 1996: 25–26.

⁴⁰ MIRACLE 1995: 78.

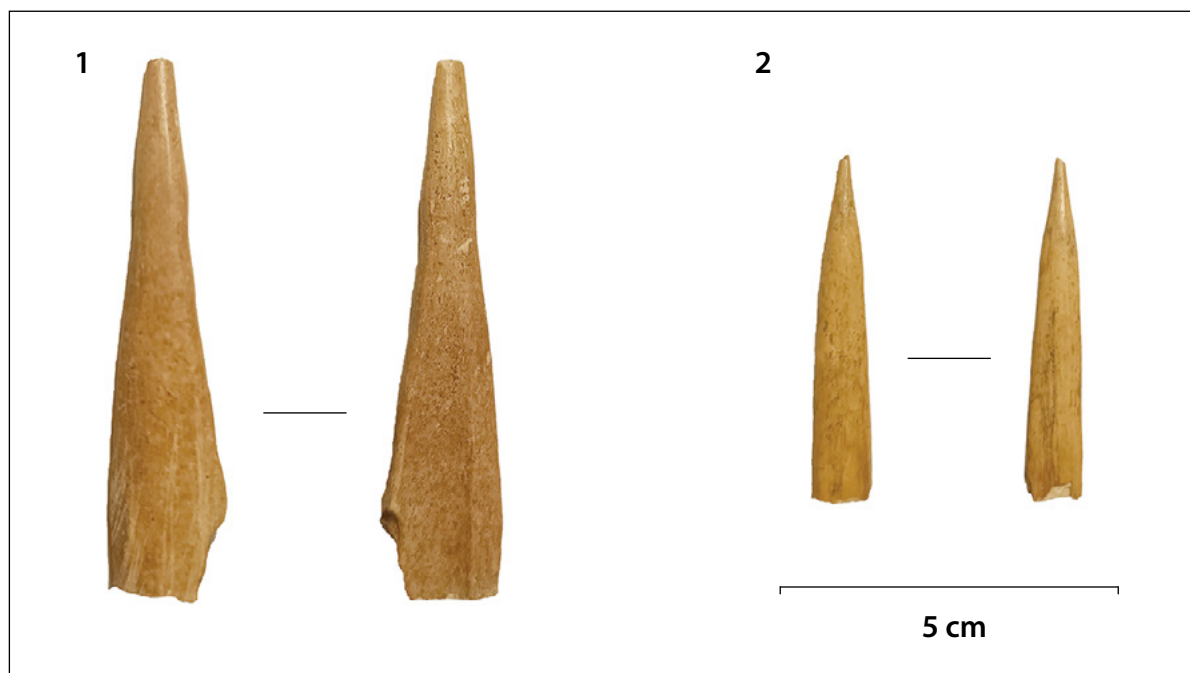
⁴¹ KLIŠKIĆ 2010: 679.

⁴² ČEČUK 1996: 26.

⁴³ MIRACLE 2005: 26; JANKOVIĆ *et al.* 2011; 2012; BORIĆ *et al.* 2024.

TABLICA 2. Rezultati AMS ¹⁴C datiranja koštanih šiljaka iz Kopačine. Rezultati kalibrirani uz pomoć OxCal v4.4.4 (Bronk Ramsey 20) **TABLE 2** **TABLICA 2.** Results of AMS ¹⁴C dating of bone spikes from Kopačina. Results calibrated using OxCal v4.4.4 (Bronk Ramsey 20)

Lab. oznaka / Lab. No.	Materijal / Material	Dubina / Depth (cm)	Oznaka uzorka / Sample code	Nekal. ps / Uncal. bp	SD	Kal. PS / Cal BP (1 σ)	Kal. PS / Cal BP (2 σ)
OxA-X-3341-9	bone point	20-40	KOP-1	11821	49	13760 - 13600	13790 - 13520
OxA-45468	bone point	140-160	KOP-7	11896	65	13810 - 13600	14020 - 13530



SLIKA 2. Datirani koštani šiljci: 1. koštani šiljak KOP-1; 2. koštani šiljak KOP-7 (izradio M. Vuković; snimio: N. Vukosavljević)

FIGURE 2 Dated bone spikes: 1. bone point KOP-1; 2. bone point KOP-7 (made by M. Vuković; photo by: N. Vukosavljević)

bine na kojoj su pronađeni. Uzorak KOP-1 nosi oznaku dubine 20 do 40 cm, dok uzorak KOP-7 nosi oznaku dubine 140 do 160 cm (tab. 2).

Zbog znatne modifikacije originalnih kostiju od kojih su artefakti izrađeni nije bilo moguće napraviti taksonomsku identifikaciju klasičnom morfološkom analizom. Nedestruktivnom ZooMS analizom koštani artefakt KOP-1 određen je samo na razini porodice *Cervidae*, dok je artefakt KOP-7 identificiran kao *Cervus elaphus*.⁴⁴ Ranije smo u tekstu naveli da su ostaci jelena najbrojniji u faunskom skupu nalaza kroz cijelu stratigrafiju.

Oba uzorka datirana su u Istraživačkom la-

and Social Sciences, University of Zagreb, as they were the only specimens bearing depth labels indicating their find context. Sample KOP-1 carries a depth label of 20–40 cm, while sample KOP-7 is labelled 140–160 cm (Tab. 2).

Due to the substantial modification of the original bones from which the artefacts were manufactured, taxonomic identification using standard morphological analysis was not possible. Non-destructive ZooMS analysis identified bone artefact KOP-1 only at the family level (*Cervidae*), whereas artefact KOP-7 was identified as *Cervus elaphus*.⁴⁴ As noted earlier in the text, red deer remains are the most numerous within the faunal assemblage through-

⁴⁴ VIDAS *et al.* 2024.

⁴⁴ VIDAS *et al.* 2024.

009) i kalibracijske krivulje IntCal20 (Reimer et al. 2020)
009) and IntCal20 calibration curve (Reimer et al. 2020)

Iskorišteno / Used (mg)	Prinos / Yield (mg)	% Prinosa / %Yield	Karbonatni višak / Excess	%C	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	C:N	Referenca / Reference
805	21.37	2.7	19.12	41.5	-20.9	3.3	3.5	Ovaj članak / This paper
499	6.13	1.2	3.82	43.8	-20.6	3.6	3.4	Ovaj članak / This paper

boratoriju za arheologiju i povijest umjetnosti Oxford Radiocarbon Accelerator Unit, gdje su podvrgnuti standardnoj predobradi i AMS mjerenju prema postupcima koji se primjenjuju u laboratoriju ORAU.⁴⁵

Uzorak KOP-1 (OxA-X-3341-9) dao je radiokarbonsku starost od $11\,821 \pm 49$ ps [13 760 – 13 600 cal PS (1 σ); 13 790 – 13 520 cal BP (2 σ)].⁴⁶ Kemijski pokazatelji upućuju na zadovoljavajuću atomsku ravnotežu (C : N = 3,5; %C = 41,5) te umjerenu količinu izdvojenog kolagena (2,7 %), no vrijednost je karbonatnog viška povišena (19,1), dok je izotopna vrijednost dušika $\delta^{15}\text{N}$ niska (+3,3 ‰). Kombinacija povišenoga karbonatnog viška i niskog $\delta^{15}\text{N}$ ukazuje na ostatke kontaminacije i/ili ograničeno očuvanje kolagena (tab. 2).⁴⁷ Ovaj rezultat stoga treba tumačiti s oprezom u kronološkim analizama, osobito u slučajevima kad bi predstavljao jedini kronološki reper.

Uzorak KOP-7 (OxA-45468) dao je radiokarbonsku starost od $11\,896 \pm 65$ ps [13 810 – 13 600 cal. PS (1 σ); 14 020 – 13 530 cal PS (2 σ)]. Kemijski pokazatelji upućuju na dobro očuvan kolagen (C : N = 3,4; %C = 43,8; karbonatni višak = 3,8), dok je prinos kolagena (1,2 %) nizak, ali iznad prihvatljivoga minimalnog praga. Izotopne vrijednosti ($\delta^{13}\text{C} = -20,6$ ‰; $\delta^{15}\text{N} = +3,6$ ‰) uklapaju se u očekivani kopneni raspon, iako je vrijed-

out the entire stratigraphic sequence.

Both samples were dated at the Oxford Radiocarbon Accelerator Unit, Research Laboratory for Archaeology and the History of Art, where they underwent standard pretreatment and AMS measurement following procedures routinely applied at the ORAU laboratory.⁴⁵

Sample KOP-1 (OxA-X-3341-9) yielded a radiocarbon age of $11,821 \pm 49$ BP [13,760–13,600 cal BP (1 σ); 13,790–13,520 cal BP (2 σ)].⁴⁶ Chemical indicators suggest a satisfactory atomic balance (C:N = 3.5; %C = 41.5) and a moderate collagen yield (2.7%), although the carbonate excess is elevated (19.1), while the nitrogen isotope value $\delta^{15}\text{N}$ is low (+3.3‰). The combination of elevated carbonate excess and low $\delta^{15}\text{N}$ indicates residual contamination and/or limited collagen preservation (Tab. 2).⁴⁷ This result should therefore be interpreted with caution in chronological analyses, particularly in cases where it would represent the sole chronological reference.

Sample KOP-7 (OxA-45468) yielded a radiocarbon age of $11,896 \pm 65$ BP [13,810–13,600 cal BP (1 σ); 14,020–13,530 cal BP (2 σ)]. Chemical indicators point to well-preserved collagen (C:N = 3.4; %C = 43.8; carbonate excess = 3.8), while the collagen yield (1.2%) is low but above the acceptable minimum threshold. The isotopic values ($\delta^{13}\text{C} = -20.6$ ‰; $\delta^{15}\text{N} = +3.6$ ‰) fall within the expected terrestrial range, although the nitrogen value is slightly

⁴⁵ BRONK RAMSEY *et al.* 2002; BROCK *et al.* 2010.

⁴⁶ Svi radiokarbonski datumi u radu kalibrirani su s pomoću programa OxCal v4.4.4 (BRONK RAMSEY 2009; mrežna stranica OxCal, pristupljeno 22. listopada 2025.) i kalibracijske krivulje IntCal20 (REIMER *et al.* 2020).

⁴⁷ AMBROSE 1990; VAN KLINKEN 1999; BROCK *et al.* 2010; HIGHAM, DOUKA 2021.

⁴⁵ BRONK RAMSEY *et al.* 2002; BROCK *et al.* 2010.

⁴⁶ All radiocarbon dates presented in this paper were calibrated using OxCal v4.4.4 (BRONK RAMSEY 2009; OxCal website – access date: 22 October 2025) and the IntCal20 calibration curve (REIMER *et al.* 2020).

⁴⁷ AMBROSE 1990; VAN KLINKEN 1999; BROCK *et al.* 2010; HIGHAM, DOUKA 2021.

nost dušika blago snižena (tab. 2).⁴⁸ Ukupno gledano, ovaj se rezultat smatra pouzdanim za kronološku interpretaciju.

RASPRAVA I ZAKLJUČAK

Iako potječu s osjetno različitih dubina, oba datuma upućuju na vrlo sličnu starost (tab. 2). To je u suprotnosti s očekivanjem stratigrafske progresije starosti, pa je najrealnije objašnjenje miješanje arheoloških konteksta uslijed arbitrarnog iskopavanja slojeva i/ili vertikalnih migracija kostiju. S obzirom na razliku u dubini, vjerojatnija je prva opcija.

Uzimajući u obzir starost uzoraka OxA-X-3341-9 i Z-2404, čini se da rezultat datiranog uzorka Z-2403 koji je stariji od dva prethodno navedena odgovara njegovu stratigrafskom položaju, odnosno sloju koji je stariji od onih iz kojih potječu uzorci OxA-X-3341-9 i Z-2404.

Iako rezultat datiranja za uzorak OxA-X-3341-9 (KOP-1) treba uzeti s određenom dozom opreza, njegova podudarnost sa životinjskom kosti Z-2404 s iste dubine (20 do 40 cm) podupire interpretaciju da vršni dijelovi stratigrafije u Kopačini pripadaju kasnom gornjem paleolitu, a ne mezolitu.

Novi AMS ¹⁴C datumi također pokazuju da su ranije postavljene stratigrafske podjele (biozone ili litičke faze) vjerojatno uključivale materijal različite starosti, što nalaže oprez pri tumačenju dijakronijskih promjena.

Sve do otkrića kasnogornjopaleolitičkih slojeva u Veloj spili,⁴⁹ špilja Kopačina bila je jedino poznato kasnogornjopaleolitičko nalazište u Dalmaciji i zbog toga zasigurno ima važno mjesto u povijesti istraživanja paleolitika. Ipak, zbog metodoloških ograničenja starijih istraživanja, njezina interpretativna težina danas je manja. Novi AMS ¹⁴C datumi potvrdili su ranija opažanja o vjerojatnom miješanju ar-

reduced (Tab. 2).⁴⁸ Overall, this result is considered reliable for chronological interpretation.

DISCUSSION AND CONCLUSION

Although they derive from markedly different depths, both dates indicate very similar ages (Tab. 2). This runs counter to expectations of stratigraphic age progression, and the most plausible explanation is mixing of archaeological contexts resulting from arbitrary excavation of layers and/or vertical migration of bones. Given the difference in depth, the former explanation appears more likely.

Taking into account the ages of samples OxA-X-3341-9 and Z-2404, it appears that the dated result for sample Z-2403, which is older than the two previously mentioned samples, corresponds well to its stratigraphic position, that is, to a layer older than those from which samples OxA-X-3341-9 and Z-2404 originate.

Although the dating result for sample OxA-X-3341-9 (KOP-1) should be treated with a degree of caution, its correspondence with animal bone Z-2404 from the same depth (20–40 cm) supports the interpretation that the uppermost parts of the stratigraphy at Kopačina belong to the Late Upper Palaeolithic rather than to the Mesolithic.

The new AMS ¹⁴C dates further indicate that previously established stratigraphic divisions (biozones or lithic phases) probably included material of different ages, which calls for caution in the interpretation of diachronic changes.

Until the discovery of Late Upper Palaeolithic layers at Vela Spila,⁴⁹ Kopačina Cave was the only known Late Upper Palaeolithic site in Dalmatia and therefore undoubtedly occupies an important place in the history of Palaeolithic research. However, due to the methodological limitations of earlier investigations, its interpretative significance is today reduced. The new AMS ¹⁴C dates

⁴⁸ *Idem.*

⁴⁹ ČEČUK, RADIĆ 2002; 2005.

⁴⁸ *Idem.*

⁴⁹ ČEČUK, RADIĆ 2002; 2005.

heoloških slojeva različite starosti u arbitrarno iskopavanim slojevima te su dodatno osnažili drugačije tumačenje kulturne stratigrafije, prema kojemu u Kopačini nisu zabilježeni mezolitički slojevi. Nadamo se da će rezultati revizijskih iskopavanja Kopačine donijeti pouzdane podatke o istraženim arheološkim kontekstima te time ispraviti nedostatke ranijih istraživanja, a možda i korigirati zaključke iznesene u ovom radu. Za suvremene spoznaje o kasnom gornjem paleolitiku u Dalmaciji danas su znatno važnija recentna istraživanja špilje Vlakno na Dugom otoku⁵⁰ i Vele spile na Korčuli⁵¹ jer su provedena suvremenim metodama koje pružaju robusnije kronološke i kontekstualne podatke za kasni gornji paleolitik istočnog Jadrana.

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have confirmed earlier observations regarding the probable mixing of archaeological layers of different ages within arbitrarily excavated spits and have further strengthened an alternative interpretation of the cultural stratigraphy, according to which no Mesolithic layers have been recorded at Kopačina. We hope that the results of the revisionary excavations at Kopačina will provide reliable data on the investigated archaeological contexts and thus remedy the shortcomings of earlier research, and possibly also revise the conclusions presented in this paper. For current understanding of the Late Upper Palaeolithic in Dalmatia, recent research at Vlakno Cave on Dugi Otok⁵⁰ and at Vela Spila on Korčula⁵¹ is considerably more important, as these sites have been investigated using modern methods that provide more robust chronological and contextual data for the Late Upper Palaeolithic of the eastern Adriatic.

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⁵⁰ VUJEVIĆ, BODRUŽIĆ 2021; VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵¹ DEAN *et al.* 2020; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

⁵⁰ VUJEVIĆ, BODRUŽIĆ 2021; VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵¹ DEAN *et al.* 2020; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

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MORSKE ŠKOLJKE RODA *GLYCYMERIS* SPP. IZ KASNOGA GORNJEG PALEOLITIKA ISTOČNOG JADRANA – DOPRINOS ARHEOMALAKOLOŠKIM ISTRAŽIVANJIMA

MARINE SHELLS OF *GLYCYMERIS* SPP. FROM THE LATE UPPER PALAEOLITHIC OF THE EASTERN ADRIATIC – A CONTRIBUTION TO ARCHAEOMALACOLOGICAL RESEARCH

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*Malakološki ostaci česti su na arheološkim nalazištima, a uključuju cjelovite ili fragmentirane ljuštore puževa, školjkaša i koponožaca. Arheomalakologija, disciplina usmjerena na proučavanje takvih ostataka, omogućuje sagledavanje različitih aspekata prapovijesnog života – od ekonomije i prehrane do društvenih običaja i simbolike. Recentna istraživanja morskih školjki naglašavaju njihovu višestruku ulogu još od donjeg paleolitika, gdje su korištene kao ukrasi, alatke, spremnici i posude. Među vrstama koje se ističu svojom funkcionalnom raznolikošću posebno se izdvajaju školjke roda *Glycymeris* spp. U dosadašnjim su istraživanjima prapovijesnih nalazišta istočnog Jadrana nalazi školjki roda *Glycymeris* najčešće interpretirani kao osobni ukrasi, dok njihova moguća utilitarna funkcija nije bila sustavno razmatrana. Ovaj rad donosi pregled nalaza *Glycymeris* spp. iz kasnog gornjeg paleolitika s područja istočnog Jadrana, sažima dostupne podatke o njihovom kontekstu, očuvanosti i morfološkim karakteristikama. Usporedbom s recentnim istraživanjima o funkciji i ulozi morskih školjki u prapovijesnim kontekstima, ukazuje se na raznolikost interpretacija i potrebu za budućim funkcionalnim analizama koje bi mogle rasvijetliti višestruke uloge školjki roda *Glycymeris* u zajednicama istočnog Jadrana.*

KEY WORDS:

Archaeomalacology,
Glycymeris spp., Late
Upper Palaeolithic,
Eastern Adriatic

Malacological remains are commonly found at archaeological sites and include both complete and fragmented shells of gastropods, bivalves and scaphopods. Archaeomalacology, the discipline dedicated to studying such remains, offers valuable insights into various aspects of prehistoric life – including economy, subsistence, social practices, and symbolic behaviour. Recent research has highlighted the multifaceted roles of marine shells since the Lower Palaeolithic, when they were used as ornaments, tools, containers

and vessels. Among the species that stand out due to their functional diversity, shells of the genus Glycymeris are particularly prominent.

In previous studies of prehistoric sites in the Eastern Adriatic, Glycymeris specimens have most often been interpreted as personal ornaments, while their potential utilitarian functions have remained largely unexplored. This paper presents a systematic review of Glycymeris spp. specimens from the Late Upper Palaeolithic of the Eastern Adriatic, synthesising available data on their archaeological context, state of preservation, and morphological characteristics. By comparing these finds with recent research on the function and role of marine shells in prehistoric contexts, the study emphasises the diversity of possible interpretations and underscores the need for future functional analyses that could shed light on the diverse roles of Glycymeris shells among Late Upper Palaeolithic populations in the Eastern Adriatic.

UVOD – MEKUŠCI U ARHEOLOŠKOM KONTEKSTU

Mekušci su predmet brojnih bioloških, ekoloških, paleontoloških i arheoloških istraživanja.¹ Malakološki nalazi u arheološkim kontekstima obuhvaćaju cjelovite i fragmentirane ljuštore različitih vrsta živućih i fosilnih puževa (*Gastropoda*), školjakaša (*Bivalvia*) i koponožaca (*Scaphopoda*), od kojih se najveći dio odnosi na one morske. Istraživanja su pokazala da su mekušci među najranije korištenim resursima, što upućuje na to da odnosi između ljudi i mekušaca sežu do najranijih faza naše evolucije.² Razvoj arheomalakologije,³ discipline usmjerene na proučavanje arheoloških ostataka ljuštura mekušaca, znatno je unaprijedio naše razumijevanje odnosa između ljudi i okoliša i omogućio sveobuhvatniji uvid u kulturnu evoluciju, prehranu i promjene u okolišu kroz prapovijest.⁴ Pokazalo se kako ljuštore mekušaca nisu samo ostaci drevnih obroka, već i ključni elementi za razumijevanje trgovine, kontakata, društvenih struktura te interakcija između ljudi i okoliša kroz našu evolucijsku povijest.⁵ Kao disciplina, arheomalakologija je doprinijela i uspostavi sustavnog prikupljanja podataka o malakofauni s arheoloških lokaliteta, što ranije nije bilo uobičajeno, kao i reviziji postojećih zbirki.

Najranija poznata uporaba morskih mekušaca datira iz donjeg paleolitika, kad su

INTRODUCTION – MOLLUSCS IN THE ARCHAEOLOGICAL CONTEXT

Molluscs are the subject of numerous biological, ecological, palaeontological, and archaeological studies.¹ In archaeological contexts, malacological remains include both complete and fragmented shells of various species of living and fossilised gastropods (*Gastropoda*), bivalves (*Bivalvia*), and tusk shells (*Scaphopoda*), most of which are marine. Numerous studies show that molluscs were among the earliest resources exploited by hominins, indicating that the relationship between humans and molluscs dates to the earliest stages of our evolution.² The development of archaeomalacology,³ the discipline focused on studying the archaeological remains of mollusc shells, has significantly enhanced our understanding of the relationship between humans and the environment, providing a more comprehensive insight into cultural evolution, subsistence strategies, and environmental changes throughout prehistory.⁴ It has been shown that mollusc shells are not only the mere food remains but also key elements for understanding trade, contact, social structures and the interactions between humans and the environment throughout our evolutionary history.⁵ As a discipline, archaeomalacology has contributed to the establishment of systematic data collection on malacofauna from archaeological sites (which was not common previously) as well as the revision of existing collections.

The earliest known use of marine molluscs dates back to the Lower Palaeolithic, when ma-

¹ Npr. ERLANDSON 1988; MORTON 1991; BAR-YOSEF 2005; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, CLEMENTE-CONTE 2011; BAILEY, HARDY, CAMARA 2013; KLEIN, STEEL 2013; CODDING, WHITAKER, BIRD 2014; THOMAS 2015; PURROY et al. 2016.

² CODDING, WHITAKER, BIRD 2014; THOMAS 2015.

³ VINARSKI 2014.

⁴ ERLANDSON 1988; MITCHELL 1996; MANNINO, THOMAS 2002; TRUBITT 2003; d'ERRICO et al. 2005; COLONESE et al. 2011.

⁵ TABORIN 1993; STINER 1999; ERIKSEN 2002; ÁLVAREZ-FERNÁNDEZ 2010; COLONESE et al. 2011; STINER, KUHN, GÜLEÇ 2013; KLEIN, STEEL 2013; KANDEL, BRETZKE, CONARD 2018.

¹ E.g. ERLANDSON 1988; MORTON 1991; BAR-YOSEF 2005; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, CLEMENTE-CONTE 2011; BAILEY, HARDY, CAMARA 2013; KLEIN, STEEL 2013; CODDING, WHITAKER, BIRD 2014; THOMAS 2015; PURROY et al. 2016.

² CODDING, WHITAKER, BIRD 2014; THOMAS 2015.

³ VINARSKI 2014.

⁴ ERLANDSON 1988; MITCHELL 1996; MANNINO, THOMAS 2002; TRUBITT 2003; d'ERRICO et al. 2005; COLONESE et al. 2011.

⁵ TABORIN 1993; STINER 1999; ERIKSEN 2002; ÁLVAREZ-FERNÁNDEZ 2010; COLONESE et al. 2011; STINER, KUHN, GÜLEÇ 2013; KLEIN, STEEL 2013; KANDEL, BRETZKE, CONARD 2018.

ljuštare morskih školjki služile kao alatke,⁶ dok je njihovo meso korišteno u prehrambene svrhe.⁷ Među najranijim primjerima ističe se nalaz iz Trinila na Javi, gdje je na morskoj školjki, u kontekstu povezanom s *Homo erectusom*, urezan cik-cak uzorak koji se tumači kao mogući oblik simboličkog izražavanja. Iako kontekst nalaza nije u potpunosti razjašnjen, sugerira da su školjke još u tako ranom razdoblju mogle biti korištene ne samo kao sirovina za alat već i kao podloga za grafičko izražavanje. U srednjem paleolitu školjke se pojavljuju u jasnom simboličkom kontekstu neandertalaca, primjerice u špiljama Cueva de los Aviones i Cueva Antón, gdje su pronađeni perforirani primjerci s tragovima pigmenta, interpretirani kao osobni ukrasi ili spremnici za boje.⁸ U razdoblju gornjeg paleolitika dolazi do sustavne upotrebe određenih vrsta morskih školjki, puževa i koponožaca za izradu neutilitarnih simboličnih predmeta poput osobnih ornamenata.⁹ Novija istraživanja ukazuju kako u ovom periodu dolazi i do sustavne utilitarne uporabe određenih vrsta morskih školjki.¹⁰ Prepoznavanje morskih školjki kao alatki omogućili su razvoj i primjena novih metoda, točnije integracija mikroskopskih analiza tragova korištenja, eksperimentalne arheologije i etnografskih podataka.¹¹ Za razliku od arheoloških, etnografski zapisi bilježe široku upotrebu morskih školjki kao alatki za procesiranje različitih životinjskih, biljnih i mineralnih materijala.¹²

rine shells were employed as tools,⁶ and their meat was consumed as food.⁷ Among the earliest examples is a find from Trinil, Java, where a zigzag pattern was incised on a marine shell in a context associated with *Homo erectus*, interpreted as a possible form of symbolic expression. Although the context of the find is not fully clarified, it suggests that in such an early period, shells may have been used not only as raw material for tools but also as a medium for graphic expression. In the Middle Palaeolithic, shells appeared in a clear symbolic context among Neanderthals—for example, at the sites of Cueva de los Aviones and Cueva Antón—where perforated specimens bearing traces of pigment have been interpreted as personal ornaments or pigment containers.⁸ In the Upper Palaeolithic, the systematic use of selected marine shells, gastropods, and scaphopods for the production of non-utilitarian symbolic objects, such as personal ornaments, is well documented.⁹ Recent research also indicates that certain types of marine shells were systematically employed for utilitarian purposes during this period.¹⁰ The identification of marine shells as tools has been facilitated by the development and application of new methodologies – particularly the integration of microscopic use-wear analysis, experimental archaeology, and ethnographic data.¹¹ In contrast to the archaeological records, ethnographic accounts document the widespread use of marine shells as tools for processing various animal, plant and mineral materials.¹² These ethno-

⁶ CHOI, DRIWANTORO 2007; JOORDENS et al. 2015.

⁷ VOIGT 1982; BUCHANAN 1985.

⁸ ZILHÃO et al. 2010.

⁹ Npr. KUHN et al. 2001; WEI et al. 2017; BAR-YOSEF MAYER, BOSCH 2019; BORIĆ, CRISTIANI 2019; VAN-HAEREN et al. 2019.

¹⁰ DOUKA 2011; CUENCA-SOLANA et al. 2013; ROMAGNOLI, MARTINI, SARTI 2015; VILLA et al. 2020; LIDOUR, CUENCA-SOLANA 2023.

¹¹ MANCA 2013; 2016; CUENCA-SOLANA et al. 2016; 2021; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, GONZÁLEZ-MORALES 2017; MANCA et al. 2018.

¹² LEROI-GOURHAN 1945; EMPERAIRE 1958; GUSINDE 1986; VIGIÉ 1987; PROUS 1990; CADE 1998; DUPONT 2003; ALLEN 2009; MANSUR, CLEMENTE CONTE 2009.

⁶ CHOI, DRIWANTORO 2007; JOORDENS et al. 2015.

⁷ VOIGT 1982; BUCHANAN 1985.

⁸ ZILHÃO et al. 2010.

⁹ E.g. KUHN et al. 2001; WEI et al. 2017; BAR-YOSEF MAYER, BOSCH 2019; BORIĆ, CRISTIANI 2019; VAN-HAEREN et al. 2019.

¹⁰ DOUKA 2011; CUENCA-SOLANA et al. 2013; ROMAGNOLI, MARTINI, SARTI 2015; VILLA et al. 2020; LIDOUR, CUENCA-SOLANA 2023.

¹¹ MANCA 2013; 2016; CUENCA-SOLANA et al. 2016; 2021; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, GONZÁLEZ-MORALES 2017; MANCA et al. 2018.

¹² LEROI-GOURHAN 1945; EMPERAIRE 1958; GUSINDE 1986; VIGIÉ 1987; PROUS 1990; CADE 1998; DUPONT 2003; ALLEN 2009; MANSUR, CLEMENTE CONTE 2009.

Raznovrsni etnografski primjeri omogućili su stvaranje baze za provođenje eksperimentalnih arheoloških aktivnosti, a integrativne analize otkrivanje novih funkcija morskih školjki u prapovijesti.¹³ Među vrstama s istaknutom funkcionalnom raznolikošću posebno se izdvajaju školjke roda *Glycymeris*, koje su u arheološkim kontekstima tradicionalno smatrane simboličkim predmetima,¹⁴ nešto rjeđe prehrambenim izvorom,¹⁵ a postoje i pretpostavke o njihovu korištenju kao sredstvu robne razmjene za hranu,¹⁶ dok su novija istraživanja potvrdila i njihovu utilitarnu funkciju, u kojima su čitavi primjerci, ali i fragmenti interpretirani kao strugala, glačala ili spremnici i posudice.¹⁷ Jedan od razloga zašto se utilitarna funkcija školjki vrste *Glycymeris* spp. nije sustavno prepoznavala jest taj što, zbog svojeg ergonomskog oblika, čvrstoće i često oštih rubova, nisu zahtijevale dodatne modifikacije za korištenje, što posljedično otežava njihovo razlikovanje od drugih nalaza u arheološkim slojevima koji su mogli biti korišteni za prehranu ili izradu ornamenata. Dok su modificirane ljuštore pojedinih vrsta morskih školjki, poput *Callista chione*,¹⁸ lako prepoznatljive kao alatke,¹⁹ nemodificirane primjerke nekih vrsta,²⁰ tzv. improvizirane alatke,²¹ pa tako i one roda *Glycymeris*, nije lako razlikovati od malakoloških ostataka sačuvanih u arheološkim slojevima koji su bili, primjerice, izvor prehrane ili sirovina za izradu ukrasa.

Na arheološkim nalazištima istočnog Jadrana školjke roda *Glycymeris* predstavljaju jednu od najzastupljenijih skupina morskih školjakaša

graphic examples have provided a foundation for experimental archaeological protocols, while integrative analytical approaches have revealed previously unrecognised functions of marine shells in prehistory.¹³ Among the taxa noted for their functional diversity, *Glycymeris* shells are particularly prominent. In archaeological contexts, they have traditionally been considered as symbolic objects,¹⁴ and occasionally as a food source.¹⁵ Hypotheses have also been proposed regarding their role as a medium of commodity exchange for food.¹⁶ However, recent studies have confirmed their utilitarian potential, with both complete specimens and fragments interpreted as scrapers, polishers, containers, or small vessels.¹⁷ One reason the utilitarian function of *Glycymeris* spp. shells has not been systematically recognised is that their ergonomic shape, durability, and often sharp edges allowed for direct use without the need for further modification. As a result, it is not easy to distinguish them from other archaeological artefacts that may have functioned as food-related debris or ornamental objects. While modified shells of particular species, such as *Callista chione*,¹⁸ are easily recognisable as tools,¹⁹ unmodified specimens of some species,²⁰ known as improvised tools,²¹ such as those of the *Glycymeris* genus, are more challenging to identify, as they resemble other malacological remains that may have been discarded after consumption or used in ornament production.

At archaeological sites in the Eastern Adriatic, shells of the *Glycymeris* genus represent one of the most prevalent groups of marine

¹³ Npr. CUENCA-SOLANA et al. 2011.

¹⁴ Npr. ZILHÃO et al. 2010.

¹⁵ STINER 1999.

¹⁶ BAR-YOSEF 2005.

¹⁷ Npr. DOUKA 2011; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, CLEMENTE-CONTE 2011; MANCA 2016; SCHÜRCH et al. 2023.

¹⁸ CRISTIANI et al. 2005; ROMAGNOLI, MARTINI, SARTI 2015; VILLA et al. 2020.

¹⁹ VILLA et al. 2020.

²⁰ Npr. THELLER, HILL 2019.

²¹ O'DAY, KEEGAN 2001.

¹³ E.g. CUENCA-SOLANA et al. 2011.

¹⁴ E.g. ZILHÃO et al. 2010.

¹⁵ STINER 1999.

¹⁶ BAR-YOSEF 2005.

¹⁷ E.g. DOUKA 2011; CUENCA-SOLANA, GUTIÉRREZ-ZUGASTI, CLEMENTE-CONTE 2011; MANCA 2016; SCHÜRCH et al. 2023.

¹⁸ CRISTIANI et al. 2005; ROMAGNOLI, MARTINI, SARTI 2015; VILLA et al. 2020.

¹⁹ VILLA et al. 2020.

²⁰ E.g. THELLER, HILL 2019.

²¹ O'DAY, KEEGAN 2001.

tijekom gornjeg paleolitika,²² dok u mezolitičkim kontekstima gotovo potpuno nestaju.²³ U dosadašnjim su istraživanjima ovoga područja ove školjke uglavnom interpretirane kroz prizmu simboličke funkcije,²⁴ najčešće kao ukrasi, dok njihova moguća utilitarna uporaba nije bila sustavno istraživana.

Za razliku od istočnog Jadrana, arheomalakološka istraživanja i revalorizacija postojećih nalaza školjakaš znatno su razvijenija u drugim dijelovima Mediterana, poput Španjolske, Francuske i Italije, ali i šire, gdje su školjke roda *Glycymeris* dokumentirane u širokom rasponu funkcionalnih uloga. Ovaj rad donosi pregled dosadašnjih nalaza i interpretacija školjki roda *Glycymeris* s gornjopaleolitičkih nalazišta istočnog Jadrana te ih sagledava u odnosu na postojeća arheomalakološka istraživanja u području Mediterana. Cilj je rada ponuditi sintezu dostupnih podataka, ukazati na različite mogućnosti tumačenja njihove funkcije te naglasiti važnost daljnjih, funkcionalno orijentiranih istraživanja.

ODLIKE MORSKIH ŠKOLJKI IZ RODA *GLYCYMERIS* SPP.

Porodica *Glycymerididae* široko je rasprostranjena i relativno raznolika, a školjkaši iz roda *Glycymeris* broje više od 250 različitih vrsta i jedni su od najvećih školjakaš u Sredozemnom moru.²⁵ U hrvatskom jeziku nazivaju se čaške. Građene su od debele dvodijelne ljuštore s ukršteno-lamelarnom strukturom, koju karakterizira visoka gustoća i relativno dobra otpornost na deformacije.²⁶ Periostrakum im je prekriven dlačicama karakteristič-

bivalves during the Upper Palaeolithic.²² At the same time, in Mesolithic contexts, they are almost absent.²³ In previous research on this area, these shells have mostly been interpreted through the lens of symbolic function,²⁴ most often as ornaments, while their potential utilitarian use has not been systematically studied.

Unlike in the Eastern Adriatic, archaeomalacological research and the re-evaluation of existing bivalve findings are significantly more developed in other parts of the Mediterranean, such as Spain, France, and Italy, and even further afield, where *Glycymeris* shells have been documented in a wide range of functional roles. This paper presents a systematic review of existing findings and interpretations of *Glycymeris* shells from Upper Palaeolithic sites in the Eastern Adriatic and examines these in the context of current archaeomalacological research across the Mediterranean region. It aims to synthesise the available data, explore diverse functional interpretations, and emphasise the need for continued function-focused research.

CHARACTERISTICS OF MARINE SHELLS OF THE GENUS *GLYCYMERIS*

The *Glycymerididae* family is widely distributed and relatively diverse, with over 250 different species of *Glycymeris*;²⁵ they are among the largest bivalves in the Mediterranean. In Croatian, they are referred to as *čaške*. They have a thick, bivalve shell with a crossed-lamellar structure, characterised by high density and good resistance to deformation.²⁶ Their periostracum is covered in characteristic brownish hairs. The generally complex identification of

²² CVITKUŠIĆ 2015; BORIĆ, CRISTIANI 2019.

²³ KOMŠO 2008; CVITKUŠIĆ 2015.

²⁴ CRISTIANI, FARBSTAIN, MIRACLE 2014; CVITKUŠIĆ 2015; BORIĆ, CRISTIANI 2019; BORIĆ et al. 2023; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a.

²⁵ World Register of Marine Species, <https://www.marinespecies.org/aphia.php?p=taxdetails&id=138035>, pristupljeno 20. 8. 2024.

²⁶ TAYLOR, LAYMAN 1972.

²² CVITKUŠIĆ 2015; BORIĆ, CRISTIANI 2019.

²³ KOMŠO 2008; CVITKUŠIĆ 2015.

²⁴ CRISTIANI, FARBSTAIN, MIRACLE 2014; CVITKUŠIĆ 2015; BORIĆ, CRISTIANI 2019; BORIĆ et al. 2023; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a.

²⁵ World Register of Marine Species, <https://www.marinespecies.org/aphia.php?p=taxdetails&id=138035> accessed date 20/08/2024.

²⁶ TAYLOR, LAYMAN 1972.

ne smeđe boje. Općenito složena determinacija školjkaša razlog je različitih podataka o distribuciji vrsta ovog roda.²⁷ Prema dosadašnjim istraživanjima, potvrđeno je da u Jadranu obitavaju tri vrste čaški: *Glycymeris bimaculata*, *Glycymeris pilosa* i *Glycymeris nummaria*.²⁸ S obzirom na morfološke karakteristike, pojedine je vrste teže međusobno razlikovati te su znanstvena istraživanja na ovu temu još uvijek aktualna.²⁹

G. bimaculata ima karakteristike kojima se najlakše može raspoznati u odnosu na druge dvije vrste: fizički je najveća i može narasti do oko 12 cm, iako su jedinke veće od 9 cm rijetke. Ljuštura imaju okrugao oblik i relativno su plosnate. U istočnom Jadranu česta je vrsta u plitkim pjeskovitim priobalnim područjima, gdje se ukopava u tlo na dubinama do 30 metara.³⁰

U znanstvenoj i stručnoj literaturi najviše se nedoumica odnosi na vrstu *G. pilosa*, točnije njezino razlikovanje u odnosu na vrstu *Glycymeris glycymeris*. Prema literaturi, *G. glycymeris* obitava u Atlantskom oceanu i Sredozemnom moru, ali nema jasnih dokaza o njezinoj stvarnoj prisutnosti u Jadranu.³¹ Iako se u brojnim izvorima spominje prisutnost vrste *G. glycymeris* u Jadranu, nedavna su istraživanja potvrdila da školjkaši istočnog Jadrana pripadaju vrsti *G. pilosa*.³² Obje su vrste sličnih dimenzija, mogu dosegnuti duljinu do 9 cm, a ljuštura su im dublje od vrste *G. bimaculata*.

G. nummaria najmanja je od tri vrste čaški i naraste do 7 cm. Od drugih se vrsta razlikuje po izduženijem, kvadrastom obliku i ljubičastom obojenju ljuštura. Ukopava se u fini, sitni pijesak, koji je relativno rijedak u istočnom dijelu Jadrana i nalazi se samo na određenim lokacijama, poput Ninskog zalje-

bivalves is the reason for the differing data on the distribution of species from this genus.²⁷ According to existing research, three species of *Glycymeris* have been confirmed as inhabiting the Adriatic: *Glycymeris bimaculata*, *Glycymeris pilosa* and *Glycymeris nummaria*.²⁸ Due to their morphological characteristics, certain species are more difficult to distinguish, and scientific research on this topic is still ongoing.²⁹

G. bimaculata has characteristics that make it the easiest to distinguish from the other two species: it is physically the largest and can grow to around 12 cm (although individuals larger than 9 cm are rare). The shells have a round shape and are relatively flat. In the Eastern Adriatic, it is a common species in shallow sandy coastal areas, where it burrows into the seabed at depths of up to 30 metres.³⁰

In scientific and professional literature, the most uncertainty revolves around the species *G. pilosa*, specifically its distinction from the species *Glycymeris glycymeris*. According to the literature, *G. glycymeris* inhabits the Atlantic Ocean and the Mediterranean Sea; however, there is no unambiguous evidence of its actual presence in the Adriatic.³¹ Although the presence of *G. glycymeris* in the Adriatic is mentioned in numerous sources, recent research has confirmed that the bivalves of the Eastern Adriatic belong to the species *G. pilosa*.³² Both species are similar in size, reaching up to 9 cm in length, and their shells are deeper than those of *G. bimaculata*.

G. nummaria is the smallest of the three *Glycymeris* species and can grow to 7 cm. It differs from the others by its elongated, square shape and the purple colouration of its shells. It burrows into fine, granular sand, which is relatively rare in the eastern Adriatic, and is found only at specific locations, such as the Bay of

²⁷ LEGAČ, HRS-BRENKO 1999.

²⁸ UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

²⁹ PURROY et al. 2016; UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022.

³⁰ UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

³¹ PURROY et al. 2016.

³² UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

²⁷ LEGAČ, HRS-BRENKO 1999.

²⁸ UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

²⁹ PURROY et al. 2016; UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022.

³⁰ UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

³¹ PURROY et al. 2016.

³² UJEVIĆ PEHARDA, STANIĆ, UGARKOVIĆ 2022: 93.

va.³³ Prema istraživanju koje su proveli Colone-
nese i suradnici,³⁴ vrsta *G. nummaria* smatra se
jednom od glavnih vrsta školjkaša korištenih
kao hrana na Sredozemlju tijekom paleolitika
i mezolitika.

METODOLOŠKI OKVIR I OSNOVA ZA KOMPARACIJU

Ovaj rad temelji se na sintezi dostupnih po-
dataka o školjkama roda *Glycymeris* iz kasno-
ga gornjeg paleolitika s arheoloških nalazišta
istočne jadranske obale, s posebnim nagla-
skom na njihov kontekst, očuvanost, brojnost
i prisutnost perforacija. Cilj je omogućiti kom-
parativnu analizu i otvoriti prostor za buduća
istraživanja njihove funkcije. Podaci korišteni
u radu temelje se na informacijama iz relevan-
tne literature.

Kao osnovni kriteriji za strukturiranje pre-
gleda korišteni su:

- arheološki kontekst i stratigrafska pripad-
nost nalaza
- morfološke karakteristike i integritet školj-
ki (cjelovitost, fragmentacija, perforacije)
- podaci o tafonomiji i stanju očuvanosti.

Zbog vrlo malih morfoloških razlika među
vrstama unutar roda *Glycymeris*, taksonom-
ska identifikacija arheoloških primjeraka če-
sto nije moguća s dovoljnom razinom pouz-
danosti. Također, iako su ljuštore ovih školjki
prirodno čvrste i mehanički otporne, većina
paleolitičkih primjeraka pokazuje oštećenja
površinskog sloja i/ili gubitak strukturnog
integriteta uslijed tafonomskih i/ili antropo-
genih procesa. Slijedom toga, u ovom su radu
svi nalazi grupirani pod oznakom *Glycymeris*
spp. Budući da su razlike među vrstama pri-
sutnima u Jadranu minimalne, ovakvo gru-
piranje ne utječe na komparativnu analizu ni

Nin.³³ According to the research of Colone-
se et al.,³⁴ *G. nummaria* is considered one of the
main species of bivalves used as food in the
Mediterranean during the Palaeolithic and
Mesolithic periods.

METHODOLOGICAL FRAMEWORK AND BASIS FOR COMPARISON

This paper is based on the synthesis of availa-
ble data on *Glycymeris* shells from the Late Upper
Palaeolithic at archaeological sites along the east-
ern Adriatic coast, with a particular focus on their
context, preservation, abundance, and the pres-
ence of perforations. The aim is to enable a com-
parative analysis and establish a foundation for
future research on their function. The data used
in this paper is drawn from relevant literature.

The structure of the review follows three
principal criteria:

- Archaeological context and stratigraphic af-
filiation of the specimens
- Morphological characteristics and integrity
of the specimens (completeness, fragmen-
tation, perforations)
- Taphonomic information and state of pres-
ervation

Due to minimal morphological differences
between species within the *Glycymeris* genus,
taxonomic identification of archaeological spec-
imens is often not possible with a sufficient lev-
el of certainty. Also, although the shells of these
molluscs are naturally strong and mechanically
resistant, most Palaeolithic specimens show sur-
face damage and/or loss of structural integrity
due to taphonomic and/or anthropogenic pro-
cesses. As a result, all specimens in this paper are
grouped under the taxon *Glycymeris* spp. Since
the differences between species present in the
Adriatic are minimal, this grouping does not

³³ CRNČEVIĆ 2014.

³⁴ COLONESE et al. 2011.

³³ CRNČEVIĆ 2014.

³⁴ COLONESE et al. 2011.

na interpretaciju arheoloških podataka.

U svrhu pregledne i dosljedne kvantifikacije nalaza, primijenjena je osnovna podjela na tri kategorije prema stupnju očuvanosti i prisutnosti perforacije: (1) cjeloviti primjerci s perforacijom, (2) cjeloviti primjerci bez perforacije te (3) fragmentirani i oštećeni primjerci, definirani kao oni kod kojih je očuvanost manja od približno 90 % izvorne strukture, prema kriterijima koje navode Zuschin i suradnici.³⁵

Ova kategorizacija ne podrazumijeva funkcionalnu interpretaciju, s obzirom na to da stupanj očuvanosti i prisutnost perforacije sami po sebi ne upućuju nužno na uporabu predmeta. Svrha joj je sustavno praćenje distribucije nalaza školjki roda *Glycymeris* među lokalitetima istočnojadranskog područja. S obzirom na to da se među fragmentiranim primjercima mogu nalaziti i oni s tragovima korištenja, u budućim istraživanjima bit će nužno provesti detaljne tafonomske i eksperimentalne analize kako bi se razjasnili uzroci fragmentacije i potencijalna upotreba oštećenih primjeraka.

Položaj perforacija evidentiran je prema podacima iz dostupne literature (Badanj, Crvena stijena) i izravnim uvidom u materijal (Vlakno, Šandalja II, Pupičina peć), dok u slučajevima bez vizualne dokumentacije (npr. Vela spila) nije bilo moguće provjeriti točnost navoda.

Dodatno, u obzir su uzeta i preliminarna opažanja s izdvojenih primjeraka iz Vlakna i Badnja, uključujući ograničena makroskopska i mikroskopska zapažanja (< 100 x) povezana s perforacijama i tragovima rezidua, koja su ovdje uključena isključivo kao ilustrativna dopuna preglednom prikazu.

Cilj je ovoga pregleda obuhvatiti i interpretativno sagledati dostupne podatke o nalazima školjki roda *Glycymeris*, kako bi se bolje razumjela njihova uloga te uočili potencijalni smjerovi za buduća funkcionalna istraživanja.

affect the comparative analysis or the interpretation of the archaeological data.

For the purpose of systematic review and consistent quantification of the specimens, a basic division into three categories was applied based on the degree of preservation and the presence of perforation: (1) complete specimens with perforation, (2) complete specimens without perforation, and (3) fragmented and damaged specimens, defined as those with less than approximately 90% of the original structure preserved, according to the criteria of Zuschin et al.³⁵

This categorisation does not imply a functional interpretation, as neither the degree of preservation nor the presence of perforation alone necessarily indicates use. Its primary purpose is to systematically document the distribution of *Glycymeris* specimens across sites in the Eastern Adriatic region. Given that some fragmented specimens may exhibit traces of use, future research will need to incorporate detailed taphonomic and experimental analyses to clarify the causes of fragmentation and assess the potential utilisation of fragmented and damaged shells.

The position of perforations was recorded based on data from published sources (Badanj, Crvena Stijena) and through direct examination of material (Vlakno, Šandalja II, Pupičina Peć). In cases where visual documentation was lacking (e.g., Vela Spila), it was not possible to verify the accuracy of the reported information.

Additionally, preliminary observations from selected specimens from Vlakno and Badanj were taken into account, including limited macroscopic and microscopic observations (<100x) related to perforations and residue traces. These are included solely as an illustrative supplement to the interpretative framework.

The aim of this review is to synthesise and interpret the available data on *Glycymeris* specimens in order to better understand their role and to identify potential directions for future functional research.

³⁵ ZUSCHIN, STACHOWITSCH, STANTON 2003.

³⁵ ZUSCHIN, STACHOWITSCH, STANTON 2003.

PREGLED NALAZA ŠKOLJKI *GLYCYMERIS* SPP. IZ KASNOGA GORNJEG PALEOLITIKA ISTOČNOG JADRANA

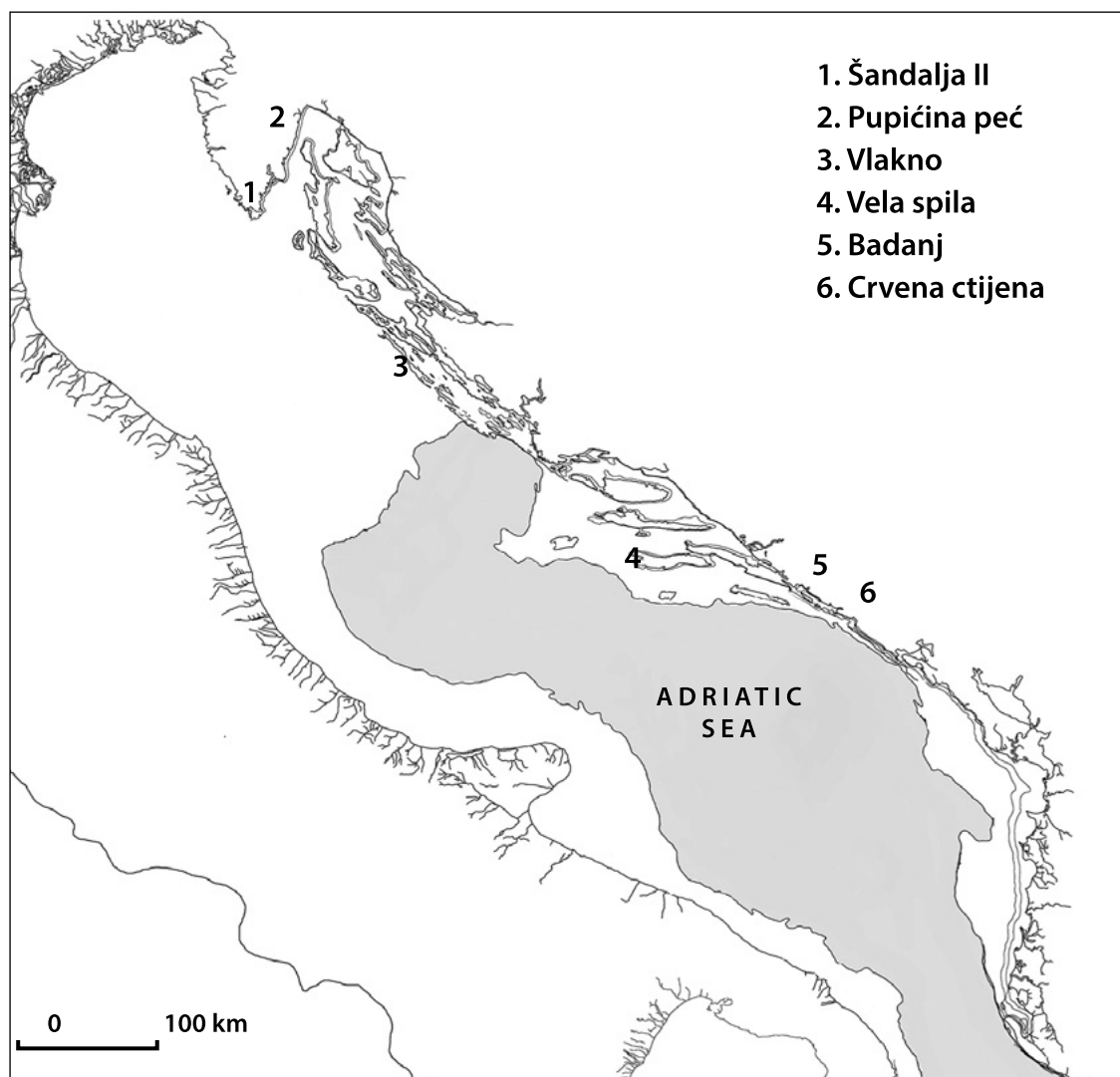
Nalazi školjki roda *Glycymeris* spp. iz kasnoga gornjeg paleolitika dokumentirani su na šest arheoloških lokaliteta duž istočne jadranske obale, a uključuju: Šandalju II, Pupičinu peć, Vlakno, Vela spilu, Badanj i Crvenu stijenu (karta 1). Navedeni lokaliteti, njihova sustavna istraživanja i rezultati raznovrsnih analiza dostupni su u brojnim publikacijama pa se u ovom radu ne donosi njihov detaljan opis.

U nastavku se nalazi sažet pregled arheološkog konteksta za svaki od lokaliteta, u cilju

GLYCYMERIS SPP. SHELL REMAINS FROM THE LATE UPPER PALAEOLITHIC OF THE EASTERN ADRIATIC: A REVIEW

Glycymeris spp. specimens from the Late Upper Palaeolithic have been documented at six archaeological sites along the eastern Adriatic coast: Šandalja II, Pupičina Peć, Vlakno, Vela Spila, Badanj and Crvena Stijena (Map 1). These sites, their systematic research, and the results of various analyses have been published extensively; therefore, a detailed description is not provided in this paper.

Below is a summary of the archaeological context for each site, intended to illustrate



KARTA 1. Gornjopaleolitička nalazišta s *Glycymeris* spp., istočni Jadran (izradila: B. Cvitkušić)

MAP 1 Upper Palaeolithic sites with *Glycymeris* spp., Eastern Adriatic (created by B. Cvitkušić)

prikaza njihove prostorne distribucije, stratigrafskog položaja te osnovnih karakteristika školjki i njihovih tumačenja u literaturi.

Nalazi *Glycymeris* spp. bit će predstavljeni po lokalitetima geografskim slijedom od sjevera prema jugu istočnojadranskog područja.

Na sjevernom dijelu istočnog Jadrana, na području današnje Istre, morske školjke *Glycymeris* spp. otkrivene su na dva lokaliteta – u Pupićevoj peći i u Šandalji II. Tijekom sustavnih istraživanja **Pupićeve peći** prikupljen je bogat repertoar kamenih i koštanih alatki, faune, ljudskih kostiju i osobnih ornamenata.³⁶ Jedan nalaz morske školjke *Glycymeris* spp. otkriven je u sloju 379.³⁷ Od ostalih vrsta morskih školjki u kasnogornjopaleolitičkim slojevima Pupićeve peći prisutni su malobrojni nalazi dagnji (*Mytilus galloprovincialis*).³⁸

Gornjopaleolitički nalazi iz **Šandalje II** tema su raznih interdisciplinarnih istraživanja važnih za rekonstrukciju i bolje razumijevanje prilagodbi i ponašanja prapovijesnih populacija jadranskog prostora. Uz bogate nalaze faune,³⁹ kamenih⁴⁰ i koštanih rukotvorina⁴¹ te osobnih ornamenata,⁴² u sloju B/s pronađeni su i kosturni ostaci četiriju osoba.⁴³ Sedam novih datuma (iz slojeva H, E, C/d i A/d),⁴⁴ nešto ranije datacije slojeva F i G⁴⁵ te stariji datumi slojeva (E, F, G, C i B),⁴⁶ ukazali su na znatne poremećaje u stratigrafiji Šandalje II i miješanje materijala iz različitih slojeva. Od rijetkih nalaza morskih školjki u Šandalji II u sloju B/s otkriven je jedan probušeni primjerak *Glycymeris* spp. i

their spatial distribution, stratigraphic position, and basic characteristics of the shells, as well as their interpretations in the literature.

The *Glycymeris* spp. specimens are presented by site, following a geographical order from north to south of the eastern Adriatic region.

In the northern part of the Eastern Adriatic, in present-day Istria, *Glycymeris* spp. specimens have been recovered at two sites: Pupićevo Peć and Šandalja II. During systematic research at Pupićevo Peć, an extensive assemblage of stone and bone tools, faunal remains, human bones and personal ornaments was collected.³⁶ A single specimen of a *Glycymeris* spp. was discovered in layer 379.³⁷ Other marine bivalve species from the Late Upper Palaeolithic layers at Pupićevo Peć include a few specimens of mussels (*Mytilus galloprovincialis*).³⁸

Upper Palaeolithic finds from **Šandalja II** have been the subject of various interdisciplinary studies relevant to the reconstruction and deeper understanding of prehistoric adaptations and behaviour in the Adriatic region. Along with extensive faunal remains,³⁹ stone⁴⁰ and bone artefacts,⁴¹ and personal ornaments,⁴² the skeletal remains of four individuals⁴³ were discovered in one layer (B/s). Seven new dates (from layers H, E, C/d and A/d),⁴⁴ along with slightly earlier dates for layers F and G⁴⁵ and older dates for layers E, F, G, C and B,⁴⁶ indicated significant disruptions in the stratigraphy of Šandalja II and mixing of material from different layers. Among the rare marine bivalve species recovered at Šandalja II, a perforated *Glycymeris* spp. specimen and a

³⁶ MIRACLE 1997; 2001; 2005; KOMŠO 2007; 2008; CVITKUŠIĆ, KOMŠO 2015.

³⁷ CVITKUŠIĆ 2015.

³⁸ MIRACLE 2001: 184.

³⁹ MIRACLE 1995; 1996; BRAJKOVIĆ 2000; MIRACLE 2007.

⁴⁰ MALEZ 1987; KARAVANIĆ 1999; KARAVANIĆ et al. 2013.

⁴¹ KARAVANIĆ et al. 2013; ČUJKEVIĆ-PLEČKO, KARAVANIĆ 2018; RUIZ-REDONDO et al. 2020.

⁴² CVITKUŠIĆ 2015.

⁴³ JANKOVIĆ et al. 2011: 186-188; 2012: 120.

⁴⁴ RUIZ-REDONDO et al. 2024.

⁴⁵ RICHARDS et al. 2015.

⁴⁶ KARAVANIĆ 2009: 172; KARAVANIĆ et al. 2013.

³⁶ MIRACLE 1997; 2001; 2005; KOMŠO 2007; 2008; CVITKUŠIĆ, KOMŠO 2015.

³⁷ CVITKUŠIĆ 2015.

³⁸ MIRACLE 2001: 184.

³⁹ MIRACLE 1995; 1996; BRAJKOVIĆ 2000; MIRACLE 2007.

⁴⁰ MALEZ 1987; KARAVANIĆ 1999; KARAVANIĆ et al. 2013.

⁴¹ KARAVANIĆ et al. 2013; ČUJKEVIĆ-PLEČKO, KARAVANIĆ 2018; RUIZ-REDONDO et al. 2020.

⁴² CVITKUŠIĆ 2015.

⁴³ JANKOVIĆ et al. 2011: 186-188; 2012: 120.

⁴⁴ RUIZ-REDONDO et al. 2024.

⁴⁵ RICHARDS et al. 2015.

⁴⁶ KARAVANIĆ 2009: 172; KARAVANIĆ et al. 2013.

jedna cjelovita morska školjka *Acanthocardia tuberculata*⁴⁷ bez vidljivih tragova modifikacija⁴⁸. *A. tuberculata* otkrivena je i u sloju G kao jedini nalaz morskog porijekla.⁴⁹ S obzirom na problematiku stratigrafskog integriteta⁵⁰ Šandalje II, ne treba isključiti mogućnost pripadnosti ovih nalaza i kasnijem (holocenu), ali i ranijem razdoblju (orinjasijenu).

Na središnjem dijelu istočnojadranske obale, na području današnje Dalmacije, nalazi morskih školjki *Glycymeris* spp. otkriveni su na dva lokaliteta: u pećini Vlakno na Dugom otoku i Veloj spili na otoku Korčuli. Sustavna istraživanja stratigrafije pećine **Vlakno**,⁵¹ smjestila su ga u krug malobrojnih nalazišta širega jadranskog područja koja omogućavaju praćenje prijelaza kasnog pleistocena na holocen i prilagodbu zajednica na nove ekološke i okolišne uvjete. U gotovo svim slojevima Vlakna zabilježeni su intenzivni antropogeni procesi, a rezultati datacije pleistocenskih slojeva obuhvaćaju kronološki period od oko 14 390 do 19 550 cal BP.⁵² Dosad otkriveni stratigrafski slijed obilježen je odlikama epigravetijenske kulture, sa standardnim, ali bogatim repertoarom kamenih i koštanih rukotvorina,⁵³ faune⁵⁴ i osobnih ornamenata,⁵⁵ uz pojedine jedinstvene i rijetke nalaze na ovim prostorima, poput gor-

complete, unmodified *Acanthocardia tuberculata*⁴⁷ specimen⁴⁸ were discovered in layer B/s. A specimen of *Acanthocardia tuberculata* was also found in layer G, representing the only evidence of marine material from this context.⁴⁹ Given the issue of stratigraphic integrity⁵⁰ at Šandalja II, the possibility that these specimens may belong to a later (Holocene) or earlier (Aurignacian) period cannot be excluded.

Along the central part of the eastern Adriatic coast, in present-day Dalmatia, *Glycymeris* spp. specimens have been discovered at two sites: Vlakno cave on the island of Dugi Otok and Vela Spila on the island of Korčula. Systematic research of the stratigraphy of **Vlakno** cave⁵¹ has placed it among the few sites in the wider Adriatic region that allow the reconstruction of the transition from the Late Pleistocene to the Holocene, as well as the adaptation of hunter-gatherers to new ecological and environmental conditions. Intensive anthropogenic activity has been recorded in almost all layers of the site with radiocarbon dates from Pleistocene strata spanning a period from approximately 14,390 to 19,550 cal BP.⁵² The stratigraphic sequence identified thus far is characterised by features of the Epigravettian culture, including a standard but extensive repertoire of stone and bone artefacts,⁵³ faunal remains⁵⁴ and personal ornaments,⁵⁵ along with several unique and rare artefacts in this region - such as Upper

⁴⁷ Morska školjka *Acanthocardia tuberculata* (Linneus 1758) u prijašnjim radovima navođena je kao *Cardium rusticum*, što je prema novoj sistematizaciji (<https://www.marinespecies.org/aphia.php?p=taxdetails&id=381058>) neprihvaćen naziv.

⁴⁸ CVITKUŠIĆ 2015.

⁴⁹ CVITKUŠIĆ 2015.

⁵⁰ RUIZ-REDONDO et al. 2024.

⁵¹ BRUSIĆ 2004; 2007; VUJEVIĆ 2011; 2018; 2021.

⁵² VUJEVIĆ, BODRUŽIĆ 2014; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; VUJEVIĆ et al. 2024; VUJEVIĆ, CVITKUŠIĆ 2024.

⁵³ VUKOSAVLJEVIĆ, PERHOČ, ALTHERR 2014; VUJEVIĆ, BODRUŽIĆ 2021; VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵⁴ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; RADOVIĆ, SPRYMARQUÉS, VUJEVIĆ 2021.

⁵⁵ CVITKUŠIĆ, VUJEVIĆ 2021; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a; CVITKUŠIĆ et al. 2024b.

⁴⁷ The marine shell *Acanthocardia tuberculata* (Linnaeus 1758) has previously been cited as *Cardium rusticum*, which is an outdated name according to the new classification (<https://www.marinespecies.org/aphia.php?p=taxdetails&id=381058>).

⁴⁸ CVITKUŠIĆ 2015.

⁴⁹ CVITKUŠIĆ 2015.

⁵⁰ RUIZ-REDONDO et al. 2024.

⁵¹ BRUSIĆ 2004; 2007; VUJEVIĆ 2011; 2018; 2021.

⁵² VUJEVIĆ, BODRUŽIĆ 2014; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; VUJEVIĆ et al. 2024; VUJEVIĆ, CVITKUŠIĆ 2024.

⁵³ VUKOSAVLJEVIĆ, PERHOČ, ALTHERR 2014; VUJEVIĆ, BODRUŽIĆ 2021; VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵⁴ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024; CVITKUŠIĆ, RADOVIĆ, VUJEVIĆ 2018; RADOVIĆ, SPRYMARQUÉS, VUJEVIĆ 2021.

⁵⁵ CVITKUŠIĆ, VUJEVIĆ 2021; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a; CVITKUŠIĆ et al. 2024b.

njopaleolitičkih koštanih harpuna,⁵⁶ antropomorfna koštanog privjeska i fragmenata rožnjaka ukrašenih apstraktnim geometrijskim linearnim urezima.⁵⁷ U holocenskim slojevima pronađeni su i ljudski ostaci, uključujući i potpuno sačuvan ukop, izrazito rijedak nalaz iz ovoga vremena.⁵⁸ Većina nalaza morskih školjki otkrivena je u pleistocenskim slojevima, a analizirane su ili u sklopu faune ili osobnih ornamenata.⁵⁹ Analize malakoloških nalaza u sklopu faune pokazuju da 99 % nalaza morskih školjaka čine mediteranska dagnja (*Mytilus* sp.) i kamenica (*Ostrea* sp.), čija je zastupljenost vrlo niska kroz cijelu kasnoglacialnu i postglacialnu sekvencu, s većim udjelom u pleistocenu, posebno u stratumu 4, a odlikuje ih velika fragmentiranost.⁶⁰ Analize skupa nalaza osobnih ornamenata pokazale su da su morske školjke prisutne samo u pleistocenskim slojevima, a *Glycymeris* spp. najzastupljenija je vrsta morskih školjki s ukupno 74 otkrivena primjerka. Dosad je u literaturi bilo objavljeno 70 nalaza školjki roda *Glycymeris* spp.,⁶¹ no naknadnim je pregledom i uvidom u materijal taj broj povećan na 74 primjerka. Ova razlika rezultat je dopunjavanja postojeće baze podataka tijekom izrade ovog rada i uključuje dodatne evidentirane primjerke iz konteksta osobnih ornamenata. Od ostalih vrsta morskih školjki otkrivena je jedna probušena *Acanthocardia tuberculata* i dvije čitave ljuštore školjke *Pecten jacobaeus*. U najnižem stratumu 9 otkriven je i fragment morske školjke koja se uvjetno može pripisati vrsti *Pinna nobilis*.⁶²

Vela spila pružila je dokaze o vrlo dugom sljedju korištenja, od kasnoga gornjeg paleolitika

Palaeolithic bone harpoons,⁵⁶ an anthropomorphic bone pendant, and fragments of decorated chert with abstract geometric linear incisions.⁵⁷ Human remains, including a fully preserved burial – a scarce find for this period – were also discovered in the Holocene layers.⁵⁸ Most marine shell specimens were recovered from the Pleistocene layers and have been analysed either as part of the faunal assemblage or as personal ornaments.⁵⁹ Malacological analyses of the faunal remains show that 99% of the marine bivalve specimens consist of the Mediterranean mussel (*Mytilus* sp.) and oyster (*Ostrea* sp.). Although overall representation is low throughout the Late Glacial and Postglacial sequence, there is a slightly higher concentration in the Pleistocene, particularly in stratum 4, where the assemblage is also characterised by high fragmentation.⁶⁰ Analysis of the personal ornaments has shown that marine bivalves are present only in the Pleistocene layers, with *Glycymeris* spp. being the most prevalent taxon, represented by a total of 74 specimens. Until recently, 70 *Glycymeris* spp. specimens had been published in the literature;⁶¹ following further review and examination of the material, this number has increased to 74. This difference reflects additions to the existing database during the preparation of this paper and includes newly recorded specimens associated with personal ornaments. Other identified marine bivalves include one perforated specimen of *Acanthocardia tuberculata* and two complete specimens of *Pecten jacobaeus*. In the lowest stratum (9), a fragment of a marine bivalve was also discovered, which can conditionally be attributed to *Pinna nobilis*.⁶²

Vela Spila has yielded evidence of a long and continuous sequence of occupation, extending

⁵⁶ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵⁷ VUJEVIĆ, PARICA 2011.

⁵⁸ VUJEVIĆ, BODRUŽIĆ 2014; CRISTIANI et al. 2018; BEDIĆ et al. u tisku.

⁵⁹ BARBIR, VUKOSAVLJEVIĆ, VUJEVIĆ 2020; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a; CVITKUŠIĆ et al. 2024b; BARBIR 2024.

⁶⁰ BARBIR 2024.

⁶¹ CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a: 93.

⁶² VUJEVIĆ, CVITKUŠIĆ 2024.

⁵⁶ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁵⁷ VUJEVIĆ, PARICA 2011.

⁵⁸ VUJEVIĆ, BODRUŽIĆ 2014; CRISTIANI et al. 2018; BEDIĆ et al. (in press).

⁵⁹ BARBIR, VUKOSAVLJEVIĆ, VUJEVIĆ 2020; CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a; CVITKUŠIĆ et al. 2024b; BARBIR 2024.

⁶⁰ BARBIR 2024.

⁶¹ CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024a: 93.

⁶² VUJEVIĆ, CVITKUŠIĆ 2024.

pa sve do brončanog doba. Slojevi iz kasnoga gornjeg paleolitika bogati su nalazima faune,⁶³ kamenim rukotvorinama,⁶⁴ osobnim ornamentima⁶⁵ te rijetkim nalazima keramike⁶⁶. Rezultati radiokarbonskog datiranja slojeva od 20 000 do 14 000 cal BP⁶⁷ omogućavaju praćenje dijakronijskih promjena artefakata.⁶⁸ U literaturi se navodi kako je u gornjopaleolitičkim naslagama otkriveno ukupno 20 školjki i puževa, a od školjkaša su najčešći nalazi *Chamelea gallina* i *Glycymeris nummaria*.⁶⁹ Analiza skupa osobnih ornamenta navodi kako je od morskih školjki u slojevima kasnoga gornjeg paleolitika otkriveno pet primjeraka *Glycymeris* spp.⁷⁰

Na južnom dijelu istočnog Jadrana morske školjke roda *Glycymeris* otkrivene su na dva lokaliteta: u Crvenoj stijeni u Crnoj Gori i u Badnju u Bosni i Hercegovini. Bogata stratigrafija **Crvene stijene**, pripećka smještenog visoko iznad rijeke Trebišnjice u blizini sela Nikšići u Crnoj Gori, omogućila je istraživanja industrija srednjeg i gornjeg paleolitika, mezolitika, ali i materijalnih ostataka kasnijih razdoblja.⁷¹ Analize malakofaune zabilježile su sporadičnu prisutnost dagnji (*Mytilus* sp.), koje su fragmentirane i, prema tumačenju, korištene u prehrambene svrhe.⁷² U sloju VIII gornjeg paleolitika (ca 13,7 do 13,4 ky cal BP)⁷³ otkrivena su tri primjerka *Glycymeris* spp. – jedan čitav primjerak bez perforacije te dva fragmenta, koja se navode u sklopu istraživanja osobnih ornamenta.⁷⁴

Nalazište **Badanj** pripećak je u stijeni kanjo-

from the Late Upper Palaeolithic to the Bronze Age. The Late Upper Palaeolithic layers are rich in faunal remains,⁶³ stone artefacts,⁶⁴ personal ornaments⁶⁵ and rare examples of early pottery.⁶⁶ Radiocarbon dates range between 20,000 and 14,000 cal BP,⁶⁷ enabling the study of diachronic changes in material culture.⁶⁸ According to published sources, a total of 20 shells and gastropods were recovered from the Upper Palaeolithic deposits, with *Chamelea gallina* and *Glycymeris nummaria* being the most commonly represented taxa.⁶⁹ Analysis of the personal ornament assemblage indicates that five *Glycymeris* spp. specimens were found in the Late Upper Palaeolithic layers.⁷⁰

In the southern part of the Eastern Adriatic, *Glycymeris* specimens have been documented at two sites: Crvena Stijena in Montenegro and Badanj in Bosnia and Herzegovina. The rich stratigraphy of **Crvena Stijena**, a rock shelter located high above the Trebišnjica River near the village of Nikšići in Montenegro, has enabled research on industries spanning the Middle and Upper Palaeolithic, Mesolithic, as well as material remains from later periods.⁷¹ Malacofaunal analyses have recorded the sporadic presence of fragmented mussel specimens (*Mytilus* sp.), interpreted as food remains.⁷² In layer VIII, attributed to the Upper Palaeolithic (c. 13,700–13,400 cal BP),⁷³ three *Glycymeris* spp. specimens were discovered: one complete specimen without perforation, and two fragments, which are included in a study of personal ornaments.⁷⁴

The **Badanj** site is a rock shelter located

⁶³ MAUCH LENARDIĆ, OROS SRŠEN, RADOVIĆ 2018.
⁶⁴ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

⁶⁵ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁶⁶ FARBSTEN et al. 2012.

⁶⁷ DEAN et al. 2020.

⁶⁸ VUKOSAVLJEVIĆ 2023.

⁶⁹ RADIĆ, LUGOVIĆ, MARJANAC 2008: 20.

⁷⁰ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁷¹ BENAC, BRODAR 1958; BASLER 1975; 1979a; 1979b; WHALLON 2017; MIHAILOVIĆ, MIHAILOVIĆ, WHALLON 2017.

⁷² ČULAFIĆ, 2017.

⁷³ MERCIER et al. 2017.

⁷⁴ BORIĆ, CRISTIANI 2019; BORIĆ et al. 2023: 53.

⁶³ MAUCH LENARDIĆ, OROS SRŠEN, RADOVIĆ 2018.

⁶⁴ VUKOSAVLJEVIĆ 2012; VUKOSAVLJEVIĆ, PERHOČ, RADIĆ 2022.

⁶⁵ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁶⁶ FARBSTEN et al. 2012.

⁶⁷ DEAN et al. 2020.

⁶⁸ VUKOSAVLJEVIĆ 2023.

⁶⁹ RADIĆ, LUGOVIĆ, MARJANAC 2008: 20.

⁷⁰ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁷¹ BENAC, BRODAR 1958; BASLER 1975; 1979a; 1979b; WHALLON 2017; MIHAILOVIĆ, MIHAILOVIĆ, WHALLON 2017.

⁷² ČULAFIĆ, 2017.

⁷³ MERCIER et al. 2017.

⁷⁴ BORIĆ, CRISTIANI 2019; BORIĆ et al. 2023: 53.

na rijeke Bregave u Bosni i Hercegovini udaljen 40-ak kilometara od Jadranske obale. Epigravetijenska stratigrafija ovog lokaliteta pružila je važne podatke o lovačko-sakupljačkim zajednicama i naseljavanju zaleđa istočnojadranske obale. Rezultati datiranih slojeva smještaju gornjopaleolitičku sekvencu u period od prije 16 do 12,7 ky cal BP.⁷⁵ Badanj je bogat i nalazima osobnih ornamenata, koštanim artefaktima s dekorativnim urezima te litičkim materijalom, a ovdje je otkrivena i gornjopaleolitička stijenska umjetnost, rijedak nalaz s područja jugoistočne Europe.⁷⁶ Analize skupa osobnih ornamenata navode kako je u gornjopaleolitičkim slojevima otkriveno ukupno 53 nalaza morskih školjki vrste *Glycymeris* spp.⁷⁷

SINTEZA I KOMPARATIVNI PREGLED NALAZA

Na temelju dostupnih istraživanja s područja istočnojadranske obale evidentirano je ukupno 137 primjeraka školjki roda *Glycymeris* spp. iz kasnoga gornjeg paleolitika. Raspodjela je po lokalitetima sljedeća: Šandalja II (N = 1), Pupičina peć (N = 1), Vlakno (N = 74), Vela spila (N = 5), Crvena stijena (N = 3) i Badanj (N = 53) (tab. 1). Svi nalazi pripadaju periodu epigravetijenskog tehnokompleksa. Najstariji primjerak školjki roda *Glycymeris* s područja istočnog Jadrana otkriven je u stratumu 9 pećine Vlakno koji je datiran u period od prije 17 026 do 16 678 cal BP (Beta – 677 952).⁷⁸ Nalazi školjki roda *Glycymeris* pokazuju znatne razlike među lokalitetima. Na lokalitetima sjevernog Jadrana, u Šandalji II i Pupičinoj peći, otkrivena su dva izolirana primjerka školjki roda *Glycymeris*, dok glavninu uzorka čine nalazi iz Vlakna i Badnja na području središnjeg odnosno južnog Jadrana.

in the canyon of the Bregava River in Bosnia and Herzegovina, about 40 kilometres from the Adriatic coast. The Epigravettian stratigraphy of this site has provided important data on hunter-gatherer communities and settlement patterns in the hinterland of the eastern Adriatic coast. The results of the dated layers place the Upper Palaeolithic sequence in the period from 16,000 to 12,700 cal BP.⁷⁵ Badanj has yielded a rich assemblage of personal ornaments, bone artefacts with decorative incisions, and lithic material, as well as Upper Palaeolithic rock art – a rare find in the south-eastern European region.⁷⁶ Analysis of the personal ornaments indicates that a total of 53 *Glycymeris* spp. specimens were discovered in the Upper Palaeolithic layers.⁷⁷

SYNTHESIS AND COMPARATIVE ANALYSIS OF MATERIAL

Based on the available research from the eastern Adriatic coast, a total of 137 *Glycymeris* spp. specimens from the Late Upper Palaeolithic have been documented. The distribution by site is as follows: Šandalja II (N=1), Pupičina Peć (N=1), Vlakno (N=74), Vela Spila (N=5), Crvena Stijena (N=3), and Badanj (N=53) (Tab. 1). All specimens belong to the Epigravettian techno-complex period. The oldest *Glycymeris* specimen from the Eastern Adriatic was discovered in stratum 9 of Vlakno cave, dated to the period of 17,026–16,678 cal BP (Beta – 677952).⁷⁸ The *Glycymeris* assemblage exhibits notable variation across sites. In the northern Adriatic, at Šandalja II and Pupičina Peć, only two isolated specimens were found, while the majority of the material was discovered in Vlakno and Badanj, located

⁷⁵ BORIĆ et al. 2023: 8.

⁷⁶ BASLER 1976; 1979a: 1979b; 1983; WHALLON 1999; RUIZ-REDONDO et al. 2020; BORIĆ et al. 2023.

⁷⁷ BORIĆ, CRISTIANI 2019: 218; BORIĆ et al. 2023: 53.

⁷⁸ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

⁷⁵ BORIĆ et al. 2023: 8.

⁷⁶ BASLER 1976; 1979a: 1979b; 1983; WHALLON 1999; RUIZ-REDONDO et al. 2020; BORIĆ et al. 2023.

⁷⁷ BORIĆ, CRISTIANI 2019: 218; BORIĆ et al. 2023: 53.

⁷⁸ VITEZOVIĆ, VUJEVIĆ, RADOVIĆ 2024.

TABLICA 1. Kategorizacija nalaza *Glycymeris* spp. (izradila: B. Cvitkušić)TABLE 1. Categorisation of *Glycymeris* spp. specimens (created by B. Cvitkušić)

Nalazište / Site	<i>Glycymeris</i> spp.		
	Kategorija 1: cjeloviti nalaz s perforacijom / Category 1: Complete specimens with perforation	Kategorija 2: cjeloviti nalaz bez perforacije / Category 2: Complete specimens without perforation	Kategorija 3: fragmenti / oštećeni nalazi / Category 3: Fragmented and damaged specimens
Šandalja II			1
Pupićina cave			1
Vlakno	25	4	45
Vela spila	5		
Crvena stijena		1	2
Badanj*	38	5	10
UKUPNO / TOTAL	68	10	59

Nalaz iz **Pupićine peći** ima oštećen dio umba i nije moguće odrediti je li bio probušen, a interpretiran je u kontekstu osobnih ukrasa (sl. 1). Primjerak *Glycymeris* spp. iz **Šandalje II** također je interpretiran u kontekstu simboličke funkcije. Nedostaje mu lijevi dio plašta, perforacija se nalazi na području umba, a na vanjskoj strani ljušture vidljivo je zaglađeno područje (sl. 2).

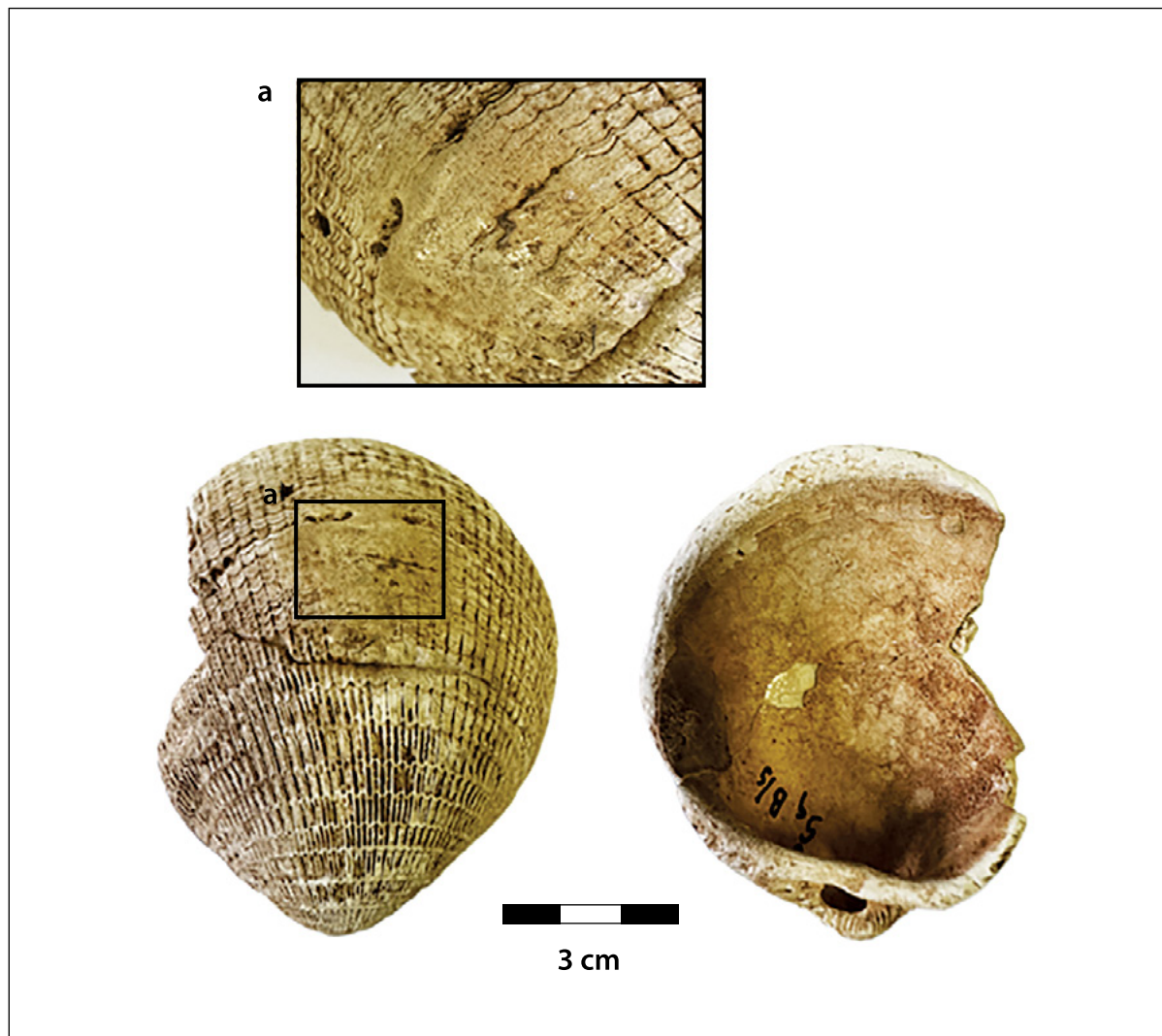
U **Vlaknu** je otkriveno ukupno 74 nalaza školjki roda *Glycymeris*, što je ujedno najveći broj otkrivenih primjeraka na ovome području (sl. 3). Najveći broj nalaza potječe iz stratuma 5 i 6. Prema kategorizaciji, u Vlaknu prevladavaju

in the central and southern Adriatic regions, respectively.

The specimen from **Pupićina Peć** has a damaged umbo, making it impossible to determine whether it was originally perforated; nonetheless, it has been interpreted within the context of personal ornamentation (Fig. 1). The *Glycymeris* spp. specimen from **Šandalja II** has likewise been interpreted as having a symbolic function. The left part of its mantle margin is missing, the perforation is located in the umbo area, and a smoothed area is visible on the exterior surface of the valve (Fig. 2).

A total of 74 *Glycymeris* specimens were discovered in **Vlakno**, representing the highest concentration of specimens found in the region (Fig. 3). The majority of the specimens originated from strata 5 and 6. In terms of categorisation, the assemblage is dominated by fragments and damaged specimens (N=45), followed by complete perforated specimens (N=25), while complete, unmodified valves without modifications are the least represented (N=4) (Tab. 2). Perforations are typically located in the umbo area, although in three specimens, the perforation is located in the mantle region above the umbo. Data on the perforation position are based on direct examination of the ma-

SLIKA 1. Nalaz *Glycymeris* spp. iz Pupićine peći, sloj 379 (snimila: B. Cvitkušić)FIGURE 1 *Glycymeris* spp. from Pupićina Peć, Layer 379 (photo by B. Cvitkušić)



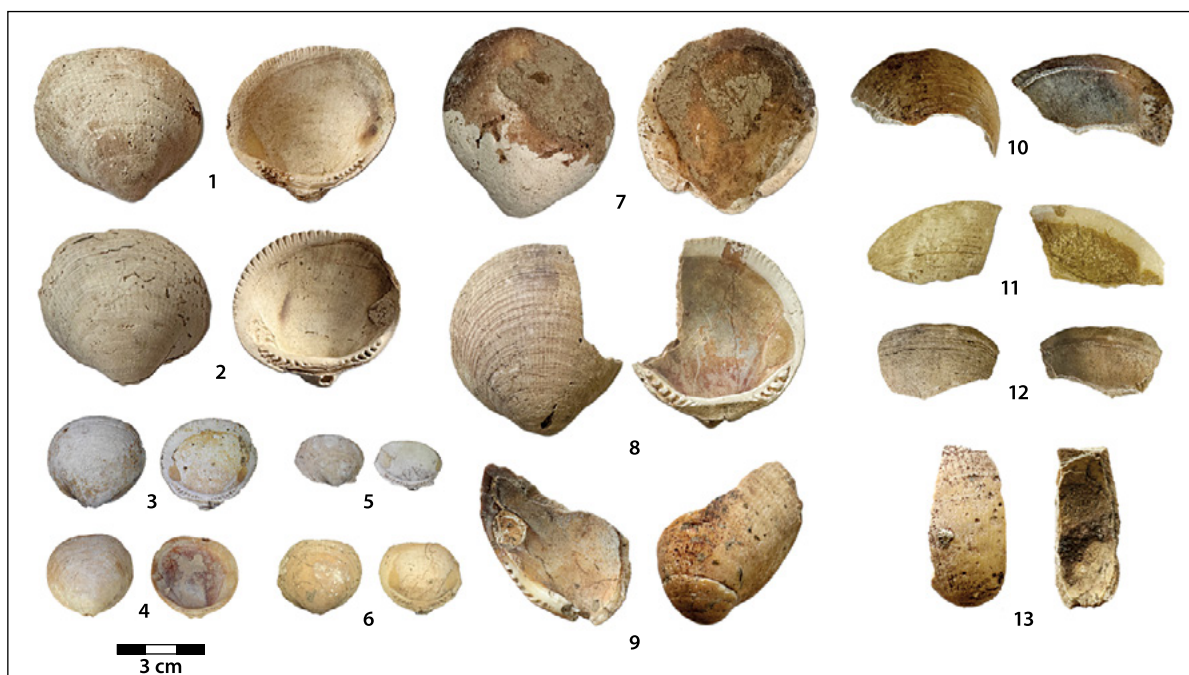
SLIKA 2. Nalaz *Glycymeris* spp. iz Šandalje II, sloj B/s (snimila: B. Cvitkušić)

FIGURE 2 *Glycymeris* spp. from Šandalja II, Layer B/s (photo by B. Cvitkušić)

fragmenti i oštećeni primjerci ($N = 45$), zatim cijeli perforirani primjerci ($N = 25$), dok je najmanje cjelovitih školjki bez modifikacija ($N = 4$) (tab. 2). Perforacije su u pravilu smještene na području umba, dok je na tri primjerka zabilježena perforacija na dijelu plašta iznad umba. Podaci o položaju perforacija temelje se na izravnom uvidu u materijal. Pri radu na materijalu opaženo je kako su među perforiranim primjercima školjke velikih i malih dimenzija, dok su fragmenti isključivo dijelovi većih primjeraka. Budući da za ovaj pregledni rad nisu postavljeni standardizirani metrički kriteriji za razvrstavanje prema veličini, ove su razlike promatrane kvalitativno i interpretirane kao preliminarno zapažanje. Također, na nekim primjercima vidljivi su makroskopski

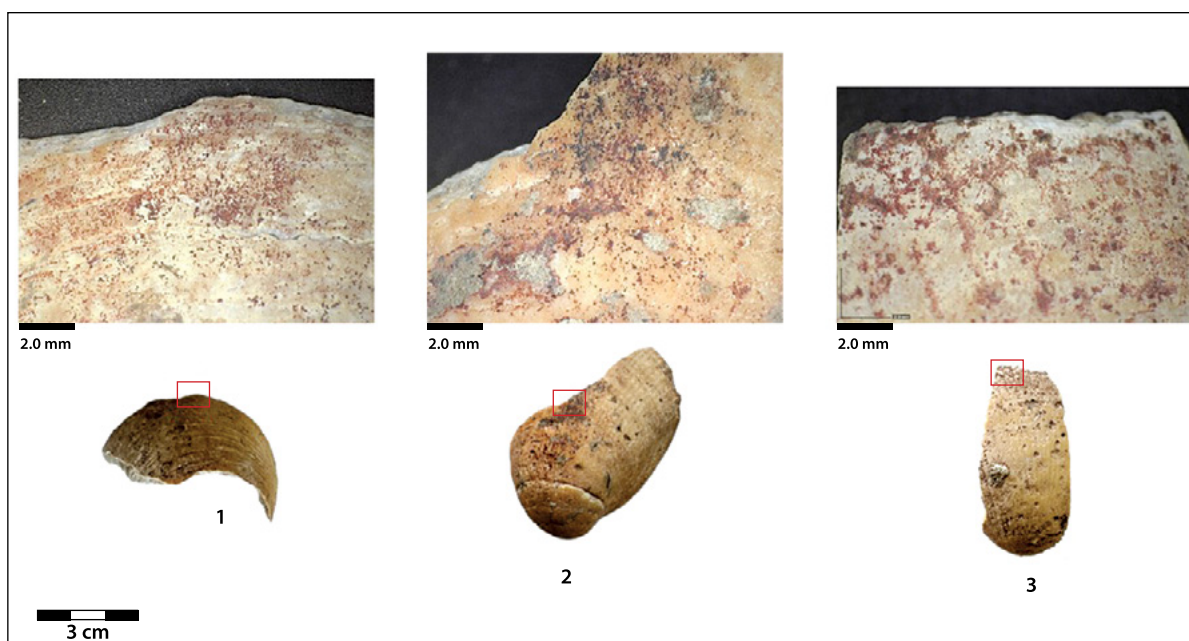
material. During the analysis, it was observed that perforated specimens include both large and small valves, whereas the fragments are exclusively parts of larger specimens. Since no standardised metric criteria were applied for size categorisation in this review paper, these differences are considered qualitative and are presented as preliminary observations. Additionally, some specimens exhibit macroscopic traces of red pigment (ochre) (Fig. 4).

In **Vela Spila**, five complete *Glycymeris* specimens of larger dimensions were discovered, all featuring perforations at the top of the umbo. The specimens were interpreted as personal ornaments; however, it was noted



SLIKA 3. Selekcija nalaza *Glycymeris* spp. iz Vlakna: 1. VL/O/68.3; 2. VL/O/55.3; VL/O/ 54.2; VL/O/ 68.6; VL/O/ 70.11; VL/O/ 89.2; VL/O/ 3.5; VL/O/ 98.32; VL/O/ 80.6; VL/O/ 87.6; VL/O/ 98.33; VL/O/ 98.46; VL/O/ 76/98.14 (snimila: B. Cvitkušić)

FIGURE 3 Selection of *Glycymeris* spp. from Vlakno: 1. VL/O/68.3; 2. VL/O/55.3; VL/O/54.2; VL/O/68.6; VL/O/70.11; VL/O/89.2; VL/O/3.5; VL/O/98.32; VL/O/80.6; VL/O/87.6; VL/O/98.33; VL/O/98.46; VL/O/76/98.14 (photo by B. Cvitkušić)



SLIKA 4. Selekcija nalaza *Glycymeris* spp. iz Vlakna s makroskopski vidljivim tragovima crvenog pigmenta: 1. VL/O/87.6; 2. VL/O/80.6; 3. VL/O/76/98.14 (snimila: B. Cvitkušić)

FIGURE 4 Selection of *Glycymeris* spp. from Vlakno with macroscopically visible traces of red pigment: 1. VL/O/87.6; 2. VL/O/80.6; 3. VL/O/76/98.14 (photo by B. Cvitkušić)

TABLICA 2. Distribucija *Glycymeris* spp. po stratumima u pećini Vlakno (izradila: B. Cvitkušić)TABLE 2 Distribution of *Glycymeris* spp. by strata in Vlakno Cave (created by B. Cvitkušić)

Stratum	<i>Glycymeris</i> spp.		
	Kategorija 1. Cijeli probušeni primjerci / Category 1. Complete specimens with perforation	Kategorija 2. Cijeli primjerci bez perforacija / Category 2. Complete specimens without perforation	Kategorija 3. Oštećeni primjerci i fragmenti / Category 3. Fragmented and damaged specimens
4	2	1	--
5	13	2	14
TEPHRA NYT ~ 14.9±0.4 ka cal BP			
6	9	--	31
7	--	1	--
8	--	--	--
9	1	--	--

tragovi crvenog pigmenta (oker) (sl. 4).

U **Veloj spili** otkriveno je pet cjelovitih primjeraka školjki roda *Glycymeris* većih dimenzija, s perforacijama na vrhu umba. Školjke su interpretirane kao dijelovi osobnih ukrasa, uz napomenu kako zbog prisutnosti tafonomskih promjena nije bila moguća provedba analiza tragova korištenja.⁷⁹

U **Badnju** je dokumentirano 53 nalaza *Glycymeris* spp. (sl. 5) u sklopu analize skupa osobnih ornamenata. Točni podaci o stupnju očuvanosti nisu dostupni u literaturi, a prikazane brojke u kategorizaciji temelje se na podacima E. Cristiani.⁸⁰ Većina je cjelovitih nalaza većih dimenzija i na sebi ima perforaciju smještenu na području umba.⁸¹ S obzirom na nedostatak metrijskih podataka, opažanja o dimenzijama temelje se na općem dojmu iz literature i osobnih komunikacija. Uz fragmentirane, u uzorku su prisutni i cjeloviti primjerci bez modifikacija, a neki primjerci pokazuju makroskopske tragove crvenog pigmenta.⁸² Mikroskopske analize perforacija pokazale su tragove uporabe, sugerirajući kako su školjke bile obješene.⁸³

U **Crvenoj stijeni** otkrivena su ukupno tri primjerka školjki roda *Glycymeris*: jedan cjelo-

that due to the presence of taphonomic alterations, it was not possible to conduct use-wear analysis.⁷⁹

A total of 53 *Glycymeris* spp. specimens were documented at **Badanj** (Fig. 5) as part of the analysis of personal ornament assemblage. Precise data on their state of preservation are not available in the published literature; the categorisation presented here is based on personal communication with E. Cristiani.⁸⁰ Most complete specimens are larger in size and have perforations located in the umbo.⁸¹ Due to the lack of metric data, observations on size are based on general impressions from the literature and personal correspondence. In addition to fragmented specimens, complete unmodified specimens are also present, and some exhibit macroscopic traces of red pigment.⁸² Microscopic analyses of the perforations revealed evidence of use-wear, suggesting that the valves had been suspended.⁸³

In **Crvena Stijena**, a total of three *Glycymeris* specimens were recovered: one complete unperforated specimen and two fragments (Fig. 5, 1–3). All are comparatively large. The literature mentions them in the context of personal ornamentation.

⁷⁹ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁸⁰ Osobna komunikacija, listopad 2024.

⁸¹ BORIC et al. 2023: 53.

⁸² BORIC et al. 2023: 53.

⁸³ BORIC et al. 2023: 53.

⁷⁹ CRISTIANI, FARBSTEN, MIRACLE 2014.

⁸⁰ Personal communication, October 2024.

⁸¹ BORIC et al. 2023: 53.

⁸² BORIC et al. 2023: 53.

⁸³ BORIC et al. 2023: 53.

viti bez perforacije i dva fragmenta (sl. 5, 1-3). Svi su većih dimenzija. Literatura ih navodi u kontekstu osobnih ornamenata.

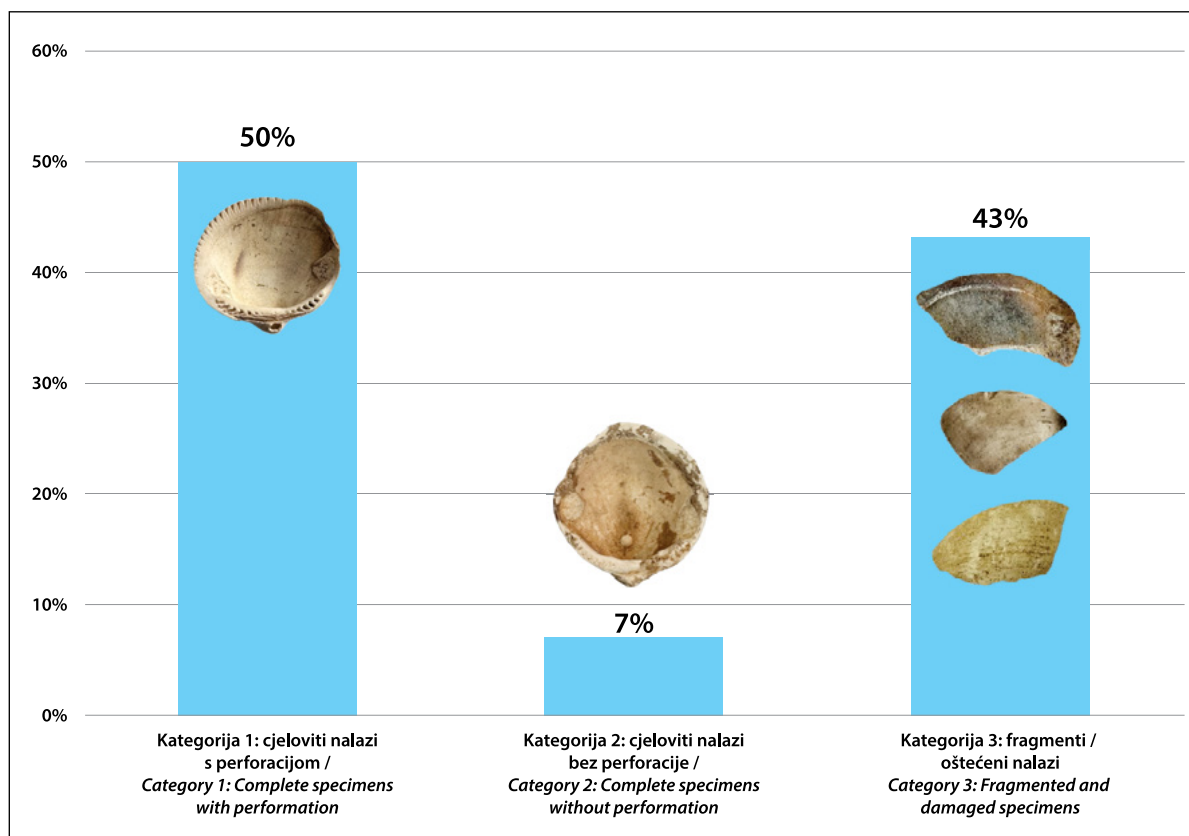
Prema kategorizaciji uzorka prema stupnju očuvanosti i prisutnosti perforacija, najzastupljenija je kategorija 1 – cjeloviti primjerci s perforacijom (oko 50 %), a slijedi je kategorija 3, koja obuhvaća fragmentirane i ošteće-

In terms of sample categorisation by the state of preservation and the presence of perforations, the most common is Category 1 – complete specimens with perforation (about 50%), followed by Category 3, which includes fragmented and damaged specimens (about 43%) (Tab. 1; Graph 1). The least represented are complete unperforated specimens (Cate-



SLIKA 5. Nalazi *Glycymeris* spp. iz Crvene Stijene (1-3), sloj VIII; Selekcija nalaza iz Badnja (4-9): 4. inv. 7463 (sq. XVII/11, 0.8-0.9); 5. inv. 7236/1 (sq. XVII/9, 1.0-1.1); 6. inv. 7705 (sq. XV/5, 0.1-0.2); 7. inv. 7709 (sq. XV/5, 0.6-0.7); 8. inv. 7531; 9. inv. 7391/2 (sq. XIV/6, 0.6-0.7) (prema: Borić, Cristiani 2019: 290 i Borić et al. 2023: 68; doradila: B. Cvitkušić)

FIGURE 5 *Glycymeris* spp. from Crvena Stijena (1-3), Layer VIII; Selection of specimens from Badanj (4-9): 4. inv. 7463 (sq. XVII/11, 0.8-0.9); 5. inv. 7236/1 (sq. XVII/9, 1.0-1.1); 6. inv. 7705 (sq. XV/5, 0.1-0.2); 7. inv. 7709 (sq. XV/5, 0.6-0.7); 8. inv. 7531; 9. inv. 7391/2 (sq. XIV/6, 0.6-0.7) (based on Borić, Cristiani 2019: 290 and Borić et al. 2023: 68; revised by: B. Cvitkušić)



GRAFIKON 1. Grafički prikaz distribucije nalaza *Glycymeris* spp. po zadanim kategorijama (izradila: B. Cvitkušić)
GRAPH 1 Graphical representation of the distribution of *Glycymeris* spp. by categories (created by B. Cvitkušić)

ne primjerke (oko 43 %) (tab. 1; grafikon 1). Najslabije su zastupljeni cjeloviti primjerci bez perforacije, odnosno kategorija 2, sa 7 %.

Veličina ljuštura također pokazuje određene obrasce. Među primjercima iz Vlakna i Badnja vizualno se uočava da su perforirani primjerci i većih i manjih dimenzija, dok su fragmentirani dijelovi ostaci većih školjki. Budući da nisu primijenjeni standardizirani mjerni kriteriji, ova opažanja imaju preliminarni karakter i ukazuju na potrebu za budućim kvantitativnim analizama veličine.

RASPRAVA

Interpretacija istočnojadranskog uzorka i regionalne usporedbe

Prikazani nalazi školjki roda *Glycymeris* iz kasnoga gornjeg paleolitika istočnog Jadrana otkrivaju složenost i raznolikost njihovih potencijalnih uloga u životu prapovijesnih

gory 2), with 7%.

The size of the specimens also exhibits specific patterns. Among the specimens from Vlakno and Badanj, visual inspection indicates the presence of both large and small perforated specimens, whereas the fragmented pieces appear to derive from larger valves. As no standardised measurement criteria were applied, these observations are preliminary and highlight the need for future quantitative analyses focused on specimen size.

DISCUSSION

Interpretation of the Eastern Adriatic Sample and Regional Comparisons

The presented *Glycymeris* shell specimens from the Late Upper Palaeolithic of the Eastern Adriatic reveal the complexity and diversity of their potential roles in the lives of prehistoric

zajednica. U literaturi su dominantno interpretirani kao simbolički predmeti korišteni kao osobni ornamenti, što i odgovara znatnim udjelom perforiranih primjeraka u uzorku (oko 50 %). Međutim, uočeni obrasci distribucije, morfoloških karakteristika, tragova pigmenta i mogući tragovi korištenja upućuju i na mogućnost višestrukih funkcija.

Izražena geografska varijabilnost u zastupljenosti nalaza može ukazivati na potencijalno različite strategije pristupa morskim resursima ili simboličkim praksama među prapovijesnim zajednicama. Ove razlike ne mogu se jednoznačno tumačiti samo tadašnjom udaljenošću lokaliteta od obale, s obzirom na to da su i južni i sjeverni lokaliteti u to vrijeme bili znatno udaljeni od mora,⁸⁴ a sadržavaju različit broj nalaza. Dodatno, nalazi školjki roda *Glycymeris* otkriveni su i u gornjopaleolitičkim slojevima sjevernijih lokaliteta koji su još udaljeniji od tadašnje obale, poput pećine Fumane u Italiji⁸⁵ ili Vogelherda i Petersfelsa u Njemačkoj.⁸⁶ Ti podaci sugeriraju važnost složenijih čimbenika, poput kulturoloških razlika, obrazaca mobilnosti, pristupa resursima, razmjena i načina prikupljanja.

Kategorizacija prema stupnju očuvanosti i prisutnosti perforacije pokazuje da većina nalaza pripada kategorijama 1 i 3, odnosno probušenim cjelovitim primjercima te fragmentima i oštećenim nalazima. Najmanje su zastupljeni cjeloviti primjerci bez perforacija. Znatna razlika u udjelu cjelovitih primjeraka s perforacijom u odnosu na one bez perforacije, osobito u usporedbi s tanatocenozaom, gdje prevladavaju cjeloviti, nemodificirani primjerci⁸⁷ (tab. 3), može sugerirati selektivno prikupljanje školjki ovisno o određenoj namjeni. Neki primjerci mogli su biti korišteni kao osobni ukrasi, dok drugi, osobito oni veći i oštećeni, možda svjedoče o drukči-

hunter-gatherer communities. In the literature, they have been predominantly interpreted as symbolic objects used as personal ornaments, which aligns with the substantial proportion of perforated specimens in the sample (approximately 50%). However, observed patterns in distribution, morphological characteristics, traces of pigment, and possible use-wear suggest the possibility of multiple functions.

The pronounced geographical variability in the frequency of specimens may indicate potentially different strategies for accessing marine resources or symbolic practices among prehistoric communities. These differences cannot be explained solely by the distance of the sites from the coastline at the time, as both southern and northern sites were significantly inland during this period,⁸⁴ yet they yielded varying numbers of specimens. Furthermore, *Glycymeris* shells have also been recovered from Upper Palaeolithic layers at more distant inland sites, such as the Fumane Cave in Italy⁸⁵ or Vogelherd and Petersfels in Germany.⁸⁶ These data suggest the importance of more complex factors, such as cultural differences, mobility patterns, access to resources, exchange networks, and collection strategies.

The categorisation by state of preservation and presence of perforations shows that the majority of the specimens belong to Categories 1 and 3: complete perforated specimens, and fragmented and damaged specimens, respectively. Complete, unperforated specimens are the least represented. The marked difference in the proportion of complete perforated versus unperforated specimens — especially when compared to the thanatocoenosis, in which complete, unmodified specimens prevail⁸⁷ (Tab. 3) — may indicate selective collection of shells based on intended use. Some specimens may have been used as personal ornaments, while others, particularly larger and damaged ones, may reflect a

⁸⁴ SURIĆ 2006; SIKORA, MIHANOVIĆ, VILIBIĆ 2014.

⁸⁵ PERESANI et al. 2019.

⁸⁶ SCHÜRCH et al. 2020; SCHÜRCH et al. 2023.

⁸⁷ SIVAN et al. 2006: 142.

⁸⁴ SURIĆ 2006; SIKORA, MIHANOVIĆ, VILIBIĆ 2014.

⁸⁵ PERESANI et al. 2019.

⁸⁶ SCHÜRCH et al. 2020; SCHÜRCH et al. 2023.

⁸⁷ SIVAN et al. 2006: 142.

TABLICA 3. Usporedba stupnja očuvanosti arheoloških nalaza *Glycymeris* spp. s istočnog Jadrana i nalaza iz tanatocenoze (prema Sivan et al. 2006) (izradila: B. Cvitkušić)**TABLE 3** Comparison of the State of Preservation of Archaeological *Glycymeris* spp. Specimens from the Eastern Adriatic and Thanatocoenose (based on Sivan et al. 2006) (created by B. Cvitkušić)

	Čitavi probušeni primjerci / Complete specimens with perforation	Čitavi primjerci bez perforacije / Complete specimens without perforation	Fragmenti i oštećeni primjerci / Fragmented and damaged specimens
Arheološki nalazi <i>Glycymeris</i> spp. s Istočnog Jadrana <i>Archaeological Glycymeris</i> spp. specimens from eastern Adriatic	50%	7%	43%
Nalazi u kontekstu tanatocenoze (Sivan et al. 2006.) <i>Glycymeris</i> spp. specimens from thanatocoenosis (Sivan et al. 2006)	20%	36%	44%

joj upotrebi – potencijalno utilitarnoj.

Analiza fragmenata školjki roda *Glycymeris*, kao i razlike u očuvanosti primjeraka, pokazali su se kao važan element u recentnim istraživanjima.⁸⁸ Relativno visok postotak fragmenata (43 %) u istočnojadranskom uzorku, koji se teško može objasniti isključivo prirodnim procesima, otvara prostor za njihovo razmatranje i uključivanje u detaljnije analize. Iako su fragmentirani primjerci načelno jednako zastupljeni i u kontekstu tanatocenoze, za razliku od arheološkog konteksta, u tanatocenozi je najveći udio fragmenata kojima je sačuvano više od pola ljuštore, dok su oni koji se odnose na manje od pola ljuštore zastupljeni s tek 4 %.⁸⁹ U pećini Vlakno, trenutno najbogatijem nalazištu školjki roda *Glycymeris* na ovome području, prevladavaju nalazi kategorije 3, a uočeno je i da fragmenti pripadaju većim primjercima, dok su probušeni i veći i manji. Visok stupanj fragmentacije školjki roda *Glycymeris* zabilježen je i u orinjasijenskim slojevima pećine Fumane, gdje su nalazi interpretirani kao osobni ornamenti, dok se za neke primjerke s tragovima pigmenta navodi kako su mogli imati i višestruku funkciju.⁹⁰ Sličan obrazac prisutan je i na lokalitetima ranoga gornjeg paleoliti-

different function—possibly utilitarian.

The analysis of *Glycymeris* fragments and differences in specimen preservation has emerged as an important aspect in recent research.⁸⁸ A relatively high proportion of fragments (43%) in the eastern Adriatic sample (which can hardly be explained solely by natural processes) opens the possibility for further investigation and inclusion in more detailed functional analyses. Although fragmented specimens are generally equally present in both archaeological assemblages and thanatocoenosis, the latter typically show a higher proportion of fragments in which more than half of the shell is preserved, while fragments with less than half of the shell account for only 4%.⁸⁹ At Vlakno cave - the currently richest *Glycymeris* site in the region - Category 3 dominates. It has been noted that the fragments belong to larger specimens, whereas both large and small specimens appear among the perforated examples. A similarly high degree of *Glycymeris* fragmentation has been recorded in the Aurigancian layers of Fumane cave, which were interpreted as personal ornaments. For some specimens bearing pigment traces, it has been suggested that they may have had multiple functions.⁹⁰ A comparable pattern is evident at early Upper Pal-

⁸⁸ CUENCA-SOLANA et al. 2011; CUENCA-SOLANA et al. 2013.

⁸⁹ SIVAN et al. 2006: 142.

⁹⁰ PERESANI et al. 2019.

⁸⁸ CUENCA-SOLANA et al. 2011; CUENCA-SOLANA et al. 2013.

⁸⁹ SIVAN et al. 2006: 142.

⁹⁰ PERESANI et al. 2019.

ka u Njemačkoj.⁹¹ Na lokalitetu Vogelherd orinjasijenski nalazi školjki roda *Glycymeris* znatno su većih dimenzija, uključujući primjerke s tragovima okera i modifikacijama koje se tumače kao spremnici za pigment te jedan primjerak s potencijalnom utilitarnom funkcijom alatke za struganje. Nasuprot tome, manji primjerci iz Hohle Felsa, Geißenklösterlea i Petersfelsa, koji pripadaju gravetijenu i magdalenijenu, većinom su bez tragova funkcionalne obrade. Ove razlike u veličini tumače se kroz prizmu kulturoloških preferencija, funkcionalnih namjena ili selektivnog prikupljanja školjki roda *Glycymeris* u različitim razdobljima i društvenim kontekstima.⁹² Sličan obrazac distribucije vidljiv je i u uzorku iz Badnja te skromnijem, ali važnom uzorku iz Crvene stijene. Fragment iz Crvene stijene (sl. 5, 2), oblikom sličan pojedinim fragmentima iz Vlakna (sl. 3, 11, 12), nalikuje na fragmente morskih školjki s potvrđenim tragovima korištenja.⁹³ Na temelju opažanja da neki primjerci iz Badnja nemaju perforacije, autori sugeriraju da možda nisu svi služili kao ornamenti,⁹⁴ čime se otvara mogućnost njihove višestruke funkcije.

Nadalje, primjerci s tragovima pigmenta zabilježeni u Badnju i Vlaknu, uključujući i veće cjelovite školjke, mogli bi upućivati na njihovu moguću uporabu kao spremnika ili posuda za pigment – poput onih iz špilje Franchti u Grčkoj⁹⁵ ili Vogelherda⁹⁶ – što ukazuje na višestruke funkcije ovih školjki u prapovijesnom kontekstu.

Struktura i građa ljuštura školjki roda *Glycymeris* omogućuju prepoznavanje tragova tafonomskih procesa u tanatocenozi poput abrazije od šljunka i pijeska, bušenja predatora te djelovanja morskih organizama poput spužvi, zbog čega se arheološki primjerci školjki

aeolithic sites in Germany.⁹¹ At the Vogelherd site, the Aurignacian *Glycymeris* specimens are significantly larger in size and include examples bearing ochre residues and modifications interpreted as pigment containers, as well as one specimen interpreted as a potentially utilitarian scraping tool. In contrast, smaller specimens from Hohle Fels, Geißenklösterle, and Petersfels, from the Gravettian and Magdalenian periods, generally lack visible traces of functional modification. These size differences have been interpreted in light of cultural preferences, functional uses, or selective collection strategies of *Glycymeris* during different periods and within varied social contexts.⁹² A similar pattern of distribution is observed in the sample from Badanj, as well as in the smaller yet significant sample from Crvena Stijena. A fragment from Crvena Stijena (Fig. 5, 2), which closely resembles certain fragments from Vlakno (Fig. 3, 11, 12), is morphologically similar to marine shell fragments with confirmed use-wear traces.⁹³ Based on the observation that some specimens from Badanj lack perforations, the researchers have suggested that not all of them necessarily served as ornaments,⁹⁴ thereby opening the possibility of their multiple functions.

Furthermore, specimens with pigment traces recorded at Badanj and Vlakno, including larger complete valves, may indicate their possible use as containers or vessels for pigment, comparable to those from Franchti Cave in Greece⁹⁵ or Vogelherd⁹⁶ – indicating the multiple functions of *Glycymeris* shells in prehistoric contexts.

The structure and composition of *Glycymeris* shells allow for the recognition of traces of taphonomic processes in a thanatocoenosis, such as abrasion from gravel and sand, predator drilling, and the activity of marine organisms such as sponges. For this reason, archae-

⁹¹ SCHÜRCH et al. 2020; SCHÜRCH et al. 2023.

⁹² SCHÜRCH et al. 2023.

⁹³ CUENCA-SOLANA et al. 2016; MANCA et al. 2018; SCHÜRCH et al. 2023.

⁹⁴ BORIC et al. 2023: 53.

⁹⁵ PERLÈS 2018; 2019: 200.

⁹⁶ SCHÜRCH et al. 2023.

⁹¹ SCHÜRCH et al. 2020; SCHÜRCH et al. 2023.

⁹² SCHÜRCH et al. 2023.

⁹³ CUENCA-SOLANA et al. 2016; MANCA et al. 2018; SCHÜRCH et al. 2023.

⁹⁴ BORIC et al. 2023: 53.

⁹⁵ PERLÈS 2018; PERLÈS 2019: 200.

⁹⁶ SCHÜRCH et al. 2023.

roda *Glycymeris* najčešće i tumače kao prazne školjke prikupljene za uporabu kao ukrasi ili spremnici.⁹⁷

POTENCIJAL ZA FUNKCIONALNA ISTRAŽIVANJA

Preliminarno zapažanje mogućih tragova korištenja na primjercima iz Vlakna⁹⁸ sugerira da njihova funkcija nije bila isključivo simbolička. Recentna istraživanja, poput istraživanja morskih školjki s lokaliteta Fuente del Salín u Španjolskoj,⁹⁹ pokazuju višestruku ulogu morskih školjki u različitim utilitarnim funkcijama, poput struganja biljnih vlakana, drva, životinjskih koža i mineralnih tvari,¹⁰⁰ no takve interpretacije na području istočnog Jadrana za sada ostaju na razini pretpostavke.

Interpretaciju funkcije školjki *Glycymeris* s istočnog Jadrana otežava loša očuvanost materijala i nedostatak sustavnih funkcionalnih analiza. Učestala pojava fragmentacije u prirodnim i arheološkim kontekstima otvara pitanje jesu li arheološki fragmenti posljedica selektivnog prikupljanja iz tanatocenoze, funkcionalne uporabe, namjernog lomljenja ili depozicijskih i postdepozicijskih procesa. Eksperimenti su pokazali da školjke roda *Glycymeris*, zbog izrazito čvrste strukture, ne razvijaju makrotragove na korištenim dijelovima rubova ljuštura pri uporabi u funkciji alatke, već isključivo mikroskopske tragove u obliku specifičnog mikroreljefa, zaglađenosti i brazda.¹⁰¹ Zbog toga su integrativne mikroskopske analize tragova korištenja, eksperimentalne provjere pretpostavljenih funkcija i detaljne tafonomske studije koje se bave karakterizacijom postdepozicijskih

ological *Glycymeris* specimens are most often interpreted as empty shells collected for use as ornaments or containers.⁹⁷

POTENTIAL FOR FUNCTIONAL RESEARCH

Preliminary observations of possible use-wear traces on specimens from Vlakno⁹⁸ suggest that their function was not exclusively symbolic. Recent studies, such as those on marine shells from the Fuente del Salín site in Spain,⁹⁹ demonstrate the multifunctional use of marine shells in performing various utilitarian functions, including the scraping of plant fibres, wood, animal hides, and mineral substances.¹⁰⁰ However, such interpretations in the eastern Adriatic context remain, for now, at the level of hypothesis.

The interpretation of the function of *Glycymeris* shells from the eastern Adriatic is challenged by the poor preservation of the material and the lack of systematic functional analyses. The frequent occurrence of fragmentation in both natural and archaeological contexts raises the question of whether the archaeological fragments result from selective collection from thanatocoenosis, functional use, intentional breakage, or depositional and post-depositional processes. Experimental studies have shown that, due to their highly robust structure, *Glycymeris* shells do not develop macroscopic wear traces on the working edges when used as tools, but rather only microscopic traces in the form of distinctive microrelief patterns, smoothing, and striations.¹⁰¹ Therefore, integrative microscopic use-wear analyses, experimental verification of presumed functions, and detailed taphonomic studies, such as the recent pioneering research

⁹⁷ STINER 1999: 742.

⁹⁸ CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024.

⁹⁹ CUENCA-SOLANA et al. 2013.

¹⁰⁰ CUENCA-SOLANA et al. 2013; 2016; MANCA et al. 2018; SCHÜRCH et al. 2020; CLEMENTE-CONTE et al. 2024.

¹⁰¹ MANCA 2018.

⁹⁷ STINER 1999: 742.

⁹⁸ CVITKUŠIĆ, CRISTIANI, VUJEVIĆ 2024.

⁹⁹ CUENCA-SOLANA et al. 2013.

¹⁰⁰ CUENCA-SOLANA et al. 2013; 2016; MANCA et al. 2018; SCHÜRCH et al. 2020; CLEMENTE-CONTE et al. 2024.

¹⁰¹ MANCA 2018.

tragova na morskim školjkama, poput recentne pionirske studije koju su 2023. proveli Cuenca-Solana i suradnici,¹⁰² ključne za razlikovanje prirodnih i antropogenih oštećenja. Nadalje, etnografski podaci također pružaju korisne uvide, osobito za prepoznavanje funkcionalnih aspekata neobrađenih i fragmentiranih školjki, na čemu se temelje brojni eksperimentalni protokoli.¹⁰³ Integrativni pristupi omogućuju diferencijaciju između simboličkih i utilitarnih funkcija, što je istaknuto i u recentnim istraživanjima.¹⁰⁴ Ovakva daljnja interdisciplinarna istraživanja mogla bi pridonijeti boljem razumijevanju odnosa dostupnosti, upotrebe i simbolike školjki *Glycymeris* u različitim regionalnim i kulturnim kontekstima.

ZAKLJUČAK

Nalazi školjki roda *Glycymeris* spp. iz kasnoga gornjeg paleolitika istočnog Jadrana predstavljaju vrijedan doprinos razumijevanju raznolikosti upotrebe morskih resursa u prapovijesnim zajednicama. Iako su dosad dominantno interpretirane kao osobni ornamenti, dio primjeraka pokazuje obilježja koja otvaraju prostor za razmatranje njihove potencijalne utilitarne funkcije.

Sinteza dokumentiranih školjki roda *Glycymeris* s gornjopaleolitičkih lokaliteta istočnog Jadrana pokazuje potrebu i potencijal za detaljnim funkcionalnim istraživanjima. Višestruke funkcionalne uloge ovih školjki dodatno potvrđuju nalazi iz gornjopaleolitičkih nalazišta, gdje se pojavljuju u simboličkim i utilitarnim kontekstima. Integrirani analitički pristupi omogućili bi kvantitativnu obradu u širem regionalnom okviru te doprinijeli usporedbi i preciznijem pozicioniranju istočnojadranskih nalaza

conducted by Cuenca-Solana et al. (2023)¹⁰² on post-depositional modifications of marine shells, are essential for distinguishing between natural and anthropogenic alterations. Furthermore, ethnographic data also provide valuable insights, particularly in recognising the functional potential of unmodified and fragmented shells, which form the basis of numerous experimental protocols.¹⁰³ Integrative approaches allow for the differentiation between symbolic and utilitarian functions, as highlighted in recent studies.¹⁰⁴ Continued interdisciplinary research of this kind could significantly contribute to a more comprehensive understanding of the relationship between the availability, use and symbolism of *Glycymeris* shells in different regional and cultural contexts.

CONCLUSION

The *Glycymeris* spp. specimens from the Late Upper Palaeolithic of the Eastern Adriatic offer valuable insight into the diverse use of marine resources by prehistoric communities. Although they have predominantly been interpreted as personal ornaments, some specimens exhibit characteristics that raise the possibility of utilitarian function.

The synthesis of documented *Glycymeris* material from Upper Palaeolithic sites in the Eastern Adriatic underscores both the need and the potential for detailed functional research. Evidence from other Upper Palaeolithic contexts suggests that these shells fulfilled multiple roles, appearing in both symbolic and utilitarian settings. The application of integrated analytical approaches would enable more robust quantitative analyses within a broader regional framework and facilitate the comparative interpretation and more precise positioning of the Eastern Adriatic assemblage

¹⁰² CUENCA-SOLANA et al. 2023.

¹⁰³ CUENCA-SOLANA et al. 2011; CUENCA-SOLANA et al. 2013; MANCA 2016.

¹⁰⁴ CLEMENTE-CONTE et al. 2024.

¹⁰² CUENCA-SOLANA et al. 2023.

¹⁰³ CUENCA-SOLANA et al. 2011; CUENCA-SOLANA et al. 2013; MANCA 2016.

¹⁰⁴ CLEMENTE-CONTE et al. 2024.

unutar mediteranskoga arheološkog konteksta.

Varijabilnost u veličinama, očuvanosti i distribuciji školjki te prisutnost tragova pigmenta i mogućih tragova korištenja ukazuju na potrebu za daljnjim interdisciplinarnim istraživanjima. Sustavne mikroskopske i eksperimentalne analize, u kombinaciji s tafonomskim i kontekstualnim pristupima, mogle bi pružiti precizniji uvid u načine na koje su korišteni ovi morski resursi.

within the wider Mediterranean archaeological record.

Variation in size, state of preservation, and spatial distribution, together with the presence of pigment residues and possible use-wear traces, indicates the necessity for further interdisciplinary research. Systematic microscopic and experimental analyses, combined with taphonomic and contextual studies, may yield a more accurate insight into the utilisation of these marine resources.

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ZAŠILJENO KOŠTANO ORUĐE IZ BRONČANODOBNOG STOBREČA: SIROVINSKA, TEHNOLOŠKA, TIPOLOŠKA I FUNKCIONALNA ANALIZA

POINTED BONE TOOLS FROM BRONZE AGE STOBREČ: ANALYSES OF RAW MATERIAL, TECHNOLOGY, TYPOLOGY AND FUNCTION

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Ovaj rad pruža prvu studiju grupe zašiljenih koštanih oruđa iz nedavno otkrivenog i dijelom istraženoga prapovijesnog naselja na području današnjeg Stobreča kod Splita, odnosno, po svemu sudeći, njegova srednjeg i kasnog brončanodobnog horizonta. Provedene su detaljne analize sirovine, tehnologije izrade, tipologije i funkcije kako bi se rekonstruirali aspekti svakodnevnog života ove prapovijesne zajednice te produbio uvid u njezine ekonomske aktivnosti i strategije iskorištavanja resursa. Istraživanje je pokazalo dominantnu upotrebu kostiju domaćih životinja, uz prisutnost lovne komponente. Morfološke karakteristike kostiju, kao i razvijene metode obrade, bile su ključne za oblikovanje oruđa poput probojaka, šila, igala i projektila. Funkcionalna interpretacija, temeljena na mikroskopskoj analizi tragova, ukazuje na obradu kože i biljnih vlakana te tekstilnu proizvodnju, kao i potencijalnu upotrebu u lovu ili ratovanju. Obogaćujući skromnu građu o prapovijesnim koštanim izradvinama na istočnojadranskom priobalju, ova studija istodobno naglašava važnost interdisciplinarnoga holističkog pristupa za cjelovitu rekonstrukciju prapovijesnih praksi.

KEY WORDS:

bone artefacts, raw
material, technology,
typology, functional
analysis, Bronze Age,
Stobreč, Dalmatia

This paper presents the first study of a group of pointed bone tools from a recently discovered and partially investigated prehistoric settlement in the area of present-day Stobreč near Split, corresponding to its Middle and Late Bronze Age horizon. Detailed analyses of raw material, manufacturing technology, typology and function were carried out in order to reconstruct aspects of everyday life within this prehistoric community and to deepen the understanding of its economic activities and resource exploitation strategies. The research revealed a predominant use of bones from domestic animals, with evidence of a hunting component. The morphological characteristics of the bones, as well as the developed methods in which they were worked, were crucial for shaping tools such as borers, awls, needles and projectiles. Functional interpretation based on

microscopic use-wear analysis indicates the working of hides and plant fibres, as well as textile production and possible use in hunting or warfare. Enriching the modest corpus of prehistoric bone artefacts from the eastern Adriatic coast, this study simultaneously highlights the importance of an interdisciplinary and holistic approach for the comprehensive reconstruction of prehistoric practices.

UVOD

Koštane¹ izrađevine, kao čest arheološki nalaz, osobito iz prapovijesnih razdoblja, predstavljaju bitan izvor informacija za rekonstrukciju svakodnevnog života arheoloških populacija. Zbog svojih specifičnih fizikalnih svojstava, kao što su iznimna tvrdoća i elastičnost,² koštane sirovine bile su optimalne za oblikovanje i upotrebu u širokom spektru aktivnosti. Njihova primjena obuhvaćala je obradu i izradu tekstila, izradu košara i prostirki, obradu kože i drveta, lončarstvo i lov.³ Analiza ovih predmeta pruža detaljan uvid u aspekte strategija preživljavanja prapovijesnih zajednica, uključujući njihove ekonomske aktivnosti i iskorištavanje resursa, ali i spoznaje o kreativnim društvenim praksama.

Unatoč njihovoj važnosti, objavljenost studija prapovijesnih koštanih izrađevina iznimno je skromna za područje srednje Dalmacije, kao i na cjelokupnom istočnojadranskom priobalju. Dodatno, u prošlosti je primijećen selektivan pristup prikupljanju koštanih izrađevina, dok su određene objave ograničene samo na spomen njihove prisutnosti, bez dodatne dokumentacije, analize ili interpretacije.⁴ Dostupne studije često su limitirane na osnovne tipološke ili statističke podatke, što ograničava dublju analizu funkcije i važnosti ovih predmeta u svakodnevnom životu prapovijesnih društava.

Nekoliko je studija dostupno iz razdoblja paleolitika i mezolitika.⁵ Nešto su detaljnije

INTRODUCTION

Being common archaeological finds, particularly from prehistoric periods, bone¹ artefacts represent an important source of information for reconstructing the everyday life of archaeological populations. Owing to their specific physical properties, such as exceptional hardness and elasticity,² bone materials were optimal for shaping and subsequent application across a wide range of activities. They were used in textile working and production, basket weaving and mat making, hide and wood working, pottery and hunting.³ The analysis of these artefacts provides a detailed insight into the survival strategies of prehistoric communities, including their economic activities and resource exploitation, as well as into their creative social practices.

Despite their significance, published studies of prehistoric bone artefacts for the area of central Dalmatia, as well as for the entire eastern Adriatic coast, are exceedingly rare. Additionally, a selective approach to the collection of bone artefacts has been noted in the past, while certain publications are limited merely to mentioning their presence, without further documentation, analysis or interpretation.⁴ The available studies are often restricted to basic typological or statistical data, which limits deeper analysis of the function and significance of these artefacts in the everyday life of prehistoric societies.

A few studies are available for the Palaeolithic and Mesolithic periods.⁵ Bone artefacts from

¹ Zbirni izraz koji obuhvaća nalaze od kosti, roga, zuba.

² REITZ, WING 2008: 39.

³ CHOYKE 2013: 2.

⁴ U obzir su uzete samo studije koje se bave ovom vrstom artefakata, dok sam spomen njihove prisutnosti nije komparativno promatran, s obzirom na to da se može pretpostaviti da su izrađevine ovog tipa prisutne na većini prapovijesnih lokaliteta, a nedostatak dokumentacije i studije onemogućava komparativnu analizu.

⁵ Npr. KOMŠO 2006; KARAVANIĆ et al. 2013; ČUJKEVIĆ-PLEČKO, KARAVANIĆ 2017; RADIĆ 2018: 27; VIJEZOVIC, VUJEVIĆ, RADOVIĆ 2024.

¹ Collective term encompassing finds made of bone, antler, horn and tooth.

² REITZ, WING 2008: 39.

³ CHOYKE 2013: 2.

⁴ Only studies dealing specifically with this type of artefact have been taken into account, while mere mentions of their presence have not been considered comparatively, since it can be assumed that artefacts of this kind were present at most prehistoric sites, and the lack of documentation and research prevents comparative analysis.

⁵ E.g. KOMŠO 2006; KARAVANIĆ ET AL. 2013; ČUJKEVIĆ-PLEČKO, KARAVANIĆ 2017; RADIĆ 2018: 27; VIJEZOVIC, VUJEVIĆ, RADOVIĆ 2024.



SLIKA 1. Lokalitet Stobreč (izradila: A. Barbir)

FIGURE 1 Stobreč site (made by A. Barbir)

obrađene koštane izrađevine s neolitičkih lokaliteta Crno vrilo,⁶ Pokrovnik,⁷ Zemunik,⁸ Barice-Smilčić⁹ te eneolitičkog lokaliteta Lastvine,¹⁰ dok su bronzanodobni lokaliteti iznimno slabo zastupljeni. Najdetalnija je studija koštanih izrađevina s bronzanodobnog lokaliteta u Hrvatskoj ona iz Monkodonje u Istri,¹¹ a treba spomenuti i gradinu Sveti Mihovil kod Bala¹² te špilju Pupičina peć,¹³ dok su s područja srednje Dalmacije objavljene studije sa sojeničkog naselja Du-

Neolithic sites such as Crno Vrilo,⁶ Pokrovnik,⁷ Zemunik,⁸ and Barice – Smilčić,⁹ as well as from the Aeneolithic site of Lastvine,¹⁰ have been treated in somewhat greater detail, whereas Bronze Age sites are extremely poorly represented. The most detailed study of bone artefacts from a Bronze Age site in Croatia is that of Monkodonja in Istria¹¹; also worth mentioning are the hillfort of Sveti Mihovil near Bale¹² and the cave of Pupičina Peć.¹³ From the area of central Dalmatia, studies have been published on the pile-dwelling settlement of Dugiš¹⁴ and the hillfort of Rat

⁶ VUJEVIĆ 2009.

⁷ HORVAT, VUJEVIĆ 2017: 49.

⁸ MARIJANOVIĆ, HORVAT 2016: 53.

⁹ VUJEVIĆ, HORVAT 2012: 38–40; MARIJANOVIĆ 2022: 80.

¹⁰ MARIJANOVIĆ, MARIJANOVIĆ 2017: 24–25.

¹¹ MLAKAR 1988: 157–189; MAUEL 2008; PUC 2020: 265–415.

¹² Riječ je o dvije igle (inv. br. P-31991, P-31996) i šilu (inv. br. P-31997) (ZLATUNIĆ 2021: 28–30; T. 1).

¹³ U bronzanodobnim slojevima pronađena je motika (sl. 8.5:11), šiljak (sl. 8.5:10) (AMATT, MIRACLE 2006: 407–408).

⁶ VUJEVIĆ 2009.

⁷ HORVAT, VUJEVIĆ 2017: 49.

⁸ MARIJANOVIĆ, HORVAT 2016: 53.

⁹ VUJEVIĆ, HORVAT 2012: 38–40; MARIJANOVIĆ 2022: 80.

¹⁰ MARIJANOVIĆ, MARIJANOVIĆ 2017: 24–25.

¹¹ MLAKAR 1988: 157–189; MAUEL 2008; PUC 2020: 265–415.

¹² These include two needles (Inv. Nos. P-31991, P-31996) and an awl (Inv. No. P-31997) (ZLATUNIĆ 2021: 28–30; Pl. 1).

¹³ In the Bronze Age layers, a hoe (Fig. 8.5: 11) and a point (Fig. 8.5: 10) were found (AMATT, MIRACLE 2006: 407–408).

¹⁴ MAROVIĆ 2001: 249–251; KLIŠKIĆ 2024: 83–97.

giš¹⁴ i gradine Rat na Braču.¹⁵ Iako većina spomenutih studija ima skroman uzorak koštanih izrađevina, Monkodonja i Dugiš ističu se većim brojem detaljno obrađenih nalaza, što omogućava komparativnu analizu.

Slijedom navedenog, cilj je ovog rada prezentirati detaljnu studiju grupe zašiljenoga koštanog oruđa iz nedavno otkrivenoga prapovijesnog naselja u srednjoj Dalmaciji, koje je egzistiralo na području današnjeg Stobreča kraj Splita (sl. 1). Kroz kontekstualan i sveobuhvatan analitički pristup, fokusirat ćemo se na sirovinu, tehnologiju obrade, tipologiju i funkciju ovog specifičnog skupa nalaza, nastojeći produbiti naše razumijevanje materijalne kulture i određenih aspekata svakodnevnog života prapovijesnih zajednica srednje Dalmacije.

ARHEOLOŠKI KONTEKST NALAZA

Naselje Stobreč smješteno je na istočnoj obali Jadranskog mora, oko 7 km jugoistočno od Splita. Povoljan geografski položaj te blizina rijeke Žrnovnice, plodnih polja i izvora pitke vode zasigurno su oduvijek činili ovaj prostor atraktivnim za naseljavanje. Šire područje današnjeg Stobreča iznimno je bogato arheološkim nalazištima iz različitih kronoloških okvira. Pisani izvori tu smještaju željeznodobnu zajednicu Bulina,¹⁶ što je potaknulo hipoteze o kontinuitetu naseljavanja Stobreča od prapovijesti,¹⁷ unatoč inicijalnom nedostatku nedvojbenih materijalnih dokaza. Stobreč je osobito poznat i istaknut kao jedno od najranijih urbanih naselja na tlu Republike Hrvatske, s obzirom na to da je tu tijekom posljednjih nekoliko stoljeća pr. n. e. egzistiralo antičko urbanizirano naselje Epetij (grč. *Epetion*).¹⁸ Iako

on the island of Brač.¹⁵ Although most of these studies are based on modest samples of bone artefacts, Monkodonja and Dugiš stand out for their larger number of well-documented finds, which allows for comparative analysis.

Considering the above, the aim of this paper is to present a detailed study of a group of pointed bone tools from a recently discovered prehistoric settlement in central Dalmatia, located in the area of present-day Stobreč near Split (Fig. 1). Through a contextual and comprehensive analytical approach, attention will be focused on the raw material, working technology, typology and function of this specific assemblage, with the aim of deepening our understanding of the material culture and specific aspects of the everyday life of prehistoric communities in central Dalmatia.

ARCHAEOLOGICAL CONTEXT OF THE FINDS

The Stobreč settlement is situated on the eastern coast of the Adriatic Sea, about seven km south-east of Split. A favourable geographical position, proximity to the river Žrnovnica, fertile fields and sources of fresh water have undoubtedly always made this area attractive for settlement. The wider area of present-day Stobreč is exceptionally rich in archaeological sites from various chronological periods. Written sources place the Iron Age Bulini community here,¹⁶ which has led to hypotheses about the continuity of settlement in Stobreč since prehistoric times,¹⁷ despite the initial lack of unequivocal material evidence. Stobreč is particularly well known and significant as one of the earliest urban settlements in the territory of the Republic of Croatia, since during the last few centuries BC it was the site of the ancient urbanised settlement of Epetion (Greek *Ἐπέτιον*).¹⁸ Although its foundation has

¹⁴ MAROVIĆ 2001: 249–251; KLIŠKIĆ 2024: 83–97.

¹⁵ SANFORD GAASTRA, CRISTIANI, BARBARIĆ 2014.

¹⁶ MÜLLER 1855: 28 (SCYL. 22), 213 (SCYMN. 404).

¹⁷ OREB 1978; FABER 1983; MARŠIĆ 1997.

¹⁸ FABER 1983; MARŠIĆ 1997; KIRIGIN 2010.

¹⁵ SANFORD GAASTRA, CRISTIANI, BARBARIĆ 2014.

¹⁶ MÜLLER 1855: 28 (SCYL. 22), 213 (SCYMN. 404).

¹⁷ OREB 1978; FABER 1983; MARŠIĆ 1997.

¹⁸ FABER 1983; MARŠIĆ 1997; KIRIGIN 2010.

se njegov osnutak tradicionalno povezuje s grčkim doseljenicima s otoka Visa, odnosno iz grada Ise,¹⁹ recentnija promišljanja favoriziraju scenarij savezništva između postojeće lokalne željeznodobne i isejske zajednice, unutar šireg konteksta širenja isejskog utjecaja na prostoru srednje Dalmacije.²⁰ Smatra se da je naselje održalo svoj urbani karakter do kraja antičkog razdoblja.²¹

Povijest istraživanja Stobreča relativno je skromna. Arheološka iskopavanja na području današnjeg tzv. starog Stobreča, koji je smješten na poluotočiću, odvijala su se krajem 60-ih i početkom 70-ih godina 20. stoljeća.²² Ova su inicijalna istraživanja bila manjeg opsega i primarno usmjerena na bedeme koji su opasavali naselje.²³ Sličan je fokus zadržan i tijekom arheoloških i geofizičkih istraživanja provedenih 2012.,²⁴ kad je glavni cilj bio izrada detaljne dokumentacije postojećeg stanja bedema.²⁵ Važan iskorak u opsegu istraživanja te posljedično i novim spoznajama o razvitku Stobreča kroz prošlost ostvaren je tek početkom 2024., pokretanjem opsežnih zaštitnih arheoloških iskapanja, koja su nastavljena i tijekom 2025. (sl. 2). Do sredine 2025. istražena je površina od oko 1000 kvadratnih metara, a rezultati su nedvojbeno potvrdili višeslojni karakter lokaliteta, ukazujući na kontinuitet ljudskog naseljavanja u razdoblju od nekoliko tisućljeća.²⁶

traditionally been linked to Greek settlers from the city of Issa on the island of Vis,¹⁹ more recent interpretations favour a scenario of an alliance between the existing local Iron Age community and that of Issa, within the broader context of the expansion of Issaeian influence across central Dalmatia.²⁰ It is believed that the settlement retained its urban character until the end of the Classical period.²¹

The history of research in Stobreč is relatively modest. Archaeological excavations in what is now called Old Stobreč, located on a small peninsula, were carried out in the late 1960s and early 1970s.²² These initial investigations were limited in scope and primarily focused on the fortification walls surrounding the settlement.²³ A similar focus was maintained during archaeological and geophysical research conducted in 2012,²⁴ when the main objective was to produce detailed documentation of the existing condition of the walls.²⁵ A significant step forward in the scope of research, and consequently in the understanding of the development of Stobreč through time, was achieved only at the beginning of 2024, with the commencement of extensive rescue excavations, which continued throughout 2025 (Fig. 2). By mid-2025, an area of approximately 1,000 square metres had been excavated, and the results unequivocally confirmed the multilayered character of the site, indicating continuity of human occupation over several millennia.²⁶

¹⁹ NOVAK 1952; GABRIČEVIĆ 1973; CAMBI 1974; FABER 1983.

²⁰ MARŠIĆ 1997; KIRIGIN 2010; UGARKOVIĆ, KONESTRA 2020.

²¹ CAMBI 1974; SUIĆ 2003: 63.

²² CAMBI 1974; FABER 1983.

²³ FABER 1983. Istraživanja je provodio Institut za arheologiju (dr. Aleksandra Faber).

²⁴ Istraživanja je provodio Institut za arheologiju (dr. sc. Marina Ugarković), u suradnji sa Sveučilištem Karl-Franzens u Grazu u Austriji (dr. Tina Neuhauser).

²⁵ NEUHAUSER, UGARKOVIĆ 2013; UGARKOVIĆ, NEUHAUSER 2013; NEUHAUSER *et al.* 2014.

²⁶ Istraživanja, koja su u tijeku, provodi Institut za arheologiju (dr. sc. Marina Ugarković), u suradnji s hvarskom tvrtkom Kantharos d.o.o. (Eduard Visković), a financira privatni investitor, tvrtka Arrivé d.o.o. (Stobreč).

¹⁹ NOVAK 1952; GABRIČEVIĆ 1973; CAMBI 1974; FABER 1983.

²⁰ MARŠIĆ 1997; KIRIGIN 2010; UGARKOVIĆ, KONESTRA 2020.

²¹ CAMBI 1974; SUIĆ 2003: 63.

²² CAMBI 1974; FABER 1983.

²³ FABER 1983. The research was conducted by the Institute of Archaeology (Aleksandra Faber, PhD).

²⁴ The research was carried out by the Institute of Archaeology (Marina Ugarković, PhD) in cooperation with Karl-Franzens University in Graz, Austria (Tina Neuhauser, PhD).

²⁵ NEUHAUSER, UGARKOVIĆ 2013; UGARKOVIĆ, NEUHAUSER 2013; NEUHAUSER *et al.* 2014.

²⁶ The ongoing research is being conducted by the Institute of Archaeology (Marina Ugarković, PhD) in cooperation with the Hvar-based company Kantharos d.o.o. (Eduard Visković), and is financed by a private investor, the company Arrivé d.o.o. (Stobreč).



SLIKA 2. Ortogonalna snimka lokaliteta (snimio: N. Romac)
 FIGURE 2 Orthogonal view of the site (photo by N. Romac)

Tijekom ovih iskopavanja prvi su put otkriveni kontekstualni materijalni ostaci koji potvrđuju postojanje naselja u Stobreču prije dolaska Grka. Već su se 2024. pojavili prvi tragovi prapovijesnog Stobreča, dok su nalazi koji su izašli na svjetlo dana sljedeće godine omogućili znatno dublji uvid u slojevitost, strukturu naselja te različite aspekte materijalne kulture i društvenih praksi ove lokalne zajednice. Preliminarni uvid u bogatu materijalnu građu te uslojenost istraženih situacija otkriva nam da su istraživanja iznjedrila ostatke iz raznih prapovijesnih razdoblja. Pronađeni su dijelovi nastambi i povezani depoziti, ostaci struktura, urušenja i podnica, koji jasno ocrtavaju postojanje više faza naseljavanja i izgradnje, dok brojni prateći pokretni nalazi, od kojih su mnogi sačuvani *in situ* i u cijelosti, dodatno naglašavaju iznimnu važnost istraženog dijela prapovijesnoga stobrečkog naselja. U svrhu relativnog datiranja stratigrafskih jedinica, odnosno uspostavljanja grube radne kronologije i interpretacije istraženog prostora, preliminarno su obrađeni dijagnostički keramički nalazi koji sugeriraju dataciju stobrečkog naselja

During these excavations, contextual material remains confirming the existence of a settlement in Stobreč prior to the arrival of the Greeks were discovered for the first time. In 2024, the first traces of prehistoric Stobreč had already begun to emerge, while the finds uncovered in the following year provided a significantly deeper insight into the stratigraphy, settlement structure, and various aspects of the material culture and social practices of this local community. A preliminary examination of the abundant material assemblage and the stratified nature of the excavated contexts reveals that the investigations have yielded remains from various prehistoric periods. Parts of dwellings and associated deposits, remains of structures, collapses and floor surfaces were found, clearly outlining the existence of several phases of habitation and construction, while numerous accompanying movable finds, many of which were preserved *in situ* and intact, further emphasise the exceptional significance of the excavated part of the prehistoric settlement at Stobreč. For the purposes of relative dating of the stratigraphic units, that is, establishing a rough working chronology and interpretation of the excavated area, diagnostic ceramic finds were

od srednjeg i kasnog bronzanog doba do starijeg i mlađeg željeznog doba.²⁷

Koštane izrađevine otkrivene su tijekom istraživanja bronzanodobne prapovijesne nastambe. Ovi artefakti pronađeni su u depozitima (SJ 215, 384, 419, 436), zapunama jama (SJ 6, 376) i urušenjima (SJ 131, 470), koji su dokumentirani tijekom istraživanja spomenutog prapovijesnog objekta, kao i u kontekstu podnice od nabijene tupine (SJ 176) i zemljane peći (SJ 426) unutar objekta. Interpretirani su kao slojevi upotrebe nastambe te je u njima zabilježena znatna količina ostataka lončarije, životinjskih kostiju i drugih artefakata. Zemljane zapune plitkih jama sadržavale su i ostatke gara (SJ 6, 376) te su u jednoj od njih osim koštanih artefakata pronađeni i keramički ulomci te kameni brus (SJ 6). Zatečena urušnja bila su bogata izgoranim kućnim lijepom te ulomcima keramike i životinjskih kostiju (SJ 131) ili se nalaze samo ostaci gara i kućnog lijepa (SJ 470). Preliminarna analiza zateknute stratigrafske situacije i popratnih nalaza sugerira dataciju opisanih slojeva u srednje i kasno bronzano doba, dok je detaljnija analiza u tijeku.

MATERIJALI I METODE

Prikupljanje i obrada uzoraka

Za potrebe ove studije, koja se temelji na analizi i interpretaciji odabranog skupa nalaza koštanih izrađevina, prikupljeni su svi artefakti tog tipa koji su pronađeni tijekom zaštitnih arheoloških istraživanja provedenih u Stobreču, i to u prvoj polovici 2025.²⁸ Većina analiziranih nalaza dokumentirana je *in situ*

subjected to a preliminary analysis, which suggests that the Stobreč settlement dates from the Middle and Late Bronze Age to the Early and Late Iron Age.²⁷

Bone artefacts were discovered during the excavation of a prehistoric Bronze Age dwelling. These artefacts were found in deposits (SU 215, 384, 419, 436), pit fills (SU 6, 376) and collapse layers (SU 131, 470), which were documented during the excavation of this prehistoric structure, as well as in the context of an earthen oven (SU 426) within it and a compacted marl floor (SU 176). They are interpreted as occupation layers of the dwelling, containing significant remains of pottery, animal bones and other artefacts. The earthen fills of shallow pits also contained remains of soot (SU 6, 376), and in one of them, in addition to the bone artefacts, ceramic fragments and a whetstone were found (SU 6). The recorded collapse layers were rich in burned daub, as well as fragments of pottery and animal bones (SU 131), or contained only traces of soot and house daub (SU 470). A preliminary analysis of the recorded stratigraphic situation and associated finds suggests that the described layers date to the Middle and Late Bronze Age, while a more detailed analysis is still in progress.

MATERIALS AND METHODS

Sample collection and working

For the purposes of this study, which is based on the analysis and interpretation of a selected set of bone artefacts, all artefacts of this type discovered during the rescue excavations conducted in Stobreč in the first half of 2025 were collected.²⁸ Most of the analysed finds were documented *in situ* during manual excavation, while three specimens were subse-

²⁷ Detaljna je studija otkrivenih dijelova naselja i popratnog pokretnog materijala, zajedno s konzervacijom, u tijeku, a više selektiranih uzoraka poslano je u Debrecen u Mađarsku na AMS 14C analizu.

²⁸ Na prostoru koji je istražen 2024. nisu zabilježeni nalazi ovog tipa.

²⁷ A detailed study of the uncovered parts of the settlement and associated movable material, along with conservation work, is currently in progress, and several selected samples have been sent to Debrecen, Hungary, for AMS ¹⁴C analysis.

²⁸ No finds of this type were recorded in the area excavated in 2024.

tijekom ručnog iskopa, dok su tri primjerka naknadno izdvojena iz šireg skupa životinjskih ostataka. Svi nalazi ručno su oprani, osušeni, fotografirani, obrađeni te pohranjeni uz pripadajuće kontekstualne podatke. Artefaktima su izmjerene dužine i težine. Za obradu i pohranu podataka korišten je MS Office (Word, Excel), a predlošci za grafičke prikaze životinja preuzeti su s interneta.²⁹ Za makroskopsku analizu korištena je ručna lupa s povećanjem od 10 puta.

Analiza predmeta obuhvatila je promatranje niza parametara, općenito podijeljenih u pet kategorija: sirovina, tehnologija obrade, tipologija i funkcija te kontekstualni podaci.

Analiza sirovine

Za određivanje sirovine provedena je anatomska i tafonomska analiza, pri čemu su upotrijebljeni relevantni priručnici.³⁰ Cilj je bio identificirati odabrane životinjske vrste te specifične anatomske dijelove korištene za izradu oruđa.

Gdje je bilo moguće, relativna životna dob životinje u trenutku smrti procijenjena je na temelju stupnja srašćavanja kostiju.³¹ Uzorci su potom svrstani u dobne skupine: mlado i odraslo. Uzorci kojima nije bilo moguće odrediti dob označeni su kao neodređeni.

Na uzorcima su bilježene i tafonomske promjene, nastale postdepozicijskim procesima.³² Promatrane su prirodne promjene uzrokovane djelovanjem vaskularnih biljaka (jetkanje korijena), životinja (glodanje) i vode (poliranje), kao i izloženost atmosferilijama koja rezultira različitim pukotinama i listanjem kosti. Evidentirane su i antropogene modifikacije, poput tragova gorenja.³³ Tragovi gorenja mogu nastati na više načina, a uzimajući

često su odvojene od većeg skupa životinjskih ostataka. Svi nalazi ručno su oprani, osušeni, fotografirani, obrađeni te pohranjeni uz pripadajuće kontekstualne podatke. Artefaktima su izmjerene dužine i težine. Za obradu i pohranu podataka korišten je MS Office (Word, Excel), a predlošci za grafičke prikaze životinja preuzeti su s interneta.²⁹ A hand lens with a magnification of 10× was used for macroscopic analysis.

The analysis of the artefacts included the observation of a series of parameters, generally divided into five categories: raw material, working technology, typology, function and contextual data.

Raw material analysis

To determine the raw material, anatomical and taphonomic analyses were carried out using relevant reference manuals.³⁰ The aim was to identify the selected animal species and the specific anatomical parts used in the manufacture of the tools.

Where possible, the relative age of the animal at the time of its death was estimated on the basis of degree of bone fusion.³¹ The samples were then classified into age groups: juvenile and adult. Samples for which age could not be determined were designated as indeterminate.

Taphonomic alterations resulting from post-depositional processes were also recorded on the samples.³² Natural changes caused by the action of vascular plants (root etching), animals (gnawing), and water (polishing) were observed, as well as exposure to weathering, which results in various cracks and flaking of the bone. Anthropogenic modifications, such as traces of burning, were also documented.³³ Burn marks can occur in several ways, and giv-

²⁹ <http://photos.archeozoo.org/>.

³⁰ SCHMID 1972; HILLSON 1992; FERNÁNDEZ-JALVO, ANDREWS 2016.

³¹ SILVER 1969; REITZ, WING 2008.

³² FERNÁNDEZ-JALVO, ANDREWS 2016.

³³ STINER *et al.* 1995.

²⁹ <http://photos.archeozoo.org/>.

³⁰ SCHMID 1972; HILLSON 1992; FERNÁNDEZ-JALVO, ANDREWS 2016.

³¹ SILVER 1969; REITZ, WING 2008.

³² FERNÁNDEZ-JALVO, ANDREWS 2016.

³³ STINER *et al.* 1995.

u obzir da analizirane izrađevine dolaze iz kontekstualnih jedinica s tragovima gorenja, bilo je bitno razlučiti je li riječ o slučajnom gorenju koštanih izrađevina pri požaru u naselju, pri pripremi hrane³⁴ ili nakon što su izrađevine već bile prekrivene arheološkim slojem.³⁵

Tehnologija obrade i tipologija predmeta

Na analiziranom koštanom materijalu identificirane su različite metode izrade oruđa, koje se posljedično reflektiraju na tipologiju samih predmeta. Tehnologija izrade oruđa promatrana je kroz tri faze: primarno lomljenje sirovine, oblikovanje i završna obrada predmeta.³⁶ Površinske promjene promatrane su makroskopski i mikroskopski. Makroskopskim pregledom bilježeni su tipovi loma³⁷ i način obrade oruđa³⁸. Pri opisivanju morfologije predmeta korišteni su standardizirani termini: baza ili proksimalni dio, tijelo ili mezijalni dio te vrh ili distalni dio.³⁹

Tipologija predmeta definirana je prvenstveno kroz međuočnos oblika izrađevine i anatomskog elementa životinje od koje su izrađeni.⁴⁰ Premda oblik predmeta nije uvijek indikator upotrebe, može biti generalni pokazatelj, s obzirom na to da forma ipak donekle diktira načine upotrebe.⁴¹ Za određivanje tipologije predmeta u ovom radu korištena je tipološka klasifikacija koju je dopunila i modificirala⁴² S. Vitezović za koštanu industriju u prapovijesti jugoistočne Europe⁴³. Ova tipološka klasifikacija odabrana je zbog kronološke i geografske sličnosti s predmetnim materijalom. Bitan

en that the analysed artefacts come from contextual units showing traces of burning, it was important to determine whether these represented accidental burning of the bone artefacts during a settlement fire, burning during food preparation,³⁴ or after the artefacts had already been buried in the archaeological layer.³⁵

Bone working technology and artefact typology

Various methods of tool manufacture were identified on the analysed bone material, which in turn are reflected in the typology of the artefacts themselves. The tool production technology was examined through three stages: primary reduction of the raw material, shaping, and final finishing of the artefact.³⁶ Surface modifications were observed both macroscopically and microscopically. Macroscopic examination recorded fracture types³⁷ and methods of tool shaping.³⁸ In describing the morphology of the artefacts, standardised terminology was used: base or proximal part, body or mesial part, and tip or distal part.³⁹

The typology of the artefacts was defined primarily through the relationship between the shape of an artefact and the anatomical element of the animal from which it was made.⁴⁰ Although the shape of an artefact is not always an indicator of its use, it can serve as a general guide, since form to some extent dictates modes of use.⁴¹ For determining the typology of the artefacts in this study, the typological classification supplemented and modified⁴² by S. Vitezović for the bone industry of south-eastern Europe in the Prehistoric period was used.⁴³ This typological classification was chosen because of

³⁴ CARROLL, SMITH 2018.

³⁵ STINER *et al.* 1995.

³⁶ VITEZOVIĆ 2011: 263–268.

³⁷ VILLA, MAHIEU 1991.

³⁸ VITEZOVIĆ 2016.

³⁹ *Ibid.*

⁴⁰ ALLENTUCK 2011: 380.

⁴¹ HORWITZ, GARFINKEL 1988.

⁴² Prema A. Bačkalovu (BAČKALOV 1979). Za detaljni razvoj tipologije vidjeti VITEZOVIĆ 2016.

⁴³ VITEZOVIĆ 2011.

³⁴ CARROLL, SMITH 2018.

³⁵ STINER *et al.* 1995.

³⁶ VITEZOVIĆ 2011: 263–268.

³⁷ VILLA, MAHIEU 1991.

³⁸ VITEZOVIĆ 2016.

³⁹ *Ibid.*

⁴⁰ ALLENTUCK 2011: 380.

⁴¹ HORWITZ, GARFINKEL 1988.

⁴² According to A. Bačkalov (BAČKALOV 1979). For a detailed development of the typology, see VITEZOVIĆ 2016.

⁴³ VITEZOVIĆ 2011.

faktor pri izboru tipologije bio je način klasifikacije (grupa, tip, podtip, varijanta) koji dozvoljava daljnje modificiranje tipologije ovisno o periodu i lokalitetu, što olakšava daljnju usporedbu materijala među lokalitetima i periodima.⁴⁴

Analiza tragova upotrebe

Interpretacija tragova upotrebe na koštanim izrađevinama provedena je primjenom utvrđenih kriterija iz relevantne literature.⁴⁵ Analiza je obuhvatila sljedeće parametre:

- 1) Mikrotopografija: Opisana je razlika u distribuciji nižih i viših točaka na površini koštane izrađevine, gdje znatne razlike ukazuju na heterogenu mikrotopografiju, dok male razlike upućuju na homogenu.⁴⁶
- 2) Mikroreljef: Riječ je o detaljnijem opisu mikrotopografije, promatrane pod povećanjem od 200 puta, pri čemu je bilježeno jesu li visoke točke iste visine (što rezultira pravilnim reljefom) ili postoje znatne razlike u visini (što ukazuje na nepravilan reljef). Morfologija točaka klasificirana je kao zaobljena ili ravna, dok je tekstura opisana kao hrapava ili glatka.⁴⁷
- 3) Strije: Promatrane su pod povećanjima od 20, 50 i 200 puta. Bilježena je njihova distribucija (transverzalna, longitudinalna, nasumična) i pozicija (paralelna, prekrivena, nepravilna). Morfologija strija promatrana je s obzirom na širinu (uska, široka, raznolika – ako se širina strije mijenjala duž njezine duljine), dubinu (duboka, plitka), duljinu (duga, kratka) i formu (ravna, valovita).⁴⁸

its chronological and geographical similarity to the analysed material. An important factor in the choice of typology was its structure (group, type, subtype, variant), which allows for further modification depending on the period and site, thereby facilitating subsequent comparison of material between sites and periods.⁴⁴

Use-wear analysis

The interpretation of use-wear traces on bone artefacts was carried out by applying established criteria from relevant literature.⁴⁵ The analysis included the following parameters:

- 1) Microtopography: The difference in the distribution of lower and higher points on the surface of the bone artefact was described, where significant variations indicate a heterogeneous microtopography, while minor variations suggest a homogeneous one.⁴⁶
- 2) Microrelief: This refers to a more detailed description of the microtopography, observed under 200× magnification, which recorded whether the high points were of equal height (resulting in a regular relief) or whether significant height differences were present (indicating an irregular relief). The morphology of the points was classified as rounded or flat, while the texture was described as rough or smooth.⁴⁷
- 3) Striations: Observed under magnifications of 20×, 50×, and 200×. Their distribution (transverse, longitudinal, random) and orientation (parallel, crossed, irregular) were recorded. The morphology of the striations was examined in terms of width (narrow, wide, and variable – if the width changed along their lengths), depth (deep, shallow), length (long, short) and form (straight, wavy).⁴⁸

⁴⁴ *Ibid.*: 67.

⁴⁵ LEGRAND 2007; BUC 2011.

⁴⁶ LEGRAND 2007.

⁴⁷ BUC 2011.

⁴⁸ *Ibid.*

⁴⁴ *Ibid.*: 67.

⁴⁵ LEGRAND 2007; BUC 2011.

⁴⁶ LEGRAND 2007.

⁴⁷ BUC 2011.

⁴⁸ *Ibid.*

Posebna je pažnja posvećena modifikacijama oruđa, s naglaskom na abraziju, ljuštenje i spljoštavanje oruđa ili njegovih dijelova. Abrazija se tumači kao posljedica ponavljajućeg trošenja. Ljuštenje je uzrokovano mikrofrakturama na kosti, često interpretiranim kao rezultat udarca o tvrđu površinu, no može nastati i dugotrajnom upotrebom. Spljoštavanje predstavlja prvu fazu u procesu trošenja oruđa, pri čemu se koštana vlakna povlače uslijed oštećivanja ili pritiska.⁴⁹ Mikroskopski pregled proveden je s pomoću digitalnog mikroskopa (Dino-Lite), uz primjenu povećanja od 20, 50 i 200 puta.

REZULTATI

Sirovina

U ovoj studiji analizirano je ukupno 11 šiljasto obrađenih koštanih izrađevina, pri čemu su svi predmeti izrađeni od kostiju sisavaca. Dominantnu kategoriju predstavljaju domaće životinje: dva su primjerka izrađena od kostiju goveda (*Bos taurus*), dok sedam potječe od porodice *Caprinae* (ovce ili koze). Na razinu podreda parnoprstaša (*Ruminantia*) i porodicu jelena (*Cervidae*) određen je po jedan primjerak.

Anatomske elemente korišteni za izradu oruđa pokazuju visoku uniformnost, s metapodijalnim kostima kao primarnim odabirom (sl. 3). Preciznije, riječ je o kostima donožja (*ossa metatarsalia III et IV*) goveda (tab. 1; PN 66, PN 91), jelena (tab. 1; PN 153) i ovce/koze (tab. 1; PN 141, PN 160, PN 171) te kostima zapešća (*ossa metacarpalia III et IV*) ovce/koze (tab. 1; PN 194) u jednom slučaju. U tri slučaja oruđe je izrađeno od goljenične kosti (*tibia*), isključivo ovce/koze (tab. 1; PN 38; PN 149; PN 172). Za jedan primjerak nije bilo moguće precizno odrediti anatomske element, osim da

Special attention was given to tool modifications, with emphasis on abrasion, flaking and flattening of the tool or its parts. Abrasion is interpreted as the result of repetitive wear. Flaking is caused by microfractures in the bone, often interpreted as resulting from impact against a harder surface, though it can also occur through prolonged use. Flattening represents the initial stage in the wear process, during which bone fibres retract due to damage or pressure.⁴⁹ Microscopic examination was carried out using a digital microscope (Dino-Lite) at magnifications of 20×, 50× and 200×.

RESULTS

Raw material

A total of 11 pointed bone artefacts were analysed in this study, all of which were made from mammal bones. The dominant category consists of domestic animals: two specimens were made from cattle bones (*Bos taurus*), while seven originated from members of the *Caprinae* family (sheep or goats). One specimen was identified to the *Ruminantia* (even-toed ungulates) suborder and one to the *Cervidae* (deer) family.

The anatomical elements used for tool production show a high degree of uniformity, with metapodial bones being the primary choice (Fig. 3). More precisely, the finds include metatarsal bones (*ossa metatarsalia III et IV*) of cattle (T. I; SF 66, SF 91), deer (T. I; SF 153), and sheep/goats (T. I; SF 141, SF 160, SF 171), as well as a metacarpal bone (*ossa metacarpalia III et IV*) of sheep/goats (T. I; SF 194) in one case. In three cases, the tools were made from *tibia* bones, exclusively of sheep/goats (T. I; SF 38, SF 149, SF 172). In one specimen, the anatomical element could not be precisely determined,

⁴⁹ SIDÉRA, LEGRAND 2006; LEGRAND 2007; LEGRAND, SIDÉRA 2007.

⁴⁹ SIDÉRA, LEGRAND 2006; LEGRAND 2007; LEGRAND, SIDÉRA 2007.

TABLICA 1. *Popis analiziranih koštanih izrađevina s kontekstualnim podacima i podacima za sirovinu (anatomski element i takson) (izradila: A. Barbir)***TABLE 1** *List of analysed bone artefacts with contextual data and raw material information (anatomical element and taxon) (made by A. Barbir)*

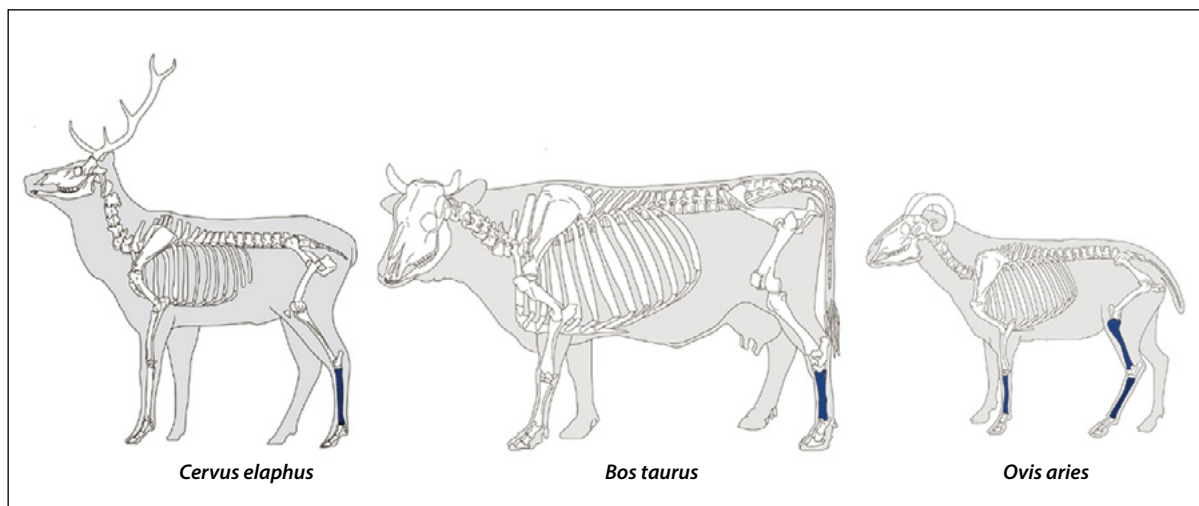
PN/SF	Sonda / Trench	Sektor / Sector	□	SJ / SU	Anatomski element / Anatomical element	Takson / Taxa
66	2	1	C1	131	ossa metatarsalia III + IV	Bos taurus
91	2	1	B1	6	ossa metatarsalia III + IV	Bos taurus
141	2	1	B1	384	ossa metatarsalia III + IV	Ovis/Capra
160	2	3	D2	426	ossa metatarsalia III + IV	Ovis/Capra
171	2	3	E2	470	ossa metatarsalia III + IV	Ovis/Capra
194	2	3	E2	436	ossa metacarpalia III + IV	Ovis/Capra
38	2	3	D2	176	tibia	Ovis/Capra
149	2	1	C2	419	tibia	Ovis/Capra
172	2	1	B2	376	tibia	Ovis/Capra
153	2	3	D2	423	ossa metatarsalia III + IV	Cervidae
173	2	3	E2	470	duga kost / long bone	Ruminantia

je riječ o dugoj kosti (tab. 1; PN 173).

Kad je riječ o starosti jedinki, za šest nalaza (PN 66, PN 91, PN 194, PN 141, PN 160, PN 171) utvrđeno je da potječu od odraslih životinja. Nalaz PN 38 izrađen je od kosti mlade jedinke ovce/koze, što je jasno vidljivo na temelju nesrasle proksimalne epifize goljenične kosti. Za preostala četiri nalaza (PN 149, PN 153, PN 172, PN 173) relativna životna dob jedinke u trenutku smrti nije se mogla pouzdano utvrditi.

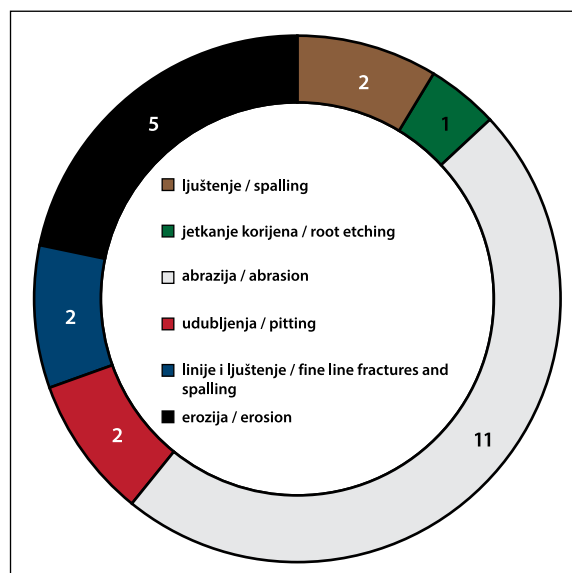
except that it was a long bone (T. I; SF 173).

As for the age of the individuals, six finds (SF 66, SF 91, SF 194, SF 141, SF 160, SF 171) were determined to originate from adult animals. Find SF 38 was made from a juvenile sheep/goat bone, as clearly indicated by the unfused proximal epiphysis of the tibia. For the remaining four finds (SF 149, SF 153, SF 172, SF 173), the relative age of the individual at the time of death could not be reliably determined.

**SLIKA 3.** *Taksonomski pregled vrsta i anatomskih elemenata korištenih kao sirovina (prema ArchéoZoo.org; doradila: A. Barbir)***FIGURE 3** *Taxonomic overview of species and anatomical elements used as raw material (after ArchéoZoo.org; adapted by A. Barbir)*

Tafonomija

Na analiziranim nalazima uočena je prisutnost višestrukih tafonomskih modifikacija (sl. 4). Abrazija je identificirana na svim obrađenim koštanim predmetima. Sljedeća je po učestalosti erozija, zabilježena na pet primjeraka. Podjednako su zastupljeni ljuštenje, udubljenja te kombinacija tankih, finih linija i pločastog ljuštenja kosti. Tragovi nagorenosti uočeni su na tri nalaza, a njihova je pozicija konzistentno povezana s medijalnim dijelom dijafize kosti. Nalaz PN 38 specifičan je po prisutnosti karakterističnih zelenih tragova na proksimalnom dijelu goljenične kosti, što sugerira blisku interakciju s brončanim predmetom unutar arheološkog konteksta.



SLIKA 4. Prisutnost tafonomskih modifikacija na koštanom oruđu (izradila: A. Barbir)

FIGURE 4 Presence of taphonomic modifications on bone tools (made by A. Barbir)

Tehnologija obrade

Obrada koštane sirovine može se podijeliti na pripremnu i završnu fazu.⁵⁰ Prva, odnosno pripremna faza obuhvaća primarnu pripremu kosti, pri čemu se primjenjuju tehnike udaranja i rezanja u cilju uklanjanja

Taphonomy

Multiple taphonomic modifications were observed on the analysed finds (Fig. 4). Abrasion was identified on all worked bone artefacts. The next most frequent alteration was erosion, recorded on five specimens. Flaking, pitting, and combinations of fine, thin lines and lamellar flaking of the bone were equally represented. Traces of burning were observed on three finds, consistently located on the medial part of the bone diaphysis. Find SF 38 is distinctive due to the presence of characteristic green traces on the proximal part of the tibia, suggesting close contact with a bronze artefact within the archaeological context.

Working technology

The working of raw bone material can be divided into preparatory and finishing stages.⁵⁰ The first, or preparatory stage, involved the primary preparation of the bone using striking and cutting techniques aimed at removing excess material and obtaining the general shape of the artefact, or fragmenting the bone into smaller pieces suitable for further modification. The second, or finishing stage, included less aggressive methods such as smoothing and polishing with abrasive materials, for example sandstone. The drilling technique was also recorded. The following section provides a detailed description of the working technologies for each individual find:

SF 66 (*Bos taurus*, ossa metatarsalia III et IV, T. I/1): This artefact has an unworked base consisting of the distal part of the metatarsal bone, while the tip of the artefact is pointed. It was made using the technique of longitudinal splitting, which, owing to the natural groove (*sulcus*) of the metatarsal bone, resulted in the division of the bone into two equal parts. The edges of the artefact are parallel and ta-

⁵⁰ VAN DER BROEKE 1983.

⁵⁰ VAN DER BROEKE 1983.

viška materijala i dobivanja općeg oblika izrađevine, ili fragmentacije kosti u manje komade pogodne za daljnju modifikaciju. Druga ili završna faza podrazumijeva manje agresivne metode poput glačanja i poliranja abrazivnim sredstvima, primjerice pješčem. Također je zabilježena i metoda bušenja. U nastavku slijedi detaljan opis tehnologija obrade za svaki pojedini nalaz.

PN 66 (*Bos taurus, ossa metatarsalia III et IV*, T. I/1): Ovaj predmet posjeduje neobrađenu bazu, koja se sastoji od distalnog dijela donožne kosti, dok je vrh predmeta zašiljen. Izrađen je tehnikom longitudinalnog lomljenja, koje je, zahvaljujući prirodnom žlijebu (*sulcus*) kosti donožja, rezultiralo podjelom kosti na dva jednaka dijela. Rubovi su predmeta paralelni i blago se sužavaju prema vrhu. Površina je uglačana gotovo cijelom dužinom, s iznimkom baze, čija prirodna hrapavost pogoduje funkciji baze kao drške. Rubovi su zaobljeni i uokviruju prirodni žlijeb anatomskeg elementa, formirajući lučni presjek koji je posebno izražen prema baznom dijelu. Vrh je zašiljen i ispoliran, no djelomično je oštećen.

PN 91 (*Bos taurus, ossa metatarsalia III et IV*, T. I/2): Predmet je tipološki i tehnološki sličan prethodno opisanom PN 66. Riječ je o većem predmetu čija je baza (distalni dio donožne kosti) ostavljena u prirodnom stanju. Izrađen je uzdužnim lomljenjem duž osi prirodnog žlijeba kosti. Dodatnom obradom postignuta je visoka uglačanost gotovo cijelom površinom tijela i vrha, uključujući i unutrašnjost. Rubovi su zaobljeni, a presjek je blago lučan. Vrh je zašiljen i neoštećen.

PN 153 (*Cervidae, ossa metatarsalia III et IV*, T. I/3): Potpuno obrađena kost, od baze do vrha uglačana i neoštećena. Baza je oblikovana stanjivanjem grubim potezima te je naknadno uglačana. Tijelo je u potpunosti uglačano, a rubovi prirodnog žlijeba kosti dodatno su zaobljeni. Vrh je u potpunosti obrađen.

PN 173 (*Ruminantia*, duga kost, T. I/4): Predmet pokazuje pravilne linije obrade oš-

per slightly towards the tip. The surface is polished along almost its entire length, except for the base, whose natural roughness enhances its function as a handle. The edges are rounded, framing the natural groove of the anatomical element, forming an arched cross-section that is particularly pronounced towards the basal part. The tip is pointed and polished but partially damaged.

SF 91 (*Bos taurus, ossa metatarsalia III et IV*, T. I/2): The artefact is typologically and technologically similar to the previously described SF 66. It is a larger artefact whose base (the distal part of the metatarsal bone) was left in its natural state. It was produced by longitudinal splitting along the axis of the bone's natural groove. Additional working achieved a high polish over almost the entire surface of the body and tip, including the inner side. The edges are rounded, and the cross-section is slightly arched. The tip is pointed and undamaged.

SF 153 (*Cervidae, ossa metatarsalia III et IV*, T. I/3): A completely worked bone, polished and undamaged from base to tip. The base was shaped by thinning with coarse strokes and subsequently polished. The body is entirely polished, and the edges along the natural groove of the bone are additionally rounded. The tip is fully finished.

SF 173 (*Ruminantia*, long bone, T. I/4): The artefact shows regular working lines made with a sharp, harder material, such as a stone tool. Traces are present over the entire surface, and both ends are shaped in a similar manner: the tip is pointed, and the base tapers. However, the base is partially damaged, preventing an accurate assessment of the degree of finishing. Polishing was carried out to a medium-coarse degree.

SF 141 (*Ovis / Capra, ossa metatarsalia III et IV*, T. I/5): This artefact is completely preserved, with traces of working visible from base to tip. The base of the artefact is the proximal epiphysis of a metapodial bone, which was perforated across its entire surface.

trim i tvrdim materijalom, poput kamenog oruđa. Tragovi su prisutni na cijeloj površini, a krajevi su oblikovani na sličan način: vrh je zašiljen, a baza se sužava. Međutim, baza je djelomično oštećena, što onemogućuje preciznu procjenu stupnja obrade. Glačanje je izvedeno u srednje gruboj varijanti.

PN 141 (*Ovis/Capra, ossa metatarsalia III et IV*, T. I/5): Ovaj predmet potpuno je sačuvan, a znakovi obrade vidljivi su od baze do vrha. Baza je predmeta proksimalna epifiza kostiju donožja koja je probušena cijelom površinom. Tako otvorena epifiza ostala je sačuvana samo na uskim rubnim dijelovima. Vanjska strana oruđa obrađena je glačanjem. Lomljenjem distalnog dijela kosti formiran je zašiljeni vrh, koji je naknadno obrađen poliranjem. Rubovi se pojavljuju u posljednjoj trećini dužine predmeta i tvore lučni presjek, otkrivajući prirodni žlijeb kosti. Sužavaju se prema vrhu koji je obrađen sa svih strana, no bez znakova visoke ugačanosti.

PN 160 (*Ovis/Capra, ossa metatarsalia III et IV*, T. I/6): Ovaj predmet u potpunosti je obrađen. Bazu oruđa čini proksimalni dio kosti donožja koja je oblikovana na isti način kao PN 141. Epifiza je probušena gotovo cijelom površinom, no ostala je mjestimično sačuvana na rubovima. Cijela površina oruđa obrađena je glačanjem. Vrh je dobiven lomljenjem distalnog dijela, koji je također fino obrađen sa svih strana i neoštećen.

PN 194 (*Ovis/Capra, ossa metacarpalia III et IV*, T. I/7): Predmet koji ima sačuvan vrh, tijelo i bazu. Baza i tijelo u prirodnom su stanju. Vrh je dobiven lomljenjem distalnog dijela dijafize kosti. Vanjska strana vrha oruđa zaobljena je glačanjem, dok je unutrašnja neobrađena.

PN 171 (*Ovis/Capra, ossa metatarsalia III et IV*, T. I/8): Predmet je djelomično sačuvan, s bazom oštećenom prije nego što je odabrana kao pogodna sirovina. Tijelo su i vrh predmeta neoštećeni. Vrh je izrađen lomom duž medijalne i lateralne površine kosti, na distalnom dijelu kosti. Daljnjom abrazivnom obradom rubovi su postali zaobljeni, postupno se sužavajući pre-

The opened epiphysis has been preserved only along the narrow marginal sections. The outer side of the tool was worked by smoothing. By breaking off the distal part of the bone, a pointed tip was formed, which was subsequently polished. The edges appear in the final third of the artefact's length, forming an arched cross-section that reveals the natural groove of the bone. They taper towards the tip, which was worked on all sides but shows no signs of high polish.

SF 160 (*Ovis / Capra, ossa metatarsalia III et IV*, T. I/6): This artefact is fully worked. The base of the tool is formed by the proximal part of a metapodial bone, shaped in the same manner as SF 141. The epiphysis was perforated across almost its entire surface but is locally preserved along the edges. The entire surface of the tool was smoothed. The tip was produced by breaking off the distal part, which was also finely worked on all sides and remains undamaged.

SF 194 (*Ovis / Capra, ossa metacarpalia III et IV*, T. I/7): An artefact with a preserved tip, body and base. The base and body are in their natural state. The tip was formed by breaking off the distal part of the bone diaphysis. The outer side of the tool's tip was rounded by smoothing, while the inner side remains unworked.

SF 171 (*Ovis / Capra, ossa metatarsalia III et IV*, T. I/8): The artefact is partially preserved, with the base having been damaged before being selected as suitable raw material. The body and tip of the artefact are undamaged. The tip was shaped by fracturing along the medial and lateral surfaces of the bone at its distal end. Through further abrasive working, the edges became rounded, gradually tapering towards the tip and forming a semicircular cross-section. The tip was completely worked on all sides, with the inner side flattened and polished.

SF 149 (*Ovis / Capra, ossa metatarsalia III et IV*, T. I/9): A fragment of a tool preserved only in the body and tip section. The tool shows

ma vrhu i tvoreći polukružni presjek. Vrh je u potpunosti obrađen sa svih strana, pri čemu mu je unutarnja strana zaravnjena i uglačana.

PN 149 (*Ovis/Capra, ossa metatarsalia III et IV*, T. I/9): Ulomak oruđa sačuvan je samo u dijelu tijela i vrha. Oruđe pokazuje tragove angularnog loma, što ukazuje na frakturu nastalu u postdepozicijskim uvjetima. Površina oruđa obrađena je poliranjem. Lomljenjem distalnog dijela kosti stvoren je vrh. Abrazivnom obradom vrh je blago zašiljen, uglačen sa svih strana i neoštećen.

PN 38 (*Ovis/Capra, tibia*, T. I/10): Ulomak oruđa čini oštećena baza, tijelo i vrh. Baza ima tragove loma koji su nastali prije nego što je kost upotrijebljena kao sirovina te nema tragove obrade. Tijelo je oruđa uglačano, s tragovima zelene obojenosti uzrokovane kontaktom s broncom/bakrom. Vrh oruđa nastao je lomljenjem dijafize kosti te je obrađen poliranjem sa svih strana.

PN 172 (*Ovis/Capra, tibia*, T. I/11): Fragment dijafize goljenične kosti. Nastao je lomljenjem, no nije isključeno da je riječ o prirodno razlomljenom ulomku prenamijenjenom u oruđe. Vrh je blago ispoliran i zaobljen, dok su rubovi u prirodnom, neobrađenom stanju.

Tipologija koštanih izrađevina

Analizirano koštano oruđe tipološki se može smjestiti u grupu zašiljenih predmeta. Unutar ove grupe najzastupljeniji je tip 1 – šila, s ukupno sedam nalaza. Slijedi tip 2 – probojci, s dva primjerka, dok su tip 3 – igle i tip 6 – projektili zastupljeni s po jednim primjerkom (tab. 2)

Tip 1 – šila

Šila predstavljaju svestrano oruđe karakterizirano umjereno snažnim šiljastim vrhom, pogodnim za širok spektar aktivnosti.⁵¹ Među najčešćim su tipovima koštanog oru-

traces of an angular fracture, indicating breakage that occurred under post-depositional conditions. The surface of the tool was finished by polishing. The tip was created by breaking off the distal part of the bone. Through abrasive working, the tip was slightly pointed, polished on all sides, and remains undamaged.

SF 38 (*Ovis / Capra, tibia*, T. I/10): A fragment of a tool consisting of a damaged base, body and tip. The base bears fracture marks that occurred before the bone was used as raw material and shows no traces of working. The body of the tool is polished, with green discolouration caused by contact with bronze or copper. The tip of the tool was formed by breaking the bone diaphysis and was polished on all sides.

SF 172 (*Ovis / Capra, tibia*, T. I/11): A fragment of a tibia diaphysis. It was formed by breaking, although it cannot be ruled out that it represents a naturally fractured piece later repurposed as a tool. The tip is slightly polished and rounded, while the edges remain in their natural, unworked state.

Typology of bone artefacts

The analysed bone tools can typologically be classified within the group of pointed artefacts. Within this group, the most common is Type 1 – awls, with a total of seven finds. These are followed by Type 2 – borers, with two specimens, while Type 3 – needles and Type 6 – projectiles are each represented by one example (T. II).

Type 1 – Awls

Awls represent versatile tools characterised by a moderately strong, pointed tip suitable for a wide range of activities.⁵¹ They are among the most common types of bone tools, as confirmed in the prehistoric layers of the site under study. The analysed awls belong to subtype I1A – awls made from

⁵¹ VITEZOVIĆ 2011: 276.

⁵¹ VITEZOVIĆ 2011: 276.

TABLICA 2. Pregled tipova koštanih izrađevina s prikazanim maksimalnim dimenzijama (izradila: A. Barbir)
TABLE 2 Overview of bone artefact types with maximum dimensions (made by A. Barbir)

PN/SF	Tip nalaza / Type of find	Dužina / Length	Širina / Width	Težina / Weight
91	probojac / heavy point, I2	117,9	25,18	19,2
66	probojac / heavy point, I2	155,56	30,91	42,1
38	šilo / awl, I1A2	94,94	21,71	12,1
141	šilo / awl, I1A1	108,59	20,28	14,5
149	šilo / awl, I1A2	70,13	9,71	3,3
160	šilo / awl, I1A1	104,34	17,16	13,5
171	šilo / awl, I1A2	83,4	9,24	5,2
172	šilo / awl, I1A2	98,31	11,55	5,3
194	šilo / awl, I1A2	105,61	21,87	15,6
153	igla / needle, I3	107,44	11,79	9,1
173	projektil / projectile point, I6B	88,91	9,51	9,7

đa, što je potvrđeno i u prapovijesnim slojevima predmetnog lokaliteta. Analizirana šila pripadaju podtipu I1A – šila od dugih kostiju. Prema relevantnoj literaturi,⁵² šila od dugih kostiju (I1A) mogu se podijeliti na šila s očuvanom prirodnom epifizom (A1) i ona s odstranjenom epifizom (A2).

Šila s očuvanom epifizom (I1A1) mogu imati bazu formiranu od proksimalne ili distalne epifize metapodijalnih kostiju ili od proksimalnog dijela drugih cjevastih kostiju, prvenstveno manjih preživača.⁵³ Ova varijanta najčešća je među koštanim oruđem iz prapovijesnih slojeva Stobreča, s pet evidentiranih primjeraka. Četiri primjerka (PN 38, PN 149, PN 171, PN 194) izrađena su od sirovine koja vjerojatno potječe iz otpada pri obradi trupa životinje, a karakteriziraju ih dijafize sa spiralnim lomom nastale djelovanjem ljudi, koje su naknadno dorađene abrazivnim sredstvima do uglačanog stanja. U jednom slučaju (PN 149) moguće je da je vrh nastao uzdužnom podjelom duge kosti. U situacijama daljnje abrazivne obrade oruđe poprima uglačani poluprstenasti presjek prema bazi; međutim, u ovim primjercima površno je obrađen samo vrh, dok je tijelo

long bones. According to relevant literature,⁵² awls made from long bones (I1A) can be divided into those with a preserved natural epiphysis (A1) and those with a removed epiphysis (A2).

Awls with a preserved epiphysis (I1A1) may have a base formed from the proximal or distal epiphysis of metapodial bones, or from the proximal part of other long bones, primarily those of small ruminants.⁵³ This variant is the most common among the bone tools from the prehistoric layers of Stobreč, with five recorded specimens. Four specimens (SF 38, SF 149, SF 171, SF 194) were made from raw material probably originating from butchering waste, characterised by diaphyses with spiral fractures caused by human activity, which were subsequently refined with abrasive tools to a polished finish. In one case (SF 149), it is possible that the tip was formed by the longitudinal splitting of a long bone. In cases of further abrasive working, the tool acquires a polished semicircular cross-section towards the base; however, in these specimens, only the tip was superficially worked, while the body of the tool retained its natural state.

⁵² *Ibid.*: 277.

⁵³ *Ibid.*: 277.

⁵² *Ibid.*: 277.

⁵³ *Ibid.*: 277.

oruđa zadržalo prirodno stanje.

Šila s odstranjenom epifizom (I1A2)⁵⁴ zastupljena su s dva primjerka (PN 141, PN 160). Oba su šila probušene baze i pokazuju veliku sličnost, premda PN 141 demonstrira viši stupanj obrade i bolju očuvanost. Bušenje je pažljivo izvedeno, prateći prirodne linije proksimalnog dijela kostiju donožja, nakon čega je taj dio zaglađen.

Tip 2 – probojci

Probojci (I2) su oruđa tipološki vrlo slična šilima, no odlikuju se masivnijom konstrukcijom i otpornijim vrhom.⁵⁵ U analiziranom skupu nalaza prisutna su dva probojka (PN 66, PN 91), oba s vrlo sličnim karakteristikama u pogledu odabira sirovine i tehnologije izrade. Njihova izrada tipično uključuje minimalno modificiranje prirodnog oblika kosti, s naglaskom na robusnost vrha postignutu brušenjem i poliranjem, kako bi se osigurala otpornost na jake udarce i pritiske tijekom rada. To ih čini prikladnima za aktivnosti koje zahtijevaju veću snagu i izdržljivost.

Tip 3 – igle

Treću kategoriju čine igle, odnosno izradevine uglavnom manjih dimenzija i tankog, često oštrog vrha na distalnom dijelu.⁵⁶ Unutar ove kategorije obrađen je jedan primjerak (PN 153). Riječ je o igli većih dimenzija i neperforirane glave, no s fino obrađenim i uglačanim tijelom i vrhom. Izrada ovakvog predmeta uključuje pažljivu završnu obradu, poput glačanja i poliranja, s fokusom na postizanje oštrog, funkcionalnog vrha i stabilne, ergonomične baze/glave.

Tip 6 – projektili

Projektili su tip oružja koje je uglavnom bilo namijenjeno uglavljivanju na vrh koplja

Awls with a removed epiphysis (I1A2)⁵⁴ are represented by two specimens (SF 141, SF 160). Both awls have perforated bases and show great similarity, although SF 141 exhibits a higher degree of workmanship and better preservation. The perforation was carefully executed, following the natural lines of the proximal part of the metapodial bones, after which that section was smoothed.

Type 2 – Borers

Borers (I2) are tools typologically very similar to awls but are distinguished by a more massive construction and a more resistant tip.⁵⁵ In the analysed assemblage, two borers are present (SF 66, SF 91), both showing very similar characteristics in terms of raw material selection and manufacturing technology. Their manufacture typically involves minimal modification of the bone's natural shape, with emphasis on the robustness of the tip achieved through grinding and polishing, ensuring resistance to strong impacts and pressure during use. This makes them suitable for activities requiring greater force and durability.

Type 3 – Needles

The third category comprises needles, that is, artefacts generally smaller in size with a thin, often sharp tip at the distal end.⁵⁶ Within this category, one specimen (SF 153) was analysed. It is a larger needle with an unperforated head but a finely worked and polished body and tip. The manufacture of such an artefact involves careful finishing, including smoothing and polishing, with a focus on achieving a sharp, functional tip and a stable, ergonomic base or head.

Type 6 – Projectiles

Projectiles are a type of weapon generally intended to be hafted onto the end of a spear or used as arrowheads, with variants and subvari-

⁵⁴ *Ibid.*: 280.

⁵⁵ *Ibid.*: 284.

⁵⁶ *Ibid.*: 288.

⁵⁴ *Ibid.*: 280.

⁵⁵ *Ibid.*: 284.

⁵⁶ *Ibid.*: 288.

ili kao strijele, s varijantama i podvarijantama koje mogu ukazivati na kulturnu i kronološku varijabilnost.⁵⁷ Prema morfološkim karakteristikama, primjerak iz Stobreča svrstan je u podtip vretenasti projektili (I6B).⁵⁸ Nalaz PN 173 ima zašiljen vrh i bazu koja se sužava u zaobljeni šiljak, dok je tijelo blago prošireno. Njegova robusna izrada i aerodinamičan oblik ukazuju na namjenu za probijanje, vjerojatno kao dio oružja za lov, gdje je efikasnost penetracije bila ključna. Tragovi obrade na cijeloj površini, uključujući zašiljene krajeve, sugeriraju pažljivo modeliranje s naglaskom na balans i stabilnost tijekom leta.

RASPRAVA

Izbor sirovine

Precizna identifikacija sirovine jedan je od ključnih elemenata za sveobuhvatno proučavanje obrađenih predmeta. Takva determinacija može pridonijeti boljoj konzervaciji artefakata, daljnjim arheološkim istraživanjima te boljem razumijevanju povijesne interakcije između ljudskih zajednica i životinja. Nadalje, izbor sirovine često reflektira kompleksnu interakciju između fizičkih svojstava sirovine i društveno-kulturnih preferencija, služeći kao indikator tradicije, društvenih promjena ili individualnog izraza unutar određene društvene skupine.⁵⁹ Koštana sirovina, osim egzotičnih primjera,⁶⁰ u pravilu je prikupljena iz

ants that may indicate cultural and chronological variability.⁵⁷ Based on its morphological characteristics, the specimen from Stobreč is classified as the subtype of fusiform projectiles (I6B).⁵⁸ Find SF 173 has a pointed tip and a base that tapers to a rounded point, while the body is slightly expanded. Its robust manufacture and aerodynamic shape indicate a piercing function, most likely as part of hunting weaponry, where penetration efficiency was crucial. Working traces over the entire surface, including the pointed ends, suggest careful modelling with an emphasis on balance and stability in flight.

DISCUSSION

Selection of raw material

Precise identification of the raw material is one of the key elements for a comprehensive study of worked artefacts. Such determination can contribute to better conservation of artefacts, further archaeological research and an improved understanding of the historical interaction between human communities and animals. Furthermore, the choice of raw material often reflects a complex interaction between its physical properties and socio-cultural preferences, serving as an indicator of tradition, social change or individual expression within a particular community.⁵⁹ Bone material, except in exotic cases, was generally collected from the immediate surroundings of the settlement.⁶⁰ The primary sources were waste prod-

⁵⁷ *Ibid.*: 276.

⁵⁸ *Ibid.*: 87.

⁵⁹ CHOYKE, O'CONNOR 2013: XIII.

⁶⁰ Odnosi se na životinjske vrste alohtone za područje istraživanja. Primjerice, sve životinjske vrste koje imaju kljove, osim vepra, bile bi smatrane egzotičnim resursom na području Dalmacije. Iako trenutačno nema podataka o takvim luksuznim dobrima u bronzanom dobu na istočnoj obali Jadrana, primjeri postoje na bronzanodobnim lokalitetima u Italiji, ali i diljem Mediterana (npr. GUGLIELMINO, IACONO, RUGGE 2011). U Monkodonji su pronađene koštana igla (PUC 2020: 399, T.17/8) i drška

⁵⁷ *Ibid.*: 276.

⁵⁸ *Ibid.*: 87.

⁵⁹ CHOYKE, O'CONNOR 2013: XIII.

⁶⁰ This refers to animal species that were non-native to the area under investigation. For example, all animal species with tusks, except the wild boar, would be considered exotic resources in the Dalmatian region. Although there is currently no evidence of such luxury goods from the Bronze Age along the eastern Adriatic coast, examples are known from Bronze Age sites in Italy and throughout the Mediterranean (e.g. GUGLIELMINO, IACONO, RUGGE 2011). At Monkodonja, a bone needle (PUC 2020: 399, T.

neposredne okoline naselja. Primarni izvori bili su otpadni proizvodi nastali tijekom pripreme i konzumacije hrane ili obrade kože. S druge strane, neki specifični koštani elementi namjerno su izdvajani i čuvani za daljnju obradu još u fazi rasijecanja životinjskih trupala. Budući da prapovijesni nasebinski slojevi u Stobreču obiluju koštanim nalazima, logično je zaključiti da je sirovina za koštane izrađevine prikupljana lokalno. Tome u prilog idu tragovi nagorjelosti na mezijalnom dijelu na probojcima (PN 66, PN 91) i šilu (PN 194), nastali prije obrade sirovine. Pozicija tragova indicira skupljanje prehrambenog otpada, pri čemu su ovi koštani nalazi i nakon konzumacije bili u blizini toplinskog izvora. Analizirani materijal pokazuje da sirovina dominantno potječe od domaćih životinja, koje su bile prisutne u naseljima i njihovoj blizini. Ovaj obrazac iskorištavanja sirovine konzistentan je s nalazima na drugim lokalitetima u Dalmaciji⁶¹ i Istri⁶² od mlađega kamenog doba do protopovijesti, bez uočljivih znatnih razlika. Takav je obrazac prepoznat i na brončanodobnim nalazištima diljem Europe.⁶³

Ipak, važno je naglasiti da su za izradu igle (PN 153) korištene kosti donožja *Cervidae* (porodice jelena). Ova činjenica upućuje na moguću prisutnost lovne komponente unutar stobrečke prapovijesne zajednice, čiji će točan opseg i značaj biti detaljnije istraženi arheozoološkim analizama. Divljač je znatno slabije prisutna kao sirovina na istočnojadranskim lokalitetima. Uglavnom se pro-

ucts generated during food preparation and consumption or the working of hides. On the other hand, certain specific bone elements were intentionally selected and retained for further working during the butchering of animal carcasses. Since the prehistoric settlement layers in Stobreč abound with bone finds, it is reasonable to conclude that the raw material for bone artefacts was collected locally. This is supported by burn marks on the mesial part on the borers (SF 66, SF 91) and the awl (SF 194), which occurred before the raw material was worked. The position of these traces indicates the collection of food waste, showing that these bones, even after consumption, remained near a heat source. The analysed material demonstrates that the raw material predominantly originated from domestic animals present within and around the settlement. This pattern of raw material exploitation is consistent with findings from other sites in Dalmatia⁶¹ and Istria⁶² dating from the Late Neolithic to Protohistoric periods, without any notable differences. Such a pattern has also been recognised at Bronze Age sites across Europe.⁶³

However, it is important to note that the needle (SF 153) was made from the metapodial bone of a cervid (deer family). This fact indicates the possible presence of a hunting component within the prehistoric Stobreč community, the exact scope and significance of which will be further explored through archaeozoological analyses. Game is considerably less represented as a raw material at sites along the eastern Adriatic coast. Most com-

(PUC 2020: 399, T.66/5) pripisane vrsti zeca *Lepus capensis* (PUC 2020: 399). Budući da je izvorno stanište ove vrste sjeverozapadna, istočna i južna Afrika te jugozapadna Azija (LADO et al. 2019), u slučaju ispravne taksonomske determinacije može se smatrati egzotičnom vrstom.

⁶¹ VUJEVIĆ 2009; VUJEVIĆ, HORVAT 2012; SANFORD GAASTRA, CRISTIANI, BARBARIĆ 2014: 22–24; MARIJANOVIĆ, HORVAT 2016; HORVAT, VUJEVIĆ 2017; KLIŠKIĆ 2024.

⁶² MLAKAR 1988; AMATT, MIRACLE 2006; MAUEL 2008; PUC 2020.

⁶³ CHOYKE, VRETEMARK, STEN 2004; BARON, DIAKOWSKI, STOLARCZYK 2016; GÁL 2016.

I. 7/8) and a handle (PUC 2020: 399, T.66/5) have been attributed to the hare species *Lepus capensis* (PUC 2020: 399). As the native habitat of this species is north-western, eastern and southern Africa, as well as south-western Asia (LADO et al. 2019), in the case of correct taxonomic identification it can be regarded as an exotic species.

⁶¹ VUJEVIĆ 2009; VUJEVIĆ, HORVAT 2012; SAANFORD GAASTRA, CRISTIANI, BARBARIĆ 2014: 22–24; MARIJANOVIĆ, HORVAT 2016; HORVAT, VUJEVIĆ 2017; KLIŠKIĆ 2024.

⁶² MLAKAR 1988; AMATT, MIRACLE 2006; MAUL 2008; PUC 2020.

⁶³ CHOYKE, VRETEMARK, STEN 2004; BARON, DIAKOWSKI, STOLARCZYK 2016; GÁL 2016.

nalaze ostaci jelenjeg rogovlja (*C. elaphus*), koje je na lokalitetu Dugiš⁶⁴ služilo za izradu drški za oruđe ili oružje⁶⁵ te tobolaca,⁶⁶ slično kao i u Pupićevoj peći.⁶⁷ Na Monkodonji⁶⁸ je, međutim, zabilježen širi spektar oruđa i oružja izrađenih od rogovlja⁶⁹. Jedinim primjerak probojka iz Monkodonje izrađen od sirovine divlje životinje potječe od metapodijalne kosti jelena običnog.⁷⁰ Osim spomenutog jelena, u Dugišu je pronađen privjesak od kljove vepa (*Sus scrofa*),⁷¹ dok je u Monkodonji zabilježen retušer izrađen od rogovlja srne (*Capreolus capreolus*)⁷².

U ovdje analiziranom skupu koštanih izrađevina većina je izrađena od odraslih jedinki, dok je zabilježen samo jedan primjerak izrađen od mlade jedinke. Mlađe jedinke općenito se smatraju manje prikladnom sirovinom zbog veće fragilnosti pri izradi i upotrebi predmeta. Stoga veći udio takvih nalaza može ukazivati na smanjeni odabir ciljane sirovine.⁷³ Nasuprot tome, upotreba kostiju uglavnom odraslih jedinki u Stobreču upućuje na promišljen i planski pristup proizvodnji odabirom kvalitetnije sirovine.⁷⁴

Osim same dostupnosti sirovine, morfološki zahtjevi finalnog proizvoda predstavljaju ključan ograničavajući faktor pri

monly, remains of red deer antlers (*C. elaphus*) have been found, which at the site of Dugiš⁶⁴ were used to make tool or weapon handles⁶⁵ and quivers,⁶⁶ similar to the finds from Pupićevoj Peći.⁶⁷ At Monkodonja,⁶⁸ however, a wider range of tools and weapons made from antler has been recorded.⁶⁹ The only example of a borer from Monkodonja made from wild animal bone originates from the metapodial bone of a red deer.⁷⁰ In addition, a pendant made from a wild boar (*Sus scrofa*)⁷¹ tusk was found at Dugiš, while at Monkodonja a retoucher made from roe deer (*Capreolus capreolus*) antler was recorded.⁷²

In the analysed assemblage of bone artefacts, most were made from adult individuals, with only one example crafted from a young specimen. Younger specimens are generally considered a less optimal raw material due to the greater fragility of their bones during both manufacture and use of the objects. Therefore, a higher proportion of such finds may indicate a less selective approach to raw material choice.⁷³ In contrast, the use of bones predominantly from adult specimens at Stobreč suggests a deliberate and planned approach to production, with a preference for higher-quality material.⁷⁴

In addition to the simple availability of raw material, the morphological requirements of

⁶⁴ KLIŠKIĆ 2024.

⁶⁵ *Ibid.*: 143, inv. br. N 5668, inv. br. N 5673.

⁶⁶ *Ibid.*: 134, inv. br. N 5674.

⁶⁷ AMATT, MIRACLE 2006: 407. Riječ je o motici izrađenoj od jelenjeg roga.

⁶⁸ PUC 2020.

⁶⁹ Riječ je o šivaćim iglama (PUC 2020: 400, T. 18/1, 3), projektilu (PUC 2020: 405, T. 23/4), sjekirama (PUC 2020: 425, T. 43/1; 447, T. 65/1,2), koničnom čekičastom oruđu (PUC 2020: 428, T. 46/1), oruđu od rogova – sjekira, teslica ili motika (PUC 2020: 427, T. 45/2) te probušenoj i ornamentiranoj ploči (PUC 2020: 423, T. 41/1).

⁷⁰ PUC 2020: 439, T. 57/1.

⁷¹ KLIŠKIĆ 2024.

⁷² PUC 2020: 379, inv. br. A.

⁷³ CHOYKE 1997.

⁷⁴ Na arheološkim lokalitetima životinje korištene za meso često se konzumiraju vrlo mlade, s još nesraslim kostima neadekvatne tvrdoće. Zbog toga se takvi nalazi često interpretiraju kao prehrambeni otpad (ISAAKIDOU 2003: 235).

⁶⁴ KLIŠKIĆ 2024.

⁶⁵ *Ibid.*: 143, Inv. No. N 5668, Inv. No. N 5673.

⁶⁶ *Ibid.*: 134, Inv. No. N 5674.

⁶⁷ AMATT, MIRACLE 2006: 407. It is a mattock made from a red deer antler.

⁶⁸ PUC 2020.

⁶⁹ These include sewing needles (PUC 2020: 400, Pl. 18/1, 3), a projectile (PUC 2020: 405, Pl. 23/4), axes (PUC 2020: 425, Pl. 43/1; 447, Pl. 65/1,2), a conical hammer-like tool (PUC 2020: 428, Pl. 46/1), antler tools – axes, adzes or mattocks (PUC 2020: 427, Pl. 45/2), and a perforated and decorated plate (PUC 2020: 423, Pl. 41/1).

⁷⁰ PUC 2020: 439, Pl. 57/1.

⁷¹ KLIŠKIĆ 2024.

⁷² PUC 2020: 379, Inv. No. A.

⁷³ CHOYKE 1997.

⁷⁴ At archaeological sites, animals used for meat had often been consumed at a very young age, when their bones were not yet fused and lacked adequate hardness. For this reason, such finds are frequently interpreted as food waste (ISAAKIDOU 2003: 235).

odabiru koštanog materijala.⁷⁵ Veličina životinje iz koje potječe kost igra važnu ulogu; primjerice, kosti jelena običnog (*Cervus elaphus*) i goveda (*Bos taurus*) često su međusobno zamjenjive zbog pripadnosti sličnoj kategoriji veličine životinje. U skladu s time, većina oruđa izrađenih od kostiju velikih vrsta u pravilu se tipološki razlikuje od onih proizvedenih od kostiju manjih vrsta, poput ovaca/koza (*Caprinae*) ili srna (*Capreolus capreolus*).⁷⁶

Također je presudan odabir specifičnoga anatomskeg elementa. Metapodijalne kosti (kosti donožja i zapešća) predstavljaju prirodan odabir za izradu zašiljenih oruđa, kao što su probojci, šila i igle. Njihova pogodnost proizlazi iz prisutnosti prirodnog žlijeba (*sulcus*) koji se proteže duž longitudinalne osi kosti, olakšavajući kontrolirani lom i postizanje željenog oblika za planiranu izradu oruđa.⁷⁷ Takav primjer nalazimo u predmetnim šilima. Iako su u uzorku iz Stobreča šila primarno izrađivana od metapodijalnih kostiju malih preživača, posebno iz porodice *Caprinae*, zabilježena je i upotreba drugih dugih kostiju, poput goljenične. Na drugim lokalitetima prisutan je širi spektar korištenih anatomskeg elemenata, uključujući lakatnu i palčanu kost,⁷⁸ kao i metapodijalne kosti svinje⁷⁹.

Funkcija oruđa

Šila predstavljaju jedan od najčešćih tipova koštanih izrađevina na arheološkim lokalitetima, što naglašava važnost rekonstrukcije njihove potencijalne funkcije. Prema različitim studijama,⁸⁰ šila dijele slične funkcije s probojcima, poput perforiranja kožnih sirovina, ali imaju i dodatne funkcije kao što su

the final product represent a key limiting factor in the selection of bone material.⁷⁵ The size of the animal from which the bone originates plays a significant role; for example, red deer (*Cervus elaphus*) and cattle (*Bos taurus*) bones are often interchangeable, as they belong to a similar size category. Accordingly, most tools made from the bones of large species generally differ typologically from those produced from the bones of smaller species, such as sheep/goats (*Caprinae*) or roe deer (*Capreolus capreolus*).⁷⁶

The selection of a specific anatomical element is also crucial. Metapodial bones (metatarsals and metacarpals) represent a natural choice for the production of pointed tools such as borers, awls and needles. Their suitability arises from the presence of a natural groove (*sulcus*) running along the longitudinal axis of the bone, which facilitates controlled fracturing and the achievement of the desired shape for tool manufacture.⁷⁷ This can be observed in the awls discussed here. Although the awls from Stobreč were primarily made from the metapodial bones of small ruminants, particularly those from the *Caprinae* family, the use of other long bones, such as the tibia, was also recorded. At other sites, a wider range of anatomical elements is present, including *ulnae* and *radii*,⁷⁸ as well as metapodial bones of pigs.⁷⁹

Function of the tools

Awls represent one of the most common types of bone artefacts at archaeological sites, underscoring the importance of reconstructing their potential function. According to various studies,⁸⁰ awls share similar functions with borers, such as the piercing of leather materials, but they also served additional pur-

⁷⁵ RUSSELL 2001.

⁷⁶ CHOYKE 1997: 67.

⁷⁷ VITEZOVIĆ 2016.

⁷⁸ MLAKAR 1998.

⁷⁹ PUC 2020: T. 13/5.

⁸⁰ CAMPANA 1989; CHRISTIDOU, LEGRAND-PINEAU 2005; BUC 2011.

⁷⁵ RUSSELL 2001.

⁷⁶ CHOYKE 1997: 67.

⁷⁷ VITEZOVIĆ 2016.

⁷⁸ MLAKAR 1998.

⁷⁹ PUC 2020: Pl. 13/5.

⁸⁰ CAMPANA 1989; CHRISTIDOU, LEGRAND-PINEAU 2005; BUC 2011.

izrada košara, mreža, odjeće te konstrukcija nastambi ili skloništa.⁸¹ Valja napomenuti da je funkcija pojedinog oruđa mogla varirati ovisno o specifičnim trenutačnim potrebama zajednice ili naselja, ali i individualnim potrebama pojedinaca.⁸²

Eksperimentalna studija koju su provele Christidou i Legrand-Pineau detaljno je istražila različite tehnike obrade životinjske kože primjenom koštanog oruđa.⁸³ Nakon procesa skidanja kože, eksperimenti su provedeni na netretiranoj, natopljenoj, navlaženoj i suhoj koži, pozicioniranoj na razne načine: rastegnutoj na drveni okvir, pričvršćenoj za tlo ili položenoj na drvenu dasku. Studija je pokazala da su se probojci/šila primarno upotrebljavali za perforiranje sirove, vlažne i suhe kože, primjenom tehnika rotacije i neizravnog udarca.⁸⁴ Kad se primjenjivala tehnika neizravnog udarca,⁸⁵ koža je obično bila položena na drvenu dasku, često s dodatnim komadom kože umetnutim između daske i obrađivane kože. Autorice ističu da je neizravni udarac najučinkovitija, a često i nužna metoda pri obradi debele i/ili krute kože.⁸⁶

Karakteristika je svih ovdje analiziranih šila sjajna, ispolirana površina, posebno na distalnim dijelovima i samom vrhu. Ovakva ispoliranost uglavnom je rezultat kontakta s mekšim, organskim materijalima.⁸⁷ Vrhovi su kod većine primjeraka neoštećeni, što sugerira slab intenzitet upotrebe šila. Dva šila (sl. 5a, 5e) pokazuju transverzalne, uske strije koje se međusobno križaju, što upućuje na

poses, including basket making, net making, clothing production and the construction of dwellings or shelters.⁸¹ It should be noted that the function of an individual tool may have varied depending on the specific needs of the community or settlement, as well as the personal needs of individual users.⁸²

An experimental study conducted by Christidou and Legrand-Pineau examined in detail various techniques of animal hide working using bone tools.⁸³ After skinning, experiments were carried out on untreated, soaked, moistened and dry hides, positioned in different ways: stretched on a wooden frame, fixed to the ground or laid on a wooden board. The study showed that borers and awls were primarily used for piercing raw, wet and dry hides by employing rotation and indirect percussion techniques.⁸⁴ When the indirect percussion technique was used,⁸⁵ the hide was usually placed on a wooden board, often with an additional piece of hide inserted between the board and the one being worked. The authors emphasised that indirect percussion is the most effective, and often essential, method when working with thick and/or stiff hides.⁸⁶

A characteristic feature of all the awls analysed here is their glossy, polished surface, particularly on the distal parts and the tips themselves. Such polish is generally the result of contact with softer, organic materials.⁸⁷ The tips of most specimens are undamaged, suggesting a low intensity of use. Two awls (Figs. 5a, 5e) exhibit narrow, transverse striations

⁸¹ OLSEN 1979; CAMPANA 1989.

⁸² CAMPANA 1989: 54.

⁸³ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁸⁴ *Ibid.*

⁸⁵ Tehnika koja podrazumijeva upotrebu posredničkog oruđa u svrhu neizravnog prijenosa sile s udarača na predmet sile (INIZAN *et al.* 1999: 32). Slika (CHRISTIDOU, LEGRAND-PINEAU 2005, sl. 9) prikazuje eksperiment u kojem su autorice upotrebljavale udarač za prijenos sile na probojak/šilo, što je rezultiralo bušenjem rupe u životinjskoj koži.

⁸⁶ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁸⁷ *Ibid.*

⁸¹ OLSEN 1979; CAMPANA 1989.

⁸² CAMPANA 1989: 54.

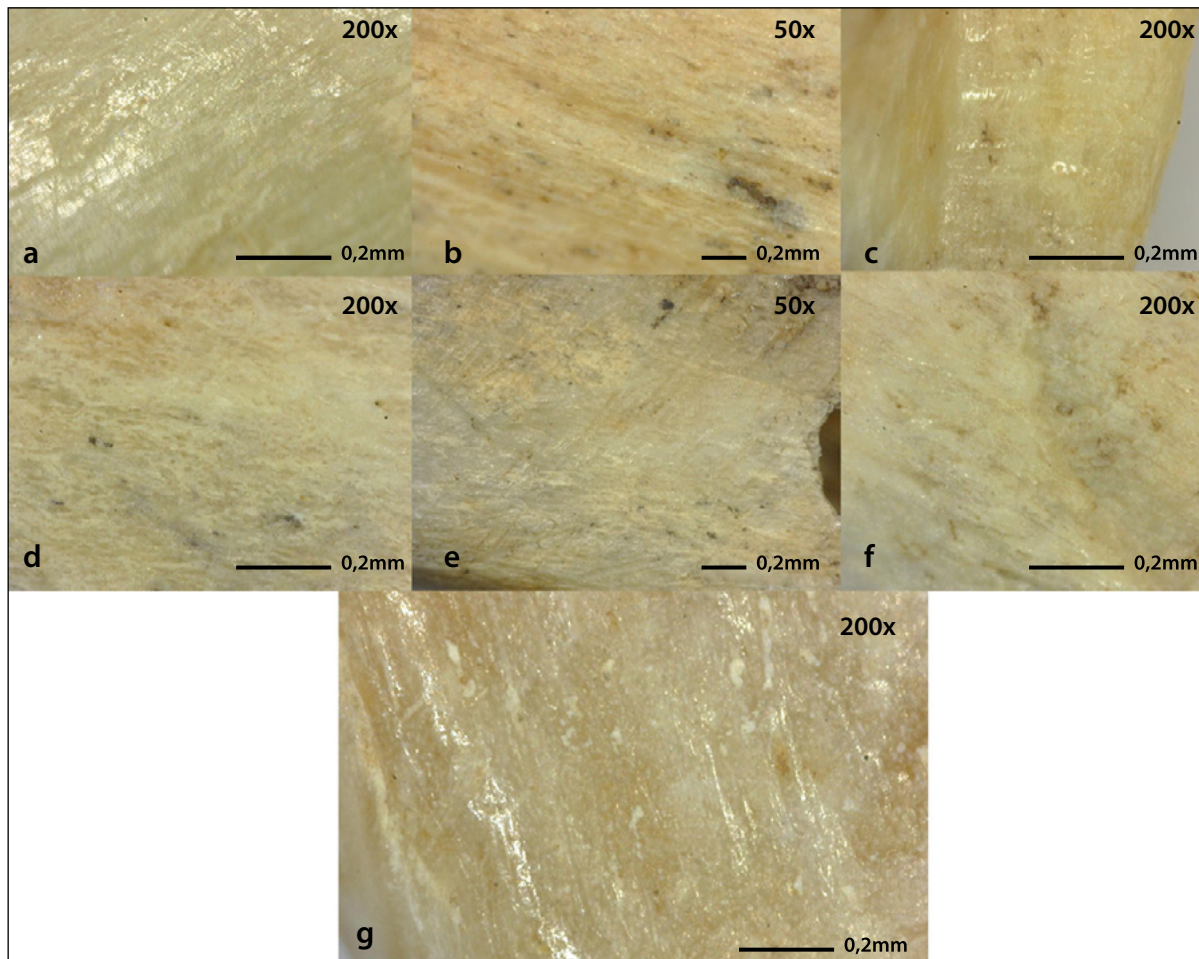
⁸³ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁸⁴ *Ibid.*

⁸⁵ A technique involving the use of an intermediary tool to indirectly transfer force from the hammer to the artefact being worked (INIZAN *et al.* 1999: 32). The illustration (CHRISTIDOU, LEGRAND-PINEAU 2005, Fig. 9) shows an experiment in which the authors used a hammer to transfer force onto a borer/awl, resulting in the drilling of a hole in animal hide.

⁸⁶ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁸⁷ *Ibid.*



SLIKA 5. Mikrotopografija (povećanje 200 puta, 50 puta) distalnog dijela tijela šila (PN 38 – a; PN 141 – b; PN 149 – c; PN 160 – d; PN 171 – e; PN 172 – f; PN 194 – g) (izradila: A. Barbir)

FIGURE 5 Microtopography (magnifications $\times 200$, $\times 50$) of distal parts of awl shafts (SF 38 – a; SF 141 – b; SF 149 – c; SF 160 – d; SF 171 – e; SF 172 – f; SF 194 – g) (made by A. Barbir)

obradu kože.⁸⁸ Raspored i smjer strija usko su povezani s rasporedom abrazivnih čestica u materijalu koji se obrađivao (npr. životinjska koža, biljna vlakna). U životinjskim je kožama raspored abrazivnih čestica (minerali, proteini) nepravilan, zbog čega pri obradi nastaju križno raspoređene strije na površini alata.⁸⁹ Kod ostalih šila (sl. 5b–d, 5g) strije nisu jasno vidljive, no njihova je mikrotopografija homogena, a mikroreljef pravilan. Takve površinske karakteristike odgovaraju obradi kako kože tako i biljnih vlakana,⁹⁰ što onemogućuje precizno određivanje specifič-

that intersect, indicating hide working.⁸⁸ The arrangement of striations is closely linked to the organisation of abrasive particles in different materials (e.g. animal hide, plant fibres). In animal hides, abrasive particles are irregularly distributed, resulting in cross-hatched striations on the tool surface.⁸⁹ In the remaining awls (Figs. 5b, 5c, 5d, 5g), striations are not clearly visible; however, their microtopography is homogeneous, and the microrelief is regular. Such surface characteristics correspond to the working of both hide and plant fibres,⁹⁰ making it impossible to determine the

⁸⁸ BUC 2011.

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

⁸⁸ BUC 2011.

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

ne funkcije ovih predmeta. Stoga je moguće pretpostaviti da su korišteni za različite aktivnosti.

Probojci analizirani u ovoj studiji izrađeni su longitudinalnim cijepanjem kostiju donožja. Ova kombinacija tehnike izrade i izbora anatomskog elementa relativno je česta, sa sličnim nalazima zabilježenima na drugim bronzanodobnim lokalitetima u Hrvatskoj⁹¹ i šire.⁹² Zabilježena je i upotreba drugih cjelovitih kostiju, poput goljenične kosti.⁹³ Masivnost ovog oruđa izravno je povezana s funkcijom. Veća drška omogućuje lakši hvat, dok masivan vrh olakšava probijanje tvrdih materijala te rad s otpornijim materijalima kao što je drvo te pri izradi košara i mreža ili čak potencijalno kod popravaka kamenog oruđa.⁹⁴ Drške (baze oruđa) često mogu pokazivati tragove zaglađenosti koji upućuju na intenzivnu upotrebu ili pritisak.⁹⁵ Međutim, probojci iz Stobreča ne posjeduju takve tragove, što sugerira mogućnost da su drške bile obložene materijalom koji je poboljšavao prihvata i istodobno štutio kost. S druge strane, vrhovi obaju primjeraka pokazuju jasne tragove glačanja.

Mikrotopografske analize probojaka pokazuju homogenu površinu (sl. 6a, 6c), dok su strije uske, ravne i mjestimično dublje (sl. 6b, 6d). Dominantan je smjer strija longitudinalan, uz povremene grupacije transverzalnih strija (sl. 6b, 6d). Ovakve karakteristike koštane površine, zajedno s oblikom i pozicijom strija, upućuju na upotrebu oruđa na koži. Takve strije posebno su vidljive na PN 91 (sl. 6d). Nasuprot tome, u biljkama bogatima silicijem elementi poput fitolita raspoređeni su paralelno, što uzrokuje formiranje paralelnih strija.⁹⁶ Ova karakteristika može upućivati na upotrebu probojka

precise specific function of these artefacts. It can therefore be assumed that they were used for a range of different activities.

The borers analysed in this study were produced by longitudinal splitting of metapodial bones. This combination of manufacturing technique and anatomical element is relatively common, with similar finds recorded at other Bronze Age sites in Croatia⁹¹ and beyond.⁹² The use of other long bones, such as the tibia, has also been documented.⁹³ The robustness of these tools is directly related to their function. A larger handle allows for an easier grip, while a massive tip facilitates the piercing of harder materials and working with more resistant substances such as wood, as well as in basket and net making, or even potentially in the repair of stone tools.⁹⁴ Handles (the bases of the tools) often display traces of smoothing that indicate intensive use or applied pressure.⁹⁵ However, the borers from Stobreč show no such traces, suggesting the possibility that the handles were covered with a material that improved grip while simultaneously protecting the bone. Conversely, the tips of both specimens exhibit clear signs of polishing.

Microtopographic analyses of the borers reveal a homogeneous surface (Figs. 6a, 6c), while the striations are narrow, straight and locally deeper (Figs. 6b, 6d). The dominant orientation of the striations is longitudinal, with occasional clusters of transverse ones (Figs. 6b, 6d). These surface characteristics, together with the shape and position of the striations, indicate that the tools were used on hide. Such striations are particularly visible in SF 91 (Fig. 6d). In contrast, in plants rich in silica, elements such as phytoliths are arranged in parallel, resulting in the formation of parallel striations.⁹⁶ This feature may suggest that the borer SF 66 (Fig. 6b) was used on plant-based

⁹¹ PUC 2020: 273, T. 8; 9/1,10; 52/2.

⁹² BARON, DIAKOWSKI, STOLARCZYK 2016: 32, Pl. 7/1.

⁹³ PUC 2020: 273.

⁹⁴ CAMPANA 1989: 54.

⁹⁵ PUC 2020: 273.

⁹⁶ BUC 2011: 555.

⁹¹ PUC 2020: 273, Pl. 8; 9/1,10; 52/2.

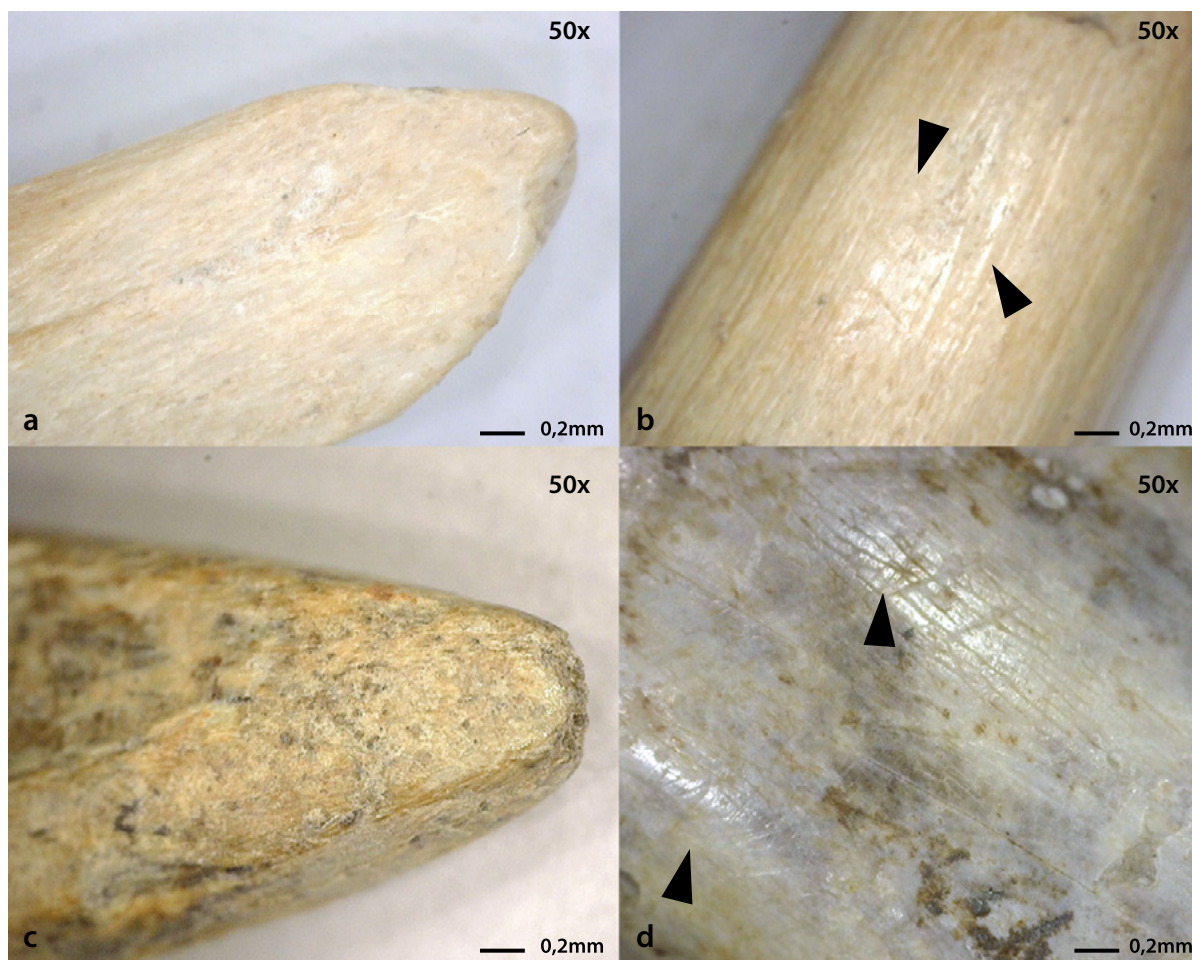
⁹² BARON, DIAKOWSKI, STOLARCZYK 2014: 32, Pl. 7/1.

⁹³ PUC 2020: 273.

⁹⁴ CAMPANA 1989: 54.

⁹⁵ PUC 2020: 273.

⁹⁶ BUC 2011: 555.



SLIKA 6. Mikrotopografija (povećanje 50 puta) vrhova probojaka (PN 66 – a; PN 91 – c) i strija (PN 66-b; PN 91-d) (izradila: A. Barbir)

FIGURE 6 Microtopography (magnification $\times 50$) of awl tips (SF 66 – a; SF 91 – c) and striations (SF 66 – b; SF 91 – d) (made by A. Barbir)

PN 66 (sl. 6b) na materijalima biljnog porijekla. Općenito, uglačenost vrha i okolnog područja sugerira kontakt s organskim materijalima,⁹⁷ dok oštećenje vrha na PN 66 ukazuje na intenzivnu uporabu.

Igle su karakterizirane dugim i tankim vrhom, a njihova je primarna funkcija povezana s preradom biljnih vlakana te izradom predmeta od kože, krzna i različitih tekstila.⁹⁸ Primjerak iz Stobreča PN 153 izrađen je od dorzalnog ulomka dijafize kostiju donožja. Igle su često izrađivane od otpadnih koštanih sirovina, unatoč čemu njihova završna obrada rezultira vrlo finim uglačanim površina-

materials. In general, the polished surface of the tip and surrounding area suggests contact with organic materials,⁹⁷ while the damaged tip of SF 66 indicates intensive use.

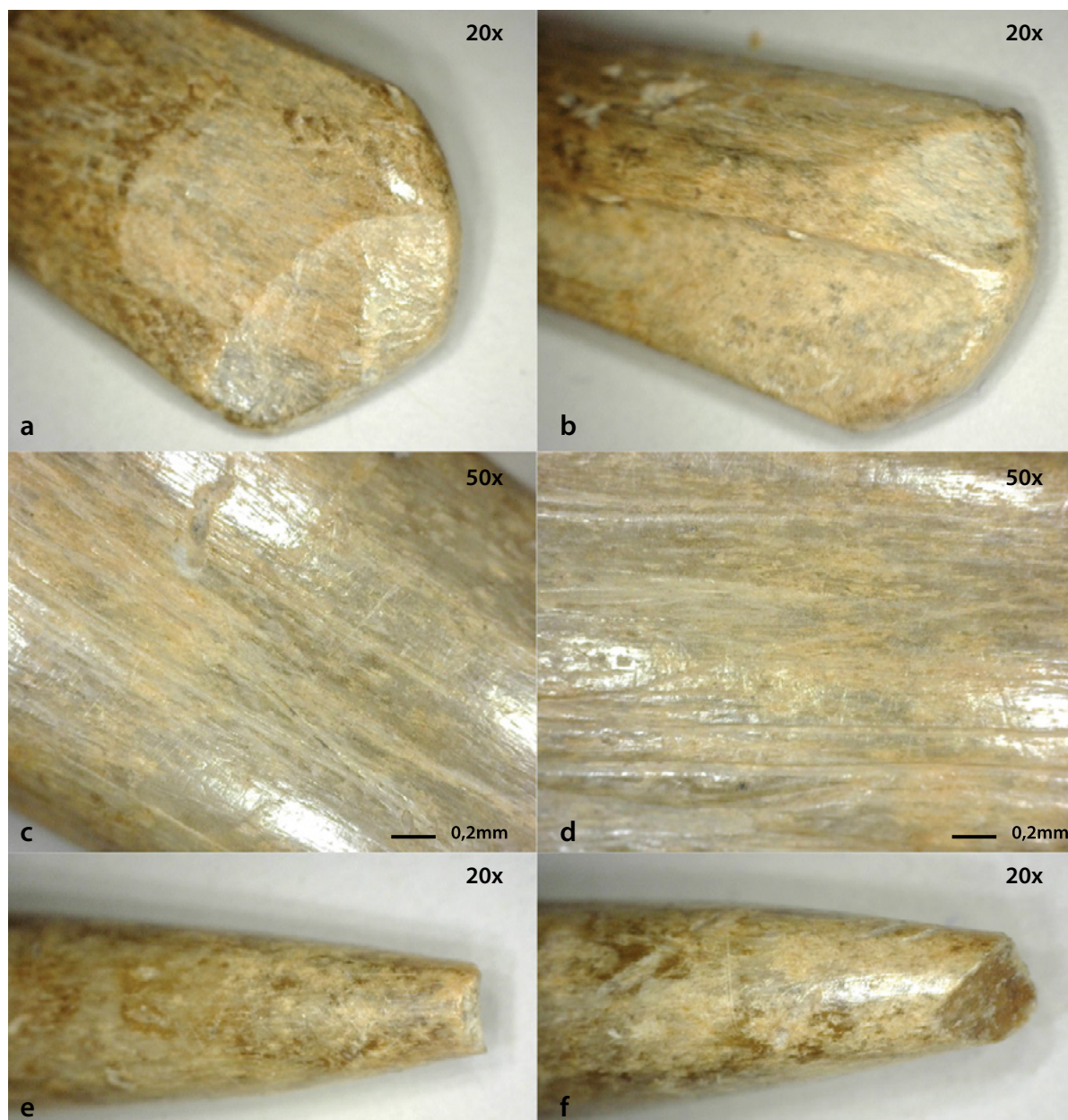
Needles are characterised by a long and slender tip, and their primary function is associated with the working of plant fibres and the manufacture of artefacts made from leather, fur and various textiles.⁹⁸ The specimen from Stobreč, SF 153, was made from a dorsal fragment of the diaphysis of a metapodial bone. Needles were often produced from discarded bone material, yet their final finishing typically resulted in very finely polished surfac-

⁹⁷ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁹⁸ VITEZOVIĆ 2011: 288.

⁹⁷ CHRISTIDOU, LEGRAND-PINEAU 2005.

⁹⁸ VITEZOVIĆ 2011: 288.



SLIKA 7. Mikrotopografija (povećanje 50 puta) za mezijalni dio igle (PN 153) i snimka (povećanje 20 puta) za bazu i vrh (izradila: A. Barbir)

FIGURE 7 Microtopography ($\times 50$) of the mesial part of the needle (SF 153) and image ($\times 20$) of the base and tip (made by A. Barbir)

ma.⁹⁹ To je slučaj i s PN 153, koji pokazuje izrazitu zaglađenost duž cijelog predmeta (sl. 7; T. I). Usporedbe se mogu pronaći u Monkodonji¹⁰⁰ i Dugišu.¹⁰¹ Analiza tragova upotrebe na PN 153 otkrila je sjajnu, zaglađenu površinu igle, što sugerira kontakt

es.⁹⁹ This is also the case with SF 153, which exhibits pronounced smoothness along its entire surface (Fig. 7, Pl. 1). Comparable examples can be found at Monkodonja¹⁰⁰ and Dugiš.¹⁰¹ Use-wear analysis of SF 153 revealed a glossy, smoothed surface, suggesting contact

⁹⁹ *Ibid.*

¹⁰⁰ PUC 2020: 276.

¹⁰¹ KLIŠKIĆ 2024: 141, inv. br. N 5664; 142, inv. br. N 5659, inv.br. N 5661.

⁹⁹ *Ibid.*

¹⁰⁰ PUC 2020: 276.

¹⁰¹ KLIŠKIĆ 2024: 141, Inv. No. N 5664; 142, Inv. No. N 5659, Inv. No. N 5661.

cijelog predmeta s organskim materijalima. Glava igle pokazuje isključivo tragove povezane s morfološkim oblikovanjem, uz već spomenutu zaglađenost. Po cijeloj površini predmeta vidljive su uske, longitudinalne strije oštih rubova, no zaglađene površine. Bradfield je takve tragove upotrebe povezao s upotrebom predmeta na biljnim materijalima.¹⁰² Vujević ističe kako sama morfologija igala upućuje na njihovu primjenu na prethodno pripremljenoj koži, koja je bila probušena probojcima i šilima, ili na laganijim biljnim materijalima.¹⁰³ Vitezović dodaje da je ovakav tip neperforiranih igala korišten za tkanje i pletenje, gdje su biljna vlakna s pomoću finog šiljka namještana i provlačena kroz prethodno izrađene rupe, pri čemu se tragovi upotrebe manifestiraju kroz ispolirnost predmeta.¹⁰⁴

U Stobreču je zasad evidentiran samo jedan projektil (PN 173). Istodobni nalazi ovog tipa oruđa/oružja zabilježeni su na obalnim lokalitetima poput Monkodonje,¹⁰⁵ gdje predstavljaju čest tip projektila s jednim krajem oblikovanim u šiljak, a drugim suženim i manje precizno oblikovanim u zaobljeni završetak.¹⁰⁶ Ova tipologija u potpunosti odgovara primjerku iz Stobreča (sl. 8; T. I). Sličan je tip pronađen i na brončanodobnom lokalitetu Paks-Gyapa.¹⁰⁷

Mikrotopografija tijela projektila (sl. 8a) otkriva kratke kose strije koje su orijentirane transverzalno u odnosu na os predmeta. Vjerojatno su nastale djelovanjem kamenog oruđa tijekom izrade.¹⁰⁸ Campana ističe da je u većini slučajeva teško precizno odrediti tip kamenog oruđa korištenog u obradi koštanih izrađevina.¹⁰⁹ Međutim, tragovi koje to oruđe ostavlja često su relativno mali i imaju

of the entire artefact with organic materials. The head of the needle shows only traces related to morphological shaping, along with the previously mentioned smoothness. Across the entire surface of the artefact, narrow, longitudinal striations with sharp edges yet polished surfaces are visible. Bradfield associated such use-wear traces with the use of artefacts on plant materials.¹⁰² Vujević pointed out that the morphology of needles itself suggests their use on pre-prepared hide, which had been perforated with borers and awls, or on lighter plant materials.¹⁰³ Vitezović added that this type of non-perforated needle was used for weaving and braiding, where plant fibres were positioned and drawn through previously made holes using the fine point, resulting in the polished appearance of the artefact.¹⁰⁴

So far, only one projectile (SF 173) has been recorded in Stobreč. Contemporary finds of this type of tool/weapon have been documented at coastal sites such as Monkodonja,¹⁰⁵ where they represent a common type of projectile with one end shaped into a point and the other narrowed and more roughly worked into a rounded tip.¹⁰⁶ This typology fully corresponds to the specimen from Stobreč (Fig. 8, Pl. 1). A similar type has also been found at the Bronze Age site of Paks-Gyapa.¹⁰⁷

The microtopography of the projectile's body (Fig. 8a) reveals short, oblique striations oriented transversely to the artefact's axis. These were likely produced by the use of a stone tool during manufacture.¹⁰⁸ Campana notes that, in most cases, it is difficult to determine precisely which type of stone tool was used in working bone artefacts.¹⁰⁹ However, the traces left by such tools are often relatively small and exhibit

¹⁰² BRADFIELD 2015: 6.

¹⁰³ VUJEVIĆ 2009: 95.

¹⁰⁴ VITEZOVIĆ 2011: 289.

¹⁰⁵ PUC 2020: T. 21; 22, 1-4.

¹⁰⁶ PUC 2020: T. 21, 4-6; 22, 1-2.

¹⁰⁷ GÁL 2016: 122, sl. 5.

¹⁰⁸ CAMPANA 1989: 31, Pl. 4.

¹⁰⁹ *Ibid.*: 31.

¹⁰² BRADFIELD 2015: 6.

¹⁰³ VUJEVIĆ 2009: 95.

¹⁰⁴ VITEZOVIĆ 2011: 289.

¹⁰⁵ PUC 2020: Pl. 21; 22, 1-4.

¹⁰⁶ PUC 2020: Pl. 21, 4-6; 22, 1-2.

¹⁰⁷ GÁL 2016: 122, Fig. 5.

¹⁰⁸ CAMPANA 1989: 31, Pl. 4.

¹⁰⁹ *Ibid.*: 31.

specifičan sjaj.¹¹⁰ Baza projektila zaobljena je i pokazuje oštećenja (sl. 8b). Na vrhu je uočljiv relativno oštar brid, dok je okolna površina zaobljena i bez izraženih strija (sl. 8c–d). Slični tragovi korištenja zabilježeni su na predmetima koji su eksperimentalno korišteni za udarce, bez obzira na to jesu li bili izravni ili neizravni.¹¹¹

Iako je primarna funkcija ovih nalaza, kao vrhova kopanja ili strijela, očita, njihova je interpretacija znatno ograničena. Malen broj uzoraka, ograničenost eksperimentalnih studija i nedostatak komparabilnih lokaliteta onemogućuju precizno određivanje njihove specifične namjene, poput utvrđivanja jesu li korišteni za lov, ratovanje ili u obje svrhe. Lokaliteti s većim uzorkom, kao što je Paks-Gyapa, omogućuju pretpostavku da je glavna funkcija projektila bila lov.¹¹² S druge strane, prostorna analiza položaja projektila na Monkodonji sugerira da su povezani s napadima i opsadom naselja.¹¹³ Naime, najveća koncentracija ovog oružja pronađena je uz glavni bedem, sjeverna vrata naselja i južna vrata akropole.¹¹⁴ Bradfield i Lombard proveli su eksperimente na projektilima, s posebnim fokusom na makrofrakture.¹¹⁵ Projektili su višekratno korišteni kao strijele i vrhovi kopanja, pri čemu su zabilježena najčešća oštećenja.¹¹⁶ Eksperiment je pokazao da oblik oruđa i metoda korištenja (npr. strijela, koplje) utječu na formiranje tipova loma, no potrebna su daljnja eksperimentalna istraživanja kako bi se potvrdila ova mogućnost.¹¹⁷ Oštećenje na bazi projektila (sl. 8b) odgovara oštećenju nastalom drobljenjem koje je interpretirano kao oštećenje od upotrebe kao nasađeni vrh

a characteristic sheen.¹¹⁰ The projectile's base is rounded and shows signs of damage (Fig. 8b). At the tip, a relatively sharp edge is visible, while the surrounding surface is rounded and lacks distinct striations (Fig. 8c-d). Similar use-wear traces have been recorded on artefacts that were experimentally used for percussion, regardless of whether it was direct or indirect.¹¹¹

Although the primary function of these finds – as spear or arrow points – is evident, their interpretation remains significantly limited. The small sample size, scarcity of experimental studies and lack of comparable sites prevent precise determination of their specific purpose, such as whether they were used for hunting, warfare, or both. Sites with larger assemblages, such as Paks-Gyapa, allow the assumption that the main function of projectiles was hunting.¹¹² Conversely, spatial analysis of projectile distribution at Monkodonja suggests an association with attacks and the siege of the settlement.¹¹³ Namely, the highest concentration of this type of weapon was found along the main rampart, at the northern gate to the settlement and at the southern gate leading to the acropolis.¹¹⁴ Bradfield and Lombard conducted experiments on projectiles, with a particular focus on macrofractures.¹¹⁵ The projectiles were repeatedly used as arrow and spear tips, during which the most common types of damage were recorded.¹¹⁶ The experiment demonstrated that the shape of the tool and the method of use (e.g. arrow, spear) influence the formation of fracture types, although further experimental research is required to confirm this possibility.¹¹⁷ The damage on the base of the projectile (Fig. 8b) corresponds to crushing damage, which has been interpreted as resulting from its use

¹¹⁰ *Ibid.*: 31.

¹¹¹ BUC 2011: 552.

¹¹² GÁL 2016: 126.

¹¹³ PUC 2020: 316–317.

¹¹⁴ PUC 2020: 316–317.

¹¹⁵ BRADFIELD, LOMBARD 2011.

¹¹⁶ *Ibid.*: 68.

¹¹⁷ *Ibid.*: 73.

¹¹⁰ *Ibid.*

¹¹¹ BUC 2011: 552.

¹¹² GÁL 2016: 126.

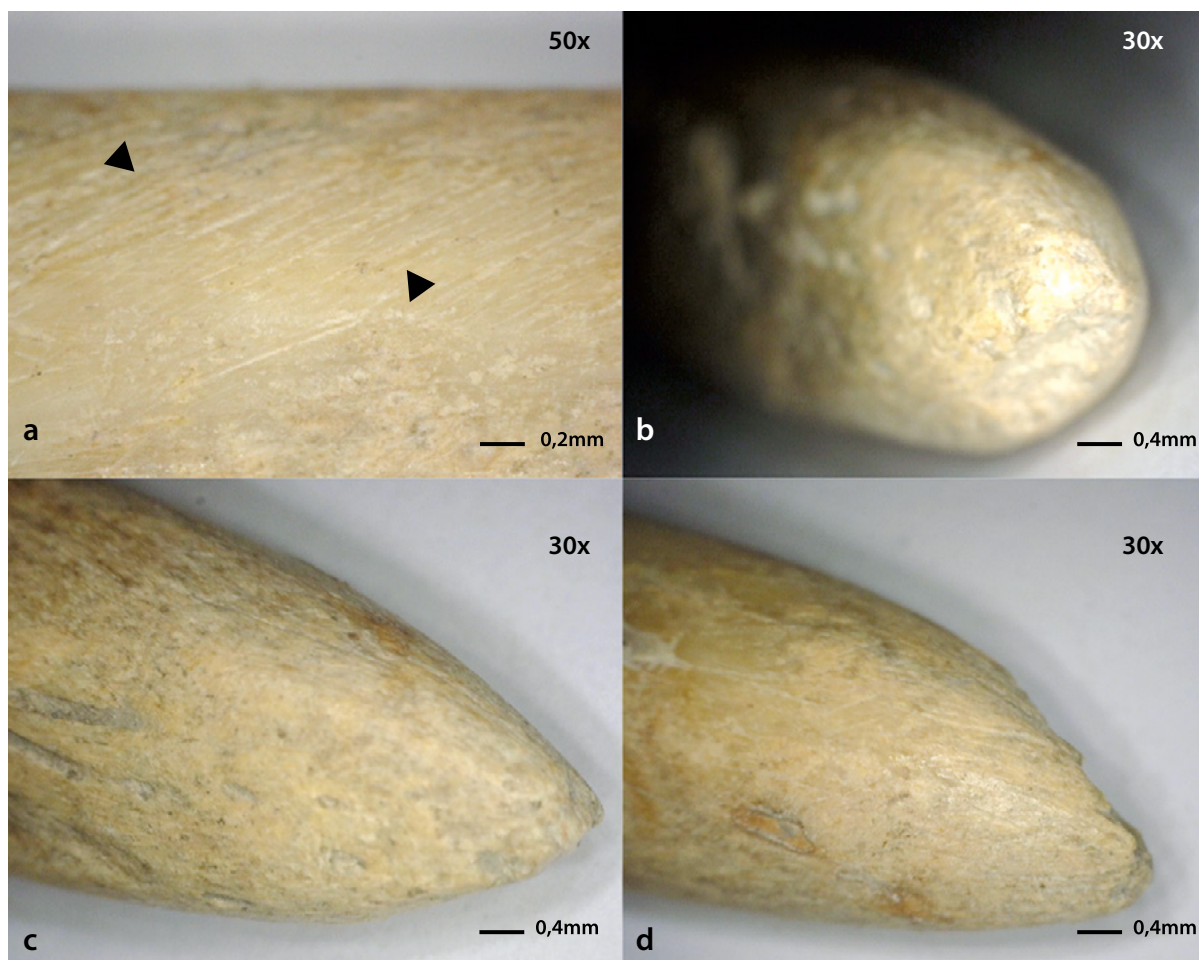
¹¹³ PUC 2020: 316–317.

¹¹⁴ PUC 2020: 316–317.

¹¹⁵ BRADFIELD, LOMBARD 2011.

¹¹⁶ *Ibid.*: 68.

¹¹⁷ *Ibid.*: 73.



SLIKA 8. Mikrotopografija (povećanje 50 puta) mezijalnog dijela projektila (PN 173), snimka (povećanje 30 puta) baze i vrha (izradila: A. Barbir)

FIGURE 8 Microtopography ($\times 50$) of the mesial part of the projectile (SF 173), image ($\times 30$) of the base and tip (made by A. Barbir)

strijele.¹¹⁸ Na temelju jednog primjerka projektila u Stobreču nije moguće sa sigurnošću pretpostavljati njegovu primarnu svrhu. Preliminarni pregled životinjskih ostataka potvrdio je prisutnost divljih životinja u skupu nalaza iz brončanodobnih slojeva, što sugerira lov kao jednu od aktivnosti kojom se bavila onodobna zajednica. S druge strane, projektili mogu ukazivati i na moguće lokalne sukobe.

Na analiziranim primjercima nisu zabilježeni jasni tragovi popravaka. Prema Choyke, tri su ključna preduvjeta za reparaciju oruđa: 1) otežana dostupnost sirovine, 2) visok utrošak rada pri izradi te 3) preferencija pre-

as a hafted arrowhead.¹¹⁸ On the basis of a single projectile specimen from Stobreč, it is not possible to determine its primary function with certainty. A preliminary examination of the animal remains confirmed the presence of wild species in the assemblage from the Bronze Age layers, suggesting hunting as one of the activities practised by the community of that period. On the other hand, the presence of projectiles may also indicate possible local conflicts.

No clear traces of repair were observed on the analysed specimens. According to Choyke, there are three key preconditions for tool repair: (1) limited availability of raw materi-

¹¹⁸ *Ibid.*: 72, sl. 4g.

¹¹⁸ *Ibid.*: 72, Fig. 4g.

ma određenom oruđu.¹¹⁹ S obzirom na sirovinu od koje je izrađen predmet i kontekst nalaza, prvi preduvjet nije zadovoljen. Drugi preduvjet, povezan s utroškom rada za izradu oruđa, zasad je teško precizno utvrditi u kontekstu prapovijesnog Stobreča. Unatoč oportunističkoj izradi, neka su oruđa mogla postati preferirana zbog svoje učinkovitosti.

Analizirane koštane izrađevine svjedoče o dinamičnim svakodnevnim aktivnostima koje su uključivale obradu kože te životinjskih i biljnih vlakana. Također, govore u prilog bronzanodobnoj zajednici koja je, promišljenim odabirom vrste i razine tehnološke obrade, strateški iskorištavala dostupne resurse. Uz to, prvi su indirektni materijalni indikator tekstilne proizvodnje (izrada materijala i odjeće) bronzanodobnog naselja u Stobreču, među rijetkima poznatim odnosno publiciranim nalazima tog tipa u srednjoj Dalmaciji. Proizvodnja tekstila u bronzanom dobu Jadrana slabo je istražena i najčešće se povezuje s keramičkim utezima i pršljenima te, primarno, s preradom vune.¹²⁰ U bronzanom je dobu vuna bila široko rasprostranjena u velikom dijelu Europe, a važnost tekstila koji se od nje dobivao protezala se kroz sve sfere tadašnjeg društva.¹²¹ Tek će buduće arheozoološke analize izučavati važnost ovce u stobrečkom bronzanodobnom društvu i time pomoći u rasvjetljavanju pitanja vunjenih tekstila u stobrečkim prapovijesnim zajednicama. Arheobotanički pokazatelji za izradu tekstila nisu brojni,¹²² no podaci s lokaliteta Okruglo¹²³ u dolini rijeke Cetine otkrivaju nekoliko biljnih taksona koji su pogodni za takvu namjenu. Primjerice, koprija (*Urtica dioica*) mogla se upotrebljava-

al, (2) high labour investment during manufacture, and (3) a preference for a particular tool.¹¹⁹ Given the type of raw material and the find context, the first precondition was not met. The second precondition, related to the amount of labour invested in tool production, is difficult to determine precisely in the context of prehistoric Stobreč. Despite their opportunistic manufacture, some tools may nevertheless have become preferred due to their effectiveness.

The analysed bone artefacts bear witness to dynamic everyday activities that involved the working of hides as well as animal and plant fibres. They also attest to a Bronze Age community that, through a deliberate selection of species and a considered level of technological treatment, strategically exploited the available resources. Moreover, they represent the first indirect material indicator of textile production (the making of fabrics and clothing) within the Bronze Age settlement of Stobreč – among the few known and published finds of this kind in central Dalmatia. Textile production in the Bronze Age Adriatic region remains poorly researched and is most commonly associated with ceramic loom weights and spindle whorls, and primarily with wool working.¹²⁰ During the Bronze Age, wool was widespread across much of Europe, and the significance of the textiles produced from it extended into all spheres of contemporary society.¹²¹ Future archaeozoological analyses will examine the role of sheep within the Bronze Age community of Stobreč and thereby contribute to clarifying questions regarding woollen textile production in the prehistoric societies of Stobreč. Archaeobotanical indicators of textile production are scarce;¹²² however, data from the site of Okruglo¹²³

¹¹⁹ CHOYKE 1997: 68.

¹²⁰ BATOVIĆ 1983: 349.

¹²¹ KRISTIANSEN, STIG SORESEN 2020: 329.

¹²² Dostupni su podaci iz Grapčeve špilje (BOROJEVIĆ *et al.* 2008) i Čauševica (HUNTLEY 1996), no nisu evidentirani taksoni koji su pogodni za izradu tekstila. Za pregled arheobotaničkih studija u bronzanom dobu Hrvatske vidjeti REED 2016; REED *et al.* 2022.

¹²³ SMITH *et al.* 2006.

¹¹⁹ CHOYKE 1997: 68.

¹²⁰ BATOVIĆ 1983: 349.

¹²¹ KRISTIANSEN, STIG SORESEN 2020: 329.

¹²² Data are available from Grapčeva Špilja (BOROJEVIĆ *et al.* 2008) and Čauševica (HUNTLEY 1996), but no taxa suitable for textile production have been recorded. For an overview of archaeobotanical studies from the Bronze Age in Croatia, see REED 2016; REED *et al.* 2022.

¹²³ SMITH *et al.* 2006.

ti za izradu finih tekstila, dok su taksoni šaš (*Carex* spp.) i krović (*Bolboschoenus* spp.) ili oblič (*Schoenoplectus* spp.) bili prikladni za proizvodnju grubljih tkanina, poput prostirki, košara ili užadi.¹²⁴

Kontekstualna interpretacija promatranih koštanih izrađevina smješta ih u srednje/kasnobrončanodobno naselje na području današnjeg Stobreča. Najveća koncentracija izrađevina zabilježena je u depozitima, dok je njihova učestalost u ostalim kontekstima, poput jama, urušenih struktura i peći, smanjena. Ovakva disperzija unutar naselja upućuje na široku integriranost koštanog oruđa u svakodnevni život prapovijesne zajednice. Iako zasad nemamo potvrđene primjerke iz željeznog doba, što može biti rezultat niza faktora, pretpostavlja se da su se slični alati upotrebljavali i u tom razdoblju. Naime, njihova morfologija, koja je uvelike definirana funkcionalnošću, nije se znatno mijenjala kroz duže vrijeme.

Studija je primjer jasne potrebe za daljnjim detaljnim analizama koštanih izrađevina, uključujući eksperimentalnu arheologiju i širu komparativnu analizu s regionalnim nalazima, kako bi se preciznije definirale funkcije oruđa i u potpunosti rekonstruirali povezni aspekti ekonomskih i društvenih praksi brončanodobnih zajednica.

ZAKLJUČAK

Ovom studijom pružena je prva detaljna analiza i interpretacija zašiljenoga koštanog oruđa iz srednje/kasnobrončanodobnih horizonata prapovijesnog naselja u Stobreču, čime je pružena dopuna skromne postojeće građe o prapovijesnim koštanim izrađevinama na području srednje Dalmacije i istočnojadranskog priobalja. Kroz preciznu analizu sirovine, tehnologije obrade, tipologije i funkcije 11 odabranih artefakata ostvaren

in the Cetina River valley reveal several plant taxa suitable for such use. For example, nettle (*Urtica dioica*) could have been used for the production of fine textiles, whereas sedges (*Carex* spp.), club-rush (*Bolboschoenus* spp.) and bulrush (*Schoenoplectus* spp.) were suitable for the manufacture of coarser materials such as mats, baskets or ropes.¹²⁴

The contextual interpretation of the analysed bone artefacts places them within a Middle to Late Bronze Age settlement in the area of present-day Stobreč. The highest concentration of artefacts was recorded in depositional contexts, while their frequency in other contexts – such as pits, collapsed structures and hearths – was lower. This spatial distribution within the settlement suggests that bone tools were widely integrated into the everyday life of the prehistoric community. Although no confirmed specimens from the Iron Age have been recorded so far – which may be due to a variety of factors – it is assumed that similar tools were also used during that period. Indeed, their morphology, largely determined by functionality, did not undergo significant changes over time.

This study clearly demonstrates the need for further, more detailed analyses of bone artefacts – including experimental archaeology and broader comparative studies with regional finds – in order to define tool functions more precisely and fully reconstruct the interconnected aspects of the economic and social practices of Bronze Age communities.

CONCLUSION

This study provides the first detailed analysis and interpretation of pointed bone tools from the Middle to Late Bronze Age horizons of the prehistoric settlement in Stobreč, thereby contributing to the modest existing corpus of prehistoric bone artefacts from central Dalmatia and the eastern Adriatic coast. Through a

¹²⁴ SMITH *et al.* 2008: 182–183.

¹²⁴ SMITH *et al.* 2008: 182–183.

je dublji uvid u materijalnu kulturu i aspekte svakodnevnog života ove bronzanodobne zajednice.

Analiza sirovine potvrdila je prevladavajuću upotrebu kostiju domaćih životinja, prvenstveno goveda (*Bos taurus*) i malih preživača (*Caprinae*), što je u skladu s arheozoološkim podacima s drugih bronzanodobnih lokaliteta u Dalmaciji, Istri i šire. Ova dominacija domaćih vrsta sugerira da je primarni izvor sirovine bio lokalni otpad od prerade hrane unutar naselja, što ukazuje na racionalno i oportunističko korištenje resursima. Važan je, međutim, i nalaz jednog primjerka izrađenog od kosti iz porodice jelena (*Cervidae*), što indicira prisutnost i lovne komponente u ekonomiji stobrečke zajednice. Prevladavajuća upotreba kostiju odraslih jedinki sugerira promišljeniji odabir kvalitetnije sirovine za izradu oruđa, za razliku od nekritičke upotrebe prehrambenog otpada, koji bi češće uključivao i mlađe jedinke.

Tehnološka analiza otkrila je metode obrade kosti podijeljene u dvije glavne faze: primarnu pripremu (lomljenje i rezanje) i završnu obradu (glačanje, poliranje, bušenje). Posebno je naglašena važnost morfoloških karakteristika kostiju, poput prirodnih žljebova metapodijalnih kostiju, koji su omogućavali kontrolirano lomljenje i efikasno oblikovanje zašiljenih oruđa.

Tipološka klasifikacija identificirala je četiri glavne kategorije: šila (najbrojnija kategorija sa sedam primjeraka), probojke (dva primjerka), igle (jedan primjerak) i projekte (jedan primjerak). Svaka od ovih kategorija pokazuje specifične morfološke i tehnološke karakteristike. Šila, svestrani alati, često izrađeni od metapodijalnih kostiju, korištena su za širok spektar aktivnosti, od obrade kože do izrade tekstila. Probojci, masivnije građe, bili su namijenjeni za probijanje tvrdih materijala, što je potvrđeno njihovom robustnom izradom. Prisutnost neperforirane igle (PN 153) ukazuje na aktivnosti povezane s

detailed analysis of the raw material, manufacturing technology, typology and function of 11 selected artefacts, a deeper insight has been gained into the material culture and aspects of everyday life of this Bronze Age community.

The raw material analysis confirmed the predominant use of bones from domestic animals, primarily cattle (*Bos taurus*) and small ruminants (*Caprinae*), which is consistent with archaeozoological data from other Bronze Age sites in Dalmatia, Istria and beyond. This dominance of domestic species suggests that the primary source of raw material was local food-processing waste within the settlement, indicating a rational and opportunistic use of available resources. Of particular significance, however, is the find of a single specimen made from a bone belonging to the deer family (*Cervidae*), indicating the presence of a hunting component within the economy of the Stobreč community. The predominant use of bones from adult specimens suggests the deliberate selection of higher-quality raw material for toolmaking, as opposed to the unselective use of food-processing waste, which would more often include younger animals.

The technological analysis revealed bone-working methods divided into two main stages: primary preparation (breaking and cutting) and finishing (grinding, polishing, drilling). Special emphasis was placed on the importance of the morphological features of bones, such as the natural grooves of metapodial bones, which allowed for controlled fracturing and efficient shaping of pointed tools.

The typological classification identified four main categories: awls (the most numerous, with seven specimens), borers (two specimens), needles (one specimen) and projectiles (one specimen). Each of these categories exhibits distinct morphological and technological characteristics. Awls, versatile tools often made from metapodial bones, were used for a wide range of activities, from hide working to textile production. Borers, of more robust construction, were designed for piercing

tekstilnom proizvodnjom, vjerojatno tkanje i pletenje, odnosno izradu materijala i odjeće. Konačno, nalaz vretenastog projektila (PN 173) sugerira upotrebu kosti u oružju za lov ili potencijalno ratovanje, iako je za precizniju interpretaciju potrebno više komparativnih podataka.

Funkcionalna interpretacija detaljne analize makroskopskih i mikroskopskih tragova upotrebe, uključujući mikrotopografiju, mikroreljef i strije, utvrdila je prisutnost karakterističnih strija na probojcima i šilima koji ukazuju na obradu kože, dok su na nekim primjercima zabilježeni tragovi koji upućuju na rad s biljnim vlaknima. Sjajna i uglačana površina igle PN 153 dosljedna je kontaktu s organskim materijalima i primjeni u tkanju ili pletenju. Ipak, ograničen broj uzoraka i nedostatak eksperimentalnih studija specifičnih za predmetni geografski kontekst onemogućuju preciznije definicije funkcija za sve predmete.

Integracija arheozooloških podataka, analize tragova upotrebe te eksperimentalne arheologije omogućuje sveobuhvatnije razumijevanje tehnologije, specijalizacije i ekonomije prapovijesnih zajednica pa studija koštanih artefakata iz Stobreča ilustrira da je sinteza različitih metoda ključna za što precizniju rekonstrukciju ljudskih aktivnosti i interakcija s okolinom.

Zahvale

Najljepše zahvaljujemo kolegi Eduardu Viskoviću, koji je bio voditelj arheoloških iskopavanja u Stobreču u prvoj polovici 2025., na ugodnoj i konstruktivnoj suradnji te ustupljenom materijalu za obradu, kao i popratnoj dokumentaciji. Velika hvala i kolegi Niki Romcu, zamjeniku voditelja istraživanja u Stobreču, na pomoći oko stratigrafije i dokumentacije. Puno hvala Petri Perlain na ustupanju digitalnog mikroskopa Dino-Lite za potrebe analize koštanih izdevina. Hvala i kolegicama dr. sc. Andreji

harder materials, as confirmed by their sturdy manufacture. The presence of a non-perforated needle (SF 153) indicates activities related to textile production, most likely weaving and knitting, that is, the making of fabrics and garments. Finally, the discovery of the spindle-shaped projectile (SF 173) suggests the use of bone as weapon material for hunting or possibly warfare, although a more precise interpretation requires additional comparative data.

The functional interpretation based on a detailed analysis of macroscopic and microscopic use-wear traces – including microtopography, microrelief and striations – identified characteristic striations on the borers and awls indicating hide working, while some specimens displayed traces consistent with working plant fibres. The glossy, polished surface of needle SF 153 is consistent with contact with organic materials and its use in weaving or knitting. However, the limited number of samples and the lack of experimental studies specific to the geographical context of the site prevent more precise functional definitions for all artefacts.

The integration of archaeozoological data, use-wear analysis and experimental archaeology provides a more comprehensive understanding of the technology, specialisation and economy of prehistoric communities. Thus, the study of bone artefacts from Stobreč demonstrates that the synthesis of different methodological approaches is essential for achieving a more accurate reconstruction of human activities and interactions with the environment.

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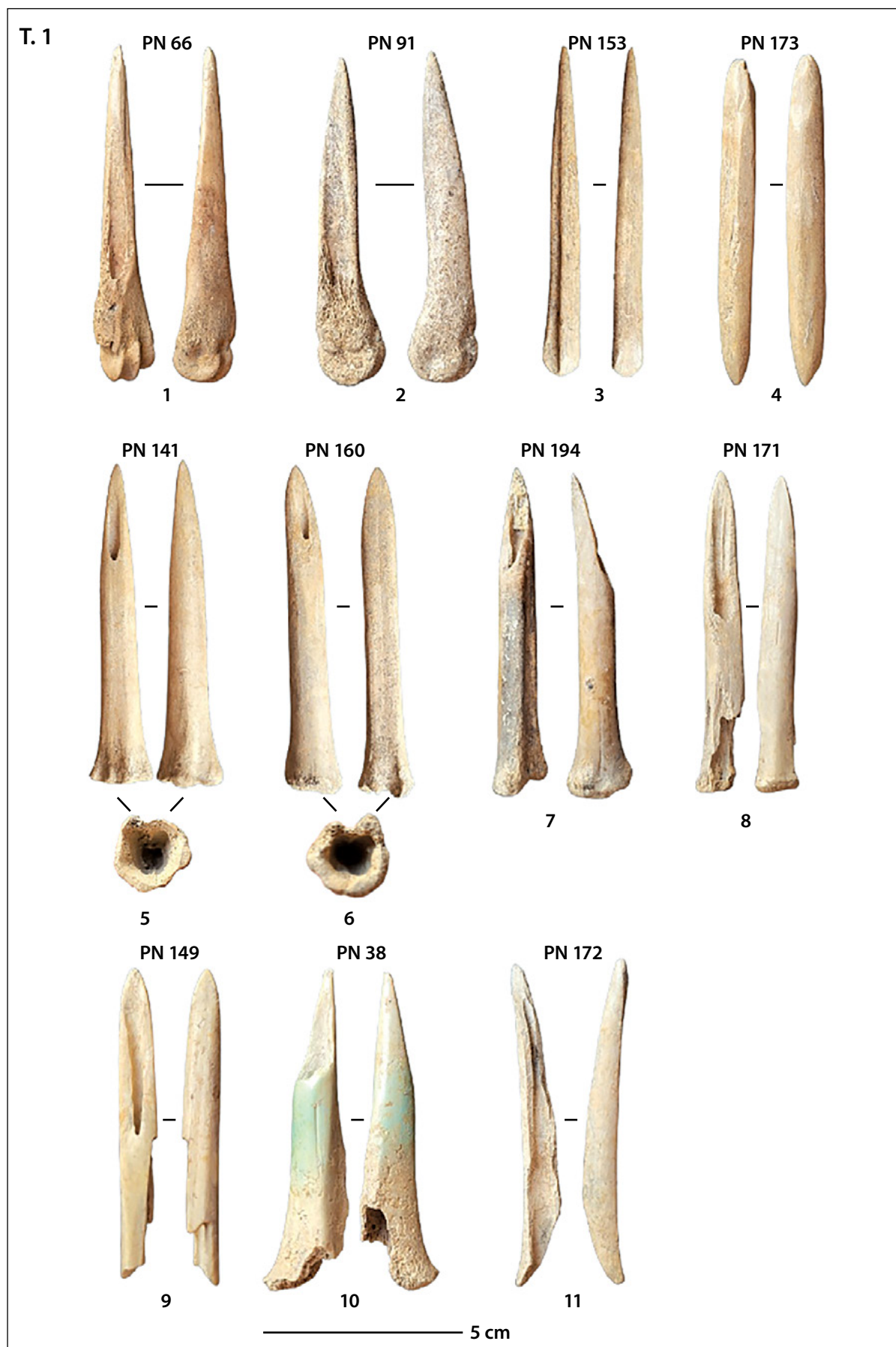
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NOVI DOPRINOS POZNAVANJU GRADINSKIH LOKALITETA OTOKA VISA

A NEW CONTRIBUTION TO THE STUDY OF HILLFORT SITES ON THE ISLAND OF VIS

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KLJUČNE RIJEČI:

Vis, gradine, gomile,
vizualne komunikacije

Terenska istraživanja na Visu provedena 2022. i 2024. omogućila su upotpunjavanje dosadašnjih razumijevanja prapovijesne mreže naselja i njihovih funkcija te otočne društvene dinamike. Pregled lokaliteta Grodac i Štracine omogućio je revizije dosadašnjih interpretacija. Na Grodcu su precizirane granice gradinskog prostora, dok je na Štracina-ma revidirana dosadašnja hipoteza o gradinskom naselju. Analizom pokretnog materijala iznose se novi dokazi o trgovinskoj razmjeni između urođeničkih zajednica i Grka tijekom željeznog doba, a nadopunjen je i vremenski horizont pojedinih lokaliteta. Terenskim pregledom prapovijesnih gomila i gradina utvrđeni su sustavi vizualne komunikacije između ključnih točaka koje su omogućavale strateški nadzor nad kopnenim i plovnim putovima.

KEY WORDS:

Vis, hillforts, cairns,
visual communication

Fieldwork carried out on Vis in 2022 and 2024 has made it possible to supplement existing understanding of its network of prehistoric settlements and their functions, as well as the island's social dynamics. Surveys of the Grodac and Štracine sites enabled a revision of previous interpretations. At Grodac, the boundaries of the hillfort area were defined more precisely, while at Štracine the previous hypothesis of a hillfort settlement was revised. Analysis of portable material provided new evidence of trade exchange between indigenous communities and the Greeks during the Iron Age, and the chronological framework of certain sites was also refined. The field survey of prehistoric cairns and hillforts identified systems of visual communication between key points, which allowed strategic control over land and maritime routes.

UVOD

Tijekom 2022. i 2024. obavljena su dva terenska pregleda na otoku Visu u sklopu studentskih projekata koja su financijski podrprli Filozofski fakultet Sveučilišta u Zagrebu, Grad Vis i udruga Kulissa. To su „*Na ilirski nasrnu brod*”: *Rekognosciranje prapovijesnog krajolika na južnim padinama otoka Visa* (voditelj Vinko Udiljak) i *ΠΛΕΙΝ ΑΝΑΓΚΗ: Τερενски pregled prapovijesnog krajolika gradinskih lokaliteta Grodac i Štracine na otoku Visu* (voditeljica Mila Erceg). Oba su projekta osmislili dvopredmetni studenti diplomskog studija povijesti i arheologije Mila Erceg, Petra Grizelj i Vinko Udiljak te student diplomskog studija arheologije Ivo Čevd. Mentori projekata bili su prof. dr. sc. Helena Tomas s Katedre za klasičnu arheologiju Odsjeka za arheologiju Filozofskog fakulteta Sveučilišta u Zagrebu te dr. sc. Filip Budić s Katedre za staru povijest Odsjeka za povijest Filozofskog fakulteta Sveučilišta u Zagrebu. U terenskom pregledu sudjelovali su Filip Budić, Ivo Čevd, Santa Duvnjak, Mila Erceg, Petra Grizelj, Jurica Triplat i Vinko Udiljak.

PRAPOVIJEST OTOKA VISA

Otok Vis pripada srednjodalmatinskoj otočnoj skupini s površinom od 89,7 km². Od dalmatinskog kopna udaljen je 45 km, pa je stoga i najveći pučinski otok na Jadranu.¹ Uz obilne morske resurse, Visom dominira nekoliko krških ravni, među kojima su Dracevo, Plisko i Velo poje, Molo i Velo Jubišće, Molo i Velo Voščica, Tihobraće, Dol te Molo i Velo Zlo poje.² Zbog zemljopisnog položaja i prirodnih predispozicija, Vis je od prapovijesti bio povoljno mjesto za naseljavanje.³

¹ KRKLEC, LOZIĆ, ŠILJEG 2012: 291.

² *Ibid.*: 291–294.

³ PROTIC 1985: 43; ČARGO 2021b: 23–29.

INTRODUCTION

In 2022 and 2024, two field surveys were carried out on the island of Vis as part of student projects financially supported by the University of Zagreb's Faculty of Humanities and Social Sciences, the City of Vis and the association Kulissa. These were “*Na ilirski nasrnu brod*”: *Reconnaissance of the prehistoric landscape on the southern slopes of the island of Vis* (directed by Vinko Udiljak) and *ΠΛΕΙΝ ΑΝΑΓΚΗ: Field survey of the prehistoric landscape of the hillfort sites of Grodac and Štracine on the island of Vis* (directed by Mila Erceg). Both projects were conceived by joint-degree students of the graduate programme in history and archaeology Mila Erceg, Petra Grizelj and Vinko Udiljak, together with Ivo Čevd, a student of the graduate programme in archaeology. The project mentors were Professor Helena Tomas from the Chair of Classical Archaeology, Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb, and Dr. Filip Budić from the Chair of Ancient History, Department of History, Faculty of Humanities and Social Sciences, University of Zagreb. Participants in the field survey were Filip Budić, Ivo Čevd, Santa Duvnjak, Mila Erceg, Petra Grizelj, Jurica Triplat and Vinko Udiljak.

PREHISTORY OF THE ISLAND OF VIS

The island of Vis is one of the Central Dalmatian Islands and covers an area of 89.7 km². It lies 45 km from the Dalmatian mainland and is the largest open-sea island in the Adriatic.¹ In addition to abundant marine resources, Vis is characterised by several karstic plains, among them Dracevo, Plisko and Velo Poje, Molo and Velo Jubišće, Molo and Velo Voščica, Tihobraće, Dol, and Molo and Velo Zlo Poje.² Because of its geographical position and natural features,

¹ KRKLEC, LOZIĆ, ŠILJEG 2012: 291.

² *Ibid.*: 291–294.

Prapovijest otoka Visa relativno je slabo poznata zbog manjka sustavnih arheoloških iskopavanja. Većina podataka potječe iz terenskih pregleda ili manjih sondažnih istraživanja provedenih u drugoj polovici 20. stoljeća.⁴ Istraživanja pokazuju da je otok nastanjen već od neolitika o čemu svjedoči keramika *impresso* kulture i kremeniti nožići pronađeni u Tvardoj špilji. Nalazi nisu pronađeni u arheološkom sloju, već su prikupljeni na površini unutar špilje pa izostaju precizniji detalji.⁵ S nepoznatog nalazišta potječe jedan polikromni srednjoneolitički ulomak, karakteriziran kao ripolska (*Ripoli*) ili *figulina* keramika. Iako neki autori tvrde da je primjerak uvezen iz Italije,⁶ dok su drugi skloniji svrstati ga u lokalnu produkciju,⁷ ulomak nedvojbeno ukazuje na društveni kontakt i dijeljenje kulturnog sadržaja između istočne i zapadne obale, a samim time možda i na izražavanje zajedničkog identiteta. Lončarija sličnog tipa pojavljuje se i na drugim jadranskim lokalitetima.⁸ Vis je od neolitičkog perioda stajao na važnoj plovidbenoj ruti koja je povezivala srednju Dalmaciju preko velikih srednjodalmatinskih otoka (Brač, Hvar, Vis) s poluotokom Monte Gargano. Osim keramike, o kolanju robe ovim pomorskim pravcem svjedoče nalazi opsidijana pronađenog na Palagruži,⁹ kampinijenski tip sjekire iz Markove špilje na Hvaru, sjekire od žada i nefrita s neolitičkih lokaliteta srednje Dalmacije i slično.¹⁰ Eneolitički materijal s Visa za sada nije pronađen u intaktnom sloju, ali se ulomci iz špilje Mramorcina povezuju s tim

Vis has been a favourable place for settlement from prehistoric times.³

Knowledge of the prehistory of Vis is relatively poor due to the lack of systematic archaeological excavations. Most of the available data come from field surveys or small-scale trial excavations carried out in the second half of the 20th century.⁴ These indicate that the island was already inhabited during the Neolithic, as evidenced by *impressa* culture pottery and flint blades found in Tvarda Špilja. The finds were not recovered from an archaeological layer but collected from the surface inside the cave, so more precise details are lacking.⁵ A polychrome Middle Neolithic sherd, described as *Ripoli* or *figulina* ware, originates from an unknown site. Although some authors argue that the specimen was imported from Italy,⁶ while others are more inclined to classify it as a local product,⁷ the sherd clearly points to social contact and the sharing of cultural traits between the eastern and western coasts, and thus possibly to the expression of a shared identity, too. Pottery of a similar type also appears at other Adriatic sites.⁸ From the Neolithic period onwards, Vis lay on an important seafaring route that connected central Dalmatia, via the major central Dalmatian islands (Brač, Hvar, Vis), with the Monte Gargano peninsula. In addition to pottery, the movement of goods along this maritime route is confirmed by finds such as obsidian discovered on Palagruža,⁹ a Campignian-type axe from Markova Špilja on Hvar, and jade and nephrite axes from Neolithic sites in central Dalmatia, among others.¹⁰ No Aeneolithic material from

⁴ O povijesti istraživanja na Visu vidjeti više u KIRIGIN 1999: 406–431; KIRIGIN *et al.* 2006: 9–13; ČARGO 2021a: 17–20. Objave istraživanja željeznodobnih lokaliteta vide se u bilješkama i bibliografiji ovog rada.

⁵ KAISER, FORENBAHER 2002: 103; ČARGO 2021b: 23.

⁶ ČARGO 2021b: 23.

⁷ TEOH, MCCLURE, PODRUG 2014: 352, 357.

⁸ *Ibid.*: 350–352, 357.

⁹ Palagruža ima pretežno opsidijan s Lipara, a tek mali broj ima podrijetlo s grčkog otoka Mela (FORENBAHER 2018: 89).

¹⁰ PETRIĆ 2004: 200.

³ PROTIC 1985: 43; ČARGO 2021b: 23–29.

⁴ For the history of research on Vis see KIRIGIN 1999: 406–431; KIRIGIN *et al.* 2006: 9–13; ČARGO 2021a: 17–20. Publications of investigations of Iron Age sites are listed in the notes and bibliography of this paper.

⁵ KAISER, FORENBAHER 2002: 103; ČARGO 2021b: 23.

⁶ ČARGO 2021b: 23.

⁷ TEOH, MCCLURE, PODRUG 2014: 352, 357.

⁸ *Ibid.*: 350–352, 357.

⁹ Palagruža has obsidian finds predominantly from Lipari, with only a small number originating from the Greek island of Melos (FORENBAHER 2018: 89).

¹⁰ PETRIĆ 2004: 200.

razdobljem.¹¹

Brončanodobnih nalaza ima iz Tvarde špile, dok su sondažnim istraživanjima na Prirovu pronađeni ostaci podnice nastambe i manja količina keramike, datirani radiokarbonskom metodom između 15. i 14. st. pr. Kr.¹² Međutim, valja istaknuti da je struka uputila kritiku ovim rezultatima zbog izostanka opširnije potkrijepe dokumentacijom i slikovnim materijalom.¹³ Važan je nalaz jednodijelna lučna fibula s dva zadebljanja na luku koja pripada liburnskom kulturnom krugu, a datira se u drugu polovinu 11. st. pr. Kr.¹⁴ Nekoliko brončanih predmeta može se stilski povezati s kasnim brončanim i željeznim dobom, a vjeruje se da potječu iz okolice gradine Kopacine.¹⁵ Osim metala, život u ovim razdobljima ovjeren je brojnim keramičkim ulomcima, kostima, fortifikacijskom arhitekturom, gomilama i drugim.¹⁶

Prekretnica u povijesnom razvoju Visa bilo je trajno naseljavanje grčkog stanovništva tijekom 4. st. pr. Kr. Neki su autori taj čin skloni datirati na temelju pisanih izvora (Diod. XV, 13, 4; 14, 1–3) za vladavine sirakuškog tiranina Dionizija Starijeg, odnosno prije 385./384. g. pr. Kr., dok se drugi opredjeljuju za kasniji datum zbog izostanka ranijih arheoloških ovjera.¹⁷ Sirakužani su na Visu utemeljili naseobinu i nadjenuli joj ime *Issa* (Ps. Scym. 412–414). Taj je polis ostavio dubok civilizacijski pečat tijekom antičkoga perioda, prvotno kroz grčku, a zatim rim-

Vis has so far been recovered in an intact layer, but sherds from Mramorcina Cave are associated with that period.¹¹

Bronze Age finds have been recorded from Tvarda Špila, while trial excavations at Prirovo uncovered remains of a dwelling floor and a small quantity of pottery, radiocarbon-dated to between the 15th and 14th centuries BC.¹² However, it should be noted that the scholarly community has criticised these results due to their lack of more extensive supporting documentation and illustrative material.¹³ An important find is a one-piece bow fibula with two thickenings on the bow, belonging to the Liburnian cultural circle and dated to the second half of the 11th century BC.¹⁴ Several bronze objects can be stylistically linked to the Late Bronze and Iron Ages and are thought to have originated from the area of the hillfort at Kopacine.¹⁵ In addition to metal finds, life in these periods is attested by numerous pottery sherds, bones, fortification architecture, cairns and other remains.¹⁶

A turning point in the historical development of Vis was its permanent settlement by Greek colonists during the 4th century BC. Some authors are inclined to date this event, on the basis of written sources (Diod. XV, 13, 4; 14, 1–3), to the reign of the Syracusan tyrant Dionysius the Elder, i.e. before 385/384 BC; others incline towards a later date given the absence of earlier archaeological confirmation.¹⁷ The Syra-

¹¹ ČARGO 2021b: 24.

¹² KATIĆ 2009: 54–55. Podatak prenosi i ČARGO 2021b: 24.

¹³ KIRIGIN *et al.* 2024: 83, bilj. 13.

¹⁴ ČARGO 2021b: 27.

¹⁵ Iako se u literaturi često upotrebljava naziv gradina Talež, u lokalnoj se toponimiji cijeli prostor naziva Talež, zajedno s istoimenim selom u blizini. Sam vrh brda (Taleška glavica) i njegovo sjeverno podnožje, gdje je mala zaravan, nazivaju se Kopacine. Stoga smatramo da je u ovom slučaju potrebno slijediti lokalnu toponimiju te gradinu nazivati Kopacine (na Taležu), na isti način kao što se i Vela gomila smješta na Talež. O arheološkom materijalu *Ibid.*: 24–25.

¹⁶ BUŠKARIOL 1982; PROTIĆ 1985; KIRIGIN *et al.* 2006; ČARGO 2021b.

¹⁷ Historiografski pregled različitih interpretacija osnutka Ise vidjeti sažeto u BUDIĆ 2018: 100–102, bilj. 3.

¹¹ ČARGO 2021b: 24.

¹² KATIĆ 2009: 54–55. This information is also reported in ČARGO 2021b: 24.

¹³ KIRIGIN *et al.* 2024, 83, n. 13.

¹⁴ ČARGO 2021b: 27.

¹⁵ Although the term “Talež Hillfort” is often used in the literature, in local toponymy the entire area is called Talež, together with the nearby village of the same name. The very top of the hill (Taleška Glavica) and its northern foot, where there is a small plateau, are referred to as Kopacine. We therefore consider it necessary in this case to follow the local toponymy and to designate the hillfort as Kopacine (on Talež), in the same way that Vela Gomila is located on Talež. For the archaeological material see *Ibid.*: 24–25.

¹⁶ BUŠKARIOL 1982; PROTIĆ 1985; KIRIGIN *et al.* 2006; ČARGO 2021b.

¹⁷ For a historiographical overview of different interpretations of the foundation of Issa, see the summary in BUDIĆ 2018: 100–102, n. 3.



KARTA 1. Karta otoka Visa s označenim gradinama i gomilama. Izradio: I. Čavid. (1: gradina Grodac, 2: gradina Sveti Duh, 3: gradina Sveti Vid, 4: Isa, 5: Prilovo, 6: Štracine, 7: Bratošovac, 8: gradina Kopacine, 9: Vela gomila, 10: Mažurona, 11: Podstrožje, 12: Terjun, 13: Lorca, 14: Markinovo bardo, 15: Sveti Andrija, 16: gomile na Krušovici, 17: gradina Gracišće)

MAP 1 Map of the island of Vis with marked hillforts and cairns. Made by: I. Čavid. (1: Grodac hillfort, 2: Sveti Duh hillfort, 3: Sveti Vid hillfort, 4: Issa, 5: Prilovo, 6: Štracine, 7: Bratošovac, 8: Kopacine hillfort, 9: Vela Gomila, 10: Mažurona, 11: Podstrožje, 12: Terjun, 13: Lorca, 14: Markinovo Bardo, 15: Sveti Andrija, 16: cairns at Krušovice, 17: Gracišće hillfort)

sku sferu utjecaja. Prije i neposredno nakon osnutka grčkog polisa na otoku su egzistirala i urođenička gradinska naselja. Nalazila su se na strateškim položajima s kojih su urođenici mogli nadzirati plovidbene putove i obližnja plodna polja.¹⁸ Na Visu je do sad zabilježeno pet takvih, uz uzgredni spomen dvaju lokaliteta definiranih kao potencijalne gradine.¹⁹ Najistaknutiji primjer urođeničkih gradina jest lokalitet Kopacine na Taležu kod Podšpilja na južnoj strani otoka Visa.²⁰ Među ostale gradinske lokalitete ubrajaju se i pozicije Sveti Duh, Sveti Vid, Grodac (Gradac) i Štracine (karta 1).²¹

cusans founded a settlement on Vis and named it *Issa* (Ps. Scym. 412–414). This polis left a profound civilisational imprint during antiquity, initially within the Greek, and subsequently within the Roman sphere of influence. Before and immediately after the establishment of the Greek *polis*, indigenous hillfort settlements also existed on the island. They were situated in strategic positions from which the indigenous population could control maritime routes and the nearby fertile plains.¹⁸ So far, five such sites have been recorded on Vis, with a further two mentioned in passing as potential hillforts.¹⁹ The most prominent example of the indigenous hillforts is the site of Kopacine on Talež near Podšpilje, on the island's southern side.²⁰ Other hillfort sites include Sveti Duh, Sveti Vid, Grodac (Gradac) and Štracine (Map 1).²¹

¹⁸ Usp. LOŽNJAK DIZDAR, POTREBICA 2017: 113.

¹⁹ ČARGO 2021b: 25.

²⁰ KIRIGIN *et al.* 2006: 50 sa starijom bibliografijom; ČARGO 2021b: 25.

²¹ ČARGO 2021b: 25–26.

¹⁸ Cf. LOŽNJAK DIZDAR, POTREBICA 2017: 113.

¹⁹ ČARGO 2021b: 25.

²⁰ KIRIGIN *et al.* 2006: 50 with the earlier bibliography; ČARGO 2021b: 25.

²¹ ČARGO 2021b: 25–26.

CILJEVI I METODOLOGIJA

Projekt „*Na ilirski nasrnu brod*”: *Rekognosciranje prapovijesnog krajolika na južnim padinama otoka Visa* proveden je 2022. Njegov je cilj bio terenski pregled te mapiranje prapovijesnih struktura i komunikacijskih točaka na Visu. Projekt *ΠΛΕΙΝ ΑΝΑΓΚΗ: Terenski pregled prapovijesnog krajolika gradinskih lokaliteta Grodac i Štracine na otoku Visu* proveden je 2024. s naumom utvrđivanja arheološkog stanja, pobližeg datiranja te reambulacije starih tlocrta odabranih pozicija.

Ustaljena metodologija sustavnoga terenskog pregleda nije primjenjiva na većini dalmatinskih lokaliteta, pa tako ni na otoku Visu. Zbog nestanka poljoprivrede, ali i depopulacije, većina nekad poljoprivrednih površina danas je gotovo potpuno neprohodna, što znatno otežava terenski pregled. Metodologija terenskog pregleda prilagođavala se prirodnim uvjetima, dakle u skladu s geomorfološkom situacijom i prohodnošću.

Pri terenskom pregledu uglavnom je kombinirana pješačka tehnika uz aeroarheološke metode, tj. snimanje iz zraka s pomoću drona. Također su usporedno pregledane satelitske snimke te stare karte.²² Pješačilo se uglavnom po suhozidima, gomilama i rijetkim čistinama. Većim koncentracijama materijala uzimane su GPS točke, a prikupljan je samo dijagnostički materijal te nekoliko specifičnih uzoraka koji predstavljaju tip nalaza na pojedinom lokalitetu. Površine koje nisu mogle biti pregledane sa zemlje snimane su dronom. Sama pješačka tehnika terenskog pregleda ne može dati stvaran odraz stanja na lokalitetu, no uz prikupljeni

AIMS AND METHODOLOGY

The project “*Na ilirski nasrnu brod*”: *Reconnaissance of the prehistoric landscape on the southern slopes of the island of Vis* was carried out in 2022. Its aim was a field survey and the mapping of prehistoric structures and points of communication on the island. *ΠΛΕΙΝ ΑΝΑΓΚΗ: Field survey of the prehistoric landscape of the hillfort sites of Grodac and Štracine on the island of Vis* was conducted in 2024 with the intention of establishing the archaeological condition, refining the dating, and reambulating the old plans of selected sites.

The standard methodology of systematic field survey is not applicable to most Dalmatian sites, including those on Vis. Due to the abandonment of agriculture, as well as depopulation, most formerly cultivated areas are today almost completely impassable, which makes field surveying considerably more difficult. The survey methodology was adapted to natural conditions, that is, in accordance with the geomorphological situation and accessibility.

During the field survey, pedestrian techniques were generally combined with aerial-archaeological methods, i.e. drone photography. Satellite images and old maps were also examined in parallel.²² Walking mainly took place along dry-stone walls, on cairns and in the few open clearings. Where larger concentrations of material were observed, GPS points were taken, and only diagnostic material was collected, together with a few specific samples representative of the type of finds at individual sites. Areas that could not be surveyed from the ground were recorded with a drone. The pedestrian survey technique cannot alone provide a true reflection of the state of a site; however, combined in this case

²² Korištene su karte druge (*Dalmatia (1851–1854) – Second military survey of the Habsburg Empire*) i treće vojne izmjere (*Habsburg Empire (1869–1887) – The Third Military Survey*) i karte habsburškog katastra (*Habsburg Empire – Cadastral maps (XIXth century)*). Kartama je pristupljeno preko <https://maps.arcanum.com/en/>. Konzultirane su i satelitske snimke Državne geodetske uprave, kojima je pristupljeno preko <https://geoportal.dgu.hr/>.

²² The maps used were those of the Second and the Third Military Survey of the Habsburg Empire (Dalmatia 1851–1854, 1869–1887, respectively), and the Habsburg Empire Cadastral maps (19th century). The maps were accessed via <https://maps.arcanum.com/en/>. Satellite images of the State Geodetic Administration were also consulted, accessed via <https://geoportal.dgu.hr/>.

materijal, zračne i satelitske snimke te stare karte otvorila se mogućnost donošenja konkretnijih zaključaka.

GRADAC (GRODAC)

Na sjevernoj strani otoka Visa nalazi se poluotok s kotom od oko 100 m na kojem je smješten lokalitet Gradac (na viškom dijalektu Grodac). Njegovo se ime može dovesti u lingvističku vezu s terminom gradina.²³ Položaj upravlja omanjom uvalom koja se naziva Grodac ili Grodačka vala, a nalazi se jugozapadno od poluotoka i nudi dobru zaštitu od bure i juga, a izložena je samo maestralu.²⁴ Šljunčana je plaža povoljna za izvlačenje brodova na obalu. Na sjevernoj strani uvale postojao je izvor pitke vode koji se za vrijeme većih oseka mogao vidjeti početkom 80-ih godina 20. stoljeća.²⁵ Zbog niže razine mora bio je funkcionalan tijekom željeznog doba.²⁶ Sa zaravni na vrhu brda pruža se pogled prema dominantnim pomorskim orijentirima srednje Dalmacije: Jabuci, rtu Ploča, Šolti, Hvaru te Split-skim vratima.²⁷

Poluotok je brežuljak s vrlo strmim nagibom na sjeveru, sjeverozapadu, jugu i jugoistoku. Tri najjednostavnija puta do vrha gradine protežu se izravno s istoka, preko udoline koja se nadovezuje na uvalu ili preko hridi uz more na zapadnim padinama brežuljka. S obzirom na to da su prva dva puta kao i velik dio površine gradinskog uzvišenja danas potpuno neprohodni zbog guste makije, terenskom se pregledu pristupilo sa zapada. Pregled ostalog prostora izvršen je praćenjem

with the collected material, aerial and satellite images and old maps, it opened the possibility of drawing more concrete conclusions.

GRADAC (GRODAC)

On the northern side of the island of Vis lies a peninsula with an elevation of about 100 m, where the site of Gradac (in the Vis dialect Grodac) is situated. Its name can be linked linguistically to the term *gradina* (hillfort, enclosure).²³ The position overlooks a small bay called Grodac or Grodačka Vala, lying to the south-west of the peninsula, which provides good shelter from the Bora and Jugo winds, being exposed only to the Maestral.²⁴ The pebble beach is suitable for hauling boats ashore. On the northern side of the bay there was once a freshwater spring, visible at low tide in the early 1980s.²⁵ It was functional during the Iron Age, due to the then lower sea level.²⁶ From the plateau on the hilltop, the main maritime landmarks of central Dalmatia are visible: Jabuka, Cape Ploča, Šolta, Hvar and the Split Channel (Splitska Vrata).²⁷

The peninsula is a hill with very steep slopes to the north, north-west, south and south-east. The three simplest paths to the top of the hillfort lead directly from the east, via the valley that runs down to the bay, or via the rocks along the sea on the western slopes of the hill. Since the first two, as well as much of the hillfort elevation, are today completely impassable due to dense maquis, the field survey approached the site from the west. The rest of the area was examined by following clearings on the slopes and the plateau at the summit. As Grodac has

²³ BUŠKARIOL 1982: 29.

²⁴ *Ibid.*: 30.

²⁵ *Ibid.*: 31.

²⁶ KATIĆ 2009: 48.

²⁷ Usp. KIRIGIN *et al.* 2006: 41. Frane BUŠKARIOL (1982: 31) tvrdi da se tijekom lijepog vremena može vidjeti pučina od Kornata do Biokova, a naglašava i otočnu vizualnu komunikaciju s istaknutim viškim uvalama Zvirin dolac, Oključna, Slatina i Tiha, gradinom Sveti Duh te uzvišenjima Bunikovac, Lovac i Bardarovica.

²³ BUŠKARIOL 1982: 29.

²⁴ *Ibid.*: 30.

²⁵ *Ibid.*: 31.

²⁶ KATIĆ 2009: 48.

²⁷ Cf. KIRIGIN *et al.* 2006: 41. Frane BUŠKARIOL (1982: 31) stated that in fine weather the open sea from the Kornati archipelago to Biokovo can be seen, and he also emphasised the island's visual communication with the prominent Vis bays of Zvirin Dolac, Oključna, Slatina and Tiha, the hillfort of Sveti Duh, and the elevations of Bunikovac, Lovac and Bardarovica.

čistina na padinama i vrhu zaravni. Budući da je Grodac u literaturi višekratno spomenut kao gradina,²⁸ cilj terenskog pregleda bio je reambulacija starih tlocrta koji se znatno razlikuju, utvrđivanje stanja na terenu, kao i detekcija arheološkog materijala na površini u svrhu pobližega kronološkog određenja lokaliteta.

Arhitektura

Frane Buškariol ubrojio je Grodac u gradine s diskontinuitetom, jer se fortifikacije na više mjesta nadovezuju na nepristupačne strmine.²⁹ Tragove zidina i bokobrana na istoku, zapadu i sjeverozapadu gradine opisao je i Miro Katić, istaknuvši prosječne dimenzije grubo obrađenih blokova ($0,6 \times 0,8 \times 0,4$ m) (sl. 1). Najveći zid utvrdio je na sjeverozapadnoj padini, gdje je očuvan u duljini od tridesetak metara.³⁰ Tijekom rekognosciranja 2024. zapažen je zid od velikih kamenih blokova uz morski dio sa zapadne strane, označen kao broj 4 (sl. 3). Kamenje od kojeg je načinjen veće je od drugog primijećenog te korespondira sa završetkom klisura prema moru na južnoj strani gradine. Uz dozu opreza ova bi se formacija mogla tumačiti kao ostatak obrambenog zida s prirodno nezaštićene morske strane (sl. 2). Nekoć ucertani bedem na jugozapadnoj strani nije uočen³¹ niti ima tragova njegova urušenja. Teren se ondje oštro spušta prema moru.

Na gradinskoj zaravni također ima ostataka arhitekture. Sačuvana je u nekoliko redova naslaganog kamena bez upotrebe vezivnog materijala. Arhitektura označena brojem 2 (sl. 3) ima dva očuvana zida koji se spajaju u pravom kutu, dok ostaci označeni brojem

repeatedly been mentioned in the literature as a hillfort,²⁸ the aim of the field survey was the reambulation of earlier plans (which differ considerably), an assessment of current ground conditions, and the detection of surface archaeological material for the purpose of a more precise chronological determination of the site.

Architecture

Frane Buškariol classified Grodac as a discontinuous hillfort, since the fortifications in several places adjoin impassable slopes.²⁹ Traces of walls and ramparts on the east, west and north-west sides of the hillfort were also described by Miro Katić, who noted the average dimensions of the roughly worked blocks ($0.6 \times 0.8 \times 0.4$ m) (Fig. 1). The largest wall he recorded was on the north-western slope, where a length of about thirty metres was preserved.³⁰ During the 2024 prospecting, a wall of large stone blocks was observed by the sea on the western side, marked as number 4 (Fig. 3). The stones from which it was built are larger than those noted elsewhere and correspond to the point where the cliffs descend towards the sea on the southern side of the hillfort. This formation could tentatively be interpreted as the remains of a defensive wall on the naturally unprotected seaward side (Fig. 2). A rampart once mapped on the south-western side was not observed,³¹ nor were there traces of its collapse. In that area the terrain drops steeply towards the sea.

On the hillfort plateau there are also architectural remains. These are preserved in several courses of stacked stone laid without binding material. The structure marked as number 2 (Fig. 3) has two preserved walls meeting at a right angle, while the remains marked as num-

²⁸ BURTON 1879: 167; BUŠKARIOL 1982: 29–31, T. II; FORENBAHER *et al.* 1994: 32–35; KIRIGIN 1999: 415; KIRIGIN *et al.* 2006: 41; KATIĆ 2009: 48; ČARGO 2021b: 25. BUŠKARIOL (1982: 29) ističe da je prvi temeljito ispitao ovaj lokalitet.

²⁹ BUŠKARIOL 1982: 30.

³⁰ KATIĆ 2009: 49–50.

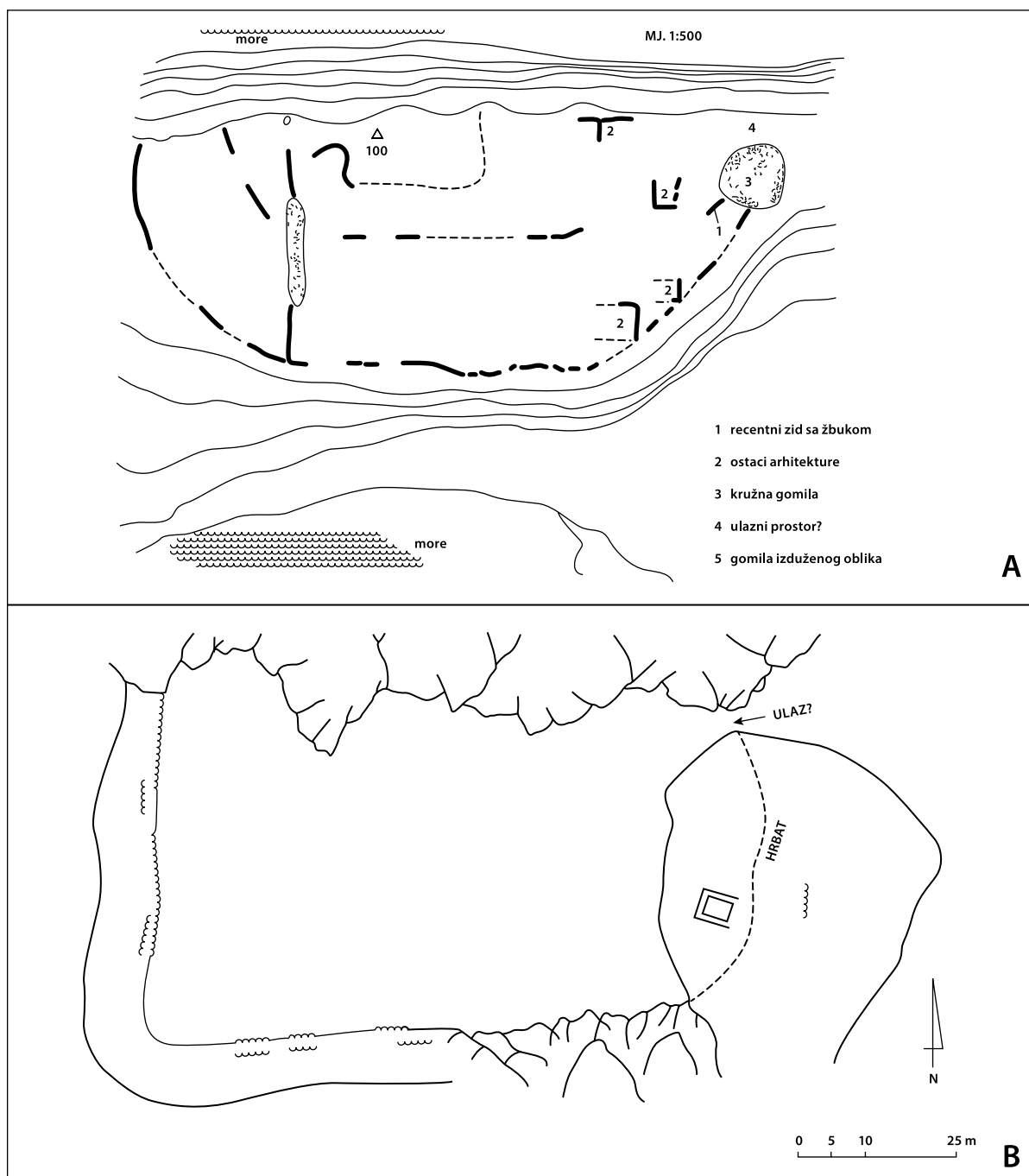
³¹ Usp. BUŠKARIOL 1982: 31, T. II.

²⁸ BURTON 1879: 167; BUŠKARIOL 1982: 29–31, T. II; FORENBAHER *et al.* 1994: 32–35; KIRIGIN 1999: 415; KIRIGIN *et al.* 2006: 41; KATIĆ 2009: 48; ČARGO 2021b: 25. BUŠKARIOL (1982: 29) emphasised that he was the first to examine this site thoroughly.

²⁹ BUŠKARIOL 1982: 30.

³⁰ KATIĆ 2009: 49–50.

³¹ Cf. BUŠKARIOL 1982: 31, T. II.



SLIKA 1. Stariji tlocrti Grodca prema A) BUŠKARIOL 1982: T. II i B) KIRIGIN *et al.* 2006: 41

FIGURE 1 Older ground plans of Grodac according to A) BUŠKARIOL 1982: Pl. II and B) KIRIGIN *et al.* 2006: 41

3 (sl. 3) imaju samo jedan zid čija je okolina prekrivena kamenim urušenjem i makijom. Da bismo ostatke na ovom lokalitetu mogli odrediti isključivo kao prapovijesne pomažu nam keramički nalazi, ali i činjenica da prostor nije korišten u vinogradarske svrhe niti je u međuvremenu terasiran. Ovdje nema tragova pristava, za razliku od gradine Sveti Vid u Dracevom Polju. Grodac je korišten is-

ber 3 (Fig. 3) consist of only one wall, the surrounding area being covered with collapsed stone and maquis. That these remains can be identified exclusively as prehistoric is supported by the pottery finds, as well as the fact that, not having been used for viticulture, the area has not been terraced in the meantime. There are no traces of outbuildings here, unlike at the hillfort of Sveti Vid in Dracevo Polje. Grodac



SLIKA 2. Potencijalni ostaci zidina uz more (broj 4 / sl. 3) (snimila: P. Grizelj)

FIGURE 2 Potential remains of fortification walls by the sea (No. 4 / Fig. 3) (photo by P. Grizelj)

ključivo kao pašnjak i iskorištavan kao šumski resurs, o čemu svjedoči i prva habsburška katastarska mapa.³² Za Drugog svjetskog rata uvala je bila minirana i ograđena, no gradinsko područje ostalo je netaknuto.³³

Na istočnoj strani gradinske zaravni uočeno je pružanje rasutog bedema u smjeru sjever – jug (linija pružanja označena je crnom bojom na slici 3). Krajnja južna točka proteže se do litica koje zatim tvore prirodnu zaštitu uzduž južnog dijela gradine. Na sjevernom rubu bedem završava paralelnim zidom podno kojeg je uski plato širine 3 m. Budući da je zaravan sa sjeverne strane okružena liticama, ovdje je mogao biti glavni ulaz (sl. 4).³⁴ Nema sumnje

was used solely as pastureland and exploited as a woodland resource, as attested by the first Habsburg Cadastral Map.³² During the Second World War the bay was mined and fenced, but the hillfort area itself remained untouched.³³

On the eastern side of the hillfort plateau a stretch of a dispersed rampart running north–south was observed (its course is marked in black in Fig. 3). The southern end extends to the cliffs, which then provide natural protection along the southern part of the hillfort. At the northern edge the rampart terminates in a parallel wall, below which lies a narrow terrace 3 m wide. Since the plateau is surrounded by cliffs on the northern side, the main entrance may have been located here (Fig. 4).³⁴ There is no doubt that the ram-

³² <https://maps.arcanum.com/en/map/cadastral/?layers=3%2C4&bbox=1786123.4083712243%2C5316313.978152645%2C1815150.36986252%2C5326881.3973130705> (pristupljeno 13. siječnja 2024.).

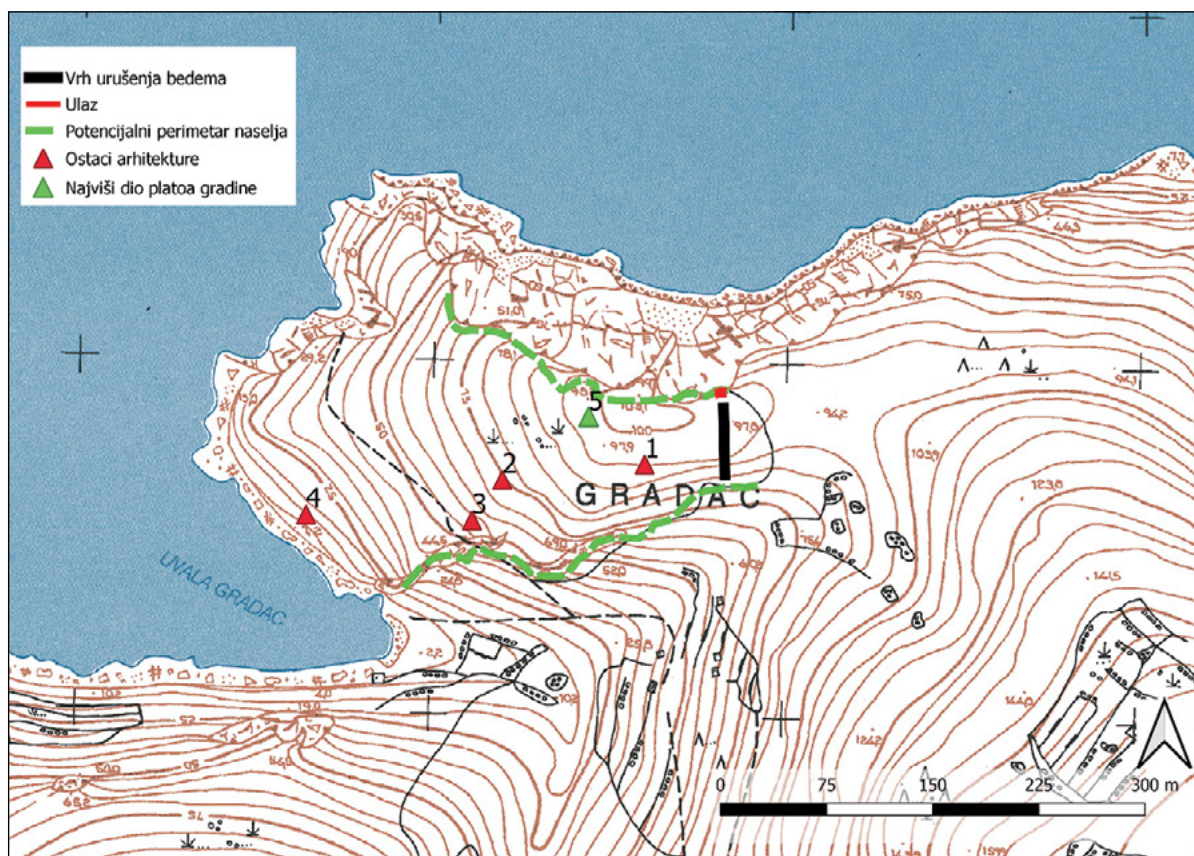
³³ Usmena informacija pok. Vicko Zorotović (1934. – 2025.).

³⁴ Usp. crtež u KIRIGIN *et al.* 2006: 41. Nije detektirana kružna gomila koju je ucrtao i opisao BUŠKARIOL (1982: 31, T. II.). K tome je autor predložio da možda nije riječ o gomili, već o nasipu koji je markirao ulaz u gradinu.

³² <https://maps.arcanum.com/en/map/cadastral/?layers=3%2C4&bbox=1786123.4083712243%2C5316313.978152645%2C1815150.36986252%2C5326881.3973130705>, accessed 13.01.2024.

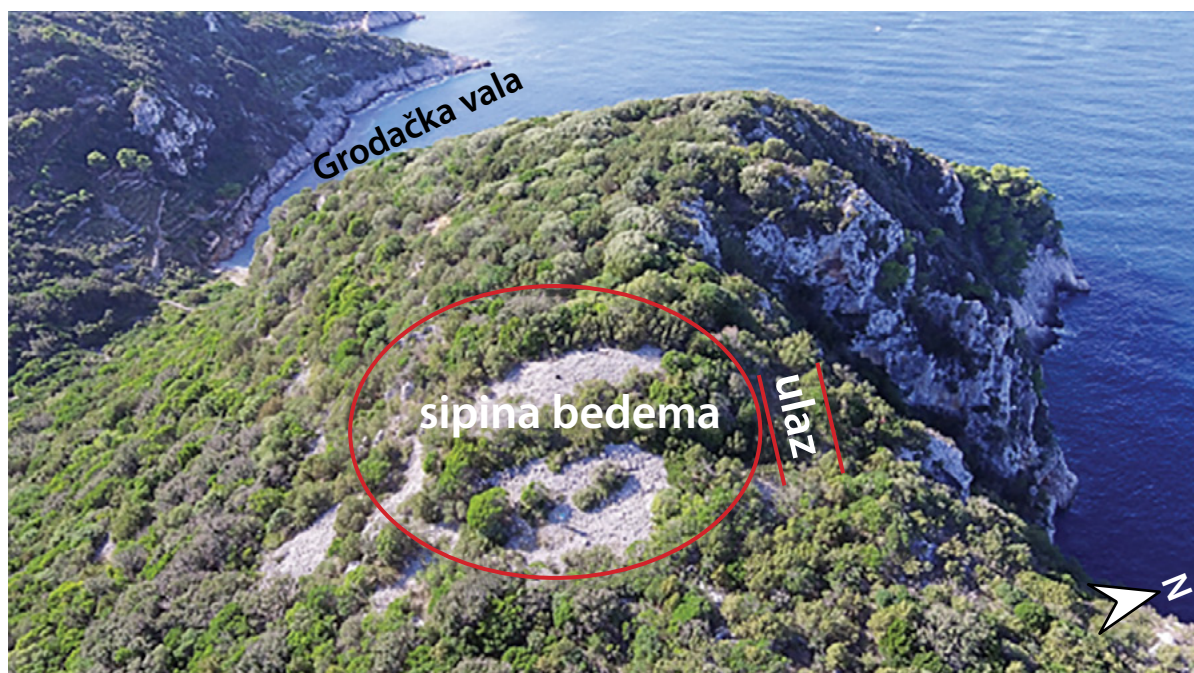
³³ Oral information from the late Vicko Zorotović (1934–2025).

³⁴ Cf. drawing in KIRIGIN *et al.* 2006: 41. The circular cairn mapped and described by BUŠKARIOL (1982: 31, Pl.



SLIKA 3. Grođac, položaj točaka u prostoru (izvor: QGIS, obrada: I. Čevic)

FIGURE 3 Grođac, distribution of survey points (source: QGIS, processing by I. Čevic)



SLIKA 4. Grođac iz zraka s istaknutom arhitekturom (snimio: F. Budić, obrada: I. Čevic)

FIGURE 4 Grođac from the air with highlighted architecture (photo by F. Budić, processing by I. Čevic)

da je bedem na istočnoj strani bio najvažnija obrambena potreba gradine, jer je to jedini nezaštićeni dio poluotoka koji je omogućavao pristup s kopnene strane. Zbog zaraštenosti, ostaci bedema danas iz zraka nalikuju trima linijama razasutog kamenja.

Keramika

U Buškariolovu istraživanju keramički nalazi s Grodca navedeni su kao atipični, a ulomci su pohranjeni u Arheološkom muzeju u Splitu.³⁵ U kasnijim radovima materijal je uzgredno spomenut i opisan kao prapovijesni, helenistički i rimski, ali bez preciznijega tipološkog određenja.³⁶ Miro Katić najviše je lončarije primijetio na jugozapadnom dijelu gradine, koji je definirao kao podgrađe. Ondje dominira prapovijesna keramika s obilatom anorganskim primjesama, posebice kalцитom i grogom, dok se od ukrasa ističe traka s ubodima koja se može usporediti s primjercima prikupljenima na Taležu i u gradu Hvaru. Osim toga, Miro Katić izdvojio je i grčku keramiku – finije crno premazano posuđe, dna pitosa, ručke amfora i svakodnevno posuđe.³⁷ Terenskim pregledom 2024. najveća je količina keramike zbog erozije terena također prepoznata na zapadnim i jugozapadnim obroncima. Prapovijesna je keramika pronađena u sitnim fragmentima te je zbog utjecaja prirodnih procesa vrlo abradirana. Za brojne ulomke nije bilo moguće utvrditi tipologiju, cjelovitu rekonstrukciju oblika ni precizniju kronologiju. Većina keramike koja se mogla rekonstruirati pripada svakodnevnoj kuhinjskoj lončariji, uglavnom loncima. Grube je fature, puna primjesa koje su vidljive golim okom, a boja je fragmenata neujednačena. Prevladavaju crvene, narančaste i smeđe nijanse, što upućuje na neujednačeno pečenje.³⁸

part on the eastern side was the most important defensive element of the hillfort, as this is the only unprotected part of the peninsula, allowing access from the landward side. Due to overgrowth, the remains of the rampart today appear from the air as three lines of scattered stones.

Pottery

In Buškariol's study, the pottery finds from Grodac were described as atypical; the sherds are housed in the Archaeological Museum in Split.³⁵ In later works the material was mentioned in passing and described as prehistoric, Hellenistic and Roman, but without more precise typological definition.³⁶ Miro Katić noted the greatest quantity of pottery on the south-western part of the hillfort, which he defined as the *suburbium*. There, prehistoric pottery predominates, with abundant organic temper, especially calcite and grog, while decoration is represented above all by a band with impressions, comparable to specimens collected at Talež and in the town of Hvar. In addition, Miro Katić identified Greek pottery – finer black-glazed ware, pithos bases, amphora handles and everyday vessels.³⁷ During the 2024 field survey, the largest quantity of pottery, likewise due to erosion, was again recorded on the western and south-western slopes. The prehistoric pottery was found in small fragments and, due to natural processes, is very abraded. For numerous sherds it was not possible to establish typology, reconstruct complete forms or determine a more precise chronology. Most of the pottery that could be reconstructed belongs to everyday kitchenware, mainly cooking pots. It is coarse in fabric, with abundant inclusions visible to the naked eye, and the colour of the fragments is

³⁵ BUŠKARIOL 1982: 30–31.

³⁶ KIRIGIN *et al.* 2006: 41; ČARGO 2021: 25.

³⁷ KATIĆ 2009: 50.

³⁸ ŠEŠELJ, VUKOVIĆ 2013: 339; ČONDIĆ, VUKOVIĆ 2017: 51.

II) was not detected. Moreover, the author suggested that it may not in fact have been a cairn, but rather an embankment marking the entrance to the hillfort.

³⁵ BUŠKARIOL 1982: 30–31.

³⁶ KIRIGIN *et al.* 2006: 41; ČARGO 2021: 25.

³⁷ KATIĆ 2009: 50.

Ulomke je na temelju tekture i primjesa moguće smjestiti u vrijeme od sredine brončanog do konca željeznog doba.³⁹ Blago izvučeni zaobljeni obod koji je zadebljan pri prijelazu na vrat (T. I/1) pripada loncu zatvorenijeg tipa čije su analogije pronađene na Ratu⁴⁰ i datirane u kasno brončano ili starije željezno doba. Sličan primjerak koji potječe s gradine Kuran na otoku Ugljanu Batović svrstava u željeznodobnu liburnsku keramiku.⁴¹ Drugi je obod blago izvučen i zaravnjen (T. I/2) te pripada loncu. Sličan je primjerak pronađen na Štracinama (T. II/1), u znatno boljem stanju, ali je ukrašen. Podudarne željeznodobne analogije poznate su iz Škripa na Braču,⁴² Vaganačke pećine⁴³ te gradine Sutilijske, no posljednji je datiran u brončano doba.⁴⁴

Ističe se i ručka srčolikog ili kružnog presjeka (T. I/4) s uzdužnim udubljenjem po sredini vanjske strane. Ovaj je tip ručke karakterističan za starije željezno doba,⁴⁵ a analogni su primjeri pronađeni na Beretinoj glavici kod Radovina⁴⁶ i Bribiru.⁴⁷ Pronađeno je nekoliko ulomaka jezičastih drški (T. I/3), no treba istaknuti jedan primjerak koji se izdvaja veličinom. Zbog dimenzija najvjerojatnije je pripadao velikoj posudi za skladištenje.

Među prikupljenim materijalom ističe se i antički, pri čemu nekoliko ulomaka crnopr-mazane helenističke keramike (T. III/3–5), kao i dio oboda pitosa čija bi izrada mogla pripadati grčkoj produkciji Ise (T. III/6).⁴⁸ Ulomak amfore sa žljebovima (T. III/7), jedan potencijalni poklopac (T. III/8) te ulomci oboda, ručica i dna posuda mogu se

uneven. Red, orange and brown shades predominate, indicating irregular firing.³⁸ On the basis of texture and inclusions, the sherds can be dated to between the Middle Bronze Age and the end of the Iron Age.³⁹ A slightly everted rounded rim, thickened at the transition to the neck (Pl. I/1), belongs to a more closed pot type, with analogies found at Rat⁴⁰ and dated to the Late Bronze or Early Iron Age. A similar specimen comes from the hillfort of Kuran on the island of Ugljan, which Batović classified as Liburnian Iron Age pottery.⁴¹ Another rim is slightly everted and flattened (Pl. I/2) and belongs to a pot. A similar specimen, but decorated, was found at Štracine (Pl. II/1), in much better condition. Comparable Iron Age analogies are known from Škrip on Brač,⁴² Vaganačka Pećina⁴³ and the hillfort of Sutilijska, although the latter is dated to the Bronze Age.⁴⁴

Also noteworthy is a handle of heart-shaped or circular cross-section (Pl. I/4) with a longitudinal groove down the centre of the outer side. This type of handle is characteristic of the Early Iron Age,⁴⁵ with analogous examples found at Beretina Glavica near Radovin⁴⁶ and at Bribir.⁴⁷ Several fragments of tongue-shaped handles (Pl. I/3) were found, but one specimen stands out because of its size. Given its dimensions, it most likely belonged to a large storage vessel.

Among the collected material, ancient finds are prominent, including several sherds of Hellenistic black-glazed pottery (Pl. III/3–5), as well as part of a pithos rim that may have been produced in Greek Issa (Pl. III/6).⁴⁸ An amphora fragment with grooves (Pl. III/7), a possible lid (Pl. III/8),

³⁹ Zaključak utemeljen na uvidu u materijal koji je učinila Asja Tonc.

⁴⁰ BARBARIĆ 2011: T. XI/79.

⁴¹ BATOVIĆ 1973: T. XCV/2.

⁴² FABER, NIKOLANCI 1985: T. I/11.

⁴³ FORENBAHER, VRANJICAN 1985: T. XI/8.

⁴⁴ PARAMAN, UGARKOVIĆ 2021: T. II/32.

⁴⁵ VUKOVIĆ 2014: T. III/1.

⁴⁶ *Ibid.*

⁴⁷ BATOVIĆ 1973: T. LXXVII/2.

⁴⁸ Zahvaljujemo Borisu Čargo, koji je ukazao na usporedne primjerke.

³⁸ ŠEŠELJ, VUKOVIĆ 2013: 339; ČONDIĆ, VUKOVIĆ 2017: 51.

³⁹ Conclusion based on the examination of the material carried out by Asja Tonc.

⁴⁰ BARBARIĆ 2011: Pl. XI/79.

⁴¹ BATOVIĆ 1973: Pl. XCV/2.

⁴² FABER, NIKOLANCI 1985: Pl. I/11.

⁴³ FORENBAHER, VRANJICAN 1985: Pl. XI/8.

⁴⁴ PARAMAN, UGARKOVIĆ 2021: Pl. II/32.

⁴⁵ VUKOVIĆ 2014: Pl. III/1.

⁴⁶ *Ibid.*

⁴⁷ BATOVIĆ 1973: Pl. LXXVII/2.

⁴⁸ We are grateful to Boris Čargo for pointing out comparable examples.

s rezervom smjestiti u rimski period. Osim keramike, pronađena su dva metalna komada (brončani i željezni), ali njihovu dataciju nije moguće precizirati. Ostaci sličnoga pokretnog materijala primijećeni su i na najvišem dijelu zaravni koji gravitira istočnom dijelu gradine označenom brojem 5 (sl. 3). Bitno je istaknuti i ulomak slikane keramike na kojem se vide tri paralelne tamne linije (T. III/9), a mogao bi biti dio daunijske posude.⁴⁹ Na južnim obroncima prikupljeni su ulomci crnopremazane i maleni ulomak crvenofiguralne keramike (T. III/4). Na najvišem dijelu zaravni dominira lončarija lokalne predrimske izrade, koja vjerojatno pripada mlađem željeznom dobu.⁵⁰ Pronađen je i komad kalcita čije su primjese evidentne u keramici željeznodobnog Visa.

ŠTRACINE

Štracine, Stracine ili Stračine naziv je poluotoka i rta na sjeveroistočnom dijelu otoka Visa (karta 1; sl. 5). Nalazi se između uvala Dobre luke na zapadu i Vele Cavojnice na istoku. Kad se na poluotok dolazi s mora, pristupačna je jedino njegova južna i jugoistočna strana, jer na sjevernom, sjeverozapadnom i zapadnom dijelu dominiraju strme klisure koje tvore prirodnu zaštitu. Kopneni pristup s jugozapada, tj. staza iz Dobre luke i Vele Cavojnice danas je potpuno obrasla. Frane Buškariol terenskim je pregledom 80-ih godina prošlog stoljeća potvrdio ljudsku prisutnost na Štracinama, primijetivši pokretnu i nepokretnu arheološku baštinu.⁵¹ Kotu 111 definirao je kao gradinu, a njegov se zaključak kasnije učestalo reproducirao u literaturi.⁵² Bila je to

and fragments of rims, small handles, and vessel bases can, with caution, be assigned to the Roman period. In addition to pottery, two metal objects (bronze and iron) were found, though their dating cannot be determined precisely. Remains of similar portable material were also noted at the highest part of the plateau, corresponding to the eastern section of the hillfort marked as number 5 (Fig. 3). Of particular importance is a painted sherd with three parallel dark lines (Pl. III/9), which may have belonged to a Daunian vessel.⁴⁹ On the southern slopes, fragments of black-glazed pottery and a small fragment of red-figure pottery were collected (Pl. III/4). At the highest part of the plateau, locally produced pre-Roman pottery predominates, most likely belonging to the Late Iron Age.⁵⁰ A piece of calcite was also found, the temper of which is also evident in Iron-Age Vis pottery.

ŠTRACINE

Štracine, Stracine or Stračine is the name of a peninsula and cape on the north-eastern part of the island of Vis (Map 1; Fig. 5). It lies between the bays of Dobra Luka to the west and Vela Cavojnica to the east. From the sea, only the peninsula's southern and south-eastern sides are accessible, as the northern, north-western and western parts are dominated by steep cliffs that provide natural protection. Overland access from the south-west, that is, the path from Dobra Luka and Vela Cavojnica, is today completely overgrown. In his field survey in the 1980s, Frane Buškariol confirmed human presence at Štracine, noting both movable and immovable archaeological heritage.⁵¹ He defined elevation 111 as a hillfort, and his conclusion was subsequently frequently reproduced in the literature.⁵²

⁴⁹ Ulomak je zbog dimenzija teško tipološki odrediti. Zahvaljujemo Vedranu Barbariću i Asji Tonc, koji su dali tipološke smjernice.

⁵⁰ Zaključak utemeljen na uvidu u materijal koji su učinili Emil Podrug i Asja Tonc.

⁵¹ BUŠKARIOLO 1982: 32–33.

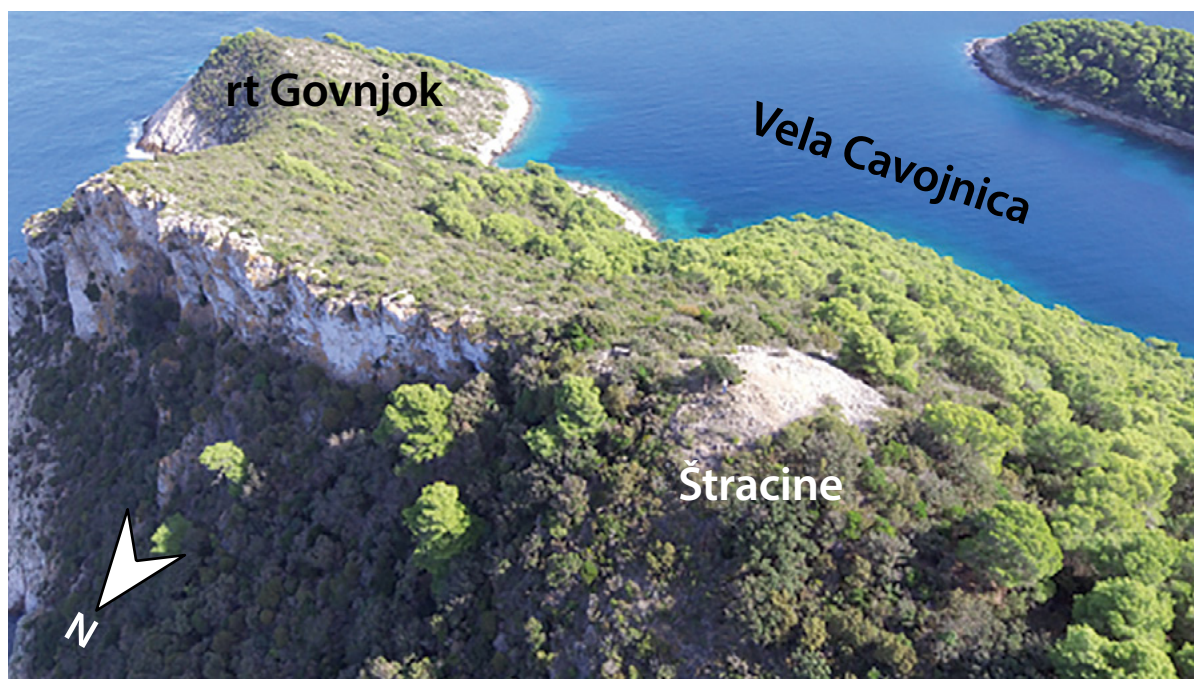
⁵² KIRIGIN *et al.* 2006: 55; ČARGO 2021: 25.

⁴⁹ Because of its size, the sherd is difficult to classify typologically. We thank Vedran Barbarić and Asja Tonc for providing typological guidance.

⁵⁰ Conclusion based on the examination of the material carried out by Emil Podrug and Asja Tonc.

⁵¹ BUŠKARIOLO 1982: 32–33.

⁵² KIRIGIN *et al.* 2006: 55; ČARGO 2021: 25.



SLIKA 5. Aerofotografija gomile na Štracinama (snimio: F. Budić, obradio: I. Čevd)

FIGURE 5 Aerial photograph of the tumulus at Štracine (photo by F. Budić, processing by I. Čevd)

polazišna točka za reambulaciju. Terenski je pregled 2024. obavljen s pomoću brodskog prijevoza, a zatim pješice preko stijena na jugoistočnom dijelu poluotoka kroz čistine prema koti 111.

Arhitektura

Frane Buškariol prvi je donio nacrt gradine prikazavši na jugozapadnom dijelu veliku gomilu iz koje se protežu dva paralelna reda zidina od poligonalnog kamenja u duljini od oko 150 m. Ulaz je smjestio između gomi- le i klisura na sjeverozapadu (sl. 6). Omeđen gradinski prostor skromne je veličine (160 × 65 m), a spominju se dvije razine s visinskom razlikom od oko 10 m. S obzirom na dimen- zije, uvrstio je Štracine u manje odnosno srednje velike gradine frontalnog tipa. Brojni arhitektonski i fortifikacijski elementi koje je Buškariol naveo rekonstruirani su vrlo aprok- simativno, a autor je kao razlog naveo snažnu eroziju.⁵³

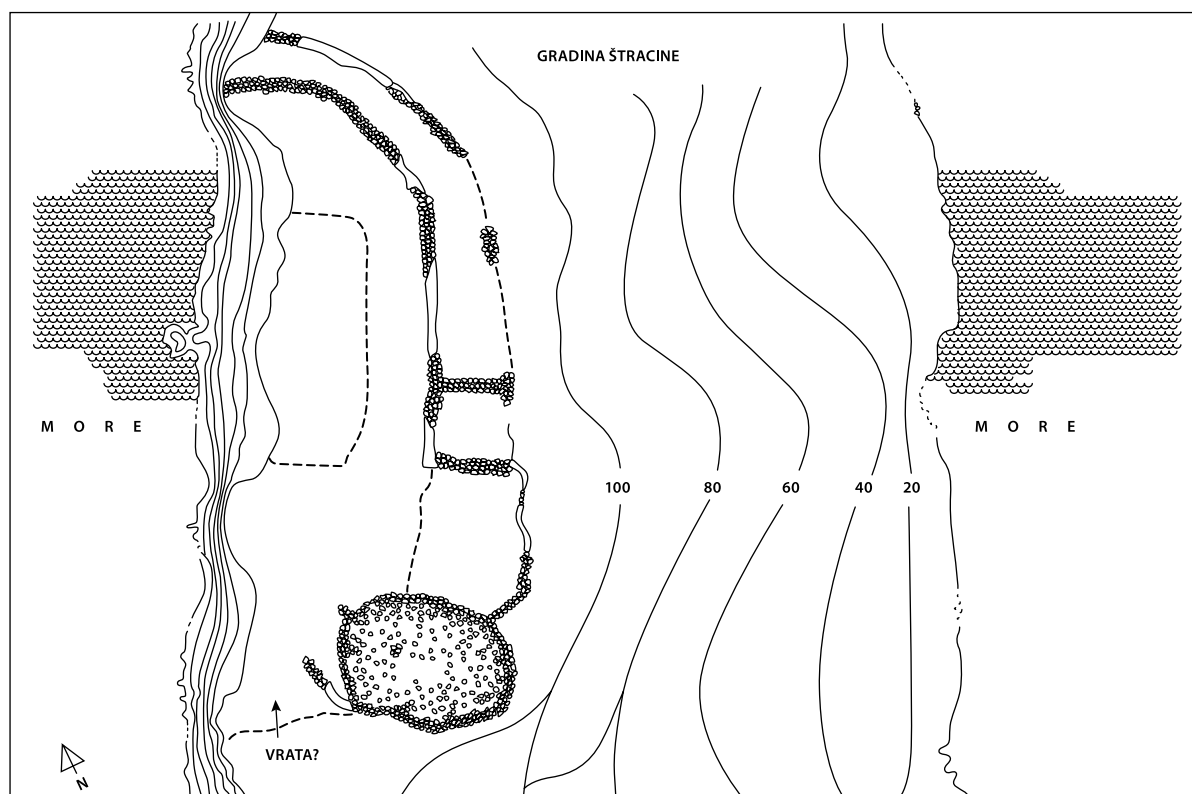
⁵³ BUŠKARIOL 1982: 32–33, T. VI.

This served as the starting point for the reambu- lation. The 2024 field survey was carried out first by boat transport, followed by a walk across the rocks on the south-eastern part of the peninsula, through clearings towards elevation 111.

Architecture

Frane Buškariol was the first to pro- duce a plan of the hillfort, depicting on the south-western side a large mound from which two parallel rows of walls of polygonal stone extend for about 150 metres. He judged the entrance to have been between the cairn and the cliffs to the north-west (Fig. 6). The en- closed hillfort area is modest in size (160 × 65 m), and two level areas with a height differ- ence of about 10 m are mentioned. Given its dimensions, he classified Štracine as a small to medium-sized hillfort of the frontal type. Numerous architectural and fortification ele- ments noted by Buškariol were reconstructed only rather approximately, the author citing heavy erosion as the reason.⁵³

⁵³ BUŠKARIOL 1982: 32–33, Pl. VI.



SLIKA 6. Crtež Štracina prema BUŠKARIOL 1982: T. / VI

FIGURE 6 Drawing of Štracine according to BUŠKARIOL 1982: Pl. VI.

Danas je cijeli poluotok prekriven gustom makijom pa je terenski pregled bio znatno otežan. Jedini prostor koji se mogao поближе promotriti bez čišćenja vegetacije bile su erodirane kote i teren oko gomile. Na gomili su primijećeni ostaci središnje grobne komore te oko nje četiri prstena kamenih blokova, jedan podno drugoga. Sjeverozapadni dio kamenog odrona gomile uzurpiralo je mitraljesko gnijezdo, vjerojatno podignuto tijekom Drugog svjetskog rata. Sjeveroistočno od gomile nalazi se i recentna pravokutna građevina načinjena suhozidnom tehnikom. Čisteći vegetaciju u smjeru sjeveroistoka, cilj je bio slijediti Buškariolov crtež i ovjeriti obrambenu arhitekturu na terenu, ali nisu uočeni fortifikacijski nizovi i monolitni blokovi koji bi, prema autoru, trebali formirati vanjsko lice bedema. Čini se pak da uočeno pripada prirodnim geološkim strukturama u kršu koje se pružaju u kontinuitetu od jugozapada prema sjeveroistoku, što je podudarno s općim protezanjem reljefa na

Today the entire peninsula is covered with dense maquis, which made the field survey considerably more difficult. The only areas that could be examined more closely without clearing vegetation were the eroded elevations and the terrain around the mound. At the mound, remains of a central burial chamber were observed, surrounded by four concentric rings of stone blocks, one beneath the other. The north-western part of the mound collapse was occupied by a machine-gun nest, probably constructed during the Second World War. North-east of this tumulus there is also a recent rectangular structure built using the dry-stone technique. In clearing vegetation to the north-east, the aim was to follow Buškariol's drawing and verify the defensive architecture in the field, but the fortification lines and monolithic blocks that, according to the author, should have formed the outer face of the rampart were not observed. It appears instead that what was mapped belongs to natural geological formations in the karst, which extend continuously

poluotoku. Zato nije bilo moguće ni pratiti oslanjanje pretpostavljenoga fortifikacijskog sustava na gomilu. Sve to, dakako, dovodi u pitanje definiranje kote 111 kao gradine, a razloga je još nekoliko.

Takozvani gradinski prostor toliko je malen, uzak i strm da bi teško pripadao tipu gradine na kojoj se trajno živjelo. Ovome u prilog ide i činjenica da je najbliže plodno polje, tj. Malo i Veliko Zlo poje, udaljeno od Štracina 1,5 km zračne udaljenosti. Usto, nema izvora pitke vode ni vidljivih ostataka kolektora za vodu.⁵⁴ Buškariol je naveo da šire područje Štracina nema ekonomsku privlačnost zbog teške pristupačnosti i izloženosti snažnim vjetrovima, istaknuvši da su se prije Drugog svjetskog rata ondje samo nabavljali drvo za ogrjev i ružmarin.⁵⁵ Također, prostor Štracina nikad nije terasiran u svrhu obrade zemljišta kao druga viška brda, već je osim za nabavu drva služio kao lokacija za ispašu stoke.⁵⁶ Dakle, kotom 111 na Štracinama zasigurno je dominirala velika gomila, no trajni boravišni prostor kako ga je nacrtao Buškariol nije logično očekivati. Možda bi se moglo razmišljati o povremenom motrištu, jer se s vrha poluotoka dobro vide ključne pomorske točke: ulaz u Višku luku, otočić Host, sjeverozapadni dio Visa, rt Ploča, Šolta, Hvar, Korčula s Kopilom, Lastovo i Splitska vrata.

Keramika

Zbog snažne erozije, na kotama poluotoka nije uočena prapovijesna keramika, ali jest na njegovim istočnim obroncima, podalje od gomile i uzvišenja. Nalikuje onoj s Grodca – obiluje primjesama kalcita, pljeve i groga, srednje je grube do grube fature s nekoliko priglačanih primjera. Ulomci su uglavnom nedijagnostički, uz iznimku ne-

in a south-west to north-east direction, corresponding to the general alignment of the relief on the peninsula. It was therefore not possible to trace any connection of the supposed fortification system with the mound. All this, of course, calls into question the identification of elevation 111 as a hillfort, for which there are several supplementary reasons.

The so-called hillfort area is so small, narrow and steep that it could hardly have belonged to the type of hillfort permanently inhabited. Supporting this is the fact that the nearest fertile field, Malo and Veliko Zlo Poje, lies 1.5 km away from Štracine as the crow flies. In addition, there is no spring supplying fresh water and there are no visible remains of water collectors.⁵⁴ Buškariol noted that the wider Štracine area had no economic appeal due to its difficult accessibility and exposure to strong winds, emphasising that before the Second World War the area was used only for the collection of firewood and rosemary.⁵⁵ Moreover, unlike other Vis hills, the Štracine area was never terraced for cultivation, but served (besides the collection of wood) only as pastureland.⁵⁶ Thus, elevation 111 at Štracine was undoubtedly dominated by a large mound, but a permanent habitation area of the kind drawn by Buškariol cannot logically be assumed. It may perhaps be considered as a temporary lookout, since from the top of the peninsula there is a clear view of key maritime points: the entrance to Vis Bay, the islet of Host, the north-western part of Vis, Cape Ploča, Šolta, Hvar, Korčula with Kopila, Lastovo and Splitska Vrata.

Pottery

Due to heavy erosion, no prehistoric pottery was observed on the elevations of the peninsula, but it was recorded on its eastern slopes, away from the mound and the elevation. It resembles that from Grodac – with abundant calcite tem-

⁵⁴ *Ibid.*: 33.

⁵⁵ *Ibid.*

⁵⁶ Usmeni podatak: Trifun Linčir, pok. Marko Poduje i Vicko Zorotović.

⁵⁴ *Ibid.*: 33.

⁵⁵ *Ibid.*

⁵⁶ Oral information provided by Trifun Linčir, the late Marko Poduje and Vicko Zorotović.

koliko primjera. Iako fragmenti tipološki pripadaju širem razdoblju, prema fakturi većina je vjerojatno iz mlađega željeznog doba.⁵⁷ Lončarija se uglavnom nalazila uz čisti-ne razbacanog kamenja.

Jedan ulomak lonca blago izvučenog i zaravnjenog oboda koji na prijelazu vrata u rame ima apliciranu traku s utiscima (T. II/1) pripada tipu koji se pojavljuje od brončanog pa do mlađeg željeznog doba na širem prostoru Jadrana, posebno Kvarnera. Tada je takav tip oboda bio čest dok je modelirana traka s ubodima tipična za brončano, ali i željezno doba.⁵⁸ Analogije postoje u Vaganačkoj pećini, gdje je pronađeni lonac datiran u kasno brončano i početak željeznog doba, no nema apliciranu traku, već samo modelirane plastične bradavice.⁵⁹ Slični primjeri pojavljuju se među liburnskom željeznodobnom lončarijom na Beretinovoj gradini kod Radovina⁶⁰ te na gradini Sutiliji,⁶¹ a povezuju se s brončanodobnom tradicijom. Isti se tip može pratiti i u slojevima mlađezeljeznodobnog Danila, gdje je pronađen ulomak s plastičnim rebrom na prijelazu.⁶²

Pronađena su i dva primjera lonaca zatvorenijeg tipa. Prvi je primjer obod zaobljenog tipa (T. II/2) koji se nastavlja na loptasto tijelo, a svoje analogije ima u liburnskim primjerima s Iža⁶³ i Paga.⁶⁴ Drugi je primjer zaobljeni obod koji je kratko izvučen okomito prema gore i horizontalno zaravnjen, a nastavlja se na loptasto ili zaobljeno tijelo (T. II/3). Analogije su pronađene na brončanodobnim lokalitetima poput Sutilije⁶⁵ te na brojnim željeznodobnim lokalitetima

per and grog chaff, of medium-coarse to coarse fabric, with a few burnished examples. Most of the sherds are non-diagnostic, with only a few exceptions. Although typologically the fragments belong to a broad chronological range, the fabric suggests that probably most date to the Late Iron Age.⁵⁷ The pottery was generally found along clearings of scattered stone.

One pot sherd with a slightly everted and flattened rim, bearing an applied band with impressions at the junction of the neck and shoulder (Pl. II/1), belongs to a type that appears from the Bronze Age to the Late Iron Age across the wider Adriatic, especially in Kvarner. At that time this rim type was common, while the modelled band with impressions is typical of both the Bronze and Iron Ages.⁵⁸ Analogies are found in Vaganačka Pećina, where a pot was dated to the Late Bronze and Early Iron Age; however, it does not have an applied band but only modelled plastic knobs.⁵⁹ Similar examples occur in Liburnian Iron Age pottery at Beretina Gradina near Radovin⁶⁰ and at the Sutilija hillfort,⁶¹ where they are associated with the Bronze Age tradition. The same type can also be traced in the Late Iron Age layers at Danilo, where a sherd with a plastic rib on the junction was found.⁶²

Two examples of more closed-type pots were also found. The first is a rim of rounded type (Pl. II/2) continuing into a globular body, with analogies in Liburnian examples from Iž⁶³ and Pag.⁶⁴ The second is a rounded rim, slightly everted vertically upwards and flattened horizontally, continuing into a globular or rounded body (Pl. II/3). Analogies have been recorded at Bronze Age sites such as Sutilija,⁶⁵

⁵⁷ Zaključak utemeljen na uvidu u materijal koji je učinila Asja Tonc.

⁵⁸ VUKOVIĆ 2014: 24.

⁵⁹ FORENBAHER, VRANJICAN 1985: T. XI/8.

⁶⁰ VUKOVIĆ 2014: T. IV/11.

⁶¹ PARAMAN, UGARKOVIĆ 2021: T. II/32.

⁶² KOROŠEC 1959: T. X/1.

⁶³ BATOVIĆ 1973: T. XCIV/1.

⁶⁴ *Ibid.*: 106–107, T. LXV/1.

⁶⁵ PARAMAN, UGARKOVIĆ 2021: T. I/13.

⁵⁷ Conclusion based on the examination of the material carried out by Asja Tonc.

⁵⁸ VUKOVIĆ 2014: 24.

⁵⁹ FORENBAHER, VRANJICAN 1985: Pl. XI/8.

⁶⁰ VUKOVIĆ 2014: Pl. IV/11.

⁶¹ PARAMAN, UGARKOVIĆ 2021: Pl. II/32.

⁶² KOROŠEC 1959: Pl. X/1.

⁶³ BATOVIĆ 1973: Pl. XCIV/1.

⁶⁴ *Ibid.*: 106–107, Pl. LXV/1.

⁶⁵ PARAMAN, UGARKOVIĆ 2021: Pl. I/13.

poput Beretinove glavice kod Radovina,⁶⁶ Rata na Braču,⁶⁷ Starigrada kod Paklenice⁶⁸ i dr.

Jezičasta drška na primjeru T. II/4 jedna je od glavnih obilježja jadranskoga željeznodobnog materijala, no pojavljuje se i ranije. Javlja se od kasnoga srednjeg brončanog doba i egzistira na keramici sve do željeznog doba.⁶⁹ Za željezno su doba česta ravna dna, a jedan ulomak pronađen je i na Štracinama (T. II/5).⁷⁰ Analogni primjerci potječu iz željeznodobnih slojeva Orjaka⁷¹ i Gradinice⁷² te iz kasnobrončanodobnih do ranoželjeznodobnih slojeva bračkog Škripa.⁷³

Iako Buškariol piše da na Štracinama nema grčke i rimske keramike,⁷⁴ vrijedan primjer helenističke lončarije pronađen je u odronu kamenja, vjerojatno nastalog pri pljačkanju središnje ukopne komore. Ulomak je dijagnostički, a prema analognim primjercima u literaturi zaključuje se da pripada stamnoidnoj piksidi 3. st. pr. Kr. (T. III/1).⁷⁵ Dodatno, na padinama je pronađena još jedna ručka skifa koja se može tipološki odrediti kao Gnathia ili crno premazana keramika (T. III/2). Oba su nalaza indikativan primjer grčkog utjecaja i na sjeveroistočnom dijelu Visa, ali o kontekstu njihova pristizanja trenutno nije moguće detaljnije raspravljati. Na gomili je prikupljen i jedan mali obod finije izrade koji vjerojatno pripada prvim stoljećima naše ere.⁷⁶

Budući da su ulomci pronađeni na popriličnoj udaljenosti sjeveroistočno od pretpostavljene gradine, nemoguće je govoriti o

as well as at numerous Iron Age sites including Beretinova Glavica near Radovin,⁶⁶ Rat on Brač,⁶⁷ Starigrad near Paklenica⁶⁸ and others.

The tongue-shaped handle on the specimen Pl. II/4 is one of the main features of Adriatic Iron Age material, although it appeared even earlier. It occurred from the Late Middle Bronze Age on and continued to be present on pottery into the Iron Age.⁶⁹ Flat bases were common in the Iron Age, and one sherd of this type was found at Štracine (Pl. II/5).⁷⁰ Analogous examples come from the Iron Age layers of Orjak⁷¹ and Gradinica,⁷² as well as from the Late Bronze to Early Iron Age layers of Škrip on Brač.⁷³

Although Buškariol wrote that no Greek or Roman pottery was present at Štracine,⁷⁴ a significant example of Hellenistic pottery was found in a stone collapse that probably resulted from the looting of the central burial chamber. The sherd is diagnostic, and on the basis of analogous examples in the literature it is concluded to belong to a stamnoid pyxis of the 3rd century BC (Pl. III/1).⁷⁵ In addition, another skyphos handle was found on the slopes, which can be typologically identified as Gnathia or black-glazed ware (Pl. III/2). Both finds are indicative examples of Greek influence also in the north-eastern part of Vis, although at present it is not possible to discuss in more detail the context of their arrival. From the tumulus a small rim of finer workmanship was also collected, most probably dating to the first centuries AD.⁷⁶

Since the sherds were found at a considerable distance north-east of the supposed hill-

⁶⁶ VUKOVIĆ 2014: T. II/5.

⁶⁷ BARBARIĆ 2011: T. VIII/66.

⁶⁸ DUBOLNIĆ 2006: T. II/7.

⁶⁹ FORENBAHER, VRANJICAN 1985: 14.

⁷⁰ VUKOVIĆ 2018: 55.

⁷¹ BATOVIĆ 1973: 106-107, T. XCVI/6.

⁷² VUKOVIĆ 2018: 55, T. I/2.

⁷³ FABER, NIKOLANCI 1985: T. I/1.

⁷⁴ BUŠKARIOL 1982: 33.

⁷⁵ Usp. CAMBI, KIRIGIN, MARIN 1981a: 69, T. XI/20; KIRIGIN 1986: 31, kat. br. 182; JOVANOVIĆ 2021: 70, kat. br. 76.

⁷⁶ Usmena informacija: Asja Tonc i Emil Podrug.

⁶⁶ VUKOVIĆ 2014: Pl. II/5.

⁶⁷ BARBARIĆ 2011: Pl. VIII/66.

⁶⁸ DUBOLNIĆ 2006: Pl. II/7.

⁶⁹ FORENBAHER, VRANJICAN 1985: 14.

⁷⁰ VUKOVIĆ 2018: 55.

⁷¹ BATOVIĆ 1973: 106-107, Pl. XCVI/6.

⁷² VUKOVIĆ 2018: 55, Pl. I/2.

⁷³ FABER, NIKOLANCI 1985: Pl. I/1.

⁷⁴ BUŠKARIOL 1982: 33.

⁷⁵ Cf. CAMBI, KIRIGIN, MARIN 1981a: 69, Pl. XI/20, KIRIGIN 1986: 31, Cat. No. 182; JOVANOVIĆ 2021: 70, Cat. No. 76.

⁷⁶ Oral information: Asja Tonc and Emil Podrug.

erodiranom materijalu koji bi pripadao koti 111. Ipak, jedino sustavna arheološka istraživanja ili terenski pregled uz intenzivno čišćenje vegetacije mogu pridonijeti većem razumijevanju uloge Štracina u prapovijesnim vremenima.

TERENSKI PREGLED GRADINA NA JUŽNOJ STRANI VISA

Talež – Kopacine i Vela gomila (sl. 7)

Talež je naziv za predio južnih padina otoka Visa na kojem su smještene gradina Kopacine (Kopačine) i Vela gomila. Kopacine su nedvojbeno bile najveća i najvažnija viška gradina. Taj se položaj nalazi na nadmorskoj visini od oko 245 m, a vizualno nadzire cijeli akvatorij južno od otoka, uključujući otoke Hvar, Korčulu, Lastovo, Sušac te poluotok Pelješac.⁷⁷ Jugoistočno od najviše kote (tzv. akropole) proteže se podgrađe usmjereno prema Taleškoj uvali, koja je mogla poslužiti kao manje pristanište. Ondje se, kao i u Grodačkoj uvali, nalazi mala šljunčana plaža, prikladna za izvlačenje brodova. Dominantnije sidrište Rukavac nalazi se tri nautičke milje prema istoku.⁷⁸ Gradina je bila ovalnog oblika, omeđena velikim zidinama od poligonalnih kamenih blokova koje prate konfiguraciju terena u nekoliko razina. Fortifikacijski je sustav samo djelomično očuvan, jer je vojska početkom 70-ih godina 20. stoljeća gradeći cestu miniranjem i nasipavanjem terena devastirala pristupni, središnji i sjeverni dio gradine.⁷⁹ Detaljan opis bedema, sustava ulaza, podgrađa sačinjenog od platformi i terasa za nastambe građenih u dvije faze donio je Miro Katić.⁸⁰ Na temelju suhozida u podgrađu predložio je da se nase-

fort, it is impossible to speak of eroded material that would have belonged to elevation 111. A better understanding of the role of Štracine in prehistoric times could only be achieved through systematic archaeological excavations, or a field survey coupled with intensive vegetation clearance.

FIELD SURVEY OF THE HILL-FORTS ON THE SOUTHERN SIDE OF VIS

Talež – Kopacine and Vela Gomila (Fig. 7)

Talež is the name of the area on the southern slopes of the island of Vis where the hillforts of Kopacine (Kopačine) and Vela Gomila are situated. Kopacine was undoubtedly the largest and most important hillfort on Vis. The site lies at an elevation of about 245 m and visually commands the entire seaway south of the island, including the islands of Hvar, Korčula, Lastovo and Sušac, as well as the Pelješac peninsula.⁷⁷ South-east of the highest point (the so-called *acropolis*) extends the *suburbium* facing Talež Bay, which may have served as a small landing place. There, as in Grodac Bay, a small pebble beach is to be found, suitable for hauling boats ashore. The more prominent anchorage of Rukavac lies 3 nautical miles to the east.⁷⁸ The hillfort was oval in shape, enclosed by large walls of polygonal stone blocks following the terrain in several tiers. The fortification system is only partly preserved, as in the early 1970s the army, in constructing a road by blasting and infilling, devastated the central and northern parts of the hillfort as well as access to it.⁷⁹ A detailed description of the ramparts, entrance system, and *suburbium* composed of platforms and terraces for dwellings built in two phases was provided by Miro Katić.⁸⁰ On the evidence of the dry-stone walls in the *suburbium*, he

⁷⁷ KIRIGIN *et al.* 2024: 80.

⁷⁸ *Ibid.*: 81.

⁷⁹ BUŠKARIOL 1982: 35.

⁸⁰ KATIĆ 2009: 37–40.

⁷⁷ KIRIGIN *et al.* 2024: 80.

⁷⁸ *Ibid.*: 81.

⁷⁹ BUŠKARIOL 1982: 35.

⁸⁰ KATIĆ 2009: 37–40.

lje u drugoj fazi povećalo do površine od 5 ha. Razlog tome možda je bio blizak trgovački kontakt s Apulijom krajem starijega željeznog doba.⁸¹ Iako je gradinski prostor na više mjesta znatno erodiran, vidljivi su tragovi arhitekture pravokutnog tlocrta te klesarske intervencije u kamenu živcu. Posljednju fazu fortificiranja (tzv. bastione) Katić promatra kroz širenje grčkih utjecaja i datira u 4./3. st. pr. Kr.⁸² Literatura ističe obilje prapovijesne, daunijske, grčke, helenističke, rimske, srednjovjekovne i recen-tne uporabne keramike te ostatke kućnog lijepa, crjepova, korintskih amfora i pito-sa.⁸³ Sudeći prema kronološkoj analizi, dominira materijal od srednjega brončanog te iz željeznog doba.⁸⁴ Međutim, struka nije složna oko napuštanja Kopacina – dok se jedna struja zalaže za prestanak aktivnosti tijekom ranog 4. st. pr. Kr., drugi podupiru kontinuitet života i kroz 3. st. pr. Kr.⁸⁵

U okolici Kopacina pronađeno je i nekoliko brončanih predmeta, među ostalim lučna dvopetljusta fibula s trokutastom nogom, dva ulomka spiralno-naočalaste fibule, ulomak pojase kopče glasinačkog tipa s vijencem latica, tri kalotasta dugmeta te kolut romboidnog presjeka.⁸⁶ Ovi predmeti, od kojih dva datiraju u drugu polovicu 8. i 7. st. pr. Kr., možda potječu iz taleške nekropole. Kopacine su bile središte metalurških djelatnosti, što potvrđuju nalazi željezne troske, ulomci keramike s tragovima željeza te dna posuda s vidljivim ostacima obrade. Međutim, zbog izostanka detaljnijih analiza, može se samo nagađati jesu li prapovijesni stanovnici Kopacina uvozili željeznu sirovinu iz balkanske unutrašnjosti ili su ek-

suggested that in the second phase the settlement expanded to an area of 5 ha. The reason for this may have been close trading contact with Apulia at the end of the Early Iron Age.⁸¹ Although the hillfort area is in many places heavily eroded, traces of rectangular architecture and quarrying interventions in the living rock are still visible. The final phase of fortification (the so-called bastions) was viewed by Katić in the context of the spread of Greek influence and dated to the 4th/3rd century BC.⁸² The literature highlights the abundance of prehistoric, Daunian, Greek, Hellenistic, Roman, medieval and more recent utilitarian pottery, as well as remains of house daub, tiles, Corinthian amphorae and pithoi.⁸³ According to chronological analysis, material from the Middle Bronze Age through into the Iron Age predominates.⁸⁴ However, there is no consensus regarding the abandonment of Kopacine: while one view argues for the cessation of activity during the early 4th century BC, others support the continuity of habitation there into the 3rd century BC.⁸⁵

Several bronze artefacts have also been found in the vicinity of Kopacine, among them a two-looped bow fibula with a triangular foot, two fragments of a spectacle fibula, a fragment of a Glasinac-type belt buckle with a wreath of petals, three calotte-shaped buttons, and a hoop of rhomboid cross-section.⁸⁶ These objects, two of which date to the second half of the 8th and to the 7th century BC, may have come from the Talež necropolis. Kopacine was a centre of metallurgical activity, as evidenced by finds of iron slag, sherds bearing traces of iron, and vessel bases with visible traces of working. However, in the absence of more detailed analyses, whether the prehistoric inhabitants of Kopacine imported

⁸¹ *Ibid.*: 34, 40.

⁸² *Ibid.*: 44.

⁸³ BUŠKARIOL 1982: 36; KIRIGIN *et al.* 2006: 50; KATIĆ 2009: 40–44; ČARGO 2021b: 26; KIRIGIN *et al.* 2024: 86–93.

⁸⁴ KIRIGIN *et al.* 2024: 92.

⁸⁵ Usp. KIRIGIN *et al.* 2024: 93; 98 i KATIĆ 2009: 40 i 45.

⁸⁶ Vidjeti detaljnije u PROTIC 1985: 40–43; ČARGO 2021b: 25; KIRIGIN *et al.* 2024: 81.

⁸¹ *Ibid.*: 34, 40.

⁸² *Ibid.*: 44.

⁸³ BUŠKARIOL 1982: 36; KIRIGIN *et al.* 2006: 50; KATIĆ 2009: 40–44; ČARGO 2021b: 26; KIRIGIN *et al.* 2024: 86–93.

⁸⁴ KIRIGIN *et al.* 2024: 92.

⁸⁵ Cf. KIRIGIN *et al.* 2024: 93; 98 and KATIĆ 2009: 40 and 45.

⁸⁶ For further details: PROTIC 1985: 40–43; ČARGO 2021b: 25; KIRIGIN *et al.* 2024: 81.



SLIKA 7. Aerofotografija Vele gomile i gradine Kopacine na Taležu (snimio: J. Triplat)

FIGURE 7 Aerial photograph of Vela Gomila and the hillfort of Kopacine at Talež (photo by J. Triplat)

sploatirali alternativne izvore.⁸⁷

Pri terenskom pregledu 2022. pronađeni su brojni komadi amorfne prapovijesne keramike čiji ulomci variraju u debljini stijene, primjesama, boji i kvaliteti. Najveća je koncentracija primijećena na jugoistočnim padinama gradine, odnosno u tzv. podgrađu. Pronađena su i četiri primjerka prapovijesne crno glačane keramike, ali i jedan nedijagnostički ulomak helenističke crnopremazane keramike. Prostor se sve donedavno upotrebljavao za ispašu, a najviše se površinske keramike danas nalazi uz suhozide.

Vela gomila smještena je oko 800 m istočno od Kopacina, na vrhu uzvisine podno gradine koja vodi prema uvali Taleška. Iako je blizu morskoj obali, pristup do uvale nije jednostavan. Osim s Kopacina, Veloj gomili može se pristupiti iz Dracevog i Velog polja stazom od suvremenog zaselka Pod Kunjinovo. Ostaci zida na tom putu sugeriraju da je pristup iz tog smjera u prapovijesno doba

iron raw material from the Balkan hinterland or exploited alternative sources can only be a matter for conjecture.⁸⁷

During the 2022 field survey, numerous fragments of amorphous prehistoric pottery were found, varying in wall thickness, temper, colour and quality. The highest concentration was observed on the south-eastern slopes of the hillfort, that is, in the so-called *suburbium*. Four specimens of prehistoric black-burnished pottery were found, as well as one non-diagnostic sherd of Hellenistic black-glazed pottery. The area was used as pasture until recently, and today most of the surface pottery is found along the dry-stone walls.

Vela Gomila is situated about 800 m east of Kopacine, on the top of an elevation below the hillfort leading towards Talež Bay. Although it is close to the sea, access to the bay is not straightforward. Other than from Kopacine, Vela Gomila can also be reached from Dracevo and Velo Polje by a path from the modern hamlet of Pod Kunjinovo. Remains of a wall along this path

⁸⁷ Usp. GAFFNEY *et al.* 2002: 49; KATIĆ 2009: 35–36; KIRIGIN *et al.* 2024: 93.

⁸⁷ Cf. GAFFNEY *et al.* 2002:49; KATIĆ 2009: 35–36; KIRIGIN *et al.* 2024: 93.

mogao biti kontroliran.⁸⁸ Literatura donosi različite dimenzije gomile (oko 32 do 33 m × 23 do 26 m × 3 do 12 m),⁸⁹ a razlog variranja širine i duljine valja tražiti u stanju zaraštenosti terena i početnim točkama mjerenja. S južne strane gomile pruža se strma litica. Devastacije na gomili iznišile su na vidjelo arheološki materijal, a nastale su kao posljedica potraga za „blagom”, među ostalim zbog lokalne legende o grobu Teutina sina na Visu, ali i izgradnje mitraljeskih gnijezda tijekom 20. stoljeća.⁹⁰ Gomila je re-kognoscirana više puta, a s lokaliteta potječu ulomci prapovijesne, južnoitalske mat slikane (8. do 4. st. pr. Kr.), crnofiguralne, Gnathia, helenističke i rimske stolne keramike te jedan ulomak amfore Korint B i moguće Lamboglia 2.⁹¹ Usto, tijekom terenskog pregleda koji su proveli članovi tima projekta *The Adriatic Islands* na gomili su prepoznata 163 ulomka grčkih crjepova ili pitosa, kućni lijep, ulomci puža ogrca (*Monodonta turbinata*) i volka (*Murex*), dva oblutka od penteličkog mramora te dio omega-fibule.⁹² Budući da Vela gomila nije temeljito arheološki obrađena, funkcija ostaje nerazjašnjena. Neki je promatraju kao vrstu javnog spomenika s kontinuitetom deponiranja materijala koja se mogla promatrati kao grob mitskog junaka,⁹³ dok je drugi zbog monumentalnosti ubrajaju u tzv. kneževske humke, a na osnovi obilne lončarije i nagorenih životinjskih kostiju ističu ritualnu

suggest that access from this direction may have been controlled in prehistoric times.⁸⁸ The literature records varying dimensions of the cairn (c. 32–33 m × 23–26 m × 3–12 m),⁸⁹ with the differences in width and length attributable to the overgrown state of the terrain and the chosen starting points of measurement. On its southern side a steep cliff falls away. Damage to the cairn resulting from treasure hunting – fuelled in part by a local legend of the grave of Teuta's son on Vis – as well as from the construction of machine-gun nests during the 20th century has exposed archaeological material.⁹⁰ The site has been prospected several times, and finds include sherds of prehistoric pottery, South Italian matt-painted ware (8th–4th centuries BC), black-figure, Gnathia, Hellenistic and Roman fineware, together with a sherd of Corinthian B and a possible Lamboglia 2 amphora.⁹¹ In addition, during the field survey carried out by members of the Adriatic Islands Project team, 163 fragments of Greek tiles or pithoi were recorded there, along with house daub, fragments of the sea snail *Monodonta turbinata* and the murex (*Murex*), two pebbles of Pentelic marble, and part of an omega fibula.⁹² Since Vela Gomila has not been thoroughly archaeologically investigated, its function remains unclear. Some view it as a kind of public monument with a continuity of deposited material that may have been regarded as the grave of a mythical hero,⁹³ while others, because of its monumentality, classify it among the so-called Prince Mounds. Pottery and

⁸⁸ *Ibid.*: 83.

⁸⁹ BUŠKARIOL 1982: 40; KATIĆ 2009: 45. Razlog velike visinske razlike Vele gomile leži u njezinoj poziciji na litici.

⁹⁰ BUŠKARIOL 1982: 40.

⁹¹ Ulomak crnofiguralne keramike pronašao je viški nastavnik i arheolog Vid Biličić tijekom jednog od brojnih terenskih pregleda. Bio je pohranjen u zbirci osnovne škole, odakle je nestao početkom 70-ih godina 20. stoljeća (BUŠKARIOL 1982: 40). Ostalu vrstu keramičkih ulomaka spominju autori koji su pregledavali teren od 80-ih godina do danas (BUŠKARIOL 1982: 40; KIRIGIN *et al.* 2006: 50; KATIĆ 2009: 46; ČARGO 2021b: 27; KIRIGIN *et al.* 2024: 94).

⁹² KIRIGIN *et al.* 2024: 94.

⁹³ KIRIGIN *et al.* 2024: 97.

⁸⁸ *Ibid.*: 83.

⁸⁹ BUŠKARIOL 1982: 40; KATIĆ 2009: 45. The reason for the Vela Gomila's great height difference lies in its position on the cliff.

⁹⁰ BUŠKARIOL 1982: 40.

⁹¹ A fragment of black-figure pottery was found by the Vis teacher and archaeologist Vid Biličić during one of numerous field surveys. It was kept in the collection of the primary school, from where it disappeared in the early 1970s (BUŠKARIOL 1982: 40). Other types of pottery sherds have been mentioned by authors surveying the site from the 1980s to the present (BUŠKARIOL 1982: 40; KIRIGIN *et al.* 2006: 50; KATIĆ 2009: 46; ČARGO 2021b: 27; KIRIGIN *et al.* 2024: 94).

⁹² KIRIGIN *et al.* 2024: 94.

⁹³ KIRIGIN *et al.* 2024: 97.

ulogu povezanu s kultom pokojnika.⁹⁴

Tijekom projekta provedenog 2022. pregledan je perimetar unutar prstenastog ruba gomile. U njemu su pronađeni mnogobrojni ulomci keramike, među kojima izdvajamo četiri komada prapovijesne lončarije, dva s kaneliranim rubom i dva s ukrasom izvedenim utiskivanjem prsta. Prikupljeno je i nekoliko ulomaka nedijagnostičke helenističke lončarije, među kojima šest crnopremazane ili keramike tipa Gnathia. Samo jedan fragment pouzdano pripada helenističkoj crnopremazanoj keramici, dok bi jedan prema obliku pripadao skifu. Registrirano je nekoliko fragmenata metala. Oko 40 % prikupljenog materijala pripada rimskoj uporabnoj keramici.

Krušovice (sl. 8)

Stočarski krajolik Krušovice (Kruševica) spomenut je u literaturi kao prapovijesni lokalitet.⁹⁵ S njegove je južne strane uvala Vini bok, a na sjeveroistoku plodno Dracevo polje. Rezultati terenskog pregleda koji su objavljeni 2006. izdvojili su ondje dvije gomile.⁹⁶ Prva je veća s promjerom od 15 m i visinom od 2 m (VS 1103.00). Njezin je središnji dio devastiran i ondje danas stoji maleni suhozid. Literatura ističe vizualnu komunikaciju s Taležom, Svetim Duhom i Svetim Vidom. Na njoj su pronađena tri ulomka prapovijesne keramike.⁹⁷ Druga gomila ima dimenzije 9 m u promjeru i 1,5 m visine (VS 1104.00), a sjeverni joj je dio uništen kasnijim pregradnjama. Na njoj tada nije pronađen pokretni materijal. Kao i u prethodnom slučaju, ističe se vizualni kontakt s Taležom i Svetim Duhom.⁹⁸

Istraživanje provedeno 2022. imalo je cilj ponovno razmotriti ovaj krajolik. Iako su

charred animal bones are abundant, pointing to a ritual role associated with the cult of the dead.⁹⁴

During the 2022 project, the perimeter within the ring-shaped edge of the cairn was surveyed. Numerous pottery sherds were found, among which we highlight four pieces of prehistoric pottery: two with cannellured rims and two decorated with fingertip impressions. Several sherds of non-diagnostic Hellenistic pottery were also collected, including six of black-glazed or *Gnathia* ware. Only one fragment can be attributed with confidence to Hellenistic black-glazed pottery, while another, by its form, may have belonged to a skyphos. Several metal fragments were also recorded. About 40 % of the collected material is Roman utilitarian pottery.

Krušovice (Fig. 8)

The pastoral landscape of Krušovice (Kruševica) is mentioned in the literature as a prehistoric site.⁹⁵ To its south lies Vini Bok Bay, and to the north-east the fertile Dracevo Polje. The results of the field survey published in 2006 identified two cairns there.⁹⁶ The first and larger one measures 15 m in diameter and 2 m in height (VS 1103.00). Its central part has been devastated, and today a small dry-stone wall stands there. The literature emphasises its visual communication with Talež, Sveti Duh and Sveti Vid. Three sherds of prehistoric pottery were found on it.⁹⁷ The second cairn measures 9 m in diameter and 1.5 m in height (VS 1104.00), and its northern part was destroyed by later rebuilding. No movable artefacts were found there at the time, but, as in the previous case, visual contact with Talež and Sveti Duh is emphasised.⁹⁸

The survey carried out in 2022 aimed to re-examine this landscape. Although quadrants had previously been established, the grid could not be followed due to poor terrain accessibility caused

⁹⁴ KATIĆ 2009: 46-47.

⁹⁵ BILIČIĆ 1994: 4-9.

⁹⁶ KIRIGIN *et al.* 2006: 38-39.

⁹⁷ *Ibid.*: 38.

⁹⁸ *Ibid.*: 39.

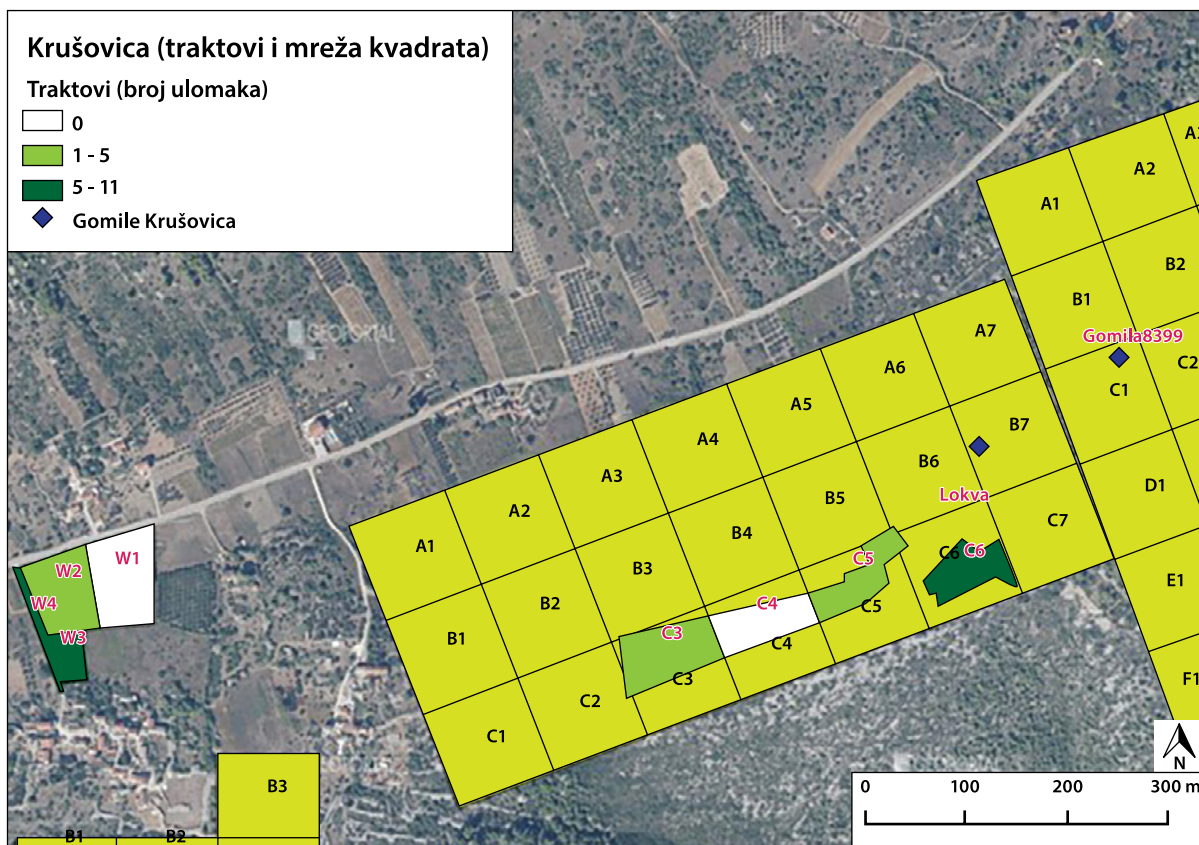
⁹⁴ KATIĆ 2009: 46-47.

⁹⁵ BILIČIĆ 1994: 4-9.

⁹⁶ KIRIGIN *et al.* 2006: 38-39.

⁹⁷ *Ibid.*: 38.

⁹⁸ *Ibid.*: 39.



SLIKA 8. Mreža kvadranta za područje Krušovice s naznačenim rezultatima (izradio: J. Triplat)

FIGURE 8 Grid of quadrants for the Krušovice area with indicated results (made by J. Triplat)

kvadranti prethodno bili određeni, mrežu nije bilo moguće pratiti zbog loše prohodnosti terena uzrokovane gustom vegetacijom pa je prostor selektivno prehodan (sl. 8). Na poziciji Lokva na Krušovici (kvadrant A2/C6) pronađeni su ulomak rimske, dva ulomka novovjekovne, ponešto glazirane keramike te još primjeraka kojima nije moguće odrediti dataciju. Uočeno je i mnoštvo hematita. U kvadrantu A2/C3 zabilježene su dvije gomile u sklopu terasastih struktura. Zbog manjka arheološkog materijala trenutačno nije moguće odrediti jesu li gomile prapovijesne ili su nastale u novije vrijeme kad se krčila zemlja za izradu terasa.

Na najvišim kotama Krušovice, unutar kvadranta A2/B7 (B398) i A3/C1 (B399) (sl. 8), ubicirane su dvije prapovijesne gomile s prstenima od naslaganog kamenja. Na manjoj gomili, promjera 2 m, nije pronađen arheološki materijal. Na većoj, promjera 8 m, pronađena su dva ulomka keramike s

by dense vegetation, so the area was selectively walked (Fig. 8). At the Lokva na Krušovici site (quadrant A2/C6), a Roman sherd, two sherds of Early Modern pottery, some glazed ware, and several other fragments of undetermined date were found. A large quantity of haematite was also noted. In quadrant A2/C3, two cairns were recorded as part of terraced structures. Due to the lack of archaeological material, it is currently not possible to determine whether they are prehistoric or were created more recently when land was cleared for terrace construction.

On the highest elevations of Krušovice, within quadrants A2/B7 (B398) and A3/C1 (B399) (Fig. 8), two prehistoric cairns with rings of stacked stones were located. On the smaller cairn, 2 m in diameter, no archaeological material was found. On the larger cairn, 8 m in diameter, two sherds of hand-made pottery with temper were found, while no archaeological material was noted within or around the ring. On the basis of a comparison with the earlier publication, this

primjesama koja nije rađena na lončarskom kolu, dok unutar i oko prstena nije bilo arheoloških nalaza. Na temelju usporedbe sa starijom objavom, ova gomila odgovara drugoj (VS 1104.00), no samo se paušalno može datirati u prapovijesno doba.

Sveti Duh (sl. 9)

Sveti Duh jedna je od kota (564 m) planinskog masiva na zapadnom dijelu Visa. Nalazi se sjeveroistočno od najvišega otočnog vrha Velog Huma (587 m). Potonji su položaj autori često određivali kao važan prapovijesni lokalitet,⁹⁹ no nekoliko terenskih pregleda pokazalo je da je Sveti Duh arheološki znatno bogatiji.¹⁰⁰ Na zaravni čija je najveća širina oko 50 m, a dužina 35 m danas dominira crkva Svetog Duha. Teren je u velikoj mjeri uništen, a erozija je na dijelovima potpuno isprala slojeve. Bedemi su bili izgrađeni od krupnih komada neobrađenog vapnenca bez upotrebe vezivnog sredstva. Najzaštićenija je bila istočna i južna strana, gdje se može najlakše pristupiti gradini, dok se na sjeveroistoku naziru tragovi dvostrukih zidina.¹⁰¹ Frane Buškariol svojevremeno je zidine okarakterizirao kao poluprstenaste zbog diskontinuiteta na zapadnoj strani gdje kao prirodne barijere stoje strme hridi. Iako su na brojnim mjestima devastirane zbog rovova, autor je istaknuo vidljivu visinu vanjskog lica bedema od oko 1 m, uz širinu od 3 m.¹⁰² Zbog male omeđene površine, ali izvrsnih vizualnih predispozicija, u novijoj je literaturi Sveti Duh definiran kao mala gradina koja je prvenstveno služila kao motrište.¹⁰³ U starijoj literaturi keramički se materijal prema primjesama kalcita datirao u srednje brončano doba,¹⁰⁴ no prema sastavu moguće je predložiti i širi kronološki raspon, sve do konca prapovi-

cairn would correspond to the second one (VS 1104.00), but it can only be broadly dated to the prehistoric period.

Sveti Duh (Fig. 9)

Sveti Duh is one of the peaks (564 m) of the mountain massif in the western part of Vis. It lies north-east of the island's highest peak, Veli Hum (587 m). The latter location has often been identified by authors as an important prehistoric site,⁹⁹ but several field surveys have shown that Sveti Duh is archaeologically far richer.¹⁰⁰ On the plateau, which measures about 50 m at its widest and 35 m in length, the Church of the Holy Spirit (Sveti Duh) now dominates. The terrain has been heavily disturbed, and erosion has in places completely removed the layers. The ramparts were built of large pieces of unworked limestone without the use of binding material. The most protected parts were the eastern and southern sides, where access to the hillfort is easiest, while on the north-east, traces of double walls can be discerned.¹⁰¹ Frane Buškariol once described the walls as semi-ring-shaped due to the discontinuity on the western side, where steep cliffs serve as natural barriers. Although in many places devastated by trenches, the author noted that the outer face of the rampart was still visible to a height of about 1 m, with a width of 3 m.¹⁰² Because of its small enclosed area but excellent visual advantages, in more recent literature Sveti Duh has been defined as a small hillfort that primarily served as a lookout.¹⁰³ In earlier literature, the pottery material, based on calcite temper, was dated to the Middle Bronze Age¹⁰⁴, but its composition allows for a broader chronological range, extending to the end of prehistory. Around

⁹⁹ *Ibid.*: 34.

¹⁰⁰ BUŠKARIOLO 1982:34; KIRIGIN *et al.* 2006: 19 sa starijom literaturom.

¹⁰¹ KIRIGIN *et al.* 2006: 19.

¹⁰² BUŠKARIOLO 1982: 34.

¹⁰³ ČARGO 2021b: 25.

¹⁰⁴ FISKović 1968: 120; BUŠKARIOLO 1982: 34.

⁹⁹ *Ibid.*: 34.

¹⁰⁰ BUŠKARIOLO 1982: 34; KIRIGIN *et al.* 2006: 19 with earlier references.

¹⁰¹ KIRIGIN *et al.* 2006: 19.

¹⁰² BUŠKARIOLO 1982: 34.

¹⁰³ ČARGO 2021b: 25.

¹⁰⁴ FISKović 1968: 120; BUŠKARIOLO 1982: 34.



SLIKA 9. Aerofotografija brda Sveti Vid i Velog polja iz 1943. (izvor: zbirka V. Mratinića)

FIGURE 9 Aerial photograph of Mount Sveti Vid and of Velo Polje from 1943 (source: V. Mratinić collection)

jesti. Oko gotičke crkve Svetog Duha tijekom terenskog pregleda 90-ih godina 20. stoljeća pronađen je velik broj prapovijesne keramike te ulomci žrvnjeva i polovica kamene sjekire,¹⁰⁵ dok je 2022. prikupljeno nekoliko nedijagnostičkih ulomaka keramike. Zbog odsutnosti tragova upotrebe lončarskog kola, karakterističnih primjesa i tehnike pečenja, vjerojatno pripadaju prapovijesnom razdoblju.

Sveti Vid (sl. 10)

Sveti Vid je brežuljak između Dracevog i Velog polja. Njegov je vrh elipsasta uzvisina, površine oko 2800 m² i nadmorske visine 190 m. Na rubovima je obzidan suhozidnim bedemom čiji se blokovi jasno primjećuju.¹⁰⁶ Opseg zidina prije devastacije potvrđuje i

the Gothic Church of the Holy Spirit, a large quantity of prehistoric pottery, together with fragments of querns and half of a stone axe,¹⁰⁵ was found during field surveys in the 1990s, while in 2022 several non-diagnostic pottery sherds were collected. Due to the absence of traces of a potter's wheel, the characteristic tempers and the firing technique, it is most likely they date to the prehistoric period.

Sveti Vid (Fig. 10)

Sveti Vid is a hill situated between Dracevo and Velo Polje. Its summit is an elliptical elevation, covering an area of about 2,800 m² and standing at 190 m above sea level. Its edges are enclosed by a dry-stone rampart, the blocks of which are clearly visible.¹⁰⁶ The ex-

¹⁰⁵ KIRIGIN *et al.* 2006:19.

¹⁰⁶ BUŠKARIOL 1982: 37; KIRIGIN *et al.* 2006: 14 sa starijom literaturom; ČARGO 2021b: 26.

¹⁰⁵ KIRIGIN *et al.* 2006: 19.

¹⁰⁶ BUŠKARIOL 1982: 37; KIRIGIN *et al.* 2006: 14 with earlier references; ČARGO 2021b: 26.



SLIKA 10. Ostaci bedema na gradini Sveti Vid (Izvor: QGIS, obrada: I. Čevič)

FIGURE 10 Remains of fortification walls at the hillfort of Sveti Vid (source: QGIS, processing by I. Čevič)

zračna fotografija iz zbirke Velimira Mratinića snimljena 1943. (sl. 9). Fortifikacije su na južnoj strani brežuljka u diskontinuitetu zbog strmih hridi ispod kojih se pruža zaravan koja je terasirana. Moguće je zamisliti da se ondje nekad protezalo podgrađe koje bi potom bilo devastirano terasiranjem. Na uzvisini danas dominira crkva sv. Vida iz 14. stoljeća, dok se od ostalih tragova arhitekture vidi četvrtasta struktura na jugozapadnom dijelu brežuljka, možda vadište kamena ili nekadašnja cisterna.¹⁰⁷ Buškariol je ustvrdio da bi pokretni nalazi, među ostalim atipična siva polirana keramika s primjesama drobljenog vapnenca, kosti te fragment bruskog kamena, mogli biti srednjovjekovni.¹⁰⁸ Tijekom recentnih terenskih pregleda prepoznati su i željeznodobni, grčki i rimski

tent of the fortifications before their devastation is also confirmed by an aerial photograph from the collection of Velimir Mratinić, taken in 1943 (Fig. 9). On the southern side of the hill the fortifications are discontinuous due to the steep cliffs, below which lies a terraced plateau. It is possible to envisage that a *suburbium* once extended there, later destroyed by terracing. Today the hill is dominated by the Church of Saint Vitus (Sveti Vid), dating to the 14th century, while other visible traces of architecture include a rectangular structure on the south-western part of the hill – perhaps a quarry building or a former cistern.¹⁰⁷ Buškariol noted that the moveable finds – among them atypical grey polished pottery with crushed limestone temper, bones and a fragment of a grinding stone – might be medieval.¹⁰⁸ During recent field surveys, Iron Age,

¹⁰⁷ FISKOVIĆ 1968: 97–98.

¹⁰⁸ BUŠKARIOL 1982: 37.

¹⁰⁷ FISKOVIĆ 1968: 97–98.

¹⁰⁸ BUŠKARIOL 1982: 37.

materijal,¹⁰⁹ dok je 2022. i 2024. ondje sakupljeno nekoliko ulomaka antičke provenijencije, od čega dijagnostički materijal čine ručke amfora. Sveti Vid također pripada gradinama male površine.

VIZUALNA KOMUNIKACIJA GRADINA – DRUŠTVENE I EKONOMSKE REPERKUSIJE

Terenskim pregledom i snimanjem zračnih fotografija cilj je bio provjeriti hipoteze o vizualnim komunikacijama viških gradina. Na južnom je dijelu otoka dominantna pozicija gradina Kopacine koja nadzire akvatorij od rta Smokova do rta Stupišća, uključujući manje otoke Ravnik, Veli Budihovac te hridi Paržanj i Greben.¹¹⁰ Pogled se pruža i na Biševo, a s vrha gradine u daljini je moguće vidjeti zapadni dio Korčule, Sušac i Lastovo. Za pogodnog vremena na obzoru se mogu primijetiti Vela Palagruža, kao i talijanska obala, posebice Monte Gargano. Vizualnoj prepoznatljivosti Kopacina i Taleške uvale s mora nedvojbeno su pridonosile impozantne dimenzije Vele gomile.

Kopacine vizualni kontakt mogu ostvariti i s gradinama Sveti Duh i Sveti Vid.¹¹¹ Međutim, međusobnu komunikaciju Kopacina i Svetog Vida danas nije moguće provjeriti na terenu. Razlog je tome prvenstveno gusta borovina na susjednom brdu prema Svetom Vidu koju je zasadila vojska 50-ih godina 20. stoljeća zbog kamufliranja terena.¹¹² Uz to, ako uračunamo gradinske zidine na Kopacinama koje nisu očuvane u punoj visini, vizualna se komunikacija nameće kao logična. Tako se nazire vizualni sustav koji je povezivao najveću višku gradinu Kopacine

Greek and Roman material was also identified,¹⁰⁹ while in 2022 and 2024 several sherds of ancient provenance were collected there, among which the diagnostic material consists of amphora handles. Sveti Vid likewise is categorised as a small-sized hillfort.

VISUAL COMMUNICATION OF THE HILLFORTS – SOCIAL AND ECONOMIC REPERCUSSIONS

The aim of the field survey and aerial photography was to test hypotheses about the Vis hillforts' visual communication. In the southern part of the island the dominant position is held by the hillfort of Kopacine, which commands the seaway from Cape Smokova to Cape Stupišće, including the smaller islands of Ravnik and Veli Budihovac, and the rocks of Paržanj and Greben.¹¹⁰ The view also extends to Biševo, and from the top of the hillfort the western part of Korčula, Sušac and Lastovo can be seen in the distance. In favourable weather, Vela Palagruža as well as the Italian coast, especially Monte Gargano, are visible on the horizon. The imposing dimensions of Vela Gomila undoubtedly contributed to the visual prominence of Kopacine and Talež Bay from the sea.

Kopacine could also be seen from the hillforts of Sveti Duh and Sveti Vid.¹¹¹ However, the mutual communication between Kopacine and Sveti Vid cannot today be verified in the field. The main reason for this is the dense pine forest on the hill opposite Sveti Vid, planted by the army in the 1950s to camouflage the terrain.¹¹² In addition, if we take into account the hillfort walls at Kopacine, which are not preserved to their full height, visual communication would appear to be a logical assumption. Thus, a visual

¹⁰⁹ KIRIGIN *et al.* 2006: 14; ČARGO 2021b: 26.

¹¹⁰ Otok Budikovac pronalazi se i pod imenom Budihovac. Opće komentare o vidljivosti dali su BUŠKARIOL 1982: 36; KATIĆ 2009: 34.

¹¹¹ Usp. BUŠKARIOL 1982: 37; KIRIGIN *et al.* 2006: 50.

¹¹² Usmeni je izvor Vicko Zorotović, koji je sudjelovao u akcijama pošumljavanja 50-ih godina 20. stoljeća.

¹⁰⁹ KIRIGIN *et al.* 2006: 14; ČARGO 2021b: 26.

¹¹⁰ The island of Budikovac also appears under the name Budihovac. General comments on visibility are provided by BUŠKARIOL 1982: 36; KATIĆ 2009: 34.

¹¹¹ Cf. BUŠKARIOL 1982: 37; KIRIGIN *et al.* 2006: 50.

¹¹² The oral source is Vicko Zorotović, who took part in the afforestation campaigns of the 1950s.

SLIKA 11. *Ostaci prstena gomile iznad Podstrožja* (snimio: V. Udiljak)FIGURE 11 *Remains of a cairn ring above Podstrožje* (photo by V. Udiljak)

sa Svetim Vidom, dominantnim motrištem za Dracevo, Plisko i Velo polje.¹¹³ S druge strane, gradina Kopacine na Taležu ne može ostvariti vizualnu komunikaciju s motrištem na Štracinama. Između Štracina i Kopacina postoji položaj koji je vrijedan pažnje, što zbog naziva što zbog zemljopisnih okolnosti. Na vrhu brda iznad sela Podstrožje austrijska je vojska podignula omanju bitnicu nad velikom sipinom kamenja. Na temelju ostatka prstena od kamenih blokova, terenskim je pregledom utvrđena moguća gomila (sl. 11). Njezinu devastaciju koju je započela austrijska vojska dovršila je Jugoslavenska narodna armija.¹¹⁴ Iako prostor nije bogat keramičkim nalazima, dodatna indikacija o glavici kao prapovijesnom motrištu bila bi blizina ostalih gomila koje su danas uklopljene u sustav polja. S brda iznad Podstrožja daje se ostvariti vizualna komunikacija sa Štracinama, Kopacinama, Svetim Vidom i Svetim Duhom, tako da bi ova glavica mo-

system can be discerned linking the largest hillfort on Vis, Kopacine, with Sveti Vid, the dominant lookout for Dracevo, Plisko and Velo Polje.¹¹³ On the other hand, the hillfort of Kopacine on Talež cannot establish visual communication with the lookout at Štracine. Between Štracine and Kopacine there is a position worthy of attention, both for its name and its geographical circumstances. On the top of the hill above the village of Podstrožje the Austrian army built a small battery above a large scree slope. On the basis of a surviving ring of stone blocks, the field survey identified a possible cairn (Fig. 11). Its devastation, begun by the Austrian army, was completed by the Yugoslav People's Army.¹¹⁴ Although the area is not rich in ceramic finds, an additional indication of the headland as a prehistoric lookout would be the proximity of other cairns, today incorporated into the field system. From the hill above Podstrožje, visual communication can be established with Štracine, Kopacine, Sveti Vid and Sveti Duh, so this headland may have served

¹¹³ KIRIGIN *et al.* 2006: 14.

¹¹⁴ Šire područje oko današnjeg Podstrožja (lokalno Postrožjo) na vojnim se kartama ponekad naziva i Nadpostranje. O bitnici Podstrožje više u FISKOVIĆ 1968: 174.

¹¹³ KIRIGIN *et al.* 2006: 14.

¹¹⁴ The wider area around present-day Podstrožje (locally Postrožjo) is sometimes referred to on military maps as Nadpostranje. For more on the Podstrožje battery, see FISKOVIĆ 1968: 174.

gla biti temeljna spona između Štracina i najveće otočne gradine Kopacine.

Literatura navodi da Sveti Duh ima izvanrednu komunikaciju s većinom viških kota, uz napomenu da lokalno stanovništvo jasno vidi Monte Gargano više od 50 % dana u godini.¹¹⁵ Ova je pozicija nedvojbeno bila važna za nadzor Velog i Dracevog polja, zapadnog i južnog viškog akvatorija, obližnjeg arhipelaga, a zajedno s Velim Humom idealno je mjesto za motrenje pučine, pučinskih otoka i udaljene zapadne obale Jadrana.

Zračne fotografije potvrđuju zaključke iz starije literature o prapovijesnom sustavu vizualne komunikacije gradina na jugu Visa. Osim toga, dvije se kategorije nameću kao ključne – nadzor plodnih površina i plovidbenih ruta. Budući da se najveća krška polja nalaze u središtu južnog dijela otoka, logično je očekivati veću koncentraciju naseobinskih i motrišnih položaja uz važan prirodni resurs. Vrijednost prehrambenih namirnica, ali i ograničeni kapaciteti žitarica koje su mogle podariti južne viške poljoprivredne površine¹¹⁶ možda su jedan od razloga fortificiranja uzvišenja s manjim površinama. Takve su pozicije, napose Sveti Vid, mogle poslužiti za nadzor, svakodnevne poljodjelske aktivnosti, ali i prikupljanje i pohranu uroda. U slučaju pomorske navela na južnu stranu Visa, pozicije poput Svetog Vida ili Svetog Duha mogle su preuzeti ulogu refugija, što bi bio dodatni argument

as the key link between Štracine and Kopacine, the largest hillfort on the island.

The literature states that Sveti Duh has excellent communication with most of the Vis hilltops, noting that the local population can clearly see Monte Gargano on more than 50 % of the days of the year.¹¹⁵ This position was undoubtedly important for the control of Velo and Dracevo Polje, the western and southern waters of Vis, and the nearby archipelago, and together with Veli Hum it was an ideal place for monitoring the open sea, the offshore islands and the distant western coast of the Adriatic.

Aerial photographs confirm the conclusions of earlier literature regarding the prehistoric system of visual communication among the hillforts in southern Vis. In addition, two categories emerge as key: the control of fertile areas and of seafaring routes. Since the largest karst fields are located in the centre of the southern part of the island, a greater concentration of settlement and lookout positions near this important natural resource is to be expected. The value of foodstuffs, but also the limited quantity of cereals that the southern Vis agricultural fields could provide,¹¹⁶ may have been one of the reasons for fortifying elevations of smaller area. Such positions, especially Sveti Vid, could have served for supervision and day-to-day agricultural activities, but also for the collection and storage of harvests. In the event of a maritime incursion on the southern side of Vis, positions such as Sveti Vid or Sveti Duh could have assumed the role of *refugia*, which would further support

¹¹⁵ BUŠKARIOL 1982: 34. Odlične vizualne predispozicije istaknute su i u KIRIGIN *et al.* 2006: 19.

¹¹⁶ Tvrdnja se zasniva na procjenama kapaciteta zemljišta učinjenima na temelju modela za grčke polise. Ako bi se uzgajalo isključivo žito, oko 6 km² moglo bi, prema višim procjenama, prehraniti ugrubo od 500 do 1000 ljudi, dok bi cijeli otočni kapaciteti od oko 10 km² uzdržali cca od 800 do 1600 ljudi (BUDIĆ 2022: 307–309). Okolnosti grčke poljoprivrede paušalno su usporedive s prapovijesnim. Komparativni su materijal i podaci o poljoprivrednim uvjetima ranoga novog vijeka. Iako je zemljoradnja bila osnovna aktivnost otočnog pučanstva, podaci ukazuju da je uroda na otoku tijekom 15. stoljeća bilo dostatno za samo dva mjeseca, a krajem 18. stoljeća jedva za tri. Nizak trend nastavio se i tijekom 19. stoljeća (PERIČIĆ 1999: 70–72).

¹¹⁵ BUŠKARIOL 1982: 34. The excellent visual advantages are also emphasised in KIRIGIN *et al.* 2006: 19.

¹¹⁶ The claim is based on assessments of land capacity made using models for Greek *poleis*. If grain alone had been cultivated, around 6 km² could, according to generous estimates, have fed roughly 500 to 1,000 people, while the entire island's capacity of about 10 km² could have sustained some 800 to 1,600 people (BUDIĆ 2022: 307–309). The conditions of Greek agriculture are only broadly comparable with those of prehistory. Comparative material also includes data on agricultural conditions in the early modern period. Although farming was the basic activity of the island population, data indicate that in the 15th century the island's harvest was sufficient for only two months, and by the late 18th century barely for three. This low trend continued throughout the 19th century (PERIČIĆ 1999: 70–72).



SLIKA 12. Aerofotografija platoa gradine Sveti Vid i Dracevog polja (snimio: J. Triplat)

FIGURE 12 Aerial photograph of the plateau of the Sveti Vid hillfort and Dracevo Polje (photo by J. Triplat)

za svrhu skladištenja prehrambenih namirnica. S obzirom na dominantno naselje na Kopacinama, Sveti Duh i Sveti Vid daju se interpretirati i kao svojevrsna satelitska naselja, bilo sezonskog bilo cjelogodišnjeg karaktera. Nažalost, devastacija potencijalnih podgrađa zbog terasiranja sužava interpretacijske mogućnosti. To se posebno ističe na primjeru podgrađa Svetog Vida koje je terasirano radi sadnje vinograda, pa ako je i postojalo, zauvijek je devastirano zahvatom suhozidne gradnje *pristava* koje su danas vidljive.

Iz teorijske perspektive sve bi tri pozicije pripadale tzv. naseljima zemljoradničkog tipa (engl. *agro-town*). To podrazumijeva uključenost većine stanovništva u poljoprivredne radove. Jedno je od obilježja pripadnost obližnjeg zemljišta arealu od 5 km, što je udaljenost koju pojedinci mogu dnevno prijeći kako bi obavili nužan posao, a navečer se vratili kući.¹¹⁷ Sveti Vid pritom je idealna lokacija, jer unutar 5 km zračne udaljenosti obuhvaća cijelo Dracevo, Plisko

the case regarding the storage of foodstuffs. Given the dominant settlement at Kopacine, Sveti Duh and Sveti Vid can also be interpreted as a kind of satellite settlements, whether seasonal or permanent. Unfortunately, the devastation of potential *suburbia* sites through terracing narrows the interpretative possibilities. This is particularly evident in the case of the *suburbium* of Sveti Vid, which was terraced for the planting of vineyards; if it ever existed, it was permanently destroyed by the construction of dry-stone vineyard enclosures still visible today.

From a theoretical perspective, all three positions would have been agrarian-type settlements (agro-towns). This implies the involvement of most of the population in agricultural work. One of their features is the inclusion of nearby land within a radius of 5 km – the distance individuals can cover daily in order to complete the necessary work and return home in the evening.¹¹⁷ Sveti Vid is in this respect an ideal location, since within a 5 km radius it encompasses the whole of Dracevo, Plisko and Velo Polje (Fig. 12), and also within reach are Molo and Velo Jubišće, Molo

¹¹⁷ DELANO-SMITH 1979: 37–39; LENTJES 2016: 89.

¹¹⁷ DELANO-SMITH 1979: 37–39; LENTJES 2016: 89.

i Velo polje (sl. 12), a u dohvat su također Molo i Velo Jubišće, Molo i Velo Voščica, Tihobraće te Molo i Velo Zlo polje. Sveti Duh pak vizualno obuhvaća cijelo Dracevo, a Kopacine i Dracevo polje. Najbliže su poljoprivredne površine Grodca Donja i Gornja Pojica.

Jednako kao Kopacine, Grodac i Štracine, Sveti Duh nudi izvanredne predispozicije za motrenje pomorskih ruta. Taj je čimbenik bitan zbog iskorištavanja morskih resursa, ali i nadzora pomorske trgovine. Otok je bio vitalna točka na ruti koja je preko dalmatinskih otoka spajala središnju Dalmaciju s Monte Garganom. Osim poprečne jadranske rute, zemljopisne okolnosti nameću i plovidbu uzdužnim pravcem od jonske Korkire do Spine, s Visom kao pogodnom usputnom postajom.¹¹⁸ Osim moguće preprodaje uvezene robe, važnost otoka za pomorje ogleda se i u ponudi elementarnih potrepština, poput snabdijevanja pitkom vodom i osnovnim prehrambenim namirnicama. Pritom bi Kopacine i Grodac imali prednost, jer su obje pozicije nadzirale vlastite izvore, a isto je nudila i Viška luka.

Zbog povoljnosti sidrišta, predlaže se da je i ondje možda postojalo urođeničko naselje, a tri su najizglednije pozicije: Prirovo, isejska Gradina i brdo Sveti Andrija.¹¹⁹ Međutim, trenutačno nema pouzdanih arheoloških potvrda za naselje koje bi istodobno egzistiralo s ostalim željeznodobnim zajednicama na otoku. Početkom 20. stoljeća arheolog amater Nikoleta Dojmi di Delupis na vrhu brda Bratošovac istražio je jednu gomilu s tri komore čiji su ostaci vidljivi i danas, ali nije pronašao gotovo nikakve nalaze niti uočio potencijalne ostatke gradinskog naselja.¹²⁰ Danas gusta makija ne dopušta sustavan pregled terena, dok je gradnja teleoperatorskog centra prenamijenjenog u

and Velo Voščica, Tihobraće, and Molo and Velo Zlo Polje. Sveti Duh, on the other hand, visually encompasses the whole of Dracevo, while Kopacine additionally commands Dracevo Polje. The nearest agricultural fields to Grodac are Donja and Gornja Pojica.

Just like Kopacine, Grodac and Štracine, Sveti Duh offers excellent conditions for monitoring maritime routes. This factor was important both for the exploitation of marine resources and for the control of maritime trade. The island was a vital point on the route that linked central Dalmatia with Monte Gargano via the Dalmatian islands. In addition to this transverse Adriatic route, geographical circumstances also dictated navigation along the longitudinal axis from Ionian Corcyra to Spina, with Vis serving as a convenient stopover.¹¹⁸ Apart from the possible resale of imported goods, the island's importance to seafarers also lay in the supply of basic necessities, such as fresh water and staple foodstuffs. In this respect, Kopacine and Grodac would have had an advantage, since both positions controlled their own water sources, and the same was offered by the port of Vis.

Because of the favourable anchorage, it has been suggested that an indigenous settlement may also have existed there, with the three most likely positions being Prirovo, the Issaeian Gradina hillfort, and Mount Sveti Andrija.¹¹⁹ However, there is currently no reliable archaeological evidence for a settlement that coexisted with the other Iron Age communities on the island. At the beginning of the 20th century, the amateur archaeologist Nikoleta Dojmi di Delupis investigated a cairn with three chambers on the top of Mount Bratošovac, the remains of which are still visible today, but he found virtually no artefacts and did not identify any potential remains of a hillfort settlement.¹²⁰ Today, dense maquis prevents a systematic survey of the terrain, while the construction of a telecommunications centre,

¹¹⁸ KIRIGIN *et al.* 2009: 149, sl. 7.

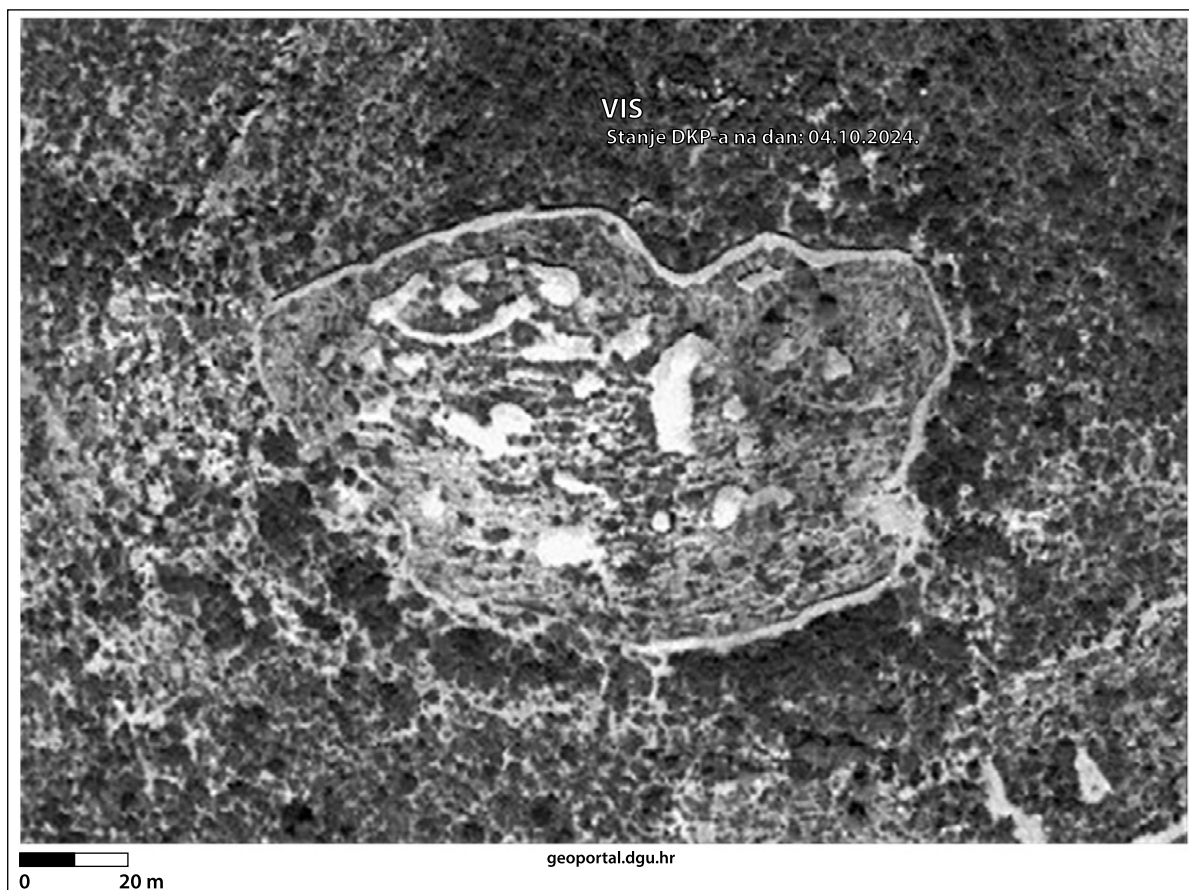
¹¹⁹ KATIĆ 2009: 55–58.

¹²⁰ KIRIGIN 1999: 416.

¹¹⁸ KIRIGIN *et al.* 2009: 149, Fig. 7.

¹¹⁹ KATIĆ 2009: 55–58.

¹²⁰ KIRIGIN 1999: 416.



SLIKA 13. Aerofotografija Gradišća iz 1968. (izvor: Geoportal DGU)

FIGURE 13 Aerial photograph of Gradišće from 1968 (source: Geoportal DGU)

planinarski dom dodatno devastirala lokalitet. Osim toga, literatura ističe i miniranost ovog položaja.¹²¹

Otegotna je okolnost i potencijalna devastacija Prirova i isejske Gradine tijekom grčke urbanizacije. Na to vjerojatno aludiraju ulomci pronađeni iznad rimskih terma tijekom arheoloških istraživanja 2022. koja su provodili Arheološki muzej u Splitu i Hrvatski restauratorski zavod. Tri ulomka gradinske keramike pronađena su u škrapama uz živu stijenu,¹²² a sloj se interpretira kao ispuna kojom je niveliran teren za postavljanje kamenih blokova ulice predrimske Ise. Ovi bi nalazi mogli osnažiti stariju hipotezu o predgrčkom naselju na isejskoj Gradi-

later repurposed as a mountain lodge, has further damaged the site. In addition, the literature also highlights the fact that this position was mined.¹²¹

A further complicating factor is the potential devastation of Prirovo and the Issaeon Gradina during Greek urbanisation. This is likely alluded to by the fragments found above the Roman baths during the 2022 archaeological excavations carried out by the Archaeological Museum in Split and the Croatian Conservation Institute. Three fragments of hillfort pottery were discovered in crevices along the bedrock,¹²² and the layer is interpreted as fill used to level the terrain for the placement of stone blocks in a street of pre-Roman Issa. These finds may strengthen the earlier hypothesis of a pre-Greek settlement

¹²¹ KATIĆ 2009: 56, bilj. 9.

¹²² Zahvaljujemo voditeljima istraživanja lokaliteta Terme sjever Borisu Čargu i Davidu Bergantu koji su dopustili uvid u pronađeni materijal.

¹²¹ KATIĆ 2009: 56, n. 9.

¹²² We would like to thank the leaders of the excavation campaigns at the *Terme sjever* (Thermae North) site, Boris Čargo and David Bergant, for allowing access to the recovered material.

ni.¹²³ Preciznija kronologija ostaje nejasna, a među moguće indikatore ubrajamo tragove brončanodobnih podnica na Prirovu,¹²⁴ ali i korinthske bombile pronađene između rimskih terma i Martvila. Ove grčke posude pronađene su pri gradnji vojne zgrade 50-ih godina prošlog stoljeća. Mladen Nikolanci zbog očuvanosti predmeta pretpostavio je da su bili dio grobnog konteksta,¹²⁵ no samo je ugrubo moguće predložiti da su pripadali grobu urođeničkog moćnika.¹²⁶

Dol koji se proteže od zapada Viške luke prema unutrašnjosti i Vinogradišće sa sjeverne strane Gradine bila bi najveća polja potencijalnoga prapovijesnoga naselja u Viškoj luci. Na zapadnom rubu Dola smještena je uzvisina zaravnate glavice Gracišće s koje se pruža pogled nad čitavim poljem. Na aerofotografiji iz 1968. vidljivi su mogući ostaci bedema koji opasava plato na vrhu (sl. 13). Terenskim pregledom nisu pronađeni ostaci pokretnoga arheološkog materijala pa jedino što insinuirá na postojanje gradine jesu toponim, položaj i ostaci bedema. Budući da je prostor potpuno zarastao u gustu makiju i borovu šumu te je gotovo neprohodan, jedino će sondažna istraživanja u budućnosti moći ponuditi konkretniji odgovor.

Motrište na Štracinama nedvojbeno je pripadalo komunikacijskom sustavu sjeveroistočnog dijela otoka, jer se odande pruža dobar pogled na ulaz u Višku luku i otočić Host. Dobra se vizualna komunikacija može uspostaviti s položajem Terjun u viškoj uvali. Na toj glavici početkom 19. stoljeća izgrađena je engleska utvrda. Obilaskom terena prikupljena su četiri ulomka keramike koju bismo zbog primjesa u sastavu mogli odrediti kao prapovijesnu. Nije nemoguće da je navedeni položaj bio motrište i u vrijeme grčke dominacije uvalom, jer izravno komunicira s vrhom isejske Gradine, nadzirući ulaz u luku.

at the Issaeon Gradina.¹²³ A more precise chronology remains unclear, with possible indicators including traces of Bronze Age floors at Prirovo¹²⁴ and Corinthian *bombilia* found between the Roman baths and Martvilo. These Greek vessels were uncovered during the construction of a military building in the 1950s. Mladen Nikolanci, noting their good state of preservation, suggested that they may have formed part of a grave context,¹²⁵ but it cannot be proposed with any certainty that they belonged to the grave of an indigenous ruler.¹²⁶

The Dol valley, stretching from the western side of the port of Vis towards the hinterland, together with Vinogradišće on the northern side of Gradina, would have formed the largest fields of a potential prehistoric settlement at the port of Vis. On its western edge lies the flattened hilltop of Gracišće, offering a view across the entire field. An aerial photograph from 1968 shows possible remains of a wall encircling the plateau at the summit (Fig. 13). No portable archaeological material was found during the field survey, so the only indications of a hillfort are the toponym, the location and the traces of a wall. As the area is now completely overgrown with dense maquis and pine forest and is nearly impassable, only trial excavations in the future will be able to provide a more concrete answer.

The lookout at Štracine undoubtedly formed part of the communication system of the north-eastern part of the island, since it offers a good view of the entrance to the port of Vis and the islet of Host. Clear visual communication could also be established with the position of Terjun in the bay of Vis, where a British fort was built at the beginning of the 19th century. During the field survey, four pottery sherds were collected which, based on the inclusions in their composition, can be identified as prehistoric. It is not impossible that this position also served as a lookout during the period of Greek control

¹²³ NOVAK 1966: 123.

¹²⁴ KATIĆ 2009: 54–55; ČARGO 2021b: 24

¹²⁵ NIKOLANCI 1977: 149–153.

¹²⁶ UGARKOVIĆ 2019: 17.

¹²³ NOVAK 1966: 123.

¹²⁴ KATIĆ 2009: 54–55; ČARGO 2021b: 24.

¹²⁵ NIKOLANCI 1977: 149–153.

¹²⁶ UGARKOVIĆ 2019: 17.

Sjeverni je dio viškog akvatorija nadzirala pak zajednica na Grodču. Zbog okolnih brda, ta pozicija nije mogla ostvariti vizualnu komunikaciju s najvišim među otočnim motrištima, Svetim Duhom. Ipak, valja promisliti i o mogućnosti komunikacije drugim medijima. Dovoljno velikom vatrom mogla se vršiti signalizacija. O tome svjedoče antički izvori (npr. Polyb. X, 42), a u suvremenoj se literaturi spominje i kao način komunikacije gradina na otoku Hvaru i između susjednih otoka.¹²⁷ Pri kopanju rovova za bunkere na Kopacinama 60-ih godina 20. stoljeća pronađen je sloj gareži koji se protezao gotovo 80 cm u dubinu. Budući da struka nije bila prisutna pri devastaciji, već je informacija prikupljena svjedočanstvom sudionika izgradnje rovova, uz dozu opreza mogli bismo ovaj sloj pripisati sustavu signalizacije vatrom.¹²⁸ Ne treba podcijeniti i zanemariti mogućnost signalizacije puhanjem u primitivna aerofona glazbala, kao što su životinjski rogovi. Dakako, signalizacija zvukom uvelike ovisi o smjeru vjetra pa može funkcionirati samo ako vjetar ide u smjeru kojim bi zvuk trebao putovati ili po bonaci.

ZAKLJUČAK

Terenskim pregledom viškog Grodca utvrđene su nove granice omeđenoga gradinskog prostora, znatno različite od dosadašnjih u literaturi. Sudeći prema prikupljenom keramičkom repertoaru, može se zaključiti da je tamošnja zajednica živjela kroz željezno doba, a uvoz amfora, pitosa, crnopremazane i crvenofiguralne keramike te rimskog posuđa sugerira da je naselje bilo uključeno u aktivnu razmjenu s Grcima i Rimljanima tijekom mlađega željeznog doba. Samo sustavna istra-

of the bay, as it directly communicated with the summit of the Issa Gradina, overlooking the entrance to the harbour.

The northern part of the waters off Vis, however, was monitored by the community at Grodac. Because of the surrounding hills, that position could not maintain visual communication with the highest of the island's lookouts, Sveti Duh. Nevertheless, the possibility of communication by other means should also be considered. Signals could have been transmitted using a sufficiently large fire. This is attested in ancient sources (e.g. Polyb. X, 42), and modern literature also mentions it as a form of communication between hillforts on the island of Hvar and between neighbouring islands.¹²⁷ When trenches for bunkers were dug at Kopacine in the 1960s, a layer of soot almost 80 centimetres deep was discovered. Since no specialists were present during its destruction, and the information was instead obtained from the testimony of participants in the construction of the trenches, this layer could tentatively be attributed to a fire-based signalling system.¹²⁸ Nor should the possibility of signalling by blowing into primitive aerophonic instruments, such as animal horns, be underestimated or disregarded. Of course, sound signalling largely depends on wind direction and can only work if the wind carries the sound in the required direction, or in calm conditions.

CONCLUSION

The field survey of Grodac on Vis established new boundaries of the enclosed hillfort area, which differ significantly from those previously recorded in the literature. Judging by the collected ceramic assemblage, it can be concluded that a local community lived there during the Iron Age, while the import of amphorae, pithoi, black-glazed and red-figure

¹²⁷ O signalizaciji vatrom i širokoj obrambenoj mreži istočnog Jadrana pisao je ZANINOVIĆ (2012: 24).

¹²⁸ Zahvaljujemo Borisu Čargu i Mitru Jaloviju na ovoj dragocjenoj informaciji.

¹²⁷ ZANINOVIĆ (2012: 24) has written about fire signalling and the wide defensive network of the eastern Adriatic.

¹²⁸ We would like to thank Boris Čargo and Mitar Jalović for this valuable information.

živanja imaju potencijal doprinijeti spoznajama o vremenu kad se na Grodču više nije živjelo.

Pregled lokaliteta na Štracinama donio je najveću promjenu s obzirom na postojeće podatke. Osim velike gomile koja dominira kotom, nismo uočili tragove fortifikacijske arhitekture opisane u starijoj literaturi. Uzak i malen prostor na uzvišenju, nedostatak izvora pitke vode te udaljenost od plodnih površina sugeriraju da Štracine valja promatrati kao eventualno motrište s dobrim vizualnim predispozicijama, ali ne i kao gradinu na kojoj se trajno živjelo. Sporadični nalazi prapovijesne keramike oko kamenih razvalina na sjeveroistočnom dijelu poluotoka možda ukazuju na ostatke porušene nekropole. U odronu kamena koji je nastao kao posljedica pljačkanja središnje grobne komore na velikoj gomili pronađen je vrijedan ulomak stamnoidne pikside, datiran u 3. st. pr. Kr., dok je na padinama prikupljen ulomak tipa Gnathia ili crno premazane keramike. Time je nadopunjen kronološki okvir lokaliteta koji je do sada bio ograničen samo na predgrčki period. Zbog poteškoća pri preciznijem datiranju brončanodobne i željeznodobne keramike istočnog Jadrana, prapovijesni je materijal većinom ugrubo određen u željezno doba.

Obilaskom gradinskih lokaliteta Kopacine, Sveti Duh i Sveti Vid te Vele gomile i Krušovice djelomično je upotunjeno kronološko poznavanje nalazišta. Prvenstveni je cilj bio ovjeriti komunikacijski sustav prapovijesnih položaja. Uz međusobne vizualne veze, evidentna je i usmjerenost na nadzor krških polja i plovidbenih ruta. Nema sumnje da su plodna polja na južnoj strani Visa bila važan prirodni resurs, doduše skromnijega proizvodnog potencijala zbog ograničenih obradivih površina koje otok nudi. Raspršenost daunijske keramike po viškim gradinskim položajima sugerira da su prapovijesne zajednice bile usmjerene na komunikaciju s južnom Italijom, vjerojatno ne samo zbog uvoza keramike te ostalih svakodnevnih ili luksuznih dobara, već primarno

pottery, as well as Roman tableware, suggests that the settlement was involved in active exchange with the Greeks and Romans during the Late Iron Age. Only systematic excavations have the potential to shed more light on the point when Grodac ceased to be inhabited.

The survey of the site at Štracine brought about the most significant change compared to the existing data. Apart from the large cairn that dominates the elevation, we did not observe traces of fortification architecture described in earlier literature. The narrow and small area on the elevation, the absence of a source of fresh water, and the distance from fertile fields suggest that Štracine should be viewed as a possible lookout point with good visual predispositions, but not as a hillfort that was permanently inhabited. Sporadic finds of prehistoric pottery around the stone ruins on the north-eastern part of the peninsula may point to the remains of a destroyed necropolis. In the rockfall caused by the looting of the central burial chamber of the large tumulus, a valuable fragment of a stamnoid pyxis, dated to the 3rd century BC, was discovered, while on the slopes a fragment of Gnathia or black-glazed pottery was collected. This has supplemented the chronological framework of the site, which until now has been limited solely to the pre-Greek period. Due to the difficulties in more precise dating of Bronze Age and Iron Age pottery in the eastern Adriatic, most of the prehistoric material has been broadly assigned to the Iron Age.

The survey of the hillfort sites of Kopacine, Sveti Duh and Sveti Vid, as well as Vela Gomila and Krušovice, has partially refined the chronological understanding of these sites. The primary objective was to verify the communication system of prehistoric locations. In addition to the intervisibility of sites, there is clear evidence of an orientation towards the control of karst fields and maritime routes. There is no doubt that the fertile fields on the southern side of Vis were an important natural resource, albeit with limited productive potential due to the restricted arable land available on the island. The dispersal of Daunian pottery across Vis hillfort sites sug-

zbog prehrambenih, a ponajprije žitnih zaliha. U prapovijesno doba Daunija je bila znamenita po izvozu žita,¹²⁹ a unatoč trenutačno skromnijim tragovima daunijske keramike na Visu,¹³⁰ njihova raspršenost diljem Dalmacije i istočne obale Jadrana sugerira da je otok bio važna postaja uz koju je kolala italska roba. Prapovijesni su stanovnici otoka Visa zauzvrat mogli prodavati raznolike morske resurse kojima obiluju vode otočnog arhipelaga. Pritom je razumljivo i usmjerenje na nadzor pomorskih ruta. Kopacine, Sveti Duh, Štracine, Terjun i Grodac imali su povoljne predispozicije za kontrolu plovidbe, bilo na ruti koja je povezivala dalmatinsko kopno s nasuprotnom italiskom obalom bilo na uzdužnom pravcu koji je spajao Jonsko more sa sjevernim Jadranom. Vis se ističe i kao postaja za opskrbu elementarnim potrepštinama, osobito pitkom vodom koju su mornari mogli mijenjati za dobra kod Kopacina, Grodca ili u viškoj uvali. Sljedeća istraživanja bit će usmjerena na ključni problem o kojem još nemamo dovoljno spoznaja – pitanje koegzistencije ili raznovremenosti života na spomenutim položajima.

Zahvale

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gests that prehistoric communities were oriented towards communication with southern Italy, probably not only for the import of pottery and other every day or luxury goods, but primarily for food supplies, above all grain reserves. In prehistoric times, Daunian was renowned for its grain exports,¹²⁹ and despite the currently modest traces of Daunian pottery on Vis,¹³⁰ its dispersal across Dalmatia and the eastern Adriatic coast suggests that the island was an important station through which Italic goods circulated. In return, the prehistoric inhabitants of Vis could have traded various marine resources abundant in the island's waters. This also explains the orientation towards the control of maritime routes. Kopacine, Sveti Duh, Štracine, Terjun and Grodac had favourable conditions for overseeing navigation, whether along the route connecting the Dalmatian mainland with the opposite Italic coast or along the longitudinal route linking the Ionian Sea with the northern Adriatic. Vis also stood out as a station for the supply of basic necessities, particularly fresh water, which sailors could exchange for goods at Kopacine, Grodac or in the Bay of Vis. Future research will focus on a key issue for which we still lack sufficient knowledge – the question of coexistence or chronological diversity of life at the mentioned sites.

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*Translation and proof-reading:
ETNOtrend d.o.o.*

¹²⁹ D'ERCOLE 2002: 311–315.

¹³⁰ Primjerice, iz nekoliko probnih sonda na Kopacinama objelodanjeno je šest ulomaka daunijske keramike koji se datiraju od 8. do 6. st. pr. Kr. Usp. KIRIGIN *et al.* 2024: 93.

¹²⁹ D'ERCOLE 2002: 311–315.

¹³⁰ For example, several trial trenches at Kopacine yielded six fragments of Daunian pottery, dated to between the 8th and 6th centuries BC. Cf. KIRIGIN *et al.* 2024: 93.

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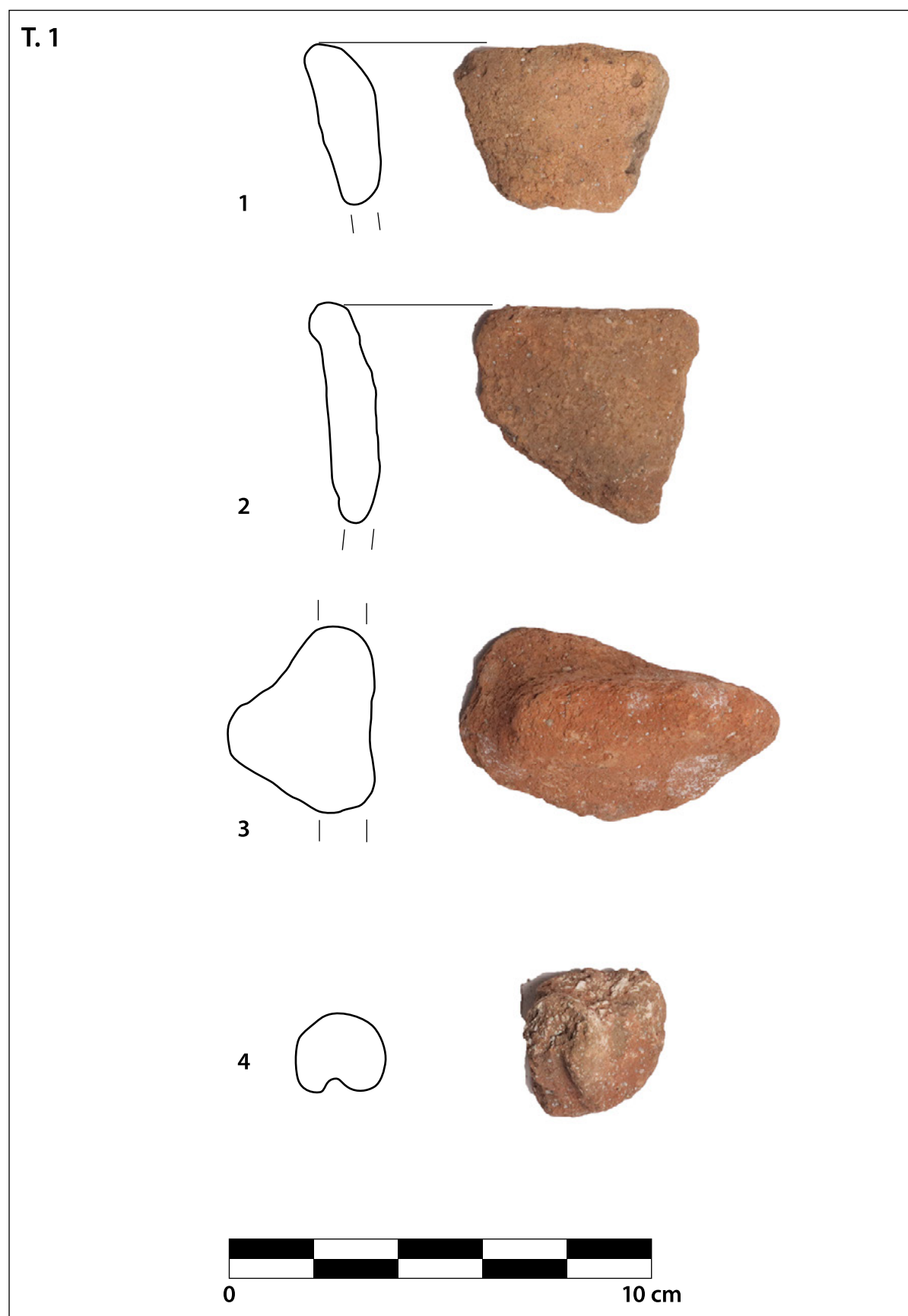


TABLA 1. *Lokalitet Grodac*
PLATE 1 *Lokalitet Grodac*

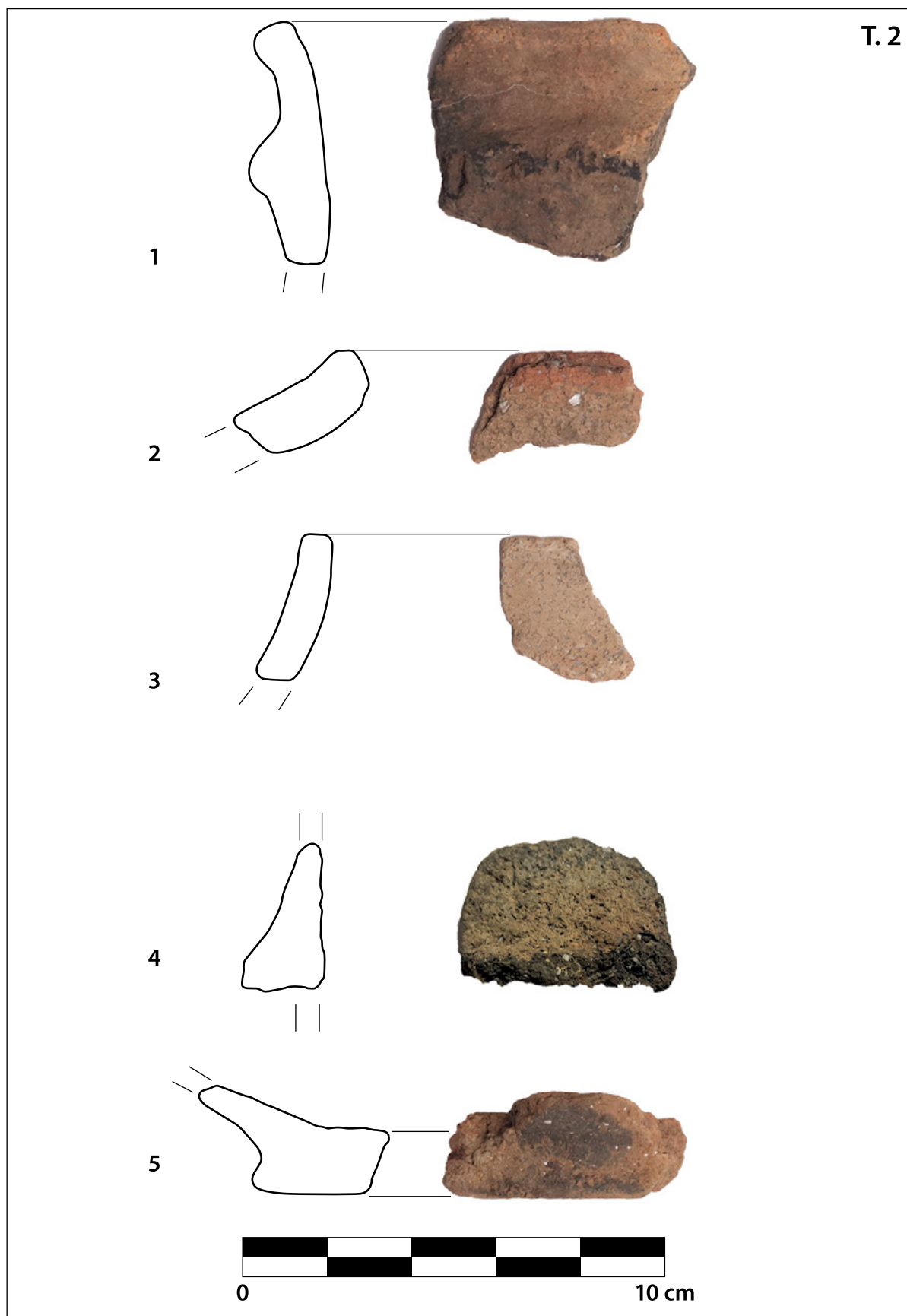


TABLA 2. Lokalitet Štracine
PLATE 2 Lokalitet Štracine

T. 3**TABLA 3.** 1–2: lokalitet Štracine, 3–9: lokalitet Grodac**PLATE 3** 1–2: lokalitet Štracine, 3–9: lokalitet Grodac

O JEDNOM TIPU AMFOROIDNIH PITOSA SA ŽELJEZNODOBNIH GRADINA OTOKA KORČULE

ON A TYPE OF AMPHOROID PITHOS FROM THE IRON AGE HILLFORTS OF THE ISLAND OF KORČULA

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KLJUČNE RIJEČI:

*Kopila, otok Korčula,
mlade željezno doba,
amfore, pitosi*

Angažman na proučavanju gradinskih naselja otoka Korčule u posljednje je vrijeme dobio na intenzitetu, prije svega arheološkim istraživanjima na gradini Kopila kod Blata i Stine kod Žrnova. Uz to, pojedina gradinska naselja bila su i mjestom višestrukih rekognosciranja, a jedno je od njih i Smokviška gradina, pozicionirana nad glavnom transversalom koja spaja zapadni i središnji dio otoka. Navedena tri lokaliteta mjesta su nalaza specifičnih keramičkih predmeta koji po morfološkim odlikama odgovaraju amforama, no po dimenzijskima i tehnološkim skladišnim posudama tipa pitos. U radu se raspravlja o potencijalnim uzorima za njihovo oblikovanje te donosi viđenje njihova vremenskog, ishodišnog i namjenskog određenja, i to u kontekstu do sada poznatih okolnosti života mlade željeznodobnih zajednica otoka Korčule.

KEY WORDS:

*Kopila, Island of
Korčula, Late Iron Age,
amphorae, pithoi*

In recent years, research on the hillfort settlements of the island of Korčula has intensified, primarily through archaeological excavations at the Kopila hillfort near Blato and the Stine hillfort near Žrnovo. In addition, several hillfort sites have been subject to multiple surveys, one of which is the Smokvica hillfort, positioned above the main transversal route connecting the western and central parts of the island. These three sites have yielded distinctive pottery artefacts that, by their morphological features, correspond to amphorae; however, their dimensions and technological characteristics place them in the category of storage vessels of the pithos type. This paper discusses models that might have inspired their form and offers an interpretation of their provenance as well as their chronological and functional characteristics within the context of the known circumstances of life in the Late Iron Age communities on the island of Korčula.

Sve intenzivnija arheološka istraživanja na području otoka Korčule pokazuju kako je tamošnje kasno željezno doba razdoblje vrlo intenzivnog života u kojem se reflektira opća društveno-politička te gospodarska slika srednjeg i južnog dijela istočnog Jadrana. Prije svega, određuju je multietničnost, a time i multikulturalnost regije, obilježja nastala slijedom grčke kolonizacije otoka Visa i Hvara,¹ do tada naseljenih isključivo indigenim zajednicama, a zatim i svih kasnijih povijesnih procesa koji u vrlo složen koloplet odnosa dovode indigeno ilirsko te doseljeničko helensko, a potom i italo-rimsko stanovništvo.² Takvo definiranje temeljeno je prije svega na komplementarnosti geografskih i povijesnih izvora u čijem je fokusu bilo navedeno područje, ali još više i na sve brojnijem te raznovrsnijem arheološkom materijalu koji vrlo sugestivno upućuje na iznimno dobro razvijene trgovačke, a posredstvom njih periodično sigurno i diplomatske te mnoge ine odnose među istaknutim subjektima.

Strateško pozicioniranje i određivanje uloge korčulanskih željeznodobnih zajednica u takvim je okolnostima moralo biti temeljeno na valorizaciji dvaju glavnih čimbenika.³ Prvi je od njih geografski položaj otoka u cjelini, ali i onih posebno atraktivnih zona na njegovim krajnjim istočnim i zapadnim stranama. Ogleda se u mogućnostima kontrole i korištenja u maritimno-trgovačkom smislu posebno vitalnoga Pelješkog, ali i Korčulanskog te Lastovskog kanala, dakle u okvirima mlađeg željeznog doba vrlo frekventnog akvatorija, na što, među ostalim, upućuju i brojne podmorske arheološke lokacije brodoloma, luka i sidrišta.⁴ Drugi čimbenik razvoja odnosi se na dostupne prirodne resurse i tu pri-

The increasingly intensive archaeological research conducted on Korčula indicates that the Late Iron Age on the island was a period of acute activity, reflecting the broader socio-political and economic landscape of the central and southern parts of the eastern Adriatic. This period was characterised above all by the region's multiethnic and, consequently, multicultural composition – attributes that emerged following the Greek colonisation of the islands of Vis and Hvar,¹ which had until then been inhabited solely by indigenous communities. Subsequent historical processes further intertwined the local Illyrian population with the incoming Hellenic settlers, and later with Italic and Roman influences.² This definition is based primarily on the complementarity of geographical and historical sources focusing on the region, but even more on the growing quantity and diversity of archaeological material, which convincingly attest to well-developed trade networks – and, through them, to intermittent diplomatic and other forms of interaction between prominent entities.

In such circumstances, the strategic positioning and role of Korčula's Iron Age communities must have been founded upon the evaluation of two principal factors.³ The first was the island's geographical position as a whole, particularly the highly desirable zones located at its eastern and western extremities. This was reflected in the communities' ability to control and exploit, in a maritime and commercial sense, the strategically important Pelješac Strait, as well as the Korčula and Lastovo Straits – seaways that were heavily navigated during the Late Iron Age, as evidenced by numerous underwater archaeological sites, including shipwrecks, harbours and anchorages.⁴ The second developmental factor

¹ O grčkim kolonijama Issa i Pharos kod KIRIGIN 1996; 2004; JELIČIĆ RADONIĆ, KATIĆ 2015.

² O povijesnim procesima i društvenim odnosima kod MATIJAŠIĆ 2009; ŠAŠEL KOS 2005; DŽINO, DOMIĆ KUNIĆ 2013; ZANINOVIĆ 2015.

³ RADIĆ, BORZIĆ 2017; BORZIĆ 2025.

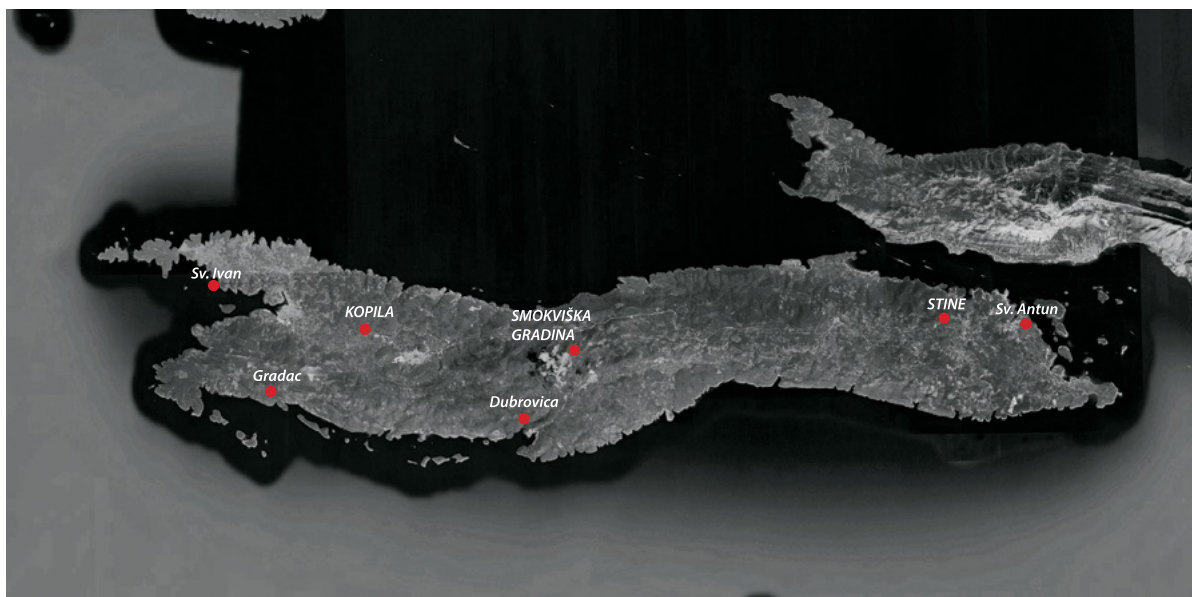
⁴ KOZLIČIĆ 2001; JURIŠIĆ 2001; RADIĆ ROSSI 2005; BORZIĆ 2009.

¹ On the Greek colonies of Issa and Pharos, see KIRIGIN 1996; 2004; JELIČIĆ RADONIĆ, KATIĆ 2015.

² On their historical processes and social relations, see MATIJAŠIĆ 2009; ŠAŠEL KOS 2005; DŽINO, DOMIĆ KUNIĆ 2013; ZANINOVIĆ 2015.

³ RADIĆ, BORZIĆ 2017; BORZIĆ, 2025.

⁴ KOZLIČIĆ 2001; JURIŠIĆ 2001; RADIĆ ROSSI 2005; BORZIĆ 2009.



SLIKA 1. Gradinski lokaliteti otoka Korčule s potvrđenom željeznodobnom naseljenošću (izradio: I. Borzić)

FIGURE 1 Hillfort sites on the island of Korčula with confirmed Iron Age occupation (made by I. Borzić)

je svega treba istaknuti kontinuirane obradive površine koje se od zaljeva Vele Luke na zapadu preko Blatskog polja protežu duboko u unutrašnjost kopna te one nešto manje, ali dovoljno izdašne na krajnjem istočnom dijelu otoka. Shvaćanjem potencijala i kombiniranjem navedenih čimbenika jasno je zašto se Korčula u mlađem željeznom dobu smatra populacijski vrlo snažnim i utjecajnim otokom, koji je na kraju krajeva kao pozornica prisutan u nekoliko događaja spomenutih u povijesnim izvorima.⁵

Kao posljedica opisanih čimbenika razvoja korčulanskih zajednica, na otoku se bilježi vrlo brojna te tipološki i ishodišno raznovrstan arheološki materijal, među kojim je za ovu priliku izdvojena još uvijek malobrojna, ali vrlo indikativna kategorija nalaza. Riječ je o specifičnom tipu skladišno-transportnih posuda, svojevrsnom amforoidnom pitosu, do sad pronađenom među materijalom s triju otočnih kasnoželjeznodobnih gradina, nedvojbeno nositeljica razvoja triju izdvojenih otočnih regija, one zapadne okrenute Blatskom polju i zaljevu Vele Luke, zatim središnje upućene poljima smokvičko-čar-

concerned the availability of natural resources, above all the presence of arable land extending continuously from the bay of Vela Luka in the west, across the Blato plain deep into the island's interior, as well as somewhat smaller yet sufficiently fertile areas in its far eastern part. Recognition of the potential and interaction of these factors helps explain why Korčula is regarded as having been a densely populated and influential island during the Late Iron Age – one that, ultimately, features as a setting for several events recorded in historical sources.⁵

As a consequence of these developmental circumstances, the island has yielded an abundant and typologically (as well as culturally) diverse corpus of archaeological material, from which, for the purpose of this paper, a limited but still highly indicative category of finds has been singled out. The subject at hand is a specific type of storage and transport vessel – a kind of amphoroid pithos – discovered among material from three Late Iron Age hillforts on the island, each clearly representing a distinct regional centre: the western, oriented towards the Blato plain and the bay of Vela Luka; the central, connected with the Smokvica–Čara lowlands; and the

⁵ Vidjeti bilj. 3.

⁵ See n. 3

skog areala te konačno istočne, u čijoj su domeni djelovanja izlazi na Pelješki kanal te poljoprivredne i ine zone oko Žrnovskog polja (sl. 1).

Sam nalaz skladišno-transportnih posuda na navedenim, ali i ostalim lokalitetima ovog tipa nije neka posebna vijest. Dapače, riječ je o uobičajenoj vrsti predmeta zabilježenoj u različitim morfološkim i tehnološkim varijantama putem kojih ih se generalno može razdijeliti na one izrađene u manirama indigene keramičarske tradicije te one koje sasvim sigurno pripadaju importu iz obližnjih helenističkih središta.⁶ No ono što nas je ponukalo na izdvajanje i zasebno prezentiranje ovdje interesnog tipa jest njegova specifičnost koja s jedne, one morfološke strane pokazuje sve odlike klasičnih amfora, dok s one druge, tehničke, ipak više odgovara tipičnim masivnim skladišnim posudama, dakle klasičnim pitosima, što ga čini svojevrsnim hibridom. No prije no što se osvrnemo na te detalje, radi kontekstualizacije teme ukratko će se predstaviti lokaliteti s kojih studijski materijal i potječe.

Trenutačno je najbolje poznat lokalitet gradina Kopila, smještena na sjevernom rubu Blatskog polja na zapadnom dijelu otoka (sl. 2).⁷ Nakon inicijalnih topografskih saznanja o tipično gradinskom lokalitetu, recentna arheološka istraživanja ukazala su kako je riječ o naselju čije se trajanje prati još od srednjega brončanog doba, konkretno 16./15. st. pr. Kr. Njegov znatniji iskorak na scenu poklapa se s povećanim interesom grčkih i južnoitalskih zajednica za odnose s istočnim Jadranom, dakle razdobljem 7. i 6. st. pr. Kr. Tada se, naime, datira pet korinških posuda i arhajska staklena pločica koje se dovodi u vezu s ovim lokalitetom i koje su krajem 19.

eastern, whose sphere of activity encompassed access to the Pelješac Strait and the agricultural and surrounding areas around the Žrnovo plain (Fig. 1).

The discovery of storage and transport vessels at these and similar sites is not in itself remarkable. On the contrary, such finds are common and appear in various morphological and technological variants, which can broadly be divided into those made in the manner of indigenous pottery-making traditions and those that clearly were imports from nearby Hellenistic centres.⁶ What prompted us to single out and present this particular type, however, is its distinctiveness: morphologically, it exhibits all the features of classical amphorae, while from a technical perspective it more closely corresponds to the robust storage vessels known as pithoi – thus forming a kind of hybrid between the two. Before we turn to these details, the sites from which the studied material originates will briefly be presented to provide contextual grounding for the discussion.

The best-known site at present is the hillfort of Kopila, located on the northern edge of the Blato plain, in the western part of the island (Fig. 2).⁷ Following the initial topographical observations that identified Kopila as a typical hillfort site, recent archaeological research has revealed that it was, in fact, a settlement with continuous occupation traceable back to the Middle Bronze Age – specifically to the 16th/15th centuries BC. Its emergence into greater prominence coincided with the period of increased interest in the eastern Adriatic shown by Greek and South Italian communities during the 7th and 6th centuries BC. This phase is represented by five Corinthian vessels and an Archaic glass plaque associated with the site, which entered the Dubrovnik

⁶ O nalazima pitosa na srednjodalmatinskim otocima vidjeti kod KIRIGIN *et al.* 2006; KIRIGIN 2007. O trenutačno objavljenim nalazima s otoka Korčule kod BORZIĆ, RADIĆ 2021; BORZIĆ 2022.

⁷ Najosnovnije informacije s historijatom istraživanja do 2017. vidjeti kod FADIĆ, ETEROVIĆ BORZIĆ 2017. Nakon toga kod BORZIĆ 2022.

⁶ On pithos finds from the central Dalmatian islands, see KIRIGIN *et al.* 2006; KIRIGIN 2007. For currently published finds from the island of Korčula, see BORZIĆ, RADIĆ 2021; BORZIĆ 2022.

⁷ For the basic information and the history of research up to 2017, see FADIĆ, ETEROVIĆ BORZIĆ 2017. Subsequently, see BORZIĆ 2022.



SLIKA 2. Gradina Kopila nad Blatskim poljem, pogled sa sjevera (snimio: L. Bogdanić)

FIGURE 2 Hillfort of Kopila above the Blato field, view from the north (photo by L. Bogdanić)

stoljeća pristigle u Dubrovačke muzeje,⁸ ali i sve veći broj ulomaka daunijske geometrijske keramike pronađene u nasipnim dijelovima nekropole te slojevima unutar naselja. Ipak, čini se da zajednica s Kopile svoj najveći uspon doseže tijekom mlađeg željeznog doba, što je do sad argumentirano prije svega posebno dobro istraženom nekropolom naselja,⁹ prepoznatljivom po specifičnoj prostornoj organizaciji te karakteru brojnih grobnih priloga. Njihova tipološka raznovrsnost te podijeljenost na proizvode iznikle iz indigene ilirske obrtničke tradicije, prije svega oružje i funkcionalno-ukrasni dijelovi odjeće, te proizvode helenističkog, a kasnije i italo-rinskoga umjetničko-obrtničkog miljea, pretežito sve varijante helenističke keramike te metalni, stakleni i jantarni nakitni elementi, sugeriraju intenzivnu prisutnost

Museums⁸ at the end of the 19th century, as well as by an increasing number of fragments of Daunian geometric pottery found in the fill layers of the necropolis and within the settlement strata. Even so, the Kopila community appears to have reached its peak during the Late Iron Age. This has so far been substantiated primarily through the exceptionally well-studied necropolis of the settlement,⁹ notable for its distinctive spatial organisation and the character of its numerous grave goods. The typological diversity of these grave goods – ranging from items rooted in indigenous Illyrian craftsmanship, such as weapons and functional or decorative elements of clothing, to products of Hellenistic and later Italo-Roman artistic and artisanal traditions, including various forms of Hellenistic pottery as well as metal, glass and amber ornaments – indicates the community's strong engagement

⁸ O nalazima deponiranima u Dubrovačkim muzejima kod RADIĆ 2003.

⁹ RADIĆ, BORZIĆ 2017a; BORZIĆ 2022.

⁸ For the finds deposited in the Dubrovnik Museums, see RADIĆ 2003.

⁹ RADIĆ, BORZIĆ 2017a; BORZIĆ 2022.

ove zajednice na tržištu, a time i u ostalim povijesnim zbivanjima u razdoblju od sredine 4. do kraja 1. st. pr. Kr.¹⁰ O naselju iz navedenog razdoblja nema mnogo podataka jer se tek počelo istraživati, no preliminarno se može reći kako karakter nalaza očekivano odudara od onog s nekropole te da je uglavnom predstavljen grubom željeznodobnom keramikom skladišnog, kuhinjskog i stolnog određenja, kao i skladišno-transportnim oblicima, dakle amforama i pitosima, tipološki svojstvenima helenističkom i kasnorepublikanskom razdoblju na istočnom Jadranu.¹¹

Krećući se dalje prema istoku otoka, sljedeći za temu bitan lokalitet jest Smokviška gradina,¹² idealno položena na kontaktu udoline koja se od zaljeva Vele Luke gotovo kontinuirano proteže 13 km u unutrašnjost otoka te niza manjih i većih polja smokvičko-čarskog prostora, s fantastičnim pregledom središnjeg dijela Korčulanskog kanala (sl. 3). Reljefno gledano, riječ je o iznimno strmom brdu s relativno malim akropolskim platoom dimenzija 47 × 20 m, danas sa zapadne strane uokvirenim vrlo fino i žbukom vezanim zidom kasnoantičke ili čak i kasnije gradnje, u čijoj se strukturi mjestimično nalaze i megalitski blokovi, potencijalno kasne prapovijesne datacije (sl. 4). Zbog izostanka konkretnih arheoloških istraživanja, o prapovijesnoj periodizaciji ovog naselja nije moguće suvislo govoriti, a jedino što je sigurno i što je temeljeno na rekognosciranjem uočenom i dijelom sakupljenom materijalu jest da je korištena tijekom mlađeg željeznog doba. Navedeno se, uz grubo lokalno posuđe, prije svega temelji na zabilježenim ulomcima grčko-italskih i Lamboglia 2 amfora te klasifikacijski neodredivih, ali sasvim sigurno helenističkih ulomaka stolnog posuđa. Dodajmo ovome da s obližnjeg polja Dol potječe i nalaz tetradrahme Ptolemeja I. Sotera s

in trade and, by extension, in broader historical developments between the mid-4th and the late 1st centuries BC.¹⁰ Little is known about the settlement itself during this period, as its systematic investigation has only recently begun. However, preliminary observations suggest that the character of the finds differs, as expected, from that of the necropolis and is predominantly represented by coarse Iron Age pottery used for storage, cooking and serving, as well as by storage and transport forms – namely amphorae and pithoi – typologically characteristic of the Hellenistic and Late Republican periods on the eastern Adriatic.¹¹

Moving further east across the island, the next site relevant to this discussion is the Smokvica hillfort,¹² ideally situated at the junction between a basin extending almost continuously for 13 km inland from the bay of Vela Luka and a series of smaller and larger plains in the Smokvica–Čara area; it offers an outstanding view of the central part of the Korčula Strait (Fig. 3). In terms of relief, it is an exceptionally steep hill with a relatively small acropolis plateau measuring 47 × 20 m, today bordered on its western side by a finely built wall bonded with mortar, dating from Late Antiquity or possibly even after, which in places incorporates megalithic blocks potentially dating to the late prehistoric period (Fig. 4). In the absence of systematic archaeological excavations, a coherent discussion of the prehistoric periodisation of this settlement is not yet possible. The only certainty (based on material identified and partly collected during reconnaissance) is that the site was in use during the Late Iron Age. This conclusion is primarily supported (alongside the presence of coarse local pottery) by the recorded fragments of Greco-Italic and Lamboglia 2 amphorae, as well as several unclassified but clearly Hellenistic tableware fragments. It is worth adding that a find of a tetradrachm of Ptolemy I Soter, dat-

¹⁰ Uz bilj. 7 vidjeti i ČELHAR, BORZIĆ 2024.

¹¹ O potonjoj grupi proizvoda kod BORZIĆ 2007.

¹² RADIĆ, BASS 2001: 137.

¹⁰ See also ČELHAR, BORZIĆ 2024 in relation to n. 7.

¹¹ For the latter group of products, see BORZIĆ 2007.

¹² RADIĆ, BASS 2001: 137.



SLIKA 3. Smokviška gradina, pogled s juga (snimio: I. Borzić)

FIGURE 3 Smokvica hillfort, view from the south (photo by I. Borzić)



SLIKA 4. Smokviška gradina, zidana struktura na zapadnom obodu akropolisnog dijela lokaliteta (snimio: I. Borzić)

FIGURE 4 Smokvica hillfort, masonry structure on the western edge of the acropolis area (photo by I. Borzić)

početka 3. st. pr. Kr., nažalost, iz nepoznatog konteksta,¹³ ali opet dovoljno indikativan da potvrdi cirkulaciju helenističkih dobara i na ovom području.

Treći lokalitet koji spominjemo u kontekstu nalaza ovdje interesantne građe jest gradina Stine (sl. 5), tek u posljednje vrijeme apostrofirana kao jedno od najvažnijih gradinskih naselja istočnog dijela otoka Korčule.¹⁴ Utopljenost u pejzaž dugo ju je skrivala od očiju arheologa, no višekratna rekognosciranja uspjela su izdvojiti pojedine segmente lokaliteta položenog na blagim, danas kaskadnim padinama brda i prepoznati sve prednosti odabira upravo ove prirodno savršeno zaštićene pozicije na obodu Žrnovskog polja, neznatno udaljenog od obala više puta spominjanoga Pelješkog kanala. Pregled terena te u posljednje vrijeme provedena manja probna iskopavanja¹⁵ pružila su zaista pregršt pokretnog materijala dostatnog za pozicioniranje ovog naselja barem u vrijeme kasnoga željeznog doba, a izvjesno i u njemu prethodna razdoblja. Karakter tog materijala odgovara onom zabilježenom na ostalim spomenutim pozicijama, no osim prevladavajuće grube keramike, ovdje zaista fascinira količina ulomaka amfora među kojima su za sada zabilježeni tipovi Korint A, Korint B, grčko-italskog te, naravno, Lamboglia 2.¹⁶ Navedeno vrlo jasno pokazuje kako je riječ o naselju koje vrijedi uzeti u obzir kao izravnog sudionika u događanjima oko osnutka isejske naseobine u Lumbardi, ali i svim sljedećima koji su se doticali obala Pelješkog kanala, završno s Oktavijanovom depopulacijom otoka, koja je i ostala spomenuta naselja prepustila zaboravu.

Ukratko predstavljena tri lokaliteta mje-

ing from the early 3rd century BC, originates from the nearby Dol plain. Although its context is unknown,¹³ it remains a sufficiently indicative piece of evidence confirming the circulation of Hellenistic goods in this area.

The third site mentioned in connection with the finds of the material discussed here is the hillfort of Stine (Fig. 5), only recently recognised as one of the most important such settlements in the eastern part of the island.¹⁴ Its integration into the natural landscape long kept it hidden from the eyes of archaeologists, but repeated reconnaissance made it possible to successfully identify individual segments of the site, situated on the gentle, now terraced slopes of a hill, and to recognise the advantages of its naturally well-protected position on the edge of the Žrnovo plain, only slightly removed from the shores of the frequently mentioned Pelješac Strait. A field survey and more recent small-scale test excavations¹⁵ have yielded a wealth of movable material sufficient to date this settlement at least to the Late Iron Age, if not earlier periods. The character of the material corresponds to that recorded at the other sites mentioned, but in addition to the predominance of coarse pottery, what is truly striking here is the quantity of amphora fragments, among which Corinth A, Corinth B, Greco-Italic and, naturally, Lamboglia 2 types have been identified.¹⁶ This clearly indicates that the settlement should be regarded as having participated directly in the events surrounding the foundation of the Issa colony in Lumbarda, as well as in all subsequent developments along the shores of the Pelješac Strait, culminating in Octavian's depopulation of the island, which consigned these settlements to oblivion.

The three sites briefly presented above are the

¹³ LISIČAR 1963: 76-77.

¹⁴ RADIĆ, BORZIĆ 2017; BORZIĆ, RADIĆ 2021.

¹⁵ Istraživanja provedena u dvije kampanje vodila je mag. archaeol. Marta Kalebota (Gradski muzej Korčule) uz suradnju kolega iz Dubrovačkih muzeja, Odsjeka za arheologiju Filozofskog fakulteta u Zagrebu te Odjela za arheologiju Sveučilišta u Zadru.

¹⁶ BORZIĆ, RADIĆ 2021.

¹³ LISIČAR 1963: 76-77.

¹⁴ RADIĆ, BORZIĆ 2017; BORZIĆ, RADIĆ 2021.

¹⁵ The excavations, conducted over two campaigns, were directed by Marta Kalebota (Korčula Town Museum), in collaboration with colleagues from the Dubrovnik Museums, the Department of Archaeology of the Faculty of Humanities and Social Sciences of the University of Zagreb and the Department of Archaeology of the University of Zadar.

¹⁶ BORZIĆ, RADIĆ 2021.



SLIKA 5. Gradina Stine kod Žrnova, pogled s juga (snimio: I. Borzić)

FIGURE 5 Hillfort of Stine near Žrnovo, view from the south (photo by I. Borzić)

sta su nalaza ulomaka ovdje interesantnih posuda, u istu skupinu predmeta svrstanih prije svega zbog bliskih morfoloških odlika. Na temelju njih bilo je moguće zaključiti kako manipuliramo dijelovima oboda velikih teških posuda otvora širokih čak do cca 25 do 28 cm. Odlikuje ih trokutasto oblikovan masivni obod na vrhu kojeg se nalazi niska, manje ili više široka istaka, koja ustvari predstavlja pravi prstenasti, blago izvijeni rub posude (T. I/1–3; II/1, 3–4). Izvjesno je kako ta istaka ima veze s načinom poklapanja posude poklopcem koji mogao biti jednostavnoga pločastog oblika s obrnuto postavljenim obodom. Na četiri poznata primjerka s gradina Kopile (T. I/1–2) i Stine (T. II/4) vidljivo je kako je donja ploha trokutastog izdanka bila naslonjena na gornji korijen masivne i prema jednom ulomku očito ne pretjerano duge, ali naglašeno lučno oblikovane ručke, kojih je po nekoj logici moralo biti najmanje dvije. U dva slučaja ima kapljica, suzolik presjek s vrhom

findspots of fragments of the vessels discussed here, which can be classified into the same group primarily on the basis of their close morphological features. From these features it was possible to conclude that we are dealing with parts of the rims of large, heavy vessels with openings measuring approximately 25–28 cm in diameter. They are characterised by a massive, triangularly shaped rim, at the top of which is a low projection of varying width that forms a true ring-shaped, slightly everted lip (Pl. I/1–3; II/1, 3–4). It is likely that this projection is related to the vessel having been covered with a lid, which may have been of a simple, flat form with an inverted rim. On the four known specimens from the hillforts of Kopila (Pl. I/1–2) and Stine (Pl. II/4), it is evident that the lower surface of the triangular extension rested on the upper root of a massive, apparently not overly long but markedly arched handle, of which there must logically have been at least two. In two cases, the handle has a drop- or teardrop-shaped cross-section with the point on the upper side (Pl. I/1;

na gornjoj strani (T. I/1; II/4), što je presjek zabilježen na jednom ulomku ručke s gradine Kopila, koji gotovo sigurno pripada ovom tipu posude. S druge strane, jedan primjerak s Kopile ukazuje da su ručke mogle imati i ovalniji presjek (T. I/2) te da su s donje strane završavale na, po svemu sudeći, blago položenom ramenu posude. Opisane odlike sugeriraju kako vrat ovih posuda nije bio pretjerano visok i da, po svemu sudeći, slijedi cilindričnu formu. O oblikovanju ostalih dijelova predmetnih posuda za sada nemamo nikakvih podataka, no nema sumnje kako je generalno bila riječ o dosta masivnim i reprezentativnim recipijentima, na što ukazuje i debljina njihovih stijenki koja iznosi od 1,4 do čak 2,2 cm. Ulomak dna s Kopile istih fabrikatnih odlika sugerira masivnu kružnu prstenastu nogu (T. II/2).

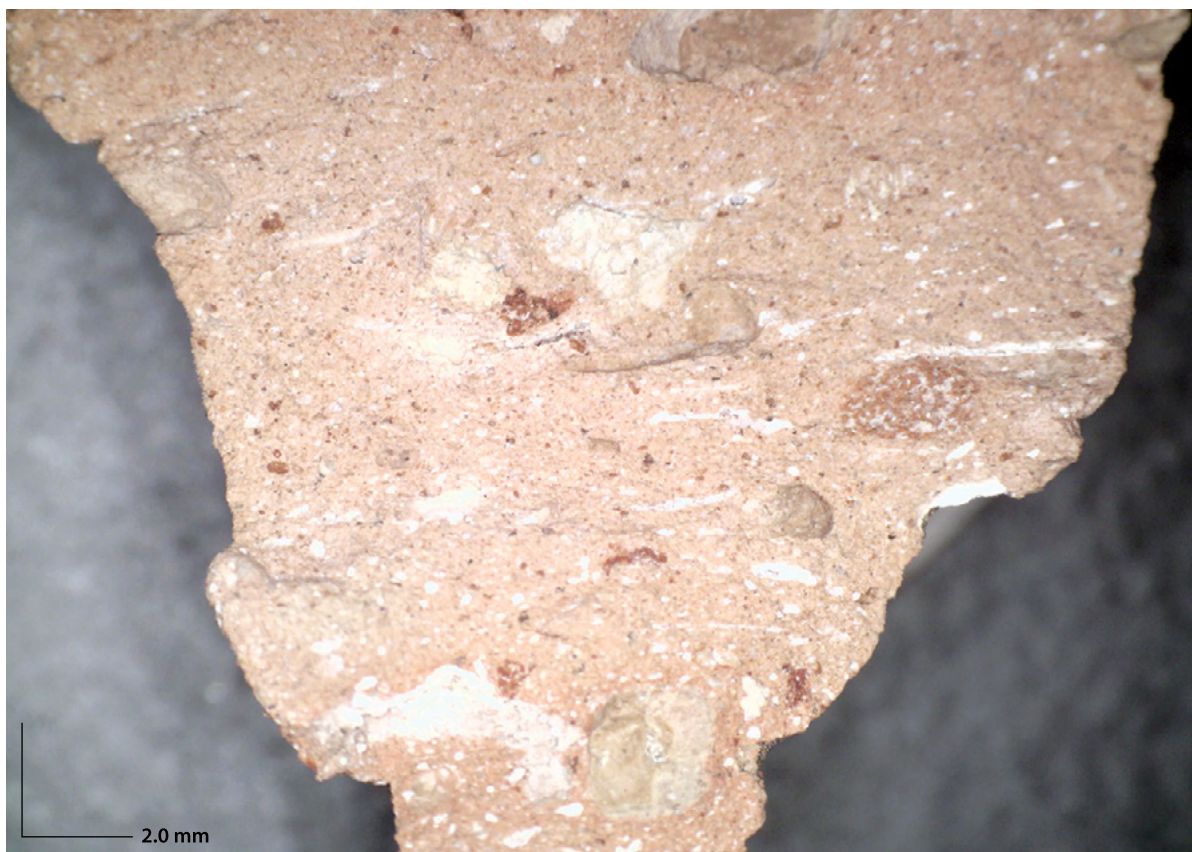
Drugi kriterij koji nas je ponukao da svih sedam ulomaka sagledamo kao dio iste grupe predmeta njihove su fakturane odlike prepoznatljive po velikom broju sitnih pjeskastih primjesa bijele i sive boje te nešto većim uglatim kamenim česticama koje u središtu imaju sivu, a prema rubovima bijelu boju (sl. 6). U manjoj se mjeri pojavljuju i čestice samljevene keramike, odnosno groga. Tehnički gledano, zbog potrošenosti stijenki dosta je teško reći jesu li predmetne posude bile barem dijelom izrađene na kolu, što ipak sugeriraju potencijalni tragovi vrtnje na ulomcima s Kopile. Generalno su im unutrašnje stijenke dosta lošije očuvane i ispucanije strukture, za razliku od vanjskih, redovno zaglađenih, što može biti produkt izravnije povezanosti unutrašnjih stijenki sa sadržajem posude, ali i stvar slučajnosti. Još jedna jasno primjetna tehnička odlika koja je rezultat dosta debelih stijenki jest tzv. sendvič-efekt presjeka, na kojem se izdvajaju središnje svjetlije nijanse pečene gline te tamniji tonovi na rubovima mase (sl. 6).

Da nije riječ o iznimno masivnim keramičkim predmetima, s obzirom na opisane morfološke odlike bez ikakvih bi ih se pro-

II/4) – a cross-section recorded on a handle fragment from Kopila that almost certainly belongs to this type of vessel. Conversely, another example from Kopila suggests that the handles could also have been more oval in section (Pl. I/2) and seem to have terminated on what was probably the gently sloping shoulder of the vessel. These characteristics suggest that the necks of these vessels were not particularly tall and most likely followed a cylindrical form. No data are currently available on the form of the remaining parts of these vessels, yet there is little doubt that they were generally massive and rather representative containers, as indicated by their wall thicknesses, which range from 1.4 cm to as much as 2.2 cm. A fragment of the bottom from the Kopila with the same fabrics characteristics suggests a massive circular ring-shaped foot (Pl. II/2).

The second criterion that prompted us to consider all seven fragments as part of the same group of artefacts lies in their fabric characteristics, recognisable by the large quantity of fine, sand-like inclusions of white and grey colour, along with somewhat larger angular stone particles that are grey at the core and turn white towards the edges (Fig. 6). In smaller amounts, particles of crushed pottery (grog) are also present. From a technical perspective, due to the worn condition of the walls, it is difficult to determine whether these vessels were at least partially wheel-thrown, although possible traces of rotation on fragments from Kopila do suggest this. Their interior surfaces are generally less well preserved and exhibit more cracking than their exteriors, which are consistently smoothed. This may result from the more direct exposure of the interior to the vessel's contents, though it could also simply be coincidental. Another clearly visible technical feature, resulting from the considerable wall thickness, is the so-called "sandwich effect" seen in cross-section – a lighter tone of fired clay in the centre, surrounded by darker hues towards the edges (Fig. 6).

Were it not for their extraordinary massiveness, these ceramic artefacts could easily, on the basis of their described morphological charac-



SLIKA 6. Mikroskopski prikaz presjeka ulomka sa Smokviške gradine (s Dino-Lite Edge Digital Microscope AM7115MZT snimila: A. Karađole)

FIGURE 6 Microscopic section of a sherd from the Smokvica hillfort (with Dino-Lite Edge Digital Microscope AM7115MZT photo by A. Karađole)

blema moglo odrediti pojedinim grčkim oblicima amfora, prije svega kasnoklasičnim i ranohelenističkim tipom Korint A ili A' (sl. 7).¹⁷ Na kraju krajeva, neiskustvo je svojedobno navelo i autora ovih redaka da prvi poznati ulomak s Kopile u objavi iz 2007. upravo tako i determinira,¹⁸ što je naknadnom osviještenošću o stvarnim manjim gabaritima amfora Korint A negirano, a pitanje određenja ovih ulomaka ostavljeno otvorenim.¹⁹ Napuštanje takve atribucije, naravno, ne znači da za oblikovanje ovih posuda kao model zaista nisu poslužile spomenute amfore korintskog tipa, čiji su zaštitni znak u jednom trenutku predstavljala upravo naglašena dva morfološka detalja, trokutasti

teristics, be classified among certain Greek amphora types, primarily the Late Classical and Early Hellenistic Corinth A or A' types (Fig. 7).¹⁷ Indeed, the author of these lines was once misled by inexperience to identify the first known fragment from Kopila as precisely such an amphora in a 2007 publication¹⁸ – an attribution later dismissed upon recognition of the smaller dimensions of Corinth A amphorae, leaving the question of the classification of these fragments open.¹⁹ Of course, the rejection of this attribution does not imply that the above-mentioned Corinthian-type amphorae did not, in fact, serve as models for the shaping of these vessels. At a certain point in time, those amphorae were characterised precisely by two distinctive morpho-

¹⁷ O njima kod KOEHLER 1992; WHITBREAD 1995: 255–346; SACCHETTI 2012: 15–30.

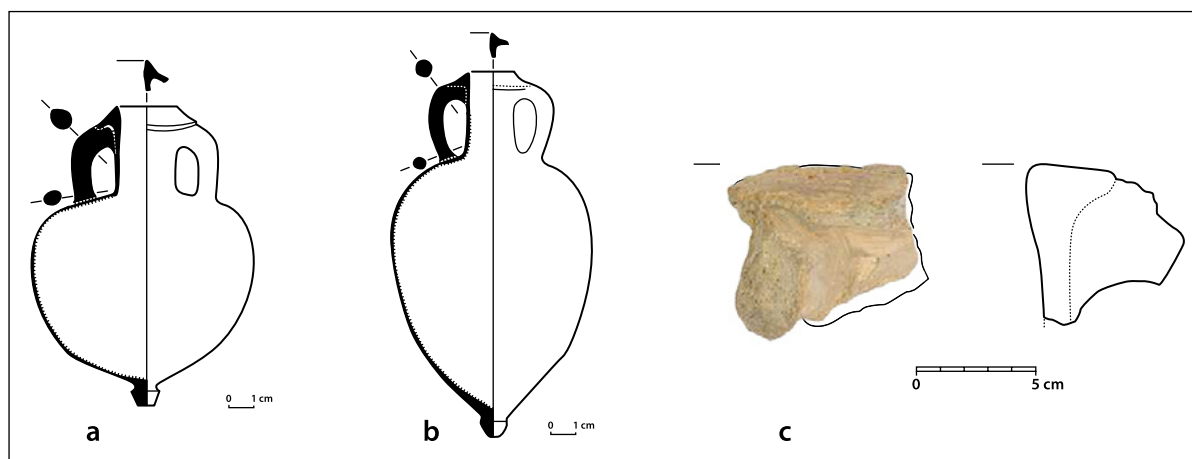
¹⁸ BORZIĆ 2007: 343, 347, T. I/1–2.

¹⁹ BORZIĆ 2020: 365.

¹⁷ For more on these, see KOEHLER 1992; WHITBREAD 1995: 255–346; SACCHETTI 2012: 15–30.

¹⁸ BORZIĆ 2007: 343, 347, Pl. I, 1–2.

¹⁹ BORZIĆ 2020: 365



SLIKA 7. Tipični prikaz amfora Korint A (a i b – prema: Koehler 1992; c – primjerak s gradine Stine, prema: Borzić, Radić 2021.)

FIGURE 7 Typological illustration of Corinth A amphorae (a and b – after Koehler 1992; c – specimen from the Stine hillfort, after Borzić, Radić 2021)

spušteni obod te kapljičasto profilirane ručke. Ranije naglašeni dio rečenice „u jednom trenutku” ovdje je od velike važnosti, jer kad se govori o amforama Korint A mora se biti svjestan njihove duge povijesti morfološkog razvoja još od 7. st. pr. Kr., ali i činjenice kako njihova pojava na Jadranu,²⁰ posebice ako se fokusiramo na nama interesantan središnji dio istočnog Jadrana, kolidira s početnim dijelom 4. st. pr. Kr. i sve izraženijom helenizacijom regije potaknutom konačnim utemeljenjem i razvojem helenskih kolonija u Faru i Isi, što je upravo vrijeme kad se amfore Korint A odlikuju spomenutim morfološkim detaljima. Ne smije se izgubiti iz vida ni to da su dosadašnji nalazi ovih tipova amfora na istočnom Jadranu za sada i pronalazeni ponajviše u kontekstima grčkog Fara,²¹ koji se u posljednje vrijeme na temelju preliminarnih arheometrijskih ispitivanja spominje i kao mjesto potencijalne lokalne imitacije ovog tipa amfora,²² dok se pojedinačni primjerci bilježe primjerice na jednom lokalitetu u podmorju Lastova,²³ za-

logical features – a downward-sloping triangular rim and teardrop-shaped handles. The wording “at a certain point in time” is of particular importance here, as any discussion of Corinth A amphorae must take into account their long history of morphological development (beginning in the 7th century BC) as well as the fact that their appearance in the Adriatic²⁰ – especially in the central part of the eastern Adriatic concerning us here – coincides with the early 4th century BC. This was the period of intensified Hellenisation of the region, prompted by the establishment and subsequent development of the Greek colonies of Pharos and Issa, when Corinth A amphorae displayed precisely the morphological traits described above. It should also be noted that finds of these amphora types along the eastern Adriatic have so far been recorded mainly in contexts associated with Greek Pharos,²¹ which has recently been proposed, on the basis of preliminary archaeometric analyses, as a possible site of local imitation of this amphora type.²² Individual specimens have also been identified, for instance, at an underwater site near Lastovo,²³ possibly at

²⁰ O njihovoj pojavi na sjevernom Jadranu kod SACCHETTI 2012.

²¹ KATIĆ 1996: 102 i 123; 2000, 3740; KIRIGIN 2004: 153; 2018, 402–403.

²² MIŠE *et al.* 2019, 484.

²³ JURIŠIĆ 2000: 5.

²⁰ On their occurrence in the northern Adriatic, see SACCHETTI 2012.

²¹ KATIĆ 1996: 102 and 123; 2000, 3740; KIRIGIN 2004: 153; 2018, 402–403.

²² M. MIŠE *et al.* 2019, 484.

²³ M. JURIŠIĆ 2000: 5.

tim moguće u helenističkom Epetiju,²⁴ ali i jednom korčulanskom lokalitetu, gradini Stine (sl. 7c),²⁵ s koje potječe i ulomak ovdje obrađivanih pitosa (T. II/4).

Sve navedeno upućuje nas na kratku raspravu o pitanjima datacije, ali i provenijencije ovdje interesantnih ulomaka. Odgovor na prvo pitanje, nažalost, ograničen je jednostavnom činjenicom što svi do sad poznati ulomci predmetnih pitosa potječu s rekonosciranja navedenih korčulanskih gradina, što logično povlači zaključak kako su lišeni svake stratigrafske, a time i potencijalne kronološke odrednice. Ne treba posebno napominjati kako je površinski pokretni arheološki materijal sa sva tri spomenuta lokaliteta indikativan jedino za zaključak kako je riječ o u najužem smislu mlađe željeznodobnim, a u najširem kasnoprapovijesnim naseljima.²⁶ No uzimajući u obzir opisane i ipak specifične morfološke odlike predmetnih ulomaka koje je moguće dovesti u vezu s „modom oblikovanja” određenog vremena, smatramo kako se neće mnogo pogriješiti ako ih se odredi proizvodima 4., tek potencijalno i 3. st. pr. Kr., kad je trokutasto oblikovanje transportnih amfora još uvijek aktualno, prije svega u repertoaru grčko-italskih amfora.²⁷ Na navedeno vrijeme produkcije ukazuju i najbliže tipološke analogije pitosa kao posebne grupe proizvoda s bližih i daljih lokaliteta na kojima se pojavljuju u nešto boljim stratigrafskim okolnostima,²⁸ među kojima posebno spominjemo one tzv. atičkog tipa pitosa bez vrata (engl. *Attic type of neckless pithoi*)²⁹ sa susjednog Fara, odakle potječe i jedna ručka istih morfoloških odlika³⁰ kao

Hellenistic Epetion,²⁴ as well as at one Korčula site – the hillfort of Stine (Fig. 7c)²⁵ – which has also yielded a fragment of one of the pitoi examined in this study (Pl. II/4).

All of the above leads us to a brief discussion of the questions of dating and provenance of the sherds under consideration. Unfortunately, the answer to the first question is limited by the simple fact that all the known fragments of these pithoi come from the reconnaissance of these three hillforts on Korčula, which logically means that they lack any stratigraphic – and consequently chronological – context. It hardly needs to be emphasised that the surface finds from all three sites can only indicate that these were settlements belonging, in the strict sense, to the Late Iron Age, or more broadly, to the Late Prehistoric period.²⁶ However, given the described and rather specific morphological features of the fragments, which can be linked to the “design trend” characteristic of a certain period, I believe it is reasonable to date them to the 4th century BC, or possibly the 3rd century BC, when the triangular profiles of transport amphorae were still in use – particularly among the repertoire of Greco-Italic amphorae.²⁷ This proposed date of production is also supported by the closest typological analogies for pithoi as a distinct group of vessels from nearby and more distant sites where they appear in somewhat better stratigraphic contexts²⁸ – most notably the so-called Attic type of neckless pithoi²⁹ from neighbouring Pharos, from which comes a handle of the same morphological type³⁰ as that from Kopila. The proposed production period, of

²⁴ UGARKOVIĆ, KONESTRA 2020: 53, T. 3/21.

²⁵ BORZIĆ, RADIĆ 2021: 355, T. I/1.

²⁶ Vidjeti npr. raster materijala iz objava BORZIĆ 2007; BORZIĆ, RADIĆ 2021.

²⁷ O navedenom tipu amfora kod VANDERMERSCH 1994.

²⁸ Usp. nalaze iz Korinta (MACNEIL BOGGESS 1970), obližnjeg Fara (KIRIGIN 2014: 55–57, kat. br. 1–11, Pl. 1–2).

²⁹ O navedenima kod MACNEIL BOGGESS 1972.

³⁰ KIRIGIN 2014: 58, kat. br. 18, Pl. 4, 18.

²⁴ UGARKOVIĆ, KONESTRA 2020: 53, Pl. 3/21.

²⁵ BORZIĆ, RADIĆ 2021: 355, Pl. I/1.

²⁶ See, for example, the distribution of material published in BORZIĆ 2007; BORZIĆ, RADIĆ 2021.

²⁷ On this type of amphora, see VANDERMERSCH 1994.

²⁸ Cf. finds from Corinth (MACNEIL BOGGESS 1970) and from nearby Pharos (KIRIGIN 2014: 55–57, cat. nos. 1–11, Pls. 1–2).

²⁹ On these examples, see MACNEIL BOGGESS 1972.

³⁰ KIRIGIN 2014: 58, cat. no. 18, Pls. 4, 18.

i ona s Kopile. Predloženi vremenski okvir proizvodnje, naravno, ne određuje i donju vremensku granicu njihova korištenja, jer je dobro poznata činjenica da se posude velikih dimenzija skladišnih namjena u uporabi mogu zadržati čak i znatno dulje od vremena u kojem se njihov tip nominalno i proizvodi, praktički sve dok god zadovoljavaju svoju funkciju.

Mnogo se više konkretnih informacija ne može dati ni po pitanju provenijencije predmetnih ulomaka. Tehnološki gledano, definitivno ne odgovaraju tradiciji indigenoga keramičarskog obrta, čije proizvode odlikuje gruba struktura keramike u kojoj dominiraju uglate primjese kalcita te uglavnom reducijsko pečenje s tamnim nijansama pečenih proizvoda. S druge strane, uz već naglašenu morfološku bliskost grčko-helenističkoj tradiciji, s njom su ovi proizvodi povezani i fakturnim odlikama, zbog čega je najlogičnije pretpostaviti kako im se ishodište najvjerojatnije mora tražiti u nekom od helenskih središta, prije svega srednjeg Jadrana, dakle Isi ili Faru. Nažalost, u literaturi koja spominje pitose s istočnog Jadrana nema mnogo objava putem kojih se može steći konkretniji uvid u fakturane osnove studijske građe, zbog čega se u ovom trenutku kao komparativnom materijalu možemo uputiti ponajviše tipološki potpuno drugačijim, ali fakturno samo bliskima pitosima iz Ise.³¹ No budući da su pitosi specifična keramičarska kategorija koja podrazumijeva isto tako specifične proizvodne tehnikalije poštovane od mnogih dionika uključenih u njihovu proizvodnju u određenoj regiji, pitanje je koliko bi bilo metodološki ispravno u naglašenoj fakturnoj sličnosti u isejskim ergasterijima zaista i tražiti proizvodno određenje korčulanskih primjeraka. Stoga i u ovom našem slučaju snažno odjekuje zaključak koji je B. Kirigin napisao prije desetak godina radeći na pitosima iz Fara: „*I believe that in further analyses*

course, does not define the lower chronological limit of their use, since it is well known that large storage vessels could remain in use long after the period in which their particular type was originally produced – practically as long as they continued to serve their intended function.

Not much more specific information can be provided regarding the provenance of the fragments discussed here. From a technological perspective, they clearly do not correspond to the tradition of indigenous pottery production, the wares of which are characterised by coarse fabric dominated by angular calcite inclusions and predominantly by reduction firing resulting in dark-coloured surfaces of the fired products. Conversely, in addition to their already emphasised morphological affinity with the Greek–Hellenistic tradition, these vessels are linked to it also by their fabric characteristics. It is therefore most reasonable to assume that their origin should be sought in one of the Hellenic centres of the central Adriatic – most likely Issa or Pharos. Unfortunately, the literature concerning pithoi from the eastern Adriatic offers very few publications that provide a more detailed insight into the fabric characteristics of the studied material. For this reason, at present, the only comparable material can be found in Issaeian pithoi – typologically different but of similar fabric.³¹ However, since pithoi represent a specific pottery category that involves equally specific production techniques adhered to by many craftsmen operating within a given region, it is questionable whether it would be methodologically sound to attribute the Korčula examples to the workshops (Gr. *Εργαστήριον*, *ergastērion*) of Issa solely on the basis of the emphasised similarity in fabric. Therefore, in this case as well, B. Kirigin's conclusion, reached about a decade ago while studying the pithoi from Pharos, is strongly resonant: “*I believe that in further*

³¹ Usp. ČARGO, 2021: 89, kat. br. 22–24.

³¹ Cf. ČARGO, 2021: 89, cat. nos. 22–24.

of pithoi and dolia, archeometry will also be of great importance. However, until then, we must be content with what we can see with naked eye and wait for more reliable stratigraphic data." [Vjerujem da će u daljnjim analizama pitosa i dolija važnu ulogu imati arheometrija. No, dotad moramo biti zadovoljni onime što vidimo prostim okom i čekati pouzdane stratigrafske podatke.].³²

U kontekstu naše priče upotreba sintagme „ono što se vidi golim okom”, osim stvarnih morfoloških i fakturnih odlika promatranih ulomaka, može se proširiti i na naša jasna saznanja o povezanosti studijskih korčulanskih indigenih zajednica s helenskima, što također može biti putokaz u približavanju traženim odgovorima. Na današnjoj razini našeg znanja ne treba sumnjati u najnaglašeniju vezu helenske Ise s ovdašnjim zajednicama, a to osim već ranije spomenutih kolonizatorskih i diplomatskih aktivnosti na istoku otoka ukazuje i količina isejskih proizvoda. Dinamiku njihova dotoka najbolje opisuje već nekoliko stotina isejskih posuda iz kategorije keramike tipa Gnathia, te sivo premazanog, smeđe premazanog i crveno premazanog posuda pronadenog u kontekstu grobnica kopske nekropole, a korištenog u rasponu od sredine 3. do sredine 1. stoljeća prije Krista.³³ Uz to se mora barem jednim dijelom pretpostaviti i isejsko posredništvo u dotoku onog ranijeg keramičkog materijala među kojim dominira kanoška keramika tipa Gnathia, također dosta brojno zastupljena među nalazima s Kopile. Gotovo će se sigurno pokazati kako je Isa bila ishodište i određene količine grčko-italskih te Lamboglia 2 vinskih amfora zabilježenih na korčulanskim gradinskim naseljima, što repertoar dopremanih proizvoda tijekom čitavoga kasnog željeznog doba širi i na onaj poljoprivredni, prije svega iznimno popularno isejsko vino. Izvjesno je kako su i

analyses of pithoi and dolia, archeometry will also be of great importance. However, until then, we must be content with what we can see with the naked eye and wait for more reliable stratigraphic data."³²

In the context of our discussion, the phrase “what can be seen with the naked eye” may, beyond the actual morphological and fabric characteristics of the examined fragments, also be extended to our clear understanding of the connection between the indigenous Korčula communities under study and the Hellenic ones, which may likewise serve as a guide in approaching the questions at hand. At our present level of knowledge, there is little doubt that the strongest connection was that between Hellenic Issa and the local communities. In addition to the colonial and diplomatic activities on the eastern part of the island already mentioned, this is also indicated by the quantity of Issaeian products. The dynamics of their influx are best illustrated by the several hundred Issaeian vessels of Gnathia-type pottery, as well as grey-slipped, brown-slipped, and red-slipped wares found in the tombs of the Kopila necropolis and used from the mid-3rd to the mid-1st century BC.³³ Furthermore, Issaeian mediation must at least partly be assumed in the import of earlier ceramic material, among which Canosan Gnathia-type pottery predominates, also well represented among the finds from Kopila. It is almost certain that Issa was also the source of a number of Greco-Italic and Lamboglia 2 wine amphorae recorded at the hillfort settlements of Korčula, thus expanding the range of imported goods throughout the Late Iron Age to include agricultural products – most notably the highly popular Issaeian wine. It is safe to say that storage vessels – pithoi from Issa – reached Kopila, one of

³² KIRIGIN 2014: 59.

³³ O isejskoj produkciji navedenih kategorija keramike kod MIŠE 2015. O nalazima s Kopile kod BORZIĆ 2020.

³² KIRIGIN 2014: 59.

³³ On the Issaeian production of the above-mentioned pottery categories, see MIŠE 2015. On the finds from Kopila, see BORZIĆ 2020.

do Kopile kao jednog od promatranih korčulanskih lokaliteta stizale i skladišne posude – pitosi iz Ise, na što prije svega upućuje ulomak pitosa s reljefno dekoriranim obodom (T. II/5),³⁴ detaljem zabilježenim uglavnom u kontekstima Ise i njezinih kopnenih satelita.³⁵ S druge strane, opus materijala s promatranih korčulanskih gradina, čije se podrijetlo povezuje s helenskim Farom, znatno je skromniji i za sad ga se može svesti isključivo na poljoprivredne proizvode povezane s amforama tamošnjih kasnohelensističkih tipova Faros 2 i Faros 4 s Kopile,³⁶ dok se može očekivati kako će se i među Korint B i tzv. prijelaznim tipovima sve brojnijih amfora s korčulanskih gradina pronaći i pokoji ulomak farske produkcije.³⁷

Budući da navedene materijalne potvrde trgovačkih veza korčulanskih željeznodobnih i susjednih helenskih zajednica ne nude konkretan odgovor na pitanje podrijetla ovdje studijske grupe predmeta, naravno da je otvorena mogućnost i trećeg ishodišnog rješenja, prostorno ne nužno povezanog s dvjema perjanicama helenske kulture na istočnom Jadranu. U tom se smislu bez ikakvog aludiranja može spomenuti tema koju je svojedobno načeo M. Katić povezujući podatke o jadranskim *kerkirskim amforama* koje se, prema Pseudo-Aristotelu, zajedno s proizvodima s otoka Hija, Tasa i Lezba prodaju u jednom istočnojadranskom trgovištu (Narona?) s potencijalnim proizvodima korčulanskih helenskih zajednica, prije svega one isejske u Lumbardi.³⁸ Opravdanim stoji promišljanje kako se u jednom takvom okruženju očekuje i lokalna produkcija ke-

the Korčula sites under consideration, as indicated above all by a pithos fragment with a relief-decorated rim (Pl. II/5),³⁴ a feature recorded mainly in contexts from Issa and its mainland satellites.³⁵ On the other hand, the corpus of material from the studied hillforts on Korčula that can be attributed to Hellenic Pharos is much more modest and, for now, appears to consist solely of agricultural products associated with amphorae of the late Hellenistic Pharos 2 and Pharos 4 types from Kopila.³⁶ It may also be expected that among the Corinth B and so-called transitional types of the increasingly numerous amphorae from the Korčula hillforts, a few fragments of Pharian production will eventually be identified.³⁷

Since the material evidence of trade connections between the Korčula Late Iron Age communities and their neighbouring Hellenic counterparts does not provide a definite answer regarding the provenance of the group of artefacts under study, the possibility of a third point of origin remains open – one not necessarily geographically tied to the two leading centres of Hellenic culture on the eastern Adriatic. In this regard, and without implying any direct conclusions, it is worth recalling the issue once raised by M. Katić, who linked the data on Adriatic *Corcyran amphorae* – which, according to Pseudo-Aristotle, were traded together with products from Chios, Thasos and Lesbos in an eastern Adriatic marketplace (Narona?) – with the potential products of the Hellenic communities on Korčula, primarily the Issaeon colony in Lumbarda.³⁸ The reasoning that such an environment would have supported local pro-

³⁴ BORZIĆ 2017a: 83, sl. 42.

³⁵ Usp. KIRIGIN 2012: 295, T. I, 1 (Vlaška njiva – Issa); ČAR-GO 2021: 81, sl. 8–9, 89, kat. br. 22–24 (Issa); ŠUTA 2011: 87–88 (Sikuli); UGARKOVIĆ, KONESTRA 2020: 55, T. 5, 1 (Epetion).

³⁶ BORZIĆ 2007: 342. O navedenom tipu amfora kod KATIĆ 2019: 121–131.

³⁷ O navedenim tipovima amfora vidjeti kod KATIĆ 2005; KIRIGIN 2018; MIŠE *et al.* 2019.

³⁸ KATIĆ 2005: 57–59.

³⁴ BORZIĆ 2017a: 83, Fig. 42.

³⁵ Cf. KIRIGIN 2012: 295, Pl. I, 1 (Vlaška Njiva – Issa); ČAR-GO 2021: 81, Fig. 8–9, 89, Cat. No. 22–24 (Issa); ŠUTA 2011: 87–88 (Sikuli); UGARKOVIĆ, KONESTRA 2020: 55, Pl. 5, 1 (Epetion).

³⁶ BORZIĆ 2007: 342. On the above-mentioned amphora type, see KATIĆ 2019: 121–131.

³⁷ For the amphora types in question, see KATIĆ 2005; KIRIGIN 2018; MIŠE *et al.* 2019.

³⁸ KATIĆ 2005: 57–59.

ramičkih proizvoda različitih vrsta, pa tako i onih skladišno-transportnih, no od vremena kad je spomenuti rad objavljen na južnom je Jadranu na vidjelo izašla respektabilna količina amfora Korint B čija se dominantna produkcija smješta upravo na jonskoj Korkiri (Krf),³⁹ pa se postavlja pitanje je li jadranska opredijeljenost kerkiških amfora samo geografska omaška grčkog pisca. Vrijeme i daljnje tipološke i interdisciplinarne analize svakako će pokazati pravu istinu, kao što to u posljednjim desetljećima sve više čine i po pitanju spoznaja o sve širem proizvodnom repertoaru istočnojadranskih helenističkih ergasterija.⁴⁰ Isto se očekuje i po pitanju u ovom radu posebno obrađene skupine predmeta, zbog masivnosti svrstanih u kategoriju amforoidnih pitosa, sasvim sigurno uključenih u dopremu i skladištenje tekućih proizvoda, prije svega vina, čija se kultura konzumiranja kod istočnojadranskih otočnih indigenih zajednica materijalno puno lakše prati njihovim dolaskom u domenu utjecaja helenske kulture.

Na kraju istaknimo kako se predstavljanjem ovih nalaza osim promocije jednog dijela građe s korčulanskih lokaliteta nastojalo postići još nekoliko ciljeva. Jedan od njih povezan je s isticanjem česte dvojbenosti svrstavanja pojedinih keramičarskih oblika u određene namjenske kategorije. Amforoidni su pitosi s korčulanskih gradina zbog postojećih ručki morali biti predviđeni za povremeno pomicanje te ih se zbog toga teško može svrstati u onu klasičnu grupu skladišnih, uglavnom statičnih pitosa velikih zapremnina, kao što ih se zbog izrazite masivnosti ne može svrstati ni u grupu prvenstveno transportnih klasičnih amfora zapremnina oko 25 litara. S obzirom na to može ih se gledati kao svojevrsan međuproizvod,

duction of various categories of ceramic goods, including storage and transport vessels, remains well founded. However, since that study was published, a considerable number of Corinth B amphorae have come to light in the southern Adriatic, their dominant production having been traced precisely to Ionian Corcyra (Corfu).³⁹ This raises the question of whether the “Adriatic” designation of Corcyran amphorae in the Greek text was merely a geographical slip on the part of the author. Time and further typological (as well as interdisciplinary) analyses will no doubt reveal the true answer, as they have increasingly done in recent decades with regard to the growing understanding of the expanding production repertoire of Hellenistic *ergastēria* along the eastern Adriatic.⁴⁰ The same may be expected with regard to the group of artefacts specifically examined in this paper – massive vessels classified as amphoroid pithoi, which were almost certainly used for the transport and storage of liquid products, primarily wine. The culture of wine consumption among the indigenous communities of the eastern Adriatic islands can be traced much more clearly in material terms once these communities came within the sphere of Hellenic cultural influence.

Finally, it should be emphasised that, apart from presenting a selection of material from sites on Korčula, this paper has sought to achieve several additional objectives. One of them concerns highlighting the frequent ambiguity involved in classifying certain ceramic forms into specific functional categories. The amphoroid pithoi from the Korčula hillforts, owing to their handles, must have been designed for occasional movement. For this reason, they can hardly be placed within the classical group of storage pithoi – generally static vessels of large capacity – just as, due to their pronounced massiveness,

³⁹ O amforama Korint B na istočnoj Jadranu kod KATIĆ 2005; KATIĆ, KAPETANIĆ 2023: 95–97; BORZIĆ 2017b; RADIĆ ROSSI 2017.

⁴⁰ ŠEGVIĆ *et al.* 2016; UGARKOVIĆ, ŠEGVIĆ 2018; MIŠE 2022; MIŠE, QUINN 2022; MIŠE *et al.* 2019; 2020; 2022; HAWKINS, MIŠE, QUINN 2025.

³⁹ On Corinth B amphorae in the eastern Adriatic, see KATIĆ 2005; KATIĆ, KAPETANIĆ 2023: 95–97; BORZIĆ 2017b; RADIĆ ROSSI 2017.

⁴⁰ ŠEGVIĆ *et al.* 2016; UGARKOVIĆ, ŠEGVIĆ 2018; MIŠE 2022; MIŠE, QUINN 2022; MIŠE *et al.* 2019; 2020; 2022; HAWKINS, MIŠE, QUINN 2025.

hibrid nastao iz prilagodbe potrebi, primjerice racionalizaciji odnosa broja korištenih skladišno/transportnih recipijenata i količine sadržaja, što može biti u vezi i s racionalizacijom prostora, bilo u brodu kao transportnom sredstvu bilo u krajnjem domaćem skladišnom prostoru. Kolika je bila brojnost njihove proizvodnje te kako i koliko dugo su bile prihvaćene kao namjenski proizvod teško je reći jer u ovom trenutku manipuliramo s vrlo ograničenim brojem primjeraka, arheološki povezanih isključivo s korčulanskim ambijentom. Upravo u tome i leži drugi cilj njihove objave kojom se nastoji isprovocirati prepoznavanje i izdvajanje eventualnih novih nalaza s ostalih kasnoželjeznodobnih ili helenističkih lokaliteta u regiji, čije istraživanje u posljednje vrijeme bilježi znatan napredak i kontekstualno popunjava sagledavanje protopovijesti na ovdje predmetnom otoku Korčuli.

they cannot be classified among the primarily transport-oriented classical amphorae, which typically held about 25 litres. Given these characteristics, they can be regarded as an intermediate product – a hybrid created out of practical necessity, possibly as a way to rationalise the relationship between the number of storage and transport containers used and the quantity of their contents. This may also reflect an attempt to optimise space, whether on board a ship used for transport or within a domestic storage setting. The scale of their production and the extent to which they were accepted as a standardised functional type remain difficult to determine, as we currently deal with only a very limited number of examples, all archaeologically linked exclusively to the Korčula context. This, in turn, represents the second objective of their publication – to prompt the identification and recognition of possible new finds from other Late Iron Age or Hellenistic sites in the region. In recent years, research at such sites has made significant progress, gradually enriching our contextual understanding of the protohistoric period on the island of Korčula under discussion.

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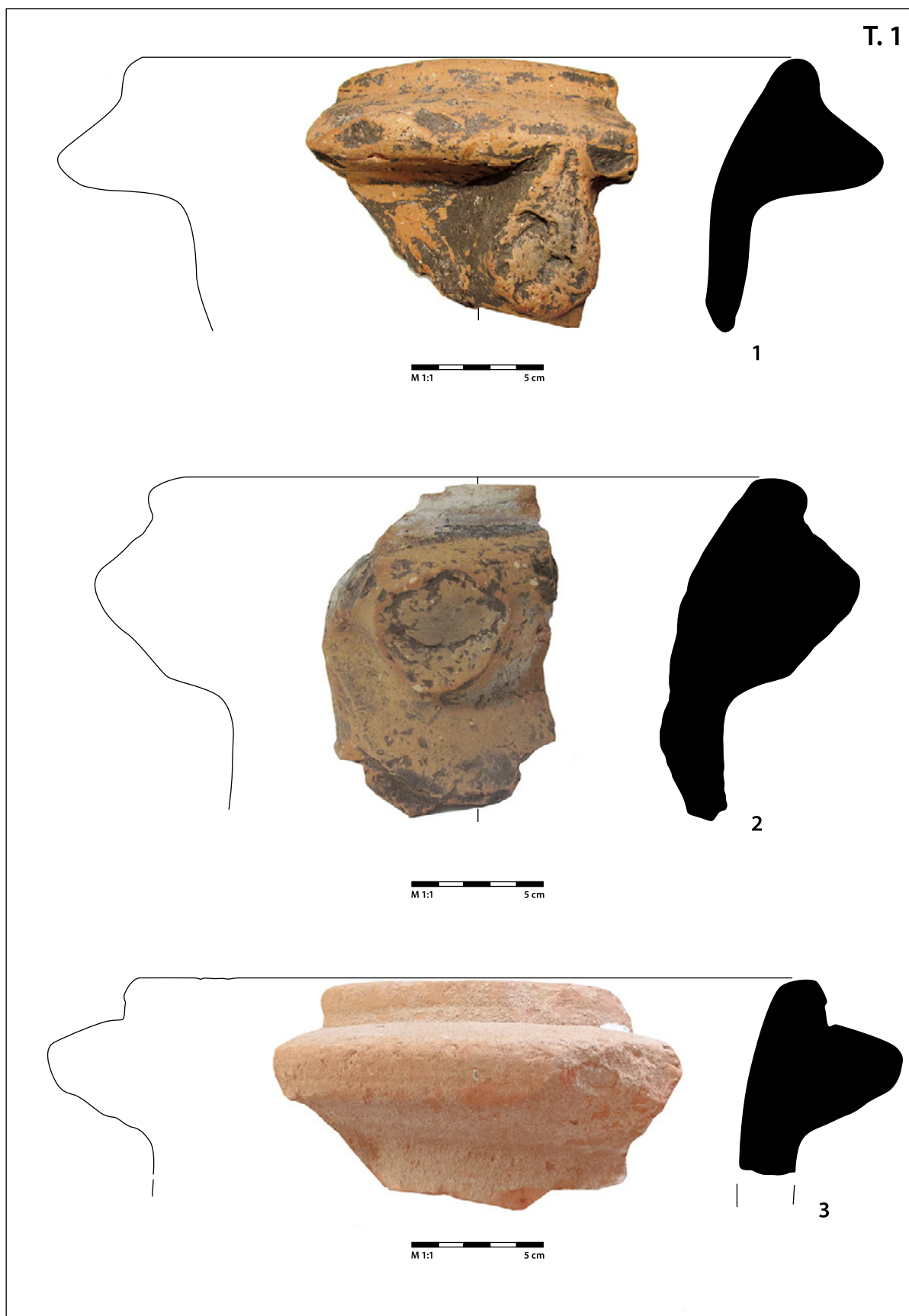


TABLA 1. *Amforoidni pitosi, 1-3: gradina Kopila* (crteži: N. Čuk; fotografije: I. Borzić)

PLATE 1 *Amphoroid Pithoi 1-3: Kopila hillfort* (drawings by N. Čuk; photo by I. Borzić)

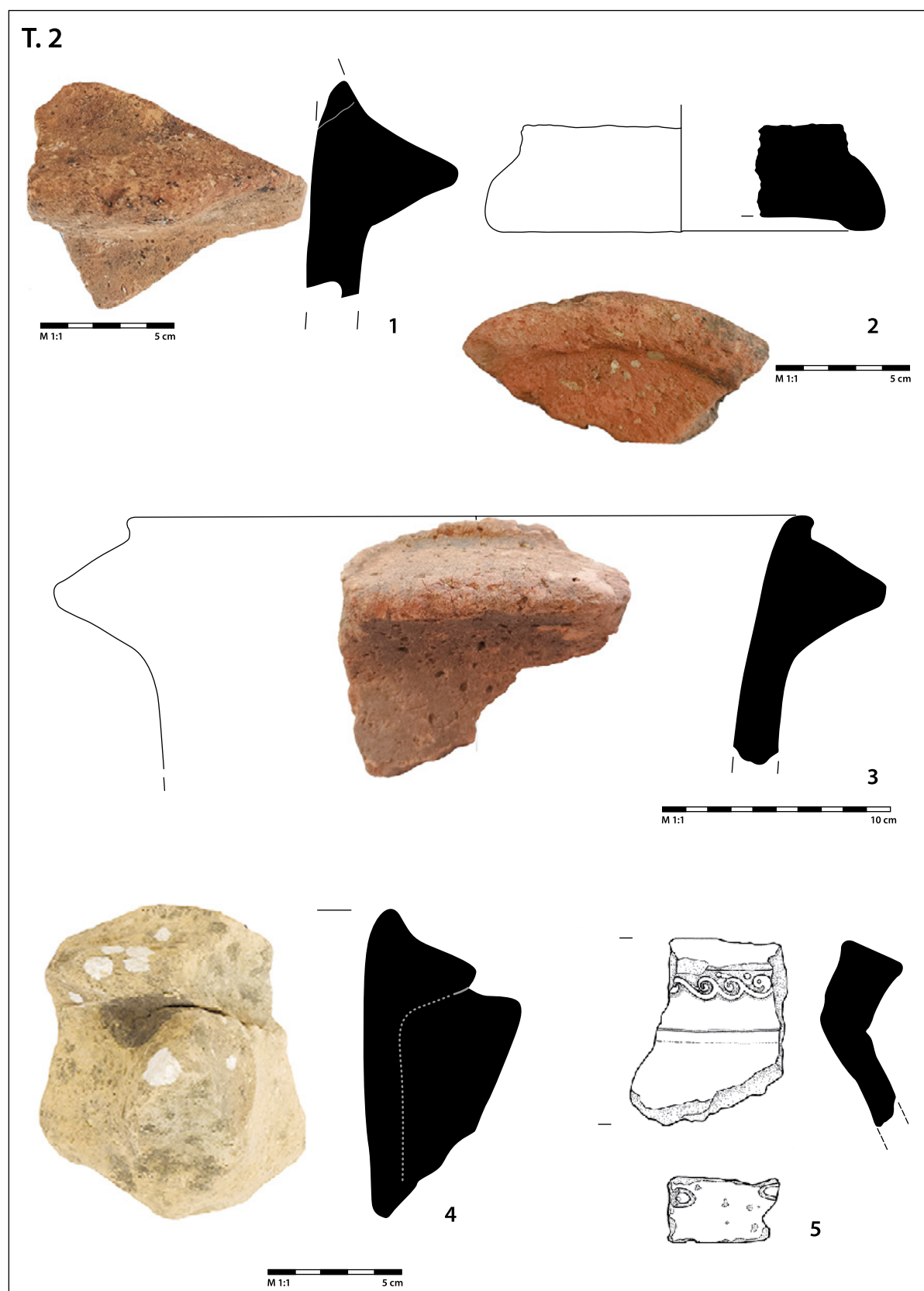


TABLA 2. Amforoidni pitosi: 1-2: gradina Kopila; 3: Smokviška gradina; 4: gradina Stine; 5: pitos s reljefnim ukrasom s gradine Kopila (crteži: N. Čuk; fotografije: I. Borzić)

PLATE 2 Amphoroid Pithoi; 1-2: Kopila hillfort; 3: Smokvica hillfort; 4: Stine hillfort; 5: pithos with relief decoration from Kopila hillfort (drawings by N. Čuk; photo by I. Borzić)

“THE POTTER’S WHEEL”. MOULDMADE WARE IN THE IONIAN-ADRIATIC BASIN BETWEEN MAIN WORKSHOPS AND BRANCHES: THE CASE OF SOUTHERN ILLYRIA

„LONČARSKO KOLO”. KERAMIČKI PREDMETI IZRAĐENI U KALUPU U JONSKO-JADRANSKOM BAZENU OD GLAVNIH RADIONICA DO NJIHOVIH OGRANAKA: PRIMJER JUŽNOG ILIRIKA

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*Some day some children will be digging
In some long forgotten ground
And they'll find our civilisation
Or what's left of it to be found*

*They'll find the weapons of destruction
But buried deeper in the hole
They'll find a message and a promise
In the sand, the potter's bowl*

*Jednoga dana neka će djeca kopati
u nekom davno zaboravljenom blatu,
i naići na našu civilizaciju
ili ono što je od nje ostalo.*

*Iskopat će oružja razaranja,
ali kopajući dublje
pronaći će poruku i obećanje
u pijesku: lončarevu zdjelu.*

John Denver, Potter's Wheel

KLJUČNE RIJEČI:

Durrës, Hellenistic
Pottery, Illyria,
Mouldmade Ware,
Pottery, Zgërdhesh

Hellenistic Mouldmade Ware originated in Athens in the last quarter of the 3rd century BCE, drawing inspiration primarily from metal prototypes. The production quickly spread, with new workshops emerging in Asia Minor and throughout the eastern Aegean region before establishing a presence in the central Mediterranean. The Ionian-Adriatic basin became one of the most significant areas involved in the production of this ceramic class. Among the recognized production districts, the southern Illyrian district stands out, with Durrës as its main centre. Several other sites likely functioned as satellite workshops of Dyrrhachium, as evidenced by the strong similarities in the morphological and decorative repertoire of the pottery produced.

KEY WORDS:

Drač, helenistička
keramika, Ilirik,
keramika izrađena
u kalupu, keramika,
Zgërdhesh

Helenistička keramika izrađena u kalupu pojavljuje se u Ateni u posljednjoj četvrtini 3. stoljeća pr. Kr., a nadahnuće crpi ponajprije iz metalnih predložaka. Proizvodnja se brzo širi preko novonastalih radionica u Maloj Aziji i diljem istočnoegejskog područja te se uskoro učvršćuje na području srednjeg Mediterana. Jonsko-jadranski bazen postaje jedno od najvažnijih područja uključenih u produkciju ove kategorije keramike. Među poznatim proizvodnim područjima ističe se područje južnog Ilirika, s Dračem kao glavnim središtem. Na nekoliko drugih lokacija vjerojatno su djelovale satelitske radionice Dirahija, na što ukazuju izrazite sličnosti morfološkog i dekorativnog repertoara izrađene keramike.

Hellenistic Mouldmade Ware stands as the final major mainstream ceramic production of the Hellenistic period and, at the same time, the first category of pottery to become mass-produced across the Mediterranean in the 2nd century BC, facilitated by Rome's expanding political and commercial influence. Susan Rotroff's studies¹ have shown that the production of mouldmade bowls originated in Athens in the last quarter of the 3rd century BC. From there, the technique spread throughout the Aegean world, especially to prominent centres in Asia Minor, such as Ephesus.²

The production not only of Ephesus but also of the Aegean-Eastern sector and Asia Minor became one of the most widely exported ceramics in the late Hellenistic Mediterranean, alongside other pottery and especially amphorae used to transport wine and other agricultural products. Alongside these items, metal and glassware were also widely traded.³

Together with ceramic vessels – made from a more “humble” material – these goods reflected contemporary tastes and were accessible to different social classes. Depending on their financial means, individuals could afford either luxury items or their more affordable counterparts, such as ceramic vessels. A distinction can be made between ceramics produced for a broad market and those intended for a more localized customer, with objects circulating within a limited radius. While imported goods – especially relief-decorated metal and glass vessels – were reserved for individuals of substantial wealth, mouldmade ceramic vessels catered to an emerging social class. These pieces played a crucial role in the democratization of luxury, making refined aesthetics and

Helenistička keramika izrađena u kalupu posljednja je široko rasprostranjena keramička produkcija helenističkoga razdoblja, a ujedno i prva kategorija keramike koja će se tijekom 2. stoljeća pr. Kr. – potpomognuta širenjem političkog i trgovačkog utjecaja Rima – masovno proizvoditi duž čitavog Sredozemlja. Istraživanja Susan Rotroff¹ pokazala su da je produkcija zdjela izrađenih u kalupu započela u Ateni u posljednjoj četvrtini 3. stoljeća pr. Kr. Odatle se tehnika proširila diljem egejskog svijeta, osobito prema istaknutim središtima u Maloj Aziji, kao što je Efez.²

Keramička produkcija efeških, kao i istočnoegejskih te maloazijskih radionica postala je jednom od najizvoženije keramike kasnohelenističkog Sredozemlja, uz ostalu keramiku, osobito amfore namijenjene prijevozu vina i drugih poljoprivrednih proizvoda. Uz te predmete, uvelike se trgovalo metalnim predmetima i staklom.³

Zajedno s keramičkim posudama – izrađenima od „skromnijeg” materijala – ti su predmeti odražavali ukuse svoga vremena i bili dostupni različitim društvenim slojevima. Ovisno o financijskim mogućnostima, pojedinci su si mogli priuštiti ili luksuzne predmete ili njihove pristupačnije inačice, poput keramičkih posuda. Moguće je razlikovati keramiku proizvedenu za široko tržište od one namijenjene užem krugu kupaca, pri čemu su predmeti cirkulirali unutar ograničenog područja. Dok su uvozni predmeti – osobito metalne i staklene posude s reljefnim ukrasom – bili namijenjeni bogatijim pojedincima, keramičko posuđe izrađeno u kalupu zadovoljavalo je potrebe društvene klase u nastajanju. Ti su predme-

¹ ROTROFF 1982: 6–13; 2006.

² ROGL 2014.

³ For the distribution of Micro-Asiatic Mouldmade Ware, see ŞAHİN 2019 and DE MITRI 2023a: 145, fig. 25. For the distribution of goods in the Late Hellenistic period, see the various contributions in AURIEMMA, ANTONAZZO, DE MITRI 2025, with bibliographical references on individual pottery groups.

¹ ROTROFF 1982: 6–13; 2006.

² ROGL 2014.

³ O rasprostranjenosti maloazijske keramike izrađene u kalupu v. ŞAHİN 2019. i DE MITRI 2023a: 145, sl. 25. O rasprostranjenosti dobara u kasnohelenističkom razdoblju v. različite priloge u: AURIEMMA, ANTONAZZO, DE MITRI 2025, s bibliografskim referencijama za pojedine keramičke skupine.

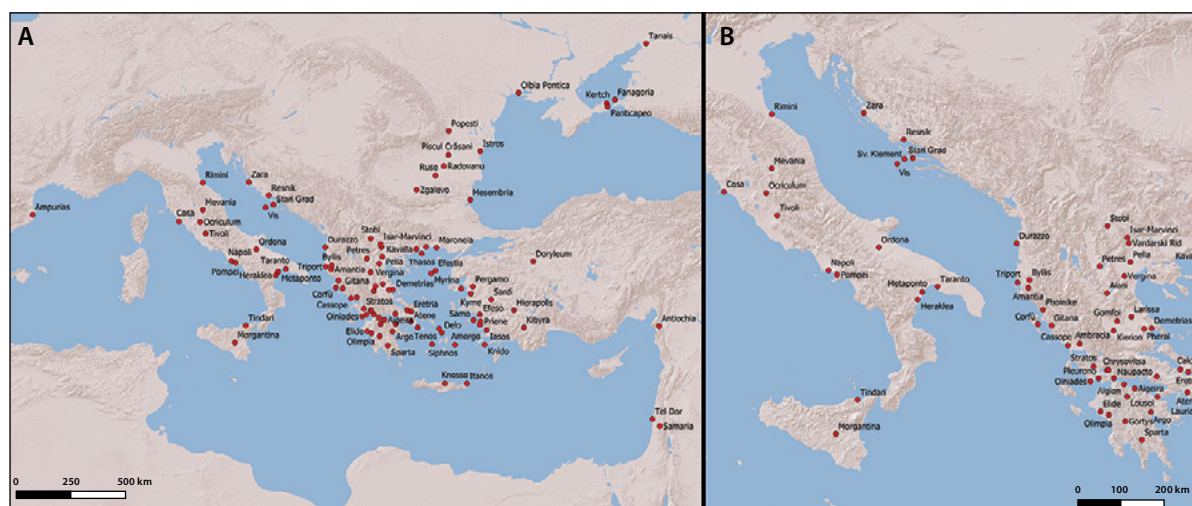


FIGURE 1 A. Map with workshops of Mouldmade Hellenistic Ware in the Mediterranean. B. Map with workshops of Mouldmade Hellenistic Ware in the Ionian-Adriatic basin (Basemap: ESRI Shaded relief) (made by C. De Mitri)
SLIKA 1. A. Karta s prikazom radionica helenističke keramike izrađene u kalupu na području Sredozemlja; B. Karta s prikazom radionica helenističke keramike izrađene u kalupu u jonsko-jadranskom bazenu (temeljna karta: ESRI osjenčani reljef) (izradio: C. De Mitri)

artistic trends accessible beyond the elite.⁴

Workshops producing these vessels, primarily cups but also a variety of other forms in smaller numbers, spread widely with the establishment of peripheral workshops yielding varied outcomes. The significant mobility of people during this period facilitated the circulation of artisanal skills, as well as moulds and the artisans themselves, leading to the creation of production branches or entirely new manufacturing centres (Fig. 1A). It is therefore possible to identify production districts that experienced varying degrees of success.⁵

In the Ionian-Adriatic basin, several production districts can be identified (Fig. 1B). Some are well-documented due to the discovery of direct evidence of ceramic production, such as kilns and production waste. Others are inferred based on secondary indicators that suggest the presence of craft activities, which did not always evolve into fully developed and sustained production. This is exemplified by findings limited to moulds, as seen in Rimini, Ordona, Tyndari and Morgantina. At these

ti imali ključnu ulogu u „demokratizaciji luksuza” jer su učinili profinjenu estetiku i umjetničke trendove dostupnima i izvan krugova društvenih elita.⁴

Radionice u kojima su se izrađivale te posude – ponajprije čaše, ali i niz drugih oblika u manjem broju – naveliko su se širile uspostavom perifernih radionica koje su proizvodile razne inačice. Značajna mobilnost ljudi u tom razdoblju pospješila je cirkulaciju zanatskih vještina, ali i kalupa, kao i samih majstora, uslijed čega su nastajali proizvodni ogranci ili potpuno nova proizvodna središta (sl. 1A). Slijedom toga prepoznata su proizvodna područja koja su doživjela različit stupanj uspjeha.⁵

U jonsko-jadranskom bazenu uočavamo nekoliko proizvodnih područja (sl. 1B). Neka su od njih dobro dokumentirana zahvaljujući otkriću izravnih dokaza keramičke produkcije, kao što su keramičarske peći i proizvodni otpad. Na druga, pak, tek ukazuju neizravni pokazatelji koji upućuju na postojanje obrtničkog djelovanja koje

⁴ See DE MITRI 2023b for the concept of the democratization of luxury applied to material culture studies.

⁵ An update on workshops in DE MITRI 2023a: 145-148 and BILDE 2024.

⁴ Za pojam „demokratizacije luksuza” primijenjen na proučavanje materijalne kulture v. DE MITRI 2023b.

⁵ Ažurirani podaci o radionicama kod: DE MITRI 2023a: 145-148; BILDE 2024.

sites, although moulds or fragments of moulds have been uncovered, the absence of associated artifacts – believed to have been produced locally – either within the sites themselves or their surrounding areas, makes it impossible to define the characteristics of independent production with certainty. It is worth emphasizing that the production of mouldmade ceramics was part of a broader framework of manufacturing activities, including the production of other ceramic types and, most notably, amphorae. This model appears to include the rich and complex production of central Italy, which is well known for the so-called Italo-Megarian pottery. The known production sites to date include Cosa, Mevlana, Ocricoli, and Tivoli. Further south, another production district begins to take shape in the Campanian area, with Pompeii and Naples.⁶ On the eastern side of the Italian Peninsula, however, the Apulo-Lucanian district stands out as the only confirmed manufacturing hub for mouldmade pottery. In this region, at least three production centres have been identified: Taranto, Metaponto, and Herakleia. Additionally, numerous artifacts attributed to Apulo-Lucanian production have been discovered in the surrounding territory.⁷

The same dynamism is also evident on the opposite shore, where a substantial number of workshops have been identified, starting in the western Peloponnese and extending across the entire eastern sector of the Ionian-Adriatic basin, particularly in its southern regions. As a result, four main production districts have been distinguished: Illyria, Epirus, Aetolia-Acarnania, and the Peloponnese.⁸

The pottery production in ancient Illyrian territories is documented in two primary regions: the northern sector, encompassing Dal-

nije nužno evoluiralo u potpuno razvijenu, dugotrajnu produkciju. Takav je slučaj s nalazima ograničenima na kalupe kakvi su zabilježeni u Riminiju, Ordoni, Tindariju i Morgantini. Unatoč nalazima kalupa ili njihovih ulomaka, izostanak pripadajućih artefakata (za koje se pretpostavlja da su proizvedeni lokalno) na samim nalazištima ili u njihovoj okolini onemogućuje sigurno određivanje obilježja samostalne keramičke produkcije. Važno je istaknuti da je produkcija keramike izrađene u kalupu bila dio šireg okvira proizvodnih djelatnosti koji je uključivao i izradu drugih vrsta keramike, osobito amfora. Taj model, čini se, obuhvaća bogatu i složenu produkciju središnje Italije, poznatu po tzv. italo-megarskoj keramici. Do danas poznate proizvodne radionice uključuju Cosu, Mevlanu, Ocricoli i Tivoli. Južnije, na području Kampanije, s Pompejima i Napuljem, nastat će još jedno keramičarsko središte.⁶ Istodobno se na istočnoj strani Apeninskog poluotoka osobito ističe apulsko-lukanijsko područje kao jedino potvrđeno središte izrade keramike u kalupu. U toj su regiji prepoznata najmanje tri proizvodna središta: Taranto, Metaponto i Herakleja. Osim toga, u okolnim su područjima otkriveni brojni artefakti pripisani apulsko-lukanijskoj produkciji.⁷

Ista se dinamika jasno očituje i na suprotnoj obali, gdje je prepoznat znatan broj radionica koje se protežu od zapadnog Peloponeza preko cjelokupnog istočnog dijela jonsko-jadranskog bazena, osobito u njegovim južnim područjima. Na temelju tih spoznaja razlikujemo četiri glavna proizvodna područja: Ilirik, Epir, Etolija-Akarnanija i Peloponez.⁸

Keramička je produkcija na području antičkog Ilirika potvrđena u dvama glavnim

⁶ For attestations in the Italian peninsula, see PUPPO 1995; LEOTTA 2017; 2019; MARTIN 2019.

⁷ DE MITRI 2024.

⁸ For the workshops in Epirus, Aetolia-Acarnania and Peloponnese see: SIEBERT 1978; GRAVANI 2001; TSANTILA 2013; GAMBERINI 2020 and DE MITRI 2021.

⁶ Za potvrde na Apeninskom poluotoku v. PUPPO 1995; LEOTTA 2017; 2019; MARTIN 2019.

⁷ DE MITRI 2024.

⁸ O radionicama u Epiru, Etoliji-Akarnaniji i na Peloponezu v. SIEBERT 1978; GRAVANI 2001; TSANTILA 2013; GAMBERINI 2020; DE MITRI 2021.

matia, and the southern sector, corresponding to present-day Albania.

In the central-northern sector, Dalmatian pottery production is attributed to at least three confirmed centres: Resnik, Vis, and Stari Grad in Hvar/Pharos.⁹ Zara (Zadar) may also be included, as evidenced by the discovery of a mould in the waters near the ancient settlement, as well as at Sveti Klement (Pakleni Islands, near Hvar), where fragments of moulds have been found.¹⁰ Technical characteristics allow the identification of two distinct groups. The first is defined by a refined, relatively soft grey clay with a dark grey coating. The second, less common group, features ochre and brown clays with brown or reddish-brown coatings. The primary forms produced are two: the cup and the krater. The krater is exclusively of the chalice type, characterized by a tall, moulded ring foot, a globular body with horizontal rod-like handles close to the vessel walls, a flaring neck, and an outwardly curved rim.

The cup appears in two main types: the mastoid form and the "bell-shaped" profile. Its rim is flared with an inner surface that is variably concave, and the base is either flat or equipped with distinctive pedestals, often shaped like shells. Additionally, hemispherical cups with indistinct rims, resembling the so-called "Delian" or "Ionic" type, are also documented.¹¹

This production shows a strong connection with the southern Illyrian pottery tradition, as demonstrated by finds at Resnik,¹² where locally produced pieces bear potters' signatures similar to those from the Durrës workshop.

The southern Illyrian pottery production is centred primarily in Durrës, the most well-documented hub. The attested shapes include the krater and, above all, the hemi-

regijama: u sjevernom dijelu, koji obuhvaća Dalmaciju, te u južnom dijelu, koji odgovara današnjoj Albaniji.

Keramička produkcija u središnjem i sjevernom, dalmatinskom, dijelu pripisuje se najmanje trima potvrđenim središtima: Resniku, Visu i Starom Gradu na Hvaru (Pharos).⁹ Očito toj produkciji možemo pridodati i Zadar, kako potvrđuje otkriće kalupa u moru pokraj antičkog naselja, kao i radionicu na Sv. Klementu (Paklenski otoci u blizini Hvara) gdje su pronađeni ulomci više kalupa.¹⁰ Na temelju tehničkih obilježja moguće je razlikovati dvije zasebne skupine. Prvoj je skupini svojstvena pročišćena, relativno meka siva glina s tamnosivim premazom. Druga, manje učestala skupina izrađivala se od glina oker i smeđe boje sa smeđim ili crvenkasto-smeđim premazom. Proizvodila su se uglavnom dva osnovna oblika: zdjelica i krater. Krater se javlja isključivo u tipu kaleža, s karakterističnom visokom profiliranom prstenastom stopom, loptastim tijelom s vodoravnim, štapičastim ručkama položenima uz stijenke posude, proširenim vratom i izvijenim obodom.

Zdjelica se pojavljuje u dva glavna tipa: mastoidnom i zvonolikom obliku. Obod joj je proširen, unutrašnja površina varijabilno konkavna, a dno ravno ili s prepoznatljivim postamentom, često u obliku školjki. Zabilježene su i polukuglaste zdjelice s neizraženim obodom, slične „delijskom” ili „jonskom” tipu.¹¹

Ta produkcija ukazuje na snažnu povezanost s južnoiliričkom keramičarskom tradicijom, kako potvrđuju nalazi iz Resnika,¹² gdje lokalno izrađeni primjerci nose potpise lončara slične onima iz dračke radionice.

Južnoilirička keramička produkcija koncentrirana je ponajprije u Draču kao najbolje

⁹ For the presence of mouldmade ware's workshop in Dalmatia see: ČARGO, MIŠE 2010; KAMENJARIN 2017; ČARGO, KAMENJARIN 2020; UGARKOVIĆ, PARAMAN 2020.

¹⁰ UGARKOVIĆ, KONESTRA 2018.

¹¹ The characteristics of Dalmatian Mouldmade Ware are discussed in BRUSIĆ 1999.

¹² ŠEŠELJ 2008.

⁹ O postojanju radionica za izradu keramike u kalupu u Dalmaciji v. ČARGO, MIŠE 2010; KAMENJARIN 2017; ČARGO, KAMENJARIN 2020; UGARKOVIĆ, PARAMAN 2020.

¹⁰ UGARKOVIĆ, KONESTRA 2018.

¹¹ Obilježja dalmatinske keramike izrađene u kalupu objašnjena su u: BRUSIĆ 1999.

¹² ŠEŠELJ 2008.

spherical cup of the Delian type, often bearing the potter's signature on the exterior base. The most frequently recurring names are *APICTHN* and *COITINOC*.¹³ Although no monographic studies on this production exist, the analysis of late Hellenistic and roman artefacts, combined with autoptic observations, makes it possible to identify certain technical and manufacturing features. Several clay fabric varieties have been identified, most frequently light beige to pale orange with abundant white inclusions. The glaze likewise exhibits a range of shades, from bright, well-sintered orange to thin, unsintered coatings in brown to reddish hues.¹⁴

The discovery of a mould at Apollonia, Amantia and Triport, a stamp from Byllis, suggest the existence of other workshops and a broader distribution network within various Illyrian regions.¹⁵ This is further corroborated by data from Zgërdhesh, which enriches our understanding of this dispersed production.

The forms produced in the southern sector mirror those of Dalmatian pottery – chalice kraters and cups – but differ in that the characteristic grey finish of Dalmatian ceramics is absent. The distribution pattern indicates a predominantly local dissemination, with a few exceptions on the Italian coast.¹⁶

Zgërdhesh, located in the hinterland of Durrës, covers an area of 10 hectares in the shape of an isosceles triangle surrounded by walls and extends along the slope of a small hill with terraced levels (Fig. 2). Excavations started in the 1970s have identified occupation from the Classical period up to the 2nd century BC. During the Middle to Late Imperial period, the presence of a small demographic nucleus is documented by a necropolis. A workshop for Hellenistic amphorae has been linked to

dokumentiranom središtu. Potvrđeni oblici uključuju krater te, u prvome redu, polukuglaste zdjelice delijskog tipa, koje često nose potpis lončara na vanjskoj strani dna. Najčešće se pojavljuju imena *APICTHN* i *COITINOC*.¹³ Iako nisu napravljene monografske studije te produkcije, analiza kasno-helenističkih i rimskih artefakata u kombinaciji s izravnim opažanjima omogućuje prepoznavanje određenih tehnoloških i proizvodnih obilježja. Uočeno je nekoliko varijanti glinene fature, najčešće svijetlobež do blijedonarančaste boje, s obiljem bijelih primjesa. Glazura također pokazuje niz nijansi – od jarkonarančastog, dobro sinteriranog do tankog, nesinteriranog premaza u smeđim i crvenkastim tonovima.¹⁴

Otkriće kalupa u Apoloniji, Amantiji i Triportu te žiga u Bilisu upućuje na postojanje drugih radionica i šire mreže rasprostranjenosti unutar različitih iliričkih područja.¹⁵ To dodatno potvrđuju podaci sa Zgërdhesha, koji obogaćuju naše razumijevanje ove raširene produkcije.

Oblici izrađeni u južnom sektoru tipični su za dalmatinsku keramiku – kaležasti krateri i zdjelice – no razlikuju se po tome što im nedostaje karakterističan sivi premaz prisutan kod dalmatinskih primjeraka. Obrazac rasprostranjenosti upućuje na pretežito lokalnu rasprostranjenost, s tek nekoliko iznimaka na talijanskoj obali.¹⁶

Zgërdhesh, smješten u zaleđu Drača, zauzima površinu od 10 hektara u obliku jednokračnog trokuta opasanog zidinama te se proteže duž padine manjeg terasasto oblikovanog brežuljka (sl. 2). Iskopavanja započeta 70ih godina XX. stoljeća potvrdila su naseljenost lokaliteta od klasičnog razdoblja do 2. stoljeća pr. Kr. Postojanje manjeg naseobinskog

¹³ HIDRI 1988.

¹⁴ SHEHI 2014: 112-126.

¹⁵ A preliminary overview of the production and circulation of Mouldmade Ware in Albania is in: SHEHI, GALATY 2015; for Apollonia see BARRIÈRE 2022: 54.

¹⁶ DE MITRI 2023a: 153-158.

¹³ HIDRI 1988.

¹⁴ SHEHI 2014: 112-126.

¹⁵ Preliminarni pregled produkcije i rasprostranjenosti keramike izrađene u kalupu u Albaniji v. u: SHEHI, GALATY 2015, za Apoloniju v. BARRIÈRE 2022: 54.

¹⁶ DE MITRI 2023a: 153-158.

the site, but this claim remains unconfirmed.¹⁷

Since 2017, new archaeological excavations at Zgërdhesh have been carried out by an Albanian-German team under the direction of Elvana Metalla and Thomas Mauer, and they are still ongoing.¹⁸

To initiate a systematic study of the ceramic material, a preliminary analysis was conducted on artifacts preserved at the Institute of Archaeology in Tirana, originating from the most recent excavations. This study has made it possible to establish the primary chronology of the archaeological context under investigation and to identify the first characteristics of the attested ceramic types. The research involved a direct examination of all ceramic fragments, with a particular focus on specific categories such

as transport containers and fine tableware, as these are more likely to provide valuable information regarding chronology, provenance, and circulation. Overall, the material is chronologically homogeneous, predominantly dating to the Late Hellenistic period (late 3rd–early 1st century BC), although some specimens may date back to the earlier Hellenistic phase (4th–



FIGURE 2 Map of Zgërdhesh with excavation areas indicated (after Metalla, Mauer 2017)

SLIKA 2. Karta Zgërdhesha s označenim zonama iskopavanja (prema: Metalla, Mauer 2017)

središta u srednjem i kasnom carskom razdoblju potvrđuju nalazi nekropole. Uz nalazište se povezuje i radionica helenističkih amfora, no ta tvrdnja zasad nije potvrđena.¹⁷

Od 2017. u tijeku su novija arheološka istraživanja na Zgërdheshu koja provodi albansko-njemački tim pod vodstvom Elvane Metalle i Thomasa Mauera.¹⁸

Kako bi se potaknulo sustavno istraživanje keramičkog materijala, provedena je preliminarna analiza predmeta pohranjenih u Institutu za arheologiju u Tirani koji potječu iz najnovijih kampanja. Zahvaljujući tom istraživanju utvrđena je primarna kronologija arheološkog konteksta koji je predmet proučavanja te su prepoznata najvažnija obilježja potvrđenih

tipova keramike. Istraživanje je obuhvatilo izravan pregled svih ulomaka keramike, s osobitim naglaskom na određene kategorije, kao što su posude za transport odnosno fina stolna keramika, budući da će one prije pružiti dragocjene podatke o kronologiji, podrijetlu i rasprostranjenosti. Sve u svemu, građa je kronološki homogena i pretežito se

¹⁷ Information related to old excavations can be found in ISLAMI 1972; 1973; KARAISKAI 1977; PAPAANI 1977; GILKES 2013; MODERATO 2021.

¹⁸ METALLA, MAUER 2018; 2021; 2022; METALLA, MAUER, TOTA 2020.

¹⁷ Podaci o starijim istraživanjima dostupni su u: ISLAMI 1972; 1973; KARAISKAI 1977; PAPAANI 1977; GILKES 2013; MODERATO 2021.

¹⁸ METALLA, MAUER 2018; 2021; 2022; METALLA, MAUER, TOTA 2020.

3rd century BC). Scattered medieval fragments were found throughout all excavation areas, while in Areas 1 and 2, Late Imperial fragments – contemporary with the necropolis explored both in these recent excavations and in past investigations – were also identified. In particular, Area 4 is dominated by Late Hellenistic materials, primarily common wares (both coarse and kitchen pottery). Numerous production indicators were found in this area, including kiln waste and vitrified fragments, primarily related to coarse ware. However, it remains unclear whether amphorae were also produced here.

Area 6 contains a significant amount of Late Hellenistic material, with a repertoire consistent with that documented across the Mediterranean during this period. Notably, a substantial number of Hellenistic relief pottery and red-gloss ceramics, both of clear Durrës origin, were identified. The assemblage also includes a high number of closed-form vessels, such as small amphorae, jars, and possibly *hydriai*, distinguished by ribbed strap handles and external red gloss. Adriatic amphorae were well represented, while Ionian-Aegean or Eastern Aegean examples were fewer in number.

In Area 9, the material record closely resembles that of the Area 6, with a predominance of Late Hellenistic ceramics. However, this area yielded a greater variety of other artifacts, including conical loom weights, dolia, and millstones, suggesting evidence of productive activities.

Mouldmade Ware is attested only in the form of bowls comparable to examples produced in Durrës. Morphologically, these bowls are semi-circular with a deep basin, featuring a smooth upper part, while the decoration extends over the lower part of the basin. The decorative motifs also fall within the known repertoire of the Illyrian area. In particular, a recurring motif with twisted lines, us a “pseudo-godron” (Fig. 3/2–7), finds a comparison with a mould from Durrës.¹⁹ The imbricated

datira u kasnohelenističko razdoblje (kraj 3. – početak 1. st. pr. Kr.), iako se neki primjerci mogu pripisati ranijoj helenističkoj fazi (4. – 3. st. pr. Kr.). U svim zonama iskapanja pronađeni su razasuti srednjovjekovni ulomci, dok su u zonama 1 i 2 prepoznati i kasnocarski ulomci – istovremeni s nekropolom istraživanom i u ovim novijim i u ranijim iskapanjima. Osobito se u zoni 4 ističu kasnohelenistički nalazi, ponajprije kućansko posuđe (grublja i kuhinjska keramika). U tom su području pronađeni brojni pokazatelji produkcije, uključujući otpad iz keramičarskih peći i vitrificirane ulomke, koji se ponajprije povezuju s grubom keramikom. Ipak, ostaje nejasno jesu li se ondje proizvodile i amfore.

Zona 6 sadržava znatnu količinu kasnohelenističkog materijala, s repertoarom koji odgovara onome dokumentiranom diljem Sredozemlja iz tog razdoblja. Osobito je zabilježen velik broj helenističke reljefne keramike i crveno premazane keramike, pri čemu su obje vrste bez dvojbe podrijetlom iz Drača. Zbirka obuhvaća i velik broj zatvorenih oblika posuda, kao što su manje amfore, vrčevi i vjerojatno hidrije, koji se odlikuju rebrastim trakastim ručkama i vanjskim crvenim premazom. Jadranske su amfore dobro zastupljene, dok su jonsko-egejski i istočnoegejski primjerci manje brojni.

U zoni 9 materijalni je sklop vrlo sličan onome iz zone 6, pri čemu prevladava kasnohelenistička keramika. Međutim, ta je zona iznijela raznolikije ostale predmete, uključujući stožaste utege za tkalački stan, dolije i žrvnjeve, koji upućuju na proizvodne aktivnosti.

Keramika izrađena u kalupu potvrđena je samo u obliku zdjelica usporedivih s primjercima izrađenima u Draču. S morfološkog aspekta zdjele su polukružne, dubokoga tijela s glatkim gornjim dijelom i dekoracijom na donjem dijelu tijela posude. Dekorativni motivi također pripadaju poznatom repertoaru iliričkoga područja. Osobito se ističe ponavljajući motiv isprepletenih linija, tzv. „pseu-

¹⁹ SHEHI, GALATY 2015.

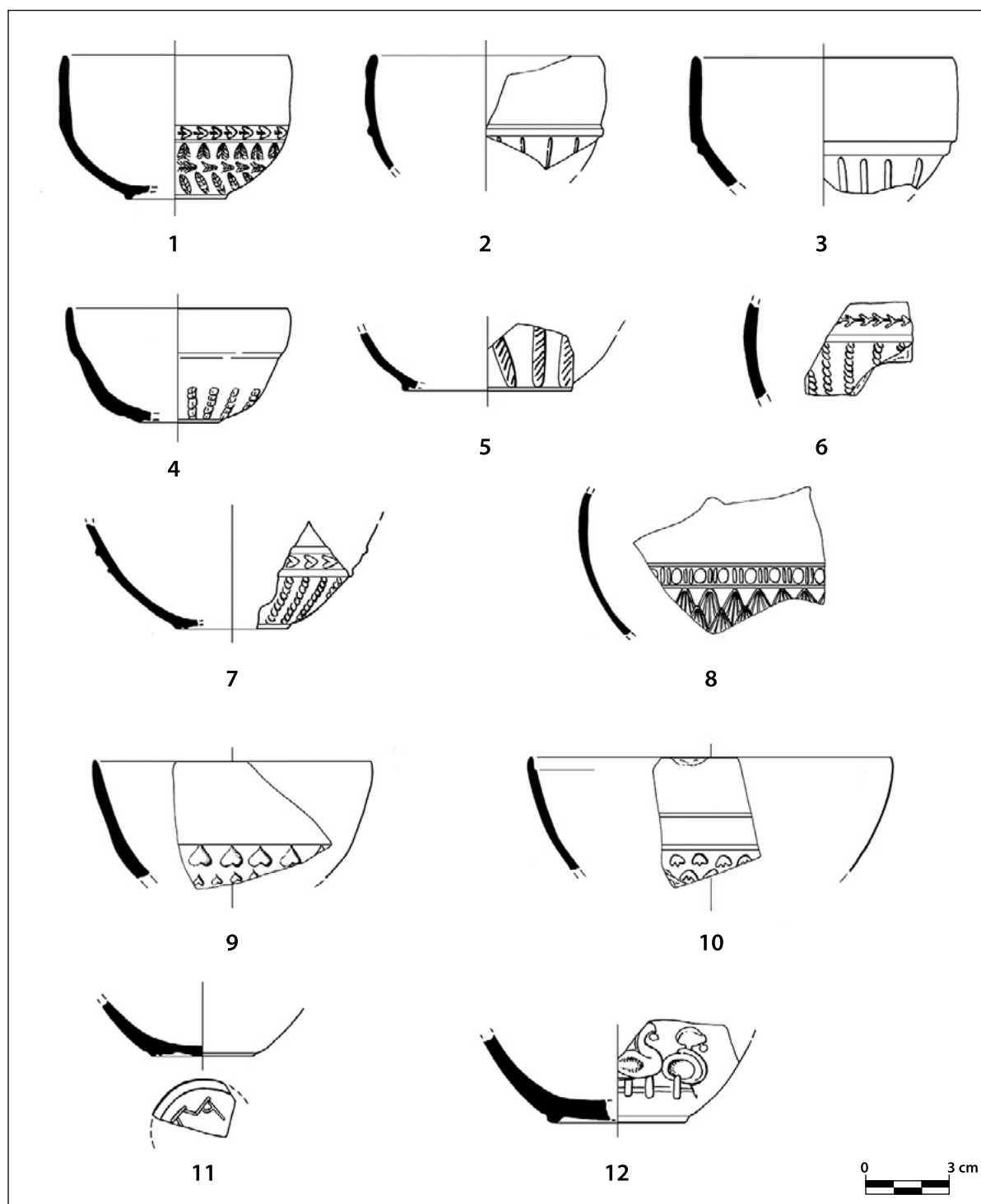


FIGURE 3 Mouldmade Ware from Zgërdhesh (drawing by F. Malinconico)

SLIKA 3. Keramika izrađena u kalupu iz Zgërdhesha (crteži: F. Malinconico)

leaf motif (Fig. 3/8) is also widely distributed, appearing both in moulds found in Durrës and Resnik and in pottery circulating in the Illyrian region, as seen, for example, in Budva.²⁰

²⁰ ŠEŠELJ 2021.

dogodron" (sl. 3/2–7), usporediv s kalupom iz Drača.¹⁹ Motiv preklapljenih listova (sl. 3/8) također je široko rasprostranjen – pojavljuje se i na kalupima pronađenima u Draču i Resniku

¹⁹ SHEHI, GALATY 2015.

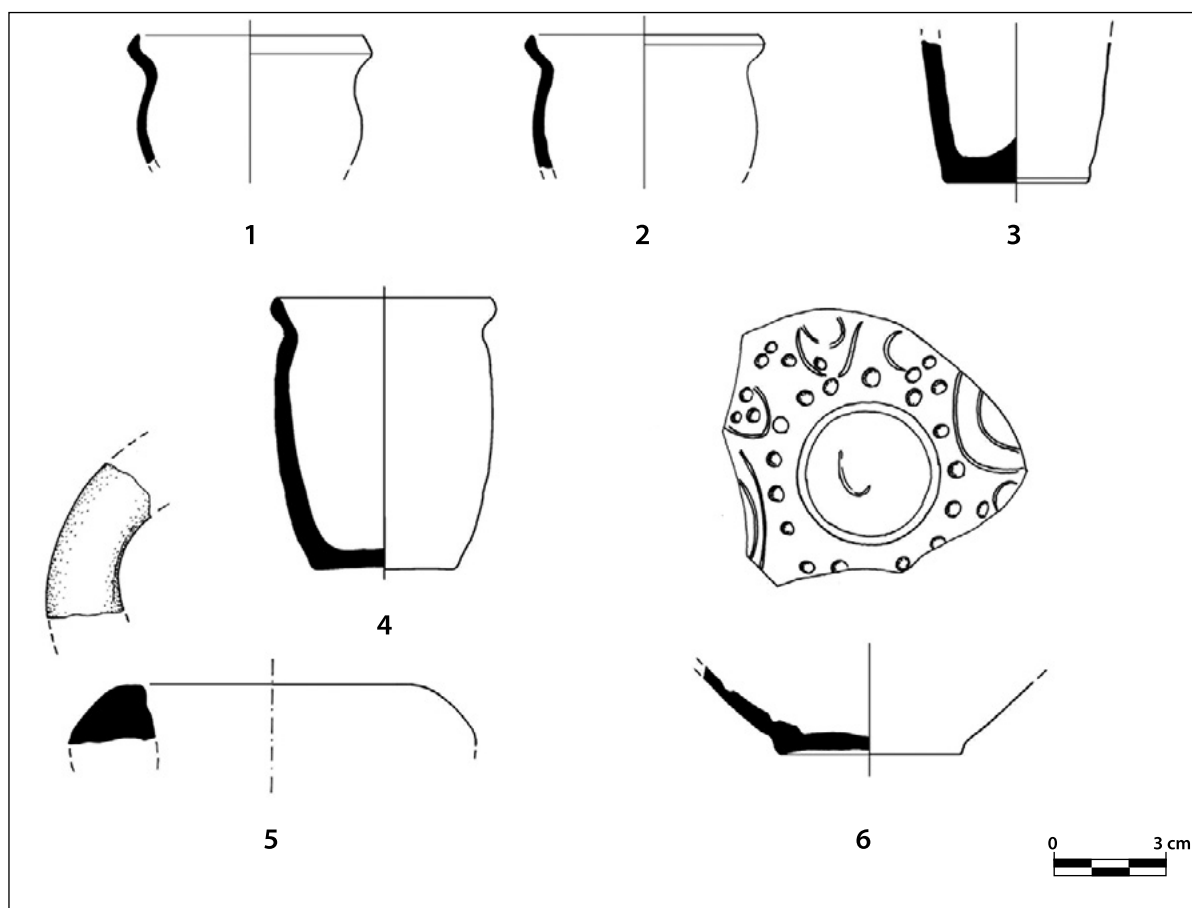


FIGURE 4 Production indicators from Zgërdhesh (drawing by F. Malinconico)

SLIKA 4. Pokazatelji produkcije iz Zgërdhesh (crteži: F. Malinconico)

Less common is the motif featuring heart-shaped leaves (Fig. 3/9) or leaves with serrated edges (Fig. 3/10), which is primarily found in the Dalmatian area. This motif, also referred to as “scale-like,” would later become a recurring feature on Middle Adriatic grey thin-walled pottery of the Imperial period.²¹ On the exterior bottom of a bowl, a signature can be identified, likely composed of three letters, of which the last two are recognizable as *[..]IA* (Fig. 3/11). The presence of a mark or monogram is a very common practice, with parallels found in the Dalmatian region, where the K(appa) A(lpha) T(heta) master potter/workshop has been identified as part of a northern Illyrian atelier.²²

te na keramici koja je kružila iliričkim područjem, primjerice u Budvi.²⁰

Rjeđi su motivi koji prikazuju srcolike listove (sl. 3/9) ili listove nazubljenih rubova (sl. 3/10), koji se pretežito javljaju na dalmatinskom području. Taj motiv, poznat i kao „ljuskasti”, kasnije će postati učestalo obilježje srednjojadranske sive keramike tankih stijenki iz carskog razdoblja.²¹ Na vanjskom dnu jedne zdjele prepoznaje se potpis, vjerojatno sastavljen od triju slova, od kojih su posljednja dva vidljiva kao *[..]IA* (sl. 3/11). Postojanje oznake ili monograma vrlo je česta pojava, s analogijama zabilježenima u dalmatinskom području, gdje je djelovao majstor ili lončarska radionica K(apa) A(lfa) T(eta) prepoznata kao

²¹ MENOZZI 1995.

²² Communication by Igor Borzić and Martina Čelhar at the 6th IARPotHP Conference held in Catania in October 2023.

²⁰ ŠEŠELJ 2021.

²¹ MENOZZI 1995.

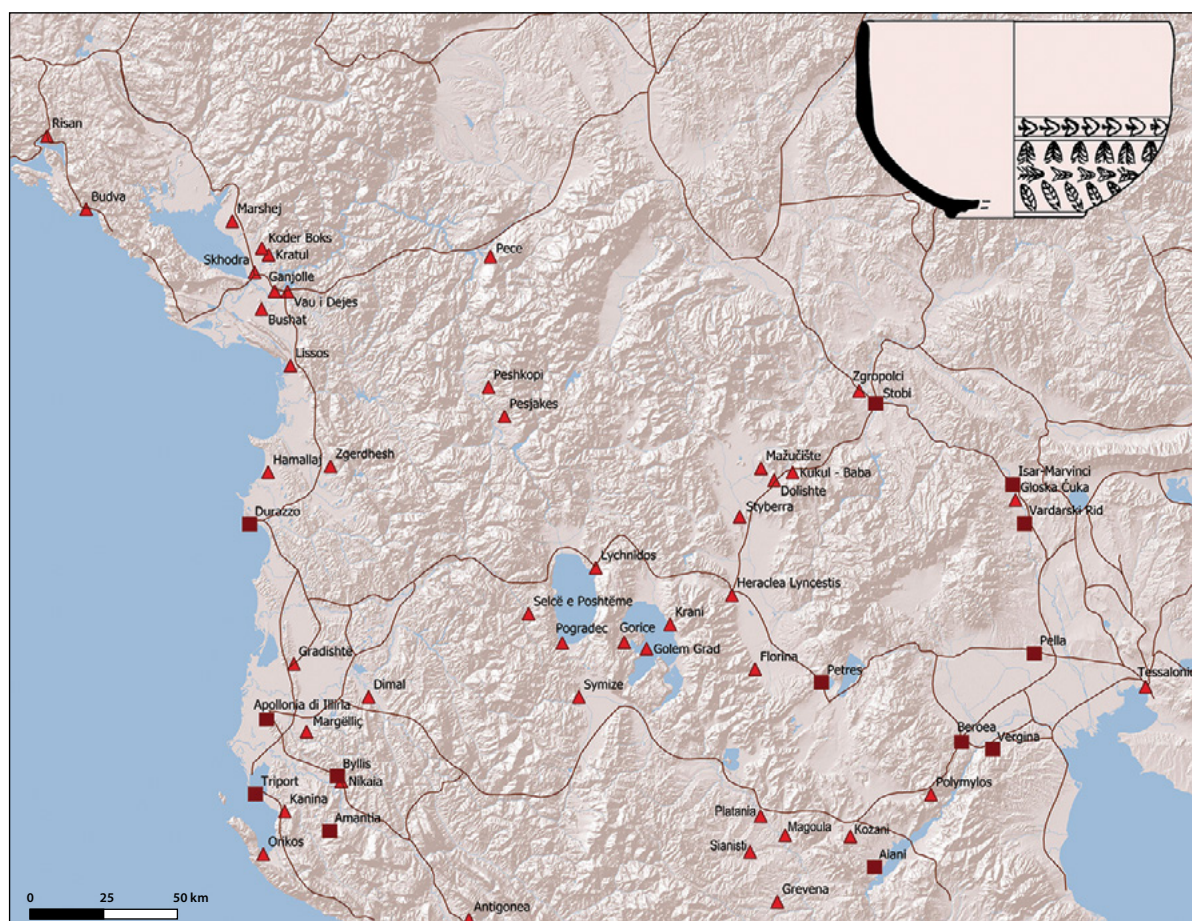


FIGURE 5 Southern Illyria and Western Macedonia attestation of Mouldmade Hellenistic Ware: ▲ findspot; ■ workshop (Basemap: ESRI Shaded relief; Ancient road layer: Ancient World Mapping Center, <https://awmc.unc.edu/gis-data/>) (made by C. De Mitri)

SLIKA 5. Nalazi helenističke keramike izrađene u kalupu u južnom Iliriku i zapadnoj Makedoniji: ▲ nalazište; ■ radionica (temeljna karta: ESRI osjenčani reljef; sloj antičkih prometnica: Ancient World Mapping Center, <https://awmc.unc.edu/gis-data/>) (izradio: C. De Mitri)

Finally, the decoration on the specimen in fig. 3.12, which is difficult to interpret, finds a comparison with an unpublished bowl from Pogradec, in the museum of the Institute of Archaeology in Tirana.

Most of the material from Area 4 suggests the presence of a ceramic workshop at the site: vitrified fragments, possibly kiln waste, and distinctive objects. Among these are fragments of small pots (Fig. 4/1–3), allowing for the reconstruction of a complete example (Fig. 4/4) with an estimated height of 7 cm and a rim diameter of approximately 5.5 cm. This reconstruction is consistent with the interpretation of pottery spacers,²³ a hypothesis

dio sjevernoiliričke radionice.²²

Konačno, dekoracija na primjerku sa slike 3/12, koju je teško tumačiti, ima analogiju u neobjavljenoj zdjeli iz Pograda, pohranjenoj u muzeju Instituta za arheologiju u Tirani.

Većina građe iz zone 4 upućuje na postojanje keramičarske radionice na nalazištu: vitrificirani ulomci, mogući otpad iz keramičarske peći te različiti karakteristični predmeti. Među njima su ulomci manjih posuda (sl. 4/1 – 3) na temelju kojih je moguće rekonstruirati cjelovit primjerak (sl. 4/4) procijenjene visine od 7 cm i promjera oboda od približno 5,5 cm. Ta se rekonstrukcija uklapa u hipote-

²³ On pottery spacers see CRACOLICI 2003 and FUSI 2020.

²² Izlaganje Igora Borzića i Martine Čelhar na 6. konferenciji IARPotHP, održanoj u Cataniji u listopadu 2023.

further supported by the presence of at least one ring-shaped pottery spacer (Fig. 4/5). Additionally, a base with incised decorations on the interior was discovered (Fig. 4/6). Although its function remains uncertain, it may be interpreted – albeit tentatively – as a mould or an object related to the chaîne opératoire of ceramic production. These production indicators confirm the existence of a workshop at the site. Based on the finds, although it is not possible to determine with certainty which types of vessels were produced, Zgërdhesh could be considered a “satellite” production centre of Durrës.

The production model of southern Illyria seems to trace existing craft experiences in neighbouring areas: such as the Epirus and Macedonian ones (Fig. 5). There were main workshops located in the most interconnected centres in a commercial and economic network and then branches in secondary centres that were probably mainly intended to produce consumer goods locally (Tab. 1). In inland sites, locally produced ceramics prevail, also favoured by the road system, which in some cases may have also facilitated the arrival of imported goods.

Imported ceramics, on the other hand, are more frequently documented at coastal sites or those more directly connected to them. This is actually a fairly common organisation even further north in Dalmatia and, on the opposite shore, in Italy. These are therefore production districts in which specific classes of mouldmade ware are recognised, produced in workshops scattered across a culturally homogenous territory, where however primary production centres and other satellite ones can be identified, as is the case of Vis in Dalmatia and Durrës in Albania, for example.

The transmission of the craft skills at the basis of production took place thanks to those exchanges activated precisely by the presence of the Romans in the commercial, political and cultural circuits of the Mediterranean in

zu o keramičkim razdjelnicima²³ koju dodatno podupire nalaz najmanje jednog prstenastog keramičkog razdjelnika (sl. 4/5). Osim toga, otkriveno je i dno s urezima ukrašenom unutrašnjošću (sl. 4/6). Iako njegova funkcija ostaje nejasna, moguće ga je – barem okvirno – interpretirati kao kalup ili predmet povezan s lancem operacija (*chaîne opératoire*) u proizvodnom postupku izrade keramičkih posuda. Ti pokazatelji produkcije potvrđuju postojanje radionice na lokalitetu. Iako nije moguće sa sigurnošću utvrditi koje su se vrste posuda ondje proizvodile, Zgërdhesh se na temelju nalaza može smatrati „satelitom” proizvodnog središta u Draču.

Čini se da južnoilirički model produkcije slijedi postojeće obrtničke prakse u susjednim područjima, poput epirskoga i makedonskoga (sl. 5). Postojale su glavne radionice smještene u međusobno najpovezanim središtima trgovačke i gospodarske mreže te njihovi ogranci u sekundarnim središtima koji su vjerojatno bili usmjereni u prvom redu na lokalnu produkciju potrošne robe (tab. 1). Na lokalitetima u unutrašnjosti prevladava lokalno izrađena keramika, zacijelo i zahvaljujući mreži prometnica koja je u nekim slučajevima mogla olakšati i dolazak uvozne robe.

S druge strane, uvozna je keramika češći nalaz na priobalnim lokalitetima ili onima koji su s njima izravno povezani. Takva je organizacija zapravo prilično uobičajena i sjevernije, u Dalmaciji, kao i na suprotnoj obali, u Italiji. Riječ je, dakle, o proizvodnim područjima u kojima su prepoznate određene skupine keramike izrađene u kalupu, proizvedene u radionicama razasutima unutar kulturno homogenog prostora, unutar kojega se ipak mogu razlikovati glavna proizvodna središta i njihovi sateliti – primjerice Vis u Dalmaciji i Drač u Albaniji.

Prijenos obrtničkih vještina na kojima se temeljila produkcija odvijao se zahvaljujući raz-

²³ O keramičkim razdjelnicima v. CRACOLICI 2003; FUSI 2020.

TABLE 1 Southern Illyria and Western Macedonia attestation of Mouldmade Hellenistic Ware and moulds (made by C. De Mitri)**TABLICA 1.** Nalazi helenističke keramike izrađene u kalupu te kalupa u južnom Iliriku i zapadnoj Makedoniji (izradio: C. De Mitri)

Site / Lokalitet	Country / Država	Moulds / Kalup	References / Literatura
Risan	Montenegro		DYCZEK et. al 2020.
Budva			ŠEŠELJ 2021.
Marshej	Albania		SHEHI 2023.
Kodër Boks			SHEHI 2023.
Kratul			FISTANI 1983.
Skhodra			RIBERA, HERAS 2020.
Ganjolle			LAHI 1993; SHEHI, GALATY 2015.
Vau i Dejës			HOXHA, OETTEL 2022.
Bushat			LAHI 1995.
Pecë			SHEHI, GALATY 2015.
Lissos			KÖGLER 2019; 2021.
Peshkopi			KOÇOLLARI 2021.
Pesjakes			BUNGURI 2018.
Hamallaj			NURE 1989; 1990.
Zgërdhesh			in this paper
Durres		X	HIDRI 1988; SHEHI, GALATY 2015; MARTZ, SHEHI 2023.
Gradishte			CEKA 1974.
Apollonia		X	ROCHERON 2019; BARRIÈRE 2022.
Dimal			DAUTAJ 2009-2010; FENN, RÖMER-STREHL 2016.
Margelliç			MUÇAJ 1977-1978.
Byllis		X	VREKA 1997.
Nikaia			SHEHI, GALATY 2015.
Triport		X	BERETI 1988.
Kanina			KOMATA 1991.
Orikos			DE MITRI 2021.
Amantia		X	ANAMALI 1972.
Antigonea			BUDINA 1972.
Selce e Poshtme			CEKA 1972; SHEHI, GALATY 2015.
Pogradec			Unpublished
Symize			LÉRA 1992; SHEHI, GALATY 2015.
Gorice			Unpublished
Lychnidos	North Macedonia		BITRAKOVA GROZANOVA 2000.
Golem Grad			BITRAKOVA GROZANOVA 1989.
Krani			BITRAKOVA GROZANOVA 1995.
Zgropolci			NIKOLOVA 2011.
Stobi		X	ANDERSON-STOJANOVIĆ 1992.
Mažučiste			MITKOSKI, TEMELKOSKI 2019.
Kukul - Baba			MITKOSKI, TEMELKOSKI 2020.
Dolishte			JAKIMOVSKI, TEMELKOSKI, ANGELOVSKI 2021.

Site / Lokalitet	Country / Država	Moulds / Kalup	References / Literatura
Bedem - Styberra	North Macedonia		TEMELKOSKI 2021.
Isar-Marvinci		X	STOKOLOVSKA 1986.
Gloska Ćuka			BLAŽEVSKA, PAVLOVSKI 2010.
Vardarski Rid		X	HUSENOVSKI, SPASOVSKA DIMITRIOSKA 1999; BLAŽEVSKA 2020.
Heraclea Lyncestis			
Florina	Greece		NAOUM 2023.
Petres		X	
Pella		X	AKAMATIS 1993.
Tessalonica			NAOUM 2023.
Beroea		X	AKAMATIS 1993.
Vergina		X	PHAKLARES 1983.
Polymylos			NAOUM 2023.
Aiani		X	KARAMITROU-MENTESSIDI 2008.
Kozani			KARAMITROU-MENTESSIDI 1993.
Magoula			
Sianisti			
Platania			
Grevena			NAOUM 2023.

the 2nd century BC.²⁴ Thus, peripheral and regional productions were born that originated from Greek models, the diffusion of which could take place with the circulation of the moulds but also of craft skills that travelled with the people who moved.²⁵

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mjenama koje je potaklo upravo prisustvo Rimljana u trgovačkim, političkim i kulturnim krugovima Sredozemlja u 2. stoljeću pr. Kr.²⁴ Tako su iznikle periferne i regionalne produkcije proizašle iz grčkih uzora, čije je širenje bilo moguće zahvaljujući cirkulaciji ne samo kalupa, nego i obrtničkih vještina koje su prenosili ljudi tijekom seoba.²⁵

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*Prijevod i lektura:
ETNOtrend d.o.o.*

²⁴ On mobility, see ERDKAMP 2008 and MOATTI 2018.

²⁵ For the case study of the Salento Peninsula, see DE MITRI 2022.

²⁴ O mobilnosti v. ERDKAMP 2008 i MOATTI 2018.

²⁵ Za studiju slučaja poluotoka Salento v. DE MITRI 2022.

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TAURIANA: ANTIČKO NASELJE U NOV DOJRANU NA CESTI VIA AXIA

TAURIANA: AN ANCIENT SETTLEMENT ON THE VIA AXIA ROAD, IN NOV DOJRAN

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Antičko naselje Tauriana, smješteno kod današnjeg Nov Dojrana u Sjevernoj Makedoniji, predstavlja važnu arheološku i povijesnu točku kao jedna od posljednjih postaja na jednom od antičkih cestovnih pravaca u rimskom razdoblju – na cesti Via Axia, čija je trasa dokumentirana na poznatoj karti Tabula Peutingeriana. Trasa Via Axia protezala se od Thessalonice prema sjevernoj granici Rimskog Carstva kroz dolinu rijeke Vardar (antički Axios) još u ranoj antici. Dolina rijeke Vardar služila je kao drevna komunikacijska ruta još od antike, povezujući različite regije i olakšavajući trgovinu, vojne kampanje i kulturnu razmjenu između juga i sjevera, osobito u ranom antičkom razdoblju. Iako za Taurianu ne postoje mnogi pisani izvori, arheološka istraživanja područja Nov Dojrana otkrivaju važne nalaze koji ukazuju na to da je ovo bilo važno naselje s urbanim elementima u razdoblju Rimskog Carstva. Naime, na cijelom prostoru suvremenog naselja Nov Dojran pronađeni su ostaci građevina, nekropole i veliki broj pokretnih nalaza, poput keramike, kovanica i nakita, koji se datiraju u ranorimski i kasnorimski carski period. Ova arheološka svjedočanstva ukazuju da Tauriana nije bila samo tranzitna točka u cestovnoj mreži između različitih dijelova Rimskog Carstva, već i važan urbani centar s ekonomskom i kulturnom funkcijom. Iako, za razliku od drugih antičkih gradova i naselja u Makedoniji, nije detaljno istražena i ostaje u sjeni većih centara, Tauriana predstavlja ključan pokazatelj za razumijevanje regionalne uloge Dojrana u antičko doba, osobito u kontekstu integracije ovog prostora u sustav Rimskog Carstva.

KEY WORDS:

Tabula Peutingeriana,
Antiquity, Roman
period, Tauriana, Via
Axia, ancient road
networks, archaeological
research, Nov Dojran

The ancient settlement of Tauriana, located near present-day Nov Dojran in Macedonia, constitutes a significant archaeological and historical site, identified as the final station on the Via Axia, a Roman-period road documented on the well-known Tabula Peutingeriana. It ran from Thessaloniki towards the northern frontier of the Roman Empire, following the valley of the River Axios (modern-day Vardar), having served as a vital corridor of movement as early as the Hellenistic and early Roman periods. The valley functioned as an important ancient communication and transportation route, facilitating trade, military campaigns and cultural exchange between the southern and

northern parts of the empire. Although written sources specifically referring to Tauriana are scarce, archaeological excavations conducted in the area of Nov Dojran have revealed significant remains indicating the presence of a developed settlement with urban characteristics during the Roman Imperial period. Throughout contemporary Nov Dojran, remains of architectural structures, necropolises and a large number of movable finds such as pottery, coins, and jewellery have been uncovered. These artefacts are dated to both the early and late Roman imperial periods, confirming the site's long-term occupation and importance.

Such archaeological evidence suggests that Tauriana was not merely a transit station along the Roman road network, but rather a local urban centre with economic and cultural relevance. Although Tauriana has not been thoroughly studied (unlike other ancient cities and settlements in Macedonia) and remains somewhat overshadowed by larger urban centres, it nonetheless serves as a key indicator for understanding the regional role of Dojran in antiquity, particularly within the broader context of the integration of this territory into the infrastructure and administrative system of the Roman Empire.

Istraživanje antičkih cesta i naselja smještenih uz njihovu trasu predstavlja ključno polazište za razumijevanje komunikacijskih, ekonomskih i vojnih strategija Rimskog Carstva. Među mnogobrojnim cestama koje su zabilježene na karti *Tabula Peutingeriana*,¹ važnom kartografskom izvoru iz kasne antike, nalazi se i trasa Via Axia, čime se ističe važnost te prometnice u regiji (sl. 1). Via Axia predstavlja južni krak takozvane ceste Via Militaris (vojna cesta), koji se odvajao od ceste Beograd – Sofija – Konstantinopol kod Niša (*Naissus*) i slijedio tok rijeke Vardar prema jugu do Thessalonice.² Ova magistralna cesta bila je prilagođena za kolni promet, za razliku od starijih cesta, koje su se upotrebljavale isključivo za konjski i karavanski prijevoz.³

Nekoliko antičkih gradova i utvrda u Makedoniji strateški je pozicionirano duž trase Via Axia. Ti gradovi služili su kao važni administrativni centri i za trgovinu i u kontekstu vojne obrane. U okviru ove trase, postaja Tau-

The study of ancient roads and the settlements along their routes represents a key aspect in understanding the communication, economic and military strategies of the Roman Empire. Among the many roads documented on the *Tabula Peutingeriana* map¹ (a significant cartographic source from Late Antiquity), the route of Via Axia is also depicted, highlighting its importance as a major thoroughfare in the region (Fig. 1). The Via Axia represents the southern branch of the so-called Via Militaris (Military Road), which diverged from the main route connecting Belgrade–Sofia–Constantinople at Naissus (modern-day Niš), and continued southward along the Vardar valley towards Thessaloniki.² Unlike older paths used primarily for horse or caravan transport, this principal route was adapted to accommodate wheeled traffic, reflecting the infrastructural advance of the Roman road system.³

Several ancient cities and fortresses in Macedonia were strategically positioned along the route of Via Axia. These urban centres



SLIKA 1. *Tabula Peutingeriana*, Segmentum VII – K. Miller, mapa s prikazom Makedonije (izvor: <https://www.tabulapeutingeriana.de/tabula.html?segm=6&pic=m>, doradila: A. Petkovska)

FIGURE 1 *Tabula Peutingeriana*, Segmentum VII - K. Miller, map of Macedonia (source: <https://www.tabula-peutingeriana.de/tabula.html?segm=6&pic=m>, adapted by A. Petkovska)

¹ Karta je dobila ime po njemačkom antikvaru Konradu Peutingeru (1465. – 1547.), izvorno je naslikana u 4. stoljeću, a ponovno iscrtna u 13. stoljeću.

² MIKULČIĆ 2002: 36.

³ МИКУЛЧИК 1982: 54.

¹ The map is named after the German antiquarian Konrad Peutinger (1465 – 1547). It was originally created in the 4th century, then later redrawn in the 13th century.

² MIKULČIĆ 2002: 36.

³ МИКУЛЧИК 1982: 54.



SLIKA 2. Detalj ceste Via Axia prikazan na Tabuli Peutingeriani (izvor: <https://www.tabula-peutingeriana.de/tabula.html?segm=6&pic=m>, doradila: A. Petkovska)

FIGURE 2 Detail of the Via Axia road, shown on the Tabula Peutingeriana (source: <https://www.tabula-peutingeriana.de/tabula.html?segm=6&pic=m>, adapted by A. Petkovska)

riana zauzima važno mjesto, ali dosad je ostala nedovoljno istražena.

Na *Tabuli Peutingeriani* postaja Tauriana za-bilježena je na udaljenosti od 20 rimskih mi-lja od antičkog grada Idomenia (lokalitet Isar, selo Marvinci)⁴: IDOMENIA – XX – TAU-RIANA. S obzirom na geografske korelacije, s velikom vjerojatnošću povezuje se s prostorom suvremenoga Nov Dojrana (sl. 2).⁵

⁴ B. Dragojević-Josifovska, uzimajući u obzir brojne arheološke nalaze, predložila je lokaciju grada Idomene na lokalitetu Isar-Kale, u blizini sela Marvinci (Vidi: DRAGOJEVIĆ-JOSIFOVSKA 1976: 63–64); mišljenje dijele F. Papazoglu i drugi istraživači (ЛИПЧИК АДАМС 2022: 305; FASOLO, LILČIĆ ADAMS u tisku; FASOLO et al. u tisku).

⁵ ЛИПЧИК (АДАМС) 1994: 114–115; ФАСОЛО et al. u tisku. Zahvaljujemo profesorima V. Liliću Adamsu, A. Jakimovskom i autoru G. Treneskom na ustupljenom članku i informacijama za pregled i korištenje u okviru ovog rada; ПИСТОВ 2005: 126; СОКОЛОВСКА 1997: 49.

functioned as important administrative and commercial hubs, as well as key points in the broader context of military defence. Within this network, the station of Tauriana occupies a significant place, yet it has remained insufficiently studied to date.

On the Tabula Peutingeriana, Tauriana is depicted at a distance of 20 Roman miles from the ancient city of Idomenia (identified with the archaeological site Isar, near the village of Marvinci)⁴, with the route marked as: IDOMENIA – XX – TAURIANA. Its location very

⁴ Taking into account numerous archaeological finds, B. Dragojević-Josifovska proposed the location of the city of Idomene at the site of Isar-Kale, near the village of Marvinci (See: DRAGOJEVIĆ-JOSIFOVSKA 1976: 63–64). This view is shared by Fanula Papazoglu (PAPAZOGLU 1988: 174–179.), Lilčić Adams V. (ЛИПЧИК АДАМС 2022: 305; FASOLO, LILČIĆ ADAMS in press; FASOLO et al. in press), and other researchers.

Nedostatak sačuvanih pisanih izvora potaknuo je znanstvenu raspravu o identitetu Tauriane. Identifikacija arheološkog lokaliteta u blizini Nov Dojrana predmet je rasprave u literaturi, utemeljene prvenstveno na interpretacijama antičkih tekstova i ranijim terenskim i kabinetnim istraživanjima. U dijelu literature zastupljeno je mišljenje da se na ovoj lokaciji nalazio antički grad Dober, spominjan u izvorima, pri čemu se pozivaju na zapis Tukidida koji opisujući pohod odriškog kralja Sitalka navodi da je odriška vojska, nakon što je prešla nenastanjenu planinu Kerkine koja razdvaja tračke Sinte od Peonaca, stigla u peonski grad Dober, odakle je započela napad na makedonske gradove Idomen, Gortiniju i Atalantu.⁶ Drugi istraživači identificiraju Dober s Dojranom zbog sličnosti prvih dvaju slova u imenima. No prema Tukididu, Dober se nalazio sjeveroistočno od Idomene, prvog makedonskog grada koji je osvojio Sitalk, jer se s vojskom uputio prema jugu spuštajući se s planina u ravnicu. S obzirom na geografsku poziciju Dojrana, koji se nalazi južno od Idomene, nije vjerojatno da je Sitalk prvo osvojio Dober, zatim se uputio prema sjeveru, a potom se vratio prema jugu.⁷

Dodatni argument protiv identifikacije Dobera s Dojranom iznosi F. Papazoglu, koja ističe aspekt koji dosad nije dovoljno razmotren. Naime, iz Tukididova svjedočanstva jasno proizlazi da je Dober bio peonski grad i da se za vrijeme Sitalkove vojne kampanje nalazio izvan teritorija pod makedonskom vlašću. Suprotno tome, unatoč nedostatku direktnih pisanih ili arheoloških dokaza, postoji opravdano mišljenje da je regija oko Dojrana u to vrijeme već bila uključena u makedonsku državu.⁸ Zbog navedenih okolnosti, lokalizacija Dobera u području današnjeg Dojrana ne može se smatrati uvjerljivom s aspekta historijsko-geografske analize Sitalkova pohoda.

likely corresponds to the area of modern-day Nov Dojran (Fig. 2).⁵

The absence of preserved written sources makes the precise identity and character of Tauriana a matter of contention. The identification of the archaeological site near Nov Dojran has been the subject of scholarly debate, based primarily on interpretations of ancient texts, as well as academic and field research. Some scholars have proposed that this site is that of the ancient city of Dober, mentioned in historical works, most notably by Thucydides. In his account of the military campaign of the Odrysian king Sitalces, he described how the Thracian army, after crossing the uninhabited Mount Kerkine (which separated the Thracian Sintians from the Paeonians), arrived at the Paeonian city of Dober, from which it launched attacks on the Macedonian cities of Idomene, Gortynia and Atalante.⁶ Other researchers, however, have attempted to identify Dober with Dojran, on the basis of the similarity of the first two letters in the names of the two settlements. According to Thucydides, however, Dober was located to the northeast of Idomene, the first Macedonian city conquered by Sitalces. The Odrysian army is described as advancing southwards, descending from the mountains onto the plain. Bearing in mind that Dojran lies south of Idomene (Isar), it would seem highly unlikely that Sitalces would first have taken Dober, then proceeded north, only later to return southwards.⁷

An additional argument against the identification of Dober with Dojran was presented by Fanoula Papazoglou, who drew attention to a consideration that had previously received insufficient scholarly attention. Thucydides' testimony clearly confirms that Dober was a Paeonian city and that, during Sitalces' military campaign, it lay outside the territory un-

⁶ ПАПАЗОГЛУ 1957: 248.

⁷ ПАПАЗОГЛУ 1957: 249.

⁸ ПАПАЗОГЛУ 1957: 250.

⁵ ЛИЛЧИК АДАМС 1994: 114–115; FASOLO et al. in press (I would like to thank Professors V. L. Adams, A. Jakimovski, and the author G. Treneski for providing the article and information for review and use within the framework of this work); РИСТОВ 2005:126; СОКОЛОВА 1997: 49.

⁶ ПАПАЗОГЛУ 1957: 248.

⁷ ПАПАЗОГЛУ 1957: 249.



SLIKA 3. Pogled s Nov Dojrana na Dojransko jezero (snimila: A. Petkovska)

FIGURE 3 View from Nov Dojran towards Dojran Lake (photo by A. Petkovska)

S druge strane, neki istraživači dovode u pitanje ovu identifikaciju, sugerirajući da je riječ o rimskoj cestovnoj postaji Tauriani, označenoj na *Tabuli Peutingeriani*.⁹ N. G. L. Hammond, međutim, postaju Taurianu, zabilježenu na *Tabuli Peutingeriani*, smješta kod Polykastro u Grčkoj.¹⁰

Prema F. Papazoglu, antička cestovna postaja Tauriana s Peutingerove karte najvjerojatnije se nalazila na zapadnoj obali Dojranskog jezera, jer udaljenosti navedene na *Tabuli Peutingeriani* odgovaraju toj poziciji.¹¹

Herodot u svojem djelu *Povijest* (V. knjiga) opisuje jezersko naselje na jezeru Prasijade (Her., V, 16.), zbog čega su brojni istraživači prihvatili mišljenje da je Dojransko jezero u antici nosilo ime *Prasias* (sl. 3).

Iako odsutnost nedvosmislenih arheoloških pokazatelja i precizna prostorna korela-

der Macedonian control. In contrast, there is a well-grounded assumption (notwithstanding an absence of direct written or archaeological evidence) that the region surrounding Dojran had already been incorporated into the Macedonian state at that time.⁸ Given these circumstances, the localisation of Dober in the area of present-day Dojran cannot be considered plausible within the framework of a historical-geographical analysis of Sitalces' campaign.

On the other hand, some scholars have questioned this identification, suggesting instead that the site in question may correspond to the Roman road station of Tauriana, which is marked on the *Tabula Peutingeriana*.⁹ Nicholas G. L. Hammond, for instance, placed the station of Tauriana, as depicted on the *Tabula Peutingeriana*, near Polikastro in modern-day Greece.¹⁰

⁹ ЛИЛЧИК АДAMC 1994: 114-115; FASOLO et al u tisku; МИКУЛЧИК 1999:269; 2002: 36; РИСТОВ 2005:127-128; СОКОЛОВСКА 1997: 49.

¹⁰ HAMMOND 1972: 172, 178, karta 14.

¹¹ ПАΠΑЗОГЛУ 1957: 248, bilj. 85.

⁸ ПАΠΑЗОГЛУ 1957: 250.

⁹ ЛИЛЧИК АДAMC 1994: 114-115; FASOLO et al in press; МИКУЛЧИК 1999: 269; 2002: 36; РИСТОВ 2005: 127-128; СОКОЛОВСКА 1997: 49.

¹⁰ HAMMOND 1972: 172, 178, map 14.

cija s kartografskim i pisanim izvorima otežava proces konačne identifikacije lokaliteta, dosad otkriveni materijalni ostaci s područja Nov Dojrana pružaju relevantnu osnovu za povezivanje ove lokacije s cestovnom postajom Taurianom. Prisutnost arheoloških slojeva s kontinuitetom naseljenosti od rimskoga carskog do ranobizantskog razdoblja dodatno podržava ovu hipotezu, otvarajući mogućnost za daljnju interdisciplinarnu evaluaciju. Prve sustavne bilješke o antičkim ostacima u području Dojrana potječu od N. Vulića, povjesničara, klasičnog filologa, arheologa i profesora koji je u prvoj polovici 20. stoljeća proveo rekognosciranje dojranskog područja. Zabilježio je nekoliko epigrafskih spomenika, od kojih jedan sadržava natpis u dva odlomka na starogrčkom jeziku. Drugi ima oblik torza konja od bijelog mramora.¹² Također je zabilježio spomenik od vapnenca s dva fragmenta: gornji je fragment visine 0,45 m, a donji 0,65 m. Oba su fragmenta širine 0,58 m i debljine 0,18 m. Vulić je naveo da su fragmenti pronađeni ispred crkve u Dojranu,¹³ a najvjerojatnije su spomenici zajedno s ostacima hrama otkriveni 1923. tijekom gradnje crkve. Prema tadašnjim navodima mještana, na istom mjestu pronađena je keramička posuda s novcem, koja nije sačuvana, no opisi sugeriraju da su to mogle biti grčke i rimske kovanice.¹⁴ Vulić je evidentirao još jednu nadgrobnu bijelu mramornu ploču sa šest bista raspoređenih u dva reda, visine 0,63 m. U gornjem i donjem središnjem dijelu bile su prikazane žene, a oko njih bili su muškarci.¹⁵

Počeci arheoloških istraživanja kod Nov Dojrana započeli su u veljači 1951., kada su mještani obavijestili Arheološki muzej i Zavod za zaštitu kulturno-povijesnih spomenika u Skopju da su pri građevinskim radovima pronašli kipove i nekoliko drugih

Conversely, F. Papazoglou had proposed that the ancient road station Tauriana from the Peutinger Map was most likely located on the western shore of Lake Dojran, as the distances given in the map correspond well with that position.¹¹

Herodotus, in his *Histories* (Book V), provided a description of a stilt settlement on Lake Prasias (Her., V, 16), leading many researchers to accept the view that, in antiquity, Lake Dojran was known as Prasias (Fig. 3).

Although the absence of unequivocal archaeological indicators and precise spatial correlation with cartographic and written sources complicates the process of definitively identifying the site, the material remains discovered thus far in the Nov Dojran area provide a relevant basis for associating this location with the Roman road station Tauriana. The presence of archaeological layers indicating continuous habitation from the Roman Imperial through to the Early Byzantine period further supports this hypothesis, opening possibilities for future interdisciplinary evaluation. The earliest systematic notes regarding ancient remains in the Dojran region originate from Nikola Vulić, a historian, classical philologist, archaeologist, and professor, who conducted a reconnaissance of the area in the first half of the 20th century. During his survey, he recorded several epigraphic monuments, one of which bears an inscription written in two passages in Ancient Greek. Another find took the form of a white marble horse torso.¹² Vulić also noted a limestone monument composed of two fragments, the upper measuring 0.45 metres in height, and the lower 0.65 metres, both 0.58 metres wide and 0.18 metres deep. He observed that the fragments were located in front of the church in Dojran and had been found nearby.¹³ These monuments, along with the remains of a temple, were most likely uncovered in 1923 during the construction of the present-day church. According to local oral

¹² VULIĆ 1941-48: 45.

¹³ VULIĆ 1931: 49, br.114.

¹⁴ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 165.

¹⁵ VULIĆ 1931: 55.

¹¹ ΠΑΠΑΖΟΓΛΟΥ 1957: 248, ref. 85.

¹² VULIĆ 1941-48: 45.

¹³ VULIĆ 1931: 49, no.114.

spomenika. Tada je ekipa Arheološkog muzeja u Skopju konstatirala ostatke građevina s desne strane rijeke Toplec u blizini Dojranskog jezera, gdje je pronađen kip muškarca od bijelog mramora, visine 1,50 m, bez glave i ruku, odjevena u hiton i himation.¹⁶ Na istom mjestu otkriven je oštećeni nadgrobni reljefni medaljon iz 2./3. stoljeća, kao i oštećeni korintski kapitel.¹⁷ Prema ovim nalazima može se zaključiti da je na ovom mjestu postojalo svetište s hramom.¹⁸

Godine 1960. Arheološki muzej u Skopju pod vodstvom profesorice B. Aleksove proveo je arheološka iskopavanja u Nov Dojranu u cilju utvrđivanja prostora na kojem se nalazilo antičko i ranosrednjovjekovno naselje, na kojem su kasnije izgrađene kuće sela Nov Dojran. Pritom se pretpostavlja da je većina objekata antičkoga naselja bila srušena sa zemljom i vjerojatno u velikoj mjeri uništena.¹⁹ Ustanovljeno je da je velik dio antičkih građevina, kao i pokretni arheološki materijal, tijekom izgradnje novih kuća bio raznesen ili uništen. Također, provedena su sondažna iskopavanja u nekoliko dvorišta, gdje su otkriveni pojedini objekti koji su bili oštećeni ili ugrađeni u novije građevine.²⁰ U ovim arheološkim istraživanjima pronađena je ranokršćanska bazilika s trobrodnom dispozicijom, polukružnom apsidom i kolonama između brodova. Pod bazilike bio je prekriven bijelim mramornim pločama, raspoređenima u polja koja su formirala križ.²¹ Bazilika je otkrivena u samom Dojranu, sjeverno od glavne ulice, između današnjih kuća, i datirana je u razdoblje cara Justinijana. Osim bazilike, pronađena je i jednobrodna crkva s malim predvorjem i grobovima, koji su datirani u 9./10. stoljeće.

Godine 1967. Nacionalna ustanova Zavod

testimony, a vessel containing coins was also found at the same location. Although the vessel was not preserved, the description suggests the coins may have been of Greek or Roman origin.¹⁴ Additionally, Vulić documented another white marble funerary stele, 0.63 metres in height, featuring six busts arranged in two rows. The central figures on both upper and lower rows depict female individuals, flanked by male figures.¹⁵

The initial archaeological researches in Nov Dojran were prompted in February 1951, when local residents informed the Archaeological Museum, and the Institute for the Protection of Cultural Monuments in Skopje about the discovery of a statue and several other monuments during construction work. A team from the Archaeological Museum in Skopje subsequently confirmed the presence of architectural remains on the right bank of the Toplec River, near Lake Dojran. Among the finds was a fragmentary marble statue of a male figure clad in a chiton and himation, carved from white marble, measuring 1.50 metres in height and missing its head and arms.¹⁶ At the same location, an inscribed funerary relief medallion, dated to the 2nd–3rd century, and a damaged Corinthian capital were also uncovered.¹⁷ These finds suggest the presence of a sanctuary complex, probably including a temple.¹⁸

In 1960, under the direction of Professor B. Aleksova, the Archaeological Museum in Skopje conducted systematic excavations in Nov Dojran. The aim was to define the spatial extent of the ancient and early medieval settlement over which the modern village of Nov Dojran had been constructed.¹⁹ It was presumed that a large portion of the ancient urban structures would have been levelled or

¹⁶ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 166.

¹⁷ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 167.

¹⁸ ЛИЛЧИЌ АДАМС 2001: 285.

¹⁹ АЛЕКСОВА 1960: 136.

²⁰ АЛЕКСОВА 1960: 136.

²¹ АЛЕКСОВА 1960: 136; МИКУЛЧИЌ 1999: 269.

¹⁴ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 165.

¹⁵ VULIĆ 1931: 55.

¹⁶ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 166.

¹⁷ ВУЧКОВИЋ-ТОДОРОВИЋ 1952: 167.

¹⁸ ЛИЛЧИЌ АДАМС 2001: 285.

¹⁹ АЛЕКСОВА 1960: 136.

za zaštitu spomenika kulture i Muzej Strumica otkupila je i dokumentirala mramorni torzo koji je dopremljen iz Dojrana. Fragment predstavlja torzo muškarca odjevenog u tuniku i naboranu službeni tog, izrađen od kvalitetnoga fino zrnatog bijelog mramora. Kip je djelomično oštećen – nedostaju glava, dijelovi ruku i noge – što upućuje da je isklesana iz jednoga monolitnog mramornog bloka. Plastično istaknuto desno koljeno pod draperijom, sa savijenom desnom nogom i težinom na lijevoj, potvrđuje klasičnu pozu oratora, dok savijena desna ruka ispružena naprijed identificira kip kao *togatus* – službeni rimsku figuru odjevenu u tuniku i tog. Nabore toge i tunike karakteriziraju duboki i složeni reljefi, dok je stražnja strana jednostavnije obrađena.²² Prema stilskim i kronološkim obilježjima, ovaj se kip može datirati u razdoblje od kraja 2. do početka 3. stoljeća. Ovaj primjerak predstavlja jedan od rijetkih otkrivenih kipova oratora na teritoriju Republike Sjeverne Makedonije te predstavlja važan dokaz prisutnosti portretnog kiparstva pod rimskim utjecajem u regiji.²³

Na sjevernoj obali Dojranskog jezera utvrđeno je postojanje kasnoantičkog naselja, gdje su otkrivene prostorije popločane mramorom, ostaci dekorativne plastike, skulpture i terakote te rimska keramika i građevinski materijal.²⁴

Kod lokaliteta Toplec, 1,79 km sjeverozapadno od crkve sv. Jurja u Nov Dojranu, pronađeni su ostaci građevina s nalazima iz rimskog razdoblja. Profesorica i akademikinja B. Aleksova zaključila je na temelju nalaza iz 1960. da se na ovom prostoru u antici i ranobizantskom razdoblju prostiralo veliko naselje koje se nastavilo razvijati i u srednjem vijeku. I. Mikulčić zabilježio je da se na lokalitetu Slanec nalaze ostaci antičkog hrama, gdje su grobovi s nalazima iz razdoblja od 2.

significantly destroyed during later habitation. The investigations revealed that many ancient buildings, along with movable archaeological material, had indeed been dispersed or destroyed through the construction of contemporary houses. Test trenches were excavated in several private courtyards, where partially preserved structures (often reused or incorporated into newer buildings) were identified.²⁰ Among the most significant discoveries was an early Christian basilica, with a three-aisled interior, a semicircular apse, and columns dividing the aisles. The floor was paved with white marble tiles, arranged in fields forming a cross-shaped design.²¹ The basilica was discovered in the central part of Dojran, north of the main street, between modern houses, and was dated to the Justinianic period. In addition, a single-nave church with a small narthex and associated burials dated to the 9th–10th century was also discovered.

In 1967, the National Institution for the Protection of Cultural Monuments and Museum of Strumica acquired and documented a marble torso brought from the Dojran area. The fragment represents the torso of a male figure dressed in a tunic and richly draped official toga, carved from high-quality fine-grained white marble. The statue is partially preserved (missing the head, parts of the arms, and the lower legs), indicating that it was sculpted from a single monolithic marble block. The plastically accentuated right knee beneath the drapery, with the right leg bent backward and the body weight resting on the left leg, reflects the classical contrapposto stance characteristic of Roman statuary. The bent right arm, extended forward, further supports the identification of the figure as a *togatus*: a formal Roman representation of a citizen or orator clad in a tunic and toga. The deep, complex folds of the toga and tunic, especially on the front, exhibit a high level of craftsmanship, whereas

²² АНАНИЕВ 1990-1991: 128-129.

²³ АНАНИЕВ 1990-1991: 130.

²⁴ АЛЕКСОВА 1960: 137.

²⁰ АЛЕКСОВА 1960: 136.

²¹ АЛЕКСОВА 1960: 136; МИКУЛЧИЌ 1999: 269.

do 4. stoljeća smješteni uz naselje, ali nema tragova bedema.²⁵ Prema Mikulčiću, Tauriana se nalazila u starom dijelu Nov Dojrana, gdje su ispod današnjih kuća otkriveni objekti javne kupelji i ranokršćanske bazilike s mozaikom i mramornim ukrasima datiranim u 5./6. stoljeće te kuće koje se protežu na površini od približno sedam do osam hektara.²⁶

Otpriblike kilometar jugozapadno od naselja Nov Dojran, na dominantnom uzvišenju poznatom kao vrh Kula (332 mnn), evidentirani su arheološki ostaci kasnoantičkog utvrđenog naselja.²⁷ Naselje, okruženo kamenim zidom sa žbukom, obuhvaća površinu od približno 0,6 ha i datira iz razdoblja od 3. do 6. stoljeća. Na površini su pronađeni fragmenti keramičkih posuda i pitosi.²⁸ S obzirom na strateški položaj i karakteristike, može se zaključiti da je utvrda služila za nadzor i kontrolu obalnog puta koji je vodio prema Solunu.²⁹

Pri zaštitnim arheološkim istraživanjima u veljači 1998., koje je proveo Narodni muzej u Gevgeliji, u području Dojrana otkriveni su brojni uništeni rimski grobovi. U okviru tih istraživanja konstatirana su i oštećenja arheoloških lokaliteta Manastir i Karaula.³⁰ Lokaliteti Manastir i Karaula, smješteni u urbanoj jezgri Dojrana, predstavljaju nekropole iz rimskog razdoblja. Prva nekropola datira iz 3./4. stoljeća, a druga iz razdoblja od 1. do 3. stoljeća.³¹

Na oba lokaliteta evidentirani su različiti tipovi grobnih konstrukcija, uključujući krovove s dvije vode od tegula, zidane grobnice od mramornih spolija, opeke i kamene obloge s mramornim pločama te i kamene

the back of the statue is more summarily treated, a typical feature of statues intended for frontal display. The formal pose and drapery style place the figure within the typology of Roman official portraiture, emphasising civic status and public function.²² Given its stylistic and chronological features, the statue can be dated to the late 2nd to early 3rd century AD. This example represents one of the rare surviving depictions of an orator discovered on the territory of the Republic of North Macedonia and constitutes a significant piece of evidence for the presence of Roman-influenced portrait sculpture in the region.²³

On the northern shore of Lake Dojran, a Late Antique settlement was identified. Excavations there uncovered rooms paved with marble, remains of decorative sculpture, statues, terracotta objects, Roman pottery and a substantial amount of building material.²⁴

At the site of Toplec, located 1.79 km northwest of the Church of St George in Nov Dojran, remains of structures with finds from the Roman period were discovered. On the basis of findings from her 1960 research, Professor B. Aleksova concluded that in antiquity and the Byzantine period, a large settlement extended across this area, continuing to develop into the medieval period. Professor dr. I. Mikulčić noted that at the site of Slanec there were remains of an ancient temple, where burials from the 2nd–4th century were found near the settlement, although no traces of fortification walls were present.²⁵ According to Mikulčić, the ancient settlement of Tauriana is located within the old part of Nov Dojran, where archaeological investigations beneath the modern settlement have uncovered the remains of a public bath, an early Christian basilica with mosaic flooring and marble decorations dated to the 5th–6th centu-

²⁵ МИКУЛЧИЋ 1999: 269-270. Autor ne daje nikakve informacije o mjestu. Lokalitet nije poznat u literaturi. Pretpostavlja se da je Mikulčić mislio na lokalitet Toplec.

²⁶ МИКУЛЧИЋ 1999: 269-270; 2002: 307.

²⁷ МИКУЛЧИЋ 2002: 307.

²⁸ ВИНЧИЌ, ИВАНОВСКИ 1999: 102.

²⁹ МИКУЛЧИЋ 2002: 307.

³⁰ СЛАМКОВ, ГУШЕВ 2005: 189.

³¹ СЛАМКОВ 2012: 47.

²² АНАНИЕВ 1990-1991: 128-129.

²³ АНАНИЕВ 1990-1991: 130.

²⁴ АЛЕКСОВА 1960: 137.

²⁵ МИКУЛЧИЋ 1999: 269-270. The author does not provide data regarding the precise location. The site is not well-known in the literature. I assume that Mikulčić was referring to the site of Toplec.

grobnice sa crvenom žbukom. Također su prisutni ukopi u uskim rovovima pokriveni kamenim pločama, slobodni ukopi u zemlji i kremacije. Orijentacija grobova varira; četiri su groba orijentirana sjever – jug, a ostali imaju orijentaciju istok – zapad s minimalnim odstupanjima. Dva su ukopa kremacije, a ostali su inhumacije.³² Od svih grobnih konstrukcija izdvaja se grob 2, koji predstavlja grobnicu s izraženim dimenzijama. U njezinoj konstrukciji upotrijebljeni su dijelovi jednog ili dvaju ranorimskih sarkofaga atičkog tipa, u kojima su otkriveni bogati grobni prilozi.³³ Grobnica je konstruirana od sekundarno prerađenih arhitektonskih mramornih elemenata, dijelova starijeg sarkofaga atičkog tipa. Mramorni spoliji povezani su vapnenom žbukom unutar grobne komore, koja je zatvorena s dvije pokrovne ploče također spojene žbukom. Svi korišteni elementi izrađeni su od finoga bijelog mramora. Pokrovne su ploče nivelirane i stabilizirane mramornim fragmentima raspoređenima oko komore. Na sjevernoj pokrovnoj ploči uočene su dvije kružne metalne petlje sa četvrtastim presjekom, olovom ugrađene u mramor, koje su služile kao mehanizam za podizanje ploče pri kasnijim pogrebima.³⁴ Pronađena kamena ploča, razbijena na pet fragmenata, pripadala je sarkofagu, a slični ukrasi mogu se pronaći na brojnim sarkofazima iz Rima (Muzej Torlonia).³⁵

U samom Nov Dojranu i njegovoj neposrednoj okolini identificirano je nekoliko lokaliteta iz antičkog razdoblja. Naime, moderno naselje izgrađeno je na ruševinama antičke naseobine, koja je postojala na zapadnoj obali Dojranskog jezera (sl. 4).

Na cijelom prostoru današnje naseobine otkriveni su ostaci građevina, grobovi i bogati pokretni nalazi: keramika, kovanice i nakit, koji potječu iz kasnorimskog i rano-

ry AD, as well as residential structures, extending over an area of approximately 7–8 hectares.²⁶

Approximately 1 kilometer southwest of Nov Dojran, on a prominent elevation known as the Kula peak (at 332 metres above sea level), archaeological remains of a Late Antique fortified settlement have been recorded.²⁷ The site, enclosed by a stone wall bonded with mortar, covers an area of around 0.6 hectares and has been dated to the period between the 3rd and 6th centuries CE. Surface finds include fragments of ceramic vessels and pithoi.²⁸ Given its strategic position and architectural characteristics, it is plausible to interpret this fortification as serving a surveillance and control function over the coastal route leading toward Thessaloniki.²⁹ During preventive archaeological excavations conducted in February 1998 by the National Museum of Gevgelija in the region of Dojran, several destroyed Roman graves were discovered. As part of this investigation, damage was also documented at the archaeological sites Manastir and Karaula.³⁰ These two sites, located within the urban core of present-day Dojran, represent necropolises from the Roman period. The Manastir necropolis has been dated to the 3rd–4th century CE, while the Karaula necropolis belongs to an earlier phase, from the 1st to 3rd century CE.³¹ Various types of funerary architecture were recorded at both sites, including pit graves covered with double-pitched tile roofs, built tombs constructed with marble spolia, bricks or stone and lined with marble slabs, as well as stone-built graves coated internally with red plaster. Additionally, identified were narrow trench burials covered with stone slabs, simple inhumations in earth and cremation burials. The orientation of the graves varies: four graves were aligned north–south, while the majority exhibit an east–west

³² СЛАМКОВ, ГУШЕВ 2005: 206.

³³ СЛАМКОВ, ГУШЕВ 2005: 207.

³⁴ СЛАМКОВ, ГУШЕВ 2005: 189.

³⁵ ЛИЛЧИК АДАМС 2001: 289.

²⁶ МИКУЛЧИК 1999: 269–270; 2002: 307.

²⁷ MIKULČIĆ 2002: 307.

²⁸ ВИНЧИК, ИВАНОВСКИ 1999: 102

²⁹ MIKULČIĆ 2002: 307.

³⁰ СЛАМКОВ, ГУШЕВ 2005: 189.

³¹ СЛАМКОВ 2012: 47.



SLIKA 4. Položaj Tauriana u Nov Dojranu i arheološko nalazište Toplec (izvor: Google Earth Pro, doradila: A. Petkovska)

FIGURE 4 The position of Tauriana in Nov Dojran and the archaeological site of Toplec (source: Google Earth Pro, adapted by A. Petkovska)

bizantskog razdoblja. Pronađeni su ostaci ranokršćanske bazilike i kamene plastike. Osim ostataka ranokršćanske bazilike, u Nov Dojranu pronadjeni su i vrijedni stariji nalazi, koji ukazuju na slojevitost stratigrafiju. Posebno se izdvaja pronadjeni masivni lijevani brončani uteg u obliku biste dječaka visine 9 cm datiran u 3. st. pr. Kr. (sl. 7).³⁶ Oči su izrađene od srebra, a zjenice su vjerojatno ispunjene staklenom pastom. Ta tehnika ukazuje na visok stupanj izrade i težnju ka naturalističkom prikazu. Na vrhu glave oblikovano je prstenasto uho za pričvršćivanje, što govori o praktičnoj funkciji. Glava nosi jasne oznake antičke skulpture, kosa je gusta i pažljivo modelirana, a iznad nje stoji pobjednička vrpca, element koji zajedno s formalnim stilskim karakteristikama povezuje ovu skulpturalnu formu s djelima kruga kasnoklasičnog kipara Lizipa.

Izvanredan primjer brončanog utega iz 3. st. pr. Kr., kao i skupni nalaz novca iz ranoga antičkog razdoblja na lokalitetu Červikan-

orientation with minor deviations. Two of the graves contained cremated remains, whereas the others were inhumation burials.³² Among the burial structures, Tomb 2 stands out as a large and prominent tomb. Its construction incorporated parts from one or two early Roman sarcophagi of the Attic type, and within it, rich grave offerings were discovered.³³ The tomb was constructed using architectural marble spolia, which were secondarily repurposed elements originating from an earlier Attic-type sarcophagus. The marble components were bound together with lime mortar, forming the structure of the burial chamber, which was sealed with two cover slabs, also joined with lime mortar. All utilized elements were of fine-grained white marble. The cover slabs were carefully levelled and stabilized using marble fragments, which were placed externally around the entire perimeter of the chamber to ensure structural integrity. On the northern cover slab, two iron lifting rings with a square cross-section are visible; they

³⁶ СОКОЛОВА 1980: No 332.

³² СЛАМКОВ, ГУШЕВ 2005: 189.

³³ СЛАМКОВ, ГУШЕВ 2005: 207.



SLIKA 5. Glinena svjetiljka s lokaliteta Manastir, 3. – 4. st. (preuzeto iz: СЛАМКОВ 2012: 45)

FIGURE 5 Clay lamp from the the Manastir site, 3rd-4th century (after СЛАМКОВ 2012: 45)



SLIKA 6. Zlatni prsten s lokaliteta Manastir, 3. – 4. st. (preuzeto iz: СЛАМКОВ 2012: 45)

FIGURE 6 Golden ring, from the the Manastir site, 3rd-4th century (after СЛАМКОВ 2012: 45)



SLIKA 7. Brončani uteg – bista mladića, 3. st. pr. Kr. (preuzeto iz: СОКОЛОВСКА 1980: br. 332)

FIGURE 7 Bronze weight bust of a young man, 3rd c. BC (after СОКОЛОВСКА 1980: No 332.)

were embedded in the marble using lead and likely served as a lifting mechanism to allow reopening of the chamber for subsequent burials.³⁴ A found slab, broken into five fragments, belonged to a sarcophagus, with similar decorations that can be found on multiple sarcophagi from Rome (Mus. Torlonia).³⁵

Within Nov Dojran itself and its immediate surroundings, several sites from the ancient period have been identified. In fact, the village is built over the ruins of an ancient settlement that existed on the western shore of Lake Dojran (Fig. 4).

Across the entire area, remains of structures, graves, and rich movable finds such as ceramics, coins, and jewellery have been discovered, dating from the Late Roman and Early Byzantine periods. In addition to the remains of an Early Christian basilica, excavations at Nov Dojran have also revealed significant earlier finds, indicating a stratified archaeological sequence. Among these, a particularly notable discovery is a bronze weight dated to the 3rd century BCE, identified as a solid cast bust of a boy, with a height of 9 cm³⁶ (Fig. 7). The eyes are crafted from silver, while the pupils were likely inlaid with glass paste, a technique that reflects a high level of craftsmanship and a clear tendency toward naturalistic representation. At the top of the head, a ring-shaped suspension loop is integrated into the casting, indicating its functional use as a weight. The head bears stylistic features consistent with Classical Greek sculpture: the hair is thick and carefully modelled, and is encircled by a victory ribbon (taenia). This specific attribute, along with other formal and stylistic characteristics, connects the piece to the artistic circle of the Late Classical sculptor Lysippos.

The remarkable bronze weight, together with the hoard of coins from the Early Hellenistic period discovered at the site of Červi-

³⁴ СЛАМКОВ, ГУШЕВ 2005: 190.

³⁵ ЛИЛЧИК АДАМС 2001: 289.

³⁶ СОКОЛОВСКА 1980: No 332.

sko Polje, gdje je pronađeno 100 komada makedonskog novca kovana u Amfipolisu, Peli i Solunu, među kojima jedan novac kralja Filipa V. se danas čuvaju u Arheološkom muzeju u Zagrebu.³⁷ Predstavljaju relevantne materijalne dokaze o postojanju naselja na ovom području već u predrimskom razdoblju.

Na lokalitetu Manastir, koji zauzima čitav središnji prostor suvremenog naselja, posebno uz put prema Starom Dojranu, utvrđeni su ostaci temelja građevina, bazilike, arhitektonske plastike, grobova s dvoslivnom krovnom konstrukcijom od tegula te brojni arheološki predmeti (keramika, kovanice, nakit) i skulpturalna plastika (sl. 5 i 6).

Na ovom mjestu, u blizini obale jezera, na blagom uzvišenju, prvi su put 1924./1925. zabilježeni brojni nalazi koje su iskopali mještani pri građevinskim radovima. U tom razdoblju arheolog i numizmatičar B. Saria primijetio je dvije mramorne ploče s prikazom ljudskih figura bez natpisa, a također je zabilježio i nekoliko pronađenih kovanica (jedan brončani novčić datiran iz vremena Teodozija I. s reversom: *Reparatio reipublicae* i jedan srebrni novčić) te zaključio da se na lokalitetu nalaze i drugi nalazi i da je ovdje postojao grad/naseobina.³⁸ Lokalitet je uništen iskopavanjem kanalizacijskih kanala radi priključenja središnjega gradskog područja na kolektorski sustav Dojranskog jezera.³⁹ Prema dosadašnjim saznanjima, pretpostavlja se da je riječ o arheološkim ostacima antičkog naselja Tauriane.⁴⁰ Kilometar i pol sjeverozapadno od antičke gradske jezgre Tauriane, na sjeverozapadnoj obali jezera, na lokalitetu Toplec, pronađene su terme iz rimskog razdoblja. U zoni termalnih izvora otkriveni su ostaci arhitektonske plastike od

kansko Pole (which included 100 Macedonian coins minted in Amphipolis, Pella and Thessaloniki, among them a coin of King Philip V) constitute important material evidence indicating the existence of a settlement in this area during the pre-Roman period. These finds are currently housed in the Archaeological Museum in Zagreb³⁷ and further substantiate the hypothesis of continuous habitation in the region from the Hellenistic era onward.

At the Manastir site, which occupies the central area of the modern settlement, especially along the road leading to Old Dojran, remains of building foundations, a basilica, architectural sculptures, graves with tegulae (roof-tile) constructions arranged in a double-pitched fashion, and numerous archaeological artifacts (ceramics, coins, jewellery), as well as sculptural elements, have been recorded. (Figs. 5 - 6).

Near the lakeshore, atop a small elevation, a significant number of artifacts were first noted during 1924–1925, when locals unearthed them during construction work. At that time, the archaeologist and numismatist B. Saria observed two marble slabs featuring human figures but without inscriptions. He also noted several discovered coins: one bronze coin dated to the reign of Theodosius I (reverse: *Reparatio Reipublicae*) and a silver coin. This led him to the conclusion that this site contained additional discoveries and that a city or settlement once existed here.³⁸ The site was destroyed due to the excavation of sewage channels for connecting the central urban area to the collector system of Lake Dojran.³⁹ Current scholarly evidence suggests that the archaeological remains belong to the ancient settlement of Tauriana.⁴⁰ At 1.5 km northwest of the ancient urban core of Tauriana, on the northwestern shore of the lake, Roman-era thermae were discovered at the

³⁷ ВИНЧИЌ, ИВАНОВСКИ 1999:102

³⁸ SARIA 1925: 163.

³⁹ СЛАМКОВ, ГУШЕВ 2005: 190.

⁴⁰ ЛИЛЧИЌ АДАМС 1994: 114-115; FASOLO *et al.* u tisku; МИКУЛЧИЌ 1999: 269; РИСТОВ 2005: 127-128; СОКОЛОВСКА 1997: 49.

³⁷ ВИНЧИЌ, ИВАНОВСКИ 1999: 102

³⁸ SARIA 1925: 163.

³⁹ СЛАМКОВ, ГУШЕВ 2005: 190.

⁴⁰ ЛИЛЧИЌ АДАМС 1994: 114-115; FASOLO *et al.* in press; МИКУЛЧИЌ 2000: 269; РИСТОВ 2005: 127-128; СОКОЛОВСКА 1997: 49.

mramora (stupovi i kapiteli). Po površini se susreću fragmenti keramičkih posuda i građevinskog materijala.⁴¹

Naselje, prema površinskim ostacima, možemo locirati na zapadnoj periferiji Nov Dojrana i izvan njega, prema uzvišenju poznatom pod toponimom Poljana.⁴² Na zapadnoj periferiji suvremenog naselja, na lokalitetu Školo, otkriveni su ostaci ranokršćanske bazilike (6. stoljeće).

Tauriana dosad nije bila u fokusu prethodnih istraživača, osim u kontekstu prijedloga za njezinu lokaciju, koji ipak nisu bili potkrijepljeni odgovarajućim pristupom. Mnogi antički ostaci, stupovi raznih građevina, ploče i dekorativni elementi i danas krasi dvorišta stanovnika Nov Dojrana i svjedoče o bogatoj povijesti grada te i dalje ostaju na tom mjestu – gdje povijest čeka da posredstvom arheologije bude otkrivena, zabilježena i potvrđena. Dosadašnji, ovdje citirani podaci predstavljaju ozbiljan temelj arheoloških informacija koje ukazuju na brzo rađanje jednog antičkog urbaniziranog naselja u ranorimskom carskom periodu, s kontinuiranom egzistencijom do kasne antike ili ranobizantskog 6. stoljeća u starom dijelu Nov Dojrana. Naselje je osmišljeno u skladu s vojnim i administrativnim principima, što upućuje na dvostruku funkciju prostora u rimskom urbanizmu. Predstavljalo je važnu posljednju postaju smještenu na dislociranoj trasi magistralne ceste koja je u ranoantičko doba povezivala Idomenu (Marvinci) s Gortinijom (Vardarski Rid, Gevgelija). Pod utjecajem političkih i ekonomskih interesa, rimska administracija marginalizirala je postojeći put prema gradu Peli i uspostavila novu komunikacijsku trasu koja se protezala od Idomene (Marvinci) preko Tauriane (Nov Dojran) do Soluna. Druga strateška svrha naselja kod Nov Dojrana bila je uspostava kontrole nad cestovnom trasom koja se kretala uz sjever-

Toplec site. In the area of the thermal springs, remnants of marble architectural elements (columns and capitals) were found. Fragments of ceramic vessels and construction materials are scattered across the surface.⁴¹ On the basis of surface remains, the settlement can be located on the western periphery of Nov Dojran and beyond, towards the elevation known as Poljana.⁴² In the same part of the modern settlement, at the Shkolo site, remains of an Early Christian basilica (6th century) were discovered.

Tauriana has not been the focus of previous researchers, except in the context of proposals for its location, which have not, however, been supported by an adequate approach. The numerous ancient remains adorning the courtyards of Nov Dojran's residents still testify to the city's rich history, yet the various architectural columns, decorative plaques, and elements remain, in a place where history awaits, through archaeology, to be uncovered, recorded and confirmed. The findings cited here constitute a solid core of archaeological information, indicating the rapid emergence of an urbanised settlement in the Early Roman Imperial period, with a continuous existence until Late Antiquity or the Early Byzantine 6th century AD in the old part of Nov Dojran. The settlement was planned according to military and administrative principles, indicating the dual function of the space within Roman urbanism. It represented an important roadside station located along a rerouted section of the main road which, during the early antique period, connected Idomenae (Marvinci) with Gortynia (Vardarski Rid, Gevgelija). For political and economic reasons, the Roman administration downgraded the existing road towards the city of Pella and established a new communication route extending from Idomenae (Marvinci), through Tauriana (Nov Dojran), towards Thessaloniki. The second strategic purpose of the settlement near Nov Dojran was to control the road run-

⁴¹ АЛЕКСОВА 1960: 138.

⁴² СЛАМКОВ 2012: 47.

⁴¹ АЛЕКСОВА 1960: 138.

⁴² СЛАМКОВ 2012: 47.

nu obalu Dojranskog jezera, preko područja današnjeg sela Nikolić, u smjeru doline rijeke Strume (*Strymon*). Nedostatak dokaza o obrambenom zidu ne isključuje njezin status grada, osobito ako se uzme u obzir da su neke cestovne postaje razvijale urbane centre sa specifičnom funkcijom. Prema iznesenim saznanjima, smatra se da se antička cestovna postaja Tauriana (T. P.) s velikom vjerojatnošću nalazila na lokalitetu Nov Dojran (Manastir/Polin).⁴³

ZAKLJUČAK

Antička cestovna postaja Tauriana, smještena na području današnjega Nov Dojrana u Sjevernoj Makedoniji, predstavlja važan element ceste Via Axia, dijela rimske prometne mreže dokumentirane na *Tabuli Peutingeriani*, koja je povezivala jug i sjever Rimskoga Carstva. Ova prometnica, koja je slijedila dolinu rijeke Vardar (antičkog Axiusa), služila je kao ključni koridor za trgovinu, vojne operacije i kulturnu razmjenu još od antičkoga doba. Od postaje Tauriane cesta je otvorenim terenom nastavljala prema jugu, duž zapadne obale Dojranskog jezera, te je preko cestovne postaje Galik (*Gallicum*), zabilježene na Peutingerovoj karti (današnji Kukush – Kilkis), stizala u Solun (*Thessalonica*).

Arheološki i povijesni podaci prikupljeni s područja suvremenoga Nov Dojrana nedvojbeno upućuju na postojanje istaknute urbane cjeline s obilježjima rimske cestovne postaje i regionalnog centra – s velikom vjerojatnošću identificirane kao antička Tauriana, navedena na *Tabuli Peutingeriani* na udaljenosti od 20 rimskih milja od Idomenie (Idomeni), koja se nalazi na lokalitetu Isar kod sela Marvinci. Podudarnost udaljenosti između Marvinaca i Nov Dojrana s navede-

ning along the northern shore of Lake Dojran (through the area of the modern-day village of Nikolić) towards the valley of the River Strymon. The lack of evidence for defensive walls does not exclude its status as a town, especially considering that some roadside stations developed into urban centres with specific functions. On the basis of the presented data, I consider that the ancient roadside station Tauriana (T.P.) was very likely located at the site of Nov Dojran (Manastir / Polin).⁴³

CONCLUSION

The ancient roadside station Tauriana, located near where today stands Nov Dojran in Macedonia, represents a significant element of the Via Axia, a part of the Roman road network documented on the *Tabula Peutingeriana*, connecting the southern and northern parts of the Roman Empire. This route, running along the valley of the River Vardar (ancient Axios), had served as a key corridor for trade, military operations and cultural exchange since antiquity. From Tauriana, the road continued southwards along the western shore of Lake Dojran and, via the roadside station *Gallicum* (Galich), marked on the Peutinger Map (modern-day Kilkis), reached Thessaloniki.

Archaeological and historical data from the territory of modern Nov Dojran unequivocally indicate the existence of a significant urban entity characterised as a Roman roadside station and regional centre, very likely identified as the ancient Tauriana listed on the *Tabula Peutingeriana*, at a distance of 20 Roman miles from Idomenia (Idomeni), located at the Isar site near the village of Marvintsi. The correspondence of the distance between Marvintsi and Nov Dojran with the recorded 20 miles is one of the key arguments for the spatial identification of Tauriana with Nov Dojran.

⁴³ Ime Polin, poznato najstarijim stanovnicima Nov Dojrana, vjerojatno potječe od riječi *polis* – grad.

⁴³ The name Polin, familiar to the oldest inhabitants of Nov Dojran, probably came from the term *polis* – city.

nih 20 milja predstavlja jedan od ključnih argumenata za prostornu identifikaciju Tauriane s Nov Dojranom.

Otkrivene arheološke strukture, poput termi na lokalitetu Toplec, ranokršćanskih bazilika s trobrodnom i jednobrodnom dispozicijom, gradskih objekata s ostacima mozaičnih podova, arhitektonske plastike, kapitela, skulptura i nadgrobnih ploča, svjedoče o postojanju organizirane i funkcionalne urbane strukture s javnim, religijskim i stambenim sadržajima. Pronađene brončane i srebrne kovanice (uključujući i makedonski novac kovan u Amfipolisu, Peli i Solunu), kao i ranoantički brončani uteg u obliku biste datiran u 3. stoljeće pr. Kr., upućuju na ranu gospodarsku aktivnost na tom prostoru koja započinje još u predrimskom razdoblju. Posebno je važno postojanje dviju nekropola (lokaliteti Manastir i Karaula), datiranih u razdoblje od 1. do 4. stoljeća, s raznovrsnim grobnim konstrukcijama i bogatim priložima, među kojima se nalaze i dijelovi ranorimskih sarkofaga antičkog tipa, što upućuje na prisutnost lokalne elite i određeni stupanj urbane kulture. U kontekstu rimske infrastrukture i urbanizma, Tauriana je predstavljala strateški pozicioniranu cestovnu postaju s dvostrukom funkcijom: s jedne strane služila je kao točka logističke potpore, a s druge strane kao regionalno gospodarsko i religijsko središte, s kontinuitetom života od 1. stoljeća do kasne antike, točnije do 6. stoljeća. Nedostatak obrambenih zidina ne negira njezinu urbanost, imajući u vidu činjenicu da su se rimska naselja unutar cestovne mreže često razvijala u urbane entitete bez obrambene arhitekture.

Stoga, na temelju geografske korelacije s povijesnim izvorima, stratigrafskog kontinuiteta, arhitektonskih ostataka i materijalne kulture, s visokim stupnjem znanstvene vjerojatnosti može se tvrditi da Nov Dojran predstavlja ostatke antičke Tauriane, što čini ključni argument za reafirmaciju ovoga lokaliteta u znanstvenoj literaturi kao važne

The uncovered archaeological structures, such as the thermal baths at the Toplec site, early Christian basilicas with three-aisled and single-nave layouts, urban buildings with mosaic floor remains, architectural sculpture, capitals, sculptures and tombstones, testify to the existence of an organised and operational urban fabric with public, religious and residential functions. The discovered bronze and silver coins (including Macedonian coins from Amphipolis, Pella and Thessaloniki), as well as the early antique bronze weight in the shape of a bust, dated to the 3rd century BCE, indicate early economic activity in the area, which had begun in the pre-Roman period. Particularly important is the presence of two necropolises (the Manastir and Karaula sites), dated from the 1st to the 4th centuries CE, featuring diverse burial constructions and rich grave goods, including parts of early Roman sarcophagi of Attic type, implying the presence of a local elite and a certain level of urban culture. In the context of Roman infrastructure and urbanism, Tauriana represented a strategically positioned roadside station with a dual function: on one hand, serving as a logistics support point, and on the other, as a regional economic and religious centre with continuous habitation from the 1st century until late antiquity, specifically until the 6th century CE. The absence of defensive walls does not negate its urban character, given that Roman settlements within the road network often developed into urban entities without defensive architecture. Therefore, on the basis of geographical correlation with historical sources, stratigraphic continuity, architectural remains and material culture, it can be stated with a high level of scholarly certainty that the site of Nov Dojran represents the remains of ancient Tauriana. This serves as a key argument for reaffirming this site in the academic literature as an important node in the Roman communication and administrative network of the province of Macedonia. Simultaneously, the findings highlight an urgent need for

točke u rimskoj komunikacijskoj i administrativnoj mreži provincije Makedonije. Istodobno, rezultati upućuju na hitnu potrebu za sustavnim, interdisciplinarnim istraživanjima u cilju rekonstrukcije cjelokupne povijesne dinamike ove urbane cjeline u kontekstu rimske i ranobizantske geopolitike.

systematic, interdisciplinary research to reconstruct the full topography and historical dynamics of this urban centre within the context of Roman and early Byzantine geopolitics.

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BIZANTSKI NOVAC IZ MUZEJA FRANJEVAČKOG SAMOSTANA SV. ANTE PADOVANSKOG – HUMAC (LJUBUŠKI, BIH)

BYZANTINE COINAGE FROM THE MUSEUM OF THE FRANCISCAN MONASTERY OF ST ANTHONY OF PADUA – HUMAC (LJUBUŠKI, BOSNIA AND HERZEGOVINA)

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KLJUČNE RIJEČI:

Hercegovina, Ljubuški, Humac, Muzej franjevačkog samostana sv. Ante Padovanskog Humac, bizantska numizmatika, bizantske kovanice, zlatnici Romana III. Argira

U radu se donosi 38 bizantskih kovanica koje se čuvaju u Muzeju franjevačkog samostana sv. Ante Padovanskog na Humcu kod Ljubuškog u Bosni i Hercegovini. Dosad ih velika većina nije bila objavljena. U Muzej na Humcu dospjele su uglavnom donacijama svećenika. Najstarije kovanice datiraju se u razdoblje Anastazija I. (491. – 518.), a najmlađe u vrijeme Emanuela I. Komnena (1143. – 1180.). Najviše kovanica pripada vremenu Justinijana I. (527. – 565.) i grupi tzv. anonimnih folisa iz 10./11. stoljeća. Kovanice većinom dolaze iz konstantinopolske kovnice, a pojedini primjerci i iz kovnica u Nikomediji, Antiohiji, Kiziku te Solunu, uz jedan primjerak iz pretpostavljene salonitanske kovnice. Među rjeđe primjerke ubrajaju se zlatnik Konstantina IV. (668. – 685.) i srebrnjak Lava VI. (886. – 912.). U zbirci se nalaze i dva zlatnika Romana III. Argira (1028. – 1034.). Iako ni za jednu kovanicu nije poznato točno mjesto nalaza, može se razložno pretpostaviti da potječu iz Hercegovine, točnije, s prostora hercegovačke franjevačke provincije.

KEY WORDS:

Herzegovina, Ljubuški, the Museum of the Franciscan Monastery of St Anthony of Padua Humac, Byzantine numismatics, Byzantine coins, gold coins of Romanos III Argyros

The article analyses 38 Byzantine coins kept in the Museum of the Franciscan Monastery of St Anthony of Padua in Humac near Ljubuški, Bosnia and Herzegovina. Most of them have not been published so far. They reached the Humac Museum mainly as donations from priests. The earliest coins are dated to the reign of Anastasius I (491–518), while the most recent belong to the time of Manuel I Komnenos (1143–1180). The largest number of coins is attributed to the reign of Justinian I (527–565) and to the grouping of so-called anonymous folles of the 10th/11th century. Most of the coins originate from the Constantinople mint, while some specimens come from the mints of Nicomedia, Antioch, Cyzicus and Thessaloniki, along with one piece that have been struck in assumed Salonitan mint. Among the rarer

specimens are a gold coin of Constantine IV (668–685) and a silver coin of Leo VI (886–912). The collection also contains two gold coins of Romanos III Argyros (1028–1034). While exact findspots for the coins are unknown, it can reasonably be assumed that these were in Herzegovina, more precisely from the territory of the Herzegovinian Franciscan Province.

Što se tiče starih starodrevnih stvari spominjem samo, da bogatstvo, koje naša domovina u velikom mnoštvu ima i nami ovako lijepu priliku podjeljuje, da one izvore tradicijah i vjestih, i.t.d. koje poviesti ubilježene su, osiguramo. Fra Andeo Nuić, 25. ožujka 1884.¹

As for ancient and time-worn things, I shall only mention that the wealth which our homeland possesses in great abundance offers us such a wonderful opportunity to safeguard those sources of traditions and knowledge, etc., which are recorded in history. Fra Andeo Nuić, 25 March 1884¹

UVOD

Muzej franjevačkog samostana sv. Ante Padovanskog na Humcu kod Ljubuškog (BiH) (dalje u tekstu: Muzej) baštini tradiciju najstarije muzeološke institucije u Bosni i Hercegovini, a osnovan je davne 1884. godine.² Iako prostorno nevelik, Muzej ima iznimnu kulturnu važnost za Bosnu i Hercegovinu, a napose za hrvatski narod. Najpoznatiji je po čuvenoj Humačkoj ploči, jednom od najvažnijih epigrafskih spomenika s ovih prostora. Muzej sadržava i niz drugih vrijednih artefakata iz vrlo širokoga vremenskog raspona od gornjeg

INTRODUCTION

The Museum of the Franciscan Monastery of St Anthony of Padua in Humac near Ljubuški, Bosnia and Herzegovina (henceforth: the Museum), founded as early as 1884, has the distinction of being the oldest museological institution in Bosnia and Herzegovina.² Although not large in size, the Museum holds exceptional cultural significance for Bosnia and Herzegovina, and especially for Croats as a people. It is best known for the renowned Humac Tablet, one of the most important epigraphic monuments from the wider region. In addition, the Museum hosts a comprehensive range of valuable artefacts spanning

¹ Citirani tekst potječe iz predgovora rukom pisane knjige koja je poznata pod nazivom *Spomenik*, a čuva se u Muzeju u Humcu. U predgovoru *Spomenika* fra Nuić objašnjava razloge za osnivanje Muzeja, a zatim slijede odredbe kojima je specificirano, među ostalim, da se sav inventar mora popisivati te da je pristup građi svima slobodan. Slijedi svojevrsna „knjiga ulazaka” predmeta koje je Muzej primio od samog osnutka pa do 1928. (vidi NIKIĆ 1985: 8–12). Popis predmeta pristiglih u Muzej nastojalo se voditi i u razdoblju od 1969. do 1973. te od 2002. do 2004.

² Za pregled povijesti Muzeja i osobe zaslužne za njegov osnutak i opstanak vidi NIKIĆ 1985 i DUGANDŽIĆ 2009 te internetske stranice Muzeja: <https://muzejhumac.com/hr/muzej-humac.html> (pristupljeno 9. rujna 2025.). Turbulentne povijesne mijene na ovim prostorima djelovale su na Muzej i na njegov inventar, pa tako i na numizmatičku zbirku. Posebno je teško bilo vrijeme Drugog svjetskog rata i poraća, kada je Muzej bio duže vremena zatvoren, a dio je građe i otuđen. Muzej se ponovno otvara za javnost 1973., ali već se za šest godina ponovno zatvara, ovaj put zbog građevinskih radova. Treći muzejski postav otvoren je 1984., ali također je zbog ratnih okolnosti zatvoren 1992. Sadašnji postav otvoren je 2002.

¹ The quoted text comes from the preface of a manuscript entitled *Spomenik* [“The Monument”], kept in the Humac Museum. In the preface to the *Spomenik*, Fra Nuić explained the reasons for establishing the Museum, followed by provisions specifying, among other things, that the entire inventory be recorded and that access to the material be free to all. This is followed by a kind of “entry book” of objects received by the Museum from its foundation until 1928 (s. NIKIĆ 1985: 8–12). The list of objects received by the Museum was also maintained during the periods 1969–1973 and 2002–2004.

² For an overview of the history of the Museum and of the individuals responsible for its establishment and preservation, s. NIKIĆ 1985 and DUGANDŽIĆ 2009, as well as the Museum’s website: <https://muzejhumac.com/hr/muzej-humac.html> (9 September 2025). It should be noted here that the turbulent historical changes in this region affected the Museum and its inventory, including the numismatic collection. The period of World War II and its aftermath was particularly difficult, when the Museum was closed for an extended period and part of the material was even stolen. The Museum reopened to the public in 1973, but after only six years it was closed again, this time due to construction works. The third permanent display was opened in 1984, but it too was closed in 1992, owing to wartime conditions. The current display was opened in 2002.

paleolitika do kasnoga srednjeg vijeka³ koji su u Muzej kroz zadnjih stoljeće i pol dospijevali na različite načine (donacije, slučajni nalazi, artefakti s arheoloških istraživanja i sl.). Većina arheološkog inventara potječe s prostora Hercegovine, odnosno s prostora Hercegovačke franjevačke provincije Uznesenja Blažene Djevice Marije.⁴

Važan dio muzejskog inventara čini bogata, ali još uvijek nedovoljno obrađena numizmatička zbirka u kojoj se osim velikog broja novčanica nalazi i oko 2000 kovanica u rasponu od grčkih i grčko-ilirskih do novovjekovnih.⁵ Kovanice su u Muzej dospijevale na različite načine, a najčešće donacijama samih franjevača ili državnih službenika, ali i seljaka, poglavito onih koji su životom i radom bili na neki način povezani s franjevcima. Sastavni su dio numizmatičke zbirke i 38 bizantskih⁶ kovanica koje obrađujemo u ovome radu, a koje su većinom dosad bile neobjavljene.

a very broad period, from the Upper Palaeolithic to the Late Middle Ages³; these have reached the Museum over the past century and a half in various ways, including donations, chance finds, and as artefacts from archaeological excavations. Most of the archaeological inventory originates from Herzegovina, that is, from the territory of the Herzegovinian Franciscan Province of the Assumption of the Blessed Virgin Mary.⁴

An important part of the Museum's inventory is the extensive (but still insufficiently studied) numismatic collection, which contains – alongside a large number of banknotes – about 2,000 coins, ranging from Greek and Graeco-Illyrian to modern.⁵ The coins reached the Museum in various ways, most often through donations from amongst the Franciscans or by state officials, but also by peasants, especially those whose lives and work were in some way connected with the Franciscans. Integral to the numismatic collection are the 38 Byzantine⁶ coins discussed

³ GLAVAŠ 2024; <https://muzejhumac.com/hr/muzej-humac.html> (pristupljeno 9. rujna 2025.).

⁴ Hercegovačka franjevačka provincija ima sjedište u Mostaru. Osnovana je 1892., kada je obuhvaćala prostor Hercegovine od Šuice i Županjca (Tomislavgrada) preko Konjica do Mostara i Međugorja te prostore istočno od Mostara koji su bili u sastavu Mostarsko-duvanjske biskupije (PANDŽIĆ 2001: 140). Prije osnutka Provincije na hercegovačkom je prostoru djelovala franjevačka kustodija osnovana 1852. Za detaljan historijat franjevačke prisutnosti u Hercegovini vidi PANDŽIĆ 2001.

⁵ Za pregled i historijat numizmatičke zbirke humaćkog Muzeja usp. KRALJEVIĆ 1985 i DRAGIČEVIĆ, ILKIĆ 2017. Potpunije su u postojećoj znanstvenoj literaturi obrađeni samo novci Apolonije i Dirahija te novci hrvatsko-ugarskih kraljeva što čini svega oko 2 % zbirke (DRAGIČEVIĆ, ILKIĆ 2017: 143 i literatura navedena na tom mjestu).

⁶ Iako u numizmatičkoj literaturi postoji više različitih pristupa vremenskom opredjeljenju bizantske numizmatike, u odnosu na rimsku, istočnorimsku i/ili kasnoantičku, u ovom smo se radu odlučili za pristup po kojemu se o bizantskoj numizmatiki može govoriti počevši od vremena cara Anastazija I. (491. – 518.), tj. njegove monetarne reforme iz 498. godine kojom je na duže vrijeme uspostavljena okosnica bizantskoga monetarnog sustava (usp. GRIERSON 1982: 1–3). Naravno, to ne znači da su ostali pristupi pogrešni. Primjerice, u RADIĆ, IVANIŠEVIĆ 2006 rasprava o bizantskom novcu započinje analizom kovanica cara Arkadija (395. – 408.), a u VUČIĆ 2017 analiza kasnoantičkog novca završava 582. godinom, tj. krajem vladavine Tiberija II. Konstantina (578. – 582.).

³ GLAVAŠ 2024; <https://muzejhumac.com/hr/muzej-humac.html> (9 September 2025).

⁴ The seat of the Herzegovinian Franciscan Province is in Mostar. It was established in 1892, when it covered the area of Herzegovina from Šuica and Županjac (Tomislavgrad), through Konjic to Mostar and Međugorje, as well as the areas east of Mostar that were part of the Mostar-Duvno Diocese (PANDŽIĆ 2001: 140). Before the establishment of the Province, the Franciscan Custody, founded in 1852, operated in the Herzegovinian region. For a detailed history of the Franciscan presence in Herzegovina, s. PANDŽIĆ 2001.

⁵ For an overview and history of the Humac Museum's numismatic collection, cf. KRALJEVIĆ 1985 and DRAGIČEVIĆ, ILKIĆ 2017. Only the coins of Apollonia and Dyrrachium as well as those of the Croatian-Hungarian kings, comprising a mere fiftieth of the collection, have been more fully treated in the existing scholarly literature (DRAGIČEVIĆ, ILKIĆ 2017: 143 and the references cited therein).

⁶ Although numismatic literature offers several different approaches to defining the chronological scope of "Byzantine numismatics" (as distinct from "Roman", "Eastern Roman", and/or "Late Antique"), in this paper we have adopted the view that Byzantine numismatics may be said to begin with the reign of Emperor Anastasius I (491-518), specifically his monetary reform of 498, which established the backbone of the Byzantine monetary system for a long time (cf. GRIERSON 1982: 1-3). This does not, of course, imply that other approaches are incorrect. For example, in RADIĆ, IVANIŠEVIĆ 2006, the discussion of Byzantine coinage begins with coins of Emperor Arcadius (395-408), while in VUČIĆ 2017 the analysis of Late Antique coinage ends in 582, with the end of the reign of Tiberius II Constantine (578-582).

DOSADAŠNJE SPOZNAJE I PITANJE PODRIJETLA BIZANTSKIH KOVANICA IZ HUMAČKOG MUZEJA

U dosadašnjoj se literaturi samo lapidarno spominju pojedini primjerci bizantskih kovanica iz Muzeja na Humcu. Carl Patsch još je 1900. naveo da se u „Manastirskom muzeju u Humcu” čuva solid Anastazija I. (491. – 518.).⁷ Gojko Kraljević 1985. navodi da je u Muzeju „izloženo tridesetak ranobizantijskih bakrenih novčića i tri srebrna (...) skifata”, u rasponu od „Teodozija II. do Mauricija Tiberija”.⁸ Kratak osvrt na bizantske kovanice s Humca donose Ivo Dragičević i Mato Ilkić 2017. navodeći da se u humačkoj zbirci nalazi 39 bizantskih kovanica.⁹ Tomislav Šeparović 2021. navodi tri kovanice Anastazija I. i još dvije neodređene

in this paper, the great majority of which have so far remained unpublished.

PREVIOUS FINDINGS AND THE QUESTION OF THE ORIGIN OF THE BYZANTINE COINS FROM HUMAC MUSEUM

The existing literature mentions individual specimens of Byzantine coins from the Humac Museum only briefly. As early as 1900, Carl Patsch recorded that a solidus of Anastasius I (491–518) was kept in the “Monastery Museum in Humac”.⁷ In 1985, Gojko Kraljević noted that “about thirty Early Byzantine copper coins and three silver... scyphata” were “on display in the Museum”, ranging “from Theodosius II to Maurice Tiberius”.⁸ A short review of the Byzantine coins from Humac was published by Ivo Dragičević and Mato Ilkić in 2017, stating that the Humac collection contained 39 Byzantine coins.⁹ In 2021, Tomislav Šeparović recorded in

⁷ PATSCH 1900: 565, br. 30. Patsch navodi i jedan Anastazijev zlatnik koji se nalazio na Humcu, ali je u trenutku kada piše rad taj zlatnik već bio u Zemaljskom muzeju u Sarajevu. Za oba navodi i legende: Av. DNANASTA SIVSPPAVG, Rv. VICTORI AAVGGGI, u odsječku CONOB. Kao mjesto nalaza navodi zapadnu Hercegovinu sjeverno od Neretve ili „bosanske kotare na megji” (PATSCH 1900: 564). Inače, u slučaju kovanice iz Humca riječ je o solidu, a ona iz Sarajeva jest tremisa (ŠEPAROVIĆ 2021: 214).

⁸ KRALJEVIĆ 1985: 136. Ako se usporedi citat iz Kraljevićeva teksta s katalogom u ovome članku, jasno se uočava velika razlika. U ovom radu obrađeno je 15 ranobizantijskih kovanica, a Kraljević spominje „tridesetak (...) ranobizantijskih”. Ovo bi se moglo objasniti činjenicom da Kraljević u svoj navod uključuje i novce koji bi se mogli opredijeliti kao kasnoantički („od Teodozija II.”), koji su također zastupljeni u humačkoj numizmatičkoj zbirci. Ne možemo objasniti zašto ne spominje kovanice kovane od početka 7. do kraja 11. stoljeća, ali nije nemoguće da barem dio tih kovanica dospijeva u Muzej početkom 21. stoljeća.

⁹ DRAGIČEVIĆ, ILKIĆ 2017: 146. Dragičević i Ilkić navode da se u Muzeju nalazi šest bizantskih kovanica od zlata, jedna od srebra, a ostale su od bakra. Pri višekratnom pregledu zbirke za potrebe pisanja ovog rada registrirano je 38 bizantskih kovanica (četiri zlatne, jedna srebrna i 33 bronzane). Uočljiva je razlika u broju zlatnika koji spominju Dragičević i Ilkić (šest) i broju zlatnika obrađenih u ovome radu (četiri). Moguće je da su navedeni autori u broju od šest zlatnika uključili i dva zlatnika iz 4. i 5. stoljeća. Valja ipak naglasiti da numizmatička zbirka humačkog samostana još uvijek nije inventarizirana te bi tek sveobuhvatni pregled muzejskog inventara mogao pružiti odgovor na pitanje o točnom broju bizantskih kovanica (ali i onih iz drugih razdoblja).

⁷ PATSCH 1900: 565, No. 30. Patsch also mentioned a gold coin of Anastasius that had been kept in Humac but, at the time of his writing, was already in the National Museum of Sarajevo. For both coins he gave the legends: Obv. DNANASTA SIVSPPAVG, Rev. VICTORI AAVGGGI, with CONOB in the exergue. He cited western Herzegovina north of the Neretva, or “the Bosnian districts on the border” as the findspot (PATSCH 1900: 564). The coin from Humac is a solidus, while the Sarajevo specimen is a tremissis (ŠEPAROVIĆ 2021: 214).

⁸ KRALJEVIĆ 1985: 136. When the quotation from Kraljević’s text is compared with the catalogue in this article, a significant discrepancy becomes clear. In our study, 15 Early Byzantine coins are presented, while Kraljević mentioned “about thirty... Early Byzantine” coins. This may be explained by the fact that Kraljević included in his count coins that could be classified as Late Antique (“... from Theodosius II...”), which are also represented in the Humac numismatic collection. As to why he did not mention coins struck from the early 7th to the late 11th century, we cannot provide an explanation, although it is not impossible that at least some of these coins only reached the Museum in the early 2000s.

⁹ DRAGIČEVIĆ, ILKIĆ 2017: 146. Dragičević and Ilkić stated that the Museum held six Byzantine gold coins and one silver coin, the remaining pieces being copper. During repeated examinations of the collection for the purposes of this study, 38 Byzantine coins were recorded (four gold, one silver, and 33 bronze). A noticeable discrepancy emerges between the number of gold coins mentioned by Dragičević

ne bizantske kovanice u Muzeju u Humcu.¹⁰ Kovanice koje navode Patsch i Šeparović donose se i u internetskoj bazi *Nomismata*.¹¹ Od 38 kovanica obrađenih u ovome radu, samo su dvije prethodno bile detaljnije opisane: jedan folis Justinijana I. (kat. br. 5) i jedan zlatnik Romana III. Argira (kat. br. 27).¹²

Mjesta nalaza bizantskih kovanica iz Muzeja na Humcu nisu poznata, što otežava njihovu znanstvenu interpretaciju. Među muzejskim dokumentima u kojima se spominje porijeklo nekih kovanica dospjelih tijekom prošlosti u Muzej ističe se već spomenuti *Spomenik*, svojevrsna muzejska inventarna knjiga.¹³ S obzirom na važnost tih podataka, spomenut ćemo ih na ovome mjestu. Iz *Spomenika* tako saznajemo da je 25. travnja 1884. fra Augustin Zubac¹⁴ darovao Muzeju „dva zlatna novca” koji su tada prepoznati kao Anastazijevi (navodi se: „Divus Anastasius P. P. August”). Uskoro fra Luka Begić, tadašnji provincijal hercegovačkih franjevača („redodržavnik”), donosi zapovijed da svi redovnici koji „imadu u sebe starih novaca iste daruju u muzej na Humcu”, a i sam poklanja jedan „grčki zlatni dukat”.¹⁵ Dana 8.

the Humac Museum three coins of Anastasius I and two additional, unspecified Byzantine coins.¹⁰ The coins recorded by Patsch and Šeparović are also listed in the *Nomismata* online database.¹¹ Of the 38 coins presented in this paper, only two have previously been described in more detail: a follis of Justinian I (Cat. No. 5) and a gold coin of Romanos III Argyros (Cat. No. 27).¹²

The findspots of the Byzantine coins from the Humac Museum are unknown, which hinders their scholarly interpretation. Among the museum documents that mention the provenance of some coins that entered the Museum in the past, special importance attaches to the *Spomenik*, a kind of museum inventory book.¹³ In view of the value of these data, we shall mention them here. From the *Spomenik* we learn that on 25 April 1884, Fra Augustin Zubac¹⁴ donated to the Museum “two gold coins”, then identified as coins of Anastasius (noted as “Divus Anastasius P. P. August”). Shortly afterwards, Fra Luka Begić, then the Provincial of the Herzegovinian Franciscans, issued an order that all friars who “have old coins in their possession shall

and Ilkić (six) and the number treated in this paper (four). It is possible that Dragičević and Ilkić's number include two 4./5. century gold coins.. It should nonetheless be emphasized that the numismatic collection of the Humac Monastery has not yet been inventoried, and only a comprehensive review of the Museum's holdings could provide an answer to the question of the exact number of Byzantine coins (as well as those from other chronological periods).

¹⁰ ŠEPAROVIĆ 2021: 211, 213 i 214. Inače, citirano je djelo trenutačno najsveobuhvatniji prikaz bizantskih numizmatičkih nalaza na istočnom Jadranu i u zaobalju. Šeparović evidentira čak 1260 jedinica numizmatičke građe s tog prostora, ali samo one za koje postoje okvirni podaci o nalazištu.

¹¹ <https://byzantine.units.it/en/> (pristupljeno 9. rujna 2025.). Riječ je o georeferenciranoj i kronoreferenciranoj bazi podataka o bizantskim kovanicama s poznatim mjestom nalaza iz Europe, Azije i Afrike koju je uspostavilo Sveučilište u Trstu.

¹² DRAGIČEVIĆ, ILKIĆ 2017: 146 i 147. Folis Justinijana I. (kat. br. 5) donesen je fotografijom te kratkim opisom i u VASILJ, ČULJAK, PAPONJA 2012: 105.

¹³ Usp. bilj. 1.

¹⁴ Fra Augustin Zubac (1843. – 1907.) 1884. na službi je u Mostaru. Prije toga obnašao je razne dužnosti, u Širokom Brijegu, na Humcu i u Gradničima kod Čitluka. Školovao se u Širokom Brijegu, Zagrebu i Innsbrucku u Austriji (JOLIĆ 2011: 428). Ovakve podatke donosimo za fra Zupca i još neke svećenike koji su donirali kovanice jer je teoretski (i praktično) moguće da su do njih došli na bilo kojem od spomenutih mjesta gdje su se školovali ili su službovali.

¹⁵ Teoretski je moguće da je u ovom slučaju riječ o bizantskoj kovanici, ali je isto tako moguće da je riječ o zlatniku Kraljevine Grčke.

¹⁰ ŠEPAROVIĆ 2021: 211, 213 and 214. Incidentally, Šeparović's work is currently the most comprehensive overview of Byzantine numismatic finds on the eastern Adriatic and in its hinterland. It records as many as 1,260 units of numismatic material from that area, but only those for which at least approximate provenance data exist.

¹¹ <https://byzantine.units.it/en/> (9 September 2025). This is a geo- and chrono-referenced database, established by the University of Trieste, of Byzantine coin finds from archaeological contexts in Europe, Asia, and Africa.

¹² DRAGIČEVIĆ, ILKIĆ 2017: 146 and 147. A follis of Justinian I (Cat. No. 5) is also presented with a photograph and a brief description in VASILJ, ČULJAK, PAPONJA 2012: 105.

¹³ Cf. n. 1.

¹⁴ Fra Augustin Zubac (1843–1907) was in service in Mostar in 1884. Before that he had occupied various posts in Široki Brijeg, Humac and Gradnici near Čitluk. He was educated in Široki Brijeg, Zagreb and Innsbruck in Austria (JOLIĆ 2011: 428). We provide such information for Fra Zubac and some other priests who donated coins because it is theoretically (and practically) possible that they had acquired them in any of the places where they studied or served.

veljače 1894. Muzeju je „jedan zlatni novac (...) cara Anastazija Bizantinskog” poklonio fra Anđeo Nuić.¹⁶ Uz taj se upis navodi da je novčić pronađen u Knešpolju (kod Širokog Brijega; op. a.).¹⁷ Fra Nuić 1899. donirao je „jedan zlatni novac cara Anastasija našast kod Vašarovića sa više komada” (Vašarovići se nalaze u blizini Ljubuškog, na samoj granici s Hrvatskom, op. a.).¹⁸ Dana 10. listopada 1901. u Muzej iz ostavštine fra Dominika Šarca¹⁹ dopijeva „1 zlatni novac u malom obliku Anastasius...”. Okružni predstojnik Pittner iz Mostara darovao je 10. ožujka 1903. pet komada srebrnih novaca „iz doba Bizanskog”.²⁰ Posebno se ističu upisi u *Spomeniku* od 20. lipnja 1903., kada su uneseni podaci o dva bizantska zlatnika, iako se njihova mjesta nalaza eksplicitno ne spominju (sl. 1). Fra Blaž Jerković, župnik Drinovaca do 1902., donirao je Muzeju „1 zlatni novac Bizantinski dosta velik. Na jednoj strani slika Isusova, s drugu stranu car Romanos III iz 10. vijeka i Majka Božja Marija”,²¹ a fra Žarko Pehar,²² župnik Klobuka, donirao je „1 zlatni novac srednje veličine. Na jednoj strani Car Theophilos iz XI vijeka, s drugu

donate them to the Museum in Humac”, and he himself donated a “Greek gold ducat”.¹⁵ On 8 February 1894, Fra Anđeo Nuić donated to the Museum “a gold coin (...) of Emperor Anastasius of Byzantium”.¹⁶ The entry notes that the coin had been found in Knešpolje (near Široki Brijeg).¹⁷ In 1899, Fra Nuić also donated “a gold coin of Emperor Anastasius found near Vašarovići among several pieces” (Vašarovići lies near Ljubuški, directly on the border with Croatia).¹⁸ In 1901, on 10 October, the Museum received from the estate of Fra Dominik Šarac¹⁹ “1 gold Anastasius coin in small form ...”. The district prefect Pittner from Mostar donated on 10 March 1903 five silver coins “from the Byzantine period”.²⁰ Of particular note are the entries in the *Spomenik* dated 20 June 1903, when records of two Byzantine gold coins were entered, although their findspots are not explicitly mentioned (Fig. 1). Fra Blaž Jerković, parish priest of Drinovci until 1902, donated to the Museum “1 Byzantine gold coin, rather large. On one side an image of Jesus, on the other Emperor Romanos III from the 10th century and Mary, the Mother of God”,²¹ while Fra Žarko Pehar,²² parish priest

¹⁶ Fra Anđeo Nuić (1850. – 1916.) zasigurno je najvažnija osoba za uspostavljanje Muzeja u Humcu. O njegovu životu i radu vidi JOLIĆ, MARIĆ 2010.

¹⁷ Kovanica je navedena u ŠEPAROVIĆ 2021: 213.

¹⁸ Kovanica je navedena u ŠEPAROVIĆ 2021: 211.

¹⁹ Fra Dominik Šarac (1855. – 1901.) školovao se u Širokom Brijegu, na Humcu i u Italiji, a službovao je u Posušju, Humcu, Mostaru (gdje je bio prvi gvardijan tamošnjega franjevačkog samostana) i Gabeli (JOLIĆ 2011: 374).

²⁰ U dokumentu pisanom strojopisom i naslovljenom *Vjeran prijepis upisnika primljenih doprinosa za muzej na Humcu* ovi se novci nazivaju rimskima što je, sva je vjerojatnost, bliže istini.

²¹ Fra Blaž Jerković (1836. – 1917.) bio je župnik u Drinovcima od 1888. do 1902. Ostao je upamćen i zbog uređenja Imotsko-bekijskog polja. Zanimljivo bi bilo pomisliti da je kovanica o kojoj je riječ pronađena pri spomenutim radovima, ali je moguće i da bi mogla potjecati iz ostava Argirovih zlatnika iz Drežnice ili Vitine koje su obje pronađene i raspačane prije 1902. (za više podataka o navedenim ostavama vidi bilješku 83).

²² Fra Žarko Pehar (1868. – 1939.) školovao se u Širokom Brijegu, na Humcu te u talijanskim gradovima Perugii, Macerati i Pisi. Prije službe u Klobuku djelovao je u Širokom Brijegu, Mostaru i Vinici kod Tomislavgrada (JOLIĆ 2011: 305).

¹⁵ It is theoretically possible that, in this case, the coin was Byzantine, but it is equally possible that it was a gold coin of the Kingdom of Greece.

¹⁶ Fra Anđeo Nuić (1850–1916) was undoubtedly the most important figure in the establishment of the Humac Museum. For his life and work s. JOLIĆ, MARIĆ 2010.

¹⁷ The coin is listed in ŠEPAROVIĆ 2021: 213.

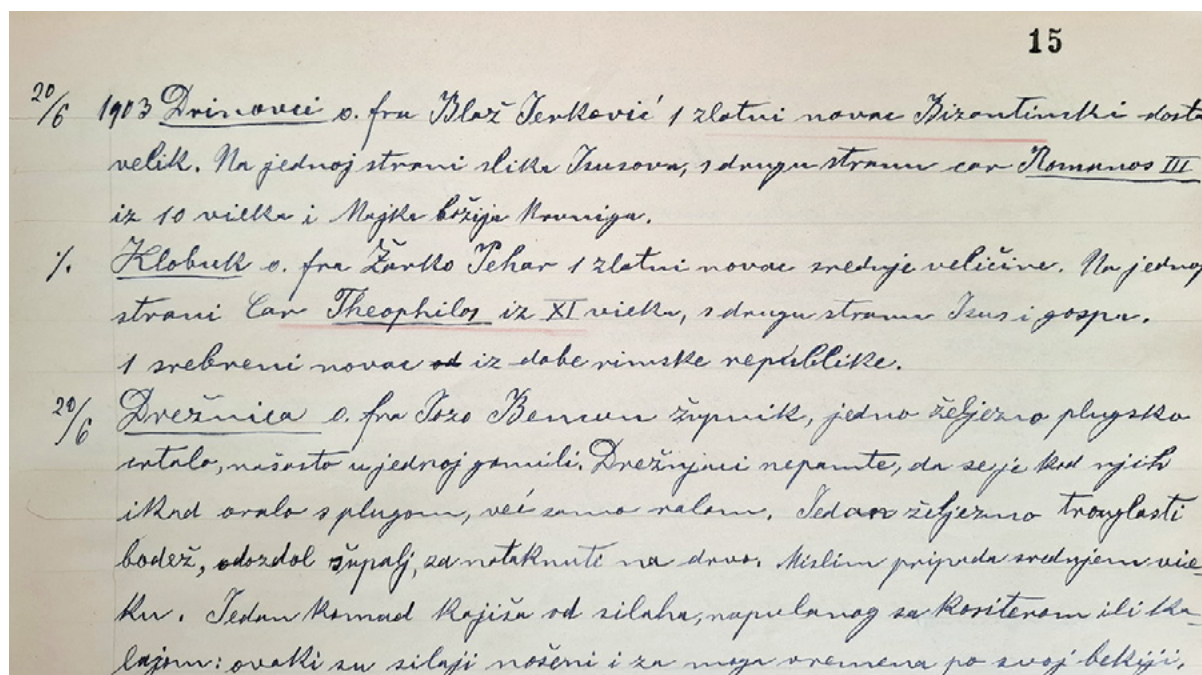
¹⁸ The coin is listed in ŠEPAROVIĆ 2021: 211.

¹⁹ Fra Dominik Šarac (1855–1901) was educated in Široki Brijeg, Humac and Italy, and served in Posušje, Humac, Mostar (where he was the first guardian of the Franciscan monastery there) and Gabela (JOLIĆ 2011: 374).

²⁰ In a typewritten document entitled *Vjeran prijepis upisnika primljenih doprinosa za muzej na Humcu* [A Faithful Transcript of the Register of Contributions Received for the Museum in Humac], these coins are described as “Roman”, which is, in all likelihood, closer to the truth.

²¹ Fra Blaž Jerković (1836–1917) was parish priest in Drinovci from 1888 to 1902. He is also remembered for the drainage works in the Imotski–Bekija field. That the coin in question was found during these works is an interesting speculation, but it is also possible that it originated from hoards of gold coins of Argyros found in Drežnica and Vitina, both of which had been dispersed by 1902 (for more on these hoards, s. note 83).

²² Fra Žarko Pehar (1868–1939) was educated in Široki Brijeg, Humac and in the Italian cities of Perugia, Macerata and Pisa. Before serving in Klobuk, he had worked in Široki Brijeg, Mostar and Vinica near Tomislavgrad (JOLIĆ 2011: 305).



SLIKA 1. Stranica Spomenika s upisima od 20. lipnja 1903. (snimila: D. Grbavac)

FIGURE 1 Page of the Spomenik with the entries of 20 June 1903 (photo by D. Grbavac)

stranu Isus i Gospa”.²³ Čitajući *Spomenik* stječe se dojam da se u njega nastojalo upisati i mjesto nalaza pojedinih artefakata, što nam nedostaje u slučaju ovih kovanica. Stoga se u ovom trenutku ipak ne može tvrditi da su ova dva zlatnika uistinu pronađena u Drinovcima i Klobuku, iako se to ne može niti isključiti kao mogućnost. U ovom je trenutku jedino jasno to da su zlatnike u Muzej donijeli tadašnji župnici Drinovaca i Klobuka. Župnik u Gorici, Fra Silvestar Vasilj,²⁴

of Klobuk, donated “1 medium-sized gold coin. On one side Emperor Theophilus from the 11th century, on the other Jesus and Our Lady”.²³ Reading the *Spomenik* gives the impression that while efforts were made to record the findspot of individual artefacts, information is lacking in the case of these coins. Therefore, at this point it cannot be asserted that these two gold coins were indeed found in Drinovci and Klobuk. This possibility, nevertheless, cannot be excluded. What is clear for

²³ ŠEPAROVIĆ 2021: 211 navodi neodredivu kovanicu iz Klobuka. Valja istaknuti da je u *Spomeniku* eksplicitno navedeno upravo ime Teofil, koje bi se trebalo moći iščitati s natpisa na kovanici (ako je dobro sačuvana i rub joj nije obrezan). Međutim, citirani navod nije moguće protumačiti na zadovoljavajući način jer car Teofil vlada od 829. do 842. godine, a ne u 11. stoljeću. Osim toga, na Teofilovim se zlatnicima Krist i Bogorodica ne prikazuju. Ako prihvatimo čitanje imena cara kao Teofilova, je li riječ o nekom od tipova njegovih zlatnika na kojima su na reversu zapravo prikazani Mihael II. i Konstantin? Vjerojatno je uistinu riječ o Teofilovu zlatniku, ali je pri upisu u *Spomenik* datiranje i prepoznavanje ikonografije bilo pogrešno. Na kraju krajeva, i vladavina Romana III. pogrešno je stavljena u 10. stoljeće u slučaju kovanice koju je donirao fra Jerković, a u *Spomenik* je zavedena istog dana kad i kovanica iz Klobuka. Za nalaze Teofilova novca kod nas vidi ŠEPAROVIĆ 2021: 80–82.

²⁴ U *Spomeniku* se prezime navodi kao Vasiljević.

²³ ŠEPAROVIĆ 2021: 211 mentions an indeterminable coin from Klobuk. It should be noted that the *Spomenik* explicitly records the name Theophilus, which should be legible from the inscription on the coin (provided it was well preserved and the edge had not been trimmed). However, the cited description cannot be interpreted satisfactorily, since Emperor Theophilus reigned between 829 and 842, not in the 11th century. In addition, Christ and the Virgin are not depicted on Theophilus' gold coins. If we accept the reading of the emperor's name as Theophilus, might the coin belong to one of the types of his gold issues on which Michael II and Constantine are in fact depicted on the reverse? Most likely it was indeed a gold coin of Theophilus, but the dating and identification of the iconography were incorrectly recorded in the *Spomenik*. After all, the reign of Romanos III was likewise mistakenly placed in the 10th century in the case of the coin donated by Fra Jerković, and it was entered in the *Spomenik* on the same day as the coin from Klobuk. For finds of Theophilus' coinage in our region, s. ŠEPAROVIĆ 2021: 80–82.

poklonio je Muzeju 3. travnja 1907. „jedan mali zlatni novac bizantinski” pronađen u nekom od grobova pokraj crkve.²⁵

Dakle, u *Spomeniku* se do 1928.²⁶ navodi osam bizantskih zlatnika (pet Anastazijevih, po jedan Romana III. i Teofila (?) i jedan nepoznate datacije). Navodi se i pet srebrnih kovanica (za koje je ipak vjerojatnije da su rimske) te ni jedna brončana ili bakrena bizantska kovanica. Godine 1929. očito se radio svojevrsan popis inventara pa se u odlomku pod naslovom „Sbirka u zlatu” spominju samo dva Anastazijeva zlatnika (riječ je o onima koje Muzeju poklanja fra Zubac 1884. godine),²⁷ u odlomku „Sbirka u srebru” ne spominju se bizantske kovanice, a u dijelu naslovljenom „Sbirka u mjedi/bakru”

now is only that the gold coins were brought to the Museum by the then parish priests of Drinovci and Klobuk. Fra Silvestar Vasilj,²⁴ parish priest in Gorica, donated to the Museum on 3 April 1907 “a small Byzantine gold coin” found in one of the graves next to the church.²⁵

Thus, in the *Spomenik* up to 1928,²⁶ eight Byzantine gold coins were recorded: five of Anastasius, one of Romanos III, one of Theophilos (?) and one of unknown date. Five silver coins are also mentioned (although it is more likely that they are Roman) but not a single bronze or copper Byzantine coin. In 1929, an inventory of sorts was evidently made, since in the section entitled “Collection in gold”, only two gold coins of Anastasius are mentioned (those donated to the Museum by Fra Zubac in 1884²⁷); in the

²⁵ Ovo bi mogla biti kovanica navedena u ŠEPAROVIC 2021: 213. Nije točno poznato o kakvoj je kovanici riječ, što je uistinu šteta, jer u ovom slučaju znamo točno s kojega lokaliteta kovanica potječe (riječ je o položaju Gorica – Šamatorje), a okvirno su poznate i okolnosti nalaza. Pojava bizantskog novca na tom položaju nije iznenađujuća jer je riječ o kompleksnom lokalitetu s kontinuitetom od antike do danas. Oko postojeće crkve iz 19. stoljeća, sagrađene na mjestu ranokršćanske i ranosrednjovjekovne, danas se nalazi župno groblje koje je velikim dijelom preslojilo i uništilo starije grobove. U arheološkim istraživanjima provedenima 90-ih godina 20. stoljeća otkriveni su ranokršćanski grobovi te 37 srednjovjekovnih. U Franjevačkoj zbirci na Gorici čuva se i bizantska kovanica od 16 numma iz vremena Justinijana I. kovana u Solunu između 527. i 538. (ŠEPAROVIC 2020: 331 i 345). Lokalitet, istraživanja i nalazi s položaja Gorica – Šamatorje, kao i nalazi s položaja u njegovoj neposrednoj blizini, opisani su u djelu *Gorica od drevne Imote*, ur.: Marić, A., Palčok, M., Gorica: Hrvatska franjevačka arheološka zbirka sv. Stjepana Prvomučnika Gorica, 2020.

²⁶ Inače, u to je vrijeme učestala pojava koja je u *Spomeniku* opisana riječima „Sada su svi pohlepni za starim novcem.” Naime, ubičajilo se da „žandari, financi, šumari i drugi” otkupljuju novac od nalaznika kako bi ga kasnije, očito, preprodavali. Tomu samostan nije mogao financijski parirati pa se dogodilo da „ne možeš više ništa kao prije što se nađe u Gračinama i u blizini dobiti” (citati iz *Spomenika* se odnosi na 1928. godinu). To je i prije bila praksa, pa tako fra Andeo Nuić, opisujući motive za osnivanje muzejske zbirke na Humcu, piše da su i sami fratri „novaca mnogo poklonili ili prodali štokavim hodalicam koje takve stvari kupe” (JOLIĆ, MARIĆ 2010: 74).

²⁷ Tada se donose i legende na kovanicama: „2. Rimski Av./Divus Anastasius Pat. Patria August. Av./Victoria. Aug. Caes. Consul. (476-492 po.Kr.); 3. Rimska. Av./Divus Anastasius Pat. Patria August. Rv./Victoria. Aug. Caes. Consul. (476-492 po.Kr.) 25. IV.-884.” Međutim, nema spomena o njihovu porijeklu.

²⁴ In the *Spomenik*, his surname is recorded as “Vasiljević”.

²⁵ This might be the coin listed in ŠEPAROVIC 2021: 213. It is not known exactly what type of coin it was, which is unfortunate, since in this case we know precisely from where (Gorica – Šamatorje) the coin originated, and the circumstances of the find are broadly known. The presence of Byzantine coinage at this site is not surprising, as it is a complex location with continuity from Antiquity to the present day. Around the existing 19th-century church, built on the site of early Christian and early medieval predecessors, there is now a parish cemetery, which has largely superimposed and destroyed the earlier burials. Archaeological excavations carried out in the 1990s uncovered some early Christian graves and 37 from the Middle Ages. In the Franciscan collection in Gorica, a Byzantine coin of 16 nummi from the time of Justinian I, struck in Thessaloniki between 527 and 538, is also kept (ŠEPAROVIC 2020: 331 and 345). The place, the excavations and the finds from the Gorica – Šamatorje site, as well as finds from locations in its immediate vicinity, are described in the work *Gorica od drevne Imote*, eds. Marić, A., Palčok, M., Gorica: Hrvatska franjevačka arheološka zbirka sv. Stjepana Prvomučnika, Gorica, 2020.

²⁶ A common occurrence of the time is described in the *Spomenik* with the words: “Now everyone is greedy for old coins.” It had become usual for “gendarmierie, customs officers, foresters and others” to purchase coins from finders in order, clearly, to sell them on later. The monastery could not compete financially, with the result that “you can no longer obtain anything found in Gračine and nearby as before” (these quotations from the *Spomenik* are from the year 1928). This trend was not without precedent: Fra Andeo Nuić, describing the original motives for establishing the museum collection at Humac, wrote that the friars themselves “donated or sold many coins to various wanderers who buy such things” (Jolić, Marić 2010: 74).

²⁷ On that occasion, the legends on the coins were also recorded: “2. Roman. Obv./Divus Anastasius Pat. Patria August. Obv./Victoria. Aug. Caes. Consul. (476-492 AD); 3. Roman. Obv./Divus Anastasius Pat. Patria August. Rev./

osim naslova nema nikakvog upisa.

Iz dokumenta *Opći inventar zbirke starina franjevačkog samostana na Humcu* koji 1977. započinje fra Bonicije Rupčić, tadašnji kustos zbirke u Humcu, saznaje se da je zbirka obogaćena ostavštinom fra Šima Ančića (1876. – 1957.).²⁸ U Muzej dopijeva 1975., a sadržavala je i „14 novčića Bizantskih”. Fra Rupčić pri zaprimanju ostavštine fra Ančića sačinio je i prijepis njegovih bilješki koje sadržavaju i podatke o mjestima nalaza pojedinih kovanica,²⁹ međutim, tijekom posjeta Muzeju navedeni nam prijepis nije bio dostupan.

Pod naslovom „Novčići koji su pristigli 2002 – 2003” navodi se „91 novčić rim. biz. većih i manjih” bez pobližih podataka, stoga ovaj navod zasad nije moguće povezati s konkretnim kovanicama. Jedan zlatnik Romana III. Argira (1028. – 1034.) Muzej je otkupio 2006., a navodno mu je porijeklo Ljubuški (kat. br. 26).³⁰

Ako bi se netom izneseni podaci usporedili s kovanicama obrađenima u ovome radu, moglo bi se pretpostaviti da je Anastazijev zlatnik označen kao kat. br. 1 jedan od dva zlatnika koja Muzeju poklanja fra Zubac (ti se zlatnici navode i u *Spomeniku* i u popisu iz 1929.). Zlatnici Romana III. Argira (kat. br. 26 i 27) mogli bi potjecati iz ostava u Drežnici, Vitini ili Klobuku.³¹ Četrnaest kovanica, ali se u ovom trenutku ne zna točno kojih, trebalo bi potjecati iz ostavštine fra Ančića, a porijeklo bi im trebalo biti povezano sa širim duvanjskim područjem.

Nedostatak preciznih informacija o nalazištima znatno ograničava analitičku vrijednost zbir-

section “Collection in silver”, no Byzantine coins are mentioned; while in the part headed “Collection in brass/copper”, apart from the title, there is no entry at all.

From the document *Opći inventar zbirke starina franjevačkog samostana na Humcu* [General Inventory of the Collection of Antiquities of the Franciscan Monastery in Humac], begun in 1977 by Fra Bonicije Rupčić, then curator of the Humac collection, we learn that the collection had been enriched by a bequest from Fra Šimo Ančić (1876–1957).²⁸ It reached the Museum in 1975 and included “14 Byzantine coins”. On its receipt, Fra Rupčić also made a transcript of Fra Ančić’s notes, which contain information on the findspots of individual coins;²⁹ however, during our visit to the Museum this transcript was not made available to us.

Under the heading “Coins received 2002–2003”, “91 Roman/Byzantine coins, larger and smaller” are listed without further details, so for now this entry cannot be linked to specific coins. One gold coin of Romanos III Argyros (1028–1034) was purchased by the Museum in 2006, and its supposed provenance is Ljubuški (Cat. No. 26).³⁰

If the data presented above are compared with the coins discussed in this paper, it may be assumed that the gold coin of Anastasius listed as Cat. No. 1 is one of the two gold coins donated to the Museum by Fra Zubac (these coins are mentioned both in the *Spomenik* and in the 1929 list). The gold coins of Romanos III Argyros (Cat. Nos. 26 and 27) could originate from the hoards found in Drežnica, Vitina or Klobuk.³¹ Fourteen coins – although at present

²⁸ Fra Šimo Ančić (1876. – 1957.) najveći je dio svoje svećeničke službe proveo na širem području Duvna (Seonica, Bukovica, Roško polje, Tomislavgrad) pa bi se moglo razložno pretpostaviti da kovanice potječu sa širega duvanjskog prostora. Školovao se u Humcu, u Širokom Brijegu, Mostaru i Rimu, a krajem 19. stoljeća završio je studij arheologije u Zagrebu (JOLIĆ 2011: 38).

²⁹ DRAGIČEVIĆ 2017: bilj. 2.

³⁰ Informacija: fra Milan Jukić.

³¹ Usp. bilj. 83.

Victoria. Aug. Caes. Consul. (476–492 AD) 25. IV.–884.” However, no mention is made of their provenance.

²⁸ Fra Šimo Ančić (1876–1957) spent most of his priestly service in the wider Duvno area (Seonica, Bukovica, Roško Polje, Tomislavgrad), so it may be reasonably assumed that he had acquired the coins in this region. He was educated in Humac, Široki Brijeg, Mostar and Rome, and at the end of the 19th century completed studies in archaeology in Zagreb (JOLIĆ 2011: 38).

²⁹ DRAGIČEVIĆ 2017: n. 2.

³⁰ Information provided by: Fra Milan Jukić in 2010.

³¹ Cf. n. 83.

ke bizantskog novca u Humcu. No s obzirom na način na koji su u humački franjevački samostan dospijevali predmeti od arheološke, povijesne, povijesnoumjetničke, etnološke i prirodoslovne važnosti, moglo bi se, uz dužan oprez, pretpostaviti da bizantske kovanice iz Muzeja najvećim dijelom potječu s prostora koje obuhvaća ili je kroz prošlost obuhvaćala Franjevačka hercegovačka provincija Uznesenja BDM. Iz tog ćemo se razloga na njih ipak nešto šire osvrnuti dalje u tekstu.

BIZANTSKE KOVANICE IZ MUZEJA NA HUMCU – RASPRAVA

U radu se donosi 38 bizantskih kovanica koje se datiraju u vremenski raspon od cara Anastazija I. (491. – 518.) do vremena Emanuela I. Komnena (1143. – 1180.).

Anastazijevu (491. – 518.) vremenu pripada jedna tremisa (kat. br. 1) te dva folisa kovana nakon monetarne reforme 498. godine (kat. br. 2 i 3). Svi potječu iz Konstantinopola. Na aversu tremise carevo je poprsje prikazano u profilu, a o „rimskosti” ovakvih kovanica svjedoči i prikaz Viktorije na reversu. Folisi, koje uvodi upravo Anastazije, na reversu pokazuju jedan od tipičnih elemenata ranobizantske numizmatike, a to je veliko slovo kao oznaka denominacije. U slučaju folisa to je slovo M. Anastazijev novac nije rijedak na našim prostorima, a valja istaknuti da je zlatni novac čak brojniji od brončanoga. Kovanice tog cara zabilježene su na dvadesetak lokaliteta u Hrvatskoj i Bosni i Hercegovini, a njima treba pridodati i zlatnike (solide i tremise) istočnogotskog kralja Teodorika (488. – 526.) kovane u ime Anastazija pronađene u približno 40 primjeraka na tridesetak lokaliteta i to samo na prethodno navedenom prostoru.³² To stanje, iako neposredno nakon pada Zapadnog Rimskog Carstva, zapravo je u skladu s

it is not known exactly which – should originate from Fra Ančič's bequest, and their provenance should be connected with the wider Duvno area.

The lack of precise information on findspots significantly limits the analytical value of the Humac collection of Byzantine coins. However, given the way in which objects of archaeological, historical, art-historical, ethnological and natural-scientific significance came to the Franciscan Monastery in Humac, it may, with due caution, be assumed that the Byzantine coins held in the Museum were found largely in the area encompassed, or historically encompassed, by the Herzegovinian Franciscan Province of the Assumption of the Blessed Virgin Mary. For that reason, we shall consider them in somewhat greater detail further in the text.

BYZANTINE COINS FROM THE HUMAC MUSEUM – DISCUSSION

The study analyses 38 Byzantine coins dated to the period from the reign of Emperor Anastasius I (491–518) to that of Manuel I Komnenos (1143–1180).

Three coins belong to the time of **Anastasius (491–518)**: one tremissis (Cat. No. 1) and two folles struck after the monetary reform of 498 (Cat. Nos. 2 and 3). All originate from Constantinople. On the obverse of the tremissis, the Emperor's bust is shown in profile, and the depiction of Victoria on the reverse also attests to the “Roman character” of such issues. The folles, introduced precisely by Anastasius, display on the reverse one of the typical features of Early Byzantine numismatics: a capital letter indicating the denomination. In the case of the follis, this letter is “M”. The coinage of Anastasius is not uncommon in our region, and it should be noted that his gold issues are even more numerous than the bronze ones. Coins of this emperor have been recorded at some twenty sites in Croatia and Bosnia and Herzegovina; furthermore, in the same area, nearly forty specimens of gold coins (solidi and tremisses) of the Ostrogothic king Theodor-

³² Brojčani podaci prikupljeni su na temelju ŠEPAROVIĆ 2021.

očekivanjima temeljenima na povijesnim podacima. Naime, car Anastazije na prijestolje stupa u poodmaklim godinama, ali s dugim iskustvom financijskog službenika. Stoga ne čudi što su neke od njegovih ključnih reformi bile one monetarnog i poreznog sustava Carstva koje su doprinijele jačanju tržišne privrede i povećanom optjecaju novca.³³

Upravo će puna blagajna (više od 100 t zlata)³⁴ koju je iza sebe ostavio Anastazije omogućiti najveći uspon Istočnoga Rimskog Carstva uopće. Taj se uspon događa u vrijeme cara **Justinijana I. (527. – 565.)**, a očituje se širenjem granica Carstva, sveobuhvatnim zakonodavnim reformama i umjetničkim dostignućima koja će rezultirati nastankom niza monumentalnih građevina diljem Carstva i širenjem novoga, bizantskoga umjetničkog stila. Nemojmo zaboraviti ni činjenicu da je Justinijanovo doba zadnje razdoblje u povijesti kada je Sredozemlje uistinu „sredozemlje”, tj. to je posljednji put da jedan politički entitet kontrolira gotovo sve mediteranske obale. Posljedica uspješnih ratova i vraćanja nadzora nad velikim dijelovima nekadašnjega Rimskog carstva bit će i povećanje broja kovnica na više od deset.³⁵ Ni vrijeme istočnogotske vlasti u našim krajevima nije doba ekonomske stagnacije, o čemu svjedoče i brojne kovanice istočnogotskih vladara.³⁶ Međutim, upravo je Justinijanovo doba donijelo gospodarstveni napredak, o čemu nam govori gradnja i/ili obnova niza sakralnih i fortifikacijskih objekata na istočnom Jadranu i njegovu širem zaobalju. Naravno, pojačane ekonomske aktivnosti

ic (488–526), struck in the name of Anastasius, have been found at around thirty sites.³² This situation – although occurring shortly after the “collapse of the Western Roman Empire” – is in fact consistent with expectations based on historical data. Anastasius ascended the throne at an advanced age, but with long experience as a financial official. It is therefore unsurprising that some of his key reforms were those of the monetary and fiscal system of the Empire, which contributed to strengthening the market economy and increasing the circulation of coinage.³³

It was precisely the full treasury (more than 100 tonnes of gold)³⁴ left by Anastasius that made possible the greatest rise of the Eastern Roman Empire. This occurred under Emperor **Justinian I (527–565)** and was manifested in the expansion of the Empire’s borders, comprehensive legislative reforms, and artistic achievements that resulted in the construction of numerous monumental buildings throughout the Empire and in the spread of a new, “Byzantine” artistic style. We should also not forget that the Justinianic period was the last in history when the Mediterranean was truly a “middle sea”, that is, the last time a single political entity controlled almost all its shores. As a consequence of successful wars and the restoration of control over large parts of the former Roman Empire, the number of mints rose to more than ten.³⁵ Nor was the period of Ostrogothic rule across the eastern Adriatic and its hinterland marked by economic stagnation, as attested by numerous numismatic finds struck by Ostrogothic rulers.³⁶ However, it was precisely the age of Justinian that brought economic

³³ OSTROGORSKI 2006: 37–38.

³⁴ OSTROGORSKI 2006: 38.

³⁵ GRIERSON 1982: 47.

³⁶ Na prostoru nekadašnje rimske Dalmacije zabilježeno je oko 80 istočnogotskih kovanica kojima je mjesto nalaza barem donekle poznato (ŠEPAROVIC 2021: 18 i literatura citirana u bilj. 50 na tom mjestu), što je s obzirom na kratkotrajnu istočnogotsku vladavinu na tom području zapravo nemali broj, posebno ako mu se pridodaju i brojni primjerci iz raznih muzejskih zbirki (za pregled istočnogotskog novca u muzejskim zbirkama Hrvatske, BiH i Slovenije vidi DEMO 1994).

³² The numerical data are based on ŠEPAROVIC 2021.

³³ OSTROGORSKI 2006: 37–38.

³⁴ OSTROGORSKI 2006: 38.

³⁵ GRIERSON 1982: 47.

³⁶ Across the territory of former Roman Dalmatia, around 80 Ostrogothic coins with at least partly known findspots have been recorded (ŠEPAROVIC 2021: 18 and the literature cited in note 50 there), which is, given the short duration of Ostrogothic rule in that area, by no means a small number – especially when numerous specimens from various museum collections are added (for an overview of Ostrogothic coinage in the museum collections of Croatia, Bosnia and Herzegovina and Slovenia, s. DEMO 1994).

nužno mora pratiti i dotok novca³⁷ pa bi se u taj kontekst moglo staviti i pet Justinijanovih folisa iz humaćkog Muzeja. Tri su kovana u Konstantinopolu (kat. br. 4, 5 i 6), a po jedan u Nikomediji (kat. br. 7) i Kiziku (kat. br. 8). Konstantinopolski folis kat. br. 4 izrađen je prije reforme kovanja folisa koju Justinijan provodi u dvanaestoj godini svoje vlasti, tj. 538./539., te na reversu ne sadržava godinu kovanja, a na aversu je carsko poprsje prikazano u profilu. Reformom je povećana težina folisa, uvedeno je bilježenje godine kovanja na reversu, a od tada se ustaljuje *en face* prikaz cara, iako je taj prikaz obično bez izrazitih fizionomijskih osobina.³⁸

Šestu Justinijanovu kovanicu iz Humca (kat. br. 9) mogli bismo na određeni način staviti u vojni kontekst. Naime, riječ je o polufolisu kakvi se obično povezuju s pretpostavljenom kovnicom u Saloni, koja je mogla djelovati nakon što je Salona oduzeta Istočnim Gotima početkom bizantsko-gotskog rata. Salona ne gubi na vojnoj važnosti ni kasnije, jer će odatle Bizantinci krenuti u nekoliko pohoda prema Italiji, pa će tako i Narzes iskoristiti Salonu kao početnu točku svojeg pobjedonosnog pohoda kojim će nakon dva desetljeća teških sukoba biti okončan bizantsko-gotski rat.³⁹ Glede samih kovanica, riječ je o dosta „grubim” monetama, osjetno manjima i lakšima nego što su to

progress, as evidenced by the construction and/or renovation of numerous sacral and fortification structures on the eastern Adriatic and in its wider hinterland. Naturally, increased economic activity was necessarily accompanied by an inflow of coinage,³⁷ and it is in this context that we may also place the five folles of Justinian from the Humac Museum. Three were struck in Constantinople (Cat. Nos. 4, 5 and 6), and one each in Nicomedia (Cat. No. 7) and Cyzicus (Cat. No. 8). The Constantinopolitan follis Cat. No. 4 was produced before the reform of follis coinage that Justinian implemented in the twelfth year of his reign (AD 538/539) and therefore lacks the regnal year on the reverse; on the obverse is the imperial bust shown in profile. The reform increased the weight of the follis, introduced the marking of the year of issue on the reverse, and from that time an *en face* depiction of the emperor became standard, although usually without pronounced physiognomic features.³⁸

The sixth Justinianic coin from Humac (Cat. No. 9) could, in a certain sense, be placed in a military context. It is a half-follis of the type usually associated with the presumed mint in Salona, which may have operated after Salona was taken from the Ostrogoths at the beginning of the Byzantine–Gothic War. Salona did not lose its military significance thereafter, since it served as the starting point for several Byzantine campaigns towards Italy; it was from there that Narses launched his victorious expedition which, after two decades of harsh conflict, brought the

³⁷ Šeparović navodi više od 400 kovanica Justinijana I. s područja Hrvatske i Bosne i Hercegovine s poznatim mjestom nalaza (ŠEPAROVIĆ 2021: 254–255), a njima treba pridodati desetke primjeraka koji se čuvaju u muzejima, nepoznatog mjesta nalaza. Primjerice, samo u Arheološkom muzeju u Splitu čuva se najmanje 75 Justinijanovih zlatnika i pedesetak srebrnjaka koji bi, barem većim dijelom, mogli potjecati iz Salone i njezine šire okolice (ŠEPAROVIĆ 2021: 24).

³⁸ GRIERSON 1982: 60–61. Za poznavanje prirode bizantske carske vlasti vrlo je ilustrativno Griersonovo maštovito objašnjenje zašto nestaju fizionomijske osobine na ranobizantskom novcu. On kaže: „The differing personalities of individual emperors are swallowed up in the majesty of the office they hold.” (GRIERSON 1999: 24).

³⁹ Za kratak pregled bizantsko-gotskog rata s naglaskom na našoj obali usp. GOLDSTEIN 1992: 20–29.

³⁷ Šeparović has cited more than 400 coins of Justinian I from the territory of Croatia and Bosnia and Herzegovina with known findspots (ŠEPAROVIĆ 2021: 254–255), to which should be added dozens of specimens of unknown provenance kept in museums. For example, in the Archaeological Museum in Split alone, at least 75 gold coins of Justinian and some 50 silver coins are kept, which (at least for the most part) could originate from Salona and its wider surroundings (ŠEPAROVIĆ 2021: 24).

³⁸ GRIERSON 1982: 60–61. For an understanding of the nature of Byzantine imperial power, Grierson's imaginative explanation of why physiognomic features disappear on Early Byzantine coinage is very illustrative. He wrote: *The differing personalities of individual emperors are swallowed up in the majesty of the office they hold* (GRIERSON 1999: 24).

polufolisi kovani u velikim kovnicama Carstva.⁴⁰ Na aversu je carevo poprsje u profilu, a na reversu veliko slovo K kao oznaka da je riječ o polufolisu. Na našim područjima ovaj je novac najzastupljeniji u Saloni i okolicu te u srednjodalmatinskom zaleđu, među ostalim i na strateškim točkama na kojima se može s razlogom pretpostaviti boravak vojnika.⁴¹ S obzirom na povijesne okolnosti te rasprostranjenost ovoga novca, postoji mogućnost da je kovan ili u samoj Saloni ili u nekoj „putujućoj” kovnici, iako se to u ovom trenutku ne može s potpunom sigurnošću utvrditi.⁴²

Međutim, kako je to već primijećeno u literaturi⁴³, Justinijanovo razdoblje neće biti početak nove povijesne epohe, nego će na

Byzantine–Gothic War to an end.³⁹ With regard to the coins themselves, they are rather “crude” pieces, noticeably smaller and lighter than the half-folles struck in the major mints of the Empire.⁴⁰ On the obverse, the emperor’s bust is shown in profile, while on the reverse a capital letter K indicates that the piece is a half-follis. Across the eastern Adriatic and its hinterland, these coins are most common in Salona and its surroundings and in the central Dalmatian hinterland, including at strategic points where the presence of soldiers at that time may reasonably be assumed.⁴¹ Given the historical circumstances and the distribution of this coinage, it is possible that it was struck either in Salona itself or in some “mobile” mint, although this cannot be established with complete certainty at present.⁴²

⁴⁰ Ako usporedimo težine, ovi polufolisi upola su lakši od onih kovanih u velikim carskim kovnicama (oko 2 do 4 g prema oko 8 do 10 g), a sličan je omjer i u pogledu dimenzija. Isti princip vrijedi i za ostale kovanice iz moguće kovnice u Saloni, folis i dekanumij (GRIERSON 1982: 74).

⁴¹ ŠEPAROVIC 2021: 32.

⁴² Mišljenje o mogućem salonitanskom porijeklu ovih kovanica izneseno je u DOC 1: str. 187–189, gdje je u tabličnom prikazu među nesigurnim kovnicama („uncertain mint”) navedena Salona. Autor tog sveska A. R. Bellinger na str. 187 poziva se na Griersonovo mišljenje da je riječ o vojničkoj kovnici koja je mogla biti u Saloni („military mint perhaps at Salona”). Jedna kovanica navedena u DOC 1 na str. 188 prekov je preko Teodahadova novca, što bi je moglo pobliže datirati u razdoblje 40-ih godina 6. stoljeća. Grierson kasnije elaborira svoje mišljenje (GRIERSON 1982: 74). Naime, i dalje smatra da je riječ o kovnici u Iliriku („Illyrian mint”), ali da je riječ o kovnici koja nije povezana s nekom fiksnom lokacijom. Solinska kovnica figurira kao takva i u MIB 1 (autor toga djela W. Hahn objašnjava dimenzije i težinu „salonitanskih” polufolisa mišljenjem da je riječ o svojevrsnoj doznaci – *Kreditmünzen*, MIB 1: str. 76).

U našoj literaturi prvi na mogućnost da je u Saloni djelovala kovnica u Justinijanovo vrijeme ukazuje S. Bakota 1974. (*Numizmatičke vijesti*, 32/1974). To mišljenje prihvaćaju i drugi autori (spominjemo samo neke), i to bez ograde (kako se doima tekst u ŠEPAROVIC 2021: 32–34) ili u formi manje ili više utemeljene pretpostavke (MIRNIK 1975: 163, gdje se izražava i oprez s obzirom na činjenicu da Prokopije ne spominje kovnicu u Saloni; MAROVIĆ 1986: 290; MIRNIK, ŠEMROV 1998: 134 gdje se navodi „supposed Justinian’s mint in Salona”, iako u podnaslovu i u kataloškom popisu stoji *The Salonitan Mint* i *Salona*). Međutim, valja reći da postoji i mišljenje o mogućnosti da je ovaj novac kovan u Raveni, što je aktualizirano u BALDI 2011.

⁴³ OSTROGORSKI 2006: 47.

³⁹ For a brief overview of the Byzantine–Gothic War with an emphasis on the Adriatic coastline, cf. GOLDSTEIN 1992: 20–29.

⁴⁰ If we compare their weights, these half-folles are roughly half as heavy as those struck in the major imperial mints (c. 2–4 g as opposed to c. 8–10 g), and a similar ratio applies to their dimensions. The same principle applies to the other coins from the presumed mint in Salona – the follis and the dekanummium (GRIERSON 1982: 74).

⁴¹ ŠEPAROVIC 2021: 32.

⁴² The view on the possible Salonitan origin of these coins is presented in DOC 1: pp. 187–189, where Salona is listed among the uncertain mints in a tabular overview. A. R. Bellinger, the author of that volume, refers on p. 187 to Grierson’s opinion that there was a “...military mint perhaps at Salona”. One coin listed in DOC 1 on p. 188 is an overstrike on a coin of Theodahad, which could date it to the 540s. Philip Grierson later elaborated this view (GRIERSON 1982: 74). He continued to maintain that this was an Illyrian mint, but one not tied to any fixed location. The Solin mint appears as such also in MIB 1, where the author, W. Hahn, explained the dimensions and weight of the “Salonitan” half-folles by the view that they represent a form of remittance – *Kreditmünzen* (MIB 1: p. 76).

In Croatian scholarship, the possibility that a mint operated in Salona in Justinian’s time was first noted by S. Bakota in 1974 (*Numizmatičke vijesti* 32/1974). That view has been accepted by other authors (to mention only some), either without reservation (as the text in ŠEPAROVIC 2021: 32–34 appears to do), or in the form of more or less well-founded assumptions (MIRNIK 1975: 163, where caution is also expressed given that Procopius did not mention a mint in Salona; MAROVIĆ 1986: 290; MIRNIK, ŠEMROV 1998: 134, where “...supposed Justinian’s mint in Salona” is stated, although in the subtitle and in the catalogue the form “The Salonitan Mint” and “Salona” is used). However, it should be noted that there is also the view that this coinage may have been struck in Ravenna, a possibility revived in BALDI, 2011.

određeni način označavati kraj jedne ere, što se na simboličnoj razini može opisati nadahnutim riječima G. Ostrogorskog da je Justinijan I. „posljednji rimski car na bizantskom prijestolju”⁴⁴. Naime, jedna od posljedica intenzivnih graditeljskih, vojnih i umjetničkih napora diljem Carstva bit će i neizbježno pražnjenje carske blagajne. Ako se tome pridodaju razorni učinci tzv. Justinijanove kuge koja se na obalama Egipta pojavljuje 541. godine, zatim globalno zahlađenje i barbarske provale, ne čudi što će desetkovanja istočnorimska populacija imati dojam da je nastupio kraj svijeta.⁴⁵ Sve će se to osjetiti već u vrijeme kasne Justinijanove vladavine, a posebno za njegovih nasljednika. Prvi je od njih Justinijanov nećak **Justin II. (565. – 578.)**, čije se carstvo nosilo s kugom i hladnoćom te gubitkom najvećeg dijela Italije, višedesetljetnim ratovima s Perzijom i intenzivnim upadima Avara i Slavena. Da se opća nesigurnost vremena reflektira i na teritorij današnje Hercegovine dokazuju i dvije ostave s novcem Justinijana I. i Justina II. Riječ je o ostavi s položaja Vrtljak u Grabovniku kod Ljubuskog s četiri Justinijanova i čak 14 Justinovih solida te o ostavi s položaja Grmine u Blatnici kod Čitluka s po pet Justinijanovih i Justinovih tremisa.⁴⁶ Inače, na našim se prostorima primijećuje pad dotoka novca već u doba Justina II., a posebno za vrijeme njegovih nasljednika.⁴⁷ Iako je dotok novca opao, podaci pokazuju da pad još nije bio znatan tijekom vladavine samog Justina II., posebno ako se u obzir uzme činjenica da on vlada praktički tri puta kraće od Justinijana I. (13 nasuprot 38 godina). Primjerice, u zbirci zagrebačkoga Arheološkog muzeja nalazi se 397 Justinijanovih i 114 Justinovih kovanica,⁴⁸ u katalogu bizantskog novca

Yet, as has already been observed in the literature⁴³, the age of Justinian would mark not the beginning of a new historical era but, in a certain sense, the end of one – something that can be expressed symbolically in the inspired words of G. Ostrogorski, who called Justinian I “the last Roman emperor on the Byzantine throne”⁴⁴. One of the consequences of the intensive building, military and artistic efforts throughout the Empire was the inevitable depletion of the imperial treasury. If we add to this the devastating effects of the so-called “Justinianic Plague”, which appeared in coastal Egypt in 541, followed by global cooling and barbarian incursions, it is unsurprising that a decimated Eastern Roman population had the impression that the end of the world had come.⁴⁵ All this was already being felt in the later part of Justinian’s reign, and more so under his successors. The first of these was Justinian’s nephew, **Justin II (565–578)**, whose empire grappled with plague and cold, the loss of most of Italy, decades-long wars with Persia and intense incursions by Avars and Slavs. That the general insecurity of the period was also felt in the territory of present-day Herzegovina is demonstrated by two hoards containing coins of Justinian I and Justin II: the first from the site of Vrtljak in Grabovnik near Ljubuski, with four solidi of Justinian and no fewer than fourteen of Justin; and the second from the site of Grmine in Blatnica near Čitluk, with five tremisses of Justinian and five of Justin.⁴⁶ A decline in the influx of coinage into our region had already been noted in the time of Justin II, and especially under his successors.⁴⁷ Although the influx of coinage did decrease, the data show that the drop was not yet significant during the reign of Justin II himself – particularly if one bears in mind that his reign was practically a third as long as that of Justinian I (13 as opposed to 38 years). For example, the collection of the Archaeological Mu-

⁴⁴ OSTROGORSKI 2006: 46.

⁴⁵ HARPER 2019: 199–287.

⁴⁶ DEMO 1994: 233–236 (i literatura navedena na tom mjestu).

⁴⁷ ŠEPAROVIC 2021: 34.

⁴⁸ MIRNIK, ŠEMROV 1998: 134. Najveći je broj ovih kovanica nepoznatog mjesta nalaza, međutim, s obzirom na to

⁴³ OSTROGORSKI 2006: 47.

⁴⁴ OSTROGORSKI 2006: 46.

⁴⁵ HARPER 2019: 199–287.

⁴⁶ DEMO 1994: 233–236 (and the literature cited there).

⁴⁷ ŠEPAROVIC 2021: 34.

iz Narodnog muzeja u Beogradu donose se 144 Justinijanove kovanice i 97 kovanica Justina II.,⁴⁹ a 70-ak kovanica Justina II. navodi i Šeparović⁵⁰.

U humaćkoj zbirci nalaze se četiri kovance Justina II., i to jedan folis kovan u Konstantinopolu (kat. br. 10), jedan folis kovan u Nikomediji (kat. br. 11) i dva polufolisa kovana u Solunu (kat. br. 12. i 13). Svi na aversu prikazuju cara i carica Sofiju koji sjede na prijestolju, a reversi u načelu ponavljaju obrasce iz Justinijanova doba. Pojava Sofije na novcu prvi je slučaj pojave jedne bizantske carice na kovanicama,⁵¹ a razlozi za to mogli bi ležati u utjecaju koji je imala pri dovođenju svojega supruga na prijestolje, kao i u utjecaju na njegovu politiku.⁵² Ne iznenađuje ni činjenica da dva polufolisa potječu iz kovnice u Solunu, jer su i inače vrlo česti na prostoru jugoistočne Europe.⁵³

Ako za vrijeme Justina II. i nije došlo do znatnijeg poremećaja u dotoku novca, za njegovih nasljednika zasigurno jest. Iz razdoblja kraja 6. i početka 7. stoljeća u humaćkoj se zbirci čuvaju tri kovanice. Dva su folisa cara **Mauricija (582. – 602.)** kovan u Nikomediji (kat. br. 14), a jedan Antiohiji⁵⁴ (kat. br. 15). Treća je kovanica folis cara **Foke (602. – 610.)** kovan u Konstantinopolu (kat. br. 16) na kojemu vidimo znatnu promjenu na reversu folisa uvedenu u vrijeme Tiberija II. (574. – 582.), a riječ je o supstituciji grčke oznake vrijednosti M rimskim brojevima. Valja istaknuti da će se na Fokinim kovanicama, pa tako i na netom

seum in Zagreb contains 397 coins of Justinian and 114 of Justin;⁴⁸ the catalogue of Byzantine coinage in the National Museum in Belgrade lists 144 coins of Justinian and 97 of Justin II;⁴⁹ and some 70 coins of Justin II were also recorded by Šeparović.⁵⁰

In the Humac collection there are four coins of Justin II: one follis struck in Constantinople (Cat. No. 10), one follis struck in Nicomedia (Cat. No. 11), and two half-folles struck in Thessaloniki (Cat. Nos. 12 and 13). On the obverse they all depict the Emperor and the Empress Sophia seated on a throne, while the reverses generally repeat patterns from the time of Justinian. The appearance of Sophia on the coinage is the first instance of a Byzantine empress being shown on coins,⁵¹ and the reasons may lie in the influence she exercised in securing her husband's accession to the throne, as well as in her shaping of his policies.⁵² Nor is it surprising that the two half-folles originate from the Thessaloniki mint, since such issues are generally very common across the south-eastern European region.⁵³

While during the reign of Justin II there may not yet have been a significant disruption in the influx of coinage, under his successors there certainly was. From the period of the late 6th and early 7th centuries, three coins are kept in the Humac collection. Two are folles of Emperor **Maurice (582–602)**, one struck in Nicomedia (Cat. No. 14) and one in Antioch⁵⁴ (Cat. No. 15). The third coin is a follis of Emperor **Phocas (602–610)**, struck in Constantinople (Cat. No.

da ovakvim podacima želimo ilustrirati neke opće pojave i trendove u vremenskoj i prostornoj distribuciji novčanih emisija pojedinih careva, smatramo da ih je ipak opravdano upotrebljavati u tom kontekstu (ova opaska vrijedi i za bilj. 49 i 50).

⁴⁹ RADIĆ, IVANIŠEVIĆ 2006: 106–135.

⁵⁰ ŠEPAROVIĆ 2021: 112–219.

⁵¹ PETROVIĆ 2023: 62.

⁵² LOUTH 2008: 125.

⁵³ Usp. MIRNIK, ŠEMROV 1998: 131, 178–181 (42 primjerka); RADIĆ, IVANIŠEVIĆ 2006: 132–135 (45 primjerka).

⁵⁴ Justinijan I. Antiohiju je prozvao Theopolis, što se reflektira i u tekstu u odsječku.

⁴⁸ MIRNIK, ŠEMROV 1998: 134. The majority of these coins have unknown findspots; however, since such data are intended to illustrate certain general phenomena and trends in the chronological and spatial distribution of the monetary issues of individual emperors, we consider it justified to use them in that context (this remark also applies to notes 49 and 50).

⁴⁹ RADIĆ, IVANIŠEVIĆ 2006: 106–135.

⁵⁰ ŠEPAROVIĆ 2021: 112–219.

⁵¹ PETROVIĆ 2023: 62.

⁵² LOUTH 2008: 125.

⁵³ Cf. MIRNIK, ŠEMROV 1998: 131, 178–181 (42 specimens); RADIĆ, IVANIŠEVIĆ 2006: 132–135 (45 specimens).

⁵⁴ Justinian I renamed Antioch Theopolis, which is also reflected in the legend in the exergue.

spomenutoj, nakon dužeg vremena moći vidjeti pokušaj realnijeg prikazivanja careva lica, koje je u ovom slučaju prikazano izduženo, sa šiljatom bradicom.

Okvirno vrijeme u kojemu vladaju ova dva cara, kao i Fokin nasljednik Heraklije (610. – 641.) prijelomno je doba u povijesti ovih krajeva. Naime, to je doba na simboličkoj i stvarnoj razini ponajbolje oličeno konačnim padom Sirmija 582. godine,⁵⁵ a obilježeno je nastavkom intenzivnih avarsko-slavenskih upada na prostore jugoistočne Europe, što će u konačnici rezultirati i trajnim naseljavanjem skupina slavenskog porijekla na istočni Jadran i šire zaobalje. O tom nam dobu svjedoče i brojne ostave bizantskog novca na području jugoistočne Europe bez obzira nastaju li primarno kao rezultat ratne ugroze⁵⁶ ili su posljedica tadašnjega ekonomskog, monetarnog i političko-vojnog sustava⁵⁷ (iako je najvjerojatnije riječ o kombinaciji razloga). Stoga ne čudi činjenica da će doba 7. i 8. stoljeća, u našoj srednjovjekovnoj arheologiji ponekad nazivano „mračnim dobom”, biti obilježeno i drastičnim padom dotoka bizantskog novca nakon vladavine cara Heraklija.⁵⁸ Naravno, razlozi za to nisu samo lokalne prirode, nego su primarno rezultat širih povijesnih zbivanja i snažnog opadanja moći Bizanta koji rapidno gubi teritorij i ekonomsku bazu (posebno nakon arapskog osvajanja Egipta sredinom 7. stoljeća). Niz velikih kovnica, od kojih su neke zastupljene i u humačkoj zbirci, prestat će postojati tijekom 7. ili početkom 8. stoljeća: Antiohija, Nikomedija, Kizik, Aleksandrija, Kartaga, a čak će i solunska na neko vrijeme prestati s produkcijom.⁵⁹ Stoga ne iznenađuje činjenica da se u humačkom Muzeju nalazi samo jedna kovanica kovana između već spomenutog Fokinog folisa i dvije kovanice

16), on the reverse of which we see an important change introduced in the time of Tiberius II (574–582): the substitution of the Greek denominational mark “M” with Roman numerals. It should be noted that on Phocas’ coins, including this one, after a long interval one can again observe an attempt at a more realistic rendering of the emperor’s face, here shown elongated, with a pointed beard.

The approximate period in which these two emperors (as well as Phocas’ successor Heraclius (610–641) reigned, represents a watershed in the history of these lands. Symbolically and in reality, it is best embodied in the final fall of Sirmium in 582⁵⁵, and was marked by the continued intensification of Avar–Slav incursions into south-eastern Europe, which would ultimately result in the permanent settlement of groups of Slavic origin along the eastern Adriatic and in the wider hinterland. This period is also reflected in numerous hoards of Byzantine coinage found across south-eastern Europe, perhaps contingent primarily on wartime threats⁵⁶ or possibly the economic, monetary and politico-military system of the time⁵⁷ (although it was most likely a combination of all). It is therefore unsurprising that the 7th and 8th centuries – in medieval archaeology of the eastern Adriatic and its hinterland sometimes termed the “Dark Age” – were also marked by a drastic decline in the influx of Byzantine coinage after the reign of Emperor Heraclius.⁵⁸ Of course, the reasons for this were not merely local in character but mainly due to wider historical developments and the strong decline in Byzantine power, with the rapid loss of territory and economic base (especially after the Arab conquest of Egypt in the mid-7th century). A number of major mints – some of which are represented in the Humac collection – ceased to exist during the 7th or early 8th century: Antioch, Nicomedia, Cyzicus, Alexandria, Carthage, and even the Thessaloniki mint halted production

⁵⁵ O padu Sirmija vidi GRAČANIN 2011: 123–124.

⁵⁶ ŠEPAROVIC 2021: 42.

⁵⁷ CURTA 1996: 116–117.

⁵⁸ ŠEPAROVIC 2021: 50.

⁵⁹ GRIERSON 1982: 85.

⁵⁵ On the fall of Sirmium s. GRAČANIN 2011: 123–124.

⁵⁶ ŠEPAROVIC 2021: 42.

⁵⁷ CURTA 1996: 116–117.

⁵⁸ ŠEPAROVIC 2021: 50.

Lava VI. (886. – 912.). Riječ je o prilično „barbariziranoj” tremisi **Konstantina IV. (668. – 685.)**⁶⁰ (kat. br. 17), važnoj s obzirom na povijesne okolnosti druge polovice 7. stoljeća i općenitu rijetkost novca iz toga vremena kod nas. Po svemu sudeći, riječ je o produktu nepoznate kovnice iz Italije.⁶¹ Novac toga cara, inače poznatog i po slomu arapske opsade Carigrada 678. godine, što je bio prvi kontraudar do tada nezaustavljivoj arapskoj invaziji, rijedak je na našim prostorima. Jedan njegov krivotvoreni solid pronađen je u Jasenskom kod Sinja, tremisa kovana u Rimu u Arheološki muzej u Zagrebu dopijeva zahvaljujući P. Kostelcu iz Prozora kod Otočca, a folis kovana u Raveni potječe s Kastruma na Brijunima.⁶² No koliko god pojava novca Konstantina IV. kod nas bila zanimljiva, na ovom bi mjestu bilo uputno prekinuti svaku daljnju raspravu o njemu s obzirom na nejasne ili posve nepoznate okolnosti pronalaska većine njegovih kovanica na našim prostorima.⁶³

U Muzeju u Humcu čuva se samo jedan bizantski srebrnjak (kat. br. 18). Riječ je o miliaresiju **Lava VI. (886. – 912.)**, pripadnika makedonske dinastije s kojom inače započinje ponovni uspon Carstva. Humački miliaresij pripada tipu koji ovaj car kuje samostalno do 908. godine. Lav VI. poznat

for a time.⁵⁹ It is therefore unsurprising that the Humac Museum contains only one coin struck between the above-mentioned follis of Phocas and the two coins of Leo VI (886–912). This is a rather “barbarised” tremissis of **Constantine IV (668–685)**⁶⁰ (Cat. No. 17), important given the historical circumstances of the second half of the 7th century and the general rarity of coinage from that period in the wider eastern Adriatic region. In all likelihood, it is the product of an unknown mint in Italy.⁶¹ Coinage of this emperor – known otherwise for breaking the Arab siege of Constantinople in 678 (the first counterblow to the hitherto unstoppable Arab advance) – is rare across the eastern Adriatic and its hinterland. One forged solidus of his was found at Jasensko near Sinj; a tremissis struck in Rome reached the Archaeological Museum in Zagreb thanks to P. Kostelac from Prozor near Otočac; and a follis struck in Ravenna came from Castrum on the Brijuni Islands.⁶² However interesting the presence of Constantine IV’s coinage may be in the region under study, it would be advisable at this point to end any further discussion of it, given the unclear or entirely unknown circumstances of the discovery of most of his coins across the eastern Adriatic and its hinterland.⁶³

The Humac Museum holds only one Byzantine silver coin (Cat. No. 18). It is a miliaresion

⁶⁰ Uz ime cara Konstantina IV. još se uvijek često navodi i njegov navodni nadimak Pogonat (hrv. ‘bradati’). Međutim, po svemu sudeći, ovaj bi se nadimak trebao odnositi na Konstansa II. (641. – 668.), što bi mogao dokazivati i Konstansov prikaz na kovanicama (usp. DOC 2, 2: 403, bilj. 9).

⁶¹ Kovanica iz Humca gotovo je identična kovanici MIB 3: X10. S obzirom na izgled i jedne i druge kovanice, točno određivanje kovnice gotovo je nemoguće (o tome više u MIB 3: 154–155; o odlikama novca iz talijanskih kovnica tijekom 7. i početka 8. stoljeća vidi GRIERSON 1982: 138–144).

⁶² ŠEPAROVIC 2021: 52; za primjerak iz zagrebačkoga Arheološkog muzeja vidi MIRNIK, ŠEMROV 1998: 201, br. 785 (na tom je mjestu navedeno „Provenance: Pavao Kostelac, Prozor”).

⁶³ Naravno, ova opaska ne vrijedi za kovanicu s Brijuna jer je riječ o jednoj od ključnih točaka na istočnojadranskom plovnom putu koji u vrijeme Konstantina IV. još uvijek kontrolira Bizant. Stoga pojava kovanice toga cara na tom mjestu uopće ne iznenađuje.

⁵⁹ GRIERSON 1982: 85.

⁶⁰ Alongside the name of Emperor Constantine IV, his supposed nickname “Pogonatus” (“the bearded”) is still frequently cited. However, it would appear that this nickname should instead refer to Constans II (641–668), as suggested by his depiction on the coinage (cf. DOC 2, 2: 403, n. 9).

⁶¹ The Humac coin is almost identical to the piece MIB 3: X10. Given the appearance of both coins, precise determination of the mint is virtually impossible (s. MIB 3: 154–155; on the characteristics of coinage from Italian mints during the 7th and early 8th centuries, s. GRIERSON 1982: 138–144).

⁶² ŠEPAROVIC 2021: 52; for the specimen from the Archaeological Museum in Zagreb, s. MIRNIK, ŠEMROV 1998: 201, no. 785 (there noted as “Provenance: Pavao Kostelac, Prozor”).

⁶³ Naturally, this remark does not apply to the coin from the Brijuni Islands, as they were one of the key points on the eastern Adriatic maritime route still controlled by Byzantium in the time of Constantine IV. The appearance of this emperor’s coin at that location is therefore not surprising at all.

je po unutarnjim reformama carskog dvora, a ponajviše po zakonodavnim aktivnostima (zbog čega je i stekao nadimak Mudri).⁶⁴ Inače, srebro u bizantskom monetarnom sustavu dobiva na važnosti tek od početka 7. stoljeća kada Heraklije 615. godine uvodi heksagram koji se kuje do 80-ih godina 7. stoljeća.⁶⁵ Lav III. (717. – 741.) 720. godine uvodi novu srebrnu kovanicu nazvanu *miliaresion*.⁶⁶ Promijenjene geopolitičke okolnosti u odnosu na ranija stoljeća dobro ilustrira činjenica da je miliaresij inspiriran islamskim dirhamom⁶⁷ poglavito s obzirom na činjenicu da nema prikaz vladara, što je do tada bio jedan od najprepoznatljivijih elemenata rimske i bizantske numizmatike. Na aversu ovih kovanica nalazi se natpis, a na reversu križ na postolju. Na humaćkom primjerku vidimo novine koje na miliaresij uvodi Lav VI., a to su osam globula na trostrukom obodu od točkica (po uzoru na abasidski dirham) i riječ EVSEBHS (‘pobožan’) na reversu.⁶⁸ Srebrnjaci Lava VI. kod nas su vrlo rijetki, a zabilježen je još jedan primjerak u Segetu Donjem kod Trogira.⁶⁹

I folisi su toga cara rijetki, a zabilježeni su u Dubrovniku (dva primjerka) i u okolici Zadra, uz jedan folis kovan sa suvladarom Aleksandrom iz Eraka kod Ploča.⁷⁰ Jedan folis Lava VI. kovan u Konstantinopolu čuva se i na Humcu (kat. br. 19), a pripada tipu na kojemu car sjedi na prijestolju.⁷¹ Inače, sve spomenute kovanice Lava VI. pripadaju vremenu kada se i inače bilježi smanjen dotok bizantskog novca na naše prostore, što je

of **Leo VI (886–912)**, a member of the Macedonian dynasty, with whom the renewed rise of the Empire began. The Humac miliaresion belongs to the type that this emperor struck on his own up to 908. Leo VI is best known for reforms within the imperial court and, above all, for legislative activity (hence his epithet: the Wise).⁶⁴ Silver gained significance in the Byzantine monetary system only from the early 7th century, when Heraclius introduced the hexagram in 615, struck until the 680s.⁶⁵ Leo III (717–741) introduced a new silver coin, the *miliaresion*, in 720.⁶⁶ The altered geopolitical circumstances – in comparison with earlier centuries – are well illustrated by the fact that the miliaresion was inspired by the Islamic dirham,⁶⁷ particularly in the absence of a ruler’s portrait, until then one of the most recognisable features of Roman and Byzantine numismatics. On the obverse of these coins there is an inscription, while the reverse shows a cross on a base. The Humac specimen displays the innovations introduced on the miliaresion by Leo VI, namely eight pellets on a triple dotted border (modelled on the Abbasid dirham) and the word EVSEBHS (‘pious’) on the reverse.⁶⁸ Silver coins of Leo VI are very rare in the region studied, and only one further specimen has been recorded, at Seget Donji near Trogir.⁶⁹

Folles of this emperor are also rare and have been recorded in Dubrovnik (two specimens) and in the vicinity of Zadar, along with one follis, struck with the co-emperor Alexander, from Eraci near Ploče.⁷⁰ A follis of Leo VI struck in Constantinople that is kept at Humac (Cat. No. 19), belongs to the type on which the emperor is shown seated

⁶⁴ OSTROGORSKI 2006: 141–150.

⁶⁵ GRIERSON 1982: 103–105.

⁶⁶ GRIERSON 1982: 160 (Grierson primjećuje da je uvođenje miliaresija jedna od prijelomnih točaka bizantskoga monetarnog sustava među ostalim i na simboličnoj razini, jer se njegove osobine ni na koji način ne mogu povezati s rimskim numizmatičkim obrascima). Inače, iako miliaresij uvodi Lav III., on ulazi u opću upotrebu tek od Teofila (829. – 842.) (GRIERSON 1999: 14).

⁶⁷ GRIERSON 1999: 14.

⁶⁸ GRIERSON 1982: 181.

⁶⁹ ŠEPAROVIC 2021: 83.

⁷⁰ ŠEPAROVIC 2021: 84, 86.

⁷¹ GRIERSON 1982: 184.

⁶⁴ OSTROGORSKI 2006: 141–150.

⁶⁵ GRIERSON 1982: 103–105.

⁶⁶ GRIERSON 1982: 160 (Grierson noted that the introduction of the miliaresion was one of the turning points of the Byzantine monetary system – also on a symbolic level – since its characteristics can in no way be linked with Roman numismatic models). Additionally, although the miliaresion was introduced by Leo III, it came into general use only from the time of Theophilos (829–842) (GRIERSON 1999: 14).

⁶⁷ GRIERSON 1999: 14.

⁶⁸ GRIERSON 1982: 181.

⁶⁹ ŠEPAROVIC 2021: 83.

⁷⁰ ŠEPAROVIC 2021: 84, 86.

pojava koja se uočava nakon vladavine cara Teofila, a među nalazištima se brojnošću (i lokaliteta i samih kovanica) sve više počinju izdvajati ona na južnom Jadranu.⁷²

Sin Lava VI. Konstantin VII. Porfirogenet (913. – 959.) pri stupanju na prijestolje ima samo osam godina. Stoga će stvarnu vlast desetljećima obnašati regentsko vijeće, regenti i/ili suvladari, od kojih je jedan i **Roman I. Lekapen (920. – 944.)** čiji se folis kovan u Konstantinopolu između 931. i 944. nalazi u Muzeju na Humcu (kat. br. 20). Riječ je o Griersonovu četvrtom tipu konstantinopolskih folisa kovanih za vrijeme Konstantina VII. koji obilježava prikaz Romana I. na aversu i natpis na reversu na kojemu se spominje Romanovo ime.⁷³ Ovakvi folisi kod nas nisu česti, a ako uzmemo u obzir samo one kojima je poznata provenijencija, ističe se da čak pet Romanovih folisa potječe iz Dubrovnika, jedan s Korčule, a dvije su Romanove kovanice nađene u Rovinju. Očit naglasak na širem dubrovačkom prostoru (a isto vrijedi i za kovanice Konstantina VII.) ocrtava čvrstu bizantsku vlast nad tim područjem, a da se bizantski utjecaji šire i prema unutrašnjosti svjedoče nam i nalazi bule Lava VI. i Aleksandra iz Podgradine kod Livna te folisa Konstantina VII. i Zoe (913. – 919.) iz Rešetarice, također kod Livna.⁷⁴

No „prijateljski” odnos Hrvatske i Bizanta kulminirat će u drugoj polovici 10. stoljeća, kada će Stjepan Držislav (969. – oko 997.) od Bizanta dobiti i krunu. U tom će se vremenu, točnije, od 970. godine, početi kovati niz tipova folisa koji će zbog činjenice da na njima nema ni prikaza ni imena cara biti prozvani anonimnim folisima. Počinju se kovati u doba cara Ivana Cimiska (969. – 976.) te se kuju sve do 1092. godine, tj. do reforme Aleksija Komnena (1081. – 1118.). Postoji 15 tipova anonimnih folisa

on a throne.⁷¹ All of the mentioned coins of Leo VI fall within a period in which a reduced influx of Byzantine coins into our region is recorded – a phenomenon observed after the reign of Emperor Theophilos. Among the findspots, those on the southern Adriatic increasingly stand out, both in terms of the number of sites and the number of coins.⁷²

The son of Leo VI, Constantine VII Porphyrogenitus (913–959), was only eight years old when he ascended the throne. For decades, real power was therefore exercised by a regency council, regents and/or co-rulers, one of whom was **Romanos I Lekapenos (920–944)**. A follis of Romanos I struck in Constantinople between 931 and 944 is kept in the Humac Museum (Cat. No. 20). It is Grierson's fourth type of Constantinopolitan follis struck during the reign of Constantine VII, characterised by the depiction of Romanos I on the obverse and the inscription on the reverse naming Romanos.⁷³ Such folles are not common in the studied region and, if we consider only those with known provenance, it is significant that as many as five folles of Romanos I came from Dubrovnik and one from Korčula, while two coins of Romanos were found in Rovinj. The clear concentration in the wider Dubrovnik area (and the same applies to the coinage of Constantine VII) reflects the firm Byzantine rule over that region, while finds inland bear witness to the spread of Byzantine influence: the lead seal of Leo VI and Alexander from Podgradina near Livno and the follis of Constantine VII and Zoe (913–919) from Rešetarica, also near Livno.⁷⁴

The “friendly” relationship between Croatia and Byzantium would culminate in the second half of the 10th century, when Stjepan Držislav (969 – c. 997) received the royal crown from Byzantium. At that time – more precisely from 970 onwards – a series of follis types began to be struck which, owing to the absence of both imperial portraits and imperial names, came to be known as any-

⁷² ŠEPAROVIĆ 2021: 82.

⁷³ DOC 3.2: 538.

⁷⁴ ŠEPAROVIĆ 2021: 86.

⁷¹ GRIERSON 1982: 184.

⁷² ŠEPAROVIĆ 2021: 82.

⁷³ DOC 3.2: 538.

⁷⁴ ŠEPAROVIĆ 2021: 86.

označenih slovima od A do N (tip A ima dva podtipa označena brojevima 1 i 2). Svi ovi tipovi pripadaju religijskim tipovima. Na aversu je uvijek prikaz Krista (do tada rezerviran samo za zlatne kovanice) najčešće u obliku biste, a na reversu je natpis, prikaz Bogorodice ili križ.⁷⁵ Najvjerojatnije su kovani u Konstantinopolu.⁷⁶ U humaćkom Muzeju čuva se 11 anonimnih folisa, a zastupljeno je pet tipova: A2, B, C, G i I. Tip A2 zastupljen je s čak pet primjeraka (kat. br. 21–25). Svi na aversu imaju bistu Krista, a na reversu natpis u četiri reda $\text{+IHSYS} / \text{XRISTYS} / \text{BASILEY} / \text{BASILE}$. Kovani su od 976.(?) do 1030./1035. Tip B, zastupljen samo jednim primjerkom (kat. br. 28), na aversu također ima bistu Krista, ali je na reversu natpis $\text{IS-XS} / \text{BAS-ILE} / \text{BAS-ILE}$ te križ na postolju. Ovi su folisi kovani od 1030./1035. do 1042.(?). Na aversu tipa C nalazi se polufigura Krista, na reversu je *crux gemmata*, a kovan je od 1042.(?) do 1050. U humaćkom Muzeju dva su takva folisa (kat. br. 29 i 30), od kojih bi jedan (kat. br. 29) mogao biti prekov preko anonimnog folisa tipa B (prekovi nisu rijetka pojava na anonimnim folisima općenito). I tip G zastupljen je dvjema kovanicama (kat. br. 33 i 34). Karakterizira ga bista Krista na aversu te bista Bogorodice na reversu, a kuje se od 1060. do 1065. I konačno, tip I zastupljen je jednim primjerkom (kat. br. 35), a odlikuje se bustom Krista na aversu te prikazom križa na reversu na kojemu nema nikakvog natpisa. Kovan je od 1075. do 1080. Prema Šeparoviću, najviše je anonimnih folisa zabilježeno u Dubrovniku i njegovoj okolici (42 primjerka) jer se upravo tu najsnažnije osjećala bizantska vlast.⁷⁷ Zaključno, možemo reći da razmjerno velik broj anonimnih folisa kod nas (a njima valja pridodati i humaćke primjerke) ipak svjedoči o razmjerno

mous folles. They began to be minted under Emperor John Tzimiskes (969–976) and continued to be produced until 1092, that is, until the reform of Alexios Komnenos (1081–1118). There are 15 types of anonymous folles, designated by the letters A to N (type A has two subtypes, numbered 1 and 2). All these types belong to the so-called religious types. The obverse always shows Christ (until then reserved only for gold coinage), usually in the form of a bust, while the reverse carries an inscription, a depiction of the Virgin, or a cross.⁷⁵ They were most likely struck in Constantinople.⁷⁶ The Humac Museum holds 11 anonymous folles, representing five types: A2, B, C, G and I. Type A2 is represented by as many as five specimens (Cat. Nos. 21–25). All of them have a bust of Christ on the obverse, and on the reverse an inscription in four lines: $\text{+IHSYS} / \text{XRISTYS} / \text{BASILEY} / \text{BASILE}$. They were struck between 976(?) and 1030/1035. Type B, represented by only one specimen (Cat. No. 28), also has a bust of Christ on the obverse, but on the reverse bears the inscription $\text{IS-XS} / \text{BAS-ILE} / \text{BAS-ILE}$ together with a cross on a base. These folles were struck between 1030/1035 and 1042(?). On the obverse of type C there is a half-length figure of Christ, while on the reverse is a *crux gemmata*; it was struck between 1042(?) and 1050. In the Humac Museum there are two such folles (Cat. Nos. 29 and 30), one of which (Cat. No. 29) may be an overstrike on an anonymous follis of type B (overstrikes are not uncommon on anonymous folles in general). Type G is likewise represented by two coins (Cat. Nos. 33 and 34). It is characterised by a bust of Christ on the obverse and a bust of the Virgin on the reverse, and was struck between 1060 and 1065. Finally, type I is represented by a single specimen (Cat. No. 35), distinguished by a bust of Christ on the obverse and a depiction of a cross without any inscription on the reverse. It was struck between 1075 and 1080. According to Šeparović, the greatest number of anonymous

⁷⁵ DOC 3.2: 634, 647; GRIERSON 1982: 204–210.

⁷⁶ Za problematiku mjesta kovanja anonimnih folisa usp. DOC 3.2: 640–642.

⁷⁷ ŠEPAROVIĆ 2021: 88.

⁷⁵ DOC 3.2: 634, 647; GRIERSON 1982: 204–210.

⁷⁶ For the question of the minting places of anonymous folles, cf. DOC 3.2: 640–642.

stabilnoj ekonomskoj situaciji, pa i o jačanju gospodarskih aktivnosti tijekom 11. stoljeća, posebno u njegovoj prvoj polovini.

Iako se neki tipovi anonimnih folisa kuju gotovo do kraja 11. stoljeća, car **Konstantin X. Duka (1059. – 1067.)** ponovno će pokrenuti kovanje novaca koji nose ime i prikaz vladara.⁷⁸ Iako se prikaz cara vraća na folise, sada je na reversu, a na aversu je prikaz Krista. U humaćkom Muzeju dva su folisa Konstantina X. (kat. br. 31 i 32), od kojih je kat. br. 31 najvjerojatnije prekov preko anonimnog folisa. Novac ovoga cara kod nas je rijedak, a bilježe se samo primjerci iz Zadra i Dubrovnika.⁷⁹ Vrijeme Konstantina X. izrazito je nepovoljno za Carstvo kojemu na obzor dolaze Seldžuci u trenutku kada se izdaci za vojsku smanjuju, dok na unutaršnjem planu država siromaši. Humački folisi pripadaju jednom od dva tipa Konstantinova bakrenog novca, onom na kojem je uz cara na reversu prikazana i njegova supruga Eudoksija, na čije bi ambicije mogao ukazivati njezin položaj na kovanici. Naime, prikazana je lijevo, a car desno, što je neobično s obzirom na činjenicu da se u slučaju prikaza dviju carskih figura na novcu senior postavlja na lijevu stranu (s obzirom na promatrača). Međutim, objašnjenje je ovog jedinstvenog slučaja, prema Griersonovu mišljenju, u položaju njihove lijeve ruke, koja im je na prsima (srcu), pa bi zapravo *labarum* koji drže (desna ruka carice nalazi se ispod desne ruke cara) mogao predstavljati ili barem ukazivati na Krista čiji je prikaz na aversu.⁸⁰ U tom bi slučaju bizantska heraldička pravila bila ispoštovana.

Ipak, u okvirima 11. stoljeća najintrigantnija pojava s naših prostora u numizma-

folles had been recorded in Dubrovnik and its surroundings (42 specimens), as Byzantine power was felt strongest there.⁷⁷ In conclusion, we may say that the comparatively large number of anonymous folles in our region (to which the Humac examples should be added) nevertheless bears witness to a relatively stable economic situation, and even to a strengthening of economic activity during the 11th century, especially in its first half.

Although certain types of anonymous folles continued to be struck almost to the end of the 11th century, Emperor **Constantine X Doukas (1059–1067)** reintroduced coinage bearing the ruler's name and portrait.⁷⁸ Although the emperor's image returned to the follis, it now appeared on the reverse, while the obverse bore an image of Christ. The Humac Museum houses two folles of Constantine X (Cat. Nos. 31 and 32), of which Cat. No. 31 is most probably an overstrike on an anonymous follis. Coinage of this emperor is rare in the studied region, and only specimens from Zadar and Dubrovnik are recorded.⁷⁹ The reign of Constantine X was markedly unfavourable for the Empire, with the advent of the Seljuks at a time when expenditure on the army was being reduced and the state was becoming impoverished. The Humac folles belong to one of the two types of Constantine's copper coinage – that which shows, on the reverse alongside the emperor, his wife Eudokia. Her ambitions may be suggested by her position on the coin: she is shown on the left and the emperor on the right, which is unusual given that, when two imperial figures appear on a coin, the senior one is placed on the left (from the viewer's perspective). However, the explanation for this unique case, according to Grierson, lies in the position of their left hands. Their left hands rest on their chests (over the heart), so the

⁷⁸ To, naravno, znači da se vjerojatno istodobno kuju i anonimni i „potpisani”, folisi što unosi popriličnu zbrku u pitanje određivanja kovnica, posebno s obzirom na činjenicu da je teško vjerovati da iste kovnice kuju i jedne i druge kovnice te s obzirom na to da u ovo vrijeme više nema oznaka kovnica na novcu (usp. literaturu navedenu u bilj. 75).

⁷⁹ ŠEPAROVIC 2021: 125, 186.

⁸⁰ DOC 3.1: 110.

⁷⁷ ŠEPAROVIC 2021: 88.

⁷⁸ This of course means that anonymous and “signed” folles were probably being struck simultaneously, which introduces considerable confusion when it comes to determining the mints – especially given that it is hard to believe that the same mints produced both types, and in view of the fact that by this time mint-marks no longer appear on the coinage (cf. the literature cited in n. 75).

⁷⁹ ŠEPAROVIC 2021: 125, 186.

tičkom smislu zasigurno je pojava velikog broja zlatnika cara **Romana III. Argira (1028. – 1034.)**, cara koji za vrijeme svoje kratke vladavine nije doprinio ni vojnoj ni ekonomskoj snazi Carstva svojim poreznim reformama kojima je oslabio i vojsku i carsku blagajnu, a čije će se posljedice u punom opsegu osjetiti tek nakon njegove smrti.⁸¹ Koliko je njegov inače vrlo kvalitetan zlatni novac čest kod nas govori i činjenica da 90 % poznatog novca iz 11. stoljeća pripada baš Romanu III.⁸² Na aversu ovih zlatnika prikazan je Krist, a na reversu je Bogorodica koja kruni cara. Na području Hercegovine pronađene su dvije velike ostave *romanata*: u Gornjoj Drežnici (više od 300 komada) i u Klobuku (56 komada). Uz njih, poznat je i nalaz osam Romanovih zlatnika iz Vitine.⁸³

⁸¹ OSTROGORSKI 2006: 186–187.

⁸² ŠEPAROVIĆ 2021: 92. U citiranoj je publikaciji navedeno 38 lokaliteta na kojima je pronađen ovaj novac u Hrvatskoj i Bosni i Hercegovini. To djelo donosi i niz bibliografskih zapisa o Romanovim zlatnicima i pregled dosadašnjih razmišljanja o pojavi tog novca kod nas (str. 96–100). Za kartu distribucije nalaza zlatnika Romana III. na našim prostorima vidi JAKŠIĆ 2015: 428, sl. 2.

⁸³ Ostava iz Gornje Drežnice sjeverno od Mostara pronađena je 1867. i mogla je sadržavati više od 300 kovanica, a ostava iz Vitine pronađena je 1890. i sadržavala je devet kovanica, od kojih su dvije „nestale”; PATSCH 1900: 570–572. Ostava iz Klobuka kod Ljubuškog pronađena je 1930., a sadržavala je 56 kovanica, od kojih je spašeno 23, a ostale su nestale (MAROVIĆ 2006: 278). Spomenimo i da je 90-ih godina 20. stoljeća u Grabovniku nedaleko od Vitine pronađen još jedan zlatnik Romana III. Argira koji je otkupio Arheološki muzej u Splitu (DODIG 2013). Glede ostave iz Gornje Drežnice treba reći da je Patsch do broja od „preko 300 zlatnika” došao raspitujući se o sudbini kovanica kod fra N. Šimovića, biskupova tajnika u vrijeme nalaza. U izvornom tekstu o pronalasku ostave na koji se poziva Patsch (PATSCH 1900: 571) navedeno je da je pronađeno nekoliko stotina zlatnika (BAKULA 2016: 130 za tekst na latinskom i 293 za prijevod na hrvatski jezik). U sferi nepotrebnih domišljanja ostat će pitanje jesu li baš sve kovanice pripadale istom caru (i Patsch razmišlja o tome), a vjerojatno nikad nećemo saznati koji su to „drugi” položaji na kojima je do 1873. pronađen Romanov novac na koje se misli u izvornoj objavi. Inače, Patsch na citiranom mjestu pogrešno pripisuje novac caru Romanu II. (959. – 963.). Valja spomenuti i to da su, prema mišljenju N. Čuljak i D. Pinjuh, temeljenom na putopisu G. Arbuthnota iz 1862., zlatnici zapravo pronađeni na području preko kojega se iz doline Svinjače ide prema Duvnu, dakle nešto zapadnije od Gornje Drežnice (ČULJAK, PINJUH 2018: 132–134).

labarum they hold (the empress's right hand being beneath the emperor's right) could represent or at least allude to Christ, whose image appears on the obverse.⁸⁰ In that case, Byzantine heraldic conventions would have been respected.

Nevertheless, within the framework of the 11th century, the most intriguing numismatic phenomenon from the region under study is undoubtedly the appearance of a large number of gold coins of Emperor **Romanos III Argyros (1028–1034)**. During his brief reign, this emperor contributed neither to the military nor to the economic strength of the Empire; his fiscal reforms weakened both the army and the imperial treasury, and their consequences would be fully felt only after his death.⁸¹ The frequency of his otherwise very fine gold coinage in the region under study is illustrated by the fact that 90 % of all known 11th-century coins belong precisely to Romanos III.⁸² Christ is depicted on the obverse of these gold coins, and the Virgin crowning the emperor on the reverse. Two large hoards of *romanati* have been found in Herzegovina: at Gornja Drežnica (over 300 pieces) and at Klobuk (56 pieces). In addition, a find of eight gold coins of Romanos III from Vitina is also known.⁸³ The Humac col-

⁸⁰ DOC 3.1: 110.

⁸¹ OSTROGORSKI 2006: 186–187.

⁸² ŠEPAROVIĆ 2021: 92. The cited publication also lists 38 sites at which this coinage has been found in Croatia and Bosnia and Herzegovina. It further provides a series of bibliographical records relating to the gold coins of Romanos III, as well as an overview of current interpretations of the appearance of this coinage in the region of study (pp. 96–100). For a distribution map of finds of Romanos III gold coins in our region, see JAKŠIĆ 2015: 428, fig. 2.

⁸³ The hoard from Gornja Drežnica, north of Mostar, was found in 1867 and may have contained over 300 coins, while the hoard from Vitina, found in 1890, contained nine coins, two of which “disappeared” (PATSCH 1900: 570–572). The hoard from Klobuk near Ljubuški was found in 1930 and contained 56 coins, of which 23 were saved, while the remainder disappeared (MAROVIĆ 2006: 278). It should also be noted that in the 1990s, another gold coin of Romanos III Argyros was found at Grabovnik, not far from Vitina; this was purchased by the Archaeological Museum in Split (DODIG 2013).

With regard to the hoard from Gornja Drežnica, it should be mentioned that Patsch arrived at the figure of “over 300 gold coins” by inquiring about the fate of the coins with Fra N. Šimović, the bishop's secretary at the time of the find. In the original text on the discovery of the hoard to

U humačkoj zbirci čuvaju se dva zlatnika Romana III. (kat. br. 31 i 32) bez podataka o mjestu nalaza, iako se može razumno pretpostaviti da potječu iz neke od spomenutih ostava. Više je teza o logici pojave ovog novca kod nas u tako velikom broju. Prema D. M. Metcalfu, riječ je o blagu s broda koji je potonuo negdje na Jadranu za vrijeme rata Mihajla IV. (1034. – 1041.) protiv Bugara, koje je prisvojio zetski vladar Stefan Vojslav.⁸⁴ Metcalf se poziva na bizantskog ljetopisca iz druge polovice 11. stoljeća Georgija Kedrena i njegovo djelo *Pregled povijesti* (Σύνοψις ἱστοριῶν) gdje se spominje da je 1039./1040. na iliričkim obalama brodolom doživio brod koji je prevozio 10 kentenarija zlata koje je Ivan Orfanotrof poslao caru u Solun. Grierson tome iznosi prigovor, uviđajući nemogućnost da se brod koji kreće iz Konstantinopola u Solun nasuče na obalama Ilirika i odbacujući Metcalfov tezu kao „fantaziju”, primjećujući i da bi se brodski teret trebao sastojati od Mihaelovih zlatnika jer on 1040. vlada već šest godina.⁸⁵ Ne zalažući se na ovom mjestu za Metcalfov tezu o brodolomu, valja reći da je, ako ćemo vjerovati Kedrenovu navodu, do brodoloma sa znatnom količinom zlata na istočnoj jadranskoj obali najvjerojatnije ipak došlo, i to u vrijeme Mihaela IV., nasljednika Romana III. Pritom je intrigantno razmišljanje da je Ivan Orfanotrof zapravo mogao narediti dalmatinskim carskim službenicima da porezne prihode pošalju caru,⁸⁶ što bi premostilo spomenuti geografski problem. Naravno, to nam ne odgovara na prigovor zašto bi u brodskom teretu bio samo novac Romana III., jer zlatnici njegova nasljednika kod nas nisu pronađeni, točnije, pronađen je samo jedan primjerak u Matacima kod Podvršja u

lection preserves two gold coins of Romanos III (Cat. Nos. 31 and 32) without information on their findspots, although it is reasonable to assume that they were part of one of the aforementioned hoards. There are several hypotheses concerning the reason behind the appearance of this coinage in such large numbers in the region under study. According to D. M. Metcalf, it represents treasure, from a ship that sank somewhere in the Adriatic during the campaign of Michael IV (1034–1041) against the Bulgars, which was appropriated by the ruler of Zeta, Stefan Voislav.⁸⁴ Metcalf referred to Georgios Cedrenus, a Byzantine chronicler of the second half of the 11th century, and his work *Synopsis historion* (Σύνοψις ἱστοριῶν), in which it is mentioned that in 1039/1040 a ship carrying ten kentenaria of gold sent to the emperor in Thessaloniki by John the Orphanotrophos was wrecked on the Illyrian shores. Grierson objected, pointing out the improbability of a ship sailing from Constantinople to Thessaloniki running aground on the Illyrian coast, and dismissed Metcalf's hypothesis as “fantasy”, noting also that the cargo should have consisted of gold coins of Michael, since by 1040 he had already ruled for six years.⁸⁵ Without advocating Metcalf's shipwreck hypothesis, it should nonetheless be said that, if Kedrenos' account is to be trusted, a shipwreck involving a significant quantity of gold on the eastern Adriatic coast most likely did occur, and that in the time of Michael IV, the successor of

which Patsch refers (PATSCHE 1900: 571), it is stated that several hundred gold coins were found (BAKULA 2016: 130 for the Latin text and 293 for the Croatian translation). The question of whether all the coins really belonged to the same emperor (Patsch also considered this question) will remain in the realm of unnecessary speculation, and we shall probably never know which “other” sites are meant in the original publication when it speaks of finds of the coinage of Romanos III found up to 1873. Incidentally, in the passage cited, Patsch erroneously attributed the coinage to Emperor Romanos II (959–963). It should also be mentioned that, according to the view of N. Čuljak and D. Pinjuh, based on the 1862 travelogue of G. Arbuthnot, the gold coins were in fact found in the area through which the route from the Svinjača valley leads towards Duvno, that is, somewhat to the west of Gornja Drežnica (ČULJAK, PINJUH 2018: 132–134).

⁸⁴ METCALF 1960: 101–104.

⁸⁵ DOC 3. 2: 58, n. 183.

⁸⁴ METCALF 1960: 101–104.

⁸⁵ DOC 3. 2: 58, bilj. 183.

⁸⁶ Ovo mišljenje iznosi J. Wortley u komentarima na tekst Ivana Skilice (SKYLITZES, WORTLEY 2010: 384 bilj. 64). Kedren u svojoj kronici praktički prepisuje Skiličino djelo.

zaleđu Zadra.⁸⁷

Bitan doprinos ovoj raspravi donio je N. Jakšić, koji, na temelju Kekaumenovih spisa, zlatnike o kojima je riječ povezuje uz misije „arhonta i toparha” Dobronje, koji odlazi na Argirov dvor u dva navrata i biva bogato obdaren (pri trećem odlasku na carski dvor, nakon smjene vlasti, bit će zatočen te će umrijeti u tamnici).⁸⁸ Jakšić se poziva na već prije u literaturi⁸⁹ naznačenu mogućnost da je Dobronja ustvari dalmatinski prokonzul Grgur iz zadarske obitelji Madijevaca (ili njegov brat),⁹⁰ a vrijedi spomenuti njegovo povezivanje pojave velike količine kvalitetnoga zlatnog novca na istočnoj jadranskoj obali s razvitkom romanike kod nas.⁹¹ Marović prema ovom pitanju ima pomalo kompromisan odnos. Naime, slaže se da su romanati na zadarsko područje mogli dospjeti zahvaljujući Dobronji, ali ipak primjećuje da ih je najveći broj na „neretvanskom području”. To objašnjava mogućnošću da su neretvanski gusari orobili neki bizantski brod, ali naglašava i važnost Dubrovnika, čija je mornarica sudjelovala u pobjedi bizantske flote nad Saracima 1032., a u Dubrovniku s flotom deset godina potom boravi i strateg Katakalon iz

Romanos III. It is an intriguing possibility that John the Orphanotrophos may actually have instructed imperial officials in Dalmatia to send tax revenues to the emperor,⁸⁶ which would bridge the geographical difficulty mentioned above. Naturally, this does not resolve the objection as to why the ship's cargo would have consisted solely of the coinage of Romanos III, since the gold coins of his successor are not found here – more precisely, only a single specimen has been recorded, at Matiaci near Podvršje in the hinterland of Zadar.⁸⁷

A significant contribution to this discussion was made by N. Jakšić, who linked, on the basis of the writings of Kekaumenos, the gold coins in question with the missions of the “archon and toparch” Dobronja. He went to the court of Romanos III on two occasions and was richly rewarded (on his third journey to the imperial court, after a change of power, he was imprisoned and died in captivity).⁸⁸ Jakšić also drew attention to the possibility, already suggested in the literature,⁸⁹ that Dobronja was in fact the Dalmatian proconsul Grgur of the Zadar family of the Madii (or his brother),⁹⁰ and it is worth recalling his association of the appearance of a

⁸⁷ ŠEPAROVIĆ 2021: 183.

⁸⁸ JAKŠIĆ 1982: 180–182; 2007: 137–139; 2015: 425–430. Spomenimo da je sasvim logično pretpostaviti da je Dobronja darovan zlatnicima, ali ipak nije zgorega spomenuti da izvori zapravo ne navode od čega se točno sastoji „veliko bogatstvo” s kojim je on otpremljen iz Konstantinopola.

⁸⁹ FERLUGA 1966: 204.

⁹⁰ Mišljenje da su Dobronja i Grgur ista osoba izneseno je i u STEPHENSON 2004: 127. Rasprava o tome tko je zapravo Dobronja izlazi iz okvira ovoga rada. Ipak, s obzirom na to da je u literaturi njegov identitet povezan s pojavom zlatnika Romana III., valja sumarno spomenuti i mišljenja koja ne povezuju Dobronju i Grgura. Primjerice, F. Šišić smatra da Dobronja odlazi u Konstantinopol kao predstavnik hrvatskog kralja i vlastitog „rođaka” Krešimira (ŠIŠIĆ 1925: 487), a L. Margetić u Dobronji vidi hrvatskog vladara koji vlada od 1031. do 1034./1035. (MARGETIĆ 2006: 12; usp. i ranije Margetićeve radove navedene u citiranom članku). U novije vrijeme i H. Gračanin smatra da „po svojoj prilici” stratega Grgura i Dobronju ne treba poistovjetiti, ali i da Dobronju ne treba smatrati ni hrvatskim kraljem: GRAČANIN 2015: 510.

⁹¹ Usp. literaturu navedenu u bilj. 88.

⁸⁶ This view is set out by J. Wortley in his commentary on the text of John Skylitzes (SKYLITZES, WORTLEY 2010: 384, n. 64). Kedrenos, in his chronicle, virtually copied Skylitzes' work.

⁸⁷ ŠEPAROVIĆ 2021: 183.

⁸⁸ JAKŠIĆ 1982: 180–182; 2007: 137–139; 2015: 425–430. It is reasonable to assume that Dobronja was presented with gold coins, yet it is still worth noting that the sources do not in fact specify the exact composition of the ‘great wealth’ with which he was sent from Constantinople.

⁸⁹ FERLUGA 1966: 204.

⁹⁰ The view that Dobronja and Grgur are the same person is also presented in STEPHENSON 2004: 127. Discussion of who Dobronja actually was lies beyond the scope of this paper. Nevertheless, since the literature links his identity with the appearance of the gold coins of Romanos III, it is worth briefly mentioning the views that do not connect Dobronja and Grgur. For example, F. Šišić considered that Dobronja went to Constantinople as the representative of the Croatian king and his “kinsman” Krešimir (ŠIŠIĆ 1925: 487), while L. Margetić saw in Dobronja a Croatian ruler governing from 1031 to 1034/1035 (MARGETIĆ 2006: 12; cf. also earlier works by Margetić cited in the article in question). More recently, H. Gračanin likewise considered that the strategos Grgur and Dobronja “in all probability” should not be equated with one another, and also that Dobronja should not be considered a Croatian king: GRAČANIN 2015: 510.

Klazomene.⁹² U svom najnovijem osvrtu na ovaj problem Jakšić nadopunjuje kartu nalaza zlatnika Romana III. iz koje je jasno vidljivo da su pojedinačni nalazi romanata ravnomjerno raspoređeni duž istočne jadranske obale. Pojavu većine ostava u srednjoj i južnoj Dalmaciji objašnjava nesigurnim vremenima, a u slučaju ostava iz zapadne Hercegovine mogućnošću da se „spas traži u bijegu preko Neretve“.⁹³

Bez obzira na mehanizme dolaska Romanovih zlatnika na naše područje, koji uistinu mogu biti višestruki, smatramo nedvojbenim da pojava ovog novca dobro ilustrira gospodarski napredak naših krajeva, kako obale tako i unutrašnjosti.⁹⁴ O tome nam govori i podatak da izvori iz 11. stoljeća sve učestalije spominju trgovinu, pa i globe upravo u zlatnicima, a ne u robi.⁹⁵ U obzir svakako treba uzeti i složene političke okolnosti u „velikoj igri“ koju igraju Bizant, Venecija, Hrvatska i dalmatinski gradovi, što barem može objasniti odnos careva prema samom Dobronji.⁹⁶ U svakom slučaju, moramo zaključiti da su razlozi i mehanizmi pojave velike količine zlatnika Romana III. Argira na našim područjima još uvijek otvoreni za raspravu.

Može se postaviti još jedno pitanje: zašto se kod nas u iole znatnijoj količini ne nalaze zlatnici bizantskih careva koji slijede nakon Romana III. Argira? Odnosno, da preformuliramo ovo pitanje: zašto se čuvaju i deponiraju upravo zlatnici Romana III.? Razlog bi mogao ležati u činjenici da su upravo Argirovi zlatnici morali biti „privlačni“ za prikupljanje dugo nakon njegove smrti jer manjim dijelom već za vrijeme njegova nasljednika Mihaela IV. dolazi do opadanja vrijednosti zlatnog novca, a pad vrijednosti bit će posebno vidljiv u doba Konstantina IX. Mo-

large quantity of high-quality gold coinage on the eastern Adriatic coast with the development of the Romanesque style in our region.⁹¹ Marović adopted a somewhat more cautious position on this question. He agreed that the romanati may have reached the Zadar area thanks to Dobronja, but nevertheless noted that the largest number had been found in the “Neretva region”. He explained this by the supposition that the Neretva pirates had plundered a Byzantine ship, but also emphasised the importance of Dubrovnik, whose navy took part in the Byzantine fleet’s victory over the Saracens in 1032, noting that ten years later the strategos Katalokos of Klazomenai stayed in Dubrovnik with the fleet.⁹² In his most recent commentary on this issue, Jakšić supplements the map of finds of gold coins of Romanos III, from which it is evident that individual finds of *romanati* are evenly distributed along the eastern Adriatic coast. He explains the appearance of most hoards in central and southern Dalmatia by insecure times, and in the case of the hoards from western Herzegovina by the possibility that “salvation was sought by fleeing across the Neretva.”⁹³

Regardless of the mechanisms by which the gold coins of Romanos III reached our region – which may indeed have been multiple – we consider it beyond doubt that the appearance of this coinage clearly illustrates the economic progress of the Croatian lands, both on the coast and in the interior.⁹⁴ This is also indicated by the fact that sources from the 11th century increasingly mention trade and even fines being levied specifically in gold coins rather than in goods.⁹⁵ Account should also be taken of the complex political circumstances in the “great game” played between Byzantium, Venice, Croatia and the Dalmatian cities, which may at least help explain the emperors’ attitude towards Dobronja himself.⁹⁶ In any case, we must conclude that the appearance of large quantities

⁹² MAROVIĆ 2006: 282–283.

⁹³ JAKŠIĆ 2015: 430.

⁹⁴ GOLDSTEIN 1995: 378–379; MAROVIĆ 2006: 282–283; ŠEPAROVIC 2021: 99–100.

⁹⁵ GOLDSTEIN 1995: 378–379.

⁹⁶ KLAJČ, PETRICIOLI 1976: 90–91.

⁹¹ Cf. the literature cited in note 88.

⁹² MAROVIĆ 2006: 282–283.

⁹³ JAKŠIĆ 2015: 430.

⁹⁴ GOLDSTEIN 1995: 378–379; MAROVIĆ 2006: 282–283; ŠEPAROVIC 2021: 99–100.

⁹⁵ GOLDSTEIN 1995: 378–379.

⁹⁶ KLAJČ, PETRICIOLI 1976: 90–91.

nomaha (1042. – 1055.), kada dolazi i do namjerne devalvacije zlatnog novca⁹⁷ nakon sedam stoljeća u kojima je bizantski zlatnik bio mjerilo vrijednosti. Ova okolnost vjerojatno je pridonijela i pojavi krivotvorenja zlatnika Romana III., o čemu svjedoči i patvoreni primjerak nepoznatog mjesta nalaza iz Franjevačkog muzeja i galerije Gorica u Livnu.⁹⁸ Naravno, iz istog će razloga Romanovi zlatnici ostati u upotrebi još desetljećima nakon njegove smrti⁹⁹ o čemu svjedoče, osim povijesnih izvora i poneki arheološki nalazi poput tri *romanata* pronađena u grobu 75 na položaju Pakošane – Crkvina. Gradnju toga groba valja na temelju povijesno-umjetničke analize i radiokarbonskog datiranja smjestiti u 12. stoljeće, točnije, u vrijeme oko 1170. godine, a nastanak mu je povezan s dolaskom prvih templara na područje Vrane.¹⁰⁰ O vrijednosti zlatnika Romana III. svjedoče i povijesni izvori 11. – 13. stoljeća koji romanate spominju kako u smislu samih kovanica, tako i kao obračunsku jedinicu.¹⁰¹

Inače, do kraja 11. stoljeća zlatnik će spasti na samo trećinu svoje originalne vrijednosti, što je među ostalim i dovelo do reforme monetarnog sustava 1092. godine za vrijeme Aleksija I. Komnena (1081. – 1118.).¹⁰² Tom se reformom, među ostalim, uvodi zdjelčasti oblik kovanica, i to za zlatni, srebrni i bakreni novac. Glede bakrenog novca, to znači da se folis, toliko prepoznatljiv element bizantske numizmatike, prestao kovati nakon pola tisućljeća u optjecaju. Najmlađe bizantske kovanice u zbirci franjevačkog samostana u Humcu proistječu upravo iz te reforme, a kovane su u doba **Emanuela I. Komne-
na (1143. – 1180.)**. Riječ je o tri kovanice

of the gold coinage of Romanos III Argyros in the region under study remains open to debate.

Another question may be posed: why have no significant quantities of the gold coins of Byzantine emperors following Romanos III Argyros been found in the studied region? Or, to reformulate the question: why were the gold coins of Romanos III in particular preserved and deposited? The answer could lie in the fact that the coinage of Argyros must have remained “attractive” for accumulation long after his death, since under his successor Michael IV there was already a decline in the value of gold coinage, and that drop became especially evident under Constantine IX Monomachos (1042–1055), when there was a deliberate devaluation of the gold coin⁹⁷ for the first time in the seven centuries in which the Byzantine solidus had been the standard of value. This circumstance likely contributed to the emergence of counterfeit gold coins of Romanos III, as evidenced by a forged specimen of unknown provenance held in the Franciscan Museum and Gallery Gorica in Livno.⁹⁸ Naturally, for the same reason, the gold coins of Romanos continued to circulate for decades after his death,⁹⁹ as attested not only by historical sources but also by archaeological finds, such as the three specimens of romanati found in Grave 75 at the site of Pakošane – Crkvina. The construction of that grave, on the basis of art-historical analysis and radiocarbon dating, should be dated to the 12th century – more precisely, around the year 1170 – and its origin is linked to the arrival of the first Templars in the area of Vrana.¹⁰⁰ The value of the gold coins of Romanos III is also attested by historical sources from the 11th to the 13th centuries, which mention *romanati* both in the sense of the coins themselves and as a unit of account.¹⁰¹

Up to the end of the 11th century, the gold coin

⁹⁷ GRIERSON 1982: 197.

⁹⁸ ŠEPAROVIC 1999: 40.

⁹⁹ MAROVIĆ 2006: 279.

¹⁰⁰ GUSAR, VUJEVIĆ 2013: 291.

¹⁰¹ Da bi pojam *romanat* u izvorima 11. – 13. stoljeća trebao označavati upravo zlatnike Romana III. argumentirano je s primjerima u JAKŠIĆ 2015: 430–432.

¹⁰² GRIERSON 1982: 192, 215–217.

⁹⁷ GRIERSON 1982: 197.

⁹⁸ ŠEPAROVIC 1999: 40.

⁹⁹ MAROVIĆ 2006: 279.

¹⁰⁰ GUSAR, VUJEVIĆ 2013: 291.

¹⁰¹ That the term *romanat* in sources from the 11th to the 13th centuries should denote precisely the gold coins of Romanos III has been argued with examples in JAKŠIĆ 2015: 430–432.

zdjelicaštog oblika, tzv. trahejima¹⁰³ (kat. br. 36–38) od legure bakra i srebra nazvane *billon*. Na aversima humačkih kovanica nalazi se prikaz Isusa na prijestolju, a na reversu je Bogorodica koja kruni cara. Pripadaju Griersonovoj četvrtoj fazi kovanja traheja od bilona (1167. – 1183.?). Takve su kovaniče zabilježene i drugdje kod nas, iako ne u prevelikom broju, a kad je riječ o prostoru rasprostriranja, većina ih potječe s prostora južnog Jadrana. Upravo je to vrijeme kada će Bizant zadnji put u povijesti imati efektivnu vlast nad našim prostorima, točnije, nad Dalmacijom i Bosnom. U tom smislu treba istaknuti podatak da je Emanuel I. Komnen zapravo jedini bizantski car koji u svojoj titulaturi ima pridjev „bosanski”.¹⁰⁴ To je i inače vrijeme jednog od posljednjih uspona Carstva u vojnom, političkom i ekonomskom smislu, što pokazuje i velika količina pronađenih kovanica dinastije Komnen, posebno bakrenih (odnosno onih od legure bilon) na prostoru pod nadzorom Carstva. Međutim, carska će vlast na našim prostorima biti kratkog vijeka, najvjerojatnije će trajati samo 15 godina, od 1165. do 1180.,¹⁰⁵ nakon čega će se odnositi Bizanta s našim krajevima svesti na, Goldsteinovim riječima, „slabe odjeke nekoć intenzivnih odnosa”.¹⁰⁶ Posredan je dokaz za to i činjenica da u Humcu ne nalazimo novce mlađe od vladavine Emanuela I. Komnena, ali da su i drugdje kod nas takvi novci rijetki.¹⁰⁷ Naravno, to je rezultat ne samo nepostojanja bizantske vlasti kod nas nego i drastičnog opadanja moći Carstva, koje rapidno gubi na

had declined to only one third of its original value, a development that, among other factors, led to the reform of the monetary system of 1092 under Alexios I Komnenos (1081 – 1118).¹⁰² That reform, among other changes, introduced the cup-shaped form of coins – for gold, silver, and copper issues alike. For copper coinage, this meant that the follis – such a characteristic element of Byzantine numismatics – ceased to be struck, after half a millennium in circulation. The most recent Byzantine coins in the collection of the Franciscan Monastery at Humac stem precisely from this reform, and were minted in the time of **Manuel I Komnenos (1143 – 1180)**. These are three cup-shaped coins – so-called trachea¹⁰³ (Cat. Nos. 36–38) – made of a copper-silver alloy known as *billon*. The obverses of the Humac specimens show Christ enthroned, while the reverses depict the Virgin crowning the emperor. They belong to Grierson's fourth phase in the minting of billon trachea (1167–1183?). Such coins are attested elsewhere in our regions as well, although not in any great number, and in terms of their geographical distribution most were found in the area of the southern Adriatic. This is precisely the period when Byzantium would, for the last time in history, exercise effective authority over the Croatian lands – that is, over Dalmatia and Bosnia. In this respect, it is worth noting that Manuel I Komnenos is, in fact, the only Byzantine emperor whose titlature includes the epithet “Bosnian”.¹⁰⁴ It is also a period of one of the Empire's final peaks in military, political and economic terms, also demonstrated by the large quantity of coins of the Komnenian dynasty – especially copper (i.e. billon) issues – found in the territory under imperial control. However, imperial authority over the studied regions would be short-lived, most likely lasting only some 15 years, from 1165 to 1180,¹⁰⁵ after which Byzantium's relations with the Croatian lands would, in Goldstein's words, be reduced

¹⁰³ Za ovakve kovanice ponekad se upotrebljava i naziv *skifat*, što je pogrešno (GRIERSON 1999: 60).

¹⁰⁴ GOLDSTEIN 2003: 40.

¹⁰⁵ GOLDSTEIN 2003: 45.

¹⁰⁶ GOLDSTEIN 2003: 47.

¹⁰⁷ Šeparović kao najmlađe novce s poznatim mjestom nalaza na istočnom Jadranu i zaobalju navodi kovanice Andronika II. Paleologa (1282. – 1328.), i to svega tri, dvije iz Dubrovnika i jednu iz Sokol grada u Konavlima (ŠEPAROVIĆ 2021: 126, 127). Razumije se da će na prostorima istočnije od Hrvatske i BiH takav novac ipak biti češći, pa se tako u Narodnom muzeju u Beogradu čuva 12 kovanica spomenutog cara (RADIĆ, IVANIŠEVIĆ 2006: 218).

¹⁰² GRIERSON 1982: 192, 215-217.

¹⁰³ The term *scyphate* is sometimes used for such coins, which is incorrect (GRIERSON 1999: 60).

¹⁰⁴ GOLDSTEIN 2003: 40.

¹⁰⁵ GOLDSTEIN 2003: 45.

snazi poglavito nakon IV. križarskog rata početkom 13. stoljeća.

ZAKLJUČAK

Numizmatička zbirka Muzeja franjevačkog samostana sv. Ante na Humcu iznimno je bogata kovanicama iz svih povijesnih razdoblja, a prikupljena je i sačuvana marom franjevačke subraće i brojnih donatora. Upravo način na koji su kovanice prikupljane otežava potpunu znanstvenu analizu, poglavito u kontekstu gospodarskih tokova i povijesnih prilika na prostoru današnje Hercegovine od kraja 5. do kraja 12. stoljeća. U radu je analizirano 38 bizantskih kovanica. Najstarije se kovanice datiraju u razdoblje Anastazija I., a najmlađe u vrijeme Emanuela I. Komnena. Većina kovanica potječe iz konstantinopolske kovnice, a pojedini su primjerci kovani u Nikomediji, Antiohiji, Kiziku, Solunu te jedan u pretpostavljenoj salonitanskoj kovnici.

Iako ni za jednu kovanicu nije poznato točno mjesto nalaza, može se razložno pretpostaviti da većina potječe s prostora hercegovačke franjevačke provincije. Ako prihvatimo taj stav, opravdano je usporediti korpus obrađenih kovanica s numizmatičkim materijalom iz okolnih regija te ga pokušati uklopiti u opću sliku bizantske numografije. U tom se slučaju primjećuje da bizantski novac s Humca zapravo previše ne odstupa od očekivane slike utemeljene na povijesnim i ekonomskim prilikama. Čak 13 kovanica potječe iz vremena od Anastazija I. do Justina II., a najviše je kovanica iz vremena Justinijana I. Ova je pojava očekivana s obzirom na političku, vojnu, ekonomsku i kulturnu snagu Bizanta u tom razdoblju. Iz vremena nakon, za naše krajeve, povijesno prijelomne prve polovice 7. stoljeća pa sve do kraja 9. stoljeća u Humcu se nalazi samo jedna kovanica, i to vrlo intrigantan zlatnik Konstantina IV. Ipak, rijetkiji je o „iznimci koja potvrđuje pravilo” po

to “weak echoes of once intense ties”.¹⁰⁶ An indirect confirmation of this is the absence, at Humac, of coins later than the reign of Manuel I Komnenos, and the fact that such coins are also rare elsewhere in the studied region.¹⁰⁷ Of course, this is the result not only of the absence of Byzantine rule but also of the drastic decline in the strength of the Empire, which rapidly lost power, especially after the Fourth Crusade in the early 13th century.

CONCLUSION

The numismatic collection of the Museum of the Franciscan Monastery of St Anthony in Humac is exceptionally rich in coins from all historical periods, gathered and preserved through the dedication of the Franciscan brethren and numerous donors. Nevertheless, the manner in which the coins were collected hinders full scholarly analysis, especially in the context of economic and historical conditions in the area of present-day Herzegovina from the late 5th to the late 12th century. The paper analyses 38 Byzantine coins. The earliest coins date to the reign of Anastasius I, and the latest to the time of Manuel I Komnenos. Most of the coins originate from the Constantinople mint, while individual specimens were struck in those of Nicomedia, Antioch, Cyzicus and Thessaloniki, and one in the presumed mint of Salona.

Although the exact findspot of none of the coins is known, it can reasonably be assumed that most of them were discovered in the territory of the Herzegovinian Franciscan province. If we accept this supposition, a comparison of the cor-

¹⁰⁶ GOLDSTEIN 2003: 47.

¹⁰⁷ Šeparović listed, as the most recent coins with a known findspot on the eastern Adriatic and in its hinterland, those of Andronikos II Palaiologos (1282–1328), of which there are only three: two from Dubrovnik and one from Sokolgrad in Konavle (ŠEPAROVIĆ 2021: 126, 127). Naturally, such coins are more frequent in regions further east of Croatia and Bosnia and Herzegovina, and thus the National Museum in Belgrade holds 12 coins of this emperor (RADIĆ, IVANIŠEVIĆ 2006: 218).

kojoj je riječ o vremenu kada dotok novca gotovo u potpunosti prestaje, a to potvrđuju i inventari muzejskih zbirki i drugdje u regiji. S prijelaza 9. u 10. stoljeće, tj. iz vremena Lava VI. potječe jedina bizantska srebrna kovanica, što je također dobar odraz količine srebrnog novca u optjecaju za vrijeme Carstva. U Muzeju se čuva čak 11 tzv. anonimnih folisa iz kraja 10./11. stoljeća, dakle upravo iz vremena povoljne ekonomske konjunktore. Iz istog razdoblja, točnije, iz prve polovine 11. stoljeća, potječu i dva *romanata*, tj. zlatnika Romana III. Argira, čija prisutnost u Humcu s obzirom na dosadašnje nalaze tih novaca u Hercegovini nimalo ne iznenađuje. Najmlađi su bizantski novac u Humcu tri traheja Emanuela I. Komnena, dakle upravo iz onog vremena kad je Bizant uspio po posljednji put u svojoj povijesti efektivno ovladati našim krajevima. O uklopljenosti ove slike u opću sliku bizantske numizmatike svjedoči i podatak iz internetske baze podataka *Nomismata*. Ta baza bilježi više od 200 000 kovanica s više od 5000 nalazišta, a u njoj se najveći broj kovanica uočava za razdoblja od 520. do 570. godine (s vrhuncem oko 560. godine) i od 1020. do 1030. godine (s vrhuncem oko 1030. godine).¹⁰⁸ Ista ili barem vrlo slična slika vrijedi i za objedinjeno područje Dalmacije i Bosne i Hercegovine, pa tako i za mali uzorak iz humачke zbirke.

Ovaj rad donosi analizu razmjerno malog broja kovanica iz humачkog Muzeja, koji ih u svojem inventaru čuva još gotovo 2000. Stoga neka bude skroman poticaj za daljnju znanstvenu obradu i valorizaciju ove iznimno važne numizmatičke građe.

Zahvale

Posebnu zahvalu dugujemo fra Milanu Jukiću na svesrdnoj pomoći pri uvidu u numizmatičku građu obrađenu u ovom radu.

¹⁰⁸ <https://byzantine.units.it/en/> (pristupljeno 12. rujna 2025.).

pus of analysed coins with numismatic material from the neighbouring regions is justified, as is an attempt to place it within the general picture of Byzantine numography. In that case, it can be observed that the Byzantine coins from Humac do not in fact deviate significantly from the expected picture based on historical and economic circumstances. As many as thirteen coins date from the period between Anastasius I and Justin II, and the largest number belong to the time of Justinian I. This is to be expected in view of the political, military, economic and cultural strength of Byzantium in that era. At Humac there is only a single coin from the period between the first half of the 7th century (historically pivotal for the regions under study) and the end of the 9th century – a highly intriguing gold coin of Constantine IV. However, it does represent the “exception that proves the rule”, namely that this was a time when the inflow of coinage almost completely ceased, as confirmed by inventories of museum collections elsewhere in the region. From the turn of the 9th to the 10th century, – from the time of Leo VI – comes the only Byzantine silver coin, which also aptly reflects the volume of silver coinage in circulation during the Empire. The Museum holds as many as eleven so-called anonymous folles from the late 10th/11th century, that is, from a time of favourable economic conditions. From the same period, more precisely from the first half of the 11th century, come two *romanati* – gold coins of Romanos III Argyros, whose presence at Humac is not at all surprising in view of previously recorded finds of these coins in Herzegovina. The most recent Byzantine coins at Humac are the three *trachea* of Manuel I Komnenos, that is, precisely from the period when Byzantium succeeded, for the last time in its history, in exercising effective control over our regions. That this picture aligns well with the general pattern of Byzantine numismatics is supported by data from the online *Nomismata* database. The database records more than 200,000 coins from over 5,000 findspots, and shows the highest concentrations of coinage for the periods from 520 to 570 (peaking around 560) and from 1020

Uvid je ostvaren još 2010. pri pripremanju podneska za *6. međunarodni numizmatički kongres u Hrvatskoj*, koji je održan u rujnu iste godine na Sveučilištu u Zadru. Autor ovog rada tom je prilikom održao izlaganje o bizantskom novcu iz Humca koje nije urodilo tekstem u objavljenom zborniku radova (*INCC 2010: zbornik radova 6. međunarodnoga numizmatičkog kongresa u Hrvatskoj*, ur. Dobrinić, J., Rijeka: Hrvatsko numizmatičko društvo, 2011.).

Nadalje, zahvalu dugujemo i kustosici Muzeja Danijeli Grbavac za pomoć pri ponovnom pregledu analizirane građe u ožujku i lipnju 2025., a na osobit način zahvalni smo i fra Dariju Dodigu, tadašnjem gvardijanu samostana u Humcu, na dozvoli za ponovni pregled i objavu građe. Zahvalni smo na pomoći i dr. sc. Mirku Rašiću te izv. prof. dr. sc. Mati Ilkiću na korisnim savjetima.

to 1030 (peaking around 1030).¹⁰⁸ The same, or at least a very similar, pattern applies to the combined area of Dalmatia and Bosnia and Herzegovina, and thus also to the small sample from the Humac collection.

This study offers an analysis of a relatively small number of coins from the Humac Museum, which in its inventory preserves nearly 2,000 more. Let it therefore serve as a modest incentive for further scholarly research and appreciation of this exceptionally important numismatic material.

Acknowledgements

We owe special thanks to Fra Milan Jukić for his wholehearted assistance during the consideration of the numismatic material analysed in this paper. This inspection took place in 2010 during the preparation of a paper for the 6th International Numismatic Congress in Croatia, held in September of the same year at the University of Zadar. On that occasion, the author of this paper presented a talk on the Byzantine coinage from Humac, which did not result in a published text in the proceedings (*INCC 2010: Proceedings of the 6th International Numismatic Congress in Croatia*, ed. Dobrinić, J., Rijeka: Croatian Numismatic Society, 2011).

Furthermore, we express our gratitude to the Museum Curator Danijela Grbavac for her assistance during the renewed examination of the material in March and June 2025, and particularly to Fra Dario Dodig, then Guardian of the Humac Monastery, for granting permission for the renewed examination and publication of the material. We are also grateful to PhD Mirko Rašić and Assoc. Prof. Mato Ilkić, PhD, for their helpful advice.

*Translation and proof-reading:
ETNOtrend d.o.o.*

¹⁰⁸ <https://byzantine.units.it/en/> (12 September 2025).

KATALOG¹ / CATALOGUE²

KRATICE / ABBREVIATIONS

BMC 2

Wroth, W. 1908, *Catalogue of the Imperial Byzantine Coins in the British Museum, Volume 2*, London.

BNP 1

Morrisson, C. 1970, *Catalogue des monnaies byzantines de la Bibliothèque nationale, Tome premier: d'Anastase I^{er} a Justinien II (491-711)*, Paris: Bibliothèque nationale.

BNP 2

Morrisson, C. 1970, *Catalogue des monnaies byzantines de la Bibliothèque nationale, Tome deuxième: de Philippicus a Alexis III (711-1204)*, Paris: Bibliothèque nationale.

DOC 1

Bellinger, A. R. 1992, *Catalogue of the Byzantine coins in the Dumbarton Oaks Collection and in the Whittemore Collection, Volume 1, Anastasius I to Maurice, 491 – 602*, Second Impression, Washington, D.C.: Dumbarton Oaks Research Library and Collection.

DOC 2.1

Grierson, Ph. 1993, *Catalogue of the Byzantine coins in the Dumbarton Oaks Collection and in the Whittemore Collection, Volume 2, Part 1, Phocas and Heraclius (602–641)*, Second Impression, Washington, D.C.: Dumbarton Oaks Research Library and Collection.

DOC 3.2

Grierson, Ph. 1993, *Catalogue of the Byzantine coins in the Dumbarton Oaks Collection and in the Whittemore Collection, Volume 3, Part 2, Basil I to Nicephorus III (867–1081)*, Second Impression, Washington, D.C.: Dumbarton Oaks Research Library and Collection.

DOC 4.1

Hendy, H. F. 1999, *Catalogue of the Byzantine coins in the Dumbarton Oaks Collection and in the Whittemore Collection, Volume 4, Part 1, Alexius I to Alexius V (1081–1204)*, Washington, D.C.: Dumbarton Oaks Research Library and Collection.

MIB 1

Hahn, W. 1973, *Moneta Imperii Byzantini, 1. Teil, von Anastasius I. bis Justinianus I. (491–565)*, Wien: Österreichische Akademie der Wissenschaften.

MIB 3

Hahn, W. 1981, *Moneta Imperii Byzantini, 3. Teil, von Heraclius bis Leo III. (610–720)*, Wien: Österreichische Akademie der Wissenschaften.

¹ Fotografije: Tomislav Fabijanić (osim kat. br. 27: preuzeto iz DRAGIČEVIĆ, ILKIĆ 2017: 154, kat. br. 10). Natpisi s kovanica preneseni su uz pomoć fonta *Athena Ruby* koji je za potrebe znanstvenog publiciranja bizantskih natpisa (poglavito za potrebe numizmatike i epigrafije) razvio institut Dumbarton Oaks (SAD). Font je dostupan u slobodnom pristupu na <https://www.doaks.org/resources/athena-ruby> (pristupljeno 1. ožujka 2025.). Opisi prikaza na kovanicama u skladu su s opisima u DOC. Kao referentni priručnik korišten je DOC, a gdje je bilo moguće i BNP. U slučaju kat. br. 17, za koji nismo našli referentne primjerke u DOC i BNP, korišten je BMC i MIB. U izložbenom postavu Muzeja u Humcu u lipnju 2025. bilo je izloženo 13 kovanica: kat. br. 6, 8, 14, 18, 19, 28, 29, 30, 33, 34, 35, 36 i 37.

² Photographs: Tomislav Fabijanić (except Cat. No. 27: taken from DRAGIČEVIĆ, ILKIĆ 2017: 154, Cat. No. 10). Legends from the coins are reproduced using the *Athena Ruby* font, developed by the Dumbarton Oaks Institute (USA) for scholarly publication of Byzantine inscriptions (especially for numismatics and epigraphy). The font is freely available at <https://www.doaks.org/resources/athena-ruby> (1 March 2025). Descriptions of the designs on the coins follow those in DOC. DOC was used as the principal reference manual, and BNP where possible. For Cat. No. 17, for which no reference specimens were found in DOC or BNP, BMC and MIB were used. In the exhibition display of the Museum on Humac in June 2025, 13 coins were on display: Cat. Nos. 6, 8, 14, 18, 19, 28, 29, 30, 33, 34, 35, 36, 37.

1.	Anastazije I. (491. – 518.), Konstantinopol, tremisa, 13 mm, 1,45 g, 5 h; DOC 1: 10a (491. – 518.), BNP 1: 1/Cp/A/22; nepoznato nalazište. Av. DNANASTA-SIVSPPAVC Poprsje nadesno, dijadema, oklop, paludamentum. Rv. VICTORIAAUCVSTORVM Viktorija hoda nadesno, hiton; u desnoj je ruci vijenac, u lijevoj globus s križem. U polju desno osmerokraka zvijezda . U odsječku CONOB. Literatura: neobjavljeno. Anastasius I (491–518), Constantinople, tremissis, 13 mm, 1.45 g, 5 h; DOC 1: 10a (491–518), BNP 1: 1/Cp/A/22; uncertain findspot. Obv. DNANASTA-SIVSPPAVC Bust facing right with diadem, cuirass and paludamentum. Rev. VICTORIAAUCVSTORVM Victoria walking right, wearing a chiton; holding wreath in right hand and <i>globus cruciger</i> in left hand. Eight-pointed star in right field. Exergue: CONOB. Literature: unpublished.	
2.	Anastazije I. (491. – 518.), Konstantinopol, folis, 30 mm, 16,76 g, 6 h; DOC 1: 23c (498. – 518.), BNP 1: 1/Cp/Æ/68; nepoznato nalazište. Av. DNANASTA-[SIVSPPAVC] Poprsje nadesno, dijadema, oklop, paludamentum. Rv. U središtu veliko slovo M. Gore križ. Lijevo šesterokraka zvijezda, iznad koje je točka, dolje B. U odsječku CON. Literatura: neobjavljeno. Anastasius I (491–518), Constantinople, follis, 30 mm, 16.76 g, 6 h; DOC 1: 23c (498–518), BNP 1: 1/Cp/Æ/68; uncertain findspot. Obv. DNANASTA-[SIVSPPAVC] Bust facing right with diadem, cuirass and paludamentum. Rev. Capital letter M in centre with cross above. Six-pointed star with dot above in left field, B below. Exergue: CON. Literature: unpublished.	

3.	Anastazije I. (491. – 518.), Konstantinopol, folis, 30 mm, 15,95 g, 6 h; DOC 1: 23j.2–k (498. – 518.), BNP 1: 1/Cp/Æ/76–80; nepoznato nalazište. Av. [DNANASTA]–[SIVSPP]AV[C] Poprsje nadesno, dijadema, oklop, paludamentum. Rv. U središtu veliko slovo M. Gore križ. Lijevo i desno osmerokraka zvijezda, dolje Ε. U odsječku CON. Literatura: neobjavljeno.	
4.	Justinijan I. (527. – 565.), Konstantinopol, folis, 29 mm, 16 g, 12 h; DOC 29a (527. – 538.), BNP 1: 4/Cp/Æ/12; nepoznato nalazište. Av. [DN]IVSTINI–ANVSPP[AVC] Poprsje okrenuto nadesno, dijadema. Rv. U središtu veliko slovo M. Gore, lijevo i desno križ. Dolje Ε. Literatura: neobjavljeno.	

5.	Justinijan I. (527. – 565.), Konstantinopol, folis, 41 mm, 23,47 g, 6 h; DOC 1: 39d (540./541.), BNP 1: 4/Cp/Æ/52–53; nepoznato nalazište. Av. DNIVSTINI-ANVSPPAVI Poprsje okrenuto frontalno, s kacigom i dijademom, u oklopu, na lijevom ramenu štit na kojem je konjanik. Lijevo u ruci križ na globusu. Desno u polju križ. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno X/II/II. Gore križ, dolje Δ. U odsječku CON. Literatura: VASILJ, ČULJAK, PAPONJA 2012: 105; DRAGIČEVIĆ, ILKIĆ 2017: 153, kat. br. 9. Justinian I (527–565), Constantinople, follis, 41 mm, 23.47 g, 6 h; DOC 1: 39d (540/541), BNP 1: 1/Cp/Æ/52–53; uncertain findspot. Obv. DNIVSTINI-ANVSPPAVI Frontal bust in helmet with diadem and cuirass; shield with horseman device on left shoulder. Holding globus cruciger in left hand. Cross in right field. Rev. Capital letter M in centre. A/N/N/O in left field, X/II/II in right field. Cross above, Δ below. Exergue: CON. Bibliography: VASILJ, ČULJAK, PAPONJA 2012: 105; DRAGIČEVIĆ, ILKIĆ 2017: 153, Cat. No. 9.	 The image shows two views of a bronze folis coin. The top view is the obverse, featuring a frontal bust of Justinian I wearing a helmet with a diadem and a cuirass. He holds a globus cruciger in his left hand, and a cross is in the right field. The reverse view shows a large central letter 'M'. To the left is 'A/N/N/O' and to the right is 'X/II/II'. Above the 'M' is a cross and below it is a delta symbol. The word 'CON' is in the exergue.
6.	Justinijan I. (527. – 565.), Konstantinopol, folis, 39 mm, 23,8 g, 6 h; DOC 1: 40a (541./542.), BNP 1: 4/Cp/Æ/58–59; nepoznato nalazište. Av. DNIVSTINI-ANVSPPAVC Poprsje okrenuto frontalno, s kacigom s dijademom, u oklopu, na lijevom ramenu štit s prikazom konjanika. U desnoj ruci križ na globusu. Desno u polju križ. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno X/Υ. Gore križ, dolje A. U odsječku CON. Literatura: neobjavljeno. Justinian I (527–565), Constantinople, follis, 39 mm, 23.8 g, 6 h; DOC 1: 40a (541/542), BNP 1: 4/Cp/Æ/58–59; uncertain findspot. Obv. DNIVSTINI-ANVSPPAVC Frontal bust in helmet with diadem and cuirass; shield with horseman device on left shoulder. Holding globus cruciger in right hand. Cross in right field. Rev. Capital letter M in centre. A/N/N/O in left field X/Υ in right field. Exergue: CON. Literature: unpublished.	 The image shows two views of a bronze folis coin. The top view is the obverse, featuring a frontal bust of Justinian I wearing a helmet with a diadem and a cuirass. He holds a globus cruciger in his right hand, and a cross is in the right field. The reverse view shows a large central letter 'M'. To the left is 'A/N/N/O' and to the right is 'X/Υ'. Above the 'M' is a cross and below it is the letter 'A'. The word 'CON' is in the exergue.

7.	Justinijan I. (527. – 565.), Nikomedija, folis, 28 mm, 13,48 g, 5 h; DOC 1: 109 (527. – 538.), BNP 1: 4/Ni/Æ/01–03; nepoznato nalazište. Av. DNIVS[TINI]–[ANVSPPAVC] Poprsje okrenuto nadesno, dijadema. Rv. U središtu veliko slovo M. Gore križ. Lijevo šesterokraka zvijezda, dolje A. U odsječku NIKM. Literatura: neobjavljeno.	 
8.	Justinijan I. (527. – 565.), Kizik, folis, 33 mm, 15,72 g, 12 h; DOC 1: 177b (551./552.), BNP 1: 4/Cy/Æ/23 (var. <i>officina</i>); nepoznato nalazište. Av. [DNIV]STINI–[ANVS]PPAVI Poprsje okrenuto frontalno, s kacigom, dijademom i u oklopu. Na lijevom je ramenu štit s prikazom konjanika. Lijevo u ruci križ na globusu. Desno u polju križ. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno X/X/Υ. Gore križ, dolje B. U odsječku KYZ. Literatura: neobjavljeno.	 

9.	Justinijan I. (527. – 565.), Salona (?), polufolis, 15 mm, 1,8 g, 6 h; DOC 1: 360 (552./553.), BNP 1: 4/X/Æ/02–06; nepoznato nalazište. Av. DNIVS[TINI]–[ANVS]PPAVI Poprsje okrenuto nadesno, dijadema, oklop i paludamentum. Rv. Veliko slovo K. Literatura: neobjavljeno. Justinian I (527–565), Salona (?), half-follis, 15 mm, 1.8 g, 6 h; DOC 1: 360 (552/553), BNP 1: 4/X/Æ/02–06; uncertain findspot. Obv. DNIVS[TINI]–[ANVS]PPAVI Bust facing right, diadem, cuirass and paludamentum. Rev. Capital letter K. Literature: unpublished.	 
10.	Justin II. (565. – 578.), Konstantinopol, folis, 31 mm, 15,20 g, 6 h; DOC 1: (33e), BNP 1: 5/Cp/Æ/47; (571./572.); nepoznato nalazište. Av. [DN]IVS[TI]–NVSPPAV' Justin II. lijevo i Sofija desno, sjede na prijestolju, kruna, aureola, duga odjeća, Justin drži globus s križem, carica žezlo s križem. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno CI. Gore kristogram, dolje E. U odsječku CON. Literatura: neobjavljeno. Justin II (565–578), Constantinople, follis, 31 mm, 15.20 g, 6 h; DOC 1: (33e), BNP 1: 5/Cp/Æ/47; (571/572); uncertain findspot. Obv. [DN]IVS[TI]–NVSPPAV' Justin II on left and Sophia on right, enthroned, crowned, nimbate and wearing long garments; Justin holding globus cruciger, the empress holding cruciform scepter. Rev. Capital letter M in centre. A/N/N/O in left field, CI in right field. Christogram above, E below. Exergue: CON. Literature: unpublished.	 

11.	Justin II. (565. – 578.), Nikomedija, folis, 29 mm, 13,90 g, 6 h; DOC 1: 99, BNP 1: 5/Ni/Æ/25–26; 573./574.; nepoznato nalazište. Av. DNIVST[I]–NVSPPAV[C] Justin II. lijevo i Sofija desno, sjede na prijestolju bez naslona, kruna, aureola, duga odjeća, Justin drži globus s križem, carica žezlo s križem. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno ϢI/II. Gore križ, dolje B. U odsječku NIKO. Literatura: neobjavljeno.	
12.	Justin II. (565. – 578.), Solun, polufolis, 20 mm, 4,92 g, 6 h; DOC 1: 65, 568./569.; nepoznato nalazište. Av. DNIV[STI–NVSPPAV] Justin II. lijevo i Sofija desno. Rv. U središtu veliko slovo K. Lijevo A/N/[N/O], desno Δ. Gore križ. Literatura: neobjavljeno.	

13.	Justin II. (565. – 578.), Solun, polufolis, 20 mm, 6,35 g, 6 h; DOC 1: 67, 569./570.; nepoznato nalazište. Av. DNIV[ST-INVSPPAVI] Justin II. lijevo i Sofija desno s aureolom, kruna, duga odjeća, Justin drži globus s križem, carica žezlo s križem. Rv. U središtu veliko slovo K. Lijevo A/N/N/O, desno Є. Gore $\Theta\overline{\text{K}}\text{S}$, dolje TES. Literatura: neobjavljeno.	 
14.	Mauricije (582. – 602.), Nikomedija, folis, bakar, 35 mm, 13,35 g, 6 h; DOC 1: 98a, 589./590.; nepoznato nalazište. Av. ONMAV[---]-[---] Poprsje okrenuto frontalno, u oklopu, s kacigom, na lijevom ramenu štit. Lijevo u ruci križ na globusu. Rv. U središtu veliko slovo M. Lijevo A/N/N/O, desno ς/II. Gore križ, dolje A. U odsječku NIKO. Literatura: neobjavljeno.	 

15.	Mauricije (582. – 602.), Antiohija, folis, 27 mm, 11,4 g, 6 h; DOC 1: 167b, 596./597.; nepoznato nalazište. Av. [ΘNM]ΑΥΓΙ-ΚΝΡΑΥΤΙ Poprsje okrenuto frontalno, kruna s ukrasom u obliku tri točke, konzularna odjeća, u desnoj je ruci mapa, u lijevoj žezlo s orlom na vrhu. Rv. U središtu veliko slovo Μ. Lijevo Α/Ν/Ν/•, desno Χ/Θ. Gore križ, dolje Γ. U odsječku ΤΗΕΥΡ'. Literatura: neobjavljeno.	 
16.	Foka (602. – 610.), Konstantinopol, folis, bakar, 31 mm, 10 g, 7 h; DOC 2.1: 29c, 606./607.; nepoznato nalazište. Av. [ΘMFOC]ΑΣ-[ΠΕΡΡΑΥC] Poprsje okrenuto frontalno, kruna s križem, konzularna odjeća, u desnoj je ruci mapa, u lijevoj križ. Rv. ANNO/XXXΥ U odsječku CONΔ. Literatura: neobjavljeno.	 

17.	Konstantin IV. (668. – 685.), Italija (nepoznata kovnica), tremisa, zlato, 18 mm, 2,7 g, 6 h; BMC 2: 86 (Rim, oko 670. – 680.); MIB 3: X10 (Italija); nepoznato nalazište. Av. ΘNCON[---]-[---]PP Poprsje okrenuto nadesno, dijadema, paludamentum i oklop. Rv. VICTOR-IAVϢΥ Križ na ravnom postolju. U polju desno ⚡. U odsječku CONOB. Literatura: neobjavljeno.	
18.	Lav VI. (886. – 912.), Konstantinopol, miliariesij, srebro, 21 mm, 2 g, 12 h; DOC 3.2: 3, 886. – 908., BNP 2: 35/Cp/AR/02; nepoznato nalazište. Av. +ΛΕΩΝ/ΕΝΧ'ΩΕΥ/ΣΕΒΗΣΒΑΣΙ/ΛΕΥΣΡΩ/ΜΑΙΩΝ Trostruki obod od točkica (vanjski nije sačuvan), središnji s osam globula. Rv. ΙΗΣΥΣΧΡΙ-ΣΤΥΣΗΙΚΑ Križ na postolju, tri stepenice i globusu. Literatura: neobjavljeno.	

19.	Lav VI. (886. – 912.), Konstantinopol, folis, bakar, 28 mm, 6,8 g, 6 h; DOC 3. 2: 5, (886. – 912.), BNP 2: 35/Cp/Æ/14-55; nepoznato nalazište. Av. +LEONBA-S-ILEVSROM* Car sjedi na tronu s naslonom u obliku lire, loros, kruna s križem. U desnoj ruci labarum, lijeva na krilu. Rv. +LEON/ENΘEOBA/SILEVSR/OMEON Literatura: neobjavljeno.	
20.	Roman I. Lekapen (920. – 944.), Konstantinopol, folis, bakar, 27 mm, 8,2 g, 5 h; DOC 3.2: 25a, 931. – 944., BNP 2: 37/Cp/Æ/31-47; nepoznato nalazište. Av. +RWMAN'BASILEVSRWM' Poprsje okrenuto frontalno, s krunom, hlamida, u desnoj je ruci motka labaruma s trolisnim ukrasom, a u lijevoj globus s križem. Rv. +RWMA/hEhΘEWBA/SILEVSRW/MAIΩh Literatura: neobjavljeno.	

21.	Anonimni folis, tip A2 (976.(?) – oko 1030./1035.), Konstantinopol, folis, bakar, 29 mm, 10,5 g, 6 h; DOC 3.2: A2.24; nepoznato nalazište. Av. [+EMMA]–NOVHA Poprsje Krista s aureolom, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U krakovima križa po dvije točke. U polju IC–XC. Rv. +IHSYS/XRISTYS/BASILEY/BASILE Ukas iznad i ispod natpisa. Literatura: neobjavljeno.	
22.	Anonimni folis, tip A2 (976.(?) – 1030./1035.), Konstantinopol, folis, bakar, 28 mm, 12,1 g, 6 h; DOC 3.2: A2.40b; nepoznato nalazište. Av. [+EMMA]–NOVHA Poprsje Krista s aureolom, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U krakovima križa pet točaka, od kojih je središnja najveća. U polju IC–XC. Rv. +IHSYS/XRISTYS/BASILEY/BASILE Gore i dolje florealni ukras. Literatura: neobjavljeno.	

23.	Anonimni folis, tip A2 (976.(?) – 1030./1035.), Konstantinopol, folis, bakar, 29 mm, 9,9 g, 6 h; DOC 3.2: A2.47; nepoznato nalazište. Av. [+ΕΜΜΑ-ΝΟVΗΛ] Poprsje Krista s aureolom s križem u čijim su krakovima kvadrati, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U polju [IC-XC]. Rv. +ΙΗΣΥΣ/ΧΡΙΣΤΥΣ/ΒΑΣΙΛΕΥ/ΒΑΣΙΛΕ Gore i dolje kvadrat. Literatura: neobjavljeno.	
24.	Anonimni folis, tip A2 (976.(?) – 1030./1035.), Konstantinopol, folis, bakar, 31 mm, 10,5 g, 6 h; DOC 3.2: A2.24; nepoznato nalazište. Av. +ΕΜΜΑ-[ΝΟVΗΛ] Poprsje Krista s aureolom i križem, u krakovima križa po dvije točke, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U polju IC-XC. Rv. +ΙΗΣΥΣ/ΧΡΙΣΤΥΣ/ΒΑΣΙΛΕΥ/ΒΑΣΙΛΕ Gore i dolje ukras. Literatura: neobjavljeno.	

25.	Anonimni folis, tip A2 (976.(?) – 1030./1035.), Konstantinopol, folis, bakar, 31 mm, 9,9 g, 6 h; DOC 3.2: (A2.22); nepoznato nalazište. Av. +ΕΜΜΑ-[ΝΟΒΗΛ] Poprsje Krista s aureolom s križem, u krakovima križa po dvije točke, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U polju IC-XC. Rv. +ΙΗΣΥΣ/ΧΡΙΣΤΥΣ/ΒΑΣΙΛΕΥ/ΒΑΣΙΛΕ Gore i dolje romb između dvije crtice. Obv. +ΕΜΜΑ-[ΝΟΒΗΛ] Bust of Christ, nimbate, with a cross with two pellets in each arm, wearing tunic and himation, blessing with right hand and holding book in left hand. IC-XC in field. Rev. +ΙΗΣΥΣ/ΧΡΙΣΤΥΣ/ΒΑΣΙΛΕΥ/ΒΑΣΙΛΕ Above and beneath, a rhombus-shaped ornament between two dashes.	 
26.	Roman III. Argir (1028. – 1034.), Konstantinopol, nomisma histamenon, zlato, 24 mm, 4,28 g, 6 h; DOC 3.2: 1d, BNP 43/Cp/A/01-02; nepoznato nalazište Av. +ΙΗΣΧΙΣΙΣΡΕΞ-ΡΕΣΝΑΝΤΙΗΜ Krist sjedi na prijestolju s pravokutnim naslonom, frontalno, tunika i himation, desnom rukom blagoslivlja, a u lijevoj za gornji rub drži knjigu položenu na koljeno. Dvostruki obrub od točkica. Urezani grafit u obliku osmerokrake zvijezde u polju lijevo. Rv. ΘΕΕΒΟΗΘ-ΜΘ-ΡΩΜΑΝΩ Roman III. (lijevo) i Bogorodica (desno) koja ga kruni desnom rukom, stoje, car ima krunu s križem i globus s križem u lijevoj ruci, desna mu je na prsima, loros s četiri točke i križem na kraju; Bogorodica s aureolom, tunika i maforion, lijeva je ruka na prsima. Literatura: neobjavljeno. Obv. +ΙΗΣΧΙΣΙΣΡΕΞ-ΡΕΣΝΑΝΤΙΗΜ Christ seated on throne with square back, facing, wearing tunic and himation, blessing with right hand and holding book by its upper rim in left hand, the book resting on knee. Double circle of dots. Incised graffito of an eight-pointed star in left field. Rev. ΘΕΕΒΟΗΘ-ΜΘ-ΡΩΜΑΝΩ Standing figures of Romanos III on left and Virgin nimbate on right crowning emperor with right hand, emperor wearing crown with cross and holding globus cruciger in left hand, right hand resting on chest, loros with four pellets and cross at the end; Virgin nimbate, wearing tunic and maphorion, left hand resting on chest. Literature: unpublished.	 

27.	Roman III. Argir (1028. – 1034.), Konstantinopol, nomisma histamenon, zlato, 24 mm, 4,36 g, 6 h; DOC 3.2: 1d, BNP 43/Cp/A/01-02; nepoznato nalazište. Av. +IHSXISREX-REYNANTIHM Krist sjedi na prijestolju s pravokutnim naslonom, tunika i himation, desnom rukom blagoslivlja, a u lijevoj za gornji rub drži knjigu položenu na koljeno. Dv- ostruki obrub od točkica. U polju lijevo urezani grafit u obliku slova X. Rv. ΘΕΕΒΟΗΘ-ΜΘ-ΡΩΜΑΝΩ Roman III. (lijevo) i Bogorodica (desno) s koja ga kruni desnom rukom, stoje, car ima krunu s križem i globus s križem u lijevoj ruci, desna mu je na prsima, loros s četiri točke; Bogorodica s aureolom, tunika i maforion. Literatura: DRAGIČEVIĆ, ILKIĆ 2017: 154, kat. br. 10.	
28.	Anonimni folis, tip B (oko 1030./1035 – 1042.(?)), Konstantinopol, folis, bakar, 31 mm, 8,8 g, 6 h; DOC 3.2: B, BNP 2: 41/Cp/AE/80*; nepoznato nalazište. Av. [+ΕΜΜΑ]-ΝΟΒ[ΗΛ] Poprsje Krista s aureolom frontalno, aureola s kvadratom u hastama križa i točkom u gornjim međuprostorima, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu s pet točaka. U polju [IC-XC]. Rv. [+ΙΣ-XS/BAS-ΙΛΕ/BAS-ΙΛΕ Križ na dvije stepenice. S točkama na krajevima vodoravnih hasti. Literatura: neobjavljeno.	

29.	Anonimni folis, tip C (1042.(?) – oko 1050.), Konstantinopol, folis, bakar, 30 mm, 8 g, 6 h; DOC 3.2: C, BNP 2: 41/Cp/Æ/95; nepoznato nalazište. Prekov preko anonimnog folisa tipa B (?). Av. [+ΕΜΜ]Α-Ν[ΟV]ΗΛ Figura Krista (3/4) s aureolom frontalno, aureola ima točku u svakom kraku, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U polju [ΙC-ΧC]. Rv. +ΙS-ΧS/ΝΙ-ΚΑ Križ ukrašen dragim kamenjem, s točkom na krajevima hasti. Literatura: neobjavljeno. Anonymous follis, class C (1042?–circa 1050), Constantinople, folis, copper, 30 mm, 8 g, 6 h; DOC 3.2: C, BNP 2: 41/Cp/Æ/95; uncertain findspot. Overstrike of anonymous follis of class B (?). Obv. [+ΕΜΜ]Α-Ν[ΟV]ΗΛ Three-quarter figure of Christ nimbate, facing, nimbus cruciger with pellet in each arm, wearing tunic and himation, blessing with right hand and holding book in left hand. [ΙC-ΧC] in field. Rev. +ΙS-ΧS/ΝΙ-ΚΑ Jeweled cross with pellets at arm ends. Literature: unpublished.	
30.	Anonimni folis, tip C (1042.(?) – oko 1050.), Konstantinopol, folis, bakar, 28 mm, 7,2 g, 6 h; DOC 3.2: C; nepoznato nalazište. Av. [+ΕΜΜΑ]-ΝΟVΗΛ Figura Krista (3/4) s aureolom frontalno, aureola ima točku u svakom kraku, tunika i himation, desnom rukom blagoslivlja, a u lijevoj drži knjigu. U polju ΙC-ΧC. Rv. +ΙS-ΧS/ΝΙ-ΚΑ Križ ukrašen dragim kamenjem, s točkom na krajevima hasti. Literatura: neobjavljeno. Anonymous follis, class C (1042?–circa 1050), Constantinople, folis, copper, 28 mm, 7.2 g, 6 h; DOC 3.2: C; uncertain findspot. Obv. [+ΕΜΜΑ]-ΝΟVΗΛ Three-quarter figure of Christ nimbate, facing, nimbus cruciger with pellet in each arm, wearing tunic and himation, blessing with right hand and holding book in left hand. ΙC-ΧC in field. Rev. +ΙS-ΧS/ΝΙ-ΚΑ Jeweled cross with pellets at arm ends. Literature: unpublished.	

31.	Konstantin X. Duka (1059. – 1067.), Konstantinopol, folis, bakar, 29 mm, 9 g, 6 h; DOC 3.2: 8; nepoznato nalazište. Prekov preko anonimnog folisa. Av. [+EM]MA-[NOVHA] Krist s aureolom stoji na supedaneumu, frontalno, aureola s križem na čijim je hastama po jedna točka, tunika i himation, desnom rukom blagoslivlja, u lijevoj drži knjigu na donjem rubu. Ispod Krist na prijestolju. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. [--] Eudoksija lijevo, stoji frontalno, loros, križ; Konstantin Duka desno, stoji frontalno, loros i kruna, oboje drže ruku na labarumu koji stoji na tri stepenice. Literatura: neobjavljeno.	 
32.	Konstantin X. Duka (1059. – 1067.), Konstantinopol, folis, bakar, 28 mm, 6,6 g, 7 h; DOC 3.2: 8; nepoznato nalazište. Prekov preko anonimnog folisa (?). Av. +EMMA-[NOVHA] Krist s aureolom stoji na supedaneumu, frontalno, aureola s križem na čijim je hastama po jedna točka, tunika i himation, desnom rukom blagoslivlja, u lijevoj drži knjigu na donjem rubu. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. ΕΥΔΚ[---]-+ΚΩΝΤΑΚ Eudoksija lijevo, stoji frontalno, loros, križ; Konstantin Duka desno, stoji frontalno, loros i kruna, oboje drže ruku na labarumu koji stoji na tri stepenice. Literatura: neobjavljeno.	 

33.	Anonimni folis, tip G (oko 1065. – oko 1070.), Konstantinopol, folis, bakar, 27 mm, 5 g, 6 h; DOC 3.2: G; nepoznato nalazište. Av. Nema natpisa. Krist s aureolom frontalno, brada, tunika i himation, desnom rukom blagoslivlja, u lijevoj je ruci svitak. U polju [IC-XC]. Rv. Nema natpisa. Bogorodica orans, aureola, tunika i maforion. U polju okruženom velikim točkama [MP]-ΘV. Literatura: neobjavljeno. Anonymous follis, class G (circa 1065–circa 1070), Constantinople, follis, copper, 27 mm, 5 g, 6 h; DOC 3.2: G uncertain findspot. Obv. No inscription. Christ nimbate, facing, bearded, wearing tunic and himation, blessing with right hand, holding scroll in left hand. [IC-XC] in field. Rev. No inscription. Virgin orans, nimbate, wearing tunic and maphorion. [MP]-ΘV in field surrounded by large pellets. Literature: unpublished.	
34.	Anonimni folis, tip G (oko 1065. – oko 1070.), Konstantinopol, folis, bakar, 34 mm, 13,3 g, 6 h; DOC 3.2: G; nepoznato nalazište. Av. Nema natpisa. Krist s aureolom frontalno, brada, tunika i himation, desnom rukom blagoslivlja, u lijevoj je ruci svitak. U polju IC-XC. Rv. Nema natpisa. Bogorodica orans, aureola, tunika i maforion. U polju okruženom velikim točkama [MP]-ΘV. Literatura: neobjavljeno. Anonymous follis, class G (circa 1065–circa 1070), Constantinople, follis, copper, 34 mm, 13.3 g, 6 h; DOC 3.2: G uncertain findspot. Obv. No inscription. Christ nimbate, facing, bearded, wearing tunic and himation, blessing with right hand, holding scroll in left hand. IC-XC in field. Rev. No inscription. Virgin orans, nimbate, wearing tunic and maphorion. [MP]-ΘV in field surrounded by large pellets. Literature: unpublished.	

35.	Anonimni folis, tip I (oko 1075. – oko 1080.), Konstantinopol, folis, bakar, 25 mm, 4,2 g, 6 h; DOC 3.2: I; nepoznato nalazište. Av. Nema natpisa. Krist s aureolom s po jednim peletom u hastama, frontalno, duga, pomalo „kozja” brada, tunika i himation, desnom rukom blagoslivlja, u lijevoj je ruci knjiga s pet točaka. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. Križ s po jednom velikom i dvije male globule na krajevima hasti, gore, lijevo i desno polumjesec, dolje florealni ukras lijevo i desno od točke. Literatura: neobjavljeno. Anonymous follis, class I (circa 1075–circa 1080), Constantinople, follis, copper, 25 mm, 4.2 g, 6 h; DOC 3.2: I; uncertain findspot. Obv. No inscription. Christ with nimbus cruciger with a pellet in each arm, facing, with long pointed beard, wearing tunic and himation, blessing with right hand, holding book with five pellets in left hand. $\overline{\text{IC}}-\overline{\text{XC}}$ in field. Rev. Cross with one large and two small pellets at arm ends, crescent left and right above, floral ornament beneath left and right of pellet. Literature: unpublished.	
36.	Emanuel I. Komnen (1143. – 1180.), Konstantinopol, bilon trahej, 29 mm, 4,2 g, 6 h; DOC 4.1: 13d (1167. – 1183.(?)); nepoznato nalazište. Av. Isus, brada i aureola s križem, tunika i kolobij, sjedi na prijestolju bez naslona, drži knjigu. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. $[-\overline{\text{I}}]-\Delta\text{EC}\Pi[-\overline{\text{I}}]$ Puna figura cara nalijevo, s bradom, frontalno, u desnoj ruci labarum, u lijevoj globus s križem, na pojasu pet točaka, ukras vrata ima tri točke, a između njega i pojasa nalazi se jedna točka. Bogorodica u tunici i mafionu kruni cara. U polju $\text{M}[\Theta\text{V}]$. Literatura: neobjavljeno. Manuel I Komnenos (1143–1180), Constantinople, billon trachea, 29 mm, 4.2 g, 6 h; DOC 4.1: 13d (1167–1183); uncertain findspot. Obv. Christ bearded, with nimbus cruciger, wearing tunic and colobium, seated upon backless throne, holding book. $\overline{\text{IC}}-\overline{\text{XC}}$ in field. Rev. $[-\overline{\text{I}}]-\Delta\text{EC}\Pi[-\overline{\text{I}}]$ Full-length figure of emperor to left, bearded, facing, labarum in right hand, globus cruciger in left, five pellets on belt, three pellets on neckline, one pellet between neckline and belt. Virgin wearing tunic and maphorion, crowning emperor. $\text{M}[\Theta\text{V}]$ in field. Literature: unpublished.	

37.	Emanuel I. Komnen (1143. – 1180.), Konstantinopol, bilon trahej, 28 mm, 2,9 g, 6 h; DOC 4.1: 13b (1167. – 1183.(?)); nepoznato nalazište. Av. Isus, brada i aureola s križem, tunika i kolobij, sjedi na prijestolju bez naslona, drži knjigu. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. [--] $\Delta[\text{ЄCΠOT}]$ Puna figura cara nalijevo, s bradom, frontalno, u desnoj ruci labarum, u lijevoj globus s križem, pojas s pet točaka, ukras vrata ima pet točaka, a između njega i pojasa nalaze se tri točke. Bogorodica u tunici i maforionu kruni cara. U polju $\overline{\text{MP}}-[\text{ΘV}]$. Literatura: neobjavljeno.	
38.	Emanuel I. Komnen (1143. – 1180.), Konstantinopol, bilon trahej, 30 mm, 3,8 g, 6 h; DOC 4.1: 13c (1167. – 1183.(?)); nepoznato nalazište. Av. Isus s bradom i aureolom s križem, tunika i kolobij, sjedi na prijestolju bez naslona, drži knjigu. U polju $\overline{\text{IC}}-\overline{\text{XC}}$. Rv. $\overline{\text{MANΘΗΛ}}-\Delta\text{ЄCΠT}$ Puna figura cara nalijevo, s bradom, frontalno, u desnoj ruci labarum, u lijevoj globus s križem, pojas s pet točaka, ukras vrata ima tri točke, a između njega i pojasa nalaze se tri točke. Bogorodica u tunici i maforionu kruni cara. U polju $\overline{\text{MP}}-\overline{\text{ΘV}}$. Literatura: neobjavljeno.	

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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 mještani 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 $5,8 \times 4,5$ 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 trenutačno 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 Lokali-tet 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.

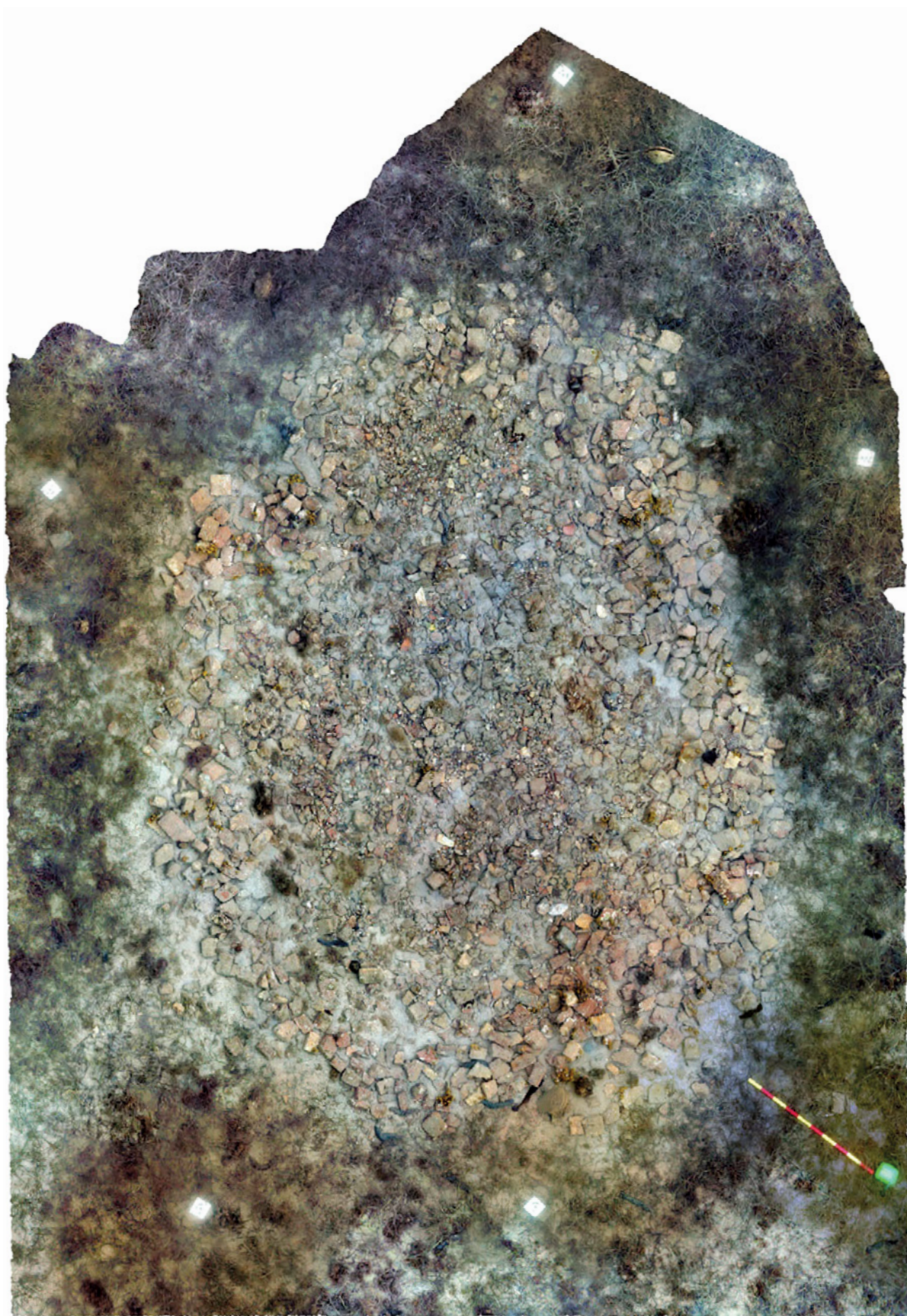
⁴ BEKIĆ, SURIĆ 2015: 14; 2016: 14; SURIĆ 2019: 56–57; 2021: 75–76.

⁵ KALEB 2013: 10–11.

⁶ SURIĆ 2019: 56–57.

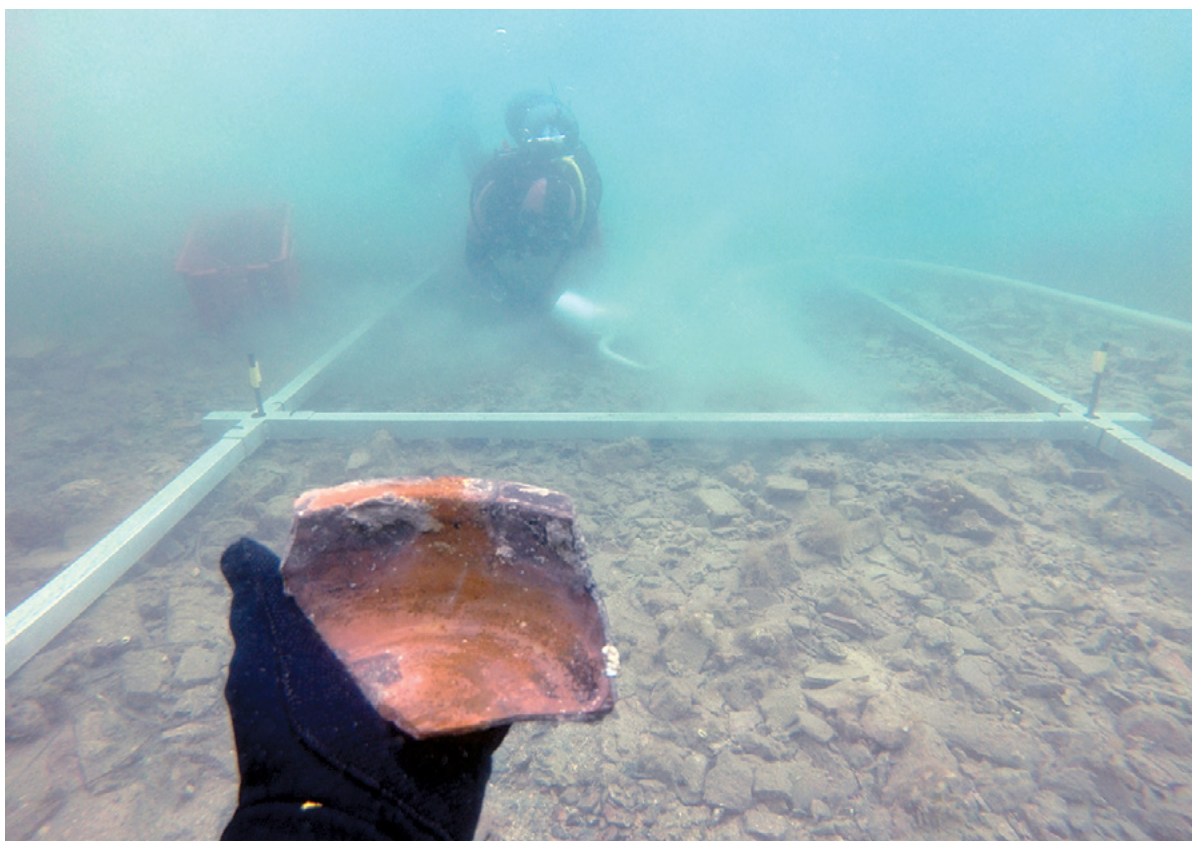
⁷ SURIĆ 2020: 60–61.

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.

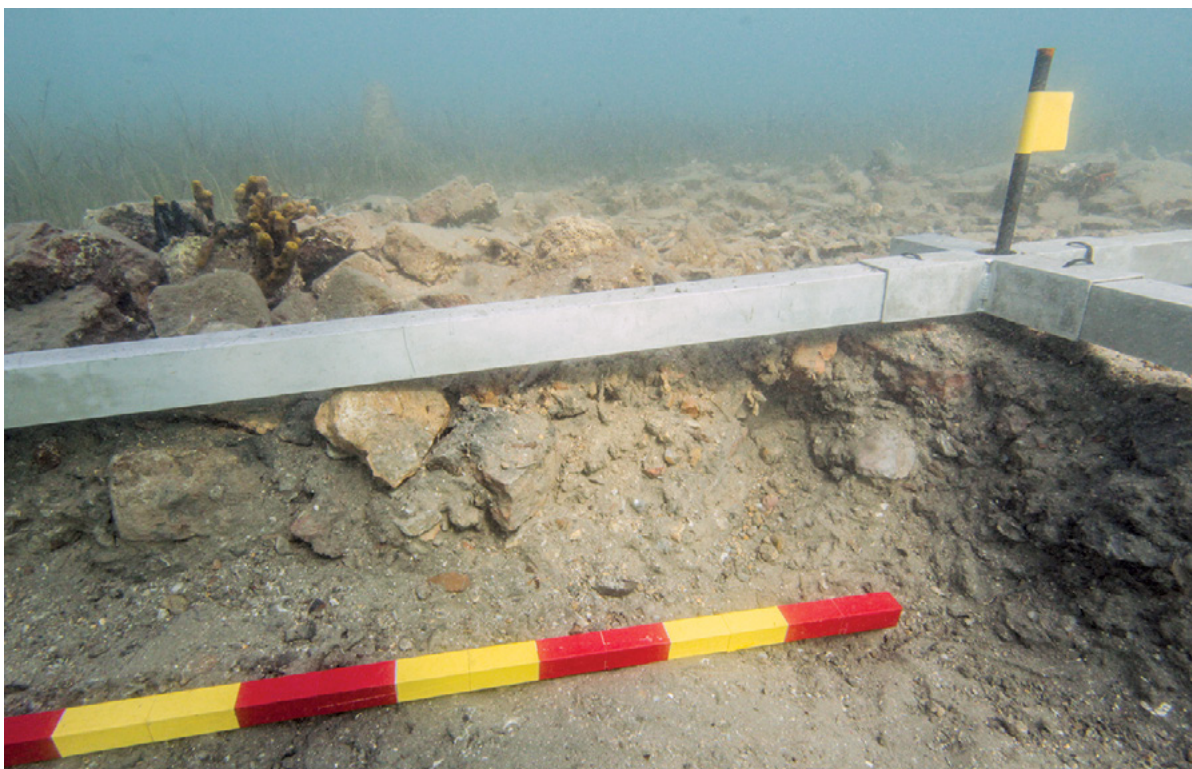


SLIKA 3. Ortofotografija nalazišta Pod Narat (izradio: R. Surić)

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 stijenki 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 posuda *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

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: 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.

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 Abruzzo²⁰ 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.

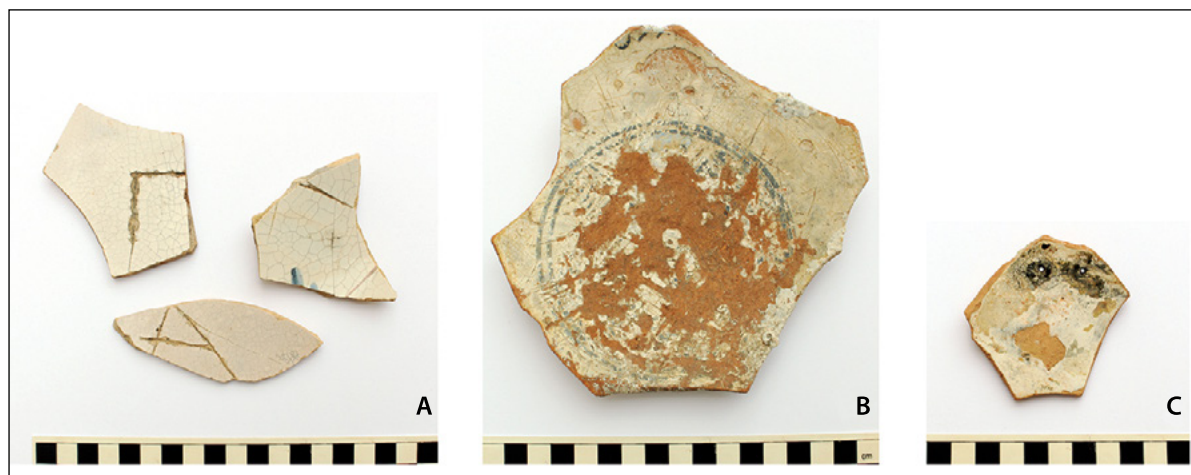
²⁰ TROIANO 2004: 125, sl. 5; VERROCCHIO 2007: 58, 61–62, sl. 3.

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; VEROCCCHIO 2002: 370–371, sl. 380/1, 381, 382.

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

ulomka šalice (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 *Wucaï* (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 šalice, 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 *Wucaï*-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 željeznocrvenoj 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 Kütahe s početka 18. stoljeća iz kolekcije Suna i İnan Kırac (preuzeto iz: BILGI 2006: 36)

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

ulomaka dodatno je ukrašen motivom zelenih nazubljenih listova, koji se ponekad тумачe 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 istraživanjima 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

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.

³⁶ PEARCE 2013: sl. 1.

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 *Manifatture* u četvrti Cannareggio pronađene su tisuće polomljenih, ali nekorisćenih 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 izrađivanim 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 najslićnija 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 ćozot-skim 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 $24,7 \times 11,2 \times 5,2$ 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 $> 14 \times 13,4 \times 2,5$ cm (T.

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

A brick measuring $24.7 \times 11.2 \times 5.2$ 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 $>14 \times 13.4 \times 2.5$ 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 brodskog 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, nažalost, 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

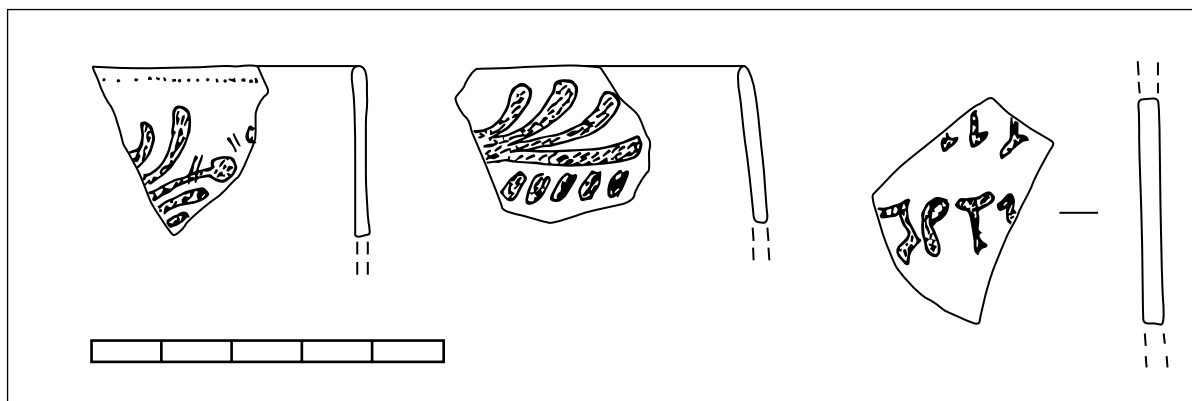
Several hundred fragments of glass vessels were recovered at the Brbinj site, but unfortunately these are all very small pieces that are difficult to classify typologically with certainty. Around one hundred fragments with more pronounced technical and typological features were separated for analysis. 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 šupljnoj 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 delikataniji 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 obući 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 (*teriac*). 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 alati 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 željezo 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 proslojima. 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 tereotom 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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**TABLA 1.** *Utilitarna keramika* (izradio: R. Surić)**PLATE 1** *Utilitarian pottery* (made by R. Surić)

T. 2



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)

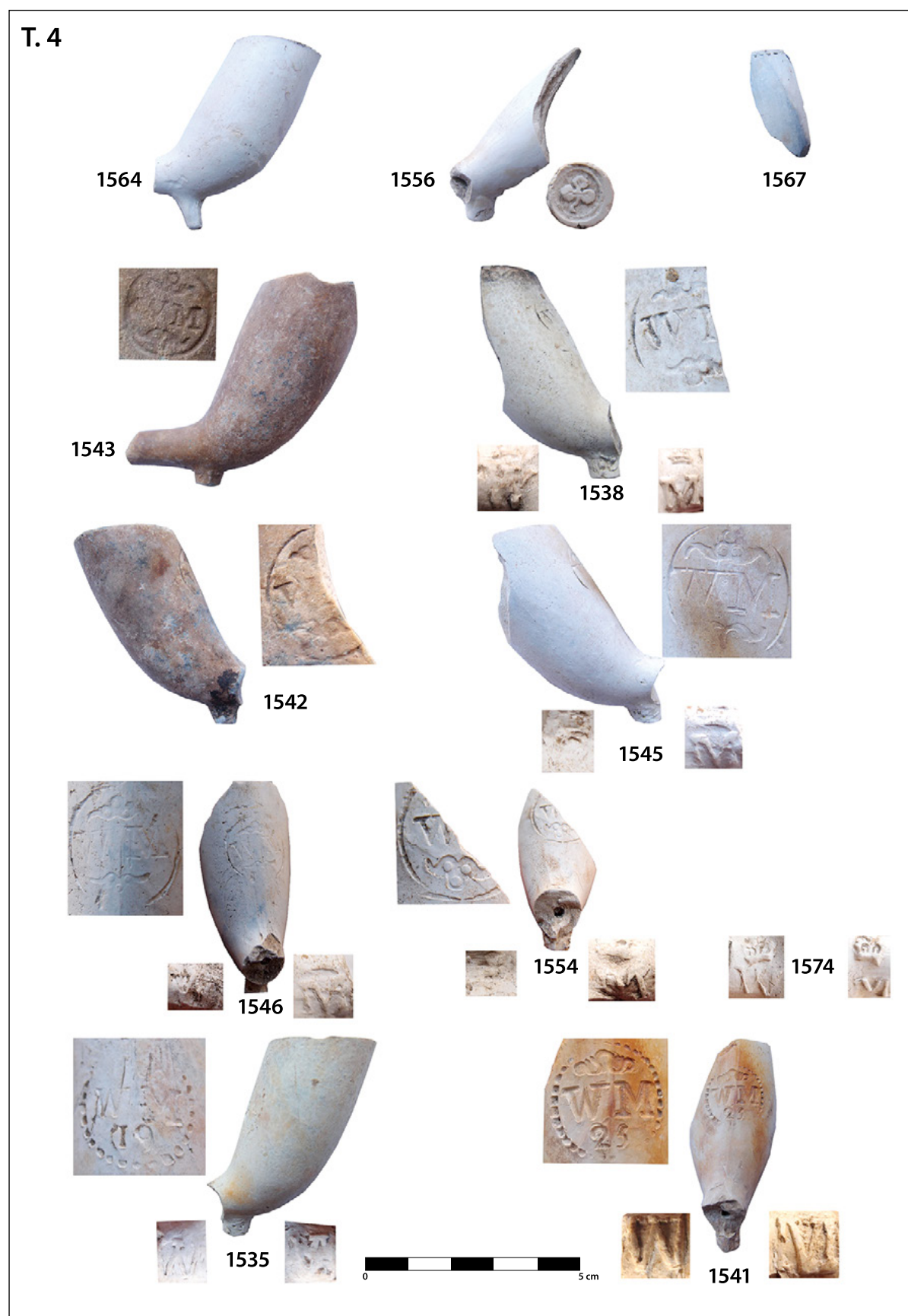


TABLA 4. *Lule za duhan* (izradio: L. Bekić)
PLATE 4 *Tobacco pipes* (made by L. Bekić)



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)



TABLA 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)

SLUČAJ ANKILOZANTNOG SPONDILITISA NA LOKALITETU ŽUMBERAK – SV. NIKOLA BISKUP

A CASE OF ANKYLOSING SPONDYLITIS AT THE ŽUMBERAK – ST NICHOLAS THE BISHOP SITE

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Ankilozantni spondilitis jest progresivna, nezarazna i kronična upalna reumatska bolest kod koje dolazi do kalcifikacije vezivnog tkiva, najčešće na sakroilijalnim zglobovima, zglobovima kralježnice i kostovertebralnim zglobovima. U zadnjim stadijima bolesti kralježnica poprima izgled „bambusova štapa“. Oboljeli se svakodnevno moraju nositi s kroničnom boli, deformacijama i smanjenom pokretljivošću. Kasni stadiji bolesti dovode do respiratorne insuficijencije, gubitka neuroloških funkcija, pa čak i do smrti. Ovo istraživanje bavi se osteološkim ostacima mladog muškarca iz groba 313 s ranonovovjekovnog arheološkog lokaliteta Žumberak – sv. Nikola biskup. Na kostima su uočene osteološke promjene konzistentne s promjenama karakterističnima za ankilozantni spondilitis. Prisutnost promjena, kao i stupanj razvijenosti bolesti, upućuju na vrlo brzo i agresivno napredovanje bolesti. Muškarac je imao vrlo izraženu kifozu u predjelu prsne kralježnice te lordozu u vratnoj kralježnici. S obzirom na prisutno sužavanje intervertebralnog prostora između vratnih kralježaka koje dovodi do kompresije leđne moždine, ankilozantni spondilitis najvjerojatniji je uzrok smrti muškarca. Diferencijalnim dijagnozama odbačeno je da je riječ o difuznoj idiopatskoj koštanoj hiperostozi, reaktivnom artritisu, meloreostozi, reumatoidnom artritisu i psorijatičnom artritisu. Ovo je prvi opisani slučaj ankilozantnog spondilitisa iz kontinentalne Hrvatske i iz perioda ranoga novog vijeka.

KEY WORDS:

ankylosing spondylitis,
osteological remains,
early modern era,
continental Croatia,
Žumberak

Ankylosing spondylitis is a progressive, non-infectious and chronic inflammatory rheumatic disease characterised by calcification of connective tissue, most commonly in the sacroiliac, vertebral and costovertebral joints. In the late stages of the disease, the spine assumes the so-called bamboo-spine appearance. Sufferers face chronic pain, deformities and reduced mobility on a daily basis. Late stages of the disease lead to respiratory insufficiency, loss of neurological functions and even death. This study deals with the osteological remains of a young man from Grave 313 at the early modern archaeological site of Žumberak – St Nicholas the Bishop. Osteological changes observed on the bones are consistent with those characteristic of ankylosing spondylitis. The presence of these changes and the degree of disease progression indicate a very rapid and aggressive

course. The man had a markedly pronounced kyphosis in the thoracic spine and lordosis in the cervical spine. Given the narrowing of the intervertebral space between the cervical vertebrae, which leads to compression of the spinal cord, ankylosing spondylitis is the most likely cause of death. Differential diagnoses ruled out diffuse idiopathic skeletal hyperostosis, reactive arthritis, melorheostosis, rheumatoid arthritis and psoriatic arthritis. This is the first recorded case of ankylosing spondylitis from continental Croatia during the early modern era.

UVOD

Bolesti su dio ljudske svakodnevice od samih početaka čovječanstva. Neke su odnosile ljudske živote, a neke su znatno otežavale svakodnevno funkcioniranje pojedinca u zajednici. Osobe s težim oblicima bolesti gotovo su u potpunosti ovisile o skrbi i angažiranosti uže i šire zajednice, dok se stav prema oboljelima razlikovao od zajednice do zajednice – ili su smatrani punopravnim članovima zajednice ili su bili izdvajani, što je nakon smrti oboljelog dovodilo i do njegova ukapanja na izdvojenom dijelu groblja.¹

Ankilozantni spondilitis (AS) (bolest Marie-Strumpell ili Bechterewljeva bolest), upravo je takva bolest, koja u svojim završnim stadijima dovodi do teškog invaliditeta i potpune ovisnosti o pomoći zajednice. To je progresivna, nezarazna i kronična upalna reumatska bolest čija je etiologija još uvijek nepoznata,² međutim, smatra se da je posljedica međudjelovanja okolišnih i genskih čimbenika. Prema istraživanjima, čak 90 % rizika za razvoj bolesti genski je uvjetovano.³ Poznato je i da antigeni poput HLA-B60, IL-23R, KIF21B i ERAP1 imaju važnu ulogu kod pojave bolesti, ali nijedan u toj mjeri kao HLA-B27.⁴

Od ankilozantnog spondilitisa znatno više obolijevaju muškarci nego žene. U istraživanjima omjeri između muškaraca i žena kreću se čak od 5 : 1⁵ pa sve do 9 : 1⁶.

Prvi simptomi bolesti javljaju se vrlo rano, u dobi od 20 do 40 godina, međutim, nije ne-

INTRODUCTION

Diseases have been part of everyday life since the very beginnings of humankind, some claiming human lives and others significantly hindering individuals' everyday functioning within the community. Historically, people suffering from more severe forms of disease were almost entirely dependent on the care and involvement of both their immediate and wider community, while attitudes towards the sick varied from one community to another – they were either regarded as full members of the community or set apart, which, after their death, also resulted in their burial in a separate part of the cemetery.¹

Ankylosing spondylitis (AS) (Marie-Strümpell disease or Bechterew's disease) is an illness which, in its final stages, leads to severe disability and complete dependence on the support of the community. It is a progressive, non-infectious and chronic inflammatory rheumatic disease whose aetiology is still unknown²; however, it is considered to result from the interaction of environmental and genetic factors. According to research, as much as 90% of the risk of developing the disease is genetically determined.³ It is also known that antigens such as HLA-B60, IL-23R, KIF21B and ERAP1 play an important role in the onset of the disease, although none to the same extent as HLA-B27.⁴

Significantly more men suffer from ankylosing spondylitis, in comparison to women. Studies report male-to-female ratios ranging from 5:1⁵ to as high as 9:1.⁶

¹ FEDORINA *et al.* 2022: 31; BONCZAROWSKA *et al.* 2025.

² KHUVERDYAN *et al.* 2021: 86.

³ ŠLAUS, NOVAK, ČAVKA 2012: 3989; BROWN 2008: 132–137.

⁴ DUYAR 2019: 1100–1101; BETTENCOURT *et al.* 2015: 103–134; VAN DER LINDEN, VAN DER HEIJDE 1998: 663–676; TSAI 2012: 73–84.

⁵ RESNICK, NIWAYAMA 1988.

⁶ ŠLAUS, NOVAK, ČAVKA 2012: 3985–3986; ORTNER, PUTSCHAR 1981; AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998.

¹ FEDORINA *et al.* 2022: 31; BONCZAROWSKA *et al.* 2025.

² KHUVERDYAN *et al.* 2021: 86.

³ ŠLAUS, NOVAK, ČAVKA 2012: 3989; BROWN 2008: 132–137.

⁴ DUYAR 2019: 1100–1101; BETTENCOURT *et al.* 2015: 103–134; VAN DER LINDEN, VAN DER HEIJDE 1998: 663–676; TSAI 2012: 73–84.

⁵ RESNICK, NIWAYAMA 1988.

⁶ ŠLAUS, NOVAK, ČAVKA 2012: 3985–3986; ORTNER, PUTSCHAR 1981; AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998.

obično ni da se jave još ranije ili pak kasnije.⁷ Istraživanja su pokazala da se početak bolesti u 15 % pacijenata javlja prije 16. godine (u zemljama u razvoju taj je postotak znatno veći pa doseže 40 % i više).⁸ Bolest dovodi do kalifikacije vezivnog tkiva, najčešće na sakroilijačnom zglobu, zglobovima kralježnice i kostovertebralnim zglobovima.⁹ Iako se brzina i obrazac razvoja ankiloze kralježnice razlikuje od osobe do osobe, tipična deformacija kralježnice razvije se nakon približno deset godina od pojave prvih simptoma.¹⁰ Ako bolest zahvati udove, tada je najčešće vidimo na zglobovima zdjelice i ramena. Također, može zahvatiti temporomandibularne zglobove i zglobove koljena, pri čemu je zahvaćenost često asimetrična.¹¹ Najčešće započinje na sakroilijačnim zglobovima i slabinskim kralješcima, a potom napreduje prema prsnim kralješcima i pripadajućim kostovertebralnim zglobovima. U kasnijim stadijima bolest zahvaća čak i vratnu kralježnicu.¹² U završnoj se fazi tijela kralježaka remodeliraju i gube svoj normalni izgled, tako da zajedno s asociranim sindezmoftima¹³ tvore kontinuiranu glatku površinu koja izgledom podsjeća na bambusov štap (engl. *bamboo spine*)¹⁴.

Klinička slika pacijenata oboljelih od AS-a uključuje kroničnu bol u leđima, umor te ukočenost najčešće u području zdjelice i donjih leđa.¹⁵ Od prvih simptoma javljaju se još i bol u peti i akutni uveitis.¹⁶ Zbog erozija i ankiloza uslijed upale dolazi do ograničene pokretljivosti u području kralježnice. Bolest je često praćena otečenim i bolnim zglobovima koji su

The first symptoms of the disease appear very early, between the ages of 20 and 40 – although it is not unusual for them to occur even earlier or later.⁷ Studies have shown that in 15 % of patients the onset of the disease occurs before the age of 16 (in developing countries this percentage is much higher, reaching 40 % or more).⁸ The disease leads to calcification of connective tissue, most commonly in the sacroiliac joint, the joints of the spine and the costovertebral joints.⁹ Although the speed and pattern of spinal ankylosis development vary from person to person, the typical spinal deformity develops approximately ten years after the appearance of the first symptoms.¹⁰ If the disease affects the limbs, it is most commonly seen in the joints of the pelvis and shoulder. It can also affect the temporomandibular joints and the knee joints, the involvement often being asymmetrical.¹¹ It most commonly begins in the sacroiliac joints and the lumbar vertebrae, and then progresses towards the thoracic vertebrae and the associated costovertebral joints. In later stages, the disease even affects the cervical spine.¹² In the final stage, the vertebral bodies are remodelled and lose their normal appearance, so that together with the associated syndesmophytes¹³ they form a continuous smooth surface resembling a bamboo rod.¹⁴

The clinical presentation of patients with AS includes chronic back pain, fatigue and stiffness, most often in the pelvic region and lower back.¹⁵ Among the earliest symptoms are heel pain and acute uveitis.¹⁶ Due to erosions and ankylosis resulting from inflammation, mobility in the spinal region becomes restricted. The disease is

⁷ KHAN 1998: 1-10; WOLF 2012: 15-26.

⁸ ELYAN, KHAN 2006: 12-14.

⁹ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; ORTNER 2003; ROBERTS, MANCHESTER 2005.

¹⁰ VAN DER LINDEN, VAN DER HEIJDE, BRAUN 2005: 1125-1141; KHAN 2003: 1161-1181.

¹¹ SIEPER *et al.* 2002; OLIVIERI *et al.* 1998: 3-6; BENNET *et al.* 2004: 121-134.

¹² ORTNER 2003.

¹³ Sindezmofti su vertikalne koštane izrasline na rubovima zglobova.

¹⁴ KHAN 1998: 1-10.

¹⁵ SIEPER, PODDUBNYI 2017: 73-84.

¹⁶ ELYAN, KHAN 2006: 12-13; KHAN 2002.

⁷ KHAN 1998: 1-10; WOLF 2012: 15-26.

⁸ ELYAN, KHAN 2006: 12-14.

⁹ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; ORTNER 2003; ROBERTS, MANCHESTER 2005.

¹⁰ VAN DER LINDEN, VAN DER HEIJDE, BRAUN 2005: 1125-1141; KHAN 2003: 1161-1181.

¹¹ SIEPER *et al.* 2002; OLIVIERI *et al.* 1998: 3-6; BENNET *et al.* 2004: 121-134.

¹² ORTNER 2003.

¹³ Syndesmophytes are vertical bony outgrowths along the margins of the joints.

¹⁴ KHAN 1998: 1-10.

¹⁵ SIEPER, PODDUBNYI 2017: 73-84.

¹⁶ ELYAN, KHAN 2006: 12-13; KHAN 2002.

posljedica artritisa i entezitisa¹⁷ te burzitisom i tendinitisom rotatorne manšete¹⁸. U kasnijim stadijima bolesti ponekad se javlja i ankiloza u akromioklavikularnom i glenohumeralnom zglobovima.¹⁹ Kako to često bude s ovakvim sustavnim tipom bolesti, kod oboljelih se često razviju i spondiloarthritis te crijevne infekcije poput Crohnove bolesti.²⁰ Također, ljudi koji boluju od AS-a imaju povećani rizik od bolesti koronarnih arterija.²¹ Pacijenti se susreću i s osteoporozom kralježnice, koja povećava rizik od kompresijskih fraktura na kralješcima, kao i od pseudoartroza.²²

S napredovanjem bolesti oboljeli se, dakle, mora nositi s kroničnom boli, deformacijama i smanjenom pokretljivošću, što u konačnici dovodi do velikih promjena u svakodnevnom funkcioniranju, gdje se osoba sve više mora oslanjati na druge ljude. U prošlosti, kada nije postojala medicinska skrb kao danas, posljedice za oboljeloga bile su još znatno teže. Nosili su se i s respiratornom insuficijencijom te gubitkom neuroloških funkcija, a smrtni ishod, nažalost, nije bio nepoznanica.²³

Danas nema lijeka za ovu bolest, međutim, pacijentima se daje određena terapija koja usporava tijek bolesti i smanjuje simptome.

Ovo istraživanje prikazat će vjerojatni slučaj ankilozantnog spondilitisa na kosturu muškarca iz groba 313 s kontinentalnoga ranonovovjekovnog lokaliteta Žumberak – sv. Nikola biskup.²⁴

often accompanied by swollen and painful joints caused by arthritis and enthesitis,¹⁷ as well as by bursitis and rotator cuff tendinitis.¹⁸ In later stages of the disease, ankylosis may also occur in the acromioclavicular and glenohumeral joints.¹⁹ As is often the case with systemic conditions of this type, patients frequently develop spondyloarthritis and intestinal disorders such as Crohn's disease.²⁰ People with AS also have an increased risk of coronary artery disease.²¹ Patients additionally experience spinal osteoporosis, which increases the risk of compression fractures in the vertebrae as well as of pseudoarthroses.²²

As the disease progresses, affected individuals must cope with chronic pain, deformities and reduced mobility, which ultimately leads to major changes in everyday functioning, with sufferers becoming increasingly dependent on others. In the past, when medical care was not as available as it is today, the consequences for affected individuals were even more severe. They also faced respiratory insufficiency and loss of neurological functions, and a fatal outcome, unfortunately, was not uncommon.²³

There is no cure for this disease today; however, patients receive certain therapies that slow its progression and reduce symptoms.

This study presents a probable case of ankylosing spondylitis in the skeleton of a man from Grave 313 at the continental early modern site of Žumberak – St Nicholas the Bishop.²⁴

¹⁷ SOKER *et al.* 2014: 99–104; SOKER *et al.* 2016: 419–424.

¹⁸ SOKER *et al.* 2016: 419–424.

¹⁹ *Ibid.*

²⁰ DE KEYSER *et al.* 2002: 525–532; RASHID, WILSON, EBRINGER 2013: 1–4.

²¹ DIVECHA *et al.* 2005: 171–176.

²² KHAN 2002.

²³ WOLF 2012: 15–26; ŠLAUS 2006; DUYAR 2019: 1101–1105.

²⁴ Unatoč tome što je bolest rijetka (1 : 1000), o ankilozantnom spondilitisu u arheološkom kontekstu pisali su brojni autori diljem svijeta: BASS, GREGG, PROVOST 1974; PÁLFI *et al.* 1996; BOURKE 1971; FELDTKELLER, LEMMEL, RUSSEL 2002; ORTNER 2003; KRAMAR 1981; LAZA, HERVELLA, DE-LA-RUA 2016; LEDEN *et al.* 2009; LUNARDINI *et al.* 2008; SARIGU, FLORIS, FLORIS 2012. U Hrvatskoj su o toj temi dosad pisali samo ŠLAUS, NOVAK, ČAVKA 2012, pri čemu su predstavili četiri slučaja iz srednjovjekovne primorske Hrvatske.

¹⁷ SOKER *et al.* 2014: 99–104; SOKER *et al.* 2016: 419–424.

¹⁸ SOKER *et al.* 2016: 419–424.

¹⁹ *Ibid.*

²⁰ DE KEYSER *et al.* 2002: 525–532; RASHID, WILSON, EBRINGER 2013: 1–4.

²¹ DIVECHA *et al.* 2005: 171–176.

²² KHAN 2002.

²³ WOLF 2012: 15–26; ŠLAUS 2006; DUYAR 2019: 1101–1105.

²⁴ Despite the rarity of the disease (1:1000), numerous authors worldwide have written about ankylosing spondylitis in an archaeological context: BASS, GREGG, PROVOST 1974; PÁLFI *et al.* 1996; BOURKE 1971; FELDTKELLER, LEMMEL, RUSSEL 2002; ORTNER 2003; KRAMAR 1981; LAZA, HERVELLA, DE-LA-RUA 2016; LEDEN *et al.* 2009; LUNARDINI *et al.* 2008; SARIGU, FLORIS, FLORIS 2012. In Croatia, the topic has so far been addressed only by ŠLAUS, NOVAK, ČAVKA 2012, who presented four cases from medieval coastal Croatia.

MATERIJALI I METODE

Selo Žumberak nalazi se u sjeverozapadnoj Hrvatskoj, na graničnom području prema Sloveniji. Tijekom srednjeg vijeka područje Žumberka bilo je u vlasništvu različitih crkvenih i svjetovnih gospodara. Znatne promjene u sastavu stanovništva događaju se u vrijeme pojačane osmanske prijetnje, kada se na to područje doseljavaju prebjeci iz osmanskih krajeva, u literaturi poznati kao uskoci (Vlasi), koji od tada čine većinu stanovništva.²⁵

Na nadmorskoj visini od 300 m, u Žumberku, smjestila se srednjovjekovna jednobrodna crkva sv. Nikole biskupa s tragovima gotike i baroknim inventarom.²⁶ Smatra se da je izgrađena u drugoj polovici 13. stoljeća te da je bila župna crkva žumberačkih knezova iz obitelji Spanheim.²⁷ Sredinom 17. stoljeća obnovljena je u baroknom stilu, a današnji izgled dobila je 1894.²⁸

Godine 2004. započela je obnova crkve, a arheološka istraživanja traju od 2006. Istraživanja su obuhvatila unutrašnjost crkve, kriptu, kosturnicu i groblje oko crkve.²⁹

Pretpostavlja se da je groblje oko crkve sv. Nikole bilo u upotrebi od 14. stoljeća, a ukapanje na tom prostoru vjerojatno je trajalo do kraja 18. stoljeća, kada se groblje premješta na novu lokaciju.³⁰ Uočavaju se dva sloja ukopa – kasnosrednjovjekovni i ranonovovjekovni. Grobovi su bili nepravilno orijentirani, prilagođeni konfiguraciji terena. Svi su ukopi kosturni, a pokojnici su pokapani s različitim položajima ruku.³¹

²⁵ SEKULIĆ 2017: 14–16.

²⁶ AZINović BEBEK 2007: 184–185; 2009: 463–468; 2011: 293; 2017: 32–34; AZINović BEBEK, JANEŠ 2016: 123–127.

²⁷ SEKULIĆ 2017: 16.

²⁸ AZINović BEBEK, JANEŠ 2016: 123; AZINović BEBEK 2017: 32.

²⁹ AZINović BEBEK 2007: 184–185; 2009: 463–468; 2011: 293–294; 2012: 292; 2013: 333–334; 2014: 251–252; 2015: 272–275; 2017: 32–52; AZINović BEBEK, JANEŠ 2016: 127–131.

³⁰ AZINović BEBEK 2011: 293–294; 2017: 38.

³¹ AZINović BEBEK, JANEŠ: 2016: 135; AZINović BEBEK: 2017: 32.

MATERIALS AND METHODS

The village of Žumberak is located in north-western Croatia, on the border with Slovenia. During the Middle Ages, the Žumberak area was owned by various ecclesiastical and secular lords. Significant changes in the population occurred during the period of increased Ottoman threat, when refugees from Ottoman territories settled in the area. In the literature these newcomers are known as Uskoks (Vlachs), and from that point onward they made up the majority of the population.²⁵

At an elevation of 300 m above sea level stands Žumberak's medieval single-nave Church of St Nicholas the Bishop, featuring traces of Gothic style and Baroque furnishings.²⁶ It is believed to have been built in the second half of the 13th century and to have served as the parish church of the Žumberak princes of the Spanheim family.²⁷ In the mid-17th century it was renovated in the Baroque style, and it acquired its present appearance in 1894.²⁸

The restoration of the church began in 2004, while archaeological investigations have been ongoing since 2006. This research has encompassed the church interior, the crypt, the ossuary and the cemetery surrounding the building.²⁹

It is assumed that the cemetery surrounding the Church of St Nicholas was in use from the 14th century, and that burials in this area probably continued until the late 18th century, when a new cemetery was opened nearby.³⁰ Two burial layers have been identified – a late medieval layer and an early modern layer. The graves were irregularly oriented, adapted to the

²⁵ SEKULIĆ 2017: 14–16.

²⁶ AZINović BEBEK 2007: 184–185; 2009: 463–468; 2011: 293; 2017: 32–34; AZINović BEBEK, JANEŠ 2016: 123–127.

²⁷ SEKULIĆ 2017: 16.

²⁸ AZINović BEBEK, JANEŠ 2016: 123; AZINović BEBEK 2017: 32.

²⁹ AZINović BEBEK 2007: 184–185; 2009: 463–468; 2011: 293–294; 2012: 292; 2013: 333–334; 2014: 251–252; 2015: 272–275; 2017: 32–52; AZINović BEBEK, JANEŠ 2016: 127–131.

³⁰ AZINović BEBEK 2011: 293–294; 2017: 38.

Pronađeni su keramički i stakleni nalazi,³² okovi vezica i pojasa, potkove cipela, gumbi, pređice, pojasne kopče, lokot, ključ, kao i različiti nabožni predmeti – medaljice, križevi i krunice.³³

Makroskopska antropološka analiza osteoloških ostataka s groblja oko crkve sv. Nikole biskupa u Žumberku provedena je u laboratoriju Antropološkog centra Hrvatske akademije znanosti i umjetnosti. Tijekom obrade posebno se istaknuo kostur iz groba 313, koji će zbog svoje specifičnosti biti detaljnije predstavljen u nastavku rada. Nalazio se sjeverno od zvonika, uz sjeverni i poprečni zid groblja. Pojedinaac je bio položen u lijes bez grobnih nalaza, a njegova orijentacija bila je sjever – jug, s blagim odklonom prema zapadu, što odgovara orijentaciji crkve. Na temelju stratigrafskih odnosa grob najvjerojatnije pripada razdoblju novog vijeka, iako precizna kronološka atribucija nije moguća bez dodatnih analiza.³⁴ Kostur je odlično očuvan i gotovo cjelovit. Gornja i donja čeljust dobro su očuvane, ali prisutan je postmortalni gubitak gornjega desnog i lijevoga prvog sjekutića. Od koštanih elemenata nedostaju samo prvi vratni kralježak, desna goljenična i desna lisna kost, kao i sitne kosti poput nekih falangi, kostiju pešća, zapešća, nožja i donožja. Stidna kost desne zdjelice kosti također nije sačuvana. Zahvaljujući vrlo dobroj očuvanosti osteoloških ostataka, bilo je moguće odrediti biološki spol i dob u trenutku smrti u užem rasponu.

Spol je određen na temelju morfoloških obilježja zdjelice kosti, ponajprije pubične simfize³⁵ i oblika velikoga sjednog ureza,³⁶ a potom i analizom morfologije lubanje.³⁷ Doživljena dob procijenjena je primjenom više metoda:

configuration of the terrain. All burials were skeletal, and the deceased were interred with their arms in various positions.³¹ Finds include ceramic and glass objects,³² lace and belt fittings, shoe hobnails, buttons, belt rings, belt buckles, a padlock, a key, as well as various devotional items – medallions, crosses and rosaries.³³

The macroscopic anthropological analysis of the osteological remains from the cemetery surrounding the Church of St Nicholas the Bishop in Žumberak was carried out in the laboratory of the Anthropological Centre of the Croatian Academy of Sciences and Arts. During the examination, the skeleton from Grave 313 attracted attention due to its specific features, and it will therefore be presented in more detail in the following section. The grave was located north of the bell tower, along the northern and transverse cemetery wall. The individual had been placed in a coffin without grave goods; the orientation was north–south with a slight deviation towards the west, corresponding to that of the church. On the basis of stratigraphic relationships, the grave most likely belongs to the early modern period, although precise chronological attribution is not possible without additional analyses.³⁴ The skeleton is excellently preserved and almost complete. The maxilla and mandible are well preserved, but there is post-mortem loss of the upper right and left first incisors. The only missing skeletal elements are the first cervical vertebra, the right tibia and the right fibula, as well as small bones such as some phalanges, metacarpals, carpals, metatarsals and tarsals. The pubic bone of the right os coxae is also not preserved. Thanks to the very good state of preservation of the osteological remains, it was possible to determine the biological sex and to narrow the age at death.

Sex was determined on the basis of morphological features of the pelvic bone,³⁵ primarily

³² JANEŠ 2017: 52–62.

³³ AZINOVIC BEBEK 2017: 44–51.

³⁴ AZINOVIC BEBEK, STINGL: usmeni podaci.

³⁵ PHENICE 1969: 297–301.

³⁶ BUIKSTRA, UBELAKER 1994; KLALES *et al.* 2012: 104–114.

³⁷ WALKER 2008: 39–50.

³¹ AZINOVIC BEBEK, JANEŠ 2016: 135; AZINOVIC BEBEK 2017: 32.

³² JANEŠ 2017: 52–62.

³³ AZINOVIC BEBEK 2017: 44–51.

³⁴ AZINOVIC BEBEK, STINGL: personal communication.

³⁵ PHENICE 1969: 297–301.

analizom promjena na aurikularnoj ploštini crijevne kosti,³⁸ čašici zdjelice³⁹ i sternalnom kraju ključne kosti⁴⁰ te stupnja degenerativnih promjena na zglobnim ploštinama dugih kostiju i kralježaka,⁴¹ kao i na temelju obliteracije lubanjskih šavova⁴².

REZULTATI

Nakon provedenih analiza utvrđeno je da je riječ o muškarcu u dobi od 25 do 35 godina. Vidljivo je da su svi prisutni kralješci međusobno spojeni koštanom ankilozom – u većini su slučajeva u potpunosti srasli, a kod manjeg je dijela riječ o ankilozi samo stražnjih ligamenata (sl. 1). Prvi vratni kralježak postmortalno je izgubljen, međutim, vidljivo je da je bio spojen s kondilima zatiljne kosti zbog prisutnih elemenata spajanja vidljivih na kondilima. S drugim vratnim kralješkom nije bio spojen. Drugi vratni kralježak ima prisutnu izraženu osifikaciju apikalnog ligamenta na *dens axis*. Ankiloza kralježnice može se podijeliti u tri koštana bloka. Prvi blok čine kralješci od C2 do T1, a intervertebralni prostor između njih sačuvan je između C3 i C4, C5 i C6 te C7 i T1 (riječ je o prostoru širine od 1 do 3 mm). Kralješci T1 i T2 međusobno su spojeni u predjelu stražnjih ligamenata, uz blago sačuvan intervertebralni prostor. Drugi veliki potpuni koštani blok proteže se od T2 do T10. Kralješci T10 i T11 spojeni su u području stražnjih ligamenata, a njihov intervertebralni prostor sačuvan je s prednje strane. Treći potpuni koštani blok čine kralješci od T11 do L2. Stražnji su ligamenti kralježaka od L2 do L5 srasli, uz blago sačuvan prostor između kralježaka s prednje strane. Kralješci L5 i S1 u potpunosti su spojeni koštanom ankilozom, a zbog postmor-

the pubic symphysis and the shape of the greater sciatic notch,³⁶ followed by an analysis of cranial morphology.³⁷ Age at death was estimated using several methods: by examining changes on the auricular surface of the ilium,³⁸ the acetabulum,³⁹ the sternal end of the clavicle,⁴⁰ the degree of degenerative changes on the articular surfaces of the long bones and vertebrae,⁴¹ as well as on the basis of cranial suture obliteration.⁴²

THE RESULTS

After the analyses were completed, it was established that the individual had been a man aged between 25 and 35 years. All preserved vertebrae are visibly fused to one another by bony ankylosis – in most cases they are completely fused, while in a smaller number the ankylosis involves only the posterior ligaments (Fig. 1). The first cervical vertebra was lost post-mortem; however, it is evident that it had been fused to the occipital condyles, as elements of fusion are visible on them. It was not fused to the second cervical vertebra. The second cervical vertebra exhibits marked ossification of the apical ligament on the *dens axis*. The ankylosed spine can be divided into three ankylosed vertebral blocks. The first block consists of the vertebrae from C2 to T1, and the intervertebral space between them is preserved between C3 and C4, C5 and C6, and C7 and T1 (with a width of 1 to 3 mm). The T1 and T2 vertebrae are fused to each other in the region of the posterior ligaments, with a slightly preserved intervertebral space. The second large complete bony block extends from T2 to T10. The T10 and T11 vertebrae are fused in the region of the posterior ligaments, while their intervertebral space is preserved on the anterior

³⁸ LOVEJOY *et al.* 1985: 15–28.

³⁹ SAN-MILLÁN, TURBON, RISSECH 2017.

⁴⁰ FALYS, PRANGLE 2015: 1–12.

⁴¹ PFEIFFER 1991: 167–175.

⁴² MEINDL, LOVEJOY 1985: 57–66.

³⁶ BUIKSTRA, UBELAKER 1994; KLALES *et al.* 2012: 104–114.

³⁷ WALKER 2008: 39–50.

³⁸ LOVEJOY *et al.* 1985: 15–28.

³⁹ SAN-MILLÁN, TURBON, RISSECH 2017.

⁴⁰ FALYS, PRANGLE 2015: 1–12.

⁴¹ PFEIFFER 1991: 167–175.

⁴² MEINDL, LOVEJOY 1985: 57–66.



SLIKA 1. Ankiroza kralježnice koja upućuje na ankilozantni spondilitis (snimila A. Uglešić)

FIGURE 1 Ankylosed spine demonstrating ankylosing spondylitis (photo by A. Uglešić)



SLIKA 2. Prisutna rebra na kojima se uočavaju elementi ankiloze s prsnim kralješcima (snimila A. Uglešić)
FIGURE 2 Present ribs showing elements of ankylosis with the thoracic vertebrae (photo by A. Uglešić)

talnog oštećenja s prednje strane vidljiva je i osifikacija intervertebralnog diska. Dakle, većina kralježaka ima razvijene sindezmofoite na svojim rubovima koji se protežu vertikalno prema susjednom kralješku i spajaju kralježnicu u tri koštana bloka koja imaju kontinuiranu i glatku površinu. Prednji dio tijela kod nekih kralježaka dobio je četvrtasti oblik, što uz ankilozu cijeloj kralježnici daje izgled „bambusova štapa”, karakterističnog za ankilozantni spondilitis.⁴³ Sva su rebra prisutna te je unatoč postmortalnim oštećenjima vidljivo da su bilateralno ankilozom bila povezana sa svim prsnim kralješcima (sl. 2). Takvo spajanje rebara s kralježnicom na kraju može dovesti i do respiracijske insuficijencije.⁴⁴

Prsnu kralježnicu prati teška kifoza koja je rezultirala savijenosti osobe prema naprijed, a vratna kralježnica pokazuje lordozu koja je nastala kao odgovor na kifožu, kako bi osoba mogla držati glavu u pravilnijem položaju.

Sakroilijalni zglobovi na zdjeličnim kostima također su bili međusobno srasli, ali i ta je ankiloza postmortalno oštećena (sl. 3). Isto tako, obje ključne kosti bile su spojene s manubrijem prsne kosti (sl. 4). Od ostalih patologija zabilježen je blagi degenerativni osteoartritis na desnom temporomandibularnom zglobo, ramenima, laktovima, kukovima i koljenima. Na sjednim kostima uočen je burzitis koji je jače izražen na lijevoj strani (sl. 5). Također, na lijevoj goljeničnoj i lisnoj kosti prisutan je umjereni zarasli periostitis. Među ostalim, na nekim prisutnim zubima uočene su karijesne lezije i dentalni apscesi, osobito na kutnjacima, uz nekoliko zaživotnih gubitaka zubi. Također, na prednjim zubima primijećena je hipoplazija zubne cakline. Lubanja ima neobičan izgled koji podsjeća na umjetno deformirane lubanje, međutim, taj fenomen bit će tema nekih budućih istraživanja.

The third complete bony block consists of the vertebrae between T11 and L2. The posterior ligaments of the L2 to L5 vertebrae are fused, with a slightly preserved anterior intervertebral space. The L5 and S1 vertebrae are completely fused by bony ankylosis, and due to post-mortem damage on the anterior side, ossification of the intervertebral disc is also visible. Thus, most of the vertebrae have syndesmophytes along their margins, extending vertically towards the adjacent vertebra and fusing the spine into three bony blocks with a continuous, smooth surface. In some segments, the anterior portions of the vertebral bodies have become squared, and this, combined with the extensive ankylosis, results in the characteristic bamboo spine associated with ankylosing spondylitis.⁴³ All ribs are present, and despite post-mortem damage, it is evident that they were bilaterally fused by ankylosis to all thoracic vertebrae (Fig. 2). Such fusion of the ribs with the spine can eventually lead to respiratory insufficiency.⁴⁴

The thoracic spine shows pronounced kyphosis, which would have bent the individual forward, whereas the cervical spine exhibits a compensatory lordosis enabling a more upright head posture.

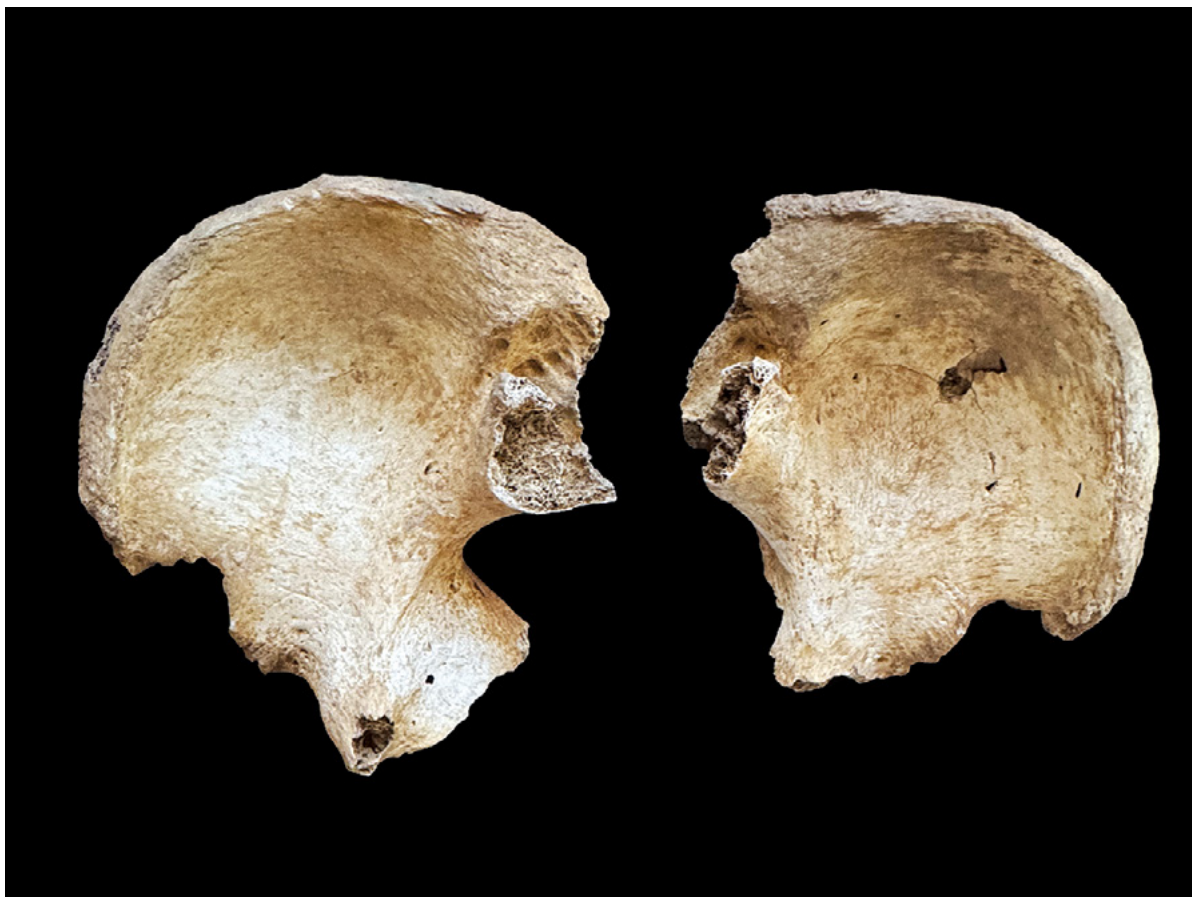
The sacroiliac joints on the pelvic bones were also fused, although this ankylosis has been damaged post-mortem (Fig. 3). Likewise, both clavicles were fused to the manubrium of the sternum (Fig. 4). Among other pathologies, mild degenerative osteoarthritis was recorded on the right temporomandibular joint, the shoulders, elbows, hips and knees. Bursitis was observed on the ischial bones, more pronounced on the left side (Fig. 5). Moderate healed periostitis is also present on the left tibia and fibula. In addition, several existing teeth show carious lesions and dental abscesses, particularly on the molars, along with several antemortem tooth losses. Enamel hypoplasia was also noted on the anterior teeth. The skull has

⁴³ ŠLAUS 2006.

⁴⁴ *Ibid.*

⁴³ ŠLAUS 2006.

⁴⁴ *Ibid.*



SLIKA 3. *Zdjelične kosti s postmortalno oštećenom, ali jasno vidljivom ankilozom sakroilijačnih zglobova (snimila A. Uglešić)*

FIGURE 3 *Pelvic bones with post-mortem damage but clearly visible ankylosis of the sacroiliac joints (photo by A. Uglešić)*



SLIKA 4. *Promjene na spojevima manubrija prsne kosti i obje ključne kosti (snimila A. Uglešić)*

FIGURE 4 *Changes at the articulations of the manubrium of the sternum and both clavicles (photo by A. Uglešić)*



SLIKA 5. *Bursitis na sjednim kostima* (snimila A. Uglešić)

FIGURE 5 *Bursitis on the ischial bones* (photo by A. Uglešić)

S obzirom na to da je ovdje riječ o osteološkim ostacima vrlo mladog muškarca koji je bolovao od posljednjeg stadija ankilozantnog spondilitisa, može se reći da je bolest napredovala vrlo brzo i agresivno. Uz današnja saznanja o tijeku i simptomima bolesti, kao i činjenici da sužavanje intervertebralnog prostora kod vratnih kralježaka posljedično dovodi do kompresije leđne moždine,⁴⁵ nije nelogično zaključiti da je ova osoba najvjerojatnije i umrla od ove teške bolesti.

RASPRAVA

Dijagnoza ankilozantnog spondilitisa (AS) može biti zahtjevna, osobito kad je riječ o analizi osteološkog materijala, u kojem nedostaju ligamenti i druga meka tkiva čije bi patološke promjene dodatno potvrdile prisutnost bolesti. Morfološke promjene na kostima karakte-

an unusual appearance reminiscent of artificially deformed crania; however, this phenomenon will be addressed in future research.

Given that these are the osteological remains of a very young man who was suffering from the final stage of ankylosing spondylitis, it can be said that the disease progressed very rapidly and aggressively. With current knowledge of the course and symptoms of the disease, as well as the fact that narrowing of the intervertebral space in the cervical region leads to compression of the spinal cord,⁴⁵ it is reasonable to conclude that this individual most likely died from this severe condition.

DISCUSSION

The diagnosis of ankylosing spondylitis (AS) can be challenging, especially when analysing osteological material in which ligaments and

⁴⁵ WOLF 2012: 15–26; DUYAR 2019: 1105.

⁴⁵ WOLF 2012: 15–26; DUYAR 2019: 1105.

ristične za AS mogu biti prisutne i kod drugih spondiloartropatija, kao i kod pojedinih oblika degenerativnih, infektivnih ili metaboličkih bolesti. U ovom slučaju razmotrene su sljedeće diferencijalne dijagnoze: difuzna idiopatska koštana hiperostoza (DISH), reaktivni artritis, meloreostoza, reumatoidni artritis i psorijatični artritis.

Difuzna idiopatska skeletna hiperostoza (engl. *diffuse idiopathic skeletal hyperostosis*, DISH) jest bolest kod koje dolazi do osifikacije ligamenata kralježnice. Naziva se još i Forestierova bolest, a javlja se kod osoba srednje do starije životne dobi, s većom učestalošću među muškarcima.⁴⁶ Iako točan uzrok nastanka ove bolesti još uvijek nije potpuno razjašnjen, njezina pojava najčešće se povezuje s čimbenicima poput poodmakle dobi, pretilosti, dijabetesa II. tipa, metaboličkih poremećaja, genske predispozicije te mikrotrauma.⁴⁷ DISH najčešće zahvaća kralježnicu, iako se ponekad može pojaviti i na drugim dijelovima, poput lakta, ivera (*patella*) ili Ahilove tetive, pri čemu dolazi do kalcifikacije i/ili osifikacije mekih tkiva i ligamenata. Najistaknutije je obilježje bolesti osifikacija prednjega uzdužnog ligamenta kralježnice, pri čemu su zahvaćena najmanje četiri susjedna kralješka. Ova je formacija najčešće ograničena na desnu stranu prsne kralježnice, ponajviše od 4. do 12. prsnog kralješka.⁴⁸ Zbog sličnosti kod ankiloze kralježaka, DISH se vrlo često pri analizi osteološkog materijala zamijeni s AS-om.⁴⁹ Međutim, između ove dvije bolesti postoje znatne razlike koje omogućuju njihovu pouzdanu diferencijaciju. Prije svega, javljaju se u različitim životnim razdobljima – AS se najčešće razvija u drugom ili

other soft tissues are absent, as pathological changes in these would further confirm the presence of the disease. Morphological changes on the bones characteristic of AS may also occur in other spondyloarthropathies, as well as in certain forms of degenerative, infectious or metabolic diseases. In this case, the following differential diagnoses were considered: diffuse idiopathic skeletal hyperostosis (DISH), reactive arthritis, melorheostosis, rheumatoid arthritis and psoriatic arthritis.

Diffuse idiopathic skeletal hyperostosis (DISH) is a condition characterised by ossification of the spinal ligaments. It is also known as Forestier's disease and occurs in middle-aged to older individuals, with a higher prevalence among men.⁴⁶ Although the exact cause of this condition is still not fully understood, its occurrence is most commonly associated with factors such as advanced age, obesity, type II diabetes, metabolic disorders, genetic predisposition and microtrauma.⁴⁷ DISH most commonly affects the spine, although it can also appear in other areas, such as the elbow, the *patella* or the Achilles tendon, where it results in calcification and/or ossification of soft tissues and ligaments. The most prominent feature of the disease is ossification of the anterior longitudinal ligament of the spine, involving at least four adjacent vertebrae. This formation is most often limited to the right side of the thoracic spine, predominantly between the 4th and 12th thoracic vertebrae.⁴⁸ Because of the similarity in vertebral ankylosis, DISH is very often mistaken for AS when analysing osteological material.⁴⁹ However, there are significant differences between the two conditions that allow for reliable dif-

⁴⁶ FORESTIER, ROTES-QUEROL 1950: 321–330; ORTNER 2003.

⁴⁷ DENKO, MALEMUD 2006: 292–297; VERLAAN, ONER, MAAT 2007: 1129–1130; KHUVERDYAN *et al.* 2021: 92.

⁴⁸ ORTNER 2003; ROGERS, WALDRON 2001: 357–365; VENTADES *et al.* 2018: 46–47; WHITE, BLACK, FOLKENS 2011.

⁴⁹ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; ROBERTS, MANCHESTER 2005; ŠLAUS, NOVAK, ČAVKA 2012: 3988–3989; VENTADES *et al.* 2018: 46–47.

⁴⁶ FORESTIER, ROTES-QUEROL 1950: 321–330; ORTNER 2003.

⁴⁷ DENKO, MALEMUD 2006: 292–297; VERLAAN, ONER, MAAT 2007: 1129–1130; KHUVERDYAN *et al.* 2021: 92.

⁴⁸ ORTNER 2003; ROGERS, WALDRON 2001: 357–365; VENTADES *et al.* 2018: 46–47; WHITE, BLACK, FOLKENS 2011.

⁴⁹ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; ROBERTS, MANCHESTER 2005; ŠLAUS, NOVAK, ČAVKA 2012: 3988–3989; VENTADES *et al.* 2018: 46–47.

trećem desetljeću života (rijetko i u četvrtom desetljeću), dok se DISH tipično pojavljuje u srednjoj ili starijoj dobi.⁵⁰ Također, progresija AS-a dovodi do izgleda „bambusova štapa”, dok kod DISH-a kralježnica poprima izgled „tekućeg voska” (engl. *flowing wax*). Osim toga, DISH ne uzrokuje ankilozu sakroilijskih i kostovertebralnih zglobova, što je učestala karakteristika AS-a.⁵¹

Reaktivni artritis, u starijoj literaturi poznat i kao Reiterov sindrom, predstavlja neinfektivno upalno stanje koje se razvija kao posljedica bakterijske infekcije urogenitalnog ili gastrointestinalnog trakta, često u kombinaciji s autoimunim i genetski uvjetovanim čimbenicima.⁵² Klinički i patološki se manifestira sakroileitisom, pri čemu su promjene na sakroilijskim zglobovima često asimetrične,⁵³ te ankilozom kralježaka uz očuvanje intervertebralnog prostora. Karakteristična je i pojava slobodnih kralježaka između kralježaka zahvaćenim ankilozom (engl. *skip lesions*).⁵⁴ Najčešće zahvaća donje ekstremitete,⁵⁵ a u rijetkim slučajevima može dovesti do deformacije stopala koju obilježava izražena resorpcija i ankiloza u području stopala.⁵⁶ Stanje se najčešće javlja kod muškaraca u dobi od 20 i 40 godina.⁵⁷ Usporedbom navedenih simptoma s patološkim promjenama uočenima na kosturu pronađenom na Žumberku mogu se prepoznati određene sličnosti, no uočavaju se i ključne razlike. Najvažnija razlika leži u činjenici da kod ovog kostura nema zahvaćenosti donjih ekstremiteta, kao ni asimetrične zahvaćenosti sakroilijskog dijela, što su česte značajke reaktivnog artritisa. Do-

ferentiation. First and foremost, they occur at different stages of life – AS most commonly develops in the second or third decade (rarely in the fourth), whereas DISH typically appears in middle or older age.⁵⁰ In addition, the progression of AS produces the characteristic bamboo spine, while DISH is marked by an appearance reminiscent of flowing wax. Furthermore, DISH does not cause ankylosis of the sacroiliac or costovertebral joints, which is a common feature of AS.⁵¹

Reactive arthritis, known in older literature as Reiter's syndrome, is a non-infectious inflammatory condition that develops as a consequence of a bacterial infection of the urogenital or gastrointestinal tract, often in combination with autoimmune and genetically determined factors.⁵² In clinical and pathological terms, it manifests as sacroiliitis, with changes in the sacroiliac joints often being asymmetrical,⁵³ and as ankylosis of the vertebrae with preservation of the intervertebral space. Another characteristic feature is the presence of free vertebrae between ankylosed segments ('skip lesions').⁵⁴ It most commonly affects the lower limbs,⁵⁵ and in rare cases may lead to deformation of the foot, marked by pronounced resorption and ankylosis in the foot region.⁵⁶ The condition most commonly occurs in men between the ages of 20 and 40.⁵⁷ When the symptoms described above are compared with the pathological changes observed on the skeleton from Žumberak, certain similarities can be recognised, but key differences are also evident. The most significant difference lies in the fact that this skel-

⁵⁰ OLIVIERI *et al.* 2009: 321–328; DUYAR 2019: 1104–1105.

⁵¹ ARRIAZA 1993: 263–278; ZIMMERMAN, KELLEY 1982; ŠLAUS, NOVAK, ČAVKA; 3988–3989; KHUDEVARDYAN *et al.* 2021: 92.

⁵² PAVELKA *et al.* 2020; TAUROG, GENSLER, HAROON 2022: 2790–2801; CAWLEY, PAINE 2015: 73.

⁵³ WALDRON 2009.

⁵⁴ ROGERS *et al.* 1987: 179–193.

⁵⁵ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; WALDRON 2009.

⁵⁶ CAWLEY, PAINE 2015: 73; MARTEL 1979: 12–23.

⁵⁷ TAUROG, GENSLER, HAROON 2022: 2790–2801; PAVELKA *et al.* 2020; GALOVÁ *et al.* 2022: 1879.

⁵⁰ OLIVIERI *et al.* 2009: 321–328; DUYAR 2019: 1104–1105.

⁵¹ ARRIAZA 1993: 263–278; ZIMMERMAN, KELLEY 1982; ŠLAUS, NOVAK, ČAVKA; 3988–3989; KHUDEVARDYAN *et al.* 2021: 92.

⁵² PAVELKA *et al.* 2020; TAUROG, GENSLER, HAROON 2022: 2790–2801; CAWLEY, PAINE 2015: 73.

⁵³ WALDRON 2009.

⁵⁴ ROGERS *et al.* 1987: 179–193.

⁵⁵ AUFDERHEIDE, RODRÍGUEZ-MARTÍN 1998; WALDRON 2009.

⁵⁶ CAWLEY, PAINE 2015: 73; MARTEL 1979: 12–23.

⁵⁷ TAUROG, GENSLER, HAROON 2022: 2790–2801; PAVELKA *et al.* 2020; GALOVÁ *et al.* 2022: 1879.

datno, kod analiziranog kostura uočena je i zahvaćenost intervertebralnog prostora, što nije tipično obilježje reaktivnog artritisa.

Meloreostoza je rijetka bolest kostiju koju karakterizira hiperostoza, što naposljetku dovodi do deformacija i koštane ankiloze.⁵⁸ Riječ je o bolesti od koje se može oboljeti u bilo kojoj životnoj dobi, ali se najčešće otkriva u adolescenciji ili ranoj odrasloj dobi. Jednako često obolijevaju muškarci i žene. Nepredvidiva je, sporo se razvija i može pogoditi bilo koju kost, ali najčešće zahvaća duge kosti donjih ekstremiteta. Promjene na kralježnici i rebrima znatno su rjeđe.⁵⁹ Točna etiologija bolesti još nije potpuno razjašnjena, no pretpostavlja se da određenu ulogu imaju somatske mutacije i poremećaji.⁶⁰ Usporedimo li navedene karakteristike meloreostoze s promjenama zabilježenima na kosturu muškarca iz groba 313 s lokaliteta Žumberak, malo je vjerojatno da je riječ o toj bolesti. Naime, meloreostoza iznimno rijetko zahvaća kralježnicu, dok je kod ovog pojedinca prisutna gotovo potpuna ankiloza kralježaka. Uz to, na kostima udova nisu uočene ankilozantne promjene. Sve navedeno sugerira da je dijagnoza ankilozantnog spondilitisa vjerojatnija.

Reumatoidni artritis (RA) jest autoimuna bolest prepoznatljiva po uništavanju zglobnog tkiva.⁶¹ Obično simetrično zahvaća nekoliko sinovijskih zglobova pridodanog kostura (engl. *appendicular skeleton*), a najčešće zglobove šake, koji su ujedno i prvo mjesto na kojem se simptomi javljaju.⁶² Nakon toga najčešće uništava koljena, temporomandibularne zglobove, zglobove pešća, ramena i laktova.⁶³ Kao i u slučaju AS-a, kod reumatoidnog je artritisa

eton shows no involvement of the lower limbs, nor any asymmetrical involvement of the sacroiliac region, both of which are common features of reactive arthritis. Additionally, involvement of the intervertebral space was observed in the analysed skeleton, which is not a typical feature of reactive arthritis.

Meloreostosis is a rare bone disease characterised by hyperostosis, which ultimately leads to deformities and bony ankylosis.⁵⁸ It is a condition that can develop at any age, but it is most commonly detected in adolescence or early adulthood. Men and women are affected with equal frequency. It is unpredictable, progresses slowly and may involve any bone, although it most commonly affects the long bones of the lower limbs. Changes in the spine and ribs are much rarer.⁵⁹ The exact aetiology of the disease is still not fully understood, but somatic mutations and disorders are thought to play a role.⁶⁰ When the characteristics of meloreostosis are compared with the changes recorded on the skeleton of the man from Grave 313 at the Žumberak site, it is unlikely that this condition was present. The fact is that cases in which meloreostosis affects the spine are extraordinarily rare, whereas this individual exhibits an almost complete ankylosis of the vertebrae. Furthermore, no ankylosing changes were observed on the bones of the limbs. All of this suggests that a diagnosis of ankylosing spondylitis is more likely.

Rheumatoid arthritis (RA) is an autoimmune disease characterised by the destruction of joint tissue.⁶¹ It typically affects several synovial joints of the appendicular skeleton symmetrically, most commonly the joints of the hand, which are also the first sites where symptoms appear.⁶²

⁵⁸ CAMPBELL, PAPADEMETRIOU, BONWGLIO 1968: 1281–1304; KALBERMATTEN *et al.* 2001: 48–52; ETHUNANDAN *et al.* 2004: 1062–1065; ŠLAUS, NOVAK, ČAVKA 2012: 3989.

⁵⁹ KALBERMATTEN *et al.* 2001: 48–52; HOANG *et al.* 2020; IORDACHE *et al.* 2023: 2–3.

⁶⁰ KANG *et al.* 2020.

⁶¹ RADU, BUNGAU 2021: 1.

⁶² WALDRON 2009; ORTNER 2003.

⁶³ ORTNER 2003; ŠLAUS, NOVAK, ČAVKA 2012: 3989; ROBERTS, MANCHESTER 2005.

⁵⁸ CAMPBELL, PAPADEMETRIOU, BONWGLIO 1968: 1281–1304; KALBERMATTEN *et al.* 2001: 48–52; ETHUNANDAN *et al.* 2004: 1062–1065; ŠLAUS, NOVAK, ČAVKA 2012: 3989.

⁵⁹ KALBERMATTEN *et al.* 2001: 48–52; HOANG *et al.* 2020; IORDACHE *et al.* 2023: 2–3.

⁶⁰ KANG *et al.* 2020.

⁶¹ RADU, BUNGAU 2021: 1.

⁶² WALDRON 2009; ORTNER 2003.

sama etiologija nepoznata, međutim, prema dosadašnjim istraživanjima, genska komponenta igra važnu ulogu.⁶⁴ Za razliku od AS-a, reumatoidni artritis više pogađa žene nego muškarce (3 : 1). Kod reumatoidnog artritisa kosti osovinskog kostura (engl. *axial skeleton*) rijetko su zahvaćene, a ako i jesu, tada promjene najčešće pronalazimo samo na vratnoj kralježnici. Obično se ne povezuje sa sakroileitisom i ankilozom kralježnice.⁶⁵ Prema navedenome, muškarac iz Žumberka nije mogao bolovati od reumatoidnog artritisa s obzirom na to da nema nikakve promjene na kostima šake koje su karakteristične za tu bolest. Isto tako, promjene na kralježnici vidljive su u svim regijama kralježnice, a ne samo u vratnoj kralježnici, kako je to najčešće slučaj kod RA-a. Kako je već ranije spomenuto, ankiloza kralježnice se obično ne povezuje s RA-om.

Psorijatični artritis jest upala mišićno-koštanog sustava povezana s kožnom psorijazom. Podjednako pogađa žene i muškarce, najčešće u dobi od 40 do 50 godina.⁶⁶ Bolest zahvaća periferne ili sakroilijske zglobove te kralježnicu,⁶⁷ ali sakroilijski su zglobovi nešto rjeđe pogođeni. Promjene koje se javljaju nisu simetrične i bilateralne.⁶⁸ Učestalost zahvaćenosti zglobova ruku i nogu gotovo je jednaka. Za psorijatični artritis karakteristično je i to da teška erozija radi promjene na falangama ruku i nogu, poznate pod nazivom „olovka u šalici” (engl. *pencil-in-cup*).⁶⁹ Isto tako, kod ove bolesti sačuvan je intervertebralni prostor te postoje nespojeni, slobodni kralješci između koštanih blokova koje sačinjavaju dva ili više kontinuiranih kralježaka.⁷⁰ Uslijed toga kralježnica nema izgled „bambusova štapa” koji

It subsequently most often affects the knees, the temporomandibular joints, the wrist joints, the shoulders and the elbows.⁶³ As in the case of AS, the aetiology of rheumatoid arthritis remains unknown; however, according to current research, the genetic component plays an important role.⁶⁴ Unlike AS, rheumatoid arthritis affects women more often than men (3 : 1). In rheumatoid arthritis, the bones of the axial skeleton are rarely involved; when they are, changes are most commonly found only in the cervical spine. It is generally not associated with sacroiliitis or ankylosis of the spine.⁶⁵ Accordingly, the man from Žumberak could not have suffered from rheumatoid arthritis, as there are no changes on the hand bones that would be characteristic of this condition. Likewise, the changes on the spine are present in all regions: not only in the cervical region, as is most commonly the case in RA. As mentioned earlier, ankylosis of the spine is generally not associated with RA.

Psoriatic arthritis is an inflammatory disorder of the musculoskeletal system associated with cutaneous psoriasis. It affects women and men equally, most commonly between the ages of 40 and 50.⁶⁶ The disease involves the peripheral or sacroiliac joints and the spine,⁶⁷ although the sacroiliac joints are somewhat less frequently affected. The changes that occur are not symmetrical or bilateral.⁶⁸ The frequency of involvement of the hand and foot joints is nearly the same. Psoriatic arthritis is also characterised by severe erosion caused by changes on the phalanges of the hands and feet, known as the pencil-in-cup deformity.⁶⁹ In this condition, the intervertebral space is preserved, and unfused, free vertebrae are present between the

⁶⁴ FOX 2001: 1085–1102.

⁶⁵ AUFDERHEIDE, RODRÍGUEZ-MARTÍN; WALDRON 2009.

⁶⁶ OCAMPO, GLADMAN 2019.

⁶⁷ WALDRON 2009.

⁶⁸ RESNICK 1989: 523–532; WALDRON 2009; ROGERS, WALDRON 1995: 357–365.

⁶⁹ ROGERS *et al.* 1987.

⁷⁰ WALDRON 2009; PAPARO *et al.* 2014: 156–163.

⁶³ ORTNER 2003; ŠLAUS, NOVAK, ČAVKA 2012: 3989; ROBERTS, MANCHESTER 2005.

⁶⁴ FOX 2001: 1085–1102.

⁶⁵ AUFDERHEIDE, RODRÍGUEZ-MARTÍN; WALDRON 2009.

⁶⁶ OCAMPO, GLADMAN 2019.

⁶⁷ WALDRON 2009.

⁶⁸ RESNICK 1989: 523–532; WALDRON 2009; ROGERS, WALDRON 1995: 357–365.

⁶⁹ ROGERS *et al.* 1987.

TABLICA 1. Pregled diferencijalnih dijagnoza i njihovih karakteristika (izradile: A. Adamić Hadžić, A. Uglešić)
TABLE 1 Overview of the differential diagnoses and their characteristics karakteristika (made by A. Adamić Hadžić and A. Uglešić)

Karakteristike / Characteristics	DISH	Reaktivni artritis / Reactive arthritis	Meloreostoza / Melorheostosis	Rumatoidni artritis / Rheumatoid arthritis	Psorijatični artritis / Psoriatic arthritis	Ankilozantni spondilitis / Ankylosing spondylitis
Spol / Sex	češće muškarci / more common in men	najčešće muškarci / most common in men	podjednako žene i muškarci / equally common in women and men	češće žene / more common in women	podjednako žene i muškarci / equally common in women and men	češće muškarci / more common in men
Dob / Age	srednja ili starija dob / middle and older age	od 20 do 40 godina / between 20 and 40 years	najčešće adolescencija ili rana odrasla dob / most often adolescence or early adulthood	srednja ili starija dob / middle and older age	od 40 do 50 godina / between 40 and 50 years	od 20 do 40 godina / between 20 and 40 years
Distribucija / Distribution	najčešće prsna kralježnica, a ponekad lakat, iwer i Ahilova tetiva / most commonly the thoracic spine, sometimes the elbow, patella and Achilles tendon	najčešće donji ekstremiteti, stopalo i kralježnica / most commonly the lower limbs, feet and spine	najčešće duge kosti donjih ekstremiteta, promjene na kralježnici i rebrima rjeđe / most commonly long bones of the lower limbs, spinal and rib involvement less common	simetrični zglobovi šaka i stopala, koljena, temporomandibularni zglobovi, ramena i laktovi, rijetko vratna kralježnica / symmetrical joints of the hands and feet, knees, temporomandibular joints, shoulders and elbows; cervical spine involvement less common	periferni ili sakroilijski zglobovi, kralježnica, zglobovi ruku i nogu / peripheral or sacroiliac joints, spine, joints of the arms and legs equally often	sakroilijski zglobovi, kralježnica, kostovoznebralni zglobovi, ramena, temporomandibularni zglobovi i zglobovi koljena / sacroiliac joints, spine, costovertebral joints, shoulders, temporomandibular joints, knee joints
Tipične lezije / Typical lesions	<i>flowing wax</i> na prednjim trupovima kralježaka / flowing wax on the anterior surfaces of vertebral bodies	asimetrične promjene, skip lezije / asymmetrical changes, skip lesions	<i>candle wax dripping</i>	periartikularne lezije / periarticular lesions	<i>pencil-in-cap</i>	sindezmofti, bamboo spine / Syndesmophytes, bamboo spine
Zahvaćenost sakroilijskih zglobova / Sacroiliac joint involvement	ne postoji / absent	postoji, ali je asimetrična / present but asymmetrical	ne postoji / absent	postoji, ali obično sekundarno / present but usually secondary	postoji, ali je asimetrična / present but asymmetrical	postoji, simetrična je / present and symmetrical
Osteoproliferacija / Osteoproliferation	masivna, glatka i kontinuirana / massive, smooth, continuous	diskretna, ali uz erozije / discrete, but with erosions	izražena, nepravilna, lokalna / pronounced, irregular, localised	ne postoji, pretežno destrukcija / absent; predominantly destruction	kombinacija erozije i proliferacije / combination of erosion and proliferation	sindezmofti / syndesmophytes
Erozije / Erosions	ne postoje / absent	česte, nepravilne / common, irregular	ne postoje / absent	česte i tipične / common and typical	kombinacija erozija i proliferacije / combination of erosion and proliferation	rijetko i manje izražene / rare and less pronounced
Očuvanost intervertebralnog prostora / Preservation of intervertebral space	prisutna / present	prisutna / present	prisutna / present	sušena / reduced	prisutna / present	nije prisutna / absent

je karakterističan za ankilozantni spondilitis.⁷¹ Četvrtasti izgled tijela kralježaka također je rjeđa pojava nego u slučaju AS-a.⁷² S obzirom na navedene karakteristike psorijatičnog artritisa, izgledno je da muškarac iz Žumberka nije bolovao od te bolesti jer se psorijatični artritis javlja u dobi od 40 do 50 godina, a muškarac je umro prije dosezanja te dobi. Promjene na kosturu muškarca izrazito su teške pa se može pretpostaviti da se sam početak bolesti kod njega najvjerojatnije javio prije dvadesete godine. Također, ova osoba nema prisutne promjene na falangama ruku. Osim toga, kod ovog je muškarca intervertebralni prostor tek blago sačuvan između nekoliko kralježaka, ali i ti su kralješci u posteriornom dijelu međusobno spojeni.

Svaka od navedenih diferencijalnih dijagnoza pokazuje određene sličnosti s kosturom iz groba 313 na lokalitetu Žumberak – crkva sv. Nikole biskupa, zbog čega je bilo nužno razmotriti ih pojedinačno kako bi se mogle isključiti te kako bi se moglo doći do konačne dijagnoze (tab. 1).

Prisutnost brojnih karakterističnih obilježja snažno upućuje na to da je ovaj pojedinac bolovao od ankilozantnog spondilitisa. Usporedba ovoga nalaza s onim iz Anatolije,⁷³ kao i s kriterijima koje je autor primijenio za postavljanje iste dijagnoze, dodatno potkrepljuje ovu pretpostavku. Naime, i u ovom slučaju zabilježeni su sljedeći simptomi karakteristični za AS:

1. bilateralna i simetrična ankiloza sakroilijasnih zglobova
2. ankiloza svih kralježaka
3. osifikacija spinalnih ligamenata
4. ankiloza svih kostovertebralnih zglobova
5. kvadratni oblik tijela kralježaka
6. karakterističan izgled „bambusova štapa”
7. razvoj izražene lordoze i kifoze te
8. kalcifikacija intervertebralnih diskova.

bony blocks composed of two or more contiguous vertebrae.⁷⁰ As a result, the vertebral column does not exhibit the characteristic bamboo spine appearance associated with ankylosing spondylitis.⁷¹ A squaring of the vertebral bodies is also less common than in AS.⁷² Given these characteristics of psoriatic arthritis, it is unlikely that the man from Žumberak suffered from this disease, as psoriatic arthritis typically develops between the ages of 40 and 50, and he died before reaching that age. The pathological changes on his skeleton are severe, suggesting that the onset of the disease most likely occurred before the age of twenty. In addition, this individual shows no changes on the phalanges of the hands. Moreover, the intervertebral space is only slightly preserved between a few vertebrae, yet even those vertebrae are fused to one another on the posterior side.

Each of the differential diagnoses listed shows certain similarities to the skeleton from Grave 313 at the Žumberak – Church of St Nicholas the Bishop site, which made it necessary to consider them individually in order to exclude them and reach a final diagnosis (Tab. 1).

The presence of numerous characteristic features strongly indicates that this individual suffered from ankylosing spondylitis. A comparison of this case with one from Anatolia,⁷³ as well as with the criteria used by that author to establish the same diagnosis, further supports this conclusion. Specifically, the following symptoms characteristic of AS were recorded in the Anatolian case:

1. bilateral and symmetrical ankylosis of the sacroiliac joints,
2. ankylosis of all vertebrae,
3. ossification of the spinal ligaments,
4. ankylosis of all costovertebral joints,
5. squaring of the vertebral bodies,
6. the characteristic bamboo-spine appearance,

⁷¹ PAPARO *et al.* 2014: 156–163.

⁷² RESNICK 1974: 523–532.

⁷³ DUYAR 2019: 1102–104.

⁷⁰ WALDRON 2009; PAPARO *et al.* 2014: 156–163.

⁷¹ PAPARO *et al.* 2014: 156–163.

⁷² RESNICK 1974: 523–532.

⁷³ DUYAR 2019: 1102–104.

Dodatno, kod ovoga je pojedinca uočena i ankiloza između kondila zatiljne kosti i prvog vratnog kralješka, kao i između ključnih kostiju i manubrija prsne kosti. Također, prisutnost burzitisa na sjednim kostima dodatno potkrepljuje početnu hipotezu. Dijagnoza je podržana i usporedbom s drugim objavljenim slučajevima u literaturi koji prikazuju slične osteološke obrasce.⁷⁴

ZAKLJUČNA RAZMATRANJA

Detaljnom analizom kostura muškarca iz groba 313 na lokalitetu Žumberak – sv. Nikola biskup zaključeno je da je najvjerojatnije riječ o uznapredovanom obliku ankilozantnog spondilitisa s posljedičnim komplikacijama koje su mogle dovesti do smrti osobe. Promjene na kralježnici, sakroilijačnim i kostovertebralnim zglobovima ukazuju na progresivnu upalnu bolest koja je vjerojatno započela u adolescenciji, najvjerojatnije prije dvadesete godine života.

Do smrti, u dobi od 25 do 35 godina, bolest je napredovala do potpune ankiloze kralježnice, bilateralne ankiloze rebara te izraženih deformacija u obliku kifoze i kompenzatorne lordoze. Takve promjene često uzrokuju znatno narušavanje kvalitete života – uključujući kroničnu bol, ograničenu pokretljivost i otežano disanje, koje može dovesti do respiratorne insuficijencije. Može se pretpostaviti da je upravo ta bolest bila neposredan uzrok smrti u ovoj relativno mladoj dobi.

Radi preciznijeg postavljanja dijagnoze provedena je detaljna diferencijalna dijagnostika kojom su isključeni drugi slični patološki entiteti. Na temelju rasporeda i morfologije patoloških promjena, opsega zahvaćenosti kralježnice i zglobova te usporedbe s kriterijima iz relevantne paleopatološke literature, dijagnoza

7. the development of pronounced lordosis and kyphosis, and
8. calcification of the intervertebral discs.

In addition, this individual exhibited ankylosis between the occipital condyles and the first cervical vertebra, as well as between the clavicles and the manubrium of the sternum. The presence of bursitis on the ischial bones further supports the initial hypothesis. The diagnosis is further supported by comparison with other published cases in the literature, which display similar osteological patterns.⁷⁴

CONCLUDING REMARKS

A detailed analysis of the skeleton of the man from Grave 313 at the Žumberak – St Nicholas the Bishop site indicates that the most probable diagnosis is an advanced form of ankylosing spondylitis with secondary complications that may have led to his death. The changes on the spine, sacroiliac joints and costovertebral joints point to a progressive inflammatory disease that probably began in adolescence, most likely before the age of twenty.

By the time of his death, between the ages of 25 and 35, the disease had progressed to complete ankylosis of the spine, bilateral ankylosis of the ribs, and pronounced deformities in the form of kyphosis and compensatory lordosis. Such changes often cause a severe deterioration in quality of life – including chronic pain, restricted mobility and impaired breathing, which may lead to respiratory insufficiency. It can be assumed that this disease was the immediate cause of his death at this relatively young age.

To establish the diagnosis more precisely, a detailed differential diagnostic assessment was carried out, which excluded other similar pathological conditions. Based on the distri-

⁷⁴ ŠLAUS, NOVAK, ČAVKA 2012: 3985–3992; GALOVÁ *et al.* 2022: 1873–1881; DUYAR 2019: 1100–1108; KHUDA-VERDYAN *et al.* 2021: 85–100.

⁷⁴ ŠLAUS, NOVAK, ČAVKA 2012: 3985–3992; GALOVÁ *et al.* 2022: 1873–1881; DUYAR 2019: 1100–1108; KHUDA-VERDYAN *et al.* 2021: 85–100.

ankilozantnog spondilitisa pokazuje se kao najvjerojatnija.

Važan aspekt nalazišta jest i kontekst ukopa. Pojedinaac nije bio izdvojen iz uobičajenog grobnog rasporeda, što upućuje na to da unatoč znatno narušenoj pokretljivosti i ovisnosti o pomoći, nije bio društveno marginaliziran. Time se otvara prostor za razmatranje stavova zajednice prema bolesnima. Šlaus, Novak i Čavka bilježe slične slučajeve iz srednjeg vijeka, ali ti su pojedinci doživjeli više od 45 godina, što sugerira dugotrajnu skrb i podršku zajednice.⁷⁵ U ovom slučaju bolest je započela rano i napredovala brzo s obzirom na to da vjerojatno nije bilo načina da se tijekom bolesti ublaži.

Ovaj nalaz predstavlja prvi dokumentirani slučaj ankilozantnog spondilitisa iz novovjekovnog konteksta u kontinentalnoj Hrvatskoj. Time znatno pridonosi paleopatološkoj literaturi i razumijevanju distribucije, kliničkih manifestacija i društvenih implikacija ove bolesti u arheološkim populacijama.

Zahvale

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Contribution and morphology of the pathological changes, the extent of involvement of the spine and joints, and comparison with criteria from the relevant palaeopathological literature, ankylosing spondylitis emerges as the most probable diagnosis.

An important aspect of the site is also the burial context. The individual was not separated from the usual burial arrangement, indicating that despite his severely limited mobility and dependence on assistance he was not socially marginalised. This opens space for considering the community's attitudes towards the sick. Šlaus, Novak and Čavka record similar cases from the medieval period, but those individuals lived beyond the age of 45, suggesting long-term care and support provided by their communities.⁷⁵ In this case, the disease began early and progressed rapidly, as most likely there were no means of alleviating its course.

This find represents the first documented case of ankylosing spondylitis from an early modern context in continental Croatia. It therefore makes a significant contribution to the palaeopathological literature and to the understanding of the distribution, clinical manifestations and social implications of this disease in archaeological populations.

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⁷⁵ ŠLAUS, NOVAK, ČAVKA 2012.

⁷⁵ ŠLAUS, NOVAK, ČAVKA 2012.

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**Sara Popović, *Starogradsko polje: studija arheološkog krajolika*,
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**Silvia Bekavac i Željko Miletić, *Kulturni krajolik Biokova:
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PRIKAZ / REVIEW

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Objavljivanje prvih krajobraznih monografija u hrvatskoj arheologiji predstavlja moment dovoljno zanimljiv za usporedni osvrt. Pisan za arheološku periodiku od jednog etnologa, naravno da će se zadržati na tom samom ulasku u krajolik, ostavljajući specifično arheološki sadržaj (poput analize lokaliteta ili povijesnih vrela) tome vičnim rukama. Starija je monografija prilagođeni doktorski rad Sare Popović koji je 2016. obranila pod mentorstvom Predraga Novakovića, renomiranoga krajobraznog arheologa koji je ovaj knjizi i jedan od recenzenata. Knjiga se dijeli na analitički (str. 7–167) i kartografski dio (str. 169–255). Uvod je razdijeljen u dijelove o kulturnim krajolicima i njihovoj zaštiti, zaštiti Starogradskega polja, sažetku povijesti Polja i dosadašnjim istraživanjima Staroga Grada i Polja. Kao predmet istraživanja deklarira se arheološka baština ruralnog prostora.

The publication of the first landscape monographs in Croatian archaeology is a development interesting enough to warrant a comparative reflection. Written for an archaeological journal by an ethnologist, this review naturally restricts itself to being an entrée into the concept of landscape, leaving the specifically archaeological aspects (such as the analysis of sites or historical sources) to more specialised authors. The earlier monograph is an adaptation of a doctoral dissertation by Sara Popović, defended in 2016 under the supervision of Predrag Novaković, a respected landscape archaeologist who also served as one of the book's reviewers. The book is divided into an analytical (pp. 7–167), and a cartographic section (pp. 169–255). The introduction is structured into chapters on cultural landscapes and their protection, the protection of Starogradsko Polje (the Stari Grad Plain), a summary of the Polje's history, and previous re-

ra, napose od naselja i zidanih lokaliteta (str. 8). Historijat konzervacije, gotovo je preuzetno reći „zaštite” Polja, već i zbog konstatiranih razdoblja izvan registriranog statusa ili nepopraćenosti mjerama stručnog postupanja (str. 17), zbog unikatne naravi područja pripada u domaću hrestomatiju strukovne prakse. U pregledu dosadašnjih istraživanja istaknuta je važnost priključivanja engleskih arheologa, jer dolaze iz akademske tradicije u kojoj je krajobrazna arheologija i nastala (str. 29). U poglavlju „Dokumentiranje različitih vrsta arheološke baštine” (str. 37–65) predstavlja se metodologija istraživanja, krenuvši od „povijesnog krajolika” (str. 39) u kakvom se razgraničavaju prostori naselja i poljoprivrednih površina. Uz otprije raspoložive podatke geoinformatički su razvrstani rezultati projektnih bilježenja krajobraznog stanja, iz čega proizlaze klasifikacije i tipologije zatečenih oblika (str. 57–65). Glavni dio monografije predstavlja poglavlje „Retrogradna analiza stanja očuvanosti baštine” (str. 67–115), gdje se primjenom izložene metodologije utvrđuju promjene u krajoliku kako u recentno vrijeme fotografskih dokumentiranja tako i u dužem dosegom omogućenom povijesnim i kartografskim dokumentima. Za tim rezultatima slijede poglavlja „Vrednovanje očuvanosti baštine na osnovi retrogradne analize” (str. 117–129), „Rezultati studije i mogućnosti za buduća istraživanja” (str. 131–143) i zaključak (str. 145–150), prije kartografske polovice potankih izlaganja krajobraznih sekcija još popraćenih sažetkom na engleskom jeziku i bibliografijom. U tim su poglavljima rezultati izloženi kronološki i statistički. Izgledni smjerovi budućih istraživanja razdijeljeni su na smještaj lokaliteta unutar glavnog fenomena, podjelu suhozidnim međama, kao i na samu strukturu podjele. Kartografski pregled sekcija rezimiran je istom vrstom analize, koncipirane po poprečnim i uzdužnim osima Starogradskega polja (str. 233–255).

Monografija o „kulturnom krajoliku Bio-kova” rezultat je istraživačkog projekta i prak-

search on Stari Grad and the Polje. The declared subject of study is the archaeological heritage of this rural environment, particularly settlements and built sites (p. 8). The history of conservation here – perhaps overconfidently referred to as the “protection” of Polje, given that for significant periods it lacked registered status or expert professional oversight (p. 17) – has, owing to the area’s unique character, formed a part of the established canon of Croatian conservation literature. The author highlights the importance of including English archaeologists in the review of previous research, as they proceed from the academic tradition in which landscape archaeology first developed (p. 29). The chapter “Documenting Different Types of Archaeological Heritage” (pp. 37–65) presents the research methodology, beginning with the concept of the “historic landscape” (p. 39), within which a distinction between settlement areas and agricultural zones is made. Alongside previously available data, the results of project-based records of landscape conditions have been classified using geographic information systems, resulting in typologies and classifications of the observed forms (pp. 57–65). The main part of the monograph is the chapter “Retrograde Analysis of the State of Heritage Preservation” (pp. 67–115), where the proposed methodology is applied to identify landscape changes – both in the recent period covered by photographic documentation and over a longer timespan traceable through historical and cartographic sources. This is followed by the chapters “Evaluation of Heritage Preservation Based on Retrograde Analysis” (pp. 117–129), “Results of the Study and Possibilities for Future Research” (pp. 131–143), and the conclusion (pp. 145–150). Then comes a cartographic section, which occupies roughly half of the monograph and includes detailed presentations of landscape sections, accompanied by a summary in English and a bibliography. In these chapters, the results are presented both chronologically and statistically. Proposed future research should be focused on the location of individual sites within the main

ticirane nastave eksperimentalne arheologije s „elementima preliminarne izvještaja” (str. 9–10). Nakon predgovora (str. 7–10) predstavlja se istraživani prostor Podglogovika na Biokovu (str. 13–27), prapovijesno polje humaka (str. 28–49), lokalitet tumula na Lokvi (str. 51–67), eksperimentalna obnova tumula (str. 69–79), poglavlje „Nestejci” (str. 80–89), „Od Peruna do Sv. Ilije” (str. 91–103), poglavlje posvećeno napuštenom selu Podglogovik (str. 104–121), „Stari putevi i Rodićeva cesta” (str. 123–135), „Topnički put i Prvi svjetski rat” (str. 137–151) te zaključak (str. 152–154). Sadržaj je popraćen bibliografijom (str. 155–160) i fotografskim ilustracijama (str. 162–210), koje uz naslove poglavlja asocirane poznatim pjesmama popularne glazbe pridonose ležernijem dojmu izdanja. Usprkos opažanim promjenama krajolika uslijed stočarskog korištenja, istraživani se teren karakterizira kao „djevičanska kulturna baština” (str. 7), a područje kao „bogat kulturni krajolik s fosiliziranim tragovima raznovrsnih aktivnosti” (str. 28). U takvom se krajoliku tumuli načelno zoniraju (str. 29), predstavljajući metodologiju kao rekognosciranje i mapiranje svih vidljivih arheoloških struktura u kulturnom krajoliku, uz iskapanja pojedinih „dijagnostičkih tumula” (str. 33). Ovakvo „praćenje stratigrafije nataloženih kulturnih slojeva s ciljem utvrđivanja njihovih međusobnih odnosa” (str. 35) dovodi i do opažanja zanimljivosti tumula zbog „mogućih rješenja o samom prostiranju i kretanjima stočarskih zajednica na Biokovu tijekom pretpovijesnih razdoblja” (str. 51), no usporedba s recentnim transhumantnim stočarstvom ostaje na pretpostavci (str. 65). Iako se povijesno konstatira utjecaj krupnih državnih promjena na stočarstvo (str. 99), u etnografskom je srazu s jedinim spomenom aktualnog stočara riječ o „bitno drugačijoj” privredi zbog današnjih poljoprivrednih poticaja (str. 119). Iako su raniji prinosi utvrdili hvarski utjecaj na gradnju poljskih pseudokupola u makarskom kraju, uključujući i sam naziv „trim”, ocjenjuje

landscape complex, the division of space by dry-stone walls and the structure of that division. The cartographic overview of sections is summarised through the same analytical approach, structured along the transverse and longitudinal axes of Starogradsko Polje (pp. 233–255).

The monograph on the cultural landscape of Biokovo is the result of a research project and practical teaching in experimental archaeology, presented with “elements of a preliminary report” (pp. 9–10). Following the preface (pp. 7–10), the study presents the research area of Podglogovik on Biokovo (pp. 13–27); the prehistoric field of burial mounds (pp. 28–49); the tumulus site at Lokva (pp. 51–67); the experimental reconstruction of a tumulus (pp. 69–79); the chapter “The Nesti” (translator’s note: an Illyrian people, mentioned by Scylax as the *Nέστοι*) (pp. 80–89); “From Perun to St. Elias” (pp. 91–103); a chapter devoted to the abandoned village of Podglogovik (pp. 104–121); “Old Roads and Rodić’s Road” (pp. 123–135); “The Artillery Road and the First World War” (pp. 137–151); and the conclusion (pp. 152–154). The contents are supplemented by a bibliography (pp. 155–160) and photographic illustrations (pp. 162–210), which, together with chapter titles inspired by well-known popular songs, lend this publication a somewhat lighter tone. Despite the observed landscape changes resulting from pastoral activity, the study area is described as “virginal cultural heritage” (p. 7), and the broader region as a “rich cultural landscape with fossilised traces of diverse activities” (p. 28). Within such a landscape, tumuli are roughly zoned (p. 29), with the applied methodology defined as the reconnaissance and mapping of all visible archaeological structures in the cultural landscape, alongside the excavation of selected “diagnostic tumuli” (p. 33). This “observation of the stratigraphy of deposited cultural layers to determine their mutual relationships” (p. 35) has also led to findings highlighting the particular relevance of the tumuli for understanding “possible patterns of movement and distribution of pastoral communities

se kako je njihova gradnja povezana s biokovskim stočarskim selima (str. 118). Stočarsko se korištenje smatra prekinutim (str. 28 i dr.), proturječno konstatiranjima prisutnosti stoke na paši (str. 119). U načelnim spominjanjima učinaka turizma takav se krajolik pojavljuje i kao „djelomice obnovljen stari artificijelni pastirski pejzaž” (str. 120), a zaboravljeni put koji upotrebljava stoka i dalje je „neka vrsta muzejskog eksponata na otvorenom” (str. 132), s arheološkom ocjenom nastanka pretpovijesne staze radi pogreba (str. 154). Zaključno se rezimiraju milenijske identičnosti zatečenih uvjeta, kao i vrijednost „definiranja oblikovnih elemenata vernakularne arhitekture staja”, s istraživačkom perspektivom analize sakralnih mjesta.

Prve monografske studije krajobrazne arheologije predstavljaju dobrodošao domaći početak inovativne disciplinarne prakse. U skladu sa svjetskom praksom, koja širi arheološku ekspertizu s nalazišta i lokaliteta na prostor i krajolik kakav je novim tehnologijama postao evidencijski dohvaatan, a geoinformatički pregledan, korisno je istaknuti neka obilježja pristupa i prostora za dorade. Najkrupnije se, već od samih naslova ovih knjiga, odnosi na sam pojam kulturnog krajolika – dakle, bilo kultiviranog bilo kulturno važnog zbog pridavanih značenja. U obje su studije protagonisti takvih kultivacija prisutni tek incidentno, što napose upada u oči kad je izričito riječ o nastavi eksperimentalne arheologije. Nadovezana je arheološka karakterizacija krajolika iza kakve ostaje nejasno pripada li i npr. obnova stare sekcije suhozida primjenom istog načina slaganja u promijenjeni arheološki krajolik, ako bi se takav postupak na zidanoj arhitekturi već držalo konzervacijom. Pitanje „kontinuirane prisutnosti čovjekovog djelovanja” (Bekavac i Miletić, str. 35) može pripadati u devastaciju arheološkog lokaliteta ili u srž fenomena kulturnog krajolika, no i uz Novakovićevu eklektičnu tolerantnost ne daje ploda pokušava li se u isti mah rasporediti u oba koša. Perspektivnosti pristupa sva-

on Biokovo during prehistoric periods” (p. 51), while the comparison with recent transhumant herding remains hypothetical (p. 65). Although the historical overview recognises the influence of major political changes on pastoralism (p. 99), the ethnographic encounter with the only contemporary herder mentioned describes a “fundamentally different” economy shaped by today’s agricultural subsidies (p. 119). While earlier research established the influence of Hvar on the construction of field pseudo-domed huts in the Makarska area – including the very term *trim* (translator’s note: a local Dalmatian word of likely Romance origin, denoting a small corbelled dry-stone hut similar to the Istrian *kažun* or the Apulian *trullo*) – the authors argue that their construction is linked to Biokovo’s pastoral settlements (p. 118). Pastoral use of the landscape is generally considered discontinued (p. 28 and elsewhere), which contradicts the noted presence of grazing livestock (p. 119). In general remarks on the impact of tourism, such terrain is described as a “partially restored old artificial pastoral landscape” (p. 120), while an abandoned path still used by livestock is characterised as “a kind of open-air museum exhibit” (p. 132), accompanied by an archaeological interpretation of a prehistoric path built for burial purposes (p. 154). The conclusion summarises the millennial continuity of environmental conditions and highlights the value of “defining the formal elements of the vernacular architecture of cattle sheds”, with a research outlook directed toward the analysis of sacral sites.

These first monographic studies in Croatian landscape archaeology represent a welcome beginning for this innovative disciplinary practice. In line with international trends that have extended archaeological expertise from sites and finds to the broader landscape – now accessible through new documentation technologies and geoinformatics – it is useful to point out certain characteristics of approach and areas for refinement. The most fundamental issue, already evident from the titles of these books, concerns the very notion of the “cultural land-

kako će doprinijeti usvajanje sistematizacije vrela i drugih globalno usvojenih metodologija, već dovoljno predstavljenih u relevantnoj literaturi.

Prve se hrvatske monografije krajobrazne arheologije mogu shvatiti kao jedan od oblika antropologiziranja domaće postprocesne arheologije. Za razliku od kontinentalnih akademskih tradicija, usvajanje takvih teorijskih obrazaca često je segmentarno. U kolijevci krajobrazne arheologije, uostalom, kao i krajobrazne arhitekture – Engleskoj, ova je metodologija stasala u poslijeratnim okolnostima industrijskog pritiska na poljoprivredne površine. Otprije snažna kulturnoj baštini posvećena civilna scena utjecala je na oblike istraživanja prostranstava nedohvatnih ikakvoj konzervatorskoj službi. Kad se pri tome kolektivna mašta zanišla svemirskim dobom i komputacijskim uvjerljivostima, kao popratni učinak nastao je fenomen Stonehengea kakav danas poznajemo, tek tada postajući najvažnijim nacionalnim spomenikom. S druge strane disciplinarnog plota u istoj su sredini nastali i poljoprivredni poticaji, obeštećenja poljoprivrednika zbog tržišnih zaknutosti uslijed njihovih dugoročno vrijednih obzira. Segmentiranost krajobraznih mjera mogla se raspoznati nedavnim uvođenjem konzervatorskih obeštećenja vlasnika poljoprivrednih zemljišta s arheološki važnim nalazištima, ignorirajući ostale relevantne vrste registriranih kulturnih dobara poput samih kulturnih krajolika ili ključnih ambijenata prakticiranja određenih vrsta nematerijalnih kulturnih dobara.

S ovim uvođenjem novoga arheološkog predmeta istraživanja, u međuvremenu iskusanog i u više domaćih doktorskih radova, vrijedi rezimirati kako njegovo usvajanje kod nas nije stiglo naprečac da bi segmentirana metodologija mogla biti jedini primijenjeni obrazac. Sjevernodalmatinski su krajolici iz pera engleskih projektnih suradnika uspoređivani sa širokim krčevinskim ogradama sjeveroistočne Škotske još 80-ih godina 20. sto-

scape” – that is, whether it refers to cultivated land or to a landscape that is culturally significant due to the meanings ascribed to it. In both studies, the protagonists in this debate appear only incidentally – a fact particularly striking given that one of them explicitly concerns the teaching of experimental archaeology. The accompanying archaeological characterisation of the landscape leaves open the question of whether, for instance, the reconstruction of an old section of dry-stone wall using the same building technique within a transformed archaeological landscape should itself be regarded as part of that landscape, when similar work on built architecture would already be considered conservation. The notion of the “continuous presence of human activity” (Bekavac and Miletić, p. 35) could belong either to the category of archaeological site disturbance or to the very essence of the cultural landscape phenomenon, yet – despite Novaković’s eclectic openness – it bears little fruit if one attempts to assign it simultaneously to both. The potential of this approach will certainly benefit from the adoption of a systematic treatment of sources and other globally established methodologies, already amply presented in relevant literature.

The first Croatian monographs on landscape archaeology can be understood as a form of integration of anthropological approaches into domestic post-processual archaeology. In contrast to continental academic traditions, the adoption of such theoretical frameworks has often been fragmentary. In the cradle of landscape archaeology, as well as of landscape architecture – England – this methodology developed in the post-war circumstances of industrial pressure on agricultural land. A long-established civil society movement devoted to cultural heritage influenced the forms of research conducted in areas beyond the reach of any of conservation service. Hand in hand with the collective imagination becoming captivated by the space age and the persuasive potential of computational modelling, the phenomenon of Stonehenge as we know it

ljeća. I sama je eksperimentalna arheologija u potrazi za sjevernodalmatinskim lončarima stigla sa Sveučilišta u Newcastleu, istodobno s prvim razmatranjima krajobrazne arheologije. Prva geoinformatička obrada arheološkog terena tada se zbilila u istom ambijentu Starogradske polja gdje je prije deset godina obavljena prva geoinformatizirana evidencija kulturnog krajolika na narudžbu konzervatorskog ureda, koja je polučila i prvi doktorski rad te vrste kod nas. Kulturni su krajolici stvar kontinuiranoga poljodjelskog kultiviranja koliko i njegovanja kulture interdisciplinarnosti, čemu, nadajmo se, i ove prve monografije otvaraju vrata.

today emerged – only then becoming Britain's foremost national monument. On the other side of the disciplinary fence, agricultural incentives were introduced in the same environment – compensation schemes for farmers disadvantaged by market conditions but recognised for their long-term, environmentally valuable practices. The fragmentary nature of landscape-related measures has become apparent with the recent introduction of conservation compensations for owners of agricultural land containing archaeologically significant sites, while other relevant categories of registered cultural property – such as cultural landscapes themselves or key settings for practising certain forms of intangible heritage – have been overlooked.

With the introduction of this new archaeological research subject, already explored in several Croatian doctoral theses, it is worth summarising that its adoption in Croatia did not occur abruptly, and therefore a segmented methodology cannot be seen as the sole applicable model. Northern Dalmatian landscapes were compared by English project partners in the 1980s with the extensive enclosure systems of north-eastern Scotland. Experimental archaeology itself – seeking traces of northern Dalmatian pottery production – arrived from Newcastle University at the same time as the first considerations of landscape archaeology. The first geoinformatic processing of an archaeological area in Croatia took place within the same setting: Starigradsko Polje, where, a decade ago, the first GIS-based documentation of a cultural landscape was carried out under the commission of the conservation office, resulting in the country's first doctoral thesis of this kind. Cultural landscapes are the product of continuous agricultural cultivation as much as of nurturing a culture of interdisciplinarity – something to which, it is to be hoped, these first monographs have now opened the door.

*Translation and proof-reading:
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UPUTE AUTORIMA

U časopisu *Archaeologia Adriatica* Odjela za arheologiju Sveučilišta u Zadru objavljuju se znanstveni prilozi iz arheologije i srodnih znanstvenih područja.

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ČAČE, S. 1985, *Liburnija u razdoblju od 4. do 1. stoljeća prije nove ere*, neobjavljena disertacija / unpublished PhD thesis, Sveučilište u Splitu, Zadar: Filozofski fakultet u Zadru.

Članak u časopisu

BELOŠEVIĆ, J. 1974, Starohrvatska nekropola uz humak „Materiza“ kod Nina, *Diadora*, 6, 221–242.

Ako časopis ima više svezaka:

ZARO, G., GUSAR, K., ČELHAR M. 2020, On the edge of empires. Exploring an Ottoman legacy on the Venetian frontier, *Journal of Field Archaeology*, 45(3), 188–208. doi: 10.1080/00934690.2019.1706141.

Ako je članak u časopisu objavljen na dvama jezicima, navode se obje inačice naslova razdvojene kosom crtom:

BARAKA PERICA, J., UGLEŠIĆ, A. 2021, Ulomak pogrebne mense s lokaliteta Galovac – Crkvina / Fragment of a Funerary Mensa from the Site of Galovac – Crkvina, *Archaeologia Adriatica*, 15, 521–539.

Ako se godište časopisa ne podudara s godinom objave:

BELOŠEVIĆ, J. 1962, Slavska keramika iz ranosrednjovjekovne nekropole „Materiza“ kraj Nina, *Diadora*, 2 (1960–1961), 237–249.

Članak u tisku

KUKOČ, S. 2022, Interpretacija funerarnog kôda: Geometrijskog simboličnog prikaza na daunskoj steli iz Arpija / Interpretation of a funerary code: Geometric symbolic depiction on the daunian stela from Arpi, *Asseria*, 15/16 (2019/2020) (u tisku / in press).

Članak u zborniku znanstvenog skupa

PEŠIĆ, M. 2017, Sjevernoafrička tera sigilata s brodoloma kod otočića Babuljaša blizu Pakoštana, u/in: *Rimske keramičarske i staklarske radionice. Proizvodnja i trgovina na jadranskom prostoru*, Zbornik III. Međunarodnog arheološkog kolokvija Crikvenica, 4.–5. studenog 2014., Lipovac Vrkljan G., Šiljeg B., Ožanić Roguljić, I., Konestra, A. (ur./eds.), Institut za arheologiju, Muzej grada Crikvenice, Crikvenica, 419–431.

Novinski članak

BATOVIĆ, Š. 1970, Ostaci života i kulture iz davne prošlosti Ljupča, *Narodni list*, god. XXI(CIX), br. 964, Zadar, 18. travnja, 5.

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BELOŠEVIĆ 1974: 222.

CAMBI 2005: 115, 117–142, 157.

Note reference:

UGLEŠIĆ 2000: 88, bilj. 6.

Several works by the same author should be ordered chronologically:

KUKOČ 2010: 96; 2012: 112.

A work by two authors:

MARIJANOVIĆ, HORVAT 2016: 49–53.

A work by three authors:

BARBIR, VUKOSAVLJEVIĆ, VUJEVIĆ 2020: 8.

A work by more than three authors:

CAMBI et al. 2007: 22, sl. 17.

All the authors should be listed at the end of the article in the literature list.

References to several bibliographical units (listed chronologically but works by one author should be grouped):

BRUSIĆ 2000: 14; 2002: 214–216; ČONDIĆ 2010: 28; KUKOČ 2010: 97; 2011: 78; 2017: 99; MARIJANOVIĆ 2012: 24.

Pictures, plates or notes are listed along with the numbers of the pages on which they appear:

Suić 1995: 297, Fig. 2.

Reference to ancient and mediaeval sources

References should be given in accordance with the Oxford Classical Dictionary (<http://classics.oxfordre.com/fileasset/images/ORECLA/OCD.ABBREVIATIONS.pdf>).

Example:

Plin., N.h.

Caii Plinii Secundi Naturalis historiae libri tricesimiseptimi et ultimi finis impressi. Venetiis: Per Nicolaum Jenson Gallicum, 1472.

List of literature and sources

The list of literature and sources is the same for both languages. The list of references should be arranged in alphabetical order with works by the same author listed chronologically. Works without names of authors or editors should be listed according to the title. Shortening of the titles and names of journals should be avoided. The titles and subtitles of monographs or proceedings as well as journal names should be italicised. The list of works by one author is followed by works in which the same author is the first of two authors and, after that, according to the year of publication, works in which (s)he is the first of three or more authors listed. When listing several works by the same author published in the course of the same year it is necessary to put consecutive letters of the alphabet after the publication year (e.g., BATOVIĆ, Š. 1968a,.....; BATOVIĆ, Š. 1968b,.....).

All other relevant information about the publication is given in both Croatian and English (e.g., u/in, ur./ed. or eds.) or commonly used Latin terms and abbreviations (e.g., et al). If a piece of work is published in bilingual form, both versions of the title are given, separated by a slash. Should a piece of work be a monograph published as part of a series, it will be duly noted. The original names of the publication places should be used (e.g., “Roma” instead of “Rome”). Pages of books or journals listed in notes or a literature list should be connected by an en dash “11–27” and not by a hyphen “11-27”.

Instructions for references

Books

One author

BRUSIĆ, Z. 1999, *Hellenistic and Roman relief pottery in Liburnia: north-east Adriatic, Croatia*, British Archaeological Reports International series 817, Oxford: Archaeopress.

Two or more authors

BROGIOLO, G. P., CHAVARRIA ARNAU, A. 2005, *Aristocrazie e campagne nell'Occidente da Costantino a Carlo Magno*, Firenze: All'insegna del Giglio.

If a book is published in bilingual form, both versions of the title are listed, separated by a slash.

RADIĆ ROSSI, I., BORZIĆ, I. 2022, *Brodolom rimskog trgovačkog broda kod rta Glavata na Mljetu / Shipwreck of a roman merchantman near cape Glavat on the island of Mljet*, Arheologija jadranske plovidbe i brodogradnje / Archaeology of Adriatic Shipbuilding and Seafaring, 3, Zadar: Sveučilište u Zadru.

Edited editions (when there is one editor use the abbreviation “ur./ed.”; when there are more, “ur./eds.”):

AURIEMMA, R. (ur./ed.) 2018, *Nel mare dell'intimità. L'archeologia subacquea racconta l'Adriatico*, Catalogo della mostra (Trieste, ex Pescheria - Salone degli Incanti, 17 dicembre 2017 - 1 maggio 2018), Roma: Gangemi Editore.

FADIĆ, I., ETEROVIĆ BORZIĆ, A. (ur./eds.) 2017, *Grad mrtvih nad poljem života. Nekropola gradinskog naselja Kopila na otoku Korčuli / The city of the dead above the field of life. Necropolis of Kopila hillfort on the island of Korčula*, Zadar: Muzej antičkog stakla u Zadru.

A chapter of a book with several authors:

RADOVČIĆ, D. 2017, Antropološka analiza / Anthropological analysis, u/in: *Grad mrtvih nad poljem života. Nekropola gradinskog naselja Kopila na otoku Korčuli / The City of the Dead Above the Field of Life. Necropolis of Kopila Hillfort on the Island of Korčula*, Fadić, I., Eterović Borzić, A. (ur./eds.), Zadar: Muzej antičkog stakla u Zadru, 125–137.

Unpublished master's or PhD thesis

ČAČE, S. 1985, Liburnija u razdoblju od 4. do 1. stoljeća prije nove ere, neobjavljena disertacija / unpublished PhD thesis, Sveučilište u Splitu, Zadar: Filozofski fakultet u Zadru.

Article in a journal

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If the journal has several volumes:

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If the journal volume is not the same as the year of publication:

BELOŠEVIĆ, J. 1962, Slavonska keramika iz ranosrednjovjekovne nekropole „Materiza“ kraj Nina, *Diadora*, 2 (1960–1961), 237–249.

Article in press

KUKOČ, S. 2022, Interpretacija funeranog kôda: Geometrijskog simboličnog prikaza na daunskoj steli iz Arpija / Interpretation of a funerary code: Geometric symbolic depiction on the daunian stela from Arpi, *Asseria*, 15/16 (2019/2020) (u tisku / in press).

Article in conference proceedings

PEŠIĆ, M. 2017, Sjevernoafrička tera sigilata s brodoloma kod otočića Babuljaša blizu Pakoštana, u/in: *Rimske keramičarske i staklarske radionice. Proizvodnja i trgovina na jadranskom prostoru*, Zbornik III. Međunarodnog arheološkog kolokvija Crikvenica, 4.–5. studenog 2014., Lipovac Vrkljan G., Šiljeg B., Ožanić Roguljić, I., Konestra, A. (ur./eds.), Institut za arheologiju, Muzej grada Crikvenice, Crikvenica, 419–431.

Newspaper article

BATOVIĆ, Š. 1970, Ostaci života i kulture iz davne prošlosti Ljupča, *Narodni list*, god. XXI(CIX), br. 964, Zadar, 18. travnja, 5.

Online sources

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List of appendices

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If the appendix originates from a published work, its bibliographical unit must be specified:

Fig. 1 Palagruža, cremation layer inside the walls of the Roman fortification (Kirigin 2012: 91)

If the appendix has been edited:

Fig. 1 Palagruža, cremation layer inside the walls of the Roman fortification (according to Kirigin 2012: 91; edited by: I. Borzić)

If the object listed in the appendix is stored in an institution, the institution as well as the inventory number must be specified along with the description:

Fig. 1 Belt buckle from Nadin, Zadar Archaeology Museum, inv. no. 15073 (taken by: I. Čondić)

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