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STAKLO IZ ČETVRTI SV. TEODORA U PULI

GLASS FROM THE ST THEODORE'S QUARTER IN PULA

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Tijekom arheoloških istraživanja 2005. godine, u gornjim slojevima lokaliteta u četvrti sv. Teodora u Puli, pronađeni su stakleni artefakti datirani od razdoblja antike do novog vijeka. Određeni stakleni ulomci predstavljeni ovim člankom mogu se pripisati sepulkralnom kontekstu te liturgijskoj funkciji i inventaru crkve s grobljem koja je postojala na ovom lokalitetu tijekom razdoblja kasne antike i ranog srednjeg vijeka.

Glass artefacts dating back from the Roman period to the Post Medieval period were found during archaeological excavations in 2005 in the upper layers of the site in the St Theodore Quarter in Pula. The glass artefacts presented in this paper are attributed to the sepulchral context as well as associated with liturgical functions and inventory of a church with a cemetery that existed at the site during the period of Late Antiquity and the Early Middle Ages.

KLJUČNE RIJEČI: rimsko staklo, kasnoantičko staklo, crkvena oprema, liturgija, kaleži na visokoj nozi, staklene svjetiljke, srednjovjekovno staklo, novovjekovno staklo

KEY WORDS: Roman glass, glass from Late Antiquity, church inventory, liturgy, stemmed goblets, glass lamps, Medieval glass, Post Medieval glass

UVOD

Stakleni ulomci predstavljeni ovim radom pronađeni su u kasnoantičkim i srednjovjekovnim stratigrafskim slojevima na pulskom arheološkom lokalitetu u četvrti sv. Teodora. Zaštitna arheološka istraživanja provodio je Arheološki muzej Istre u Puli u razdoblju od 2005. do 2009. godine, pod vodstvom dr. sc. Alke Starac. Lokalitet se nalazi u centru Pule, u blizini Arheološkog muzeja Istre, uz Gradsku knjižnicu, između Kandlerove ulice i mora, a obuhvaća nalaze iz histarskog razdoblja (naselje), rimskog (svetište s hramom posvećenom Herkulu, domus, terme, keramička i metalna građa te, kao specifikum, više od 2500 amfora pronađenih u sekundarnoj upotrebi), kasnoantičkog i ranosrednjovjekovnog (arhitektonski oblici, skulptura, sitni pokretni nalazi, među kojima i ulomci stakla predstavljeni u ovom članku) te kasnosrednjovjekovnog (kompleks crkve i samostana sv. Teodora, keramičko posuđe, medaljice), a prisutni su i novovjekovni nalazi, austrijski sloj te suvremeni sloj 20. stoljeća (sl. 1) (Bradara 2011; Jukić Buča 2015; Jukić Buča 2016; Krnjak 2010; Krnjak 2011; Orlić 2011; Petešić 2011; Rajić Šikanjić, Premužić 2011; Starac 2006a; Starac 2006b; Starac 2007a; Starac 2007b; Starac 2008; Starac 2009a; Starac 2009b; Starac 2009c; Starac 2009d; Starac 2009e; Starac 2011a-i).¹

Ranokršćanska crkva, prema P. Kandleru atribuirana sv. Luciji, stratigrafski se nalazila unutar graditeljskog sloja kasnoantičkog razdoblja (5. – 7. stoljeća), ispod samostanske crkve sv. Teodora po kojoj je lokalitet dobio ime (Starac 2011f). Najstariji sloj kosturnih grobova bez priloga orijentiranih u smjeru istok–zapad nalazio se na zapadu, ispred ulaza u crkvu. Unutrašnjost kasnoantičke crkve bila je opskrbljena kamenim namještajem (Jukić 2010; Jukić Buča 2011a; Jukić Buča 2015, 140–164; Jukić Buča 2017). Pronađeni su ulomci oltarne pregrade, od koje se ističu tri pluteja s kršćanskom simbolikom (grčki križ unutar kružnice s polukrugovima na prvom, kristogram unutar kružnice na drugom te motiv golubice na grančici i latinskih križeva koji flankiraju kristogram unutar kružnice na trećem) te više elemenata kamene skulpture i arhitektonske dekoracije. Kasnoantički namještaj zamijenjen je u razdoblju predromanike

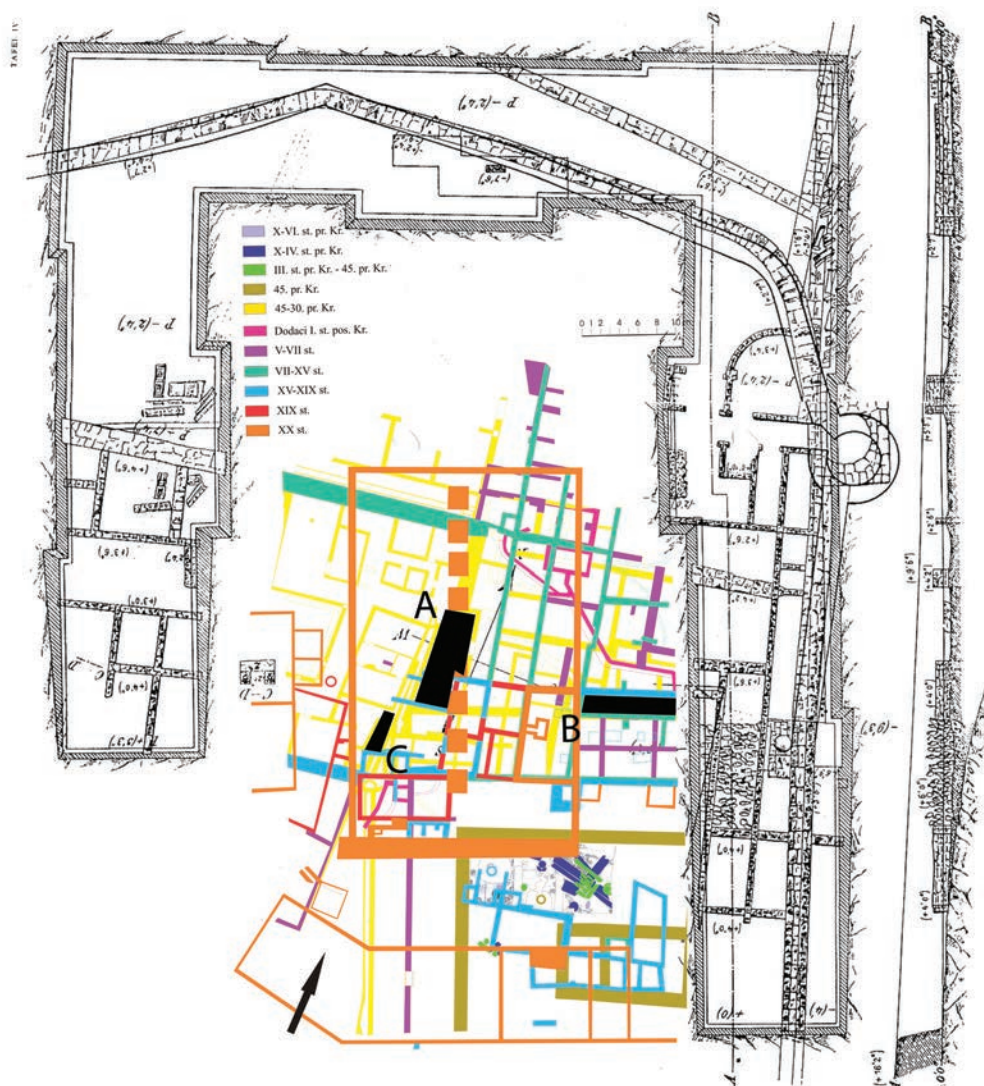
¹ Po završetku zaštitnog arheološkog istraživanja, veliki broj nalaza restauriran je i izložen u okviru izložbe *Pula - rađanje grada*, koju je Arheološki muzej Istre organizirao 2011. godine, kao prvu izložbu u novoootvorenom muzejsko–galerijskom prostoru Sveta Srca. Tom su prilikom najznačajniji rezultati istraživanja sažeti u obliku istoimene publikacije – kataloga izložbe s autorskim priložima arheologa koji su sudjelovali u arheološkom istraživanju, djelatnika Arheološkog muzeja Istre u Puli i vanjskih suradnika.

INTRODUCTION

The glass fragments presented in this paper were discovered in the stratigraphic layers from the periods of Late Antiquity and Middle Ages at the Pula archaeological site in the St Theodore's Quarter. Rescue archaeological excavations were conducted by the Archaeological Museum of Istria in Pula in the period from 2005 to 2009 under the guidance of Dr Alka Starac. The site is situated in the centre of Pula, near the Archaeological Museum of Istria, next to the City Library, between Kandlerova Street and the seashore, and includes findings from the Histrian period (settlement), Roman period (shrine with a temple dedicated to Hercules, *domus*, *thermae*, ceramic and metal items, and as a *specifium*, the finding of more than 2,500 amphorae in secondary use), Late Antiquity and Early Middle Ages (architectural forms, sculptures, assorted small artefacts, including fragments of glass presented in this paper), Late Middle Ages (church and monastery of St Theodore, ceramic pottery, medals), and also includes Post Medieval finds, the Austrian layer and the contemporary layer of the 20th CE (Fig. 1) (Bradara 2011; Jukić Buča 2015; Jukić Buča 2016; Krnjak 2010; Krnjak 2011; Orlić 2011; Petešić 2011; Rajić Šikanjić, Premužić 2011; Starac 2006a; Starac 2006b; Starac 2007a; Starac 2007b; Starac 2008; Starac 2009a; Starac 2009b; Starac 2009c; Starac 2009d; Starac 2009e; Starac 2011a-i).¹

The church from the Early Christian period is according to P. Kandler attributed to St Lucy, and stratigraphically is found in the construction layer from Late Antiquity (5th to 7th CE), under the monastery church of St Theodore after which the site was named (Starac 2011f). The oldest layer of skeletal graves without grave goods, oriented in an east–west direction, was located on the western side, in front of the church entrance. The interior of the church from Late Antiquity was refurbished with stone furniture (Jukić 2010; Jukić Buča 2011a; Jukić Buča 2015, 140–164; Jukić Buča 2017). Fragments of the altar rail were also found. Most notably, found, among which the most remarkable are the three chancel panels with Christian symbols (Greek cross within a circle with semicircles on

¹ Upon completion of the archaeological investigation, a large number of finds were exhibited at the exhibition *Pula - Birth of a City*, which was organised in 2011 by the Archaeological Museum of Istria, and was the first exhibition in the newly opened museum gallery Sacred Hearts. On that occasion, the most important results were summarised in the form of a publication carrying the same name – i.e. an exhibition catalogue presenting authored contributions by archaeologists who had participated in the archaeological investigation, staff from the Archaeological Museum of Istria in Pula and other external associates.



Sl. 1 Tlocrt svih graditeljskih stupnjeva u četvrti sv. Teodora (Starac 2011i, 62).

Fig. 1 Ground plan of all construction phases in the Quarter of St. Theodore (Starac 2011i, 62).

novim elementima koji obuhvaćaju ulomke ciborija i pluteja ukrašenih motivima izvedenim iz troprute vrpce (Jukić Buča 2011b; Jukić Buča 2015, 165-184). Inventaru crkve ili kasnoantičkom groblju može se atribuirati i nalaz kasnoantičkih keramičkih svjetiljki s kršćanskim motivima (Jukić Buča 2015, 191-196; Jukić Buča 2016, 174-182). Na temeljima kasnoantičke/predromaničke crkve gradi se u 15. stoljeću crkva sv. Teodora, koja je postojala do 19. stoljeća (Starac 2011g).

PROUČAVANJE ANTIČKOG STAKLA U ISTRI I HRVATSKOM PRIOBALJU

Brojni radovi o staklu tiču se proučavanja antičkog stakla, a najrelevantniji su oni koji su uspjeli obuhvatiti

the first, a Christogram within the circle on the second, and a motif depicting a dove on a branch with Latin crosses that flank the Christogram within the circle on the third) and a number of elements from a stone sculpture and architectural decoration. Furniture from Late Antiquity was replaced in the pre-Romanesque period with new elements that included fragments of a ciborium and chancel panels decorated with motifs derived from a three-braided ribbon (Jukić Buča 2011b; Jukić Buča 2015, 165-184). Finds of ceramic lamps from Late Antiquity expressing Christian motifs can also be attributed to the inventory of the church or the cemetery from Late Antiquity (Jukić Buča 2015, 191-196; Jukić Buča 2016, 174-182). On the foundations of the church

materijal s onih lokaliteta i/ili muzejskih zbirki koje sadrže veliki broj (među kojima i dobro sačuvanih te cjelovitih) artefakata. Ovakva istraživanja proveli su strani istraživači, od početka 20. stoljeća, u Egiptu, Grčkoj (Atena, Korint), Njemačkoj, Italiji, Galiji i drugdje (Buora 2004; Calvi 1968; Davidson 1940; Davidson Weinberg 1962; Davidson Weinberg 1975; Davidson Weinberg, Stern 2009; Foy 2010; Harden 1936; Kisa 1908; Lazar 2003; Morin-Jean 1932 - 1933; Mandruzzato 2008; Mandruzzato, Marcante 2005; Mandruzzato, Marcante 2007; Rützi 1991a; Rützi 1991b; Stern 1995; Whitehouse 1997; Whitehouse 2001a; Whitehouse 2003a, i dr.). Za područje Hrvatske i Istre, značajan je kolokvij *Antično staklo v Jugoslaviji* održan 14. 10. 1971. godine, s referatima objavljenim u istoimenom zborniku, nakon kojeg se povećava broj domaćih stručnjaka zainteresiranih za proučavanje stakla (Grafenauer 1976). Od izrađenih tipologija staklenih nalaza iz razdoblja antike najčešće se koriste tipologije C. Isings (Isings/Is) i B. Rützi (AR) (Isings 1957; Rützi 1991a; Rützi 1991b). Produkcija stakla u kasnoj antici i ranom srednjem vijeku bila je znatno manja, repertoar oblika veoma reduciran i skroman te gotovo posve drugačiji od antičkog razdoblja. Tipologije staklenih oblika na području Europe definirane su do razdoblja renesanse, nakon čega se uglavnom primjenjuje postupak kategorizacije u osnovne oblike uz opis i isticanje glavnih karakteristika (Evison 2000; Feyeux 2003; Foy, Sennequier 1989; Van den Bossche, 2001). Za staklene posude u funkciji svjetiljaka ustanovljene su zasebne tipologije (Crowfoot, Harden 1931; Uboldi 1995).

Prikaz staklarske peći i procesa proizvodnje staklene posude koji se nalazi na tri, dosad poznate, keramičke svjetiljke (iz okolice Ferrare u Italiji, okolice Kopra u Sloveniji i okolice Zadra, antička *Asseria*, na kojoj je navedeno ime *Athenio*) zanimljiv je svjedok staklarske aktivnosti u antici koja je bila intenzivna (Abramić 1959; Baldoni 1987; Fadić 1997; Fadić 2002; Fadić 2004a; Lazar 2006a). Zbog svoje krhkosti i fragilnosti staklo je podložno oštećenjima, stoga su se oštećeni stakleni proizvodi u razdoblju antike i kasne antike restaurirali, a zahvaljujući karakteristikama materijala koje omogućuju rastapanje i ponovno oblikovanje, staklene krhotine prikupljane i reciklirane (Antonaras 2010, 383; Fadić 1997; Fadić 2002; Fadić 2004a; Perović 2016; Stern 1999, 451). U razdoblju antike uvozili su se staklarski proizvodi na područje Hrvatske iz italskih (Kampanija, Rim, Akvileja), galskih (radionice u dolini Rhône), mediteranskih (Aleksandrija, Sirija, Palestina, obale Male Azije, Cipar) i porajnskih radionica, iz kojih je uvoz dominirao tijekom kasnoantičkog vremena (Damevski

from the Late Antiquity or pre-Romanesque period, a church dedicated to St Theodore was built in the 15th CE, and it existed until the 19th CE (Starac 2011g).

A STUDY OF ANCIENT GLASSWARE FROM THE ISTRIAN AND CROATIAN COASTAL REGION

Numerous papers on glassware cover the study of Roman period glassware, but the most relevant studies are those that cover material from sites and/or museum collections that contain a large number of (including well-preserved and complete) artefacts. This kind of research has been conducted from the beginning of the 20th CE by foreign researchers in Egypt, Greece (Athens, Corinth), Germany, Italy, Gaul and elsewhere (Buora 2004; Calvi 1968; Davidson, 1940; Davidson Weinberg 1962; Davidson Weinberg 1975; Davidson Weinberg, Stern 2009; Foy 2010; Harden 1936; Kisa 1908; Lazar 2003; Morin-Jean 1932-1933; Mandruzzato 2008; Mandruzzato, Marcante 2005; Mandruzzato, Marcante 2007; Rützi 1991a; Rützi 1991b; Stern 1995; Whitehouse 1997; Whitehouse 2001a; Whitehouse 2003a, etc.). Important for the Croatian and Istrian regions is the colloquium *Antično staklo v Jugoslaviji* held on 14th October 1971, with the papers published in proceedings of the same title, after which the number of domestic experts interested in the study of glassware had increased (Grafenauer 1976). The most commonly used typologies of glass finds from the Roman period were made by C. Isings (Isings/Is) and B. Rützi (AR) (Isings 1957; Rützi 1991a; Rützi 1991b). The production of glassware in Late Antiquity and the Early Middle Ages considerably decreased, the repertoire of forms was greatly reduced and simplified, and became almost completely different from those of the Roman period. Typology of glass forms in Europe can be defined up to the Renaissance period. After this period a process of categorisation into basic forms with descriptions and highlights of only the main features is mainly used (Evison 2000; Feyeux 2003; Foy, Sennequier 1989; Van den Bossche 2001). Separate typologies have been adopted for glass vessels that function as lamps (Crowfoot, Harden 1931; Uboldi 1995).

A depiction of a glass furnace and the process for producing glass vessels, which is found on three ceramic lamps (from the surrounding areas of Ferrara in Italy, Koper in Slovenia and ancient Asseria near Zadar, carrying the name *Athenio*) is an interesting indication of the intense glasswork in Antiquity (Abramić 1959; Baldoni 1987; Fadić 1997; Fadić 2002; Fadić 2004a; Lazar 2006a). Due to its frailty and fragility, glass is prone to damage, hence damaged glassware was repaired during the Roman

1976; Fadić 1993; Fadić 2004b; Fadić, Štefanac 2010; Štefanac 2014 i dr.).

Na postojanje antičkih lokalnih staklarskih radionica u Dalmaciji upućuju specifični oblici i reljefni žigovi lokalnih oblika koji se nalaze na dnima staklenih proizvoda (Fadić 1982; Fadić 2002; Fadić 2008; Fadić, Štefanac 2012). Na području Aserije zabilježena su imena antičkih staklara (Fadić, Štefanac 2009, 209).

Zemljopisno područje s izrazitom staklarskom proizvodnom i izvoznom aktivnošću najbliže Istri je sjeverna Italija. Velika količina stakla pronađena na području Akvileje i njezine okolice upućuje na značajan proizvodni centar, koji je tijekom 1. i 2. stoljeća djelovao pod utjecajem orijentalnih radionica, a tijekom 3. i 4. galskih (Calvi 1968; Mandruzzato 2008, Mandruzzato, Marcante 2005; Mandruzzato, Marcante 2007). Novija istraživanja sugeriraju postojanje većeg broja radionica u Akvileji, od kojih su neke djelovale i tijekom razdoblja kasne antike (Buora, Mandruzzato, Verità 2010). Na cijelo područje Mediterana i Europe, gdje su stakleni oblici izrađivani u sekundarnim radionicama, staklena sirovina koja se temeljila na natronu uvožena je s područja Egipta i Levanta, a od 9. stoljeća počinje se proizvoditi lokalno na bazi biljnog pepela (Whitehouse 2003b). Recentna geokemijska analiza stakla s područja regije sjevernog Jadrana od rimskog do srednjovjekovnog razdoblja pridonijela je razumijevanju porijekla i tehnologije izrade; većina stakla analiziranih ulomaka iz antičkog, kasnoantičkog i ranosrednjovjekovnog razdoblja proizvedena je u primarnim radionicama na području sirijsko-palestinske i egipatske obale, odnosno istočnog Mediterana, iako se upotreba primarnih izvora s područja zapadnog Mediterana ne može sa sigurnošću isključiti (Gallo 2012).² Rijetke su dokumentirane staklarske radionice iz vremena kasne antike. Osim u Akvileji, proizvodnja stakla u kasnoantičkom razdoblju odvijala se na području Seveglia i Torcella (Buora 1997; Ferri 2006; Leciejewicz 2002, 58). Dokumentirano mjesto proizvodnje stakla od 5. do 8. stoljeća u sjevernoj Italiji (Friuli) bilo je Invillino (Bierbrauer 1987, 271-286). U Sloveniji su na području Celja (*Celeia*) i Ptujja (*Poetovio*) pronađeni tragovi staklarske aktivnosti te peći u kojima se proizvodilo staklo u rimskom i kasnoantičkom razdoblju, dok za Ljubljano (*Emona*) i Kranj (*Carnium*) hipoteze nisu utvrđene sigurnom arheološkom građom (Lazar 2003, 214-232; Lazar 2008; Plesničar-Gec 1980 - 1981; Sagadin 2004). Staklarska radionica na području

period and Late Antiquity. Thanks to the properties of glass, which enable melting and re-shaping, glass fragments were collected and recycled (Antonaras 2010, 383; Fadić 1997; Fadić 2002; Fadić 2004a; Perović 2016; Stern 1999, 451). In the region of Croatia during the Roman period, glassware was imported from Italy (Campania, Rome, Aquileia), Gaul (workshops in the Rhône valley), the Mediterranean (Alexandria, Syria, Palestine, the shores of Asia Minor, Cyprus), and workshops in the Rhine region from which imports were dominant during the Late Antiquity (Damevski 1976; Fadić 1993; Fadić 2004b; Fadić, Štefanac 2010; Štefanac 2014, etc.).

The existence of local Roman workshops in Dalmatia is supported by the specific forms and relief stamps exemplifying local forms found on the bottoms of glassware (Fadić 1982; Fadić 2002; Fadić 2008; Fadić, Štefanac 2012). The names of Roman glaziers in the area of Asseria have been documented (Fadić, Štefanac 2009, 209). The geographical area with distinctive glass production and export activity closest to Istria is northern Italy. The large quantity of glass found in the area of Aquileia and its surroundings suggests it was a significant production centre, which during the 1st and 2nd centuries was influenced by oriental workshops, and during the 3rd and 4th centuries by Gallic workshops (Calvi 1968; Mandruzzato 2008; Mandruzzato, Marcante 2005; Mandruzzato, Marcante 2007). Recent research suggests that there existed a large number of workshops in Aquileia, some of which operated during Late Antiquity (Buora, Mandruzzato, Verità 2010). Across the Mediterranean and Europe, where glass shapes were made in secondary workshops, raw glass material based on natron was imported from the area of Egypt and Levant, and from the 9th CE onwards, it was produced locally and was based on plant ash (Whitehouse 2003b). Recent geochemical analysis of glass from the region of the North Adriatic dating from Antiquity to the Middle Ages has contributed to gaining an understanding of its origin and technology used in its production; most of the analysed glass fragments from Antiquity, Late Antiquity and Early Middle Ages were produced in primary workshops along the Syrian-Palestinian and Egyptian coast, and the eastern Mediterranean, although the use of primary sources from the area of the western Mediterranean cannot be ruled out with certainty (Gallo 2012).² Documented workshops from Late Antiquity are rare. Besides Aquileia, glass production in Late Antiquity took place in Seveglia

² Analiza podupire model lokalne produkcije, organizirane preko malog broja primarnih radionica koje su isporučivale sirovinu većem broju sekundarnih radionica u kojima se staklo ponovno topilo i oblikovalo.

² The analysis supports a model of local production, organised through a small number of primary workshops which supplied raw materials to a larger number of secondary workshops in which glass was once again melted and shaped.

Dalmacije potvrđena je nalazom staklarske peći s velikim brojem poluproizvoda u Saloni (Auth 1975; Buljević 1994). I. Fadić pretpostavlja da se proizvodni centar nalazio i na području Podgrađa kod Benkovca (antička Aserija) radi iznimne količine staklenih nalaza te navodi nalaz potopljenog antičkog broda nedaleko otoka Mljeta koji je sadržavao velike količine staklene sirovine te stoga upućuje na mogućnost funkcioniranja lokalnog staklarskog obrta (Fadić 2004a, 96). Oko postojanja staklarske radionice u Sisku i Vinkovcima mišljenja se razilaze (Baćani 2017; Leljak 2013; Leljak, Lazar 2013; Vulić 2009). U Štrbincima se pretpostavlja staklarska proizvodnja tijekom razdoblja 4. i prve polovice 5. stoljeća (Migotti 1998; Migotti 2000; Migotti 2009; Migotti, Leljak 2017; Leljak, Lazar 2013, 126–130). Na području Dalmacije evidentirana su imena antičkih staklara čiji su stakleni proizvodi uvezeni na područje Dalmacije ili su ovdje proizvedeni (Buljević 2005). Od srednjovjekovnog razdoblja najprepoznatljivija i najproduktivnija tvornica stakla djeluje u Muranu (Venecija) u Italiji, a tijekom tri stoljeća (14. – 16.) staklarska djelatnost proizvodnje uglavnom venecijanskih oblika odvijala se i u Dubrovniku (Gaspardo 1979, 76; Han 1979; Han 1981; Perrot 1958; Whitehouse 2014).

U Istri do sada nisu otkriveni tragovi proizvodnje stakla u kasnoantičkom i srednjovjekovnom razdoblju, poput poludovršenih proizvoda ili kalupa i sirovine potrebnih za izradu staklenih proizvoda, kao ni staklarske peći te se podrazumijeva uvoz gotovih staklenih proizvoda. Novija arheološka istraživanja na području luke Veštar kod Rovinja ukazuju na mogućnost da se u novovjekovnom razdoblju ondje odvijala neka vrsta proizvodnje ili trgovine staklom (Bekić 2014a, 57–66; Bekić 2014b, 243–252).

ANALIZA

Od 10. svibnja do 15. rujna 2005. godine, na lokalitetu u četvrti sv. Teodora u Puli istraživani su stratigrafski slojevi s nalazima staklenih ulomaka iz ovog članka. Zbog krhkosti materijala, stakleni oblici najčešće nisu sačuvani u cijelosti. Pronađeni ulomci su mali, često neprepoznatljivog dijela posude, a to je slučaj i s ulomcima predstavljenima radom. Ulomci su pronađeni na različitim područjima poremećenih stratigrafskih slojeva, okvirno datiranih od razdoblja kasne antike do kasnog srednjeg vijeka te se ne može o njima zaključiti detaljnije s obzirom na lokaciju pronalaska. Nisu pronađeni na specifičnom mjestu na lokalitetu, poput kuće ili crkve, odnosno u očitom kontekstu koji bi mogao naznačiti njihovu svrhu, niti su grobni prilog, s obzirom da kršćanska pravila ne dopuštaju pokapanje

and Torcello (Buora 1997; Ferri 2006; Leciejewicz 2002, 58). The documented site where the production of glass took place from the 5th to 8th CE in northern Italy (Friuli) was Invillino (Bierbrauer 1987, 271–286). In Slovenia, traces of glassmaking activity were discovered in the area of Celje (*Celeia*) and Ptuj (*Poetovio*), including furnaces in which glass was produced in the Roman period and Late Antiquity, while for Ljubljana (*Emona*) and Kranj (*Carnium*) no specific archaeological materials have been found to support such hypotheses (Lazar 2003, 214–232; Lazar 2008; Plesničar-Gec 1980 – 1981; Sagadin 2004). The existence of a workshop in Dalmatia was confirmed by the discovery of a glass furnace along with a large number of semifinished products in Salona (Auth 1975; Buljević 1994). I. Fadić assumes that a production centre was also located in the area of Podgrađe near Benkovac (ancient *Asseria*) due to an exceptional amount of glass finds and also cites the discovery of a sunken ancient ship near the island of Mljet, which contained large amounts of raw glass material, hence suggesting the possibility of a workshop operating locally (Fadić 2004a, 96). Opinions vary as to the existence of workshops in Sisak and Vinkovci (Baćani 2017; Leljak 2013; Leljak, Lazar 2013; Vulić 2009). Glass production during the 4th and first half of the 5th CE is assumed to have existed in Štrbinci (Migotti 1998; Migotti 2000; Migotti 2009; Migotti, Leljak 2017; Leljak, Lazar 2013, 126–130). In Dalmatia the names of glassmakers from Antiquity whose glassware was imported into Dalmatia or produced there have been recorded (Buljević 2005). Since the Middle Ages, the most recognisable and most productive workshops operated in Murano (Venice) in Italy, and over the course of three hundred years (14th to 16th centuries), the glassmaking activities exemplifying mainly Venetian forms were also taking place in Dubrovnik (Gaspardo 1979, 76; Han 1979; Han 1981; Perrot 1958; Whitehouse 2014).

So far there have been no discovered traces of glass production from Late Antiquity and the Middle Ages in Istria, such as finds of semi-finished products or moulds and raw materials required for making glassware, or glass furnaces, suggesting that finished glassware had been imported. Recent archaeological researches carried out in the area of the Veštar harbour near Rovinj indicate that there may have been some sort of glass production or trading taking place in the area (Bekić 2014a, 57–66; Bekić 2014b, 243–252).

ANALYSIS

From 10 May to 15 September 2005, at the St Theodore's Quarter in Pula, stratigraphic layers containing finds of glass fragments as described in this article were researched. Due

s priložima, čime bi se pretpostavila njihova datacija s obzirom na kontekst drugih pronađenih priloga. Brojni ulomci nose karakteristike prisutne na staklenim oblicima tijekom dugog razdoblja te ih je, ukoliko se i mogu tipološki odrediti, izraziti problem datirati.

Predstavljeni artefakti pohranjeni su u Srednjovjekovnoj zbirci i označeni signaturnim brojem. Ulomci su izmjereni, opisani, fotografirani, a većina ih je i nacrtana. Temeljem ovih informacija, u slučajevima gdje je bilo moguće, ulomci su tipološki klasificirani (određeni su tip i/ili oblik staklene posude) prema ranije navedenim tipologijama te datirani. Putem proučavanja dostupne literature vezane uz znanstvene objave staklenog materijala u Hrvatskoj (Dalmacija, Istra), Sloveniji, Italiji i drugim relevantnim lokacijama te usporedbom s drugim staklenim nalazima, povučene su paralele između njihove distribucije, moguće lokacije izrade te namjene. Za ulomke kod kojih nije moguća pobliža determinacija, diskutiran je širi kontekst s obzirom na njihove izrazite karakteristike.

Prema morfologiji i potencijalnoj funkciji stakleni se artefakti mogu podijeliti na četiri skupine. Prva se odnosi na kasnoantičko/ranokršćansko i ranosrednjovjekovno razdoblje i uključuje artefakte potencijalno vezane uz liturgiju i rasvjetljavanje crkvenog prostora te ulomke koji se ne povezuju s crkvenom funkcijom. Druga skupina, vremenski kasnija, odnosi se na stakleni materijal koji pripada srednjovjekovnom i novovjekovnom razdoblju, dok treća grupa obuhvaća građu tipičnu za rimsko razdoblje. Ulomci druge i treće skupine prisutni su u navedenim slojevima radi poremećenja stratigrafije. Četvrtoj skupini pripadaju ulomci prozorskog stakla, koji su izdvojeni kao posebna kategorija. U petu skupinu okupljeni su ulomci koji se radi loše i fragmentarne očuvanosti ne mogu ni okvirno datirati i/ili tipološki definirati.

I. Kasnoantička staklena građa (prva grupa)

Činjenica da su se na lokalitetu nalazili ranokršćanska crkva i groblje utjecala je na determinaciju funkcije nalaza i njihovu kategorizaciju pojedinoj grupi nalaza. Stoga su stakleni artefakti prve grupe podijeljeni, prema potencijalnoj funkciji, na grupu nalaza vezanih uz liturgiju i opremu crkvenog prostora te upotrebu prilikom izvođenja pogrebnih rituala te grupu nalaza kod kojih se ne može pretpostaviti upotreba u navedene svrhe.

A. Grupa nalaza vezanih uz kontekst crkve i groblja

Staklene posude korištene su u crkvenom prostoru, u liturgiji i za osvjetljavanje. Kasnoantičke svjetiljke

to the fragility of the material, glass shapes generally were not preserved in their entirety. The fragments found are small, often unrecognisable part of a vessel, and this is also the case with fragments presented in the paper. Fragments have been found in various areas of disrupted stratigraphic layers, dating from the Late Antiquity to the Late Middle Ages, and no further details can be inferred about them due to the location of the find. They were not found in a specific location at the site, such as a house or church, or in an obvious context that would suggest their purpose, nor are they grave goods, given that Christian rules do not permit burials with items, suggesting a certain period given the context of other found items. Numerous fragments show features that can be attributed to a broader time period and even if they can be typologically identified, dating them would be extremely difficult. The presented artefacts are stored in the Medieval Collection and marked with a reference number. The fragments were measured, described, photographed, and most of them were drawn. Based on this information and where possible, the fragments were classified typologically (defined type and/or shape of glass vessel) according to the above typologies and then dated. By studying available literature related to the scientific publication of glass material in Croatia (Dalmatia, Istria), Slovenia, Italy and other relevant locations and through comparison with other glass finds, parallels were drawn between their distribution and possible location of their production and intended use. For fragments that could not be determined, a broader context was discussed in view of their distinct characteristics.

According to the morphology and potential function, glass artefacts can be categorised into four groups. The first group refers to the Late Antiquity or the Early Christian period and Early Middle Ages and includes artefacts related to liturgy and the illumination of church space as well as those fragments that have no church use. The second group, dated to a later period, refers to glass material from the Medieval and Post Medieval periods, while the third group includes materials typical of the Roman period. Fragments from the second and third groups are present in the mentioned layers due to the disruption of the stratigraphy. The fourth group contains window glass fragments, which are classified as a special category. The fifth group includes collected fragments which due to poor and fragmentary preservation cannot be approximately dated or typologically defined.

I. Glassware from Late Antiquity (first group)

The fact that an early Christian church and cemetery used to be located at the site has had an impact on determining the function of the finds and attributing

razlikuju se po svojim oblicima koji često ne reflektiraju njihovu funkciju. Najčešće se radi o čašama koje se svojim oblikom ne moraju razlikovati od čaša za piće. Općenito se atribucija i funkcija dubioznih oblika temelji na pojedinim specifičnostima, primjerice ručkicama koje upućuju da se radi o visećoj svjetiljci, a koje ne moraju biti prisutne u trenutku pronalaska artefakta. Pri utvrđivanju funkcije pomaže i pronalazak u konkretnom kontekstu i/ili uz druge određujuće nalaze, primjerice metalne lance koji upućuju na viseću konstrukciju za osvjetljavanje ili fitilje (Foy 2011a). Staklene posude u razdoblju kasne antike često se pronalaze u sepulkralnom kontekstu. Iako kršćanski grobovi ne sadrže priloge, nalaz staklenih posuda uz grobove je čest. Radi se o ograničenom repertoaru oblika posuda korištenih prilikom izvođenja pogrebnih običaja koji ne predstavljaju grobne priloge, već su ostavljeni u grobovima i oko njih s obzirom da se nakon korištenja u ritualu nisu više mogli koristiti (Antonaras 2010, 383, 392).

1. Kaleži na visokoj nozi

Na lokalitetu je pronađeno šest ulomaka i tri cijele stopice (kat. br. 1 – 9) izrađenih od stakla prožetog sitnim mjehurićima zraka smeđe, tamno zelene, svijetlo zelene i svijetlo plave boje te prozirnog stakla (sl. 2). Sve stopice imaju zaobljeni šuplji cjevasti rub, a na pojedinim se nalazi više/manje sačuvana stapka. Pripadaju kaležima na visokoj nozi sa stopicom forme Isings 111 (Isings 1957, 139-140).

U literaturi je ova forma opširno dokumentirana, a njezino kronološko određenje te morfološke distinkcije provedeni su na nalazištima s adekvatnim brojem reprezentativnih uzoraka (Bierbrauer 1987, 272-273; Harden 1975, 21-23; Uboldi 1991, 85-87). Oblik ovog



Sl. 2 Stopice kaleža na visokoj nozi kat. br. 3 - 6 (foto: V. Jukić Buča).
Fig. 2 Feet of stemmed goblets (Cat. no. 3 - 6) (photo by: V. Jukić Buča).

them to a specific group of finds. Therefore, the glass artefacts from the first group are divided according to their potential function into a group of finds related to liturgy and equipment belonging to the church premises, and their use in funeral rituals, and a group of finds for which the mentioned use cannot be ascertained.

A. Group of church and cemetery finds

Glass vessels were used for liturgical and lighting purposes in the church. Lamps from Late Antiquity differ in shape, which often does not reflect their specific function. Most often, these are glass cups whose shape does not necessarily differ from glass cups used for drinking. In general, the attributes and function of dubious forms are based on certain specifics, such as handles indicating that it is a suspended lamp, and which do not have to be present at the time the artefact is actually found. When an item is found in a specific context, it makes the process of determining its function easier, especially when it is accompanied by other determining finds such as, for instance, metal chains that indicate a suspended structure for lighting or a wick (Foy 2011a). Glass vessels from Late Antiquity are often found in a sepulchral context. Although Christian graves do not contain grave goods, finds such as glass vessels alongside graves are common. It involves a limited repertoire of vessel shapes used during funeral customs that are not grave goods, but were left in the graves and around them, given that they were no longer used after the ritual (Antonaras 2010, 383, 392).

1. Stemmed goblets

Found at the site were six feet fragments and three entire feet (Cat. no. 1 – 9) made of glass containing small air bubbles of brown, dark green, light green and light blue colours as well as transparent glass (Fig. 2). All the feet have a rounded, hollow, tubular edge, with the stem more or less preserved on some of the finds. They belong to stemmed goblets and have an Isings 111 shape (Isings 1957, 139-140).

This shape has been widely documented in literature – its chronological determination and morphological distinctions have been studied at the sites with an adequate number of typical samples (Bierbrauer 1987, 272-273, Harden 1975, 21-23, Uboldi 1991, 85-87). The shape of this goblet is made of a circular foot, a cylindrical stem and conical or rounded body, i.e., shaped as a 'V', 'U' or tulip. The round foot usually has a thickened, hollow edge and a convex bottom from which the cylindrical stem rises. The body has a large, rounded, uniformly thick rim. As for the goblets from Pula, only the feet have been

kaleža tvore kružna stopica, cilindrična stapka i konusan ili zaobljen recipijent, odnosno oblikovan u formu slova 'V', 'U' ili tulipana. Okrugla stopica najčešće ima podebljani šuplji rub te konveksno dno iz kojeg se uzdiže uspravna cilindrična stapka. Recipijent za tekućinu je velik, zaobljenog, jednakomjerno zadebljanog ruba. S obzirom da su od pulskih kaleža sačuvane samo stopice sa stapkom, jedino se one mogu detaljnije razmatrati. Zastupljene su sve varijante stopice prema V. Bierbraueru – tipu Ia pripada kat. br. 4, tipu Ib kat. br. 1 i 3, tipu Ic kat. br. 2 i 8, a tipu II kat. br. 5 – 7. Ulomak prozirne stopice bez boje kat. br. 9 premlen je da bi mu se mogao razaznati tip, a s obzirom na boju upitna je njegova kasnoantička determinacija.

Š. Perović opisuje dvije metode izrade kaleža na visokoj nozi; u ranijim razdobljima izrađivan je puhanjem u cijelosti, a kasnije u dvije faze – zasebno se izrađuju recipijent i stapka sa stopicom te se naknadno spajaju (Perović 2010, 46–48). Prva metoda može biti postignuta na dva načina – puhanjem u jednom mahu, kada je šupljina cilindrične stapke podijeljena membranom u središtu i oblikovanjem pune stapke postupkom opuštanja dijela vruće mase pri izradi recipijenta nakon čega se oblikuje uz vrtnju. Metode koje se upotrebljavaju u ranom srednjem vijeku, razvijene u 5. stoljeću, obuhvaćaju proces zasebne izrade recipijenta i stapke sa stopicom koji se naknadno spajaju. Takav način izrade omogućuje dobivanje sferičnog proširenja na stapci, ispod spoja s recipijentom. Većina primjeraka nije ukrašena, a ukoliko ukras postoji, izveden je u formi girlande ili vodoravne spiralne dekoracije izrađene od tankih staklenih niti apliciranih na vanjsku stranu recipijenta. Kaleži na visokoj nozi služili su, osim u svojoj utilitarnoj funkciji, kao uljane svjetiljke za osvjetljavanje sakralnog prostora, a luksuzniji tipovi koristili su se i u liturgiji. Tip kaleža s tri male ručkice na rubu sa sigurnošću upućuje na funkciju viseće svjetiljke. Na kasnoantičkim lokalitetima na kojima su se nalazili sakralni objekti čest su nalaz staklene stapke i stopice ovoga tipa kaleža. Na crnomorskom području rudimentarna forma ovog tipa datirana je u vrlo rano razdoblje, 3. i 4. stoljeće (Bucovala 1968, 43–44). Na području Mediterana ovi nalazi datirani su u 4. stoljeće i kasnije (Davidson 1940, 310; Davidson Weinberg 1962, 133; Harden 1975; Mandruzzato, Marcante 2005, 69). Kaleži na visokoj nozi pronađeni u Egiptu, u Karanisu, datirani su od 4. do sredine 5. stoljeća (Harden 1936, 167–173). Prema novijim istraživanjima smatra se da je kraj 5. stoljeća primjerenija datacija početka njihove proizvodnje (Sagui 1993, 129). Dokumentirano mjesto njihove produkcije na području Italije bilo je Invillino, gdje su se proizvodili

preserved, so only these can be typologically determined. All variants of the feet are based on the typology of V. Bierbrauer – type Ia belongs to Cat. no. 4, type Ib to Cat. no. 1, 3, type Ic to Cat. no. 2, 8 and type II to Cat. no. 5 – 7. A fragment of a transparent colourless foot (Cat. no. 9) is too small for its type to be distinguished, and considering its colour, it is uncertain whether or not it originates in the Late Antiquity.

Š. Perović describes two methods of making a stemmed goblet. In earlier periods, it was made entirely from one piece of glass by blowing and later it was manufactured in two phases – the body and stem with the foot were made separately, and subsequently joined together (Perović 2010, 46–48). The first method is achieved in two ways – blowing all at once, when the cavity of the cylindrical stem is divided by a membrane in the centre and forming the entire stem by releasing part of the hot material when making the cup after which it is shaped on a wheel. The methods used in the Early Middle Ages had been developed in the 5th CE and involve the process of making the cup and stem with the foot separately which are then joined together. This technique made it possible to obtain a spherical extension on the stem, below the joint with the body. Most examples are not decorated, and if there is a decoration, it is made in the form of garland or horizontal spiral decoration made of a thin glass thread applied to the exterior side of the cup. Stemmed goblets, besides their utilitarian function, served as oil lamps for the illumination of sacral space, and the more luxurious types were used in liturgy. The type of goblet with three small handles on the edge most certainly suggests it was used as a suspended lamp. At sites from Late Antiquity, where sacral objects used to be located, these types of glass stemmed goblets are a common find. In the Black Sea region, the rudimentary form of this type of goblets dates back to a very early period, specifically the 3rd and 4th centuries (Bucovala 1968, 43–44). In the Mediterranean region, these finds date back to the 4th CE and later (Davidson 1940, 310; Davidson Weinberg 1962, 133; Harden 1975; Mandruzzato, Marcante 2005, 69). Stemmed goblets have been found in Karanish, Egypt, dating from the 4th to the mid-5th CE (Harden 1936, 167–173). Recent research indicates that the end of the 5th CE is a more appropriate period for the commencement of such production (Sagui 1993, 129). The documented place of the production of these goblets is Invillino, Italy, where they were produced in the period from the 5th to 8th centuries (Bierbrauer 1987, 271–281). Some interesting feet with markings 'K' and 'Ms' which have yet to be deciphered were made in an early Christian workshop in Thessalonica in the 6th and 7th centuries (Antonaras 2011; Antonaras 2013, 110). In

u razdoblju od 5. do 8. stoljeća (Bierbrauer 1987, 271–281). U ranokršćanskoj radionici stakla u Thessalonikiju proizvodile su se tijekom 6./7. stoljeća zanimljive stopice s oznakama ('K', 'Ms') nerazjašnjenog značenja (Antonaras 2011; Antonaras 2013, 110). Na području crkvi 5. – 8. stoljeća u Jerashu pronađen je jedan cjelovit primjerak s tri ručkice te brojni ulomci stapki i stopica (Crowfoot, Harden 1931, 199, pl. XXX, br. 50). U 7. stoljeću donosi se zabrana korištenja staklenih kaleža za liturgijske svrhe radi krhkosti materijala te se od tada proizvode samo od plemenitih metala, ali pravilo je katkad zanemarivano tijekom razdoblja srednjeg vijeka u siromašnijim župama (Krueger 2016). Proizvodnja kasnoantičkih kaleža na visokoj nozi održala se do 12. stoljeća, kada ih zamjenjuju kaleži drugačijih formi (Uboldi 1999, 295).

U Istri je znatan broj ulomaka kaleža na visokoj nozi pronađen u Puli i na području lokaliteta Dragonera (Starac 1999, 173, 191; Starac 2010, 114, 201, 231, T. VII/2, 3). A. Šonje spominje nalaz dva dna sa stalkom na području Maurova oratorija građevnog ansambla Eufrazijane u Poreču, koje pripisuje kasnoantičkim ritualnim posudama liturgijske namjene (Šonje 1973, 345). Stopica s cilindričnom stapkom pronađena je i na području rimske gospodarske vile u naselju Červar-Porat kod Poreča (Džin 2005, 34). Na području današnje Hrvatske nalazi ove vrste pronađeni su na nekoliko lokaliteta sa sakralnim objektima (crkva, dvojna crkva) iz razdoblja ranog kršćanstva, odnosno od 4. do 6. stoljeća – Srima, Majsan, Kaštel Sućurac, Marusinac (Salona), Vid kod Metkovića, Galovac, Mljet, Gata i drugdje (Buljević 1994, 259; Buljević 1998, 152–153; Chevalier 1999a, 180–181; Fisković 1983, 76–77; Fadić 1992, 63–66; Fadić 1994, 213–215; Fadić 1998, 243–245; Fadić 2005, 222, 228–229). Na lokalitetima Srima, Gata i Kaštel-Sućurac nekoliko je primjeraka kaleža na visokoj nozi u potpunosti rekonstruirano (Fadić 2005, 252; Fadić 1992, tab. 1). Dva iznimna primjerka kaleža na visokoj nozi pronađena u kontekstu starohrvatskog groblja, odnosno grobne cjeline 9. stoljeća na Ždrijacu u Ninu, temeljem detaljne analize datirana su u 6. i 7. stoljeće (Perović 2010). U Sloveniji je znatan broj ulomaka kaleža na visokoj nozi pronađen na kasnoantičkom visinskom lokalitetu s crkvenim kompleksom Tonovcov grad pri Kobaridu te na području Kopra (Cunja 1996, 72–78; Milavec 2011, 84–85, *passim*).

2. Čaše s konveksno zašiljenim dnom

Čaše konveksnog zašiljenog dna u literaturi se često navode kao konične/konusne zbog oblika njihovog recipijenta prema čemu dijele naziv s čašama koničnog/

the area of the churches dating from the 5th to 8th CE in Jerash, a complete stemmed goblet with three handles and numerous fragments of stems and feet have been found (Crowfoot, Harden 1931, 199, pl., XXX, no. 50). In the 7th CE, the use of glass goblets for liturgical purposes was banned due to the fragility of the material, and from that time they were made exclusively from precious metals, however the rule was sometimes ignored in the poorer parishes during the Middle Ages (Krueger 2016). The production of stemmed goblets from Late Antiquity continued until the 12th CE when they were replaced with differently shaped goblets (Uboldi 1999, 295).

In Istria, a significant number of fragments belonging to different stemmed goblets were found in Pula and in the area of the Dragonera site (Starac 1999, 173, 191; Starac 2010, 114, 201, 231, T.VII/2, 3). A. Šonje mentions the finds of two bottoms with stems in Maurus's oratory of the Euphrasian building complex in Poreč, which is attributed to ritual vessels from Late Antiquity used for liturgical purposes (Šonje 1973, 345). A foot with a cylindrical stem was also found in the area of a Roman villa rustica in Červar-Porat near Poreč (Džin 2005, 34). In the region of today's Croatia, these types of artefacts have been found at several sites with sacral buildings (church, double church) from the Early Christian period, i.e., from the 4th to 6th centuries – Srima, Majsan, Kaštel Sućurac, Marusinac (Salona), Vid near Metković, Galović, Mljet, Gata and elsewhere (Buljević 1994, 259; Buljević 1998, 152–153; Chevalier 1999a, 180–181; Fisković 1983, 76–77; Fadić 1992, 63–66; Fadić 1994, 213–215; Fadić 1998, 243–245; Fadić 2005, 222, 228–229). Several examples of stemmed goblets from the sites of Srima, Gata and Kaštel-Sućurac have been completely reconstructed (Fadić 2005, 252; Fadić 1992, tab.1). Two extraordinary examples of stemmed goblets have been found in an early Croatian cemetery, i.e., graves from the 9th CE at Ždrijac in Nin, and based on a detailed analysis they date back to the 6th and 7th centuries (Perović 2010). In Slovenia, a significant number of stemmed goblets have been found at the Late Antiquity site on a hill containing a church complex Tonovcov grad near Kobarid and in the area of Koper (Cunja 1996, 72–78; Milavec 2011, 84–85, *passim*).

2. Cups with a convex tapered base

Cups with a convex tapered base are often referred to in literature as conical or cone-like due to the shape of the cup section according to which they share their names with that of conical or cone-like (conical) cups without a tapered base (the base is narrower, straight or concave). To distinguish between these latter types and avoid any confusion, and given that the body part has

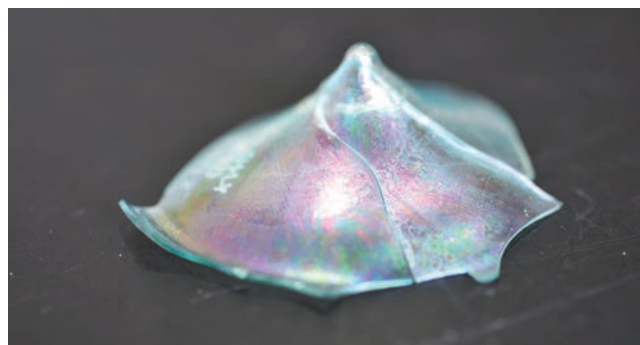
konusnog (stožastog) recipijenta bez zašiljenog dna (dno je uže, ravno ili konkavno). Kako bi se termini razlikovali i izbjegle eventualne zabune, a i s obzirom da pulskim čašama nije sačuvan recipijent, u članku će se koristiti izraz 'čaše s konveksno zašiljenim dnom'.

Dva konveksno zašiljena dna jednostavnih čaša rekonstruirana su od nekoliko razbijenih ulomaka (kat. br. 10, 11) (sl. 3).

Sačuvani ulomci su izrazito mali te se ne mogu sa sigurnošću odrediti oblik i funkcija posude kojoj su pripadali. Izrađeni su od vrlo tankog, delikatnog stakla jednakomjerne debljine. Ulomci bi mogli pripadati čašama za piće, ali i svjetiljkama. Svjetiljke s recipijentom ovog oblika imaju tri ručkice te pripadaju formi Isings 134 (Isings 1957, 162). Funkcija osvjetljavanja izvedena je na način da laneni ili papirusni stijenj pluta uronjen u ulje koje pliva na vodi, a najčešće ga pridržava metalni tronožac (Chevalier 1999a, 175-176). Mogle su biti samostojeće ili visjeti na žicama u obliku lanaca ili plosnatih traka - najjednostavnija konstrukcija obuhvaća kukicu koja završava alkom, povezanom trima žicama (jednodijelne ili trodijelne) s donjim kukicama (Chevalier 1999a, 176). Najraniji primjerci iz 4. stoljeća (Gerasa) nisu sa sigurnošću datirani, a svjetiljke pronađene u Italiji, južno od Rima, datirane su u razdoblje od kraja 4. do 7. stoljeća (Isings 1957, 162). Centri proizvodnje jednostavnih čaša locirani su na području sjeverne i sjeveroistočne Italije - jedno od njih je Sevegliano sjeverno od Akvileje, koje je djelovalo krajem 4. stoljeća (Buora 1997; Mandruzzato, Marcante 2005, 64-67). U Jerashu su svjetiljke u obliku čaše s konveksnim zašiljenim dnom i svjetiljke ovog tipa s tri ručkice pronađene na području nekoliko bizantskih crkvi 5. - 8. stoljeća (Crowfoot, Harden 1931, 198-199, pl. XXVIII, br. 4-5, pl. XXIX, br. 40). U Istri su slične baze čaša pronađene tijekom istraživanja crkvenog kompleksa sv. Sofije u Dvigradu (Marušić 1976, 34, br. 5, tav. XLV/12, XLVI/5, 6). Ulomci su pronađeni u kontekstu poremećenih stratigrafskih slojeva među prapovijesnim, kasnoantičkim i ranosrednjovjekovnim nalazima te nisu mogli biti datirani. Baza s konveksno zašiljenim dnom i vrč s dnom ovog oblika pronađeni su u Čelegi kod Novigrada (Marušić 1958 - 1959, 206, T. VIII, 9, 10). Na području Dalmacije pronađene su na Galovcu, u Gatima, Srimi, Putalju, Kaštel Sućurcu, Livnu i drugdje te datirane u razdoblje od 4. do 7. stoljeća (Belošević 1992, 136, 138; Chevalier 1999a, 174-179; Fadić 1992, 66-67; Fadić 1994, 217-219; Fadić 1998, 245; Fadić 2005, 222, 225; Petrinec, Šeparović, Vrdoljak 1999, 83, br. 208). Prema nalazu čaše debljih stijenki u Putalju, I.

not been preserved on the Pula cups, a decision has been made to use the term 'cup with a convex tapered base'.

Two convex tapered bases from simple cups have been reconstructed from several broken fragments (Cat. no. 10, 11) (Fig. 3).



Sl. 3 Dno čaše konveksno zašiljenog dna kat. br. 11 (foto: V. Jukić Buća).
Fig. 3 Base of a cup with convex tapered bottom (Cat. no. 11) (photo by: V. Jukić Buća).

The preserved fragments are exceptionally small, hence determining the shape and function of the vessel they belonged to cannot be done with certainty. They are made of very thin, delicate glass of uniform thickness. The fragments may possibly belong to drinking glasses, or perhaps lamps. Lamps of this shape have three handles and belong to the Isings 134 form (Isings 1957, 162). The illumination was achieved by submersing a flaxen or papyrus wick in oil that floated on water, most often supported by a metal tripod (Chevalier 1999a, 175-176). The lamps were self-standing or hanging on wires in the form of chains or flat strips - the simplest set up involved a hook connected to three wires (one-piece or three-piece set up) with lower hooks (Chevalier 1999a, 176). The earliest examples from the 4th CE (Geras) have not been dated with certainty, while the lamps found in Italy, south of Rome, date back to the late 4th to 7th centuries (Isings 1957, 162). Centres producing simple drinking glasses were located in the area of northern and north-eastern Italy - one of them is Sevegliano, north of Aquileia, which operated at the end of the 4th CE (Buora 1997; Mandruzzato, Marcante 2005, 64-67). In Jerash there are cup-shaped lamps with a convex tapered base and lamps of this type with three small handles found in the area of a few Byzantine churches from the 5th to 8th centuries (Crowfoot, Harden 1931, 198-199, pl. XXVIII, no. 4-5, pl. XXIX, No. 40). In Istria, similar cup bases have been found during research of the church complex of St Sophia in Dvigrad (Marušić 1976, 34, no. 5, tab. XLV/12, XLVI/5, 6). Fragments have been found in disturbed stratigraphic layers between prehistoric finds and those from Late Antiquity and Early Middle Ages so

Fadić zaključuje da su se ove čaše vjerojatno razvile iz forme Isings 96a, a s vremenom prelaze u oblik svjetiljke s tankim stijenkama i ručkicama forme Isings 134 (Fadić 1992, 66–67). Na području Slovenije nalazi svjetiljaka ovog tipa pronađeni su na više lokacija, a ističe se veći broj nalaza u Kopru (Cunja 1996, 79–80).

Na području srednjovjekovne staklarske radionice u Korintu pronađen je veliki broj jednostavnih čaša s konveksno zašiljenim dnom (Davidson 1940, 311, sl. 11, br. 8, sl. 12, br. 6, 7; Davidson Weinberg 1962, 133). Rubovi ovih čaša su u pravilu zaobljeni, ponekad presavijeni, a navodi se i jedan primjerak s apliciranim plavim namotajem (Davidson 1940, 311, Davidson Weinberg 1975, 139). Brojnost primjeraka pronađenih u tvornici stakla u Korintu implicira svakodnevnu upotrebu, kratkog životnog vijeka zbog njihove krhkosti. Izrađivane su puhanjem u ukrašene kalupe okrugle forme, koji su omogućavali masovnu proizvodnju jednostavnih funkcionalnih posuda. Smatra se kako su porijeklom s područja Egipta gdje je pronađen ranije datirani primjerak izrađen slobodnim puhanjem (9. – 11. stoljeće). Iako se smatralo da je radionica djelovala u 11./12. stoljeću, D. Whitehouse argumentira kasniju dataciju ove radionice, odnosno u razdoblje 13. i 14. stoljeća (Whitehouse 1991). Slične čaše pronađene su na području Vida kod Metkovića, ali ne mogu se precizno datirati jer su izrazito mali sačuvani ulomci pronađeni unutar konteksta razdoblja kasnog srednjeg vijeka te je opravdana mogućnost njihovog tumačenja, baš kao i u slučaju pulskih ulomaka, kao ranokršćanske svjetiljke ili čaše za piće 14. stoljeća (Buljević 1998, 141–143). S obzirom da su na pulskom lokalitetu pronađene i ručkice kakve se obično nalaze na staklenim svjetiljkama ovog tipa, ali i tipu kaleža na visokoj nozi i svjetiljaka u obliku lijevka čiji opis slijedi (zajedno s ručkicama), datacija ovih ulomaka mogla bi biti vezana uz kasnoantičko razdoblje.

3. *Svjetiljke u obliku lijevka*

Ulomke koji bez sumnje pripadaju staklenim uljanim svjetiljkama predstavljaju dvije ručkice (kat. br. 12, 13) i donji dio svjetiljke u obliku lijevka (kat. br. 14) (sl. 4, 5). Jedna ručkica je svijetlozelene (kat. br. 12), a druga blijedoplave boje (kat. br. 13), kao i ulomak svjetiljke u obliku lijevka.

Ulomak zelene boje mogao bi činiti cjelinu s ranije spomenutim dnom kaleža na visokoj nozi svijetlozelene boje (kat. br. 7), na što upućuje i činjenica da su pronađeni na istoj poziciji unutar istog stratigrafskog sloja, a mogao bi pripadati i nekoj drugoj svjetiljci u obliku lijevka koja nije sačuvana. Blijedoplava ručkica (kat. br. 13) mogla

datirati ih nije bilo moguće. A konveksno zašiljeno dno i jug s istim oblikom baze bili su pronađeni u Čelega near Novigrad (Marušić 1958 – 1959, 206, T.VIII, 9, 10). In the area of Dalmatia, they were found in Galovac, Gata, Srima, Putalj, Kaštel Sućurac, Livno and elsewhere and date from the 4th to 7th centuries (Belošević 1992, 136, 138; Chevalier 1999a, 174–179; Fadić 1992, 66–67; Fadić 1994, 217–219; Fadić 1998, 245; Fadić 2005, 222, 225; Petrinc, Šeparović, Vrdoljak 1999, 83, no. 208). Based on the discovery of a glass with thicker sides in Putalj, I. Fadić concluded that these glasses probably evolved from the Isings 96a shape, and over time transformed into the shape of a lamp with thin sides and handles with an Isings 134 shape (Fadić 1992, 66–67). In the region of Slovenia, lamps of this type have been found at several locations, of which a significant number have been found in Koper (Cunja 1996, 79–80).

In the area of a medieval workshop in Corinth, a large number of simple cups with a convex tapered base were found (Davidson 1940, 311, Fig. 11, no. 8, Fig. 12, no. 6, 7; Davidson Weinberg 1962, 133). The rims of these glasses are usually rounded, sometimes folded, and there is one mentioned specimen with an applied blue spiral (Davidson 1940, 311; Davidson Weinberg 1975, 139). The number of such cups found in the workshop in Corinth suggests their daily use and short life cycle due to fragility. They were produced by blowing into decorated, round-shaped moulds, which enabled mass production of simple functional vessels. It is thought that they originated from Egypt where earlier dated specimens produced by free blowing were found (9th to 11th CE). Although it is thought that the workshop operated in 11th and 12th centuries, D. Whitehouse argues for a later date of the workshop, i.e., the 13th and 14th centuries (Whitehouse 1991). Similar cups were found in the area of Vid near Metković, but they cannot be accurately dated since extremely small preserved fragments have been found within the context of the Late Medieval period, thus justifying such interpretation, as is also the case with the fragments from Pula, such as an early Christian lamp or drinking glass from the 14th CE (Buljević 1998, 141–143). Given that handles are ordinarily found on glass lamps of this type at the Pula site, and also on the type of stemmed goblets and funnel-shaped lamps with the description given below (together with the handles), the dating of these fragments may very well be linked to Late Antiquity.

3. *Funnel-shaped lamps*

The fragments which without a doubt belong to glass oil lamps are two handles (Cat. no. 12, 13) and a lower



Sl. 4 Ručkica kat. br. 13 (foto: V. Jukić Buča).

Fig. 4 Small handle (Cat. no 13) (photo by: V. Jukić Buča).



Sl. 5 Donji dio recipijenta svjetiljke u obliku lijevka kat. br. 14 (foto: V. Jukić Buča).

Fig. 5 Lower part of a funnel-shaped lamp (Cat. no. 14) (photo by: V. Jukić Buča).

je pripadati čašama sa zašiljenim konusnim dnom (kat. br. 10, 11), a mogla je biti i dijelom svjetiljke u obliku lijevka čije je dno sačuvano (kat. br. 14).

Svjetiljke u obliku lijevka oblikovane su od širokog polukružanog recipijenta i cilindričnog donjeg dijela koji u nekim slučajevima završava kuglicom. U recipijentu se nalazilo ulje i plutajući fitilj. Ovaj tip svjetiljke često je izrađivan s tri ručkice, radi praktičnih razloga, kako bi mogao visjeti, a u suprotnom mogle su biti postavljane na velike brončane viseće držače (*polycandelon*), u posude s pijeskom ili ih se moglo nositi u ruci (Fadić 1994, 215–217; Fadić 1998, 246–247; Gyúrky 1982, 159).³ Svjetiljke su se općenito koristile u profanim i sakralnim prostorijama; u crkvama su bile postavljene između stupova, posebice u prostoru prezbiterija, iznad oltara i grobnica svetaca (Chevalier 1999b, 113; Elbern 1979, 623). Brončani držači za svjetiljke (*polycandela*) mogli su biti različitih oblika, visećeg ili stajaćeg tipa. Cjeloviti primjerci čuvaju se u nekoliko svjetskih muzeja (Elbern 1979, 594, 621–623). *Polycandelon* iz 6. stoljeća pronađen u Egiptu, danas u zbirci muzeja u Berlinu, sastoji se od brončanog diska podijeljenog na šest perforiranih dijelova, krugova u koje je postavljeno šest staklenih svjetiljki, i šest perforacija u obliku srca od kojih tri imaju rupe za lance. Iako staklene svjetiljke čija dna završavaju zašiljenim dijelom s kuglicom sugeriraju dataciju u razdoblje nakon antike, na ovaj način rekonstruirana *polycandela* predstavlja dobar primjer njihovog originalnog izgleda.

part of the lamp in the shape of a funnel (Cat. no. 14) (Fig. 4, 5). One of the handles is light green (Cat. no. 12), and the other is pale-blue (Cat. no. 13), just like the fragment of a funnel-shaped lamp.

A green colour fragment may possibly belong to the same goblet as the above-mentioned light green base of the stemmed goblet with a foot (Cat. no. 7), as suggested by the fact that they were found in the same position within the same stratigraphic layer but may also belong to some other funnel-shaped lamp that has not been preserved. Pale blue handles (Cat. no. 13) may possibly belong to cups with a conical tapered bottom (Cat. no. 10, 11), but may also be part of a funnel-shaped lamp the bottom of which is preserved (Cat. no. 14).

The funnel-shaped lamps were formed as a wide semi-circular body and a cylindrical lower section which in some cases ends with a ball. The vessel contained oil and a floating wick. This type of lamp often has three handles for practical reasons, so as to hang, otherwise they were placed on large bronze suspended holders (*polycandelon*), in sandboxes or hand-held (Fadić 1994, 215–217; Fadić 1998, 246–247; Gyúrky 1982, 159).³ Lamps in general were used in profane and sacred areas; they were placed between pillars in churches, especially in the presbytery, above the altar and the tombs of saints (Chevalier 1999b, 113; Elbern 1979, 623). Bronze holders for the lamps (*polycandela*) had different shapes, and were of a hanging or standing type. Fully preserved examples are kept in several world museums (Elbern 1979, 594, 621–623). The

³ Na drvorezu Johana Zainera (Ulm, 1485.) prikazano je držanje svjetiljke u obliku lijevka u ruci, dok je viseći tip prikazan u mađarskom gotičkom manuskriptu *Anjou Legendarium*, na slici sv. Augusta (oko 1330. godine).

³ The woodcut illustration of Johann Zainer (Ulm, 1485) shows the holding of a funnel-shaped lamp in hand while the suspended type is shown in the Hungarian Gothic manuscript *Anjou Legendarium*, on the illustration of St Augustine (approx. 1330).

Rani nalazi ovog tipa svjetiljki u upotrebi su diljem Mediterana tijekom ranog i srednjeg bizantskog razdoblja (Crowfoot, Harden 1931, 203–204). U Jerashu (Jordan) su pronađene u kontekstu crkvi 5. – 8. stoljeća (Crowfoot, Harden 1931, 198, pl. XXIX, br. 24–26). S Istoka su se proširile na široko područje Europe gdje su se proizvodile (samostan San Vincenzo al Volturno, Murano, Korint) i koristile do 17. stoljeća (Davidson 1940, 321; Fadić 1998, 247; Gasparetto 1979, 85; Gyúrky 1982, 157–159; Gyúrky 1986, 74–77; Stiegemann, Wemhoff 1999, 174, 178).⁴

U Vodnjaju (crkva sv. Kvirina) su nalazi staklenih ručkica, datirani u 6. stoljeće, pripisani staklenim svjetiljkama tipa *polycandela* (Marušić 1986–1987, 73, E 10–13, 70, 78). Ulomak ručkice pronađen na lokalitetu Rogatica kod Starog Gočana B. Marušić pripisuje staklenom vrču ili svjetiljkama ovog tipa (Marušić 1995, 60, br. 2; Marušić 1986–1987, 78, bilj. 22). Devet ulomaka ručkica pronađeno je u okviru istraživanja bazilike sv. Sofije u Dvigradu (Marušić 1976, 34, br. 2, tab. LXV/1–9). U kontekstu trobrodne crkve u Guranu i crkve sv. Šimuna pronađene su staklene ručkice (Marušić 1963, 127, 135). U Čelegi kod Novigrada pronađena je brončana konstrukcija za vješanje staklene svjetiljke s tri ručkice, sastavljena od sedam dijelova žice savijenih krajeva, te dvije staklene ručkice (Marušić 1958–1959, 206, 207, T. V, T. VIII, 6, 7). U Poreču su, na području Eufrazijeve bazilike, pronađene bakrene žice sa savijenim krajevima, koje su mogle potjecati od viseće konstrukcije jednostavnog tipa za postavljanje svjetiljke (Chevalier 1999b, 113; Šonje 1973, 344, tab. II/8–10). S nepoznatog nalazišta u Istri potječe križ izrađen od bronce, sastavljen od dva dijela povezanih zakovicom, koji je bio dio viseće svjetiljke (Chevalier 1999b, 113; Marušić 1960, tab. IV, sl. 1/6; Vinski 1968, 110, tab. VI/27). Na području rimske Dalmacije, pronađeni su nalazi koji se povezuju s visećim svjetiljkama – metalni (brončani) lanci s križevima (*Salona* – Marusinac, Galovac, Osor) i medaljonima (*Salona*, Sutivan), mali ukrasni križevi koji mogu visjeti na krakovima većih križeva smještenima na spoju lančića (Bugojno – Čipuljić, Galovac, Vrba) te ulomci svjetiljaka, odnosno njihovi zaobljeni završeci (Putalj, Srma, Galovac, Gata kod Omiša i drugdje) (Belošević 1992, 138; Chevalier 1999a, 166–174; Fadić 1992, 67; Fadić 1994, 215; Fadić 1998, 246–247; Fadić 2005, 224–228). Svjetiljke iz Srime uže su podijeljene u dvije grupe; jedna grupa obuhvaća ulomke datirane od 5. do 7. stoljeća, a

polycandelon from the 6th CE, found in Egypt, is located today in the Berlin Museum Collection, and consists of a bronze disc divided into six perforated parts, circles in which six glass lamps are mounted, and six heart-shaped perforations, three of which have chain holes. Although glass lamps with lower parts ending in a tapered section and ball suggest a date from the post-Antiquity period, the reconstructed *polycandela* thus represents a good example of their original appearance.

Early finds of this type of lamp were in use throughout the Mediterranean during the Early and Middle Byzantine period (Crowfoot, Harden 1931, 203–204). They have been found in Jerash (Jordan) in the context of churches dating from the 5th to 8th centuries (Crowfoot, Harden 1931, 198, pl. XXIX, no. 24–26). They came from the East and expanded across a wide area of Europe where they were produced (the monastery of San Vincenzo al Volturno, Murano and Corinth) and were used up to the 17th CE (Davidson 1940, 321; Fadić 1998, 247; Gasparetto 1979, 85; Gyúrky 1982, 157–159; Gyúrky 1986, 74–77; Stiegemann, Wemhoff 1999, 174, 178).⁴

In Vodnjan (Church of St Quirinus), there are glass handles dating to the 6th CE, belonging to the *polycandela* lamps type (Marušić 1986 – 1987, 73, E 10–13, 70, 78). The fragments found at the Rogatica site near Stari Gočan have been attributed by B. Marušić to a glass jug or lamps of this type (Marušić 1995, 60, no. 2; Marušić 1986 – 1987, 78, 22). Nine fragments of the handles were found when excavating the Basilica of St Sophia in Dvigrad (Marušić 1976, 34, no. 2, tab. LXV/1–9). During the research of the triple-nave basilica in Guran and the Church of St Simon, glass handles have been found (Marušić 1963, 127, 135). In Čelega near Novigrad, a bronze structure used for hanging glass lamps with three handles was discovered, consisting of seven bent wire sections and two glass handles (Marušić 1958 – 1959, 206, 207, T. V, T. VIII, 6, 7). In the Euphrasius Basilica in Poreč, copper wires with bent ends were found, which may possibly originate from a simple type of suspended structure for placing lamps (Chevalier 1999b, 113; Šonje 1973, 344, table II/8–10). Originating from an unknown site in Istria is a cross made of bronze, and comprising two parts joined by a rivet, which was part of a suspended lamp (Chevalier 1999b, 113; Marušić 1960, tab IV, Fig. 1/6; Vinski 1968, 110, tab. VI/27). In the area of Roman Dalmatia, finds relating

⁴ Iz velikog broja povijesnih izvora, minijatura i slika zaključuje se da su kontinuirano bile u upotrebi u Njemačkoj i Francuskoj do 15., a u Belgiji do 17. stoljeća. Tijekom 17. stoljeća proizvodile su se u Mađarskoj gdje su dokumentirane lokalne radionice koje su uspijevale očuvati bizantske karakteristike izgleda produkata čak i nakon što se smanjio uvoz s Levanta.

⁴ A large number of historical sources, miniatures and pictures lead to the conclusion that they were continually in use in Germany and France up to the 15th CE, and in Belgium up to the 17th CE. During the 17th CE, they were produced in Hungary where local workshops were documented and which managed to preserve the Byzantine characteristics of the appearance of products even after imports from Levant were reduced.

ulomci bez izravnih analogija mogli bi pripadati kasnijem razdoblju, možda 12. ili 13. stoljeća (Fadić 2005, 224–225). U Gatima su, uz staklene recipijente, pronađeni brončani lanci za vješanje staklenih svjetiljki (Fadić 1994, 219). I u našem susjedstvu zabilježeni su zanimljivi nalazi. Na području Slovenije crkve su se redovito opremale staklenim inventarom – svjetiljkama, staklenim čašama i drugim posudama (Ciglencečki 2003b). Ističe se nalaz brončanih kristograma, datiranih u razdoblje kraja 4. i početka 5. stoljeća iz kasnoantičke visinske naseobine Vipota kod Celja, u funkciji sastavnog dijela većih svjetiljki koje su bile dio crkvenog inventara bazilike u Celju (*Celeia*) (Ciglencečki 2003b, 12–13). Brončani križ koji je bio dijelom viseće svjetiljke (*polycandelon*) pronađen je u okviru pokretnog inventara ranokršćanske crkve u Bregovini (Jeremić 2003, 226, sl. 13). Metalni dijelovi konstrukcija visećih svjetiljaka pronađeni su prilikom istraživanja lokaliteta Caričin grad (Duval, Jeremić 1984, 133–142).

4. Konična čaša

Ulomak posude ravnog zadebljanog dna i tanjih stijenki kat. br. 15 mogao je pripadati koničnoj čaši forme Isings 106, odnosno AR 68 (Isings 1957, 126–133; Rützi 1991, 75). Konične čaše imale su funkciju stolnog posuđa, liturgijsku funkciju te funkciju vezanu uz pogreb ili osvjetljavanje (Laresse 2004, 91). Mogle su imati ukras ili biti neukrašene, užeg ili šireg dna (u nekim slučajevima dno je toliko usko i zaobljeno da nisu mogle stajati već su bile u funkciji visećih svjetiljki ili su se okretale naopako nakon upotrebe). Raniji primjerci izrađeni od prozirnog, zelenkastog ili plavkastog stakla datirani su u 4. stoljeće, dok su primjerci od maslinastozelenog stakla izrađivani u razdoblju od kraja 4. do drugog ili trećeg desetljeća 5. stoljeća. Maslinastozelena boja pulskog ulomka, debljeg dna i stijenki, tipična za kasnoantičko razdoblje sugerira njegovu dataciju. U Karanisu su sve konične čaše različitih varijanti vršile funkciju svjetiljki, što se zaključuje na temelju prisustva uljnatog taloga i zagorenih mrlja te površinskog 'uljnatog osjeta' (Harden 1932, 155–166). Prema G. M. Crowfoot i D. B. Harden, čaše u funkciji svjetiljki imaju izrazito suženo dno, dok je dno konične čaše iz Pule suženo, ali ne u potpunosti što ide u prilog njezinoj atribuciji stolnome posuđu (Crowfoot, Harden 1931). Čest su nalaz u okviru kasnoantičkog konteksta na europskim lokalitetima, gdje se ovisno o kontekstu datiraju u razdoblje od 3. do 6. stoljeća (Buora 2004, 32–33; Hartmann, Grünwald, 2010; Grünwald, Hartmann 2014; Lazar 2003, 116–117, 197; Mandruzzato, Marcante 2005, 63–67; Milavec 2011; Plesničar-Gec 1975; Rützi 1991b, 75). Konične čaše

to suspended lamps have been found – metal (bronze) chains with crosses (*Salona* – Marusinac, Galovac, Osor) and medallions (*Salona*, Sutivan), small decorative crosses that can hang on the arms of larger crosses positioned at the joining of chains (Bugojno – Čipuljić, Galovac, Vrba) and fragments of lamps, i.e., their rounded ends (Putalj, Srma, Galovac, Gata at Omiš and elsewhere) (Belošević 1992, 138; Chevalier 1999a, 166–174; Fadić 1992, 67; Fadić 1994, 215; Fadić 1998, 246–247; Fadić 2005, 224–228). The lamps from Srma are more strictly divided into two groups; one of the groups includes fragments dated from the 5th to 7th centuries, whereas fragments without direct similarities may very well belong to a later period, perhaps the 12th or 13th CE (Fadić 2005, 224–225). Bronze chains for hanging glass lamps were found along with the glass cups in Gata (Fadić 1994, 219). Moreover, in our region, interesting finds have also been recorded. In Slovenia, churches were ordinarily furnished with glass inventory – lamps, glass cups and other vessels (Ciglencečki, 2003b). The late 4th and early 5th centuries bronze Christograms found at a hilltop settlement from Late Antiquity of Vipota near Celje, were used as part of the larger lamps belonging to the church inventory of the Celje (*Celeia*) basilica (Ciglencečki 2003b, 12–13). The bronze cross that was part of the hanging lamp (*polycandelon*) was found with the mobile inventory of an early Christian church in Bregovina (Jeremić 2003, 226, Fig. 13). The metal parts of the hanging lamp structure were found during excavations of the Caričin grad site (Duval, Jeremić 1984, 133–142).

4. Conical cup

A fragment of a vessel with a flat, thick bottom and thin sides (Cat. no. 15) may have belonged to a conical cup of an Isings 106 or AR 68 shape (Isings 1957, 126–133; Rützi 1991, 75). The conical cups served as tableware, for liturgical use and for funerals or lighting (Laresse 2004, 91). They may have had ornaments or remained undecorated, with a narrow or wide bottom (in some cases, the bottom is so narrow and rounded that they cannot stand upright, but served as hanging lamps or were turned upside down after use). Earlier examples were made of transparent, green or bluish glass dating back to the 4th CE, while examples made of olive-green glass were made in the period from the late 4th CE to the period between 420 and 440. The olive-green colour of the Pula fragment, with a thicker bottom and sides, typical for the Late Antiquity period, suggests its possible date of origin. In Karanis, all conical cups of different variants served as lamps, which can be concluded based on the presence of an oily precipitate and burned spots as well

proizvodile su se na području sjeverne i sjeveroistočne Italije, a jedno od dokumentiranih mjesta proizvodnje bio je Sevegliano u blizini Akvileje (Buora 1997; Buora 2004, 12-13; Larese 2004, 91). Smatra se da su konične čaše pronađene u Akvileji vjerojatno produkt lokalnih majstora izrađenih pod utjecajem tehnike i stila porajnskih radionica (Calvi 1968, 169-170). U Istri su kasnoantičke čaše pronađene na lokalitetima Dragonera i Brestić kod Višnjana (Bartolić Sirotić 2014, 96-99; Starac 2010, 114). Česte su na području istočnog Jadrana i Dalmacije (Buljević 1994, 262, br. 12; Fadić 1997, 90, 200, br. 211).

B. Ostali stakleni ulomci

Ulomcima iz ove podgrupe ne može se atribuirati pretpostavljena religijska funkcija.

1. Boce

1.1. Okrugle boce s izduženim vratom

Obli ulomak kat. br. 16 malih dimenzija na sebi nosi reljefni ukras motiva znaka 'X' (sl. 6). Radi njegovih dimenzija i zaobljenosti vjerojatno je bio dijelom okrugle boce s izduženim vratom kasnoantičke forme Isings 103 ili 104 (Isings 1957, 121-125).



Sl. 6 Ulomak boce ukrašen reljefnim motivom znaka 'X' kat. br. 16 (foto: V. Jukić Buča).

Fig. 6 Fragment of a bottle decorated using a relief motif of the sign 'X' (Cat. no. 16) (photo by: V. Jukić Buča).

S nepoznatog nalazišta potječu dva najranija hrvatska primjerka posuda ukrašenih nizom znakova 'X' produženih krakova - vrč forme Isings 57 datiran u 1. stoljeće te amfora forme Isings 33 datirana u razdoblje 1. i 2. stoljeća (Gregl, Leljak 2013, 56, br. 72, 90, br. 142). Trbušasta posuda s konkavnim dnom ukrašena nizom kruškoliko oblikovanih motiva u obliku znaka 'X' pronađena je na području Liburnije, a pripada rijetkim importiranim oblicima (Fadić 2004a, 101, 104 sl. 8/13). Može se usporediti s bocom iz Karanisa

as an 'oily surface' (Harden 1932, 155-166). According to G. Crowfoot and D. B. Harden, the cups that served as lamps have a distinctly narrowed bottom, whereas the bottom of the conical cups from Pula are narrowed, but not entirely, which implies that it was used as tableware (Crowfoot, Harden 1931). They are common finds at European sites from Late Antiquity, where depending on the situation, they may date from the 3rd to the 6th CE (Buora 2004, 32-33; Hartmann, Grünwald 2010; Grünwald, Hartmann 2014; Lazar 2003, 116-117, 197; Mandruzzato, Marcante 2005, 63-67; Milavec 2011; Plesničar-Gec 1975; Rütli 1991b, 75). Conical cups were produced in the area of northern and north-eastern Italy, and one of the documented production sites was Sevegliano near Aquileia (Buora 1997; Buora 2004, 12-13; Larese 2004, 91). The general opinion is that the conical cups found in Aquileia were probably the product of local artisans made using techniques and styles from workshops in the Rhine region (Calvi 1968, 169-170). In Istria, cups of this shape from Late Antiquity have been found at the Dragonera and Brestić near Višnjana sites (Bartolić Sirotić 2014, 96-99; Starac 2010, 114). They are common in the area of the eastern Adriatic and Dalmatia (Buljević 1994, 262, No. 12; Fadić 1997, 90, 200, 211).

B. Other glass fragments

Fragments from this subgroup cannot be assigned to a presumed religious function.

1. Bottles

1.1. Round bottles with an elongated neck

A round fragment (Cat. no. 16) with small dimensions has a relief motif with the sign 'X' (Fig. 6). Due to its dimensions and roundness, it was probably part of a round bottle with an elongated neck and dates back to Late Antiquity with an Isings 103 or 104 shape (Isings 1957, 121-125).

Two of the earliest Croatian finds of vessels decorated with a string of 'X' signs come from an unknown site - a jug of an Isings 57 shape, dating back to the 1st CE, and an Isings 33 shape amphora dating back to the 1st and 2nd centuries (Gregl, Leljak 2013, 56, No. 72, 90, No. 142). The globular vessel with concave bottom decorated with a string of pear-shaped motifs in the form of an 'X' sign was found in the area of Liburnia and belongs to rarely imported forms (Fadić 2004a, 101, 104 sl. 8/13). It is comparable to the Karanis bottle and the Mainz jar dating from the 4th CE (Harden 1936, 208, pls. VIII, XVIII, No. 593; Morin-Jean 1922 - 1933, 106-107). A fully preserved example of this type of X-shaped decoration was found as a grave good in the tomb of

te vrčem iz Mainza datiranim u 4. stoljeće (Harden 1936, 208, pls. VIII, XVIII, br. 593; Morin-Jean 1922 - 1933, 106-107). Cjelovit primjerak boce ovog tipa s dekoracijom u formi znaka X pronađen je kao priloga u grobu starohrvatske nekropole na Ždrijacu u Ninu, datiran u 9. stoljeće, kojoj J. Belošević pripisuje izradu u kasnoantičkoj talijanskoj staklarskoj radionici čija se djelatnost nastavila i u ranom srednjem vijeku (Belošević 1980, 128-129; Belošević 2007, 416). U novijoj analizi Š. Perović detaljno analizira oblik boce i njezine ukrase te zaključuje kako se radi o obliku 6. i 7. stoljeća vjerojatno proizvedenom u radionicama istočnog Sredozemlja (Perović 2010). Boca analizira i Z. Brusić te kao analogiju navodi nalaz boce iz ostataka broda potopljenog u 11. stoljeću kod Serçe Limania (Brusić 2011, 251). U literaturi se navodi primjer slične čaše s nepoznatog nalazišta sasanidske provenijencije ukrašene izduženim motivima znaka 'X' spojenih u svojevrsnu mrežu (Simpson 2013, 213, sl. 20.17.11). Ova vrsta ukrasa izrađena optičkim puhanjem (*optic-blown*) utjecala je na ranu islamsku umjetnost kada se efekt saća na staklenim posudama izrađen rezbarenjem imitirao oblikovanjem u kalupu. Navedeni primjeri ukazuju na dugu primjenu ovog karakterističnog motiva, koji se nastavlja koristiti i u kasnijim razdobljima te njegovu upotrebu na različitim oblicima staklenih posuda.

Ulomak ruba kat. br. 17 najvjerojatnije je pripadao istom tipu staklene posude. Radi se o rubu grla boce vjerojatno Isings tipa 103 ili njegove derivacije tipa 129, kakve su se proizvodile od 3. do sredine 5. stoljeća (Isings 1957, 121-122, 159). Boce ovog tipa imaju okruglo tijelo i dugačak vrat koji se gotovo neznatno sužavao prema rubu, koji je najčešće bio neobrađen. Izniman i cjelovito sačuvan primjerak ovakve boce 5. i 6. stoljeća pronađen je unutar groba na starohrvatskom groblju na Ždrijacu u Ninu (Perović 2010, 41-42). Boca je izrađena tehnikom puhanja, a blaga zadržanost i zaobljenost oboda dobivena je naknadnim zagrijavanjem na vatri. S obzirom da je pulski ulomak vrlo mali, ne može se sa sigurnošću odrediti njegova datacija. Boce dugačkog vrata i globularnog tijela proizvodile su se i u kasnijim razdobljima.

1.2. Boca proširenog zvonolikog otvora

Svijetlozeleni ulomak kat. br. 18 s paralelnim, nepravilnim linijama (možda urezanima) na površini, proširenog zvonolikog oblika, većih dimenzija, vjerojatno je bio otvor boce. Prošireni zvonoliki/ljevkastí otvor uglavnom se nalazi na bocama tikvastog oblika - forme Isings 92 iz 2. stoljeća te forme 104 datirane u razdoblje

the early Croatian necropolis at Ždrijac in Nin, dating to the 9th CE, which has been attributed by J. Belošević to the Italian glass workshop from Late Antiquity, whose activity continued in the Early Middle Ages (Belošević 1980, 128-129; Belošević 2007, 416).

In a recent analysis, Š. Perović analysed in detail the shape of the bottle and its decorations and concluded that it has a form from the 6th and 7th centuries, probably produced in workshops in the eastern Mediterranean (Perović 2010). The bottle was also analysed by Z. Brusić who cites as a comparison the finds of bottles from the remains of a ship sunk in the 11th CE near Serçe Limania (Brusić 2011, 251). An example of a similar cup mentioned in literature comes from an unknown site of Sasanian provenance and is decorated with elongated motifs of an 'X' sign that are joined together into a sort of a lattice (Simpson 2013, 213, Fig. 20.17.11). This type of decoration made by optical blowing had an influence on early Islamic art when the honeycomb effect on glass vessels was performed using ribbed carving that imitated shaping using a mould. These examples point to the long use of this characteristic motif, which continued to be used in later periods, and its application on various forms of glass vessels.

A rim fragment (Cat. no. 17) most likely belonged to the same type of glass vessel. It is probably the tip of a bottle of an Isings type 103 or a derivative of type 129, which was produced from the 3rd to the mid-5th CE (Isings 1957, 121-122, 159). Bottles of this type have a round body and a long neck that is slightly narrower toward the rim, and which is usually untreated. An outstanding and fully preserved example of this bottle from the 5th and 6th centuries was found inside a grave at an old Croatian cemetery on Ždrijac in Nin (Perović 2010, 41-42). The bottle was made using the blowing technique, and the slight thickening and roundness of the rim was done by subsequently heating it in fire. Given that the Pula fragment is very small, its date cannot be determined with certainty. Bottles with a long neck and globular body were produced in later periods.

1.2. Bottle with a widened bell-shaped opening

A bright green fragment (Cat. no. 18) with parallel, irregular lines (perhaps carved) on the surface, of a widened bell-shaped form, with larger dimensions, was probably the opening of a bottle. The widened bell-shaped or funnel-shaped opening is mainly found on gourd-shaped bottles - with the Isings 92 shape from the 2nd CE and a 104-shape dating from the period between the 3rd and 5th centuries (Isings 1957, 110, 122-125). In the 4th CE,

od 3. do 5. stoljeća (Isings 1957, 110, 122-125). U 4. stoljeću razvijen je tip cilindrične boce sa zvonolikim otvorom, forma Isings 132 (Isings 1957, 160-161). Boce navedenih formi izrađene su najčešće od zelenkastog stakla, a na bocama forme 104 i 132 mogu biti prisutne linije izvedene urezivanjem. U cijelosti sačuvane boce iz Akvileje uglavnom pripadaju spomenutim formama (Mandrizzato, Marcante 2005, 80, 81). U Istri, jedan je ulomak otvora sličan pulskom ulomku pronađen na lokalitetu Dragonera (Starac 2010, 114, T. VII, 4).

2. Vrč s proširenim otvorom i namotajem

Ulomak otvora kat. br. 19 vjerojatno pripada vrču. Otvor ovog tipa, proširen s većim i manjim spiralnim namotajem ispod ruba, prisutan je na kasnoantičkim ovalnim vrčevima, pogotovo forme Isings 120 (Isings 1957, 149-152). Aplikiranje tankih vrpca na otvore vrčeva, boca i čaša različitih formi često je i kasnije, u merovinškom razdoblju (Evison 2000).

3. Bočice

Ulomak kat. br. 20 odnosi se na dno posude s prstenastom bazom (sl. 7). Ovakav tip dna nalazi se na vrčevima i bočicama iz razdoblja antike i kasne antike te kasnoantičkim čašama franačkog porijekla (forma Isings 109b i c) (Isings 1957, 137-138). Iako je stijenka recipijenta sačuvana u vrlo malim dimenzijama, može se naslutiti proširenje koje bi eventualno moglo označavati veću oblinu i širinu središnjeg dijela posude, radi čega bi se moglo zaključiti da se radi o bočici s dnom na prstenastoj bazi (poput forme Isings 104a) (Isings 1957, 123).



Sl. 7 Ulomak dna kat. br. 20 (foto: V. Jukić Buća).

Fig. 7 Fragment of a base (Cat. no. 20) (photo by: V. Jukić Buća).

Ovakva boca pronađena je zajedno s primjercima bez prstenaste baze na području grobova uz baziliku Tigani na Peloponezu. Iako su je istraživači datirali u razdoblje od 4. do 6. stoljeća, A. C. Antonaras smatra

the cylindrical type of bottle with a bell-like opening was developed and had an Isings 132 shape (Isings 1957, 160-161). The bottles with the mentioned shapes were most often made from greenish glass, and the bottles of shapes 104 and 132 sometimes had incision lines made by cutting. Entirely preserved bottles from Aquileia have mainly the mentioned shapes (Mandrizzato, Marcante 2005, 80, 81). In Istria, one fragment of an opening similar to the one from Pula has been found at the Dragonera site (Starac 2010, 114, T. VII, 4).

2. Jug with a widened opening and a spiral

The fragment of an opening (Cat. no. 19) probably belongs to a jug. This type of opening, widened with larger and smaller spiral underneath the rim, is found on oval jugs from Late Antiquity, especially of the Isings 120 shape (Isings 1957, 149-152). Application of thin strips on the openings of jugs, bottles and cups of various shapes was also often executed in a later date, in the Merovingian period (Evison 2000).

3. Small bottles

The fragment (Cat. no. 20) refers to the pushed-in base ring (Fig. 7). This type of bottom is found on jugs and small bottles from Antiquity and Late Antiquity as well as on the Late Antiquity cups of Frankish origin (Isings 109b and c) (Isings 1957, 137-138). Although the wall of the vessel is preserved in very small dimensions, there are hints of an extension which may suggest a larger shape and width of the central portion of the vessel, which may very well lead to the conclusion that it was a small bottle with ring-base bottom such as the Isings 104a type (Isings 1957, 123).

Such a bottle was found along with other glass finds without an pushed-in foot in a tomb area alongside the basilica of Tigani on the Peloponnese peninsula. Although researchers have dated it back to the 4th to 6th centuries, A.C. Antonaras argues that it originates in a later period (12th CE) and that it should be defined as a balsarium (Antonaras 2010, 403).⁵ This suggested interpretation, though with some reservations, can be supported by the fact that at the site in the St Theodore's Quarter there was a cemetery in Late Antiquity, and this small bottle, in the form of a balsarium may have been used when performing a burial ceremony.

An almost fully preserved bottle (Cat. no. 21) of small dimensions was found, perhaps used as an amphorisk or apothecary bottle. The bottle has a spherical body,

⁵ Here author of the article A. C. Antonaras is cited, regarding the data which is used in the publication and to which I do not have access.

da potječe iz kasnijeg razdoblja (12. stoljeće) te da bi ju trebalo odrediti kao balzamarij (Antonaras 2010, 403).⁵ Ovakav prijedlog tumačenja, iako s rezervom, može se potkrijepiti činjenicom da je na lokalitetu u četvrti sv. Teodora postojalo kasnoantičko groblje te je ova bočica, u funkciji balzamarija, mogla biti korištena prilikom izvršenja obreda ukapanja.

Pronađena je gotovo cijela bočica kat. br. 21 malih dimenzija, možda korištena kao amforisk ili apotekarska bočica. Bočica ima sferično tijelo, na dnu se nalazi prstenasta nožica, prijelaz iz tijela u vrat je naglašen, a vrat je proširen na sredini te se sužava prema rubu koji nedostaje. Pulski primjerak bočice izrađen je od debljeg stakla te se može pretpostaviti kasnija datacija od rimskih primjeraka. Zbog karakteristično oblikovanog vrata proširenjem, koje je specifično za rimsko razdoblje, moglo bi se donekle ograničiti mogućnost srednjovjekovnog i novovjekovnog porijekla i uzeti u obzir datacija u kasnu antiku.

4. Tanjur ili plitka zdjela

Ulomak kat. br. 22 pripadao je zdjeli izrađenoj u kalupu, razgrnutog i profiliranog oboda forme Isings 5 (sl. 8) (Isings 1957, 21-22). Ove posude proizvode se od prve polovice 1. stoljeća. Brojni primjerci pronađeni su u kasnijem kontekstu.

U Karanisu su pronađene dvije forme koje sadrže ovakav obod, odnosno kružni tanjuri na prstenastoj bazi i plitke zdjele, pripadaju širem razdoblju od sredine 1. do ranog 4. stoljeća, odnosno većina ih je uže datirana u razdoblje od početka 3. do ranog 4. stoljeća (Harden 1936, 61, 84, br. 74, 76-77, 170).

5. Plitki tanjuri

Vjerojatno ovalnom tanjuru pripadao je ulomak kat. br. 23 zaobljenog ruba ispod kojeg se nalazi prošupljena vrpca. Ovakvi ulomci, s više ili manje namotaja, pronađeni su u Karanisu (Harden 1936, 56-60). D. B. Harden navodi kako su nalazi fragmentarni i tek je nekoliko ulomaka omogućilo rekonstrukciju cjelovitog oblika posude. Datirani su u razdoblje od kasnog 3. do 5. stoljeća. Prema tipologiji C. Isings, radi se o tanjurima forme 97a (kružni) i 97b (ovalni) (Isings 1957, 116-118).

Ulomak kat. br. 24 mogao je također pripadati plitkom tanjuru forme Isings 97a ili 97b.

with an annular foot and the transition from the body to the neck is pronounced, whereas the neck is widened in the middle and narrows towards the now missing rim. The Pula bottle is made from thicker glass and possibly of a later date than the Roman examples. Due to the characteristically shaped neck with the widening, which is specific to the Roman period, the possibility of it originating in the Medieval or Post Medieval period is disputed, making it more likely to belong to the Late Antiquity.

4. Plate or shallow bowl

Fragment (Cat. no. 22) belongs to a bowl made in a mould, with a fragmented and profiled rim of an Isings 5 shape (Fig. 8) (Isings 1957, 21-22). These vessels were produced from the first half of the 1st CE. Numerous examples have been found in a later context.



Sl. 8 Obod tanjura ili plitke zdjele kat. br. 22 (foto: V. Jukić Buča).

Fig. 8 Rim of plate or a shallow bowl (Cat. no. 22) (photo by: V. Jukić Buča).

In Karanis, two shapes of vessels that contain this kind of rim, i.e., round plates on a base ring and shallow bowls, belong to a wider period extending from the middle of the 1st CE to the early 4th CE, of which most can be narrowly dated into the period from the beginning of the 3rd to the early 4th CE (Harden 1936, 61, 84, No. 74, 76-77, 170).

5. Shallow plates

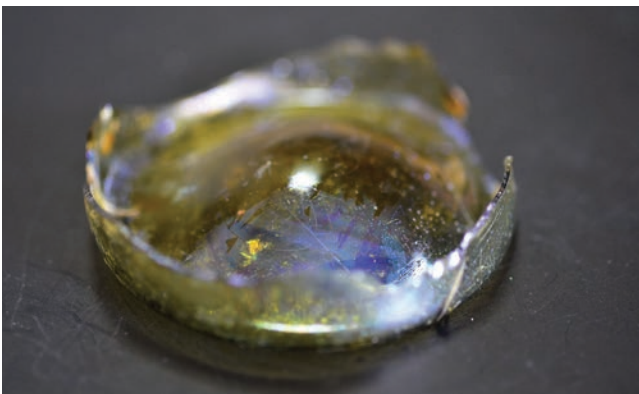
Fragment with a rounded rim and a hollowed band underneath it (Cat. no. 23), possibly belonged to an oval plate. These kind of fragments, with more or less coils, were found in Karanis (Harden 1936, 56-60). D. B. Harden states that the finds are fragmented and only a few fragments have enabled reconstruction of the entire vessel shape. They date from the late 3rd to 5th CE. According to the C. Isings typology, they are plates of the 97a (circular) and 97b (oval) shapes (Isings 1957, 116-118).

⁵ Na ovom mjestu citiran je autor članka A. C. Antonaras, koji podatak prenosi iz publikacije koja mi nije bila dostupna.

6. Čaše

6.1. Čaša za piće

Kat. br. 25 odnosi se na ulomak jednostavne čaše bez dekoracije, tankih i krhkih stijenki te zadebljanim konveksnim dnom, žućkaste maslinastozelene boje (sl. 9). Slično dno pronađeno je na području Dvigrada (Marušić 1976, 34, br. 6, tab. LXVI/7). Iako nalikuje prethodno opisanom tipu Isings 106b, može se izdvojiti od prethodnih primjeraka zato što se s većom sigurnošću može zaključiti o njezinoj funkciji čaše za piće, a mogla bi se pretpostaviti i kasnija datacija (Isings 1957, 127-129).



Sl. 9 Ulomak čaše kat. br. 25 (foto: V. Jukić Buča).

Fig. 9 Fragment of a cup (Cat. no. 25) (photo by: V. Jukić Buča).

U literaturi se navode takvi primjeri - datirana u 8. stoljeće i prepoznata kao čaša za piće, slična čaša pronađena je na lokalitetu Pfalz Paderborn (Stiegemann, Wemhoff 1999, 166).

6.2. Rubovi čaša

Ovi artefakti su izdvojeni jer mogu pripadati staklenim čašama različitih oblika (kaleži na visokoj nozi, konusne čaše, čaše s konveksnom bazom), ali možda i nekim drugim oblicima (manje zdjele) širokog datacijskog raspona. Svi ulomci imaju manje ili više zadebljan, zaobljen rub. Ulomak kat. br. 26 nalikuje recipijentu tipa B V. Bierbrauera te je mogao pripadati čaši ili kaležima na visokoj nozi (Bierbrauer 1987, 281). Ulomak kat. br. 27 specifičan je zbog naglašenog zaobljenog ruba i reljefne linije koja se nalazi ispod njega (sl. 10).

Dva sačuvana ulomka istog otvora (kat. br. 28) vrlo su mala, ali vjerojatno se radi o ulomcima čaše, s obzirom na tanke stijenke i zaobljeni rub. Zanimljiv je ulomak čaše od prozirnog žućkastog stakla s plavim zaobljenim rubom (kat. br. 29), koji bi mogao pripadati tipu A V. Bierbrauera. Staklene posude s rubom druge boje nisu česte. U pravilu je staklena nit druge boje aplicirana naknadno na izrađenu posudu kao reljefni ukras, više ili manje stopljen s podlogom. U slučaju pulskog ulomka

The fragment (Cat. no. 24) may have also belonged to a shallow plate of the Isings 97a or 97b shape.

6. Cups

6.1. Drinking cup

Cat. no. 25 is a fragment of a simple drinking glass without any decoration, with thin and fragile sides as well as a thick, convex bottom, and a yellowish olive-green colour (Fig. 9). A similar bottom has been found in the Dvigrad area (Marušić 1976, 34, no. 6, tab. LXVI/7). Although it resembles the above-described Isings 106b type, it is distinguishable from the previous examples because a conclusion can be drawn with greater certainty that it was used as a drinking cup, and also a later dating may be assumed (Isings 1957, 127-129).

The literature cites such examples - dating back to the 8th CE and recognised as a drinking cup, a similar drinking cup was found at the Pfalz Paderborn site (Stiegemann, Wemhoff 1999, 166).

6.2. Rims of drinking cups

These artefacts have been singled out as they may belong to drinking cups of various shapes (stemmed goblet, conical cups, cups with convex base), or even other forms as well (smaller bowls) dated into a broad time period. All fragments have more or less a thick, rounded rim. Fragment (Cat. no. 26) resembles a V. Bierbrauer type B cup and may have belonged to a drinking cup or a stemmed goblet (Bierbrauer 1987, 281). Fragment (Cat. no. 27) is specific due to the accentuated curved rim and the relief line beneath it (Fig. 10).



Sl. 10 Ulomak ruba kat. br. 27 (foto: V. Jukić Buča).

Fig. 10 Fragment of a rim (Cat. no. 27) (photo by: V. Jukić Buča).

Two preserved fragments from the same opening (Cat. no. 28) are very small, and are probably fragments of a drinking cup, given their thin sides and rounded rim. A fragment made of transparent glass with a yellowish tinge and a rounded blue rim (Cat. no. 29), which may belong to V. Bierbrauer type A is interesting. Glass vessels with

radi se o rubu na kojemu su dva različita elementa međusobno prožeta.

II. Srednjovjekovna i novovjekovna staklena građa (druga grupa)

1. Čaša s ovalnom konkavnom dekoracijom

Pronađena su dva ulomka čaše s elipsoidnom konkavnom dekoracijom kat. br. 30 – 31 (sl. 11). Vjerojatno su činili cjelinu s okruglim zadebljanim dnom kat. br. 32 (sl. 12). Ukrašavanje udubljenjima izvedeno različitim načinima prisutno je od rimskog razdoblja nadalje.



Sl. 11 Ulomak čaše s graviranim ukrasom kat. br. 30 (foto: V. Jukić Buća).
Fig. 11 Fragment of a cup with engraved decoration (Cat. no. 30) (photo by: V. Jukić Buća).

Tehnika brušenja i graviranja, jedan od načina dobivanja ovalnih ukrasa, nastala je u razdoblju antike i intenzivno se primjenjivala od 1. do 4. stoljeća (Grossman 2002, 16–17). Postupak se provodio korištenjem rezača i rotirajućeg metalnog ili kamenog kotačića abrazivne površine, a dobiveni uzorak bi se na kraju postupka ispolirao. Osim na posudama, ukrašavanje je prisutno u rijetkim primjerima i na drugim staklenim predmetima. Uz Rimljane, ukrašavanje rezanjem usavršili su Parti, od kojih su ju preuzeli Sasanidi te Perzijanci u razdoblju srednjovjekovne islamske umjetnosti (Aruz, Val Fino 2001; Lukens 1965, 202; Simpson 2013, 214).

Usporedba s čašama sličnima i po ukrasu i po formi, pronađenima na području Hrvatske, isključuje ranu dataciju ulomaka iz četvrti sv. Teodora u Puli. U Istri, vrlo slična čaša s ovim tipom dekoracije, debljih stijenki, pronađena je na području rta Seline u okolici Pule (Bekić 2014a, 45–47, br. 228, sl. 25). Slične čaše koničnog i cilindričnog oblika, ukrašene brušenim ovalima, pronađene su u Osijeku, a pretpostavlja se da potječu iz Češke (Horvat, Biondić 2007, 139–161). U Češkoj su se krajem 16. stoljeća tehnike rezanja i graviranja na kotaču koristile

a different coloured rim are not common. As a rule, a differently coloured glass strip is subsequently applied to the produced vessel as a relief decoration, more or less fused into the material. In the case of the Pula fragment, it is a rim that has two different elements mutually infused.

II. Medieval and Post Medieval glassware (second group)

1. Drinking cups with an oval concave decoration

Two fragments of cups with an ellipsoid, concave decoration were found (Cat. no. 30 – 31) (Fig. 11). Most likely they belong to the same cup as the round thickened base (Cat. no. 32) (Fig. 12). Decorations with dents made in different ways were present from the Roman period onwards.



Sl. 12 Dno čaše kat. br. 32 (foto: V. Jukić Buća).
Fig. 12 Base of a cup (Cat. no. 32) (photo by: V. Jukić Buća).

A technique that involved sanding and engraving, which was one of the ways to execute oval decorations, was devised in Antiquity and was intensively applied from the 1st to the 4th centuries (Grossman 2002, 16–17). The procedure was carried out using a cutter and a rotating metal or stone wheel with an abrasive surface, concluding the process with the polishing of the thus obtained product. Besides vessels, decorations were added in rare instances on other glass items. In addition to the Romans, decorations were applied by the Parthians, from whom it was adopted by the Sassanids and Persians in the period of medieval Islamic art (Aruz, Val Fino 2001; Lukens 1965, 202; Simpson 2013, 214).

A comparison with drinking cups similar in terms of decoration and shape, found on the territory of Croatia, excludes the possibility of an early dating of the fragments from the St Theodore's Quarter in Pula. In Istria, a very similar cup with this type of decoration and thicker sides was found in the area of Seline Cape near Pula (Bekić 2014a, 45–47, no. 228, Fig. 25). Similar drinking cups of conical and cylindrical shapes, adorned with sanded ovals,

za obrađivanje dragog kamenja, a krajem 17. i tijekom 18. stoljeća usavršile za urezivanje slikovitih motiva na staklenim posudama, posebice od stakla koji nalikuju kristalu (Brozková, Drahotová, Mergl 1992, 5-7; Poche 1970). Kao mjesto izrade ovih jednostavno ukrašenih čaša može se pretpostaviti područje i Venecije, gdje se u 18. stoljeću imitiralo češko staklo (najpoznatiji imitator bio je Giuseppe Briati tijekom 1730-ih godina) (Drahotová 1981, 26).

2. Pehar

Skoro u cijelosti sačuvan je jedan pehar na stalku - kat. br. 33 (sl. 13). Poluprozirno staklo od kojeg je izrađen, svijetlo je smeđe boje. Iznutra je okruglim diskom podijeljena na dva dijela, rub nije sačuvan, ali se stijenke recipijenta od sredine čaše rastvaraju prema trubastom otvoru i stalku koji se također širi prema zadebljanom šupljem rubu.



Sl. 13 Pehar kat. br. 33 (foto: V. Jukić Buća).

Fig. 13 Beaker (Cat. no. 33) (photo by: V. Jukić Buća).

Pehari na nozi su najčešći oblik čaša za piće tijekom 15. i 16. stoljeća. Sličan pehar, deklariran kao import 15. stoljeća iz Murana, pronađen je u Budi (Gyúrky 1986, 78-79). Iz sredine 16. stoljeća potječe pehar na stalku proširenog zadebljanog završetka iz Burgundije, koji se po jednostavnošću izrade može usporediti s pulskim (Maurice, Perrugot, Rollier 1990, 174-175). Pod utjecajem venecijanskih radionica u 16. stoljeću na austrijskom se području razvija sličan tip pehara u obliku kojem je prijelom iz stapke u recipijent naglašen ukrasnim zadebljanjem te mu je često pridodan i poklopac (Hess, Husband 1997, 147-151).

have been found in Osijek, and are supposed to have originated from the Czech Republic (Horvat, Biondić 2007, 139-161). In the Czech Republic, at the end of the 16th CE, techniques of wheel cutting and engraving were used for treating precious stones, and at the end of the 17th and during the 18th CE they were perfected for engraving picturesque motifs on glass vessels, especially those made of glass that resembled crystal (Brozková, Drahotová, Mergl 1992, 5-7; Poche 1970). The presumed location where these simply decorated glasses were made is the area of Venice, where Czech glass was imitated in the 18th CE (Giuseppe Briati, the most famous imitator during the 1730s) (Drahotová 1981, 26).

2. Beaker

There is a beaker on a stand that is almost completely preserved (Cat. no. 33) (Fig. 13). The semi-transparent glass is light brown in colour. Inside a round disc divides it into two parts, the rim has not been preserved, but the sides of the beaker from the centre of the glass widen toward the trumpet-like opening and stem which also becomes wider towards the thicker, hollow rim.

Beakers on a stand were the most common form of the drinking vessels during the 15th and 16th centuries. A similar beaker, declared as an import from Murano in the 15th CE, has been found in Buda (Gyúrky 1986, 78-79). Originating from the mid-16th CE is a beaker on a stand with a widened, thickened end from Burgundy, which is comparable to the Pula one (Maurice, Perrugot, Rollier 1990, 174-175). Under the influence of Venetian workshops in the 16th CE, a similar type of beaker was developed in the Austrian region, where the transition from the stem to the body is emphasised with decorative thickening and often a cover was added (Hess, Husband 1997, 147-151).

Beakers with round thickenings on a stem and made from glass with tones similar to the fragments from the St Theodore's Quarter have been found in the area of Rt Seline near Pula (Bekić 2014a, 39-40, Fig. 19, no. 6, 10-14). Different types of beakers on stems though smaller than the one found in Pula, were transported by a ship sunk in the bay of Gnalić (Lazar, Willmott 2006, 27-39).

3. Bottles

3.1. Bottles with cylindrical neck and wide opening

Discoveries have unearthed several fragments of the neck section with openings which belonged to bottles - fragments with a rounded rim shaped as the reversed letter 'L' ('Γ') (Cat. no. 34 - 35), and a fragment where the cylindrical neck extends towards the body without

Pehari s okruglim zadebljanjima na stalku izrađeni od stakla nijanse slične ulomku iz četvrti sv. Teodora, pronađeni su na području rta Seline kod Pule (Bekić 2014a, 39-40, sl. 19, br. 6, 10-14). Različite tipove pehara na stalku/nozi, iako dimenzijama manje od pulskog nalaza, prevezio je potonuli brod u uvali Gnalić (Lazar, Willmott 2006, 27-39).

3. Boce

3.1. Boce s cilindričnim vratom i širokim otvorom

Pronađeno je nekoliko ulomaka vratnog dijela s otvorom koji su pripadali bocama - ulomci s prstenasto oblikovanim otvorom u obliku obrnutog slova 'L' ('Γ') (kat. br. 34 - 35) i ulomak kojem se cilindričan vrat proširuje prema recipijentu, bez sačuvanog ruba (kat. br. 37) (sl. 14). S obzirom da su izrađeni od iste vrste prozirnog stakla, koje je s vremenom poprimilo bijelu patinu, moguće da su jedna od sačuvanih ulomaka vrata s rubom i blago konična baza kat. br. 36 dijelovi iste cjeline (sl. 15).



Sl. 14 Ulomak boce kat. br. 34 (foto: V. Jukić Buča).

Fig. 14 Fragment of a bottle (Cat. no. 34) (photo by: V. Jukić Buča).



Sl. 15 Ulomak dna boce kat br. 36 (foto: V. Jukić Buča).

Fig. 15 Fragment of a bottle bottom (Cat. no. 36) (photo by: V. Jukić Buča).

Gornji dijelovi boca opisanog oblika ruba pronađeni su na području Pule, odnosno rta Seline, a pretpostavljena datacija odnosi se na drugu polovicu 18. i 19. stoljeća prema paralelama s bocama valjkastog tijela s profilom

the rim preserved (Cat. no. 37) (Fig. 14). Given that they are made from the same type of transparent glass, which over time becomes weathered with white patina, it may very well be possible that one of the preserved fragments of the neck with the rim and one slightly conical base (Cat. no. 36) are parts of the same vessel (Fig. 15).

The upper parts of the bottles with the described shape of the rim have been found in the area of Pula, specifically, Seline Cape, and the presumed dating is the second half of the 18th and 19th centuries based on comparisons with bottles of cylindrical body with rim profile shaped as a reversed letter 'L' ('Γ'), produced from 1820 to 1850 in dark tones in Germany and from non-coloured glass in Austria and Slovakia. (Bekić 2014a, 25-27, Fig. 10; Van den Bossche 2001, 264, 212). At the same site an identical bottle bottom as the one found in the St Theodore's Quarter (Cat. no. 36) has been unearthed, but is not discussed in the cited publication (Bekić 2014a, 85, No. 29).

3.2. The *inguastare* type of bottle

A fragment of a bottom with a pushed-in base ring has been preserved (Cat. no. 38), made from two joined glass surfaces forming a hollowed rim that elevates the base of the vessel (Fig. 16). It may be considered that the fragment belongs to the *inguastare* type bottle. Even though it is broken below the spot where the two glass surfaces become disjoint, so the upper part can form the body, the part that is preserved resembles the hollowed rims of the bottoms of this type of vessels well documented in the literature with both description and photographs.

The *inguastare* type of bottles date from the end of the 13th CE and, with certain modifications, lasted up to the 17th CE (Delonga 1988, 103; Gasparetto 1975, 147). They were made at the Murano workshops and in Dubrovnik during the 15th CE (Han 1981, 79).



Sl. 16 Ulomak prstenastog dna kat. br. 38 (foto: V. Jukić Buča).

Fig. 16 Fragment of a pushed-in base ring (Cat. no. 38) (photo by: V. Jukić Buča).

oboda u obliku obrnutog slova 'L' ('Γ') izrađivanima u razdoblju od 1820. do 1850. godine u tamnim tonovima u Njemačkoj, a u Austriji i Slovačkoj od stakla bez boje (Bekić 2014a, 25–27, sl. 10; Van den Bossche 2001, 264, pl. 212). Na istom lokalitetu pronađeno je i identično dno boce poput dna kat. br. 36 iz četvrti sv. Teodora, o kojem se ne raspravlja u citiranoj publikaciji (Bekić 2014a, 85, br. 29).

3.2. Boca tipa *inguastare*

Sačuvan je ulomak dna, odnosno noge, kat. br. 38 izrađen od dvije spojene staklene površine koje formiraju prošupljen rub koji povisuje bazu posude (sl. 16). Može se uzeti u obzir mogućnost da je ulomak pripadao boci tipa *inguastare*. Iako je odlomljen prije mjesta na kojem se dvije staklene površine razdvajaju kako bi gornja formirala recipijent, dio koji je sačuvan uvelike nalikuje prošupljenim obodima dna ovakvih posuda koje su dobro dokumentirane u literaturi i opisno i fotografijama.

Boce tipa *inguastare* datiraju se na kraj 13. stoljeća pa sve do, uz određene preinake, 17. stoljeća (Delonga 1988, 103; Gasparetto 1975, 147). Izrađivane su u muranskim radionicama, a u Dubrovniku su se proizvodile tijekom 15. stoljeća (Han 1981, 79). Podmorskim istraživanjem rta Seline kod Pule pronađen je ulomak čitavog dna s dijelom boce ovog tipa te je tipološki određen s većom sigurnošću (Bekić 2014a, 28–30, sl. 11, br. 204). B. Marušić spominje nalaz boce tipa *inguastare* s područja Dvigrada, zajedno s nalazima drugih venecijanskih staklenih oblika datiranih u razdoblje od 15. do 17. stoljeća (Marušić 1985, 133–134) U Hrvatskoj poznati su još nalazi s područja Dalmacije (Bribir, Zadar) (Buljević, 1998, 150; Delonga 1988, 92, 103, T. XII; Pešić 2006, 119). U Sloveniji su pronađeni u Celju (Lazar 2001, 77, 93, br. 83). Talijanski nalazi ulomaka vrlo sličnih ulomku iz četvrti sv. Teodora s područja venecijanske lagune i njezinog zaleđa datirani su u razdoblje 13. i 14. stoljeća (Gasparetto 1975, 147–148, tab. IV, sl. 12–14).

3.3. Boca s četvrtastom ili heksagonalnom bazom

Ulomci baze i rubnog dijela baze sa stijenkom posude kat. br. 39 mogli bi pripadati boci s četvrtastom ili heksagonalnom bazom. Tamno smeđom bojom i debljom stijenkom razlikuju se od ostalih ulomaka izrazito zašiljenog dna pronađenih na ovom lokalitetu koji pripadaju čašama te blago konveksnih baza antičkih boca, što sugerira njihovu kasniju dataciju. Novovjekovne boce s dnom konveksne uzdignute baze pronađene na području Pule (rt Seline) i Rovinja (Veštar) datirane su u razdoblje od 16. do 19. stoljeća (Bekić 2014a, 13–16).

Underwater exploration of the Seline Cape near Pula led to the discovery of a fragment consisting of an entirely preserved bottom with part of a body of this type of bottle and which has been typologically defined with greater certainty (Bekić 2014a, 28–30, Fig. 11, no. 204). B. Marušić mentions the find of the *inguastare* type of bottle in the area of Dvigrad, along with other Venetian glass shapes dating from the 15th to the 17th CE (Marušić 1985, 133–134). Examples from the region of Dalmatia are well known in Croatia (Bribir, Zadar) (Buljević, 1998, 150; Delonga 1988, 92, 103, T. XII; Pešić 2006, 119). In Slovenia, they were found in Celje (Lazar 2001, 77, 93, no. 83). Italian finds of fragments from the Venetian lagoon and its hinterland area, very similar to the fragment found at the St Theodore's Quarter, date back to the 13th and 14th centuries (Gasparetto 1975, 147–148, Tab. IV, Fig. 12–14).

3.3. Bottle with a square or hexagonal base

Fragments of a base and the part of a base together with a body part of a vessel (Cat. no. 39) may belong to a bottle with square or hexagonal base. With their dark brown colour and thicker sides, they differ from the other fragments of highly tapered bottom found at this site and which belong to drinking cups and the slightly convex bases of Ancient Roman bottles, suggesting their origin to be of a later date. Post Medieval bottles with a bottom of convex elevated base found in the area of Pula (Seline Cape) and Rovinj (Veštar) are dated into the period from the 16th to the 19th centuries (Bekić 2014a, 13–16).

III. Roman glass (third group)

1. Bottles

1.1. Bottle with a thick hollow rim

Fragment of a hollowed rim (Cat. no. 40) belonged to the bottle with a square or round body, often found in French, Italian, Slovene, Croatian and other sites with Roman period glass finds (Bačani 2017, 19–21, 23–25; Buljević 2002; Foy 2010, *passim*; Gregl, Lazar 2008, 63–76; Lazar 2003, 126–157, 168–197; Mandruzzato, Marcante 2005, 19–25, etc.). In Istria, a large number of small glass bottles were found at the Burle site near Medulin (Džin 2008, 25–29).

Another fragment of a bottleneck with a folded ring-shaped and flattened hollowed rim was found (Cat. no. 41). Bottles from Antiquity of various shapes may have this type of opening, especially in the period from the 1st to 3rd centuries. An almost identical opening was found at the site of Srma from Late Antiquity, presumably dating to Antiquity (Fadić 2005, 225).

III. Rimsko staklo (treća grupa)

1. Boce

1.1. Boca sa zadebljanim šupljim otvorom

Ulomak prošupljenog ruba kat. br. 40 pripadao je boci kvadratičnog ili okruglog tijela, kakve se često pronalaze na francuskim, talijanskim, slovenskim, hrvatskim i drugim lokalitetima s rimskim staklom (Baćani 2017, 19-21, 23-25; Buljević 2002; Foy 2010, *passim*; Gregl, Lazar 2008, 63-76; Lazar 2003, 126-157, 168-197; Mandruzzato, Marcante 2005, 19-25 i dr.). U Istri je veći broj malih staklenih bočica pronađen na lokalitetu Burle kod Medulina (Džin 2008, 25-29).

Pronađen je još jedan ulomak vrata boce s presavijenim prstenasto oblikovanim i zaravnjenim prošupljenim rubom kat. br. 41. Antičke boce raznih formi mogu imati ovaj tip otvora pogotovo u razdoblju 1. - 3. stoljeća. Gotovo identičan otvor pronađen je na kasnoantičkom lokalitetu Srima čija se datacija pretpostavlja u antičko razdoblje (Fadić 2005, 225).

1.2. Boca s četvrtastom bazom

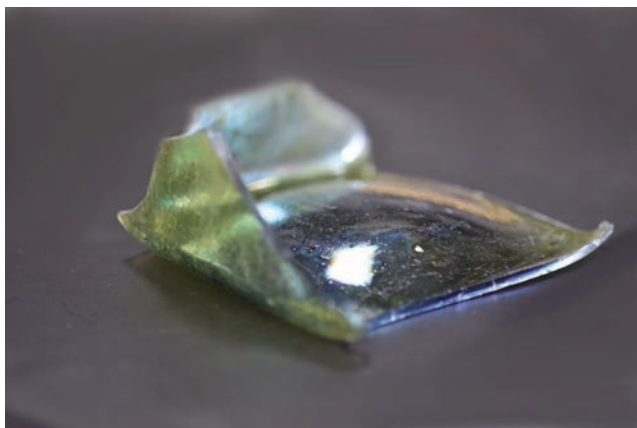
Pronađena su dva ulomaka boca s četvrtastim dnom - ulomak dna (kat. br. 42) i ulomak narebrene ručke (kat. br. 43) (sl. 17, 18) kakve su pripadale rimskim bocama. Boce s četvrtastom (kvadratnom, pravokutnom) te heksagonalnom bazom, izrazito česte u rimskom svijetu, pripadaju formama Isings 50 (sredina 1. - 4. stoljeća) i 90 (2. - 4. stoljeća) (Isings 1957, 63-67).

Dobro su opisane u literaturi (Charlesworth 1966). Proizvodile su se na cijelom području Rimskog Carstva, posebice na području Italije (Kampanija), Galije i Ligurije. Izrađivane su puhanjem tijela i dna u kalup, što je obuhvaćalo dvije važne prednosti - njihov funkcionalni pravokutni oblik omogućavao je učinkovit transport i pohranu tekućina te apliciranje oznake proizvođača (vrste boca ili sadržaja u njima) u formi otiska/pečata/žiga na donjem dijelu boce (Grossman 2002, 22).

Boce pretežito kvadratno i pravokutno oblikovanih stijenki čest su nalaz na hrvatskim lokalitetima s nalazima antičkog stakla (Sisak, Pula, Bakar, Starigrad Paklenica, Zadar i okolica), često s otiskom/pečatom/žigom na dnu (Baćani 2017, 24-26; Fadić 1968, 39; Fadić 1983; Fadić 1987, 5; Fadić 1997, 85-86; Fadić, Štefanac 2012; Gregl, Lazar 2008, 66-75 etc.). Brojne četverokutne boce pronađene su na obližnjem području Slovenije i sjeverne Italije (Lazar 2003, 149-151, 153-155; Mandruzzato, Marcante 2005, 19-22 itd.).

1.2. Bottle with a square base

Two fragments of bottles with square bottoms have been found - a fragment of a bottom fragment (Cat. no. 42) and a fragment of a ribbed handle (Cat. no. 43) (Figures 17, 18) like the ones seen on Roman bottles. Bottles with four-sided (square, rectangular) and hexagonal bases, particularly common in the Roman world, belong to the shapes Isings 50 (mid-1st to 4th centuries) and 90 (2nd to 4th centuries) (Isings 1957, 63-67).



Sl. 17 Dno četvrtaste boce kat. br. 42 (foto: V. Jukić Buča).

Fig. 17 Bottom of a square bottle (Cat. no. 42) (photo by: V. Jukić Buča).

They are well described in the literature (Charlesworth 1966) and were produced throughout the Roman Empire, especially in Italy (Campania), Galilee and Liguria. They were made by blowing the body and the bottom into a mould, which had two important advantages - a functional rectangular shape enabled efficient transport and storage of liquids and the application of the manufacturer's mark (for the type of bottle or its content) in the form of an imprint, seal or mark on the base of the bottle (Grossman 2002, 22).

The bottles with mostly square or rectangular shaped sides are commonly found on Croatian sites with the Roman period glass finds (Sisak, Pula, Bakar, Starigrad Paklenica, Zadar and the surrounding areas), often with a stamp, seal or mark on the base (Baćani 2017, 24-26; Fadić 1968, 39; Fadić 1983; Fadić 1987, 5; Fadić 1997, 85-86; Fadić, Štefanac 2012; Gregl, Lazar 2008, 66-75 etc.). Numerous square bottles have been found in the nearby area of Slovenia and northern Italy (Lazar 2003, 149-151, 153-155; Mandruzzato, Marcante 2005, 19-22, etc.).

1.3. Bottle with a relief on the bottom

Fragment (Cat. no. 44) of a light blue colour, probably part of the bottom of a bottle, perhaps of the Isings 50 or 90 form (Fig. 21) (Isings 1957, 63-67, 108). The fragment contains a relief wave pattern decoration (stamp or seal),



Sl. 18 Narebrena ručka kat. br. 43 (foto: V. Jukić Buča).

Fig. 18 Ribbed handle (Cat. no. 43) (photo by: V. Jukić Buča).

1.3. Boca s reljefom na dnu

Ulomak kat. br. 44 svijetloplave boje, vjerojatno je bio dijelom dna boce, možda forme Isings 50 ili 90 (sl. 21) (Isings 1957 63–67, 108). Na ulomku se nalazi reljefni ukras (otisak/pečat) u obliku valovnice, konkretno slova ‘U’, čiji završeci formiraju kružne zavijutke u kojima se nalazi krug.

U Muzeju stakla u Corningu čuva se ulomak plavičastog dna posude s najsličnijim motivom (Whitehouse 1997, 236). D. Whitehouse navodi kako je taj ulomak jedini njemu poznat primjerak ukrašen opisanim oblikom te ga datira u razdoblje 1. stoljeća na temelju oblika i kvalitete stakla. S obzirom da je ulomak dna sačuvan u cijelosti i kružne je forme, zaključuje se da pripada šalici ili zdjeli. U međuvremenu je objavljen još jedan ulomak sa sličnim motivom iz Francuske (Foy 2006a, 472, no. F-CAR 263, 479, pl. 2; Foy 2010, 256, br. 466). Radi se o dnu kvadratične boce s pečatom koji prikazuje zmiju uvijenih krajeva (oblik slova ‘U’). Ulomak je izrađen puhanjem u kalup od stakla svijetlo plave boje i datiran u razdoblje 1. – 2. stoljeća zapadne proizvodnje. Motiv zmije sličnog (kraćeg) oblika nalazi se na još jednom francuskom ulomku (Foy 2011b, 98, no. F-MER 059, 121, pl. 16). Cjelovit oblik pulskog ulomka nije poznat, ali sudeći po sličnosti s potonjim ulomkom, može se pretpostaviti da je pripadao dnu četvrtaste boce, kakve su najčešće imale pečat. Ulomci s okruglim i četvrtastim pečatnim reljefom, za koje se pretpostavlja da bi mogli biti dna boca ili vrčeva, pronađeni su na lokalitetu Castropola 40 u Puli (Zlatunić 2010, 30–31). Na području Dalmacije i antičke nekropole u Bakru, pronađene su brojne staklene forme s radioničkim pečatima (Buljević 2005, 100–101; Fadić, Štefanac 2009; Fadić, Štefanac 2012; Lazar 2006b). Najbliže paralele hrvatskim primjercima nalaze se u Sloveniji (Lazar 2006c; Gregl, Lazar 2008, 67–73). Spiralni motiv zmije, koji nalikuje pulskom ulomku,

specifically in the shape of the letter ‘U’, the ends of which form a twisting pattern in which a circle is located.

The Corning Museum of Glass has preserved a fragment of a bluish bottom of a vessel carrying the most similar motif (Whitehouse 1997, 236). D. Whitehouse states that this fragment is the only example he is familiar with that is decorated with the described form and dates back to the first CE, based on the shape and quality of the glass. Given that the fragment of the bottom has been fully preserved and has a round shape, the conclusion can be drawn that it belongs to a cup or bowl. In the meantime, another fragment from France carrying a similar motif has been documented (Foy 2006a, 472, no. F-CAR 263, 479, 2; Foy 2010, 256, no. 466). It is the base of a square bottle with a stamp showing a snake with twisting ends (in the shape of the letter ‘U’). The fragment was created by blowing light blue glass into a mould. It dates to the period from the 1st to 2nd centuries and was produced in the West. The motif of a similar (shorter) snake is present on another French fragment (Foy 2011b, 98, no. F-MER 059, 121, 16). The former shape of the vessel that the Pula fragment belongs to remains unknown, but judging by its similarity to the latter fragment, the assumption is that it belonged to the bottom of a square bottle, since such bottles usually had a seal. Fragments with circular and rectangular stamp reliefs, supposedly bottoms of bottles or jugs, were found at the site Castropola 40 in Pula (Zlatunić 2010, 30–31). In the area of Dalmatia and the Roman period necropolis in Bakar, numerous glass forms with stamps have been found (Buljević 2005, 100–101; Fadić, Štefanac 2009; Fadić, Štefanac 2012; Lazar 2006b). The closest parallel to Croatian examples have been found in Slovenia (Lazar 2006c; Gregl, Lazar 2008, 67–73). The spiral snake motif, which resembles the Pula fragment, is positioned at the bottom of a square bottle from the 1st and 2nd centuries housed at the Corning Museum of Glass (Whitehouse 2001, 78, no. 552). The serpentine motif is applied more frequently using strips on the surface of a glass vessel (Grossman 2002, 20). The wave pattern decoration often forms the shape of a vegetative tendril on vessels made using the method of blowing into a mould. There is an example of a jug from the first CE, whose tendrils end with round-shaped buds (Stern 1995, 88, Fig. 62).

1.4. Round bottle, pot or jug

Fragment (Cat. no. 45) belongs to the convex bottom of a wide bottle, pot or jug (Fig. 19). The vessels intended for receiving larger amounts of liquid (bottles, jugs) were produced in the Roman period and over time developed into multiple forms. Due to its colour and the type of glass from which it was made, and which is similar to the

nalazi se na dnu četverokutne boce datirane u razdoblje 1. i 2. stoljeća iz Muzeja stakla u Corningu (Whitehouse 2001, 78, br. 552). Zmijoliki motiv češće se aplicira trakama na površinu staklene posude (Grossman 2002, 20). Valovnica često oblikuje formu vegetabilne vitice na posudama izrađenim metodom puhanja u kalup. Ističe se primjerak vrča iz 1. stoljeća čije vitice završavaju okruglo formiranim pupoljcima (Stern 1995, 88, sl. 62).

1.4. Okrugla boca, lonac ili vrč

Ulomak kat. br. 45 dio je konveksnog dna široke boce, lonca ili vrča (sl. 19). Posude za prijem veće količine tekućine (boce, vrčevi) proizvode se od razdoblja antike i tijekom vremena razvijaju se u više formi. S obzirom na njegovu boju i vrstu stakla od koje je izrađen, a koja je slična prethodnim ulomcima datiranim u rimsko razdoblje, uvršten je u grupu rimskih nalaza, iako se može pretpostaviti i njegova kasnija izrada, čak i novovjekovna, s obzirom da su se boce slične boje i oblika proizvodile u Velikoj Britaniji i Njemačkoj za nizozemsko tržište krajem 17. stoljeća (Van den Bossche 2001, 69, pl. 6, 114, pl. 64.2).

2. Zdjele

2.1. Zdjela ukrašena urezima u obliku zrna riže

Ulomak horizontalnog ruba s istaknutim grebenom na donjoj strani kat. br. 46 pripada dijelu posude širokog otvora (sl. 19). Proziran je bez boje (s mliječnobijelim naslagama), ukrašen nizom paralelnih ovalnih udubina (motiv zrna riže) koji širim dijelom završavaju na samom rubu. Iako se ulomku iz četvrti sv. Teodora ne može sa sigurnošću odrediti tip posude kojoj je pripadao, može se raspravljati o motivu prisutnom na obodu, što će u konačnici rezultirati tipološkim određenjem.

Niz ovalnih udubina (motiv zrna riže) izvedenih brušenjem nalazi na nekim posudama forme Isings 42a (Isings 1957, 58-59; Isings 1971, 22-24, sl. 12/6-8). Posude iz Augsta koje sadrže ovaj ukras tipološki su određene kao forma AR 83, podvarijanta forme AR 80 koja odgovara formi Isings 42a (Rütti 1991b, 86, 286-287, tab. 74-75, br. 1652-1654). R. Tarpini je posude spomenutih karakteristika (veće ili manje posude od prozirnog stakla karakteristično izrađenog horizontalnog ruba s istaknutim grebenom na donjoj strani ukrašenim motivom zrna riže izvedenim graviranjem ili urezivanjem) s područja sjeverne Italije (Padaska nizina, Modena) izdvojio kao podtip forme Isings 42a i klasificirao kao varijantu Limburg 1971 za koje vrijedi okvirna datacija u 2. stoljeće (Tarpini 1991). Po crtežu i opisu vrlo sličan ulomak, proziran i bez boje, pronađen u okviru arheoloških istraživanja višeslojnog

preVIOUS fragments dating to the Roman period, it has been included in the group of Roman finds, although there may be indications that it was produced later, even in the Post Medieval period, given that the bottles with similar colours and shapes were produced in Britain and Germany for the Dutch market at the end of the 17th CE (Van den Bossche 2001, 69, 6, 114, pl. 64.2).

2. Bowls

2.1. Bowl decorated with cuts in the shape of rice grains

Fragment of a horizontal rim with a prominent ridge on the bottom side (Cat. no. 46) belongs to the part of a vessel with a wide opening (Fig. 19). It is colourless and transparent (with milky weathering), decorated with a series of parallel oval cuts (rice grain motif) that widen broadly at the very edge. Even though the type of the fragment from the of St Theodore's Quarter cannot be determined with certainty, the motif present on the rim is debatable, which will ultimately lead to determining its typology.



Sl. 19 Ulomak zdjele kat. br. 46 (foto: V. Jukić Buća).

Fig. 19 Fragment of a bowl (Cat. no. 46) (photo by: V. Jukić Buća).

A number of oval incisions (rice grain motif) obtained by grinding are found on some vessels of Isings 42a (Isings 1957, 58-59; Isings 1971, 22-24, Fig 12/6-8). Vessels from Augst with this decoration are typologically defined as the AR 83 form, a sub-variant of the AR80 form corresponding to Isings 42a (Rütti 1991b, 86, 286-287, Tab. 74-75, no. 1652-1654). R. Tarpini defined vessels with these characteristics (larger or smaller vessels of transparent glass with a characteristic horizontal edge and a prominent ridge on the underside decorated with a series of ovals made by engraving) from the area of northern Italy (Po Valley, Modena) as a subtype of Isings 42a and classified them as a variant of Limburg 1971, dated approximately into the 2nd CE (Tarpini 1991). In terms of the drawing and description, there is a very similar fragment, transparent and colourless, found during archaeological excavations of the site at Monastero di S. Giulia in Brescia, and dating

nalazišta Monastero di S. Giulia u Bresciji, datiran je u 2. stoljeće (Uboldi 1999, 277, tab. CXVI 4). U Hrvatskoj je, na području rimske nekropole u Bakru, pronađeno više primjeraka tanjura i zdjelica od prozirnog stakla s tom vrstom ukrasa na razgrnutom obodu, datiranih u razdoblje od druge polovice 1. do 2. stoljeća (Gregl, Lazar 2008, 52-53, 56, 104, br. 8-9, 105, br. 12, 108, br. 7). Dva primjerka očuvanih zdjela ukrašenih, među ostalim, motivom zrna riže na rubu, pronađena su na zadarskom području (Fadić 1997, 88, 174, br. 152, 153). Iako nisu objavljeni, nalazi ovog tipa zabilježeni su u Sloveniji, na području Simonovega zaliva, Pirana i Ribnice na Dolenjskem (Gregl, Lazar 2008, 53; Lazar 2003, 74-75).

2.2. Zdjela s bazom s prstenom

Ulomak masivne prstenaste baze kat. br. 47 od bezbojnog stakla, pripadao je posudi koja je, sudeći prema masivnosti ulomka, bila namijenjena za pohranu veće količine namirnica ili tekućine. Ovaj tip baze s prstenom nalazio se na tanjurima i zdjelama forme Isings 5 (prva polovica 1. stoljeća), 20 (druga polovica 1. stoljeća) izrađene u kalupu te formama izrađenima slobodnim puhanjem 44, 45, 47 iz 1. stoljeća (Isings 1957, 21-22, 37, 59-62). Ističe se tip 44a iz 1. stoljeća, koji se odnosi na zdjele izrađene od mat stakla zelenkastih nijansi čija veličina može varirati te kasniji tip 45 datiran u razdoblje od kraja 1. do 3. stoljeća. Slična prstenasta baza nalazi se i na kasnijem tipu plitke posude forme Isings 118 iz razdoblja 4. stoljeća (Isings 1957, 148). U Karanisu su pronađene brojne posude klase 2 i 3 (plitke i duboke zdjele) s prstenastom bazom, mnoge izrađene od zelenog, zelenkastog stakla i datirane u razdoblje 4. stoljeća (Harden 1936, 63-127).

2.3. Zdjela sa širokim otvorom

Ulomak ruba kat. br. 48 vjerojatno je pripadao zdjeli. Zbog male veličine nije moguće odrediti njegov konačni oblik, ali sigurno se radilo o posudi sa širokim otvorom. Izrazito sličan ulomak zdjele, doduše bez boje i debljih stijenki, oblikovan u kalupu sa specifičnom reljefnom linijom ispod njega, pronađen je u Bubastisu (sjeverni Egipat) (Rosenow, Rehren 2014, 173, sl. 4). Uspoređen je s primjerima s crvenomorskog područja, odnosno položaja rimske i islamske luke Myos Hormos-Quseir al-Qadim i datiran u razdoblje od kraja 1. stoljeća do 175. godine.

2.4. Zdjela na visokoj konusnoj nozi

Ulomak kat. br. 49 pripadao je zdjeli na visokoj nozi izrađenoj puhanjem u kalupu. Ulomak je teško datirati i tipološki odrediti. Najsličnija noga nalazi se

back to the 2nd CE (Uboldi 1999, 277, tab. CXVI 4). In Croatia, in the area of the Roman necropolis in Bakar, several examples of plates and bowls made of transparent glass have been found with this type of decoration on the flared rim and dating from the second half of the 1st to the 2nd CE (Gregl, Lazar 2008, 52-53, 56, 104, no. 8-9, 105, no. 12, 108, no. 7). Two examples of preserved bowls adorned, among other things, with a rice grain motif on the edge, were found in the Zadar area (Fadić 1997, 88, 174, 152, 153). Although not yet published, finds of this type have been documented in Slovenia, in the area of Simonov zaliv, Piran and Ribnica na Dolenjskem (Gregl, Lazar 2008, 53; Lazar 2003, 74-75).

2.2. Bowl on a base ring

Fragment of a bowl on a base ring (Cat. no. 47) of colourless glass, belonging to a vessel which, according to the thickness of the fragment, was intended to store a larger quantity of food or liquid. This type of base is found on plates and bowls of the forms Isings 5 (1st half of the 1st CE) and Isings 20 (2nd half of the 1st CE) that were made in a mould, and Isings 44, 45 and 47, that were made by free blowing (1st CE) (Isings 1957, 21-22, 37, 59-62). The more prominent shapes are the type 44a from the 1st CE used for bowls of varying sizes made of matte glass with greenish hues and the later type 45 dating to the period from the end of the 1st to the 3rd CE. A similar shape of the base is also found on the later type of a shallow vessel of the Isings 118 form from the 4th CE (Isings 1957, 148). Numerous Class 2 and 3 base-ring bowls (shallow and deep bowls) have been found in Karanis, many of which were made from a green or greenish glass and dating back to the 4th CE (Harden 1936, 63-127).

2.3. Bowl with wide opening

A fragment of a rim (Cat. no. 48) probably belonging to a bowl. Due to its small size, determining its final shape is not possible, but it certainly was a vessel with a large opening. A very similar piece of bowl fragment, though colourless and with a thicker side, formed in a mould and with a specific relief line below it, was found in Bubastis (northern Egypt) (Rosenow, Rehren 2014, 173, Fig. 4). It is comparable to examples from the Red Sea area, namely the position of the Roman and Islamic port of Myos Hormos-Quseir al-Qadim and dated to the period between the end of the 1st CE and the year 175.

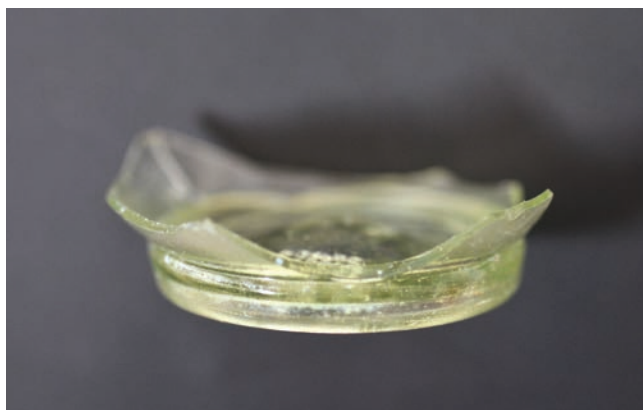
2.4. Bowl on a high tapered foot

Fragment (Cat. no. 49) belonged to a high tapered foot made by blowing into a mould. The fragment is

na rebrastoj posudi forme 2.1.5 iz Polhovega Gradca (Lazar 2003, 41). Rebraste posude izrađivale su se do prve polovice 1. stoljeća od mozaičnog stakla u više boja, a nakon tog vremena izrađuju se od jednobojnog stakla. Primjerak zdjele na visokoj nozi pronađen je u Windischu (*Vindonissa*) (Berger 1960, 16, br. 22, Taf. 2/22). U *Musée départemental Arles antique* čuva se rekonstruirana zdjela na visokoj, uskoj koničnoj nozi datirana u razdoblje od kraja 1. stoljeća pr. n. e. do početka 1. stoljeća n. e. (Foy 2010, 85, br. 73). Iako vrlo sličan ovim oblicima, ali uzimajući u obzir pretpostavku da ulomak nije izrađen u kalupu, kao i njegovu boju, može se pretpostaviti da se radi o novovjekovnom staklu.

2.5. Čaša/zdjelica

Ulomak kat. br. 50 odnosi se na prstenasto dno i dio recipijenta (sl. 20). Radi se o uobičajenom obliku donjeg dijela brojnih tipova staklenih posuda kakve se proizvode u rimskom razdoblju. Radi malog promjera prstena može se pretpostaviti da pripada dijelu čaše ili zdjelice malih dimenzija. Staklo je prirodno obojano, prozirno sa zelenim odsjajem i mjehurićima zraka, a ulomak je izrađen slobodnim puhanjem. Najranije pretpostavljeno razdoblje datacije ovog ulomka je rimsko razdoblje, ali mu se može pripisati i kasnija izrada (primjerice forma Isings 115) (Isings 1957, 143). Veliki broj slično oblikovanih dna od zelenkastog prozirnog stakla datiranih u 3. stoljeće čuva se u muzeju u Arlesu, a protumačeni su kao donji dijelovi vrčeva ili posuda za piće (Foy 2010, 304-305, br. 533-543).



Sl. 20 Ulomak dna kat. br. 50 (foto: V. Jukić Buča).

Fig. 20 Fragment of a bottom with a base ring (Cat. no. 50) (photo by: V. Jukić Buča).

Sličan ulomak dna s prstenastom nožicom kat. br. 51 može se, uz oprez radi malih dimenzija, atribuirati kao prethodni.

difficult to date and determine typologically. The most similar foot is found on a ribbed bowl having the form 2.1.5 from Polhov Gradec (Lazar 2003, 41). Up until the first half of the 1st CE, ribbed vessels were made from multi-coloured mosaic glass, and after that they were made from monochrome glass. A bowl on a high tapered foot was found in Windisch (*Vindonissa*) (Berger 1960, 16, no. 22, tab. 2/22). A reconstructed bowl on a tall, narrow conical foot dated into the period between the end of the 1st CE BCE and the beginning of the 1st CE is kept at the *Musée départemental Arles antique* (Foy 2010, 85, 73). Although the fragment is very similar to these forms, both its colour and the fact that it was not made in a mould, lead to the assumption that it is glass from the Post Medieval period.

2.5. Cup/bowl

Fragment (Cat. no. 50) refers to a circular base with a pushed-in foot and part of the body of a vessel (Fig. 20). It involves the usual form of the lower part of numerous types of glass vessels produced in the Roman period. Due to the small diameter of the base, the assumption is that it was a part of a small drinking glass or bowl. The glass is naturally coloured, transparent with a greenish tinge and contains air bubbles, made using the free blowing technique. The earliest assumed period of the date of this fragment is the Roman period, but it may be attributed to a later date of production (for example, Isings 115 form) (Isings 1957, 143). A large number of similarly shaped bottoms made from transparent glass with a greenish tinge and dating back to the 3rd CE are kept in the Arles Museum and are estimated to be the lower parts of jugs or drinking vessels (Foy 2010, 304-305, no. 533-543).

A similar fragment of a base with an pushed-in foot (Cat. no. 51) can be attributed similarly to the previous fragment, but with some reservation due to the small dimensions.

2.6. Glass/bowl with a base ring and additional ring

A fragment of a bottom (Cat. no. 52) with a thin base ring and an additional concentric ring belongs to a glass/bowl relating to the Isings 85b form (Isings 1957, 102). This type of vessel is most often made from colourless glass, dating to the period from the 2nd to 4th CE. A few specimens of deep bowls (Class 3) with a double ring on the base (Harden 1936, 124, pl. XV, no. 337, 342) have been found in Karanis.

2.6. Čaša/zdjelica s prstenastom bazom i dodatnim prstenom

Ulomak dna kat. br. 52 s tankom prstenastom bazom i dodatnim koncentričnim prstenom pripada čaši/zdjelici forme Isings 85b (Isings 1957, 102). Ovaj tip posude najčešće se izrađivao od neobojanog stakla, a datira se u razdoblje od 2. do 4. stoljeća. U Karanisu je pronađeno nekoliko primjeraka dubokih zdjela (klasa 3) s dvostrukim prstenom na bazi (Harden 1936, 124, pl. XV, br. 337, 342).

2.7. Duboka zdjela s prstenom

Ulomak dna kat. br. 53 pripada tipu duboke zdjele s prstenom izvedenim na način da je stijenka recipijenta izvučena i presavinuta u obliku prstena. Ulomak sličnog profila pronađen je u Karanisu (Harden 1936, 109, pl. XIV, br. 242).

2.8. Zdjela s urezom

Ulomak kat. br. 54 vjerojatno je pripadao širokoj zdjeli ukrašenoj urezom izvedenim na kolu. Urezivanje paralelnih linija na ovaj način karakteristično je za, primjerice, čaše i kupe forme Isings 12 (duboka zdjela i hemisferična čaša) i 29 datiranih u 1. stoljeće (Isings 1957, 27-30, 44). Primjerci ovog tipa pronađeni su u Colchesteru (*Camulodunum*) i Karanisu (Harden 1936, 136; Harden 1947, 290, 302-303). Pulski ulomak pripada vrlo širokoj formi, vjerojatno plitkoj zdjeli Isings 18, izrađene u kalupu i ukrašene urezanim linijama. Jedna zdjela ovog tipa, izrađena prešanjem preko kalupa, također potječe iz Colchestera (Harden 1947, 301, br. 56). Iako im se dimenzije promjera poklapaju, pulska zdjela (odnosno sačuvani ulomak) ima samo jednu urezanu liniju.

IV. Prozorsko staklo

U razmatranim slojevima u četvrti sv. Teodora pronađeni su brojni sitni ulomci ravnog stakla, od kojih su mnogi mogli biti dijelom prozorske cjeline. Na ulomcima koji će biti opisani u ovom članku nisu pronađeni tragovi žbuke niti su tijekom istraživanja pronađeni metalni (olovni) okviri pa nije moguće zaključiti kako su prozori izgledali, gdje su se nalazili ni iz kojeg su razdoblja. Prozorsko se staklo koristi od rimskog razdoblja na sakralnim i profanim građevinama te se njegova datacija ne može specificirati ukoliko se radi samo o ulomcima bez konteksta. Tijekom posljednja dva desetljeća objavljeni su značajni radovi koji doprinose saznanjima o prozorskom staklu, odnosno načinu njegove izrade, izgledu, provenijenciji, sastavu i ostalim karakteristikama (Dell'Acqua 2004; Forbes

2.7. Deep bowl with a ring

A fragment of a bottom (Cat. no. 53) belongs to a type of deep bowl with a ring made in such a way that the wall of the vessel is pulled out and folded into the shape of a ring. A fragment with a similar profile has been found in Karanis (Harden 1936, 109, pl. XIV, no. 242).

2.8. Bowl with an incision

Fragment (Cat. no. 54) probably belonged to a wide bowl decorated with an incision made on a wheel. The incising of parallel lines in this way is characteristic of, for example, drinking glasses and bowls of Isings 12 (deep bowls and hemispheric drinking glasses) and 29 forms, dating to the 1st CE (Isings 1957, 27-30, 44). Examples of this type were found in Colchester (*Camulodunum*) and Karanis (Harden 1936, 136; Harden 1947, 290, 302-303). The Pula fragment belongs to a very wide form, probably a shallow bowl relating to Isings 18 form, made in a mould and decorated with incision lines. One bowl of this type, made in a mould, also comes from Colchester (Harden 1947, 301, no. 56). Although their diameters coincide, the bowl (or preserved fragment) has only one incision line.

IV. Window glass

Found in the researched layers of the St Theodore's Quarter were numerous small fragments of flat glass, many of which could have been window parts. The fragments which will be described in this article do not have any traces of plaster or metallic (lead) frames, hence it is impossible to determine the former appearance of the windows, their origin and date. Since the Roman period, window glass was used on sacral and profane buildings and dating it is not possible if it involves only fragments without a specific context. During the last two decades, important works have been published that provide additional knowledge on window glass, i.e., production technique, appearance, place of origin, composition and other characteristics (Dell'Acqua 2004; Forbes 1966, 110-231; Foy, Fontaine 2008; Freestone 2005; Milavec 2015; Nixon 1758; Whitehouse 2001b, etc.). In the West, window glass was produced in two ways - in a mould (casting and then straightening) and blowing into a cylinder, which during the 4th CE mostly replaced the use of moulds. These processes are not easily distinguishable in the final product, but it is generally considered that somewhat thicker glass panes with a larger amount of air bubbles, visible traces of tools on the edges, with different surfaces (one is polished, while the other is coarser) have been made in a mould, whereas the panes made by blowing into a cylinder are thinner, with smaller air bubbles in the glass material and smoother surfaces. The

1966, 110–231; Foy, Fontaine 2008; Freestone 2005; Milavec 2015; Nixon 1758; Whitehouse 2001b itd.). Na zapadu se prozorsko staklo proizvodilo na dva načina – u kalupu (lijevanjem te zatim poravnavanjem) i puhanjem u cilindar, koje tijekom 4. stoljeća uglavnom zamjenjuje izradu u kalupu. Ove postupke pri konačnom proizvodu nije jednostavno razlikovati, ali općenito se donekle smatra da su deblje ploče stakla s većom količinom mjehurića zraka, vidljivim tragovima oruđa na rubovima te različitim površina (jedna je ugačana, dok je druga grublja) izrađene u kalupu, dok su ploče izrađene puhanjem u cilindar tanje, s manje prisutnih mjehurića zraka u staklenoj masi te glatkih površina. Prozorsko staklo uglavnom je prirodno obojano nijansama zelene, plave, žute i smeđe boje čiji je intenzitet ovisio o debljini staklene ploče ili dodanim sredstvima za dekolraciju. Staklo proizvedeno u kalupu izrađivalo se za prozore na javnim i rezidencijalnim građevinama, prostorima kulta i termalnim kompleksima. Prozorsko staklo bilo je podložno recikliranju na način da se stare staklene površine ponovno koriste ili su se krhotine prozorskog stakla prikupljale u većoj količini te potom rastapale i nanovo oblikovale.

Ulomci kat. br. 55 i kat. br. 56 izrađeni su od izrazito tankog ravnog sivog i plavičastog stakla. Ovakvi ulomci česti su na arheološkim nalazištima različitih razdoblja. Ulomak rubnog dijela staklene ploče kat. br. 57 s jedne strane završava zaobljenim rubom. Izrađen je od debljeg plavog stakla s mjehurićima zraka, vjerojatno lijevanjem u kalup (sl. 21).

Brojni ulomci zelenkastog i žućkastog prozorskog stakla iz razdoblja kasne antike pronađeni su na slovenskom lokalitetu Tonovcov grad pri Kobaridu, utvrđenom visinskom naselju s crkvenim kompleksom te detaljno opisani i prezentirani (Milavec 2015).⁶ Iz kasnijeg razdoblja može se spomenuti, primjerice, potopljeni brod kod Gnalića, koji je prenosio veliku količinu staklenih ploča namijenjenih izradi prozora i ogledala (Lazar, Willmott 2006; Perović 2011).

Ulomak kat. br. 58 zelenoplave boje bio je dijelom okruglog prozorskog okna (*oculus*) (sl. 23).

Okrugla prozorska stakla različitih boja iz 4. stoljeća pronađena su u Akvileji (Calvi 1968, 174–175, tav. 28, br. 249–351). U Hrvatskoj su ulomci prozorskog okna u obliku nefiguralnog vitraja, koji se povezuju sa sakralnim i reprezentativnim objektima 14. stoljeća, pronađeni na lokalitetima iz razdoblja kasnog srednjeg vijeka u

window glass is mostly naturally coloured with shades of green, blue, yellow and brown, the intensity of which depended on the thickness of the glass pane or the added decolourisation agents. Glass produced in a mould was made for windows in public and residential buildings, in liturgical spaces and thermal bath complexes. Window glass was subject to recycling such that old glass surfaces were reused or the debris from window glass was collected in greater quantities and then decomposed and re-formed.

Fragments (Cat. no. 55 and Cat. no. 56) are made of extremely thin flat glass, grey and blue in colour. These fragments are common in archaeological sites from different periods of time. Part of the edge section of the glass pane (Cat. no. 57) ends with a rounded edge. It is made from thicker blue glass with air bubbles, probably by casting into a mould (Fig. 21).



Sl. 21 Ulomak prozorskog stakla kat. br. 57 (foto: V. Jukić Buča).

Fig. 21 Fragment of a window glass (Cat. no. 57) (photo by: V. Jukić Buča).

Numerous fragments of greenish and yellowish window glass from Late Antiquity have been found in the Slovenian site of Tonovcov grad pri Kobaridu, a verified hilltop settlement with a church complex, and have been fully described and well presented (Milavec 2015).⁶ One of the finds from the later period that is worth mentioning is the sunken ship at the islet of Gnalić, which transported a large amount of glass panes intended for the production of windows and mirrors (Lazar, Willmott 2006; Perović 2011).

Fragment Cat. no. 58 with a green-blue colour was part of a round window frame (*oculus*) (Fig. 23).

Round window glass of various colours from the 4th CE has been found in Aquileia (Calvi 1968, 174–175, tab. 28, no. 249–351). In Croatia, fragments of window frames in the form of non-figural stained glass, associated with sacral and prominent buildings from the 14th CE, have been found at sites from the Late Middle Ages in

⁶ U citiranom članku navode se lokaliteti na području Slovenije, Austrije, sjeverne Italije i Srbije s nalazima prozorskog stakla.

⁶ The quoted article lists sites in Slovenia, Austria, northern Italy and Serbia with finds of window glass.

Bribiru, Varaždinu, Gradu Ružici, na utvrđi Čanjevo, brojni fragmenti okulusa pronađeni su u pećini Jama u Predjama u Sloveniji i drugdje u Europi, a bili su i dio tereta potopljenog broda u uvali Gnaljić (Čimin 2008, 243-244; Delonga 1988, 197; Korošec 1984, 113; Perović 2011, 30-31; Radić, Bojčić 2004, 223, kat. br. 452; Šimek 2011, 318-319).⁷ Vitraji sastavljeni od okulusa izrađivani su tijekom 15. stoljeća u Dubrovniku (Han 1981, 74; Topić 2015).⁸ Način na koji su okulusi bili postavljeni u prozor uočava se, primjerice, na prozorima iz Drevenika te na fresci koja prikazuje model crkve Sv. Trojstva u Sopoćanima iz 13. stoljeća (Han 1981, 75, 263, Tab. IX/4; Lazar 2001, 78).

V. Ostali ulomci

Grupi pripadaju ulomci koji su ili previše sitni ili potječu s neprepoznatljivog dijela staklenog artefakta te ih nije moguće, čak ni uz pretpostavku, tipološki determinirati i/ili datirati. Ulomci su pronađeni u poremećenim slojevima te se o njima ne može pobliže zaključiti na temelju stratigrafije. Analizirano je svega nekoliko zanimljivijih ulomaka, dok su ostali navedeni u katalogu.



Sl. 22 Narebrena ručka kat. br. 59 (foto: V. Jukić Buča).

Fig. 22 Ribbed handle (Cat. no. 59) (photo by: V. Jukić Buča).

⁷ Varaždinski okulusi datirani su u razdoblje kraja 15. i početka 16. stoljeća, a pretpostavlja se da potječu iz ugarskih radionica.

⁸ Proizvodnju vitraja u Dubrovniku poticali su crkva, svjetovna vlast i imućniji građani. Cijena jednog okulusa iznosila je jedan dubrovački groš. Proučavanje pisane građe ukazalo je na moguću povezanost dubrovačkog s toskanskim staklarstvom. Arheološki su romanički profani i sakralni okulusi dokumentirani na Lopudu, u Dubrovniku, Trogiru, Orebićima, Hvaru i drugdje. Uglavljivani su u olovnu armaturu. Nefiguralni vitraji sastavljeni od okulusa nastajali su pod neposrednim utjecajem Venecije, Toskane i Umbrije, gdje su bili postavljeni na nižim katovima crkvi franjevačkih i dominikanskih redova.

Bribir, Varaždin, Grad Ružica and at the Čanjevo fortress, numerous rounded window frame fragments were found in the cave Jama in Predjama in Slovenia and elsewhere in Europe, and were also part of the cargo of the ship sunk in the bay of Gnaljić (Čimin 2008, 243-244; Delonga 1988, 197; Korošec 1984, 113; Perović 2011, 30-31; Radić, Bojčić 2004, 223, Cat. no. 452; Šimek 2011, 318-319).⁷ Stained glass windows made from rounded glass panes were made in the 15th CE in Dubrovnik (Han 1981, 74; Topić 2015).⁸ The way in which the round glass panes were placed in the window is evident, for example, in the windows from Drevenik and on the fresco showing the model of the Church of the Holy Trinity from the 13th CE in Sopoćani (Han 1981, 75, 263, Tab. IX/4; Lazar 2001, 78).

V. Other fragments

This group contains the fragments that are either too small or come from an unrecognisable part of a glass artefact and it is not possible, even by estimating, to determine their typology or date of origin. The fragments are found in disturbed layers and a conclusion cannot be drawn about them on the basis of stratigraphy. Only a few of the more interesting fragments were analysed, while others are listed in the catalogue.

1. Ribbed handle

The upper section of a densely ribbed handle (Cat. no. 59) (Fig. 22) comes from a later period, but determining the type of vessel to which it belongs is impossible.

2. A fragment with decorative folds

A fragment of a ribbed decoration with a part of a body of a vessel (Cat. no. 60) was found. The vessel was made from very thin, transparent glass, whereas the ribbed decoration is made from an opaque, dark blue glass. The fragment is comparable to fragments from Corinth where a type of drinking cup is produced equipped with two

⁷ Varaždin's round window panes date back to the late 15th and early 16th centuries and it is thought that they originated from Hungarian workshops.

⁸ Glassware production in Dubrovnik was promoted by the church, secular authorities and wealthy citizens. The cost of one round window pane was one Dubrovnik Grosch. The study of written material points to a possible connection between Dubrovnik and the Tuscany workshops. In archaeological terms, the Roman profane and sacral round windows are documented at Lopud, in Dubrovnik, Trogir, Orebići, Hvar and elsewhere. They are embedded into a lead frame. The non-figural stain glass windows made from round frames were created under the direct influence of Venice, Tuscany and Umbria, where they were placed on the lower floors of Franciscan and Dominican churches.

1. Narebrena ručka

Ulomak gornjeg dijela gusto narebrene ručke kat. br. 59 (sl. 22) potječe iz kasnijeg razdoblja, ali nije moguće pobliže odrediti tip posude kojoj je pripadala.

2. Ulomak s ukrasnim naborima

Pronađen je jedan ulomak narebrene dekoracije posude kat. br. 60. Posuda je bila izrađena od vrlo tankog prozirnog stakla, a narebrena dekoracija od neprozirnog stakla tamnoplave boje. Ulomak se eventualno može usporediti s ulomcima iz Korinta gdje se proizvodio tip staklene čaše s dvije prstenaste ručke izrađene od istog materijala kao i sama posuda (Davidson 1940, 313). Nekoliko ulomaka s prstenastim ručkama također imaju ravan namotaj koji se proteže u nabore od pozicije ispod ručke na stijenkama posude. Nabori nisu postavljeni izravno na posudu, već, radi dodatnog učvršćenja, na drugu ravnu vrpca stakla, što sugerira da je namotana vrpca bila produžena do dna, kako bi tvorila prstenastu bazu čaše. G. R. Davidson povezuje ovaj oblik s primjerkom iz 8. – 9. stoljeća iz Egipta te navodi da su na čašama ovog tipa u Korintu ručke mogle biti povezane s nožicama. Ne može se sa sigurnošću zaključiti kojem je tipu staklenog oblika pripadao ulomak s lokaliteta u četvrti sv. Teodora, ali se isto tako ne može odbaciti mogućnost da je pripadao opisanom tipu dekoracije ili nekom drugom tipu dekoracije sličnih karakteristika.

3. Ulomak s okruglim zadebljanjem

Stakleni ulomak kat. br. 61 sadrži kružno proširenje, odnosno zadebljanje. Možda bi se porijeklo kružne zadebljane forme moglo razmatrati u okviru postupka ukrašavanja posuda istaknutim kružnim ili kapljastim ornamentom koje je karakteristično za srednjovjekovne čaše (*prunted cups*, *Nuppenbecher*) (okruglim izbočinama) i čaše tipa *Krautstrunk* (s kapljama stakla), ali kod ovog ulomka nije moguće odrediti porijeklo i funkciju (Davidson 1940, 308; Grossman 2002, 15; Gyúrky 1971; Isings 1957, 45–46; Kojić, Wenzel 1968, 150–151; Whitehouse 1991). Možda se radi o ostatku kod izrade.

ZAKLJUČAK

Očuvani ulomci staklenih artefakata na lokalitetu u četvrti sv. Teodora u Puli malih su dimenzija i uglavnom se prema njima ne može sa sigurnošću odrediti oblik kojem su pripadali. Njihove karakteristike upućuju na smjernice koje sugeriraju potencijalnu tipološku determinaciju. S obzirom da su određene karakteristike prisutne na staklenim oblicima tijekom vrlo dugog razdoblja, većinu ulomaka nije moguće sa sigurnošću datirati. U članku predstavljena pretpostavljena tipologija

handles made from a coil bent into a ring (Davidson 1940, 313). Several fragments with ring-handles also have a flat spiral that extends into the folds from the position below the handle onto the vessel wall. The folds have not been placed directly onto the vessel, but, for the additional strengthening, on the other flat strip of glass, suggesting that the wound ribbon was extended to the bottom to form the foot of the drinking cup. G. R. Davidson links this form to a vessel from 8th to 9th CE in Egypt and presumes that these types of cups in Corinth had handles connected to the feet. It cannot be concluded with certainty what type of glass form the fragment unearthed at the St Theodore's Quarter belonged to, but in the same way, the possibility cannot be eliminated that it belonged to the described type of decoration or some other type of decoration with similar characteristics.

3. Fragment with round thickening

The glass fragment (Cat. no. 61) has a circular extension, i.e. thickening. Perhaps the origin of the round thickened shape may be viewed in terms of the process of decorating vessels with a prominent circular or drop-shaped ornament which is characteristic for medieval vessels (*pruned cups*, *Nuppenbecher*) (round bulges) and drinking glasses of the type *Krautstrunk* (with applied drops of glass drawn into points, or prunts), but for this fragment the origin and function cannot be determined (Davidson 1940, 308; Grossman 2002, 15; Gyúrky 1971; Isings 1957, 45–46; Kojić, Wenzel 1968, 150–151; Whitehouse 1991). It may just be an excess material left after production.

CONCLUSION

Preserved fragments of glass artefacts at the St Theodore's Quarter site in Pula are small in size and their form cannot be determined with certainty. Their characteristics point to guidelines in suggesting potential typologies. Given that certain characteristics are present on glass forms occurring over a very long period of time, most fragments cannot be dated with certainty. In the article, the presented possible typology of glass finds and their comparison with similar artefacts in relevant literature does more to suggest than determine their purpose, place of origin, and time of use.

The analysed artefacts mainly share common characteristics with glass shapes from the Mediterranean, specifically the eastern Adriatic coast – Dalmatia, Slovenia and northern Italy, some elements may be linked to Merovingian glassware in the region of France and Spain, and the Middle East influences are also noticeable.

staklenih formi i njihova usporedba sa sličnim artefaktima u relevantnoj literaturi više nagađa o njihovoj svrsi, mjestu porijekla i vremenu upotrebe negoli utvrđuje.

Analizirani artefakti uglavnom dijele zajedničke karakteristike sa staklenim oblicima na području Mediterana, konkretno istočne jadranske obale – Dalmacije, Slovenije i sjeverne Italije, pojedini elementi mogu se povezati s merovinškim staklom na području Francuske i Španjolske, a uočavaju se i bliskoistočni utjecaji.

Za kasnoantičku grupu ulomaka najkarakterističnije su stopice koje su pripadale kaležima na visokoj nozi te ručkice koje su bile dijelom posuda za osvjetljavanje. Stopice su bojom i oblikom slične brojnim stopicama s područja Slovenije te sjeverne Italije gdje se nalazio i centar njihove proizvodnje (Invilino). Nalazi ručkica na području Istre ukazuju na činjenicu da je tip visećih staklenih svjetiljki s ručkicama bio vrlo raširen. Novovjekovni nalazi najbliže paralele imaju upravo u Istri, na području Pule i rta Seline, a najzastupljenije su karakteristike venecijanskog i češkog stakla. Rimski nalazi podrazumijevaju raznovrsne ulomke posuda različite namjene, od kojih se većina mogla sa sigurnošću tipološki determinirati.

Stakleni oblici prve skupine mogu se povezati s upotrebom u crkvenom kontekstu, za osvjetljavanje ili korištenje prilikom provedbe liturgije te sepulkralnom kontekstu, radi čega se zaključuje da su vezani uz djelovanje crkve s grobljem koja je funkcionirala u razdoblju kasne antike i predromanike u četvrti sv. Teodora, a kojoj pripadaju pronađeni ulomci kamenog crkvenog namještaja.

For the group of fragments from Late Antiquity, the most characteristic are the feet that belonged to stemmed goblets and the handles that were part of vessels used for lighting. The feet in colour and shape are similar to numerous other feet from Slovenia and northern Italy where their production centre was also located (Invilino). The finds of handles in the Istrian area indicate that this type of hanging glass lamps with handles was very widespread. The finds from the Post Medieval period are most comparable with those in Istria, in the area of Pula and Seline Cape, with Venetian and Czech glasses being the most typical. Roman finds include various fragments of vessels for various uses, most of which could be typologically determined with certainty.

The glass forms from the first group can be placed in the context of a church, where they were used for lighting or during liturgy, as well as in sepulchral context, leading to the conclusion that they served the purposes of a church with a cemetery that was active in the Quarter of St Theodore during the Late Antiquity and pre-Romanesque period, and to which the discovered fragments of stone church furniture belong.

KATALOG NALAZA

Legenda: S. J. – stratigrafska jedinica, P – prostorija, O – objekt; dimenzije u centimetrima v. – visina, š. – širina, d. – debljina, p. – promjer, p. v. – promjer vrata, p. pr. – promjer prstena; sig. br. – signaturni broj. Autorica crteža i fotografija: Vendi Jukić Buča.

1.

Ulomak kaleža na visokoj nozi. Gotovo u cijelosti sačuvana blago konveksno podignuta stopica s istaknutim zaobljenim prošupljenim rubom, izrađena od prozirnog stakla smeđe boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip Ib prema V. Bierbraueru. Slobodno puhanje. V. 1,2, š. 4, d. 0,2, p. 4. Sig. br. KAND 05 13833, S. J. 24-P21-O7, 19. 08. 2005. Datacija: 5. – 7. stoljeće. T. I/kat. br. 1.

2.

Ulomak kaleža na visokoj nozi. Djelomično sačuvana stopica s konveksno podignutom stapkom istaknutog, zaobljenog i prošupljenog ruba, izrađena od prozirnog stakla žućkaste boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip Ic prema V. Bierbraueru. Slobodno puhanje. V. 2,2, š. 3, d. 0,1, p. 4. Sig. br. KAND 05 13834, S. J. 24-P21-O7, 19. 08. 2005. Datacija: 5. – 7. stoljeće. T. I/kat. br. 2.

3.

Ulomak kaleža na visokoj nozi. U cijelosti sačuvana blago konveksno podignuta stopica s istaknutim zaobljenim prošupljenim rubom, izrađena od prozirnog stakla maslinastozelene boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip Ib prema V. Bierbraueru. Slobodno puhanje. V. 1, š. 3,4, d. 0,2, p. 3,4. Sig. br. KAND 05 14821, S. J. 24-P11-O7, 09. 08. 2005. Datacija: 5. – 7. stoljeće. Sl. 2, T. I/kat. br. 3.

CATALOGUE OF FINDS

Legend: S. J.-P-O – stratigraphic position; dimensions in centimetres h. – height, w. – width, t. – thickness, d. – diameter, n. d. – diameter of the neck, r. d. – ring diameter; sig. no. – signature number. Author of drawings and photographs: Vendi Jukić Buča.

1.

Fragment of a stemmed goblet. Almost completely preserved, slightly conically elevated foot with a prominent rounded, hollowed rim, made of transparent brown-coloured glass, permeated with air bubbles. Isings 111 form, type Ib foot according to V. Bierbrauer. Free blowing. H. 1.2, w. 4, t. 0.2, d. 4. Call. no. KAND 05 13833, S. J. 24-P21-O7, 19/08/2005. Time period: 5th to 7th CE. T. I/Cat. no. 1.



2.

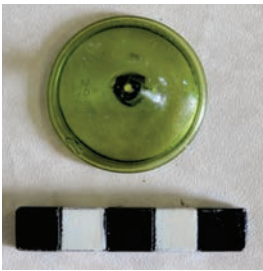
Fragment of a stemmed goblet. Partially preserved foot with a conically elevated stem and a prominent, curved and hollowed rim, made of a yellowish, transparent glass permeated with air bubbles. Isings 111 form, type Ic foot according to V. Bierbrauer. Free blown. H. 2.2, w. 3, t. 0.1, d. 4. Call. no. KAND 05 13834, S. J. 24-P21-O7, 19/08/2005. Time period: 5th to 7th CE. T. I/Cat. no. 2.



3.

Fragment of a stemmed goblet. Fully preserved slightly conically elevated foot with a prominent rounded, hollowed rim, made of olive-green, transparent glass and permeated with air bubbles. Isings 111 form, type Ib foot according to V. Bierbrauer. Free blown. H. 1, w. 3.4, t. 0.2, d. 3.4. Call. no. KAND 05 14821, S. J. 24-P11-O7, 09/08/2005. Time period: 5th to 7th CE. Fig. 2, T. I/Cat. no. 3.





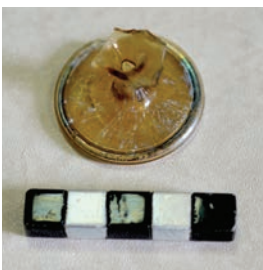
4. Ulomak kaleža na visokoj nozi. U cijelosti sačuvana konveksno podignuta stopica s istaknutim zaobljenim prošupljenim rubom, izrađena od prozirnog stakla maslinastozelene boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip Ia prema V. Bierbraueru. Slobodno puhanje. V. 1,3, š. 3,4, d. 0,2, p. 3,4. Sig. br. KAND 05 14712, S. J. 24-P10-O7, 02. 08. 2005. Datacija: 5. - 7. stoljeće. Sl. 2, T. I/kat. br. 4.

4. Fragment of a stemmed goblet. Fully preserved, conically elevated foot with a prominent rounded, hollowed rim, made of olive-green, transparent glass and permeated with air bubbles. Isings 111 form, type Ia foot according to V. Bierbrauer. Free blown. H. 1.3, w. 3.4, t. 0.2, d. 3.4. Call. no. KAND 05 14712, S. J. 24-P10-O7, 02/08/2005. Time period: 5th to 7th CE. Fig. 2, T. I/ Cat. no. 4.



5. Ulomak kaleža na visokoj nozi. Djelomično sačuvana ravna stopica sa stapkom s istaknutim zaobljenim prošupljenim rubom, izrađena od prozirnog stakla svijetloplave boje prožetog mjehurićima zraka i prisutnom irizacijom. Forma Isings 111, stopica tip II prema V. Bierbraueru. Slobodno puhanje. V. 0,7, š. 4, d. 0,4, p. 4. Sig. br. KAND 05 14819, S. J. 24-P11-O7, 08. 08. 2005. Datacija: 5. - 7. stoljeće. Sl. 2, T. I/kat. br. 5.

5. Fragment of a stemmed goblet. Partially preserved flat foot with a stem and a prominent, rounded hollowed rim, transparent glass permeated with air bubbles and iridescence. Isings 111 form, type II foot according to V. Bierbrauer. Free blown. H. 0.7, w. 4, t. 0.4, d. 4. Call. no. KAND 05 14819, S. J. 24-P11-O7, 08/08/2005. Time period: 5th to 7th CE. Fig. 2, T. I/ Cat. no. 5.



6. Ulomak kaleža na visokoj nozi. Gotovo u cijelosti sačuvana ravna stopica s istaknutim zaobljenim prošupljenim rubom i djelomično sačuvanom stapkom, izrađena od prozirnog stakla svijetlo smeđe boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip II prema V. Bierbraueru. Slobodno puhanje. V. 2,4, š. 3,8, d. 0,2, p. 3,8. Sig. br. KAND 05 15114, S. J. 41-P3/P1-O5/O1, 08. 09. 2005. Datacija: 5. - 7. stoljeće. Sl. 2, T. I/kat. br. 6.

6. Fragment of a stemmed goblet. Almost completely preserved flat foot with a prominent rounded, hollowed rim and a partially preserved stem, made of light brown, transparent glass permeated with air bubbles. Form Isings 111, type II foot according to V. Bierbrauer. Free blown. H. 2.4, w. 3.8, t., 0.2, d. 3.8. Call. no. KAND 05 15114, S. J. 41-P3/P1-O5/O1, 08/09/2005. Time period: 5th to 7th CE. Fig. 2, T. I/ Cat. no. 6.



7. Ulomak kaleža na visokoj nozi. Djelomično sačuvana ravna stopica s istaknutim zaobljenim prošupljenim rubom i djelomično sačuvanom stapkom, izrađena od prozirnog stakla svijetlo plave boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip II prema V. Bierbraueru. Slobodno puhanje. V. 3, š. 3,4, d. 0,2, p. 3,4. Sig. br. KAND 05 14117, S. J. 34-P7-1, 21. 06. 2005. Datacija: 5. - 7. stoljeće. T. I/kat. br. 7.

7. Fragment of a stemmed goblet. Partially preserved flat foot with a prominent rounded, hollowed rim and partially preserved stem, made of light blue, transparent glass permeated with air bubbles. Isings 111 form, type II foot according to V. Bierbrauer. Free blown. H. 3, w. 3.4, t. 0.2, d. 3.4. Call. no. KAND 05 14117, S. J. 34-P7-1, 21/06/2005. Time period: 5th to 7th CE. T. I/ Cat. no. 7.

8.
Ulomak kaleža na visokoj nozi.
Djelomično sačuvana blago konkveksno podignuta stopica s podvijenim zaobljenim prošupljenim rubom, sa sačuvanom stapkom, izrađena od prozirnog stakla svijetlozelene boje prožetog mjehurićima zraka. Forma Isings 111, stopica tip Ic prema V. Bierbraueru. Slobodno puhanje. V. 2,5, š. 3,6, d. 0,2, p. 4. Sig. br. KAND 05 14121, S. J. 34-P7-O1, 29. 06. 2005. Datacija: 5. - 7. stoljeće. T. I/kat. br. 9.

9.
Ulomak kaleža na visokoj nozi. Djelomično sačuvana stopica sa zaobljenim prošupljenim rubom, izrađena od bezbojnog prozirnog stakla prožetog mjehurićima zraka. Forma Isings 111. Slobodno puhanje. V. 0,4, š. 1,9, d. 0,1, p. 4. Sig. br. KAND 05 15043, S. J. 26-P4-O1, 28. 05. 2005. Datacija: 5. - 7. stoljeće.

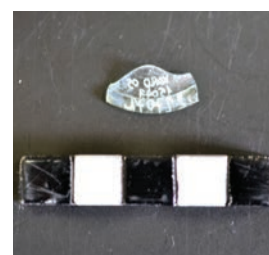
10.
Ulomak čaše s konveksno zašiljenim dnom. Dva ulomka dna čaše s konveksno zašiljenim dnom, koja se spajaju po liniji loma, izrađena od svijetlo plavog prozirnog stakla prožetog mjehurićima zraka. Forma Isings 106b. Slobodno puhanje. V. 2, š. 3, d. 0,1, p. 5. Sig. br. KAND 05 13204, S. J. 24-P10-O4, 19. 05. 2005. Datacija: 5.-7. stoljeća. T. I/kat. br. 10.

11.
Ulomak čaše s konveksno zašiljenim dnom. Tri ulomka dna čaše s konveksno zašiljenim dnom, koja se spajaju po liniji loma, izrađena od svijetloplavog prozirnog stakla prožetog mjehurićima zraka i prisutnom irizacijom. Forma Isings 106b. Slobodno puhanje. V. 2, š. 5, d. 0,1, p. 5. Sig. br. KAND 05 15096, S. J. 24-P4-O6, 20. 05. 2005. Datacija: 5. - 7. stoljeće. Sl. 3, T. I/kat. br. 11.

8.
Fragment of a stemmed goblet. Partially preserved slightly conically elevated foot with a folded-in, rounded, hollowed edge, preserved stem, made of light green, transparent glass permeated with air bubbles. Isings 111 form, type Ic foot according to V. Bierbrauer. Free blown. H. 2.5, w. 3.6, t. 0.2, d. 4. Call. no. KAND 05 14121, S. J. 34-P7-O1, 29/06/2005. Time period: 5th to 7th CE. T. I/Cat. no. 9.



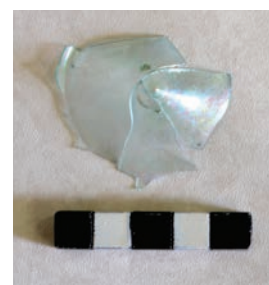
9.
Fragment of a stemmed goblet. Partially preserved foot with a rounded, hollowed rim, made of colourless, transparent glass permeated with air bubbles, Isings 111 form. Free blown. H. 0.4, w. 1.9, t. 0.1, d. 4. Call. no. KAND 05 15043, S. J. 26-P4-O1, 28/05/2005. Time period: 5th to 7th CE.



10.
Fragment of a cup with conically tapered base. Two fragments of the bottom of a cup with conically tapered bottom, made of light blue transparent glass, permeated with air bubbles. Isings 106b form. Free blown. H. 2, w. 3, t. 0.1, d. 5. Call. no. KAND 05 13204, S. J. 24-P10-O4, 19/05/ 2005. Time period: 5th to 7th CE. T. I/Cat. no. 10.



11.
Fragment of cup with a conically tapered base. Three fragments of a bottom of a cup with a conically tapered bottom, which join along the breakage line, made of light blue, transparent glass, permeated with air bubbles and with iridescence. Isings 106b form. Free blown. H. 2, w. 5, t. 0.1, d. 5. Call. no. KAND 05 15096, S. J. 24-P4-O6, 20/05/2005. Time period: 5th to 7th CE. Fig. 3, T. I/Cat. no. 11.





12. Ručkica. U cijelosti sačuvana ručkica – aplikacija staklene posude u funkciji viseće svjetiljke, izrađena od svijetlozelenog prozirnog stakla prožetog mjehurićima zraka. Forma Isings 111, 134 ili svjetiljke u obliku lijevka. Slobodno puhanje. V. 4,1, š. 1,1, d. 0,6. Sig. br. KAND 05 14658, S. J. 34-P7-O1, 21. 06. 2005. Datacija: 5. – 7. stoljeće. T. I/kat. br. 12.



13. Ručkica. Djelomično sačuvana ručkica – aplikacija staklene posude u funkciji viseće svjetiljke, izrađena od svijetloplavog prozirnog stakla prožetog mjehurićima zraka. Forma Isings 111, 134 ili svjetiljke u obliku lijevka. Slobodno puhanje. V. 3, š. 1,5, d. 1,6. Sig. br. KAND 05 13845, S. J. 26-P4-O1, 01. 06. 2005. Datacija: 5. – 7. stoljeće. Sl. 4, T. I/kat. br. 13.



14. Dno svjetiljke u obliku lijevka. U cijelosti sačuvan donji dio svjetiljke u obliku lijevka, izrađen od svijetloplavog prozirnog stakla prožetog mjehurićima zraka. Forma – svjetiljka u obliku lijevka. Slobodno puhanje. V. 3, š. 1,5, d. 1,6. Sig. br. KAND 05 14071, S. J. 34-P7-O1, 20. 05. 2005. Datacija: 5. – 7. stoljeće. Sl. 5, T. I/kat. br. 14.



15. Ulomak konične čaše. Djelomično sačuvano ravno i usko dno konične čaše izrađene od prozirnog stakla maslinastozelene boje koje sadrži mjehuriće zraka i nečistoće. Forma Isings 106. Puhanje. V. 1,6, š. 4,2, d. 0,2, p. 1, 4. Sig. br. KAND 05 14120, S. J. 34-P7-O1, 29. 06. 2005. Datacija: kraj 4. – 5. stoljeće. T. I/kat. br. 15.

12. Handle. A fully preserved handle – from a glass vessel that was used as a suspended lamp, made of light green transparent glass, permeated with air bubbles. Isings 111, 134 forms or funnel-shaped lamps. Free blown. H. 4.1, w. 1.1, t. 0.6. Call. no. KAND 05 14658, S. J. 34-P7-O1, 21/06/2005. Time period: 5th to 7th CE. T. I/Cat. no. 12.

13. Handle. Partly fully preserved handle – from a glass vessel that was used as a suspended lamp, made of transparent glass, light blue in colour permeated with air bubbles. Isings 111, 134 form or funnel-shaped lamps. Free blown. H. 3, w. 1.5, d. 1.6. Call. no. KAND 05 13845, S. J. 26-P4-O1, 01/06/2005. Time period: 5th to 7th CE, Fig. 4, T. I/ Cat. no. 13.

14. Bottom of a funnel-shaped lamp. A fully preserved lower part of the funnel-shaped oil lamp, made of light blue transparent glass, permeated with air bubbles. Form – funnel-shaped lamp. Free blown. H. 3, w. 1.5, t. 1.6. Call. no. KAND 05 14071, S. J. 34-P7-O1, 20/05/2005. Time period: 5th to 7th CE. Fig. 5, T. I/Cat. no. 14.

15. Fragment of a conical cup. Partially preserved flat, narrow bottom of a conical cup made of olive-green coloured, transparent glass which is permeated with air bubbles and impurities. Isings 106 form. Blown. H. 1.6, w. 4.2, t. 0.2, d. 1, 4. Call. no. KAND 05 14120, S. J. 34-P7-O1, 29/06/2005. Time period: end of the 4th to 5th CE. T. I/Cat. no. 15.

16.

Ulomak boce. Ulomak središnjeg dijela recipijenta boce ukrašen reljefom u obliku slova 'X', izrađen od plavkastog prozirnog stakla prožetog mjehurićima zraka. Forma Isings 103 ili 104. Slobodno puhanje. V. 2,3, š. 4,7, d. 0,2. Sig. br. KAND 05 15097, S. J. 24-P4-O6, 20. 05. 2005. Datacija: 6. stoljeće. Sl. 6, T. II/kat. br. 16.

17.

Ulomak boce. Ulomak dijela ruba boce izrađen od prozirnog stakla svijetlo plave boje prožetog mjehurićima zraka. Forma Isings 103 ili 129. Slobodno puhanje. V. 1,9, š. 2,7, d. 0,2, p. 3. Sig. br. KAND 05 14035, S. J. 26-O7, 11. 05. 2005. Datacija: 3. - 5. stoljeće.

18.

Ulomak boce. Ulomak ruba boce proširenog zvonolikog otvora s plitkim paralelnim urezima, izrađen od prozirnog stakla svijetlozelene boje koje sadrži mjehuriće zraka i nečistoće. Forma Isings 104 ili 132. Slobodno puhanje. V. 3, š. 7,7, d. 0,1, p. 9. Sig. br. KAND 05 14072, S. J. 34-P7-O1, 20. 05. 2005. Datacija: 3. - 5. stoljeće. T. II/kat. br. 18.

19.

Ulomak boce ili vrča. Ulomak ruba boce ili vrča proširenog otvora s namotajem, izrađen od prozirnog stakla plavozelene boje prožetog mjehurićima zraka. Forma Isings 120. Slobodno puhanje. V. 2,5, š. 3,2, d. 0,2, p. 7. Sig. br. KAND 05 15044, S. J. 26-P4-O1, 28. 05. 2005. Datacija: 3. - 5. stoljeće. T. II/kat. br. 19.

16.

Fragment of a bottle. A fragment of the central part of the body of a bottle decorated with a relief in the shape of the letter 'X', made of transparent blue glass, permeated with air bubbles. Isings 103 or 104 form. Free blown. H. 2.3, w. 4.7, t. 0.2. Call. no. KAND 05 15097, S. J. 24-P4-O6, 20/05/2005. Time period: 6th CE. Fig. 6, T. II/Cat. no. 16.



17.

Fragment of a bottle. A fragment of the rim of a bottle made of light blue, transparent glass permeated with air bubbles. Isings 103 or 129 form. Free blown. H. 1.9, w. 2.7, t. 0.2, d. 3. Call. no. KAND 05 14035, S. J. 26-O7, 11/05/2005. Time period: 3rd to 5th CE.



18.

Fragment of a bottle. Fragment of a bottle rim with broadened bell-shaped opening, made of light green transparent glass which contains air bubbles and impurities. Shallow parallel incisions are present. Isings 104 or 132 form. Free blown. H. 3, w. 7.7, t. 0.1, d. 9. Call. no. KAND 05 14072, S. J. 34-P7-O1, 20/05/2005. Time period: 3rd to 5th CE. T. II/Cat. no. 18.



19.

Fragment of a bottle or jug. Fragment of a bottle or jug with widened opening and applied decorative coils, made of a blue green transparent glass permeated with air bubbles. Isings 120 form. Free blown. H. 2.5, w. 3.2, t. 0.2, d. 7. Call. no. KAND 05 15044, S. J. 26-P4-O1, 28/05/2005. Time period: 3rd to 5th CE. T. II/Cat. no. 19.





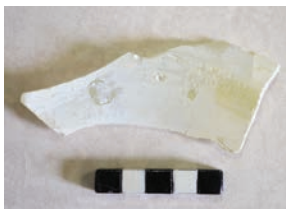
20.
Ulomak posude (balzamarij?). U cijelosti sačuvana prošupljena baza s konveksno istaknutom sredinom vjerojatno balzamarija (također možda vrča ili koničnog pehara), izrađena od prozirnog stakla sivkasto-plavozelene boje prožetog mjehurićima zraka, s tragovima irizacije. Forma Isings 104a. Trag hvataljke. Slobodno puhanje. V. 1,5, š. 3,7, d. 0,3, p. 3,4. Sig. br. KAND 05 13370, S. J. 29-P1-O1, 12. 7. 2005. Datacija: od sredine 4.- 6. stoljeće i kasnije. Sl. 7.

20.
Fragment of a bottle (balsamarium?). Fully preserved hollowed base with a conically protruding central part, made of a greyish blue-green transparent glass and permeated with air bubbles, with traces of iridescence. Probably a balsamarium (also perhaps a jug or conical beaker). Isings 104a form. Pontil mark. Free blown. H. 1.5, w. 3.7, t., 0.3, d. 3.4. Call. no. KAND 05 13370, S. J. 29-P1-O1, 12/07/2005. Time period: from the mid-4th to 6th centuries and later. Fig. 7.



21.
Okrugli balzamarij ili apotekarska bočica. Gotovo u cijelosti sačuvana mala bočica, vjerojatno okrugli/sferični balzmarij ili apotekarska bočica, proširenog vrata, bez ruba otvora i oštećene prstenaste baze, izrađena od prozirnog stakla plave boje koje sadrži mjehuriće zraka i nečistoće. Kasna forma Isings 26. Slobodno puhanje. V. 5, š. 3, d. 0,2, p. 3, p. v. 1,1. Sig. br. KAND 05 14815, S. J. 24-P10-O7, 02. 08. 2005. Datacija: od kasne antike nadalje. T. II/kat. br. 21.

21.
Round balsamarium or apothecary bottle. Almost a completely preserved small bottle, probably a bulbous balsamarium or apothecary bottle, with extended neck, without a rim, with a damaged footed base, made of a blue transparent glass that contains air bubbles and impurities. Isings 26 late form. Free blown. H. 5, w. 3, t. 0.2, d. 3, n. d. 1.1. Call. no. KAND 05 14815, S. J. 24-P10-O7, 02/08/2005. Time period: from Late Antiquity onwards. T. II/Cat. no. 21.



22.
Ulomak tanjura ili plitke zdjele. Ulomak ruba i recipijenta tanjura ili plitke zdjele s rubom koji je oblikovan u kalupu, konkavan na gornjoj strani, ravan na donjoj strani te 1,5 cm širok, izrađen od bezbojnog prozirnog stakla s mliječno bijelom patinom. Forma Isings 5. Puhanje u kalup. V. 2, š. 9, d. 0,3, p. 28. Sig. br. KAND 05 14442, S. J. 24-P20-O4, 25. 05. 2005. Datacija: rano 3. - 4. stoljeće. Sl. 8.

22.
Fragment of a plate or shallow bowl. Fragment of a rim and body of a plate or a shallow bowl concave on the upper side, flat on the underside and 1.5 cm wide, made of a colourless transparent glass with milky weathering. Isings 5 form. Blown into a mould. H. 2, w. 9, t. 0.3, d. 28. Call. no. KAND 05 14442, S. J. 24-P20-O4, 25/05/2005. Time period: early 3rd to 4th centuries. Fig. 8.



23.
Ulomak tanjura. Ulomak zaobljenog ruba tanjura ispod kojeg se nalazi prošupljeni namotaj, izrađen od bezbojnog prozirnog stakla prožetog mjehurićima zraka s prisutnom irizacijom. Forma Isings 97a ili 97b. Slobodno puhanje. V. 1,6, š. 1,4, d. 0,1. Sig. br. 15099, S. J. 26-P24-O6, 20. 05. 2005. Datacija: 3. - 5. stoljeće.

23.
Fragment of a plate. Fragment of the rounded rim of a plate with a tubular coil below, made of a colourless transparent glass permeated with air bubbles and a presence of iridescence. Isings 97a or 97b form. Free blown. H. 1.6, w. 1.4, t. Call. no. 15099, S. J. 26-P24-O6, 20/05/2005. Time period: 3rd to 5th CE.

24.

Ulomak ruba plitkog tanjura. Ulomak zaobljenog ruba plitkog tanjura, izrađen od bezbojnog prozirnog stakla. Forma Isings 97a ili 97b. Puhanje. V. 3,7, š. 2,9, d. 0,1. Sig. br. KAND 05 13387, S. J. 24-P7-O7, 10. 05. 2005. Datacija: 3. – 5. stoljeće i kasnije.

24.

Fragment of a shallow plate. Fragment of a round rim of a shallow plate, made of a colourless transparent glass. Isings 97a on 97b form. Blown. H. 3.7, w. 2.9, t. 0.1. Call. no. KAND 05 13387, S. J. 24-P7-O7, 10/05/2005. Time period: 3rd to 5th CE and later.

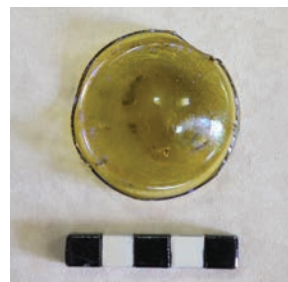


25.

Ulomak čaše za piće. Baza čaše s blago konveksno zašiljenim dnom, izrađena od prozirnog stakla žućkaste maslinastozelene boje koje sadrži mjehuriće zraka i nečistoće. Forma Isings 106b. Trag hvataljke. Slobodno puhanje. V. 1,2, š. 5, d. 0,1, p. 5. Sig. br. KAND 05 15065, S. J. 26-P19-O4, 23. 05. 2005. Datacija: 4. – 8. stoljeće i kasnije. Sl. 9, T. II/kat. br. 25.

25.

Fragment of a drinking cup. The base of the cup is slightly pointed and tapered, made of a yellowish olive-green transparent glass, containing air bubbles and impurities. Isings 106b form. Pontil mark. Free blown. H. 1.2, w. 5, t. 0.1, d. 5. Call. no. KAND 05 15065, S. J. 26-P19-O4, 23/05/2005. Time period: 4th to 8th CE and later. Fig. 9, T. II/ Cat. no. 25.

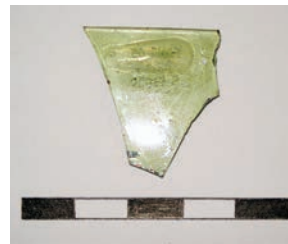


26.

Ulomak ruba čaše. Ulomak zaobljenog ruba čaše ili kaleža na visokoj nozi, izrađen od prozirnog stakla zelenkastožute boje. Recipijent tip B prema V. Bierbraueru. Slobodno puhanje. V. 2,7, š. 2,5, d. 0,1. Sig. br. KAND 05 14445, S. J. 24-P20-O4, 24. 05. 2005. Datacija: 5. – 7. stoljeće i kasnije.

26.

Fragment of the rim of a cup. Fragment of a rounded rim of a cup or stemmed goblet, made of greenish-brown transparent glass. Body type B according to V. Bierbrauer. Free blown. H. 2.7, w. 2.5, t. 0.1, Call. no. KAND 05 14445, S. J. 24-P20-O4, 24/05/2005. Time period: 5th to 7th CE and later.



27.

Ulomak ruba čaše. Ulomak zadebljanog istaknutog ruba čaše s 0,5 cm niže postavljenu reljefnu linijom, izrađen od prozirnog stakla prožetog mjehurićima zraka i s mjestimičnom irizacijom. Puhanje u kalup. V. 2,2, š. 4,3, d. 0,1, p. 11. Sig. br. KAND 05 14466, S. J. 24-P20-O4, 25. 05. 2005. Datacija: 5. – 7. stoljeće i kasnije. Sl. 10.

27.

Fragment of the rim of a glass. Fragment of a thickened rim of a drinking glass with a relief line placed 0.5 cm lower, made of transparent glass and permeated with air bubbles and sporadic iridescence. Blown into mould. H. 2.2, w. 4.3, t. 0.1, d. 11. Call. no. KAND 05 14466, S. J. 24-P20-O4, 25/05/2005. Time period: 5th to 7th CE and later. Fig. 10.

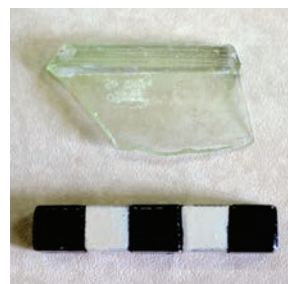


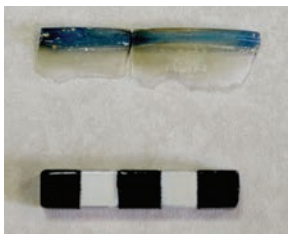
28.

Ulomci ruba čaše. Dva ulomka zadebljanog istaknutog ruba čaše koja se spajaju po liniji loma, izrađena od prozirnog plavičastozelenog stakla, koje sadrži mjehuriće zraka i nečistoće. Slobodno puhanje. V. 1, š. 2,3, d. 0,01. Sig. br. KAND 05 14443-14444, S. J. 24-P20-O4, 24. 05. 2005. Datacija: 5. – 7. stoljeće i kasnije.

28.

Fragments of the rim of a glass. Two fragments of a thickened protruding rim of a cup joining along the breakage line, made of a blue-green transparent glass, containing air bubbles and impurities. Free blown. H. 1, w. 2.3, t. 0.01. Call. no. KAND 05 14443-14444, S. J. 24-P20-O4, 24/05/2005. Time period: 5th to 7th CE and later.



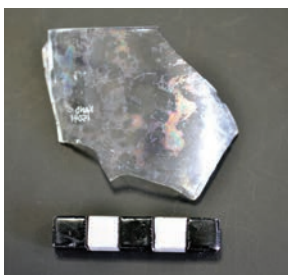


29.

Ulomci ruba čaše. Dva zaobljena ulomka ruba čaše ili kaleža koji se spajaju po liniji loma – rub je plave boje koji preko žutog dijela prelazi u bezbojni prozirni recipijent. Staklo je prožeto mjehurićima zraka. Slobodno puhanje. V. 1,8, š. 5, d. 0,01, p. 6. Sig. br. KAND 05 14456-14457, S. J. 26-P4A-O1, 30. 05. 2005. Datacija: 5. – 7. stoljeće i kasnije.

29.

Fragments of the rim of a cup. Two rounded fragments of the rim of a cup or goblet which are joined along the breakage line – the rim is blue in colour which transitions over the yellow section into a colourless transparent body. The glass is permeated with air bubbles. Free blown. H. 1.8, w. 5, t. 0.01, d. 6. Call. no. KAND 05 14456-14457, S. J. 26-P4A-O1, 30/05/2005. Time period: 5th to 7th CE and later.



30.

Ulomak konične čaše. Ulomak zaobljenog ruba konične čaše s graviranom elipsoidnom dekoracijom, izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Puhanje u kalup. Češko porijeklo. V. 5,5, š. 5,5, d. 0,3, p. 8. Sig. br. KAND 05 15041, S. J. 26-P4-O1, 28. 05. 2005. Datacija: 18. stoljeće. Sl. 11.

30.

Fragment of a conical cup. Fragment of a rounded rim of the conical drinking cup with an engraved ellipsoidal decoration, made of colourless transparent glass with the presence of iridescence. Blown into a mould. Czech origin. H. 5.5, w. 5.5, t. 0.3, d. 8. Call. no. KAND 05 15041, S. J. 26-P4-O1, 28/05/2005. Time period: 18th CE. Fig. 11.

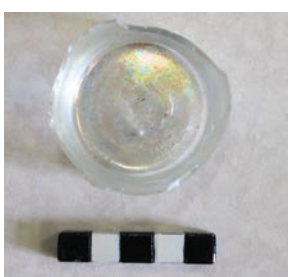


31.

Ulomak konične čaše. Ulomak zaobljenog ruba konične čaše s graviranom elipsoidnom dekoracijom, izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Puhanje u kalup. Češko porijeklo. V. 6, š. 3,5, d. 0,3, p. 8. Sig. br. KAND 05 13847, S. J. 26-P4-O1, 01. 06. 2005. Datacija: 18. stoljeće. T. II/kat. br. 31.

31.

Fragment of a conical cup. Fragment of the rounded rim of a conical drinking cup with an engraved ellipsoidal decoration, made of colourless transparent glass with the presence of iridescence. Blown into a mould. Czech origin. H. 6, w. 3.5, t. 0.3, d. 8. Call. no. KAND 05 13847, S. J. 26-P4-O1, 01/06/2005. Time period: 18th CE. T. II/Cat. no. 31.



32.

Ulomak konične čaše. Ulomak zadebljanog dna konične čaše, izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Trag hvataljke. Puhanje u kalup. Češko porijeklo. V. 2, š. 5,5, d. 0,2, p. 5. Sig. br. KAND 05 13844, S. J. 26-P4-O1, 01. 06. 2005. Datacija: 18. stoljeće. Sl. 12, T. II/kat. br. 32.

32.

Fragment of a conical cup. Fragment of a thickened bottom of a conical drinking cup, made of colourless transparent glass with the presence of iridescence. Pontil mark. Blown into a mould. Czech origin. H. 2, w. 5.5, t. 0.2, d. 5. Call. no. KAND 05 13844, S. J. 26-P4-O1, 01/06/2005. Time period: 18th CE. Fig. 12, T. II/Cat. no. 32.

33.

Pešar na stalku. Gotovo u cijelosti sačuvan pešar na stalku, podijeljen diskom s unutrašnje strane na dva dijela – recipient, kojem nedostaje rub, i stalak koji se trubasto proširuje te završava zaobljenim i prošupljenim rubom. Izrađen je od poluprozirnog stakla smečkaste boje prožetog mjehurićima zraka. Slobodno puhanje. Muransko porijeklo. V. 8,5, š. 4,8, d. 0,1, p. 8. Sig. br. 13548-13551, S. J. 26-P4-O4, 15. 06. 2005. Datacija: 15. stoljeće. Sl. 13, T. II/kat. br. 33.

33.

Beaker on a stand. Almost completely preserved beaker on a stand, divided by a disc from the inside into two parts – recipient, which is missing the rim, and the stand that expands in a trumpet-like shape and ends with a rounded and hollowed rim. It is made of brown semi-transparent glass permeated with air bubbles. Free blown. Murano origin. H. 8.5, w. 4.8, t. 0.1, d. 8. Call. no. 13548-13551, S. J. 26-P4-O4, 15/06/2005. Time period: 15th CE. Fig. 13, T. II/Cat. no. 33.



34.

Ulomak boce. Ulomak vrata boce s malim istaknutim rubom u obliku obrnutog slova 'L' ('Γ'), izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Puhanje. V. 2,9, š. 4,3, d. 0,2, p. 4. Sig. br. 13162, S. J. 24-P7-O7, 11. 05. 2005. Datacija: 1750. – 19. stoljeće. Sl. 14, T. III/kat. br. 34.

34.

Fragment of a bottle. Fragment of a bottleneck with a small protruding rim in the shape of reversed letter 'L' ('Γ'), made of a colourless transparent glass with the presence of iridescence. Blown. H. 2.9, w. 4.3, t. 0.2, d. 4. Call. no. 13162, S. J. 24-P7-O7, 11/05/2005. Time period: the year 1750 to 19th CE. Fig. 14, T. III/Cat. no. 34.



35.

Ulomak boce. Ulomak vrata boce s malim istaknutim rubom u obliku obrnutog slova 'L' ('Γ') ispod kojeg se nalazi tanka linija u reljefu, izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Puhanje. V. 6,7, š. 3,3, d. 0,3, p. 5. Sig. br. 14078, S. J. 34-P8-O1, 29. 06. 2005. Datacija: 1750. – 19. stoljeće. T. III/kat. br. 35.

35.

Fragment of a bottle. Fragment of a bottleneck with a small protruding rim in the shape of a reversed letter 'L' ('Γ'), underneath which is a thin line in relief, made of a colourless transparent glass with the presence of iridescence. Blown. H. 6.7, w. 3.3, t. 0.3, d. 5. Call. no. 14078, S. J. 34-P8-O1, 29/06/2005. Time period: the year 1750 to 19th CE. T. III/Cat. no. 35.

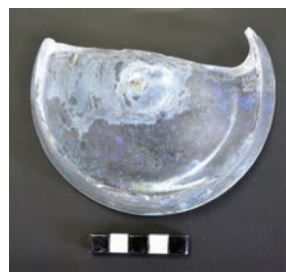


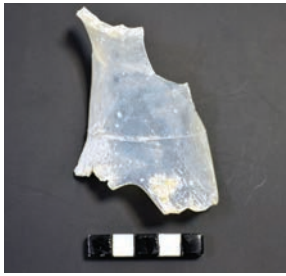
36.

Ulomak boce. Blago konveksna i zadebljana baza boce, izrađena od bezbojnog, prozirnog stakla s prisutnom irizacijom. Trag hvataljke. Puhanje. V. 3,5, š. 8, d. 0,2, p. 12,6. Sig. br. 14077, S. J. 34-P8-O1, 29. 06. 2005. Datacija: 1750. – 19. stoljeće. Sl. 15, T. III/kat. br. 36.

36.

Fragment of a bottle. Slightly convex and thickened base of a bottle, made of colourless, transparent glass with the presence of iridescence. Pontil mark. Blown. H. 3.5, w. 8, t., 0.2, d. 12.6. Call. no. 14077, S. J. 34-P8-O1, 29/06/2005. Time period: the year 1750 to 19th CE. Fig. 15, T. III/Cat. no. 36.



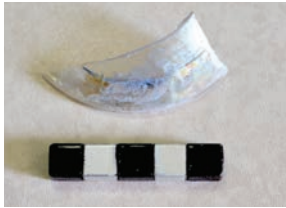


37.

Ulomak boce. Ulomak cilindričnog vrata boce koji se proširuje prema recipijentu, bez sačuvanog ruba otvora i s nepravilnim urezom na donjem dijelu, izrađen od bezbojnog prozirnog stakla s izraženu mlječnobijelom patinom. Puhanje. V. 8, š. 6,4, d. 0,5. Sig. br. 15040, S. J. 25-P4-O1, 28. 05. 2005. Datacija: 1750. - 19. stoljeće.

37.

Fragment of a bottle. Fragment of a cylindrical bottleneck that extends towards the body, where the opening edge has not been preserved and has an irregular incision on the lower part, made of a colourless transparent glass with a prominent milky weathering. Blown. H. 8, w. 6.4, t. 0.5. Call. no. 15040, S. J. 25-P4-O1, 28/05/2005. Time period: the year 1750 to 19th CE.



38.

Ulomak boce. Ulomak prstenastog prošupljenog dna boce tipa *inguastare*, izrađen od prozirnog sivoplavog stakla. Slobodno puhanje. D. 0,1. Sig. br. 13258, S. J. 26-P4-O1, 19. 05. 2005. Datacija: 13. - 17. stoljeće. Sl. 16.

38.

Fragment of a bottle. Fragment of a hollowed pushed-in base ring of an *inguastare* type of bottle, made of grey-blue transparent glass. Free blown. T. 0.1. Call. no. 13258, S. J. 26-P4-O1, 19/05/2005. Time period: 13th to 17th CE. Fig. 16.



39.

Ulomak boce. Dva ulomka (a, b) četvrtaste ili heksagonalne boce - ulomak konveksno zašiljene baze i ulomak baze sa stijenkom od poluprozirnog stakla smeđe boje prožetog mjehurićima zraka i nečistoćama. Puhanje. V. (s/b) 2,1/3,5, š. (a/b) 5,5/2, d. 0,2, p. 7,4. Sig. br. 13390, 13391, S. J. 29-P8-O1, 21.7.2005. Datacija: 16. - 19. stoljeće.

39.

Fragment of a bottle. Two fragments (a, b) of a square or hexagonal bottle - fragment of a convex-shaped tapered base and a fragment of a base with sides, made of brown semi-transparent glass permeated with air bubbles and impurities. Blown. H. (s/b) 2.1/3.5, w. (a/b) 5.5/2, t. 0.2, d 7.4. Call. no. 13390, 13391, S. J. 29-P8-O1, 21/07/2005. Time period: 16th to 19th CE.



40.

Ulomak boce. Ulomak zaobljenog i prošupljenog ruba otvora boce, izrađen od prozirnog stakla žute boje prožetog mjehurićima zraka i prisutnom irizacijom. Slobodno puhanje. V. 0,8, š. 3,6, d. 0,1, p. 3,6. Sig. br. 15042, S. J. 26-P4-O1, 28. 05. 2005. Datacija: od razdoblja antike nadalje.

40.

Fragment of a bottle. Fragment of a rounded and hollowed rim of a bottle opening, made of yellow transparent glass and permeated with air bubbles with the presence of iridescence. Free blown. H. 0.8, w. 3.6, t. 0.1, d. 3.6. Call. no. 15042, S. J. 26-P4-O1, 28/05/2005. Time period: from the Roman period onwards.



41.

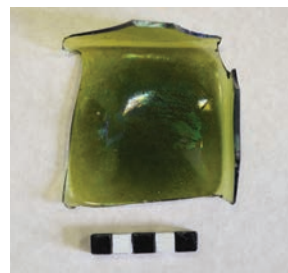
Ulomak boce. Ulomak prošupljenog ruba boce, koji je izvučen, presavijen i zaravnjen, izrađen od prozirnog stakla zelenkasto plave boje. Slobodno puhanje. V. 2, š. 4,8, d. 0,2, p. 4,8. Sig. br. 13866, S. J. 26-P4-O1, 24.05.2005. Datacija: razdoblje antike. T. IV/kat. br. 41.

41.

Fragment of a bottle. Fragment of a hollowed bottle rim, with is drawn out, folded and flattened, made of green-blue transparent glass. Free blown. H. 2, w. 4.8, t., 0.2, d. 4.8. Call. no. 13866, S. J. 26-P4-O1, 24/05/2005. Time period: Roman period. T. IV/Cat. no. 41.

42.

Ulomak boce. Gotovo u cijelosti sačuvano dno kvadratične boce, izrađeno od prozirnog stakla maslinastozelene boje prožetog mjehurićima zraka. Forma Isings 50 ili 90. Trag hvataljke. Slobodno puhanje. V. 4, š. 8, d. 0,3. Sig. br. 13895, S. J. 24-26-P4-O1, 2005. Datacija: 1. - 4. stoljeće. Sl. 17, T. IV/kat. br. 42.



42.

Fragment of a bottle. Almost completely preserved bottom of a square bottle, made of olive green transparent glass permeated with air bubbles. Isings 50 or 90 form. Pontil mark. Free blown. H. 4, w. 8, t. Call. no. 13895, S. J. 24-26-P4-O1, 2005. Time period: 1st to 4th CE. Fig. 17, T. IV/Cat. no. 42.

43.

Ručka. Ulomak rebraste ručke koja je vjerojatno pripadala kvadratičnoj boci, izrađene od prozirnog stakla maslinastozelene boje prožetog mjehurićima zraka. Forma Isings 50. Slobodno puhanje. V. 2,8, š. 6,3, d. 0,5. Sig. br. 14126, S. J. 28-P8-O7, 17. 06. 2005. Datacija: 1. - 4. stoljeće. Sl. 18, T. IV/kat. br. 43.



43.

Handle. Fragment of a ribbed handle that probably belonged to a square bottle, made of olive-green transparent glass permeated with air bubbles. Isings 50 form. Free blown. H. 2.8, w. 6.3, t. 0.5. Call. no. 14126, S. J. 28-P8-O7, 17/06/2005. Time period: 1st to 4th CE. Fig. 18, T. IV/Cat. no. 43.

44.

Ulomak boce. Ulomak dna vjerojatno kvadratične boce s pečatom motiva zavijutka u obliku slova 'U' s kuglicama ispod zavijutaka, izrađen od svijetlo plavog prozirnog stakla. Forma Isings 51. Puhanje u kalup. V. 2,7, š. 3,4, d. 0,4. Sig. br. 13165, S. J. 24-P7-O7, 11. 05. 2005. Datacija: 1. - 3. stoljeće. T. IV/kat. br. 44.

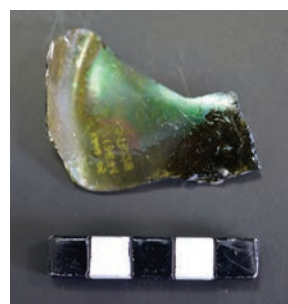


44.

Fragment of a bottle. Fragment of the bottom of a possibly square bottle with a seal of a wavy pattern in the shape of the letter 'U' with balls under the pattern, and made of blue transparent glass. Isings 51 form. Blown into mould. H. 2.7, w. 3.4, t. 0.4. Call. no. 13165, S. J. 24-P7-O7, 11/05/2005. Time period: 1st to 3rd CE. T. IV/Cat. no. 44.

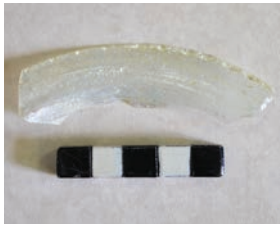
45.

Ulomak boce. Ulomak dna okrugle boce, vrča ili lonca, izrađen od prozirnog stakla maslinastozelene boje prožetog mjehurićima zraka, s prisutnom irizacijom. Forma Isings 50 ili 90. Trag hvataljke. Slobodno puhanje. V. 2,8, š. 6,3, d. 0,5, p. 16. Sig. br. 13871, S. J. 26-P4-O1, 24. 05. 2005. Datacija: 1. - 4. stoljeće/17. stoljeće (?). T. IV/kat. br. 45.



45.

Fragment of a bottle. Fragment of the bottom of a bottle, jug or pot, made of olive green transparent glass permeated with air bubbles, with the presence of iridescence. Isings 50 or 90 form. Pontil mark. Free blown. H. 2.8, w. 6.3, t. 0.5, d. 16. Call. no. 13871, S. J. 26-P4-O1, 24/05/2005. Time period: 1st to 4th CE / 17th CE (?). T. IV/Cat. no. 45.



46.

Ulomak zdjele ili tanjura. Ulomak ruba zdjele ili tanjura ukrašen urezima u obliku riže, izrađen od bezbojnog prozirnog stakla prožetog mjehurićima zraka s mliječno bijelom patinom i irizacijom. Forma Isings 42a tip Limburg. Slobodno puhanje. V. 1, š. 7,5, d. 0,1, p. 13. Sig. br. 15045, S. J. 26-P4-O1, 28. 05. 2005. Datacija: 2. stoljeće. Sl. 19, T. IV/kat. br. 46.

46.

Fragment of a bowl or plate. Fragment of the rim of a bowl or plate decorated with rice-shaped incisions, made of a colourless transparent glass permeated with air bubbles and a milky weathering and the presence of iridescence. Isings 42a form, Limburg type. Free blown. H. 1, w. 7.5, t. 0.1, d. 13. Call. no. 15045, S. J. 26-P4-O1, 28/05/2005. Time period: 2nd CE. Fig. 19, T. IV/Cat. no. 46.



47.

Ulomak tanjura ili zdjele. Ulomak baze s prošupljenim prstenom, izrađen od neprozirnog stakla žućkasto maslinastozelene boje s mliječno bijelom patinom. Forma Isings 44a ili 45. Slobodno puhanje. V. 1,7, š. 3, d. 2. Sig. br. 14467, S. J. 24-P20-O4, 25. 05. 2005. Datacija: 1. - 4. stoljeće.

47.

Fragment of a plate or bowl. Fragment of the base with a hollowed pushed-in foot, made of a yellowish olive-green opaque glass with milky weathering. Isings 44a or 45 form. Free blown. H. 1.7, w. 3, t. 2. Call. no. 14467, S. J. 24-P20-O4, 25/05/2005. Time period: 1st to 4th CE.



48.

Ulomak zdjele. Ulomak zaobljenog ruba široke zdjele s apliciranom trakom u reljefu, izrađen od prozirnog stakla tamnozeleno boje prožetog mjehurićima zraka. Forma Isings 5, 19 ili 20. Puhanje u kalup. V. 2,3, š. 3,2, d. 0,1. Sig. br. 13386, S. J. 24-P7-O7, 10. 05. 2005. Datacija: kasno 1. stoljeće - 175. god.

48.

Fragment of a bowl. Fragment of a rounded rim of a wide bowl with a strip in relief, made of dark green transparent glass permeated with air bubbles. Isings 5, 19 or 20 form. Blown into a mould. H. 2.3, w. 3.2, t. 0.1. Call. no. 13386, S. J. 24-P7-O7, 10/05/2005. Time period: late 1st CE to the year 175.



49.

Ulomak zdjele. Ulomak dna zdjele na visokoj nozi nejednako zaobljenog ruba, izrađen od prozirnog stakla maslinastozelene boje. Puhanje u kalup. V. 2,3, š. 5,5, d. 0,5, p. 4, p. pr. 7. Sig. br. 14119, S. J. 34-P7-O1, 29. 06. 2005. Datacija: nakon prve polovice 1. stoljeća. T. IV/kat. br. 49.

49.

Fragment of a bowl. Fragment of the bottom of a bowl on a high foot with a unevenly rounded rim, made of olive-green transparent glass. Blown into a mould. H. 2.3, w. 5.5, t. 0.5, d. 4, r. d. 7. Call. no. 14119, S. J. 34-P7-O1, 29/06/2005. Time period: after the first half of the 1st CE. T. IV/Cat. no. 49.



50.

Ulomak čaše/zdjelice. Dno čaše ili zdjelice s prstenastom bazom i sferičnim recipijentom, izrađen od svijetlozelenog prozirnog stakla, prožetog mjehurićima zraka. Forma 86a ili 115. Trag hvataljke. Puhanje u kalup. V. 1,5, š. 6, d. 0,1, p. 4,5. Sig. br. 13843, S. J. 26-P4-O1, 01. 06. 2005. Datacija: od razdoblja antike nadalje. Sl. 20.

50.

Fragment of a cup/bowl. Bottom of a cup or bowl with an round base with a hollowed pushed-in foot and a spherical body, made of light green transparent glass, permeated with air bubbles. Form 86a or 115. Pontil mark. Blown into a mould. H. 1.5, w. 6, t. 0.1, d. 4.5. Call. no. 13843, S. J. 26-P4-O1, 01/06/2005. Time period: from the Roman period onwards. Fig. 20.

51.

Ulomak čaše/zdjelice. Dno čaše ili zdjelice s prstenastom bazom, izrađen od prozirnog stakla svijetlo plave boje. Forma 86a ili 115. Puhanje u kalup. V. 0,8, š. 3,2, d. 0,1, p. 5,4. Sig. br. 13268, S. J. 26-P4-O1, 20. 05. 2005. Datacija: od razdoblja antike nadalje.

51.

Fragment of a cup/bowl. Bottom of a cup or bowl with a tubular foot, made of transparent light blue glass. Form 86a or 115. Blown into a mould. H. 0.8, w. 3.2, t. 0.1, d. 5.4. Call. no. 13268, S. J. 26-P4-O1, 20/05/2005. Time period: from the Roman period onwards.



52.

Ulomak čaše/zdjelice. Ulomak dna čaše ili zdjelice s prstenastom bazom i dodatnim namotajem, izrađen od bezbojnog prozirnog stakla prožetog mjehurićima zraka i s prisutnom irizacijom. Forma Isings 85b. Slobodno puhanje. V. 0,4, š. 3,2, d. 0,1. Sig. br. 14468, S. J. 24-P20-O4, 25. 05. 2005. Datacija: 3. - 4. stoljeće.

52.

Fragment of a cup/bowl. Fragment of the bottom of a cup or bowl with a tubular foot and additional coil, made of a colourless transparent glass permeated with air bubbles and with the presence of iridescence. Isings 85b form. Free blown. H. 0.4, w. 3.2, t. 0.1. Call. no. 14468, S. J. 24-P20-O4, 25/05/2005. Time period: 3rd to 4th CE.

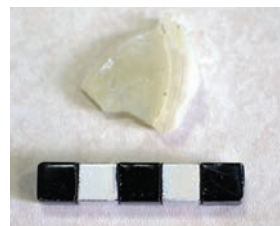


53.

Ulomak zdjele. Ulomak dna duboke zdjele s prstenom, izrađen od bezbojnog prozirnog stakla s mliječnobijelom patinom. Slobodno puhanje. V. 1,4, š. 3,1, d. 0,1, p. 5,6, p. pr. 5. Sig. br. 13159, S. J. 24-P7-O7, 11. 05. 2005. Datacija: razdoblje antike.

53.

Fragment of a bowl. Fragment of the bottom of a deep bowl with a pushed-in base, made of a colourless transparent glass with a milky weathering. Free blown. H. 1.4, w. 3.1, t., 0.1, d. 5.6, r.d. 5. Call. no. 13159, S. J. 24-P7-O7, 11/05/2005. Time period: Roman period.



54.

Ulomak zdjele. Ulomak zaobljenog ruba zdjele s urezanim linijom izvedenom postupkom urezivanja na kolu, izrađen od neprozirnog stakla bijele boje s mliječnobijelom patinom. Prešanje preko kalupa i poliranje. V. 3,5, š. 4,1, d. 0,1. Sig. br. 13163, S. J. 24-P7-O7, 11. 05. 2005. Datacija: 1. stoljeće. T. IV/kat. br. 54.

54.

Fragment of a bowl. Fragment of a rounded rim of a bowl with a incised line done by using a wheel, made of white opaque glass with a milky weathering. Pressed using a mould and polished. H. 3.5, w. 4.1, t. 0.1. Call. no. 13163, S. J. 24-P7-O7, 11/05/2005. Time period: 1st CE. T. IV/Cat. no. 54.



55.

Ulomci prozorskog stakla. Dva ulomka (a, b) prozorskog stakla, izrađena od prozirnog sivkastog stakla. V. (a/b) 8,3/6, š. (a/b) 7/5, d. 0,1. Sig. br. 14075-14076, S. J. 34-P8-O1, 29. 06. 2005. Datacija: od razdoblja antike nadalje.

55.

Fragment of window glass. Two fragments (a, b) of window glass, made of greyish transparent glass. H. (a/b) 8.3/6, w. (a/b) 7/5, t. 0.1, Call. no. 14075-14076, S. J. 34-P8-O1, 29/06/2005. Time period: from antiquity onwards.



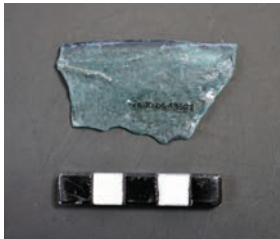
56.

Ulomak prozorskog stakla. Ulomak prozorskog stakla, izrađen od plavkastog prozirnog stakla. V. 4,3, š. 9,5, d. 0,1. Sig. br. 14074, S. J. 34-P8-O1, 29. 06. 2005. Datacija: od razdoblja antike nadalje.

56.

Fragment of window glass. Fragment of window glass, made of blue transparent glass. H. 4.3, w. 9.5, t. 0.1. Call. no. 14074, S. J. 34-P8-O1, 29/06/2005. Time period: from antiquity onwards.





57. Ulomak prozorskog stakla. Ulomak zaobljenog ruba prozorskog stakla, izrađen od prozirnog stakla svijetlo plave boje. Vjerojatno izrađen lijevanjem u kalup. V. 3,4, š. 5,5, d. 0,3. Sig. br. 13388, S. J. 24-P7-O1, 10. 05. 2005. Datacija: od razdoblja antike nadalje. Sl. 21.

57. Fragment of window glass. Fragment of a rounded edge of window glass, made of light blue transparent glass. Probably made by casting into a mould. H. 3.4, w. 5.5, t. 0.3. Call. no. 13388, S. J. 24-P7-O1, 10/05/2005. Time period: from antiquity onwards. Fig. 21.



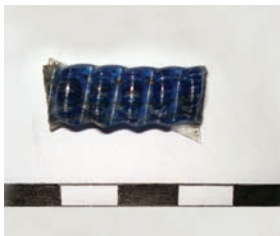
58. Ulomak okulusa. Ulomak okulusa sa zadebljanim prošupljenim rubom, izrađen od prozirnog stakla svijetlozelene boje. V. 6, š. 3,5, d. 0,2, p. 13. Sig. br. 13846, S. J. 26-P4-O1, 01.06.2005. Datacija: 14. stoljeće. T. III/kat. br. 58.

58. Fragment of a round window pane (*oculus*). Fragment of a round window pane with a thickened hollowed edge, made of light green transparent glass. H. 6, w. 3.5, t. 0.2, d. 13. Call. no. 13846, S. J. 26-P4-O1, 01/06/2005. Time period: 14th CE. T. III/Cat. no. 58.



59. Ulomak ručke. Ulomak gusto narebrene ručke izrađene od bezbojnog prozirnog stakla s prisutnom mliječnobijelom patinom. Puhanje. V. 2, š. 4,8, d. 0,4. Sig. br. 13267, S. J. 26-P4-O1, 20.05.2005. Datacija: srednji ili novi vijek. Sl. 22, T. III/kat. br. 59.

59. Fragment of a handle. Fragment of a densely ribbed handle made of a colourless transparent glass with the presence of milky weathering. Blown. H. 2, w. 4.8, t. 0.4. Call. no. 13267, S. J. 26-P4-O1, 20/05/2005. Time period: Middle Ages or Post Medieval period. Fig. 22, T. III/Cat. no. 59.



60. Ulomak dekoracije. Ulomak narebrene dekoracije nataljene na posudu. Posuda je izrađena od tankog bezbojnog prozirnog stakla, a dekoracija od debljeg neprozirnog stakla tamnoplave boje. Slobodno puhanje. V. 1, š. 2,6, d. 0,1. Sig. br. 14646, S. J. 24-P11-O1, 15. 09. 2005. Datacija: srednji vijek.

60. Fragment of a decoration. Fragment of a ribbed decoration applied on a vessel. The side of a vessel is made of a thin, colourless transparent glass, and the ribbed decoration from a thicker dark blue opaque glass. Free blown. H. 1, w. 2.6, t. 0.1. Call. no. 14646, S. J. 24-P11-O1, 15/09/2005. Time period: Middle Ages.



61. Ulomak s okruglim zadebljanjem. Ulomak s okruglim zadebljanjem, izrađen od prozirnog svijetloplavog stakla. Trag hvataljke. Puhanje. V. 1, š. 3,4, d. 0,3, p. 2. Sig. br. 15046, S. J. 26-P4-O1, 28. 05. 2005. Datacija: neodrediva. T. III/kat. br. 61.

61. Fragment with a round thickening. Fragment with a round thickening, made of light blue transparent glass. Pontil mark. Blown. H. 1, w. 3.4, t. 0.3, d. 2. Call. no. 15046, S. J. 26-P4-O1, 28/05/2005. Time period: indeterminable. T. III/Cat. no. 61.

62.

Ulomak cjevastog prstena. Ulomak cjevastog prstena, izrađen od prozirnog stakla zelene boje prožetog mjehurićima zraka, s prisutnom irizacijom. Slobodno puhanje. V. 1,7, š. 2,3, d. 0,1. Sig. br. 13832, S. J. 24-P11B-O7, 18. 08. 2005. Datacija: od razdoblja antike nadalje.

62.

Fragment of a tubular ring. Fragment of a tubular ring, made of a green transparent glass and permeated with air bubbles, with the presence of iridescence. Free blown. H. 1.7, w. 2.3, t., 0.1. Call. no. 13832, S. J. 24-P11B-O7, 18/08/2005. Time period: from antiquity onwards.



63.

Ulomak cjevastog prstena. Ulomak cjevastog prstena, izrađen od bezbojnog prozirnog stakla prožetog mjehurićima zraka, s prisutnom mliječnobijelom patinom. Slobodno puhanje. V. 0,6, š. 2,5, d. 0,1. Sig. br. 15098, S. J. 26-P24-O6, 20. 05. 2005. Datacija: od razdoblja antike nadalje.

63.

Fragment of a tubular ring. Fragment of a tubular ring, made of a colourless transparent glass permeated with air bubbles, and the presence of milky weathering. Free blown. H. 0.6, w. 2.5, t. Call. no. 15098, S. J. 26-P24-O6, 2/05/2005. Time period: from antiquity onwards.



64.

Ulomak cjevastog prstena. Dva ulomka cjevastog prstena, izrađena od bezbojnog prozirnog stakla prožetog mjehurićima zraka s prisutnom irizacijom. Slobodno puhanje. V. 1,1, š. 3,5, d. 0,1, p. 5. Sig. br. 13164, S. J. 24-P7-O7, 11. 05. 2005. Datacija: od razdoblja antike nadalje.

64.

Fragments of a tubular ring. Two fragments of a tubular ring, made of a colourless transparent glass permeated with air bubbles and the presence of iridescence. Free blown. H. 1.1, w. 3.5, t. 0.1, d. 5. Call. no. 13164, S. J. 24-P7-O7, 11/05/2005. Time period: from antiquity onwards.

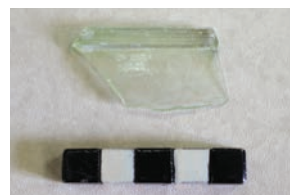


65.

Ulomak zdjele. Ulomak zadebljanog ruba zdjele, izrađen od zelenog prozirnog stakla, prožetog mjehurićima zraka. Puhanje u kalup. V. 2,5, š. 3, d. 0,1. Sig. br. 13160, S. J. 24-P7-O7, 11. 05. 2005. Datacija: od razdoblja antike nadalje.

65.

Fragment of a bowl. Fragment of a thickened rim of a bowl, made of transparent green glass, permeated with air bubbles. Blown into a mould. H. 2.5, w. 3, t. Call. no. 13160, S. J. 24-P7-O7, 11/05/2005. Time period: from antiquity onwards.



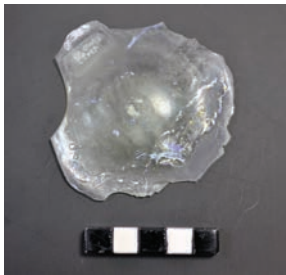
66.

Ulomak čaše. Ulomak zadebljanog ruba čaše, izrađen od prozirnog stakla prožetog mjehurićima zraka s prisutnom irizacijom. Puhanje. V. 1,7, š. 4,3, d. 0,01. Sig. br. 13372, S. J. 29-P1-O1, 12.7.2005. Datacija: od razdoblja antike nadalje.

66.

Fragment of a cup. Fragment of a thickened rim of a cup, made of transparent glass permeated with air bubbles and the presence of iridescence. Blown. H. 1.7, w. 4.3, t. 0.01. Call. no. 13372, S. J. 29-P1-O1, 12/07/2005. Time period: from antiquity onwards.





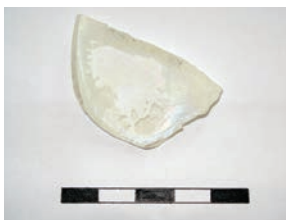
67. Ulomak boce. Konveksno, zadebljano dno vjerojatno boce čije se stranice recipijenta proširuju, izrađeno od zelenkastog prozirnog stakla prožetog mjehurićima zraka. Trag hvataljke. Slobodno puhanje. V. 0,7, š. 7, d. 0,1. Sig. br. 13439, S. J. 24-P7-O7, 09. 05. 2005. Datacija: od razdoblja antike nadalje.

67. Fragment of a bottle. Convex, thickened bottom probably of a bottle with sides of the body section expanded, made of greenish transparent glass and permeated with air bubbles. Pontil mark. Free blown. H. 0.7, w. 7, t. 0.1. Call. no. 13439, S. J. 24-P7-O7, 09/05/2005 Time period: from antiquity onwards.



68. Ulomak boce. Konveksno, zadebljano dno vjerojatno boce čije se stranice recipijenta proširuju, izrađeno od prozirnog stakla plave boje prožetog mjehurićima zraka. Trag hvataljke. Slobodno puhanje. V. 1, š. 6,2, d. 0,1. Sig. br. 13166, S. J. 24-P7-O7, 11. 05. 2005. Datacija: od razdoblja antike nadalje.

68. Fragment of a bottle. Convex, thickened bottom probably of a bottle with sides of the body section expanded, made of blue transparent permeated with air bubbles. Pontil mark. Free blown. H. 1, w. 6.2, t. 0.1. Call. no. 13166, S. J. 24-P7-O7, 11/05/2005. Time period: from antiquity onwards.



69. Ulomak dna posude. Ulomak vjerojatno dna posude, izrađen od bezbojnog prozirnog stakla s prisutnom mliječnobijelom patinom i irizacijom. Puhanje. V. 4, š. 3, d. 0,2. Sig. br. 13158, S. J. 24-P7-O7, 11. 05. 2005. Datacija: neodrediva.

69. Fragment of a bottle. Fragment is probably the bottom of a vessel, made from a colourless transparent glass with the presence of milky weathering and iridescence. Blown. H. 4, w. 3, t. Call. no. 13158, S. J. 24-P7-O7, 11/05/2005. Time period: indeterminable.



70. Ulomak šalice/boce/lonca. Ulomak recipijenta šalice, boce ili lonca, izrađen od bezbojnog prozirnog stakla s prisutnom irizacijom. Puhanje. V. 2,8, š. 1,3, d. 0,1. Sig. br. 13392, S. J. 29-P1-O1, 12.7.2005. Datacija: neodrediva.

70. Fragment of cup/bottle/pot. Fragment of the body of a cup, bottle or pot, made of a colourless transparent glass with the presence of iridescence. Blown. H. 2.8, w. 1.3, t. Call. no. 13392, S. J. 29-P1-O1, 12/07/2005. Time period: indeterminable.



71. Ulomak dna. Ulomak dna (kvadratične?) posude s malim okruglim linijskim urezom, izrađen od bezbojnog prozirnog stakla s prisutnom mliječnobijelom patinom. Puhanje. V. 0,7, š. 4,7, d. 0,1. Sig. br. 14469, S. J. 24-P20-O4, 25. 05. 2005. Datacija: neodrediva.

71. Fragment of a base. Fragment of the bottom of a (square?) vessel with a small round linear incision, made of a colourless transparent glass with the presence of a milky weathering. Blown. H. 0.7, w. 4.7, t. 0.1. Call. no. 14469, S. J. 24-P20-O4, 25/05/2005. Time period: indeterminable.



72. Ulomak zdjele. Ulomak prošupljene prstenaste baze zdjele ili vrča, izrađene od prozirnog zelenkasto-plavkastog stakla prožetog mjehurićima zraka i vrlo oštećeno napuknućima. Slobodno puhanje. V. 1,7, š. 5,7, d. 0,1, p. 8. Sig. br. 13371, S. J. 29-P1-O1, 12.7.2005. Datacija: srednji vijek (?).

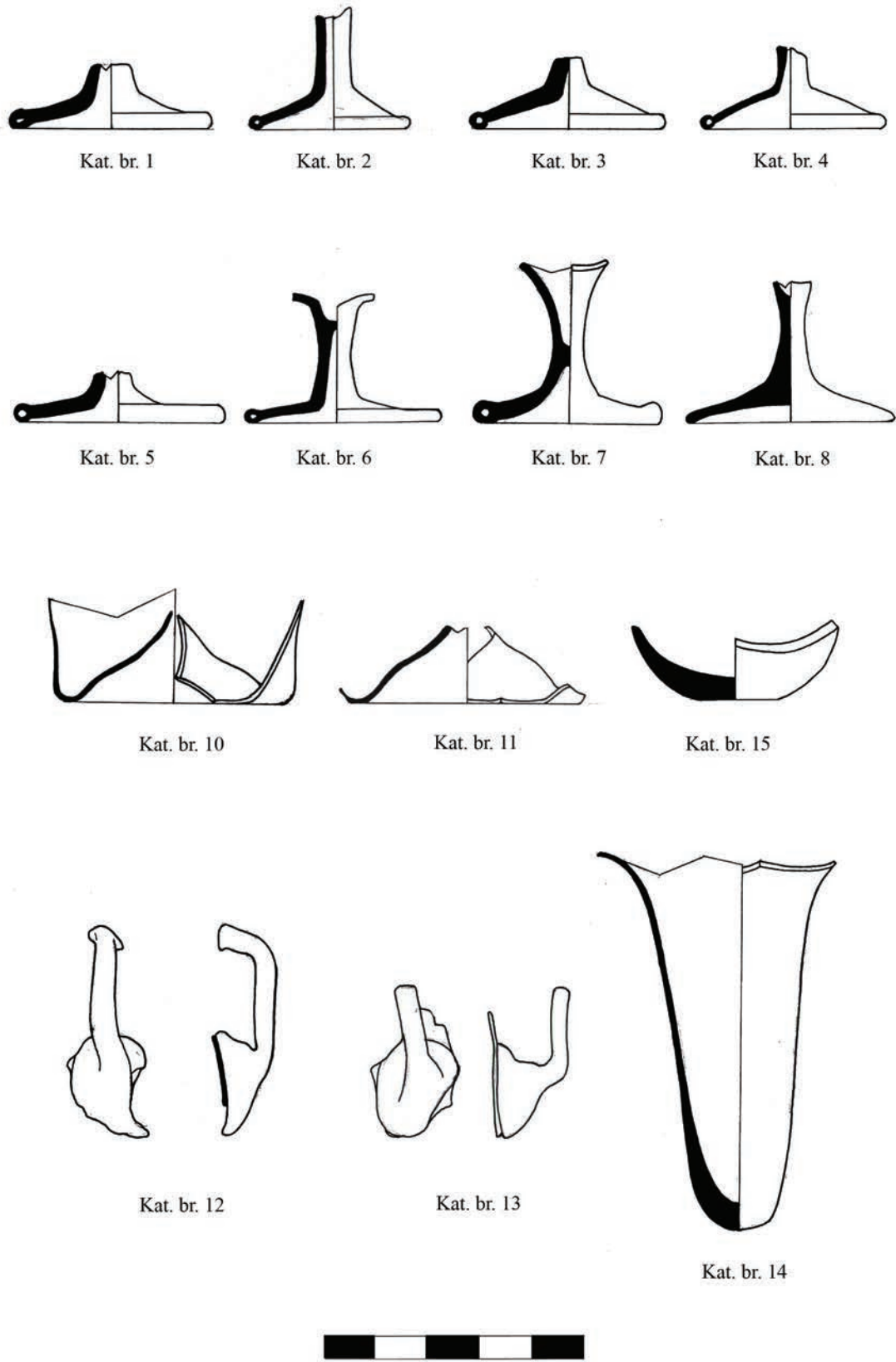
72. Fragment of a bowl. Fragment of a hollowed, pushed in foot of a bowl or jug, made of greenish-blue transparent glass and permeated with air bubbles. Very damaged due to cracks. Free blown. H. 1.7, w. 5.7, t. 0.1, d. 8. Call. no. 13371, S. J. 29-P1-O1, 12/07/2005. Time period: Middle Ages (?).

ZAHVALA

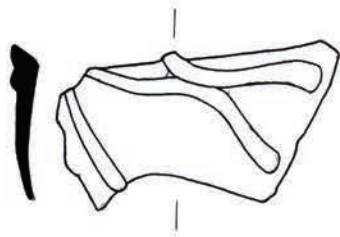
Srdačno zahvaljujem Arheološkom muzeju Istre u Puli i dr. sc. Alki Starac, muzejskoj savjetnici Muzeja, na staklenim ulomcima ustupljenim za znanstvenu obradu. Članak je proširen i aktualiziran verzija seminarskog rada koji je napisan tijekom doktorskog studija arheologije, a dio vezan uz kasnoantičke ulomke uključen je i u samu disertaciju naslovljenu *Kasnoantička i ranosrednjovjekovna arhitektura i skulptura na lokalitetu Sv. Teodor u Puli u kontekstu istodobnih nalaza u Puli i širem području Istre*, obranjenu tijekom rujna 2015. godine. Zahvaljujem dr. sc. Ireni Lazar na komentarima i sugestijama koje mi je pružila tijekom pisanja seminarskog rada. Zahvalu upućujem Balkanološkom institutu SANU i gospođi Valentini Babić radi publikacija koje su mi ustupljene 2011. godine, a koje sam koristila u analizi staklene građe: *Arhivska građa o staklu i staklarstvu u Dubrovniku (XIV-XVI)* i *Tri veka dubrovačkog staklarstva (XIV-XVI vek)*. Također, zahvaljujem dr. Tarpiniju na primjerku svoga članka. Samostalan znanstveni rad omogućili su mi članovi obitelji. Rad upućujem Pulciju i Berislavu.

ACKNOWLEDGEMENTS

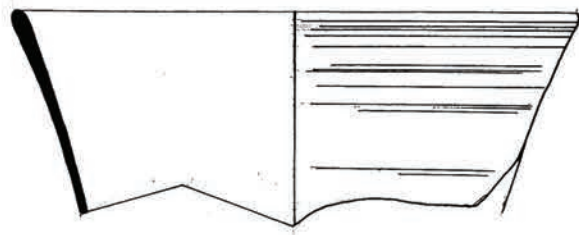
I cordially extend my appreciation to the Archaeological Museum of Istria in Pula and Dr Alka Starac, museum advisor, concerning the glass fragments made available for research. The article is an extended and up-to-date version of the seminar paper I wrote during my doctoral studies, and part of it relating to fragments from Late Antiquity is included in the dissertation titled *Late Antique and Early Medieval Architecture and Sculpture at the St Theodore Locality in Pula in the Context of Concurrent Findings from Pula and the Larger Area of Istria*, which was defended in September 2015. I would like to thank Dr Irena Lazar, on the comments and suggestions she provided during the writing of the seminar paper. My appreciation goes out to the Institute for Balkan Studies SASA and Mrs Valentina Babić for the publications that were made available to me in 2011, which I used in analysing glassware: *Archival Material on Glass and Glassmaking in Dubrovnik (XIV-XVI)* and *Three Centuries of Dubrovnik Glassmaking (XIV-XVI centuries)*. Furthermore, I would like to thank Dr Tarpini for a copy of his article. My independent scientific work was made possible by the support of my family members. This paper is dedicated to Pulci and Berislav.



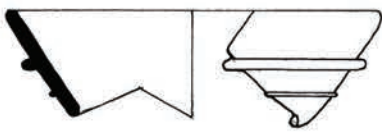
Tablica I.
Table I



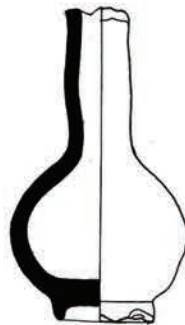
Kat. br. 16



Kat. br. 18



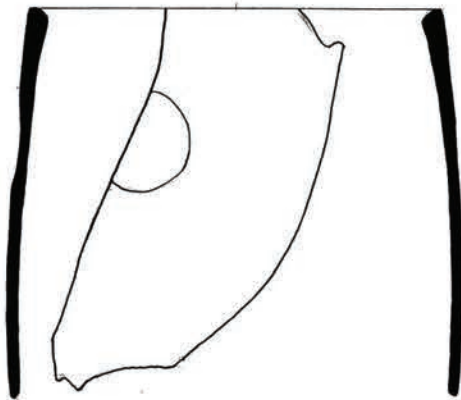
Kat. br. 19



Kat. br. 21



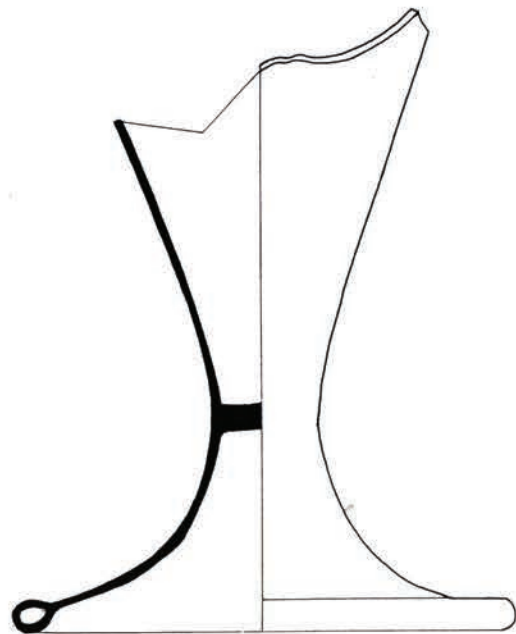
Kat. br. 25



Kat. br. 31



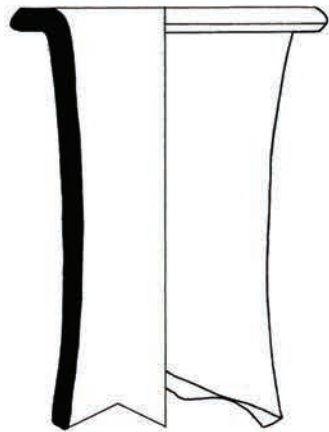
Kat. br. 32



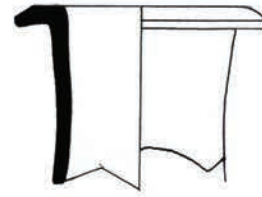
Kat. br. 33



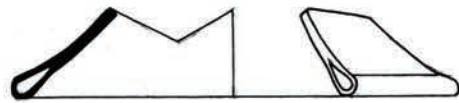
Tablica II.
Table II



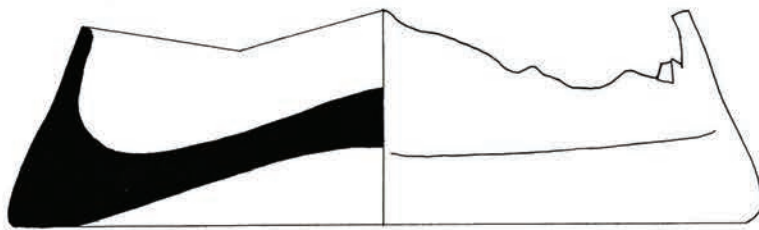
Kat. br. 35



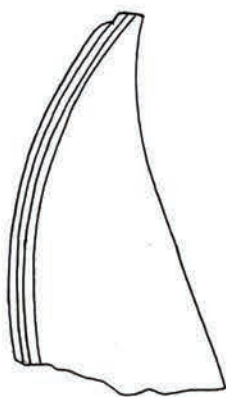
Kat. br. 34



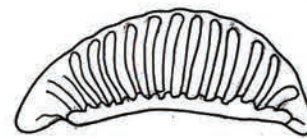
Kat. br. 38



Kat. br. 36



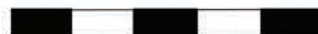
Kat. br. 58



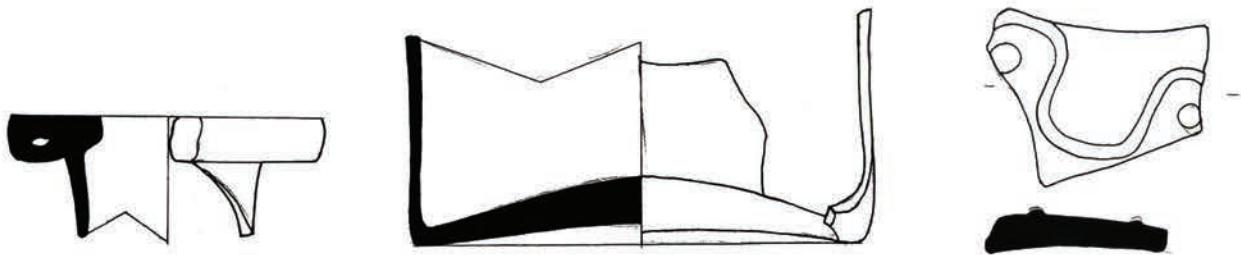
Kat. br. 59



Kat. br. 61



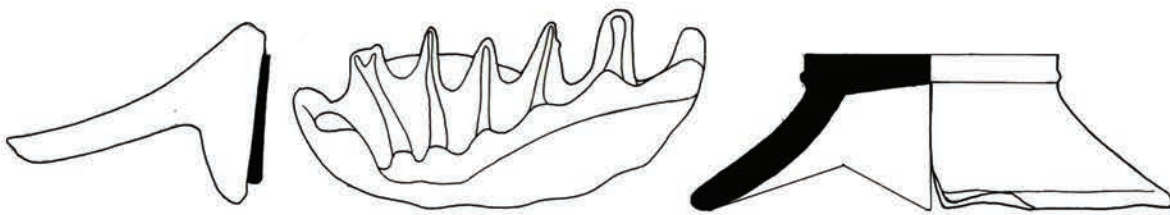
Tablica III.
Table III



Kat. br. 41

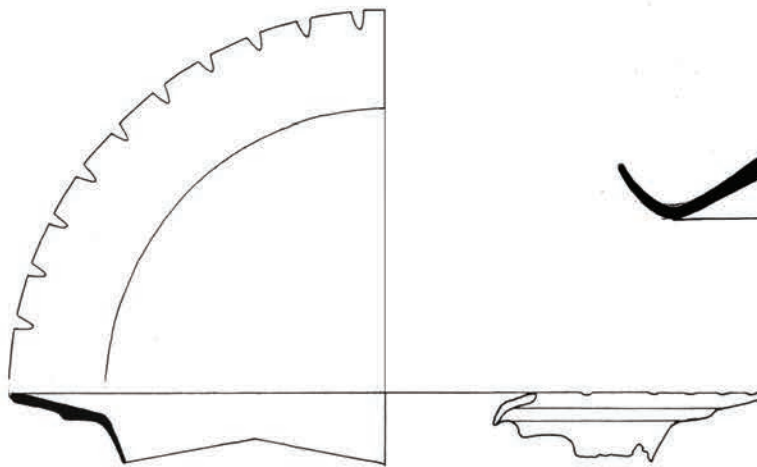
Kat. br. 42

Kat. br. 44

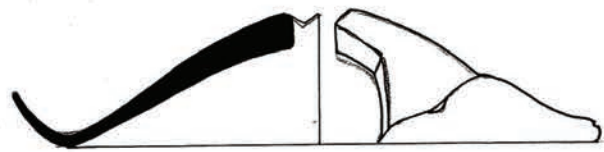


Kat. br. 43

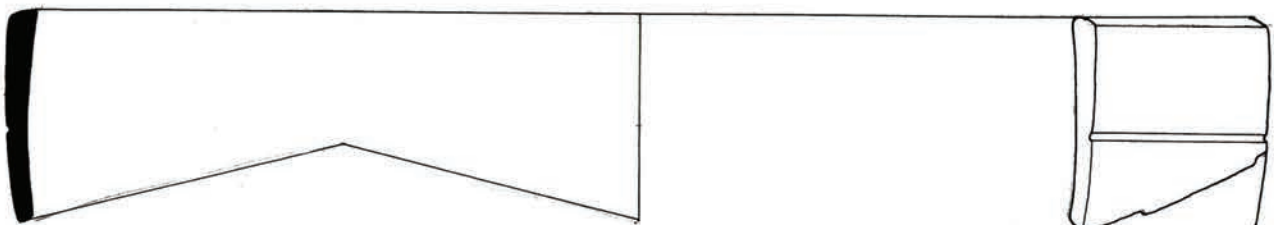
Kat. br. 49



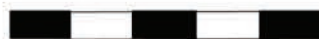
Kat. br. 46



Kat. br. 45



Kat. br. 54



Tablica IV.
Table IV

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