



kud' plovi ovaj brod

where is this ship sailing to

MILIŠA
MIŠE
RADIĆ ROSSI
ROGOŠIĆ

© ROBERT 1992, 137
© ROTUNDE 1997, 156
© BORZIC 2017, 7

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1854 H.C. (KNOX) 242 244

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and the concave lower part of the wall, and

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Miona Miliša, Maja Miše, Irena Radić Rossi i Filip Rogošić

KUD' PLOVI OVAJ BROD?

Brodolom iz 4. st. pr. Kr. u podmorju otoka Žirja

WHERE IS THIS SHIP SAILING TO?

Shipwreck from the 4th century BC in the seabed of the island of Žirje



Urednice / Editors:

Miona Miliša i Maja Miše

Uredništvo / Editorial:

Vito Balić, Daniela Matetić Poljak

Miona Miliša, Dunja Pivac

Žana Siminiati Violić, Ivana Tomić Ferić

Autori tekstova / Authors:

Miona Miliša, Maja Miše,

Irena Radić Rossi i Filip Rogošić

Recenzenti / Reviewers:

Ivo Donelli i Branko Matulić

Prijevod / Translation:

Maja Miše i Adriana Petra Blažević

Oblikovanje naslovnice / Cover design:

Filip Rogošić

Grafičko oblikovanje i prijelom teksta /

Graphic design and text layout:

Neven Marin

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Neven Marin, Mladen Čulić i Marita Marković

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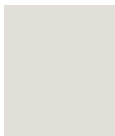
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25 GODINA UMJETNIČKE
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Miona Miliša, Maja Miše, Irena Radić Rossi i Filip Rogošić

KUD' PLOVI OVAJ BROD?

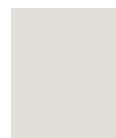
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Split 2022





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Predgovor

Geografsko područje istočne obale Jadrana, u kojem živimo i djelujemo, obiluje materijalnim ostacima iz prošlosti, općenito gledano kulturnom baštinom. Kako bismo ostavili budućim generacijama povijesne artefakte, oni moraju biti konzervirani, interpretirani i prezentirani. Predmeti kulturne baštine u depoima nemaju svrhu edukacije generacija koje odrastaju na ovim prostorima. Edukacijom mladih generacija stvaramo interdisciplinarnu zajednicu koja će možda u budućnosti konačno znati prepoznati adekvatno valoriziranu baštinu.

Arheološki predmeti prezentirani na izložbi i u kataloškim jedinicama ove monografije pronađeni su na podmorskom arheološkom lokalitetu u blizini uvala Juro na otoku Žirju, od 2015. do 2021. godine. Otkrivena je olupina trgovačkog broda koji se može datirati u 4. stoljeće prije Krista. Sam lokalitet bio je prekriven arheološkim materijalom koji se sastojao od preko stotinu amfora i pedesetak vrčeva, te nekoliko desetaka cjelovitog i fragmentiranog keramičkog kuhinjskog posuđa. Bogati inventar potonuloga broda daje dodatne informacije o grčkoj prisutnosti na jadranskoj obali. Riječ je o helenističkom keramičkom kuhinjskom posuđu i amforama korintskog tipa B. Restaurirana keramika prezentirana je na izložbi kao cjelovita priča, zajedno s video i foto materijalima o podvodnim istraživanjima lokaliteta. Podvodna arheološka istraživanja vodio je Odjel za arheologiju Sveučilišta u Zadru. Konzervacija keramike započela je 2018. godine, u sklopu nastavnog procesa Odsjeka za konzervaciju-restauraciju Umjetničke akademije u Splitu. Naglasak izložbe je na prezentaciji restauriranih artefakata te znanstveno istraživačkom, kao i stručnom postupku u radu.

Foreword

Due to the geographical position of Eastern Adriatic coast and history, this area is abundant with remains of material culture and cultural heritage, respectively. In order to leave evidence of past human life for future generations, archaeological and historical artefacts must be conservative, interpreted, and presented. The objects of cultural heritage in the museum depots do not have the purpose of educating the younger generations. By educating the younger generations, we are creating a community that will finally know how to listen to appropriately valorised cultural heritage in the future.

Archaeological artefacts presented at the exhibition and in the catalogue units of this monograph were found at an underwater archaeological site near the island of Žirje in central Dalmatia. During archaeological excavations, from 2015 to 2020, the remains of a merchant ship were found. According to its cargo, a merchant ship sunk mid voyage near the island of Žirje can be dated to the 4th century BC. The rich inventory of the sunken ship sheds new light into the presence of ancient Greeks in the Adriatic. It carried around 130 transport amphorae and 50 jugs, as well as several complete and fragmented ceramic vessels. These can be classified as the Hellenistic kitchen ware and Corinthian type B amphorae. These materials were restored as part of the storytelling of the exhibition, accompanied by video and photo materials of underwater excavations of the site. Underwater archaeological excavation was conducted by the Department of Archaeology, University of Zadar, while the restoration of ceramic material began in 2018, as part of the teaching process of the Department for the Conservation and Restoration at the Academy of Arts in Split. The emphasis of

Budući da Umjetnička akademija Sveučilišta u Splitu 2022. godine navršava 25. godina postojanja, obljetnica se nastoji obilježiti na razne načine, uglavnom javno prezentirajući rezultate rada sa studentima. Nakon zatvaranja izložbe ostaje nam tiskani materijal u vidu dvojezične monografije-kataloga restauriranih keramičkih predmeta s podvodnog lokaliteta.

Cilj je ovog izložbenog projekta približiti se razdoblju iz kojega potječu izloženi predmeti i načinu života toga doba. Ako je artefakt muzejski eksponat, s ispričanom zanimljivom povijesnom pričom, on služi u edukaciji šire publike. Govoreći o popularizaciji arheologije i konzervacije-restauracije arheološke baštine, misli se na autentičnu priču koja se zasniva na znanstvenim spoznajama i činjenicama. Izložbom u Sveučilišnoj galeriji želi se približiti važnost zaštite i očuvanja podzemskih nalazišta i predmeta kulturne baštine široj javnosti. Izložbeni prostor Galerije ima zahvalne otvorene stijenke s južne strane, kroz koje se mogu vidjeti izloženi artefakti tijekom čitavog vremena trajanja izložbe. Nalazi se u samom srcu Sveučilišnog kampusa što pridonosi približavanju manje zastupljenih profesija, poput konzervacije-restauracije, studentima ostalih fakulteta splitskog Sveučilišta.

Trenutak kada studenti široj zainteresiranoj javnosti predstavljaju najinteresantnije projekte zaštite kulturne baštine na kojima su radili u proteklom razdoblju ima izuzetno značenje u stručnom formiranju mladih konzervatora-restauratora, na kojima će počivati zaštita naše prebogate kulturne baštine u desetljećima koja slijede.

M. Miliša, 1. 1. 2022. Split

the exhibition is on the presentation of restored artefacts and scientific-based research, as well as research procedures and protocols. In 2022, the Academy of Arts of the University of Split celebrates its 25th anniversary. The achievement of their community of teachers and researchers will be celebrated in various ways, mostly by publicly presenting the results of work with students. The Croatian-English monograph with a catalogue of restored archaeological artefacts from the Žirje shipwreck shows the outcome of a joint project that included archaeological underwater excavations, analysis and interpretation of archaeological material and their detailed restoration.

The aim of the project and exhibition is to understand everyday life of past communities, maritime transport and objects they used. The artefacts are not just a museum exhibit, but they have their own story to tell or, rather the story of the people who used them. We can learn about past societies by understanding the objects they used. This has a rewarding aspect in the process of learning, learning the past to understand the future. Communicating research to the wide public needs to include authentic storytelling embedded in scientific knowledge and facts. The exhibition at the University Art Gallery aims to bring closer to the public the importance of protection and preservation of objects and places of cultural heritage. The exhibition room of the Gallery has open walls on the south side through which the exhibited artefacts can be seen from the outside. It is in the heart of the University Campus, which aims to bring less represented professions, such as conservation-restoration, closer to students from other faculties of the University of Split. The moment when students present their most interesting project of cultural heritage protection to the general public is extremely important in the professional formation of young conservators-restorers, on whom the protection of our rich cultural heritage will rest in the coming decades.

I. UVOD

Maja Miše i Miona Miliša

Antički Mediteran bio je povezan u gustu mrežu pomorske trgovine. Da bi raspetljali tu mrežu studije antičke trgovine i gospodarstva uvelike se oslanjaju na distribuciju anorganskih arheoloških artefakata kao što su metali, staklo i najvažnije, keramika. Od brončanog doba do kasne antike, keramičke posude služile su za prijevoz robe na znatne udaljenosti.¹ Amfore su bile uobičajena vrsta pakiranja korištena na Mediteranu tijekom grčko-rimskog razdoblja za prijevoz maslinovog ulja, vina i ribljeg umaka.² Koristile se na isti način na koji se moderna hrana distribuira u standardiziranim plastičnim ili staklenim posudama. S obzirom na otpornost keramičkog materijala i funkciju transportnih amfora, one predstavljaju vrijedan zapis o trgovačkoj djelatnosti na antičkom Mediteranu. Dok je sadržaj antičkih amfora propao ili nestao u tijekom tisućljeća, posude ostaju, često samo kao razbijeni ulomci, na arheološkim nalazištima zakopanim u tlu ili na morskom dnu. Potopljeni ostaci brodova koji su potonuli usred putovanja, natovareni teretom, posebno su važni pokazatelji prošlih trgovačkih aktivnosti. Veliki broj brodoloma, koji datiraju iz razdoblja kasnog klasičnog do ranog Rimskog Carstva (od kraja 5. st. pr. Kr. do 1. st. po Kr.) služe kao dokaz složenih trgovačkih veza.³ Arheolozi su nastojali razriješiti te veze, tumačeći mjesta proizvodnje amfora i drugih vrsta transportnih posuda uz korištenje tipoloških i znanstvenih podataka. Kartiranjem distribucije specifičnih oblika amfora na kopnu i unutar brodoloma moguće je rekonstruirati smjer, udaljenost i intenzitet antičkih trgovačkih putova.

¹ Bevan 2014, 387-418.

² Horden and Purcell 2000.

³ Parker 1992; Gibbins 2001, 273-312.

I. INTRODUCTION

Maja Miše and Miona Miliša

Ancient Mediterranean was untangled in a dense web of maritime trade. To untangle this web, studies of ancient trade and economy have largely relied on the distribution of inorganic archaeological artefacts such as metals, glass and most crucially, pottery. From as early as the Bronze Age until Late Antiquity ceramic containers were used to transport goods over significant distances.¹ Amphorae were a common type of packages used in the Mediterranean during Graeco-Roman periods to transport olive oil, wine and fish sauce.² They served in the same way that modern food stuffs are distributed in standardised plastic or glass containers. Given the imperishable nature of ceramic material, and the function of transport amphorae, they represent a valuable record of commercial activity in the ancient Mediterranean. Whilst the contents of ancient amphorae have been consumed or perished in the intervening millennia, the vessels themselves remain, often as broken potsherds, at archaeological sites buried in soils or on the seabed. Submerged remains of ships that sank mid voyage, laden with cargo, are particularly important indicators of past trade activities. The large number of shipwrecks dated from the Late Classical to Early Roman Imperial period (late 5th century BC to 1st century AD) serve as evidence of complex commercial connections.³ Archaeologists have sought to untangle these connections by interpreting the production locations of amphorae and other types of transport vessels using both typological and scientific data. By mapping the distribution of specific shapes of amphorae on land and within shipwrecks, it is

¹ Bevan 2014, 387-418.

² Horden and Purcell 2000.

³ Parker 1992; Gibbins 2001, 273-312.

Rasprostranjenost amfora na Jadranu povećava se od početka 4. st. pr Kr., od osnivanja dviju grčkih kolonija, Fara, antičkog *Pharos*a (današnjeg Starog Grada) na otoku Hvaru i Ise, antičke *Isse* (današnjeg Vis) na otoku Visu. One također svjedoče o intenzivnoj trgovini unutar jadranskog bazena. Arheolozi pronalaze korištene i odbačene amfore ili ulomke amfora na kopnenim nalazištima ili kao dio tereta potopljenog trgovačkog broda koji nikada nije stigao na svoje odredište. Da bi rekonstruirali trgovačka kretanja, arheolozi trebaju identificirati početnu točku, gdje su nastale transportne amfore. Postoje dvije metode kojima se znanstvenici služe, tipološkom klasifikacijom analize oblika amfora i znanstvenom analizom mikro strukturnog i geokemijskog sastava glinene paste od koje su amfore izrađene. Međutim, dugotrajno izlaganje amfora morskoj vodi može promijeniti njihovu morfologiju. Na površini amfora nastaju različiti morski organizmi stvarajući organsku inkrustaciju, a zbog porozne prirode keramike, morska voda može promijeniti sastav glinene paste. Trgovački brod potopljen u blizini otoka Žirja predstavlja primjer cjelovite studije podmorskih nalazišta, kombinirajući arheološka istraživanja, restauratorsko-konzervatorske metode i znanstvene metode preuzete iz prirodnih znanosti kako bi se odgovorilo na pitanje odakle je ovaj brod isplovio.

possible to reconstruct the direction, distance and intensity of ancient trade routes.

Distribution of amphorae in the Adriatic have increased since the beginning of the 4th century BC, ever since the establishment of two Greek colonies, Pharos (today's Stari Grad) on the island of Hvar and Issa (today's Vis) on the island of Vis. They also serve as evidence of intensive trade within the Adriatic basin. Archaeologists find used and discarded amphorae or fragments of amphorae on land or as part of the cargo of a sunken merchant ship that never arrived at its destination. To reconstruct trade movements, archaeologists need to identify the starting point, that is where transport amphorae were produced. There are two methods scholars use, typological classification by analysing the shape of amphorae and by scientific analysis of microstructural and geochemical composition of clay paste from which amphorae were made. However, long exposure of amphorae to sea water can change their morphology, different marine organisms form on the surface of amphorae creating organic encrustation, and due to the porous nature of ceramics, sea water can alter composition of clay paste. The merchant ship sunk near the island of Žirje is an example of an extensive study of an underwater archaeological site, combining archaeological research, restoration-conservation methods and scientific methods taken from the natural sciences to answer the question of where this ship sailed from.

II. NOVOOTKRIVENI BRODOLOM IZ 4. st. pr. Kr. NA OTOKU ŽIRJU⁴

Irena Radić Rossi, Maja Grisonic
and Katarina Batur

Odsjek za arheologiju, Sveučilište u Zadru

Uvod

Pojava amfora u funkciji transportnih posuda na prostoru današnje Dalmacije vezana je uz prisutnost grčkih trgovaca ili uz uvoz namirnica koje potječu iz grčkih proizvodnih centara. Najranije amfore koje su do sada otkrivene u hrvatskom podmorju pripadaju 4. st. pr. Kr. i mogu se vezati uz grčke kolonije na otocima Visu i Hvaru.⁵ Od 1970. godine jedini primjer pomorskog prijevoza robe u 4. st. pr. Kr. duž hrvatske obale bio je teško opljačkano nalazište potonulog broda s teretom amfora tipa Korint B kod hridi Krave pred ulazom u višku luku.⁶ Prije nekoliko godina situacija se promijenila; pojavio se novi izvor na istočnom Jadranu za proučavanje rane helenističke keramičarske proizvodnje i trgovine keramičkim proizvodima.

Podmorska svjedočanstva prije 2015. godine

Tijekom podmorskog rekognosciranja pod vodstvom Nenada Cambija 1970. godine, kod hridi Krave pred ulazom u višku luku otkriveno je netaknuto nalazište potonulog broda s teretom

⁴ Istraživanje brodoloma provedeno je u okviru projekta *AdriaS* (Archaeology of Adriatic Shipbuilding and Seafaring, IP-09-2014-8211), i *NEREAS* (Numerical Reconstruction in the Archaeology of Seafaring, IP-2020-02-3420, koje je financijski podržala Hrvatska zaklada za znanost.

⁵ O prisutnosti antičkih Grka u Jadranu vidi Čače i Kuntić-Makvić 2002.

⁶ Jurišić 2006, 175; Radić Rossi 2008; Radić Rossi 2010, 99.

II. THE NEWLY DISCOVERED 4th CENTURY BC SHIPWRECK AT THE ISLAND OF ŽIRJE⁴

Irena Radić Rossi, Maja Grisonic
and Katarina Batur

Department of Archaeology, University of Zadar

Introduction

The appearance of amphorae as transport containers in the area of today's Dalmatia is associated with either the presence of Greek merchants or the importation of goods originating from Greek production centres. The earliest amphorae discovered to date on the Croatian seabed belong to the 4th century BC and appear to be connected to the Greek colonies on the islands of Vis and Hvar⁵. Since 1970 the heavily looted shipwreck at Krava Rock in front of the Port of Vis⁶ remained the sole example of 4th century BC maritime transport of cargo containing Corinthian type B type amphorae known in Croatian waters. Recently the situation changed, providing new resources for the study of Early Hellenistic pottery production and trade in the Eastern Adriatic.

Underwater evidence prior to 2015

In 1970 during an underwater survey directed by Nenad Cambi, an intact shipwreck site with a large quantity of amphorae was discovered at Krava Rock in front of the Port of Vis. Unfortunately, a problem with his underwater camera re-

⁴ This research was performed in the framework of the *AdriaS* Project (Archaeology of Adriatic Shipbuilding and Seafaring, IP-09-2014-8211), funded by the Croatian Science Foundation. This paper was originally published in: Ivanka Kamenjarin – Marina Ugarković (Eds.), *Exploring the Neighbourhood, LARPotHP 3*, Vienna 2019, 287-299.

⁵ For the chronological composition of underwater evidence in Croatia see Jurišić 2000. For an overview of ancient Greeks in the Adriatic see Čače and Kuntić-Makvić 2002.

⁶ Jurišić 2006, 175; Radić Rossi 2008, Radić Rossi 2010, 99.



Sl. 1. Brodolom kod hridi Krave, detalj
 Figure 1. The site of the Žirje shipwreck detail (Photo: D. Frka)

koji se sastojao od velikog broja amfora. Nažalost, problem s podvodnim fotoaparatom rezultirao je izostankom fotografske dokumentacije, a kad su se arheolozi sljedeće godine vratili na nalazište, pronašli su ga potpuno opljačkanog.⁷ Svi nalazi u površinskom sloju bili su uništeni pa ono zbog tih okolnosti nije nikada detaljnije proučeno, a sve amfore preliminarno su pripisane nešto kasnijem grčko-italskom tipu.

Tijekom rekognosciranja podmorja hridi Krave, provedenog 1989. godine pod vodstvom Marijana Orlića i Marija Jurišića, pronađena je i izvađena jedna potpuno očuvana amfora (Sl. 1, 2), a

⁷ Vrsalović 1974 i 2011.



Sl. 2. Amfora s brodoloma kod hridi Krave
 Figure 2. Amphorae of Corinthian type B recovered from the site at Krava Reef (Photo: R. Mosković)

sulted in the lack of photographic documentation, and the following year archaeologists returned to discover the complete looting and destruction of the visible layer of finds.⁷ Due to unfavourable circumstances, the site was never examined in detail, and the amphorae were preliminarily attributed to the Greco-Italic type.

During a subsequent 1989 survey of the Krava Rock area directed by Marijan Orlić and Mario Jurišić, a complete amphora was extracted from the site (Fig. 1, 2), and the typological attribution was corrected.⁸ Besides the typical morphological

⁷ Vrsalović 1974 and 2011.

⁸ Radić 1993.

tipološka je atribucija ispravljena.⁸ Uz morfološke karakteristike amfora tipa Korint B, na nalazu iz podmorja hridi Krave primijećena je serija vertikalnih ureza na najširem dijelu trbuha. Osim toga, iz mora je izvađen i dvodijelni kameni žrvanj (Sl. 3),⁹ koji podsjeća na nalaze s brodoloma Kyrenia na Cipru,¹⁰ također iz druge polovice 4. st. pr. Kr.

Godine 1974. Zdenko Brusić objavio je izolirani primjerak amfore tipa Korint B za koji se pretpostavlja da je uhvaćen u ribarsku mrežu u blizini otoka Mauna nedaleko Paga.¹¹ To je za sada najsjeverniji nalaz amfore toga tipa, ali zbog nesigurne provenijencije nije ga moguće koristiti za dalekosežne pretpostavke. Izolirane podmorske nalaze amfora tipa Korint B, uglavnom poznate iz javnih i privatnih zbirki na otoku Hvaru, u nekoliko je navrata objavio Marinko Petrić.¹² Osim grla i vratova pronađenih na potencijalnim antičkim sidrištima, nekoliko čitavih primjeraka sugeriralo je postojanje brodoloma. Ulomci tih amfora pronađeni su i kod otočića Hosta nedaleko hridi Krave te u uvali Gradini nedaleko Vele Luke na otoku Korčuli.¹³ Jedna amfora tipa Korint B nepoznate provenijencije uočena je u privatnoj zbirci u Makarskoj,¹⁴ a ulomci s rta Stupišća (Gnjilna) na otoku Visu¹⁵ i s rta Tihe na otoku Šipanu¹⁶, kao i jedna u cijelosti očuvana amfora s rta Borove na otoku Prižbi nedaleko Lastova¹⁷ potječu s opljačkanih nalazišta brodoloma.

⁸ Radić 1993.

⁹ Radić Rossi 2017, 16.

¹⁰ Katzev 1969, 57.

¹¹ Brusić 1974; Radić Rossi 2017, 17.

¹² Petrić 1999, Petrić 2002; noviji pregled nalaza u Radić Rossi 2017.

¹³ Borzić 2017.

¹⁴ Katić 2005, 54.

¹⁵ Amfore su poznate iz privatne zbirke u kojoj su izložene zajedno s amforama tipa Korint A.

¹⁶ Podaci o nalazištu zasnivaju se na nalazima iz privatnih zbirki. Brodski teret sastojao se uglavnom od amfora grčko-italskog tipa (Jurišić 2006, 175).

¹⁷ Nalazište je poznato zbog pokušaja iznošenja ukradenih amfora iz zemlje. Među zaplijenjenim predmetima nalazi se i jedna amfora tipa Korint A (Jurišić 2006, 175).



Sl. 3. Dvodjelni kameni žrvanj s brodoloma kod hridi Krave
Figure 3. Bipartite Hellenistic millstone from the Krava shipwreck site (Photo: R. Mosković)

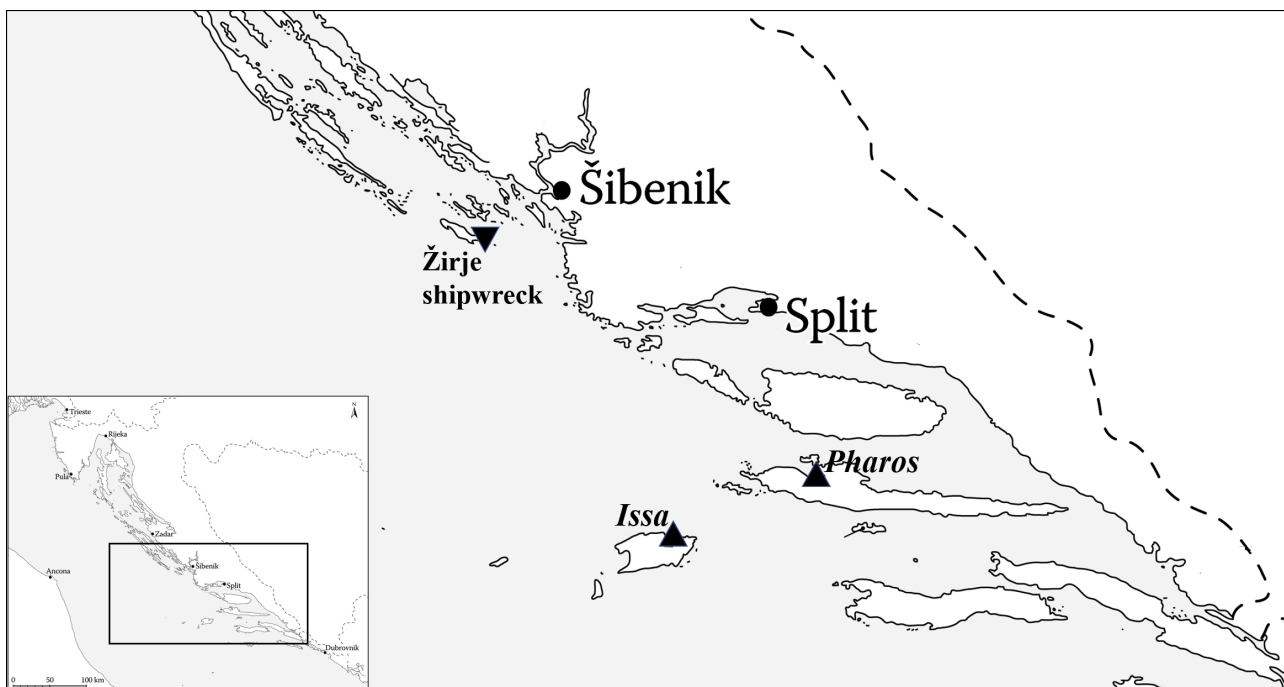
features of the Corinthian type B amphorae, the find from Krava Rock presented a series of vertical linear marks engraved on the widest part of the body. A bipartite Hellenistic millstone (Fig 3.), similar to one found at the Kyrenia (Cyprus) shipwreck, which dates to the second half of the 4th century BC⁹, was also recovered from the site.¹⁰

In 1974, Zdenko Brusić published the isolated find of an amphora of Corinthian type B, which was declared caught in a fishing net near the small island of Maun in the vicinity of the large island of Pag.¹¹ It is currently the northernmost underwater find of a Corinthian type B amphora. Unfortunately, there is no possibility to confirm the exact circumstances of the discovery, so this unique example should not be used to support far-reaching conjectures. Isolated underwater finds of Corinthian type B amphorae, mostly known from public and private collections on the island

⁹ Katzev 1969, 57.

¹⁰ Radić Rossi 2017, 16.

¹¹ Brusić 1974; Radić Rossi 2017, 17.



Sl. 4. Položaj brodoloma kod otoka Žirja u odnosu na grčke kolonije Isu na otoku Visu i Far na otoku Hvaru
 Figure 4. Position of the shipwreck of Žirje, in relation to Greek colonies of Issa on the island of Vis and Pharos on the island of Hvar

Novootkriveno nalazište u vodama otoka Žirja

Godine 2015. uz istočnu obalu otoka Žirja (Sl. 4), na dubini dostupnoj sportskim ronionicima, neočekivano je otkriveno potpuno očuvano podmorsko arheološko nalazište. Prvi stručni očevid rezultirao je zaključkom kako je riječ o skupini amfora tipa Korint B i ostalog keramičkog materijala iz druge polovice 4. st. pr. Kr., koja leži na kamenitim stepenicama morskog dna (Sl. 5, 6), na površini od oko 20 x 50 m. Mali trgovački brod završio je na kamenitoj padini, ostavljajući za sobom trag brodske tereta. Brodska konstrukcija je, čini se, zauvijek nestala s nalazišta. Tijekom dviju dokumentacijskih kampanja, organiziranih tijekom 2016. i 2017. godine, izrađen je precizan fotogrametrijski plan nalazišta (Sl. 7, 8).

Iako su na prvi pogled većinu nalaza činile amfore, uočeno je i posuđe koje je pripadalo brodskoj opremi i teretu. Svi vidljivi predmeti označeni su

of Hvar, have been presented on several occasions by Marinko Petrić.¹² Besides amphorae necks recovered from places corresponding to potential ancient anchorages, some entirely preserved examples suggested the possible provenance from some unknown shipwreck sites. Fragments of such amphorae were also found near the islet of Host near Krava Rock and in the bay of Gradina near Vela Luka on the island of Korčula.¹³ Another Corinthian type B amphora of unknown provenance was spotted in a private collection in Makarska.¹⁴ Amphorae fragments from cape Stupišće (Gnjilna) on the island of Vis¹⁵ and cape Tiha on the island of Šipan¹⁶, as well as entirely

¹² Petrić 1999 and 2002; recent overview of finds in Radić Rossi 2017.

¹³ Borzić 2017.

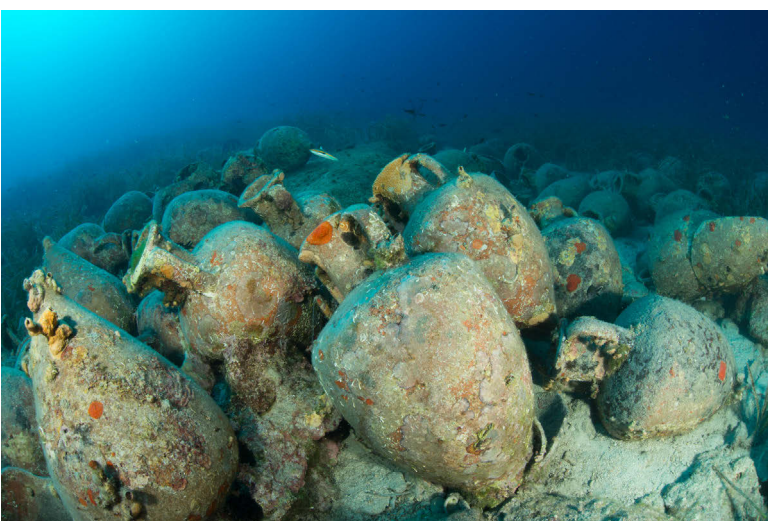
¹⁴ Katić 2005, 54.

¹⁵ The amphorae are known from a private collection and are displayed together with amphorae of Corinth A type.

¹⁶ Information on the site is based mostly on the finds from private collections. Most of the cargo consisted of amphorae of Greco-Italic type (Jurišić 2006, 175).



Sl. 5. Situacija na podmorskom arheološkom nalazištu 2016. godine
Figure 5. Situation at the shipwreck site in 2016 (Photo: D. Frka)



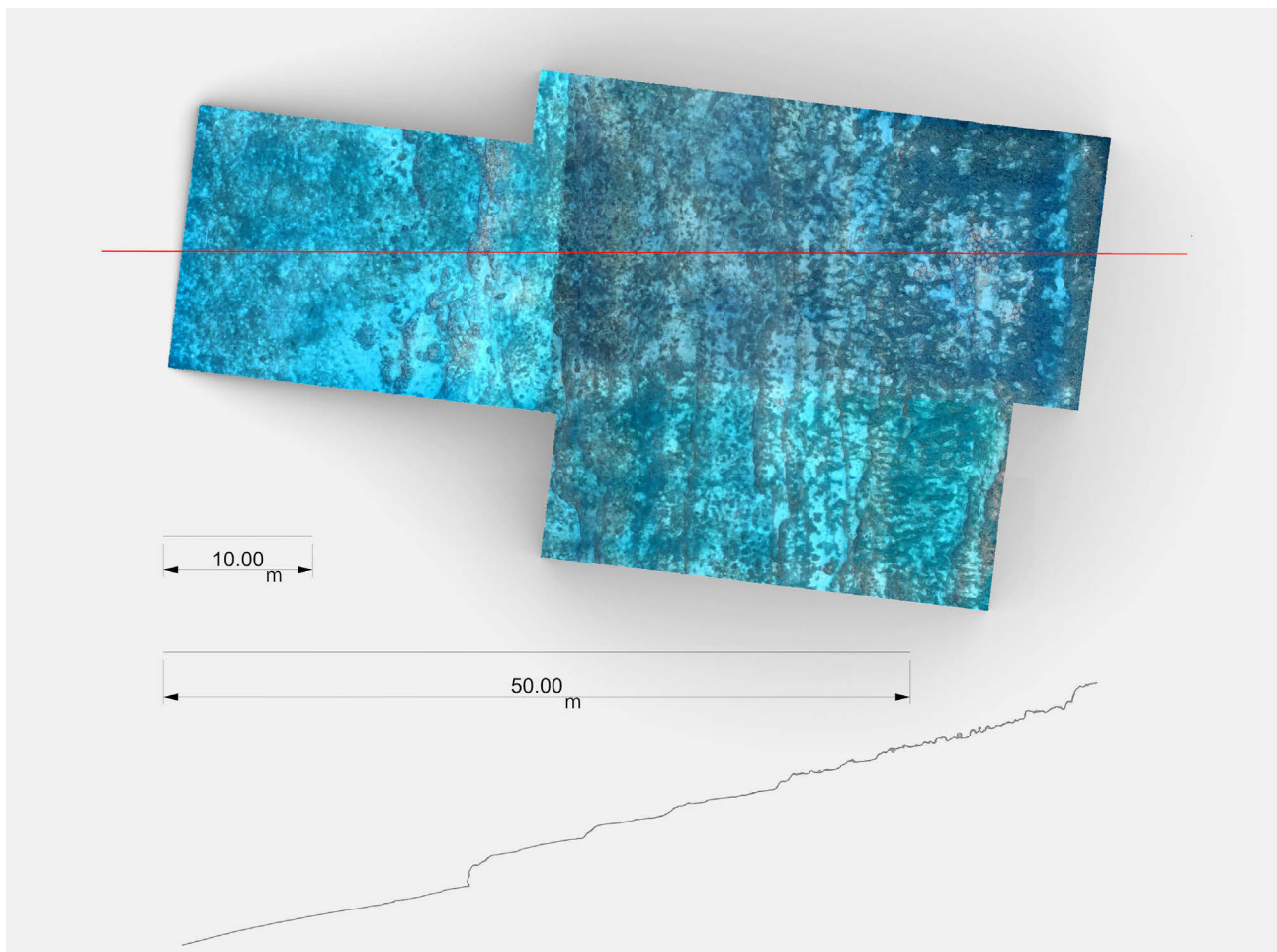
Sl. 6. Situacija na podmorskom arheološkom nalazištu 2016. godine
Figure 6. Situation at the shipwreck site in 2016 (Photo: D. Frka)

preserved amphorae from cape Borova on the island of Prižba near Lastovo¹⁷ likely originate from looted shipwreck sites.

The newly discovered site in the waters of Žirje

In 2015, a non-looted site off the eastern coast of Žirje (Fig. 4) at a depth accessible to sport divers was unexpectedly discovered. The first expert survey led to the conclusion that the site consisted of a group of amphorae of Corinthian type B lying at the rocky plateau of the seabed (Fig. 5, 6), with

¹⁷ The site is known from an attempt to smuggle amphorae out of the country. Among the confiscated finds there is also one amphora of Corinthian type A (Jurišić 2006, 175).

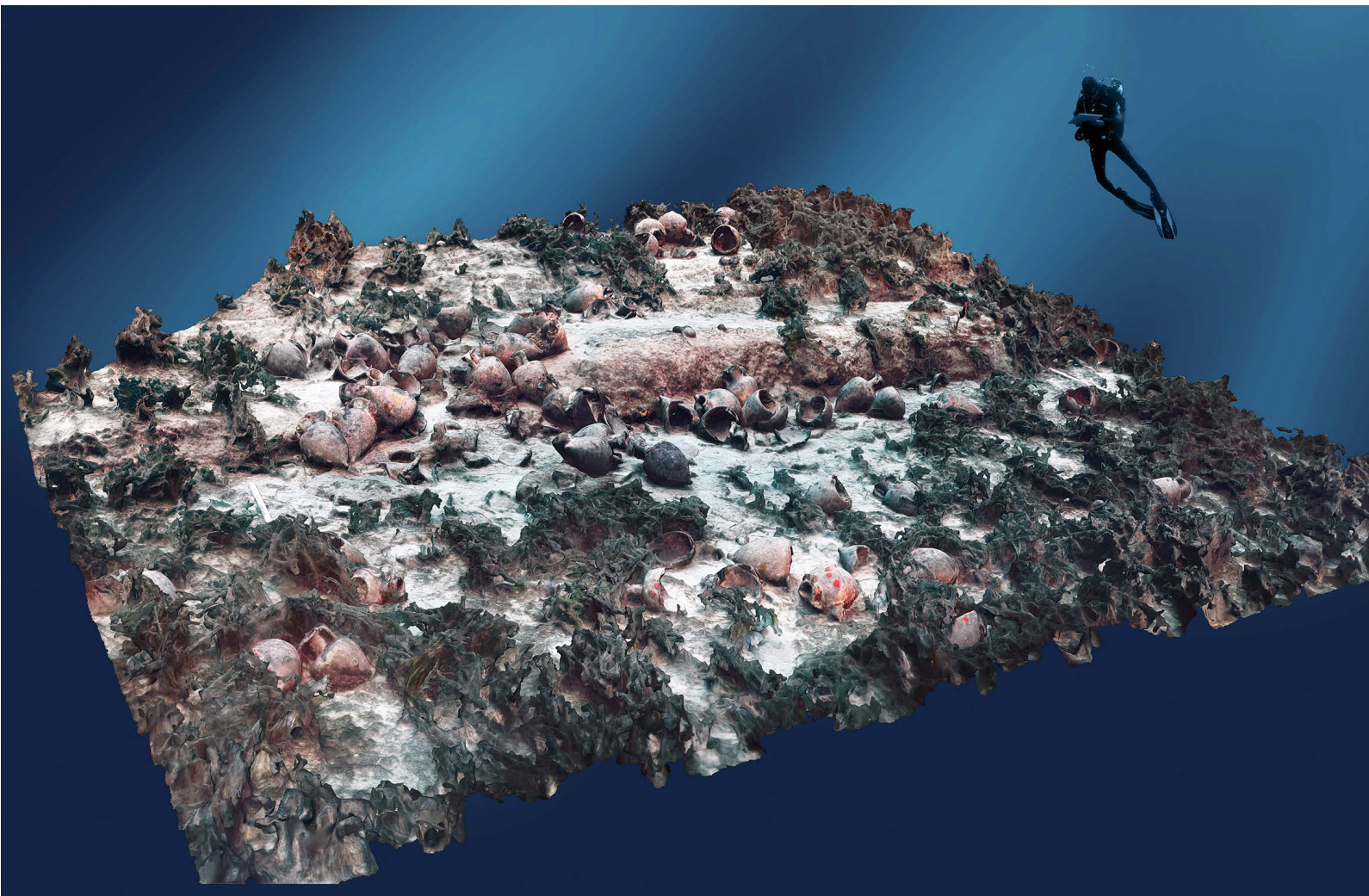


Sl. 7. Ortomozaik dobiven fotogrametrijskim snimanjem i poprečni presjek nalazišta
 Figure 7. Orthomosaic obtained by photogrammetric imaging, and cross section of the site (Model: K. Yamafune)

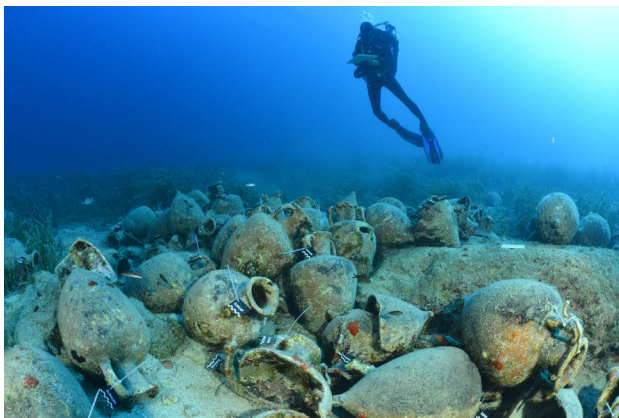
(Sl. 9) i uneseni u inventar pa je tako dobiven situacijski plan nalazišta koji je sugerirao dinamiku brodoloma. Vjerojatno prepušten vjetru i moru, brod se napunio vodom i prilikom potonuća okrenuo, a amfore i keramičko posuđe prosuli su se iz broskog potpalublja. Najveća koncentracija nalaza ležala je na dubini od 19 do 24 m, a pojedini primjerci otkotrljali su se i do dubine od 38 m. S obzirom na obližnju vojarnu koja je pripadala Jugoslavenskoj ratnoj mornarici, odlično očuvano stanje nalazišta bilo je vjerojatno rezultat dugogodišnjeg nepostojanja ronilačkih aktivnosti.

associated scattered material covering an area of about 20 x 50 m. Obviously the finds presented evidence of a shipwreck site, dated to the second half of the 4th century BC. A small merchantman ended at the rocky sea bottom, leaving amphorae and cargo remains but no obvious evidence of the hull. Two documentation campaigns performed in 2016 and 2017 produced a precise photogrammetric plan of the site (Fig. 7, 8).

Although most of the finds consisted of amphorae, there were also vessels from the ship's equipment and cargo. All the visible finds were tagged (Fig. 9) and catalogued, resulting in a distribution map which suggested the dynamics of the ship-



Sl. 8. Izvadak iz virtualnog 3D modela nalazišta
Figure 8. Detail from the virtual 3D site model (model: K. Yamafune)



Sl. 9. Označavanje nalaza brojevima
Figure 9. Marking the finds with numbers (Photo: D. Frka)

wreck. The helplessly driven hull was apparently filled with water and capsized at the sea bottom, with most of the amphorae and smaller ceramic vessels spilling out of it. The main concentration of amphorae and finds was at a depth of 19 to 24 m, with some spilled material distributed down to a depth of 38 m. The pristine state of the site and finds was probably the result of a complete lack of diving activities in the area due to the nearby presence of a military post belonging to the Yugoslav navy.

Nalazi

Na nalazištu je primijećeno i označeno oko 130 cjelovitih ili slomljenih amfora, više od 70 posuda različitih oblika i 3 držača za keramičke posude nad otvorenom vatrom.

1. Amfore

Većina nalaza bile su potpuno ili djelomično očuvane amfore tipa Korint B.¹⁸ (Sl. 10, 11) Prosječna im visina iznosi oko 70-75 cm, a širina oko 40 cm. Mnoge od njih oštetile su se prilikom brodoloma, tijekom pada na morsko dno, jer uglavnom nisu uočeni tragovi svježih lomova.

O neprikladnosti imena Korint B već se pisalo u stručnoj literaturi.¹⁹ Dugogodišnja pretpostavka o Korintu kao njihovom glavnom proizvodnom središtu nije u potpunosti potvrđena, a dokazana im je proizvodnja u Korkiri, Kirenaici, Iliriji i Velikoj Grčkoj.²⁰ Usprikoš tome, ime Korint B i dalje se konvencionalno koristi,²¹ jer se na taj način lako raspoznaje oblik o kojemu je riječ i dobiva jasna ideja o svim njegovim karakteristikama. Uz amfore tipa Korint B, korištene poglavito za prijevoz vina, područje Sicilije i južne Italije započelo je proizvodnju amfora grčko-italskog tipa.²² I u tom je slučaju ime dovedeno u pitanje,²³ ali se iz praktičnih razloga zadržalo u stručnoj literaturi.

Proizvodnja keramike započela je i u grčkim kolonijama Isi na otoku Visu²⁴ i Faru na otoku Hvaru.²⁵ Potreba za amforama na oba je mjesta opravdana njihovim proizvodnim i izvoznim po-

¹⁸ Koehler 1982.

¹⁹ Whitbread 1995, Goransson 2007.

²⁰ Desy-De Paepe 1990; Whitbread 1995; Goransson 2007; Goransson 2011.

²¹ Kourkoumelis 1992; Goransson 2011.

²² Will 1982.

²³ Vanderersch 1997

²⁴ Čargo i Miše 2010.

²⁵ Katić 2000, Miše 2005.

Finds

About 130 entirely preserved or broken amphorae, over 70 vessels of various shapes and three supports for cooking in an open fire were spotted and tagged.

1. Amphorae

Most of the finds were entirely or partly preserved amphorae of Corinthian type B.¹⁸ (Fig. 10, 11) Their average height is about 70–75 cm, and their average width is about 40 cm. Some of the amphorae were damaged either during the shipwreck or while resting on the seafloor, as there is no evidence of fresh breaks.

The inadequacy of the name Corinthian type B is discussed in the bibliography¹⁹; the long-standing assumption of Corinth as the main production centre of such amphorae has not been conclusively demonstrated, with production of this style of amphora confirmed on Corcyra, in Cyrenaica, Illyria and Magna Graecia.²⁰ Nevertheless, the name Corinthian type B continues to be used conventionally,²¹ as it is easily recognizable in the bibliography and gives a clear idea of the form in question. Along with amphorae of Corinthian type B, intended mainly for the transport of wine, the area of Sicily and southern Italy initiated the production of amphorae of the Greco-Italic type.²² Also in this case the name itself has been called into question,²³ but it persists in bibliography for practical reasons.

Pottery production also started in the Greek colonies of Issa on the island of Vis²⁴ and Pharos

¹⁸ Koehler 1982.

¹⁹ Whitbread 1995; Goransson 2007.

²⁰ Desy – De Paepe 1990; Whitbread 1995; Goransson 200 and 2011.

²¹ Kourkoumelis 1992; Goransson 2011.

²² Will 1982

²³ Vanderersch 1997.

²⁴ Čargo and Miše 2010.



Sl. 10. Vađenje amfore s nalazišta 2016. godine
 Figure 10. Recovery of an amphora from the site in 2016
 (Photo: D. Frka)

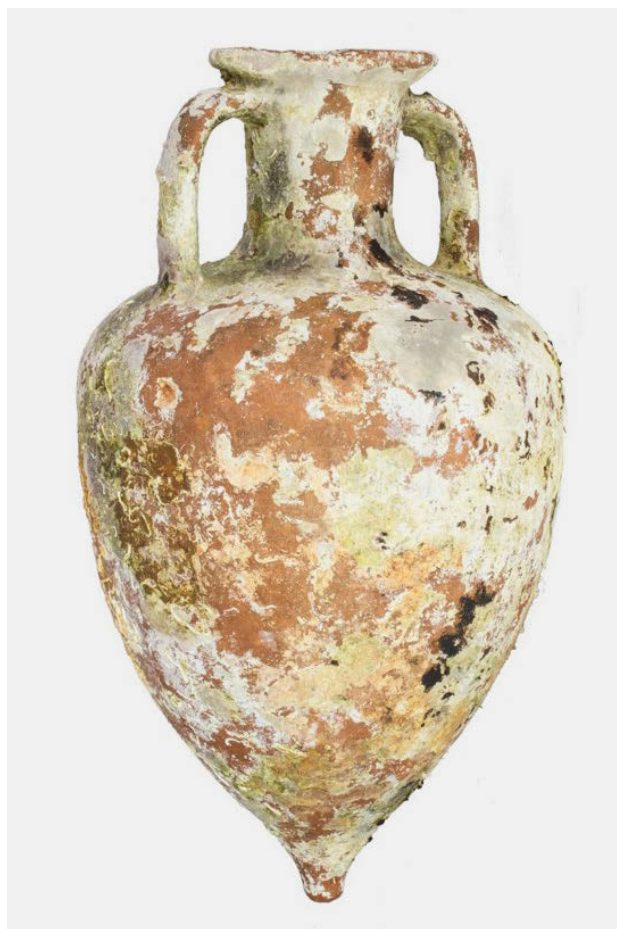
tencijalom.²⁶ Proizvodnja razvijenog oblika amfora tipa Korint B potvrđena je nalazima radioničkog otpada u grčkom Faru,²⁷ dok je Isa vjerojatno proizvodila amfore grčko-italskog tipa.²⁸ Uzimajući u obzir različite prostore s kojih su stigli grčki kolonizatori,²⁹ opravdana je i razlika u oblicima transportnih posuda koje su dvije kolonije odlučile koristiti. Slične morfološke karakteristike amfora tipa Korint B i amfora grčko-italskog tipa,

²⁶ Kirigin *et al.* 2005.

²⁷ Katić 2005.

²⁸ Kirigin 1994.

²⁹ Otok Vis kolonizirali su Grci iz Sirakuze na Siciliji, a otok Hvar Grci s egejskog otoka Para.



Sl. 11. Prva izvađena amfora
 Figure 11. The first recovered amphora (Photo: E. Šilić)

on the island of Hvar.²⁵ The need for amphorae in both places was thoroughly justified by their respective production and export potential.²⁶ The production of the advanced form of Corinthian type B amphorae in Greek Pharos has been directly confirmed by the analysis of kiln waste²⁷, while Issa most likely produced amphorae of the Greco-Italic type.²⁸ Considering the different areas from which the colonists arrived,²⁹ the noted design preferences for production of transport containers is fully justified.

²⁵ Katić 2000; Miše 2005.

²⁶ Kirigin *et al.* 2005.

²⁷ Katić 2005.

²⁸ Kirigin 1994.

²⁹ The island of Vis was colonised by Syracuse, and the island of Hvar by Aegean Paros.



Sl. 12. Amfore izvađene 2019. godine

Figure 12. Amphorae recovered in 2019 (Photo: I. Radić Rossi)

ponad svega u obliku trbuha, ponekad su rezultirale zabunom koja je dovodila do pogreške u identifikaciji amfora tipa Korint B na mnogim kopnenim nalazištima. U novije vrijeme ta se situacija promijenila pa revizija ranijih rezultata i sustavno mapiranje nalaza danas potvrđuju njihovo postojanje na daleko širem prostoru nego što se ranije mislilo.³⁰ Amfore tipa Korint B bile su prilično uspješnog dizajna, što se može zaključiti na osnovi dužine njihovoga korištenja. Proizvodile su se od posljednje četvrtine 6. st. pr. Kr. do kraja 3. st. pr. Kr., a vjerojatno i duže.³¹

Amfore izvađene s nalazišta prilično se međusobno razlikuju, što je uglavnom posljedica načina njihove proizvodnje (Sl. 12). Jasno se razaznaju, dvije različite varijante, od kojih se jedna odlikuje pravilno oblikovanim obodom kružnog oblika, dok je kod druge obod utisnut prema sredini na mjestima gdje se nalaze ručke. Arheometrijskim analizama pokazalo se kako je prva varijanta bila vjerojatno izrađena u Korintu, dok se druga proizvodila na Krfu.³² Može se stoga zaključiti kako se brod vjerojatno kretao prema sjeveru, jer se potencijalna proizvodna središta amfora tipa Korint B nalaze južnije od novootkrivenog brodoloma.

Similar morphological characteristics between Corinthian type B and Greco-Italic amphora types, most particularly the shape of the body, sometimes created confusion, resulting in the failure to identify amphorae of Corinthian type B at many land sites. This situation has recently changed, and the review and systematic mapping of finds now attests to their presence over a much wider area than previously presumed.³⁰ The Corinthian type B was a particularly successful design based on its longevity, produced from the last quarter of the 6th until the end of the 3rd century BC, or even longer.³¹

The amphorae extracted from the site are quite different from each other, which is mainly due to the method of their production (Fig. 12). However, two different variants are clearly distinguishable, one of which is characterised by a properly shaped circular rim, while the other rim is embossed towards the middle where the handles are located. Archaeometric analyses have shown that the first variant was probably made in Corinth, while the second was produced in Corfu.³² However, we could conclude that the ship was heading north, as all the possible production centres of the

³⁰ Borzić 2017, 7.

³¹ Koehler 1978A; Koehler 1978B.

³² Vidi poglavlje Maje Miše arheometrijskim analizama.

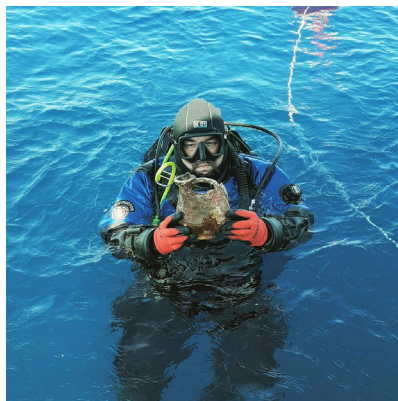
³⁰ Borzić 2017, 7.

³¹ Koehler 1978a and 1978b.

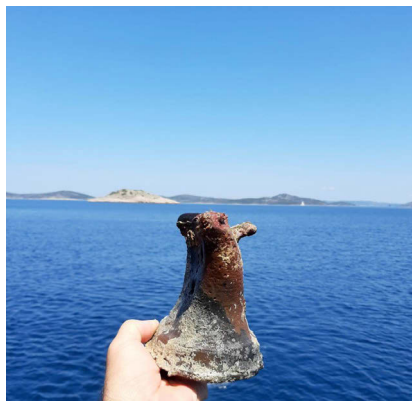
³² See the chapter written by Maja Miše on archaeometric analysis.



Sl. 13. Vrčić izvađen 2015. godine
Figure 13. Juglet recovered in 2015 (Photo: M. Grisonic)



Sl. 14. Ask (askós) u rukama ronioca 2020. godine
Figure 14. Askós in the hands of divers in 2020 (Photo: M. Martinčak)



Sl. 15. Držać za keramičku posudu nad otvorenom vatrom (lásanon), izvađen 2020. godine
Figure 15. Portable kitchen supporter (lásanon) recovered in 2020 (Photo: V. Dorušić)

2. Keramičko posuđe

Osim tereta amfora, na brodu se nalazila i veća količina keramičkih posuda različitih oblika, izrađenih na lončarskom kolu. Tijekom prve dokumentacijske kampanje označeno je sveukupno 74 posude, a još ih je nekoliko naknadno pronađeno. Sve posude podijeljene su u 12 kategorija (slika 182). Najbrojniji primjerci bili su kuglasti vrčevi s bifidnom ručkom ukrašenom Heraklovim čvorom, a na nalazištu je identificirano skoro pedeset cjelovitih ili djelomično očuvanih primjeraka. Njihova količina sugerira nam da su i oni bili dio brodskog tereta.

Među ostalim oblicima keramičkog posuđa ističu se četiri vrčića (Sl. 13), pet skifa, jedan ask (Sl. 14), dvije identične zdjele i raznoliko posuđe za kuhanje poput plitkih *lopádes*, veće posude za kuhanje, tri *lásana* ili prijenosna držača za keramičke posude nad otvorenom vatrom (Sl. 15)³³, jedna *caccábe* (Sl. 183-186), jedna *chytra* (Sl. 214-216), vrč većih dimenzija (Sl. 271-274), jedna *lekáne* (Sl. 266-270) i poklopac ili mali tanjur (Sl. 250-253). S nalazišta je tijekom godina izvađeno još kera-

³³ Vidjeti u Grisonic i Radić-Rossi 2017.

Corinthian type B amphorae remain to the south of the newly discovered site.

2. Ceramic vessels

Other than amphorae cargo, the ship transported wheel-made pottery vessels of various shapes. After the first prospection campaign, a total of 74 items were marked, and several more were subsequently found. The recovered pottery was subdivided into 12 categories. The most numerous were globular jugs with a bifid handle with Heracles' knot, and almost fifty complete or partially preserved examples have been identified at the site. The quantity of these jugs indicates that they were part of the cargo.

Other forms of pottery include four juglets (Fig. 13), five *skyphoi*, one *askós* (Fig. 14), two identical bowls and a variety of cooking pots such as shallow *lopádes*, a bigger cooking pot, three *lásana* or portable kitchen supporters (Fig. 15),³³ a *caccábe* (Fig. 183-186), a *chytra* (Fig. 214-216), a bigger jug (Fig. 271-274), a *lekáne* (Fig. 266-270) and a

³³ See Grisonic and Radić Rossi 2017.

mičkog posuđa, a sve ono pripadalo je vjerojatno inventaru brodske kuhinje.

2.1. Posuđe namijenjeno trgovini: globularni vrčevi s bifidnom ručkom ukrašenom Heraklovim čvorom

Mali globularni vrčevi odlikuju se izvučenim obodom, bifidnom ručkom ukrašenom Heraklovim čvorom i diskoidnom nožicom (Sl. 94). Svi su primjerci sličnih dimenzija, a visina im varira između 14,5 i 16,3 cm. Nekoliko vrčeva ukrašeno je serijom paralelnih okomitih ureza izvedenih na tijelu posude. Sličan ukras primijećen je i na vrčima (Sl.13). Iako do sada nisu pronađene izravne analogije ovim vrčevima, oni naliče posudama tipa *olpai*, ukrašenim vegetabilnim motivima i pronađenima na istočnojadranskim nalazištima od Istre do Crne Gore.³⁴ Deformirani gornji dio jedne *olpe* s bifidnom ručkom ukrašenom Heraklovim čvorom, pronađen u Starom Gradu na otoku Hvaru u slojevima koji se datiraju u kraj 4. ili početak 3. st. pr. Kr., sugerira mogućnost njihove proizvodnje u radionicama antičkog Fara.³⁵ Gornji i donji dijelovi tih posuda bili su uobičajeno premazani smeđom bojom, a najvidljiviji dijelovi trbuha bili su ukrašeni serijom od tri ili više uskih, horizontalno postavljenih listova.³⁶

Olpai s lisnatim ornamentom mogu se povezati s proizvodnjom fine keramike na gornjojadranskom prostoru (*Alto Adriatico*), inače karakteristične za prostor Picenuma, Spine i Adrije od kraja 5. do početka 2. st. pr. Kr.³⁷ Oslikane posude s gornjojadranskog prostora imitirale su crnofiguralnu keramiku; crna boja bila je nanescena pomoću četke na blijedu pozadinu, a njome su se oblikovale ženske glave u profilu i razni floralni i geometrijski motivi.³⁸ Ta proizvodnja obuhvatila je i vrčeve s

lid or small plate (Fig. 250-253). All these probably belong to the inventory of the ship's galley. Over the years, more ceramic utensils have been removed from the site, all of which probably belonged to the ship's kitchen inventory.

2.1. Trading products: globular jugs with a bifid handle with Heracles' knot

These small globular jugs have an out turned rim, a bifid handle with Heracles' knot and a discoid foot (Fig. 94). All examples have similar dimensions, with heights ranging from 14.5 to 16.3 cm. Few jugs (ŽJ.2016.2) were decorated with regularly distanced vertical incisions on the body surface. A similar ribbed decoration is present on the small juglet (Fig. 80-90).

At this point we have not located exact analogies for the jugs from Žirje, but they are similar to the *olpai* with leaves motifs found in Eastern Adriatic sites from Istria to the north to Montenegro to the south.³⁴ A deformed upper part of an *olpe* with a bifid handle with Heracles' knot, discovered in Stari Grad on the island of Hvar in layers dating to the end of 4th/beginning of the 3rd century BC., suggests their possible production in the workshops of ancient Pharos.³⁵ The upper and lower parts of these vessels were usually painted in brown and the most visible parts of the body were decorated with a series of three (or more) thin horizontal leaves.³⁶

Olpai with leaves motifs might be connected to *Alto-Adriatico* fine ware production, characteristic for Picenum and the area of Spina and Adria from the end of the 5th to the beginning of the 2nd century BC.³⁷ The *Alto-Adriatico* painted pots

³⁴ Šešelj 2009, 46, s listom nalazišta na kojima su pronađene takve posude.

³⁵ Vidi Katić 2000.

³⁶ Katić 2000.

³⁷ Kirigin 2000, 119; Šešelj 2009, 39 f.

³⁸ Šešelj 2009, 39.

³⁴ Šešelj 2009, 46 with the list of the sites where these vessels were found.

³⁵ See Katić 2000.

³⁶ Katić 2000.

³⁷ Kirigin 2000, 119 and Šešelj 2009, 39f.

kružnim otvorom i podijeljenim ručkama.³⁹ Vrčevi s bifidnom ručkom ukrašenom Heraklovim čvorom s podmorskog nalazišta kod Žirja naliče vrču s jednom ručkom iz 4. st. pr. Kr., koji bi mogao biti lokalno proizveden, a pronađen je tijekom zaštitnih istraživanja 1996. godine u današnjem Starom Gradu tj. antičkom Faru.⁴⁰ Jedina razlika između spomenutih vrčeva jest ručka koja je na vrču iz Fara običnog trakastog oblika. Nažalost, ne možemo usporediti slikanu dekoraciju tih predmeta jer su se na nalazima sa Žirja samo u rijetkim slučajevima očuvali tragovi boje.

2.2. Keramičko posuđe iz brodske kuhinje

S nalazišta je podignuto nekoliko malih vrčića (Sl. 80-90) i skifa (Sl. 187-196) koji se mogu okarakterizirati kao posude za piće. Svi su oni bili izrađene od blijedo žute fine gline, bez vidljivih primjesa. Vrčići (Sl. 13) su bili ukrašeni paralelnim okomitim urezima koji su možda imitirali karakterističan rebrasti ukras na keramici s crnim premazom iz klasičnog razdoblja.⁴¹ Takvi vrčići uobičajeno su se koristili širom Mediterana.⁴² Vrlo sličan primjerak s rebrastim ukrasom i crno uglačan pronađen je u Faru i datiran u 350.–325. g. pr. Kr.⁴³

Skif (*skyphos*) je posuda za piće s najvećim promjerom na otvoru i s dvije vodoravne drške u obliku petlje. Profiliran je u obliku slova S, s najvećom širinom u gornjem i najmanjom u donjem dijelu, a završava prstenastom nožicom. Svi pronađeni primjerci najvjerojatnije su lokalna (farska?) imitacija Morelove forme 4342, datirane u drugu polovicu 4. st. pr. Kr.⁴⁴ Zelenkasti tragovi na jednom primjerku mogli bi se interpretirati kao imitacija

imitated black-figure pottery; the black colour was applied by brush on the pale background, representing female heads in profile and different floral and geometric motifs.³⁸ The production consisted of jugs with circular mouths and divided handles.³⁹ The shape of the jugs with a bifid handle with Heracles' knot from Žirje is similar to an *Alto-Adriatico* one-handed jug from the 4th century BC found during rescue excavations at Stari Grad (Pharos) in 1996, which might be a local product.⁴⁰ The only difference in shape between the two jugs seems to be the handle, which on the jug from Pharos is a plain vertical ribbon. Unfortunately, we cannot compare the painted decoration, because traces of paint are rarely preserved on the jugs from Žirje.

2.2. Pottery from the ship's galley

Several juglets (Fig. 80-90) and *skyphoi* (Fig. 187-196) were recovered from the site, which can be characterised as drinking vessels. They were made in light yellow refined fabric with no visible inclusions. The juglets were decorated with regularly distanced vertical incisions, which probably imitated the characteristic ribbed decoration applied on black-glazed pottery from the Classical period.⁴¹ These juglets were commonly used across the Mediterranean.⁴² A very similar example with a ribbed decoration, but black burnished, was found in Pharos, dated to 350–325 BC.⁴³

The *skyphos* is a drinking vessel with the widest diameter at the opening and with two horizontal loop handles. It has an S-shaped profile, with a wide and vertical upper part of the body and

³⁹ Kirigin 2000, 119; Šešelj 2009, 39 f.

⁴⁰ Kirigin 2000, 136 f, sl. 4; Kirigin 2006, 116, 76 e.

⁴¹ Vidi npr. Sparkes-Alcott 1970, br. 203, T. 11, sl. 3.

⁴² Vidi Miše 2005, 31, gdje se nalazi bibliografija na tu temu.

⁴³ Kirigin *et al.* 2002, 258, T. 4, b1; Kirigin 2006, 123, 125, sl. 82, b1.

⁴⁴ Morel 1981, T. 128, cat. 4342.

³⁸ Šešelj 2009, 39.

³⁹ Kirigin 2000, 119, Šešelj 2009, 39f.

⁴⁰ Kirigin 2000, 136 f, Fig. 4; Kirigin 2006, 116 Fig 76e.

⁴¹ Examples in Sparkes and Talcott 1970, n. 203, Pl. 11, Fig 3.

⁴² See Miše 2015, 31 with bibliography.

⁴³ Kirigin *et al.* 2002, 258, Pl. 4, b1; Kirigin 2006, 123, 125 Fig. 83, b1.

keramike s crnim premazom, kao što je utvrđeno za slične posude iz Fara, ukrašene zelenim ornamentom i datirane u sredinu 4. st. pr. Kr.⁴⁵

Osim toga pronađen je i jedan potpuno očuvani ask (*askós*), tj. posuda specifičnog oblika koja se koristila za čuvanje i izlijevanje malih količina tekućine poput ulja (Sl. 219-224). Tijelo joj je bilo lagano izduženo u širinu, otvor se mogao nalaziti s jedne ili sa obje strane.

Posude za kuhanje pronađene na nalazištu imale su kružno dno grčke tradicije. Stavljale su se nad vatru, izravno na žar ili pomoću posebnih držača za posude nad otvorenom vatrom (*lásana*) (Sl. 225-243), kojih je pronađeno sveukupno tri komada. Posude za kuhanje bile su proizvedene od crvene gline s brojnim bijelim primjesama. Čini se da se na njima nisu očuvali tragovi uporabe.

Tri *lopádes* (Sl. 197-209), posude s plitkim poklopcima i zaobljenim dnima, korištene su za pirjanje i prženje,⁴⁶ a na jednoj od njih nalaze se dvije horizontalne ručke pričvršćene odmah pod obodom. Najveća otkrivena posuda za kuhanje, *caccábe* (Sl. 183-186), opremljena je dvjema pseudo-bifidnim ručkama (trakaste ručke s dubokim urezom po sredini, koje imitiraju bifidne ručke). *Caccábai* su bile velike posude s dvije ručke i poklopcem, a koristile su se zajedno s posudama zvanim *lopádes* za kuhanje ribljih i mesnih variva.⁴⁷

Veliki vrč (Sl. 271-274) i *chytra* (Sl. 214-218) s jednom ručkom bili su ukrašeni jednom jedinom plitko urezanom linijom na gornjem dijelu posude ili na ramenu. *Chytrai*, visoke posude širokog otvora i kuglastog tijela, s jednom ili dvije ručke, koristile su se za kuhanje mesa i povrća te za pripremu pasiranih mahunarki.⁴⁸ Također je pronađena potpuno očuvana *lekáne*, (Sl. 266-270) velika

a much-shrunken lower part which ends with a ring foot. The two *skyphoi* from Žirje are most likely local (Pharian?) imitations of Morel's form 4342, dated to the second half of the 4th century BC.⁴⁴ The greenish traces on the first piece (Cat. 3) can be interpreted as an imitation of black-glazed pottery, as stated for similar vessels from Pharos, decorated with green ornaments, dating to the middle of the 4th century BC.⁴⁵

In addition, a completely preserved *askós* was found, a vessel of a specific shape that was used to store and pour small amounts of liquid such as oil (Fig. 219-224). Its body was slightly elongated in width, and the spout was at one or both sides.

The cooking pots recovered from the site were formed with a rounded bottom of Greek tradition. They were placed over the fire, either directly onto the coals or suspended on *lásana*, (Fig. 225-243) portable kitchen supporters, three of which were found on the site. The cooking pots were produced in red refractory fabric with numerous white inclusions. It seems that they do not conserve any traces of usage.

Three *lopádes*, shallow-lidded cooking vessels with a rounded bottom used for stewing and frying⁴⁶, are carinated (Fig. 197-209), with the first one having two horizontal handles attached to the wall of the vessel right under the rim. The largest recovered cooking pot, the *caccábe* (Fig. 183-186), has two pseudo-bifid handles (ribbon handles deeply incised in the middle, imitating a bifid handle). *Caccábai* were big two-handled pots with lids and were used along with *lopádes* for cooking fish and meat stews.⁴⁷

A big jug (Fig. 271-274) and a one-handled *chytra* (Fig. 214-218) are decorated with a single shallow groove on the upper part of the wall or on the

⁴⁵ Miše 2005, 31, 33.

⁴⁶ Sparkes-Talcott 1970, 227.

⁴⁷ Bats 1988, 48.

⁴⁸ Bats 1988, 45.

⁴⁴ Morel 1981, Pl. 128, Cat. 4342.

⁴⁵ Miše 2005, 31 and 33.

⁴⁶ Sparkes and Talcott 1970, 227.

⁴⁷ Bats 1988, 48.

kućna posuda s dvije ručke za lakše podizanje,⁴⁹ koja je mogla poslužiti za pranje namirnica ili posluživanje hrane i vina.⁵⁰

S nalazišta su izvađena i dva identična primjerka male zdjele (Sl. 244 and 250) jednakog oblika poput zdjela iz klasičnog razdoblja s Atenske Agore.⁵¹ One se odlikuju konkavnim donjim dijelom koji koljenasto prelazi u okomiti gornji dio, lagano izvučenim obodom i prstenastom nožicom. Na njima nema tragova premaza pa se može zaključiti jesu li bile bez njega ili su možda bile bojane. Takav dizajn posuda bio je jedan od najraširenijih u helenističko doba.⁵² Posljednji primjerak u katalogu nalaza jest poklopac s prstenastom drškom ili mali tanjur s prstenastom nogom (Sl. 250–253), koji se možda mogao koristiti za obje svrhe.

Zaključna razmatranja

Stručni članci o amforama tipa Korint B u Hrvatskoj prilično su rijetki. U posljednje vrijeme ulomci amfora s kopnenih nalazišta postali su predmetom sustavnih studija pa karta rasprostranjenosti nalaza, iako još uvijek nepotpuna, sada već pokriva čitavu dalmatinsku obalu.⁵³ Buduća istraživanja vjerojatno će pridonijeti boljem razumijevanju ekonomske i političke situacije duž istočne obale Jadrana na kraju klasičnog i početkom helenističkog razdoblja.

Na temelju arheometrijskih analiza, amfore s brodoloma kod Žirja potječu iz radionica Korinta i Krfa. Iako još nije jasno u kojoj su luci ukrcane, mogli bismo pretpostaviti da je riječ o antičkom Pharosu ili današnjem Starom Gradu.

Rezultati komparativnih studija oblika raznih tipova posuda idu u prilog pretpostavci o podrije-

shoulder. *Chytrai*, high pots with a wide opening, a globular body and one or two handles, were used for boiling meat and vegetables and for the preparation of mashed legumes.⁴⁸ An entire example of *lekáne*, a large household bowl with two handles for easier lifting⁴⁹, was found (Fig. 266–270). These pots were used for various purposes, from washing of foodstuffs to serving food and wine.⁵⁰

Two identical examples of a small bowl have been recovered (Fig. 244 and 250). They have the same shape as the Classical-type bowl from the Athenian Agora,⁵¹ with a vertical upper wall, an angular transition between the upper and the concave lower part of the wall, and a slightly out-turned rim and ring foot. No traces of slip were found on the two examples, they were either plain or at most painted. This bowl design is one of the most widespread pottery shapes in the Hellenistic period.⁵² Finally, the lid with a knob in the form of a ring foot, or a small plate with ring foot (Fig. 250–253) was also found. This artefact could have been used for both purposes.

Concluding remarks

The bibliography regarding amphorae of Corinthian type B from Croatian archaeological sites is quite limited. Recently, the amphorae shards from land sites are attracting systematic studies, so the distribution map, although not complete, now covers the whole Dalmatian coast.⁵³ Additional research into Corinthian type B amphorae holds great promise to contribute to the understanding of the economic and political situation along the eastern Adriatic coast at the end of the Classical and the beginning of the Hellenistic period.

⁴⁹ Rotroff 2006, 108.

⁵⁰ Rotroff 2006, 109.

⁵¹ Rotroff 1997, 157.

⁵² Rotroff 1997, 156.

⁵³ Borzić 2017, 7.

⁴⁸ Bats 1988, 45.

⁴⁹ Rotroff 2006, 108.

⁵⁰ Rotroff 2006, 109.

⁵¹ Rotroff 1997, 157.

⁵² Rotroff 1997, 156.

⁵³ Borzić 2017, 7.

tlu materijala iz helenističkih radionica antičkog Fara⁵⁴, koje su bile aktivne tijekom druge polovice 4. i početkom 3. st. pr. Kr.⁵⁵ Oblici vrčića s rebrastim ukrasom i skifa mogu se s velikom vjerojatnošću povezati s farskom proizvodnjom, kao i vrčevi s bifidnom ručkom ukrašenom Heraklovim čvorom, koji su uvršteni u brodski teret. Za potvrdu te pretpostavke, međutim, bit će potrebno provesti arheometrijske analize, koje su za sada provedene samo na amforama.

Based on archaeometric analysis, amphorae from the shipwreck near Žirje come from the workshops of Corinth and Corfu. Although it is not yet clear in which port they were loaded, we could assume that it was the ancient Pharos or today's Stari Grad.

The results of the comparative study of shapes of various pottery types found at the newly discovered shipwreck site at the island of Žirje support the hypothesis that the provenance of the material is the Hellenistic kilns of Pharos⁵⁴, active in the second half of the 4th and beginning of the 3rd century BC.⁵⁵ Both the juglet with the ribbed decoration (Fig. 13) and the *skyphoi* (Fig. 190, 193 and 196) can be related to Pharian pottery manufacture. To confirm this assumption, however, it will be necessary to conduct archaeometric analysis, which have so far been conducted only on amphorae.

⁵⁴ Kolonija u Faru je osnovana 385/4 g. pr. Kr. (Kirigin *et al.* 2004, 244).

⁵⁵ Miše *et al.* 2020.

⁵⁴ The colony of Pharos was founded in 385/4 BC (Kirigin *et al.* 2002, 244).

⁵⁵ Miše *et al.* 2020.