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POKAZATELJI POMORSKE TRGOVINE NA ISTOČNOJ OBALI JADRANA NA OSNOVU NALAZA AMFORA IZ DVIJE RIMSKE LUKE

EVIDENCE OF MARITIME TRADE ON THE EASTERN ADRIATIC COAST BASED ON UNDERWATER FINDS FROM TWO ROMAN PORTS IN CROATIA

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Tijekom razdoblja rimske prevlasti na Sredozemlju pomorski su putovi bili važni kanali za razmjenu robe između udaljenih dijelova Carstva. Ti su se putovi mijenjali tijekom stoljeća zbog političkih, gospodarskih i drugih razloga. Cilj je ovog rada predstaviti razlike u fluktuaciji uvoza i izvoza između istočne obale Jadrana, Italije i ostalih rimskih provincija na temelju nalaza amfora u Hrvatskoj iz razdoblja od 1. do 6. stoljeća. Amfore su zasigurno najčešći nalaz u istraživačkim kampanjama podvodne arheologije. Iako su uglavnom služile kao spremnici i ambalaža tijekom prijevoza robe, danas su bogat izvor informacija o teretu određenog broda: o podrijetlu, vrsti i veličini broda, lukama u kojima je pristajao i mnogočemu drugome. Isto tako, mnogo se informacija može doznati proučavanjem skupina amfora iz luka i drugih obalnih nalazišta.

KLJUČNE RIJEČI: rimske luke, Veštar, Janice, pomorska trgovina, tipovi amfora, radionice amfora

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During the period of Roman dominance of the Mediterranean, maritime routes were important channels for the exchange of goods between distant parts of the Empire. These routes have changed over the centuries for political, economic and other reasons. This paper aims to present differences in the fluctuation of imports and exports between the eastern Adriatic coast, Italia and other Roman provinces based on finds of amphorae in Croatia from the 1st to 6th century AD. Amphorae are certainly the most common find in underwater archaeology research campaigns. Although they served mainly as packaging containers for the transport of supplies, they are today a rich source of information about a ship's cargo: point of origin, the type and size of ship, its ports of call and much more. Also, a lot of information can be found out by studying the amphorae assemblages from harbours and other coastal sites.

KEY WORDS: Roman ports, Veštar, Janice, maritime trade, amphorae types, amphorae workshops

Dužina hrvatske obale Jadrana iznosi gotovo 1800 kilometara i stoga možemo očekivati pronalazak raznolikih arheoloških tragova na različitim dijelovima hrvatskog obalnog pojasa. U ovom se radu uspoređuju nalazi iz dvije rimske luke: Pakoštane – Janice blizu Zadra na srednjem Jadranu te Veštar blizu Rovinja na sjevernom Jadranu (sl. 5). Te su dvije luke iz ranog rimskog razdoblja međusobno udaljene oko 200 kilometara. U našoj smo analizi uzeli u obzir i njihovo neposredno okruženje u krugu od pet kilometara, ne bismo li dodatno proširili sliku i objasnili njihovu situaciju.

Na tim su nalazištima pronađeni različiti tipovi amfora, lokalni i uvezeni (afrički, egejski, italski i ostali). Na temelju navedene arheološke građe nastoje se rekonstruirati prometni putovi i intenzitet uporabe različitih tipova amfora koje se mogu pronaći na području u blizini tih dviju luka. Naravno, budući da istraživanje i dalje traje, ovaj rad predstavlja samo preliminarno izvješće o rezultatima iskapanja obavljenih u zadnjih šest godina¹.

LUKA ROVINJ - VEŠTAR

Luka Veštar nalazi se južno od današnjeg grada Rovinja. Taj je lokalitet prirodno vrlo dobro zaštićena uvala, koja danas služi kao privezište za male čamce i jahte. Unatoč činjenici da nam je iz pisanih izvora poznat naziv rimskog naselja *Vistrum* i da se na obalama te uvale često pronalaze brojni slučajni arheološki nalazi, do danas nije provedeno nijedno kopneno istraživanje. Međutim, brojne podvodne arheološke nalaze istražuje Međunarodni centar za podvodnu arheologiju u Zadru u suradnji s Hrvatskim restauratorskim zavodom, Bavarskim društvom za podvodnu arheologiju i Zavičajnim muzejom grada Rovinja 2008. godine pokrenuto je podvodno istraživanje (Bekić 2011a, 2011b, 2012; Bekić, Višnjić, Pešić, Bloier 2011).

Prvi arheološki radovi počeli su detaljnim pregledom uvale i na temelju tog rekognosciranja otvorene su sonde na mjestu velikog rimskog mola na južnoj obali. Istraživanje je otpočelo dvjema sondama veličine 2x2 m (sl. 1). Mol je bio sagrađen u dužini od pedeset metara, od velikih kamenih blokova na čelu i s obje strane, te ispunjen sitnijim kamenom. Istraživanjem se željelo otkriti razdoblje njegove uporabe s obzirom na to da

¹ Ovaj je rad izvorno pripremljen za izlaganje na konferenciji "Per Terram, Per Mare. Proizvodnja i transport rimskih amfora na istočnom Sredozemlju" održanoj u Nikoziji, na Cipru, od 12. do 15. travnja 2013. g., a kasnije je prilagođen za potrebe objavljivanja u Hrvatskoj.

The length of the Croatian Adriatic coast is almost 1,800 kilometres, and we can therefore expect to find a diversity of archaeological evidence at different parts of Croatian seaboard. Finds from two Roman ports – Pakoštane – Janice near Zadar in the central Adriatic and Rovinj – Veštar in the northern Adriatic – are compared in this paper (Fig. 5). These two early Roman ports are located about two hundred kilometres apart. For our analyses we also took into consideration their immediate environs, to a radius of five kilometres around the ports, with the aim of further broadening the picture and explaining their situation.

A diversity of amphorae types, local and imported (African, Aegean, Italic and other), was found at these sites. An effort is being made, based on analysis of the cited archaeological material, to reconstruct the transport routes and intensity of use of different amphorae types that can be found in the area near these two ports. Of course, as the research is continuing, this paper is just a preliminary report on the results of excavations made in the last six years¹.

PORT OF ROVINJ - VEŠTAR

Port of Veštar is situated to the south of the present day city of Rovinj. The site is a naturally very well protected bay that serves today as a mooring site for small boats and yachts. In spite of the fact that we know, from written sources, the name of the Roman settlement of *Vistrum* and that numerous chance archaeological finds are frequently recovered on the shores of the bay, no land-based research has been conducted to date. The numerous underwater archaeological finds, however, have been investigated by the International Centre for Underwater Archaeology in Zadar, which – in collaboration with the Croatian Conservation Institute, the Bavarian Society for Underwater Archaeology and the Museum of Rovinj – launched underwater research in 2008 (Bekić 2011a, 2011b, 2012; Bekić, Višnjić, Pešić, Bloier 2011).

The initial archaeological work began with a detailed inspection of the bay, and based on the results of this survey trenches were excavated at the site of a large Roman pier on the southern shore. Research began with two 2x2 m trenches (Fig. 1). The pier was constructed to a length of fifty metres, made of large stone blocks at the front and

¹ This paper was originally prepared for the Proceedings of the conference "Per Terram, Per Mare. Production and Transport of Roman Amphorae in the Eastern Mediterranean" held in Nicosia, Cyprus, on 12-15 April 2013, and later adapted for needs of Croatian publication.

nalazi na površini morskog dna obuhvaćaju one iz različitih razdoblja, od ranog rimskog razdoblja pa sve do ranog novog vijeka. Zbog debelog sloja urušenja kamenog mola, tek na dubini od dva metra ispod ispune otkrivena je nekadašnja razina morskog dna iz rimskog razdoblja. Istraživanjem tih slojeva otkrilo se da je mol bio u uporabi samo tijekom 1. i 2. stoljeća (Bekić, Višnjić, Pešić, Bloier 2011, 35). Taj je ishod bio iznenađenje jer većina nalaza pronađenih na obali bili su mali arheološki predmeti iz kasnorimskog i bizantskog razdoblja. Također, to ukazuje na činjenicu da su brodovi koji su dovozili robu u luku Veštar tijekom kasnijih stoljeća pristajali na nekoj drugoj lokaciji. Iako je prikupljen raznolik niz zanimljivih nalaza, u ovom ćemo se radu usredotočiti samo na amfore, koje su pronađene u dvije sonde na južnom molu i u luci kao površinski nalazi.



Sl. 1 Ronilac iskopava u sondi A, pored kamenih ostataka rimskog mola u uvallu Veštar (fotografija: R. Mosković).

Fig. 1 Diver digging in the trench A, beside the stone remains of the Roman pier in Veštar (photo: R. Mosković).

Većinu amfora pronađenih u luci Veštar zasigurno treba pripisati tipu Dressel 6B (T. 1: 1-15), a ponekad se nazivaju i "istarske" amfore (Starac 2006, 90). Varijacije među njima posebno su vidljive u obliku oboda - posude kraćeg oboda obično su iz ranijeg razdoblja (T. 1: 1, 2, 5), a one s izduženijim obodima (T. 1: 3, 4, 6, 7, 8, 9, 10) iz kasnijeg (Starac 1994, 145; Bezeczky 1998, 6-9). Također, među tim tipovima amfora zamijetili smo pečate pet različitih proizvođača, od kojih smo prepoznali samo dva, jedan (T. 1: 3) koji je kasnija varijanta pečata *C. Laecanius Bassus* (Bezeczky 1995, sl. 14. 10) i pečat s carskim nazivom *Hadrianvs* (T. 1: 6); takav sličan poznat je iz radionica u Fažani i na nalazištu Loron (Starac 1995, 146, 162, T.12.1). Preostala tri pečata (T. 1: 4, 5, 11) zasad nam nisu poznata, a zbog oštećenosti ne mogu ni biti pročitani u cijelosti.

lateral perimeters and with a fill of smaller crushed rock. The research of this pier was aimed at revealing the period of its use, given that surface finds on the seabed included finds from various periods, from early Roman right up to the early Post Medieval. As a result of the stone pier's thick collapse layer, the former Roman period seabed level was discovered at a depth of two metres of fill. The investigation of these layers revealed that this pier was in use only during the 1st and 2nd centuries AD (Bekić, Višnjić, Pešić, Bloier 2011, 35). This outcome came as a surprise as most of the finds recovered on the shore were small archaeological artefacts of largely late Roman and Byzantine date. This indicates that ships bearing goods to the port of Veštar during subsequent centuries berthed at some other location. Although a diverse array of interesting finds was collected we shall focus in this paper only on the amphorae that were found within the two trenches at the southern pier and in the port as surface finds.

The majority of amphorae found at the port of Veštar should certainly be attributed to the Dressel 6B type (T. 1: 1-15), sometimes referred to as "Istrian" amphorae (Starac 2006, 90). The variations among them are particularly evident in the form of the rim, among which the shorter rimmed vessels are usually earlier (T. 1: 1, 2, 5), while those with more elongated rims (T. 1: 3, 4, 6, 7, 8, 9, 10) are frequently later (Starac 1994, 145; Bezeczky 1998, 6-9). We also observed five different manufacturer's stamps on these types of amphorae among which we recognise only two of them, one (T. 1:3), which is of a later variant of the *C. Laecanius Bassus* stamp (Bezeczky 1995, fig. 14. 10) and a stamp with the imperial name *Hadrianvs* (T. 1: 6) the like of which is known from workshops in Fažana and Loron (Starac 1995, 146, 162, T.12.1). The remaining three stamps (T. 1: 4, 5, 11) are currently unknown to us and, because of their damaged state, cannot be fully read.

Also found at Veštar are sherds of a frequent type of flat-bottomed amphorae, the Forlimpopoli type² (T. 1: 17, 18, 19, 20, 24, 25). The base of T. 1: 24 is of the Forlimpopoli D2 type amphorae (Aldini 1989, fig. 6.2,

² For a group of similar amphorae, characterized by bellied body, flat-bottomed, with long straight neck and flat handles, recent literature sometimes uses the term *Adriatic flat bottom amphorae*. The name is certainly due to its length inappropriate expression, and also does not describe them completely. In the older literature they are called Forlimpopoli amphorae, according to the site where they were defined as a specific type, and this is the term used in this paper. It is clear today that there are more workshops that produced copies of Forlimpopoli amphorae. The local variants (Crikvenica, Plemići...) are named in the text only in case amphorae can be ascribed to the certain workshop.

U uvali Veštar pronađeni su ulomci čestog tipa amfora ravnog dna, Forlimpopoli² (T. 1: 17, 18, 19, 20, 24, 25). Dno amfore T. 1: 24 je dno amfore tipa Forlimpopoli D2 (Aldini 1989, sl. 6.2, 9.3; Aldini 1999, sl. 31) i datirano je u kasno 2. ili sredinu 3. stoljeća. Dno druge amfore (T. 1: 25) pripada tipu Forlimpopoli E (Aldini 1989, sl. 9.6) i datirano je u 2. stoljeće. Obod amfore T. 1: 17 obod je tipa D i datiran je u 2. do 3. stoljeće (Aldini 1989, sl. 6), dok je obod amfore T. 1: 18 tip Forlimpopoli B i datiran je u 1. do 2. stoljeće (Aldini 1989, sl. 3, za klasifikaciju amfora tipa Forlimpopoli vidi Aldini 1989, 1999).

Osim njih, pronašli smo i ulomke amfora tipa Dressel 2-4 (T. 1: 21, 22, 23) (Bezeczky 1987, sl.15, 16; Bezeczky 1994, 16-19, Jurišić 2000, 12-14; Ožanić 2005, 139). Najmanje jedan ulomak je od amfore s obodom u obliku lijevka, tj. tip Portorecanati (T. 1: 16), koji se datira od 1. do 2. stoljeća (Bezeczky 1987, sl. 28). Slični omjeri zastupljenosti tipova amfora na sjevernom Jadranu primijećeni su i u Trstu (Maggi 2007, 120, g. 9), gdje su najbrojnije amfore tipa Dressel 6B, Forlimpopoli, Dressel 2-4 i Portorecanati.

Sljedeća slika (T. 2) iz Veštra prikazuje tipove amfora koji se u Jadranu pronalaze rijetko ili gotovo nikada. Najzanimljiviji je primjerak očuvana polovina amfore cilindričnog tijela s ručkama koje se hvataju tik ispod zaobljenog oboda (sl. 2 a, b; T. 2: 1). U dostupnoj literaturi nismo pronašli nijednu analogiju za ovaj tip amfore. Na temelju njezinih primarnih obilježja slična je nekim tipovima kasnorimskih amfora. Međutim, veštarska amfora pronađena je u arheološki dobro dokumentiranom kontekstu stratigrafije koji ga smješta u 1. stoljeće.

Među ostalim ulomcima amfora ističe se T. 2: 4, koja je prepoznata kao Kretski tip AC2 (Empereur, Kritzas i Marangou 1991, sl. 8; Auriema, Quiri 2004, sl. 5), a datirana je u 1. do 3. stoljeće. Ulomak oboda T. 2: 7 mogao bi biti od amfore Galskog tipa 1 (Leubenheimer 1985, sl. 112), koji je također datiran u isto razdoblje, od

² Za skupinu srodnih amfora koje se odlikuju trbušastim tijelom, ravnim dnom, dugim ravnim vratom i plosnatim ručkama u novijoj literaturi se katkad upotrebljava izraz *Jadranske amfore ravnog dna*, što je svakako zbog dužine neprikladno, a ujedno ih ne opisuje u potpunosti. U starijoj se pak literaturi nazivaju *Forlimpopoli* amforama, po nalazištu na kojem su definirane kao poseban tip, pa taj izraz koristimo i u ovom radu. Danas je jasno da radionica u kojima su se izrađivale kopije amfora Forlimpopoli ima više pa u tekstu lokalnim imenom radionice označavamo samo one za koje možemo sa sigurnošću reći da pripadaju nekom drugom proizvodnom središtu.

9.3; Aldini 1999, fig. 31) and is dated to the late 2nd or mid 3rd century. A second amphora base (T. 1: 25) is of the Forlimpopoli E type (Aldini 1989, fig. 9.6) and dated to the 2nd century. Rim T. 1: 17 is of the D type, dated to the 2nd to 3rd century (Aldini 1989, fig. 6), while rim T. 1: 18 is of the Forlimpopoli B type, dated to the 1st to 2nd century (Aldini 1989, fig. 3, for the classification of Forlimpopoli amphorae see Aldini 1989, 1999).

Along with them we also find sherds of Dressel 2-4 type amphorae (T. 1: 21, 22, 23) (Bezeczky 1987, fig.15, 16; Bezeczky 1994, 16-19, Jurišić 2000, 12-14; Ožanić 2005, 139). At least one sherd is from an amphora with a funnel-shaped rim, i.e. the Portorecanati type (T. 1: 16) dated to the 1st to 2nd century (Bezeczky 1987, fig. 28). Similar ratios of amphorae type representation in the northern Adriatic have also been observed in Trieste (Maggi 2007, 120, g.9) where the most numerous amphorae are of the Dressel 6B, Forlimpopoli, Dressel 2-4 and Portorecanati types.

The next figure (T. 2) from Veštar shows amphora types that are rarely or almost never found in the Adriatic. The most interesting specimen is a preserved half of an amphora of cylindrical body with handles that are grasped immediately below the rounded rim (Fig. 2 a, b; T. 2: 1). We have not found a single analogy for this type of amphora in the available literature. Based on its primary characteristics it resembles some of the types of late Roman amphorae, however the Veštar amphora was found in an archaeological well-documented context the stratigraphy of which places it in the 1st century.

Notable among the other amphorae sherds is T. 2: 4, recognised as a Cretan AC2 type (Empereur, Kritzas and



Sl. 2 a, b Amfora in situ u profilu sonde B te nakon rekonstrukcije (fotografija: M. Pešić, L. Bekić).

Fig. 2 a, b Amphora in situ in the profile of trench B, and after reconstruction (photo: M. Pešić, L. Bekić).

1. do 3. stoljeća. Dno amfore T. 2: 11 moglo bi pripadati Galskom tipu 3, a datirano je u 1. stoljeće (Peacock, Williams 1986, klasa 29, 146, 147). I konačno, pronađen je karakterističan obod amfore tipa Dressel 24 ili Knossos 18 (T. 2: 8), koji je datiran u 2. do 3. stoljeće (Auriema, Quiri 2004, sl. 10).

Što se tiče područja oko luke Veštar, ondje su u krugu od pet kilometara pronađene brojne amfore i ulomci amfora, uglavnom kao sporadični nalazi, čak kao ostaci neistraženih brodoloma ili pak dio tereta izbačenog na lokacijama koje su zaštićene od vjetera i koje su služile kao sidrišta (Starac 2006, Bekić 2012b). Te nam amfore daju širu sliku prijevoza robe uz istarsku obalu. Amfore tipa Lamboglia 2 najčešće su se koristile na istočnoj obali Jadrana u ranijim razdobljima.

Tri amfore među onima koje su ovdje prikazane pripadaju kasnijim tipovima. Prva (T. 2: 13) pronađena je na otoku Veli Piruzi nedaleko od uvale Veštar, a pripada tipu Africana 3a i datira iz 3. do 4. stoljeća (Bonifay 2004, sl. 63, 122). Ostale dvije otkrivene su jedna blizu druge kod rta Guštinja, južno od uvale Veštar. Prva (T. 2: 15) pripada tipu Mid Roman 1A, koji je poznat i kao Agora 254 (Robinson 1959, M 254; Royal 2012, 32), dok bi druga (T. 2: 14) mogla biti kasnija kretska ili korintska amfora.

LUKA PAKOŠTANE - JANICE

Druga luka nalazi se na plaži Janice u Pakoštanima, južno od Zadra. Pakoštanane su gradić s lukom koju štite tri otočića. Rimska luka nalazila se južno od današnjeg naselja. Razlog je tomu dugi podvodni greben koji je tijekom rimskog razdoblja bio na površini i služio kao prirodni lukobran. Veliko područje na zaklonjenoj strani grebena pružalo je brodovima zaštitu od gotovo svih vjetrova.

Istraživanje je 2004. pokrenulo Sveučilište u Zadru, na temelju prvih nalaza koje je prikupio Marko Meštrov. U godinama koje su uslijedile Sveučilištu su se pridružili Hrvatski restauratorski zavod, Međunarodni centar za podvodnu arheologiju u Zadru, Njemački institut za arheologiju i Agencija Han - Vrana (Ilkić, Parica, Meštrov 2008; Bekić et al. 2011; Pešić 2012).

Čini se da se mol s kojega je obavljan utovar i istovar robe nalazio u južnom dijelu ove neobične uvale. Njegova točna konstrukcija i dimenzije trenutačno nam nisu poznati, ali izgleda da je izgrađen tehnikom kazeta,

Marangou 1991, fig. 8; Auriema and Quiri 2004, fig. 5), dated to the 1st to 3rd century. The rimsherd T. 2: 7 could be from a Gaulish 1 type amphora (Leubenheimer 1985, fig. 112), also dated to the same period, from the 1st to 3rd century. Amphora base T. 2: 11 could be of Gaulish type 3, dated to the 1st century (Peacock, Williams 1986, class 29, 146, 147). And finally there is a characteristic rim of a Dressel 24 or Knossos 18 amphora (T. 2: 8) that is dated to the 2nd to 3rd century (Auriema, Quiri 2004, fig. 10).

With regard to the area around the port of Veštar, numerous amphorae and their sherds were found within a five kilometre perimeter, for the most part as sporadic finds or even as the remains of unexplored shipwrecks or part of cargos ejected at sites sheltered from winds used as anchorages (Starac 2006, Bekić 2012b). These amphorae offer us a broader picture of the transport of goods along the Istrian coast. Amphorae of the Lamboglia 2 type were most frequently used in east Adriatic coast in earlier periods.

Three of the amphorae depicted here are of later types. The first (T. 2: 13) was found at Veli Piruzi island not far from Veštar, and is of the Africana 3a type, dated from 3rd to 4th century (Bonifay 2004, fig. 63, 122). The other two were found near one another off Cape Guštinja, to the south of Veštar. One (T. 2: 15) is of the Mid Roman 1A type, also known as the Agora 254 (Robinson 1959, M 254; Royal 2012, 32), while the other (T. 2: 14) may be a late Cretan or Corinthian amphora.

PORT OF PAKOŠTANE - JANICE

The other port is located on Janice beach at Pakoštanane, to the south of Zadar. Pakoštanane is a small town with a port protected by three islets; the Roman harbour was situated to the south of the present day town. The reason for this is a long underwater reef that during the Roman period was at the surface and served as a natural breakwater. The large area to the lee side of the reef provided a shelter for ships from almost all winds.

Research was launched in 2004 by the University of Zadar on the basis of the first finds collected by Marko Meštrov - in the years that followed the university was joined by the Croatian Conservation Institute, the International Centre for Underwater Archaeology in Zadar, the German Archaeological Institute and by the Han-Vrana Agency (Ilkić, Parica, Meštrov 2008; Bekić et al. 2011; Pešić 2012).

zabijanjem drvenih pilona koji su na mjestu držali ispunu od usitnjenog kamenja. Od 2004. g. istražuju se četiri sonde veličine 2x2 metra, ali u njima nisu pronađeni ostaci drvenih pilona *in situ*. Zabijeni piloni na izvornim položajima nisu utvrđeni, no nalazimo ih raštrkane po morskom dnu (sl. 3), kao i veliku količinu usitnjenog kamenja, tako da ne možemo iscrutati točan oblik mola.



Sl. 3 Zaoštreni drveni pylon kod ruševina rimskog mola na plaži Janice (fotografija: M. Pešić).

Fig. 3 Sharpened wooden pylon at the ruins of roman pier at Janice (photo: M. Pešić).

Kulturni sloj u tim je sondama relativno tanak, oko pola metra u dubinu, nakon čega slijedi kamen živac. U svim sondama u tih je pedeset centimetara kulturnog sloja prikupljen vrlo bogat repertoar arheoloških nalaza koji se mogu datirati samo u razdoblje od 1. do početka 3. stoljeća. U neposrednoj blizini na obali postoje neistraženi ostaci rimske *ville rustice* – čiji su stanovnici vjerojatno koristili ovu luku – i izvor vode za pomorce. Međutim, čini se da je ova luka različitim robom opskrbljivala i veće gradove u obližnjem zaleđu, *Asseriju* i *Blandonu*, ali to još nije dovoljno istraženo. S obzirom na to da su naselja *Asseria* i *Blandona* zasigurno također funkcionirala tijekom kasnog rimskog razdoblja, ponovno smo – kao i u slučaju luke Veštar i luke u Zatonu³ – suočeni s pitanjem gdje su pristajali trgovački brodovi koji su tim vodama plovili od 3. do 7. stoljeća ako se u ova tri primjera lučkih konstrukcija mogu naći samo nalazi iz 1. i 2. stoljeća? Na obali i u zaleđu tih luka nalazimo obilje uvezenih kasnorimskih i ranobizantskih proizvoda, ali za sada bez kontinuiteta uporabe ranorimskih molova.

U slučaju amfora s nalazišta Janice situacija je donekle različita od one u luci Veštar. Iako je zbog općenito male veličine uzorka još prerano za objavljivanje statističkih

The pier from which goods were loaded and unloaded was located – it appears – in the southern section of this unusual bay. Its exact structure and dimensions are currently unknown to us, but it does appear that it was constructed in the cassette technique, by ramming in wooden pylons that held in place a fill of broken rock. Four 2x2 metres trenches have been investigated since 2004, but the remains of wooden pylons have not been found *in situ* in them. Rammed pylons in original positions have not been identified, but are rather found scattered along the seabed (Fig. 3), as is a large quantity of broken rock, such that we cannot make out the exact outline of the pier.

The culture layer is relatively thin in these trenches, about a half metre in depth, followed by bedrock. A very rich repertoire of archaeological finds was collected in all of the trenches within these fifty centimetres of culture layer that can be dated only to the period from the 1st to early 3rd century. On the shore, in the immediate vicinity, are the uninvestigated remains of a Roman *villa rustica* – which likely used this harbour – and a source of water for mariners. It seems, however, that this port also supplied larger towns in the nearby hinterland, *Asseria* and *Blandona* with different goods, but this matter is still not investigated enough. Given that the settlements of *Asseria* and *Blandona* certainly also functioned during the late Roman period we are again – as in the case of port Veštar and the port at Zaton³ – faced with the question of where merchant ships plying these waters in the period from the 3rd to 7th century docked, if these three examples of harbour structures yield only finds from the 1st and 2nd centuries? We find an abundance of imported late Roman and early Byzantine products on the shore and the hinterland of these ports, but – for the moment – no continuity in the use of early Roman piers.

Regarding the amphorae from port Janice we find a somewhat different situation than that at port Veštar. And while it is too early, because of the overall small size of the sample, to publish statistical data, it can be said that amphorae of the Forlimpopoli type are predominant at Janice. Amphorae of the Dressel 6B type account for only a minor portion.

The first two amphorae (Fig. 4; T. 3: 1, 2) are of the Forlimpopoli type, but it is, however, evident that they originate from different workshops. Amphora T. 3: 2, of yellowish, softer fabric, may originate from an Italic workshop in Forlimpopoli. The other, T. 3: 1, of reddish

³ Informacije iz izlaganja Dina Tarasa u Nikoziji 2013.

³ Information from Dino Taras presentation in Nicosia 2013.

podataka, može se reći da su amfore na nalazištu Janice pretežno tipa Forlimpopoli; one tipa Dressel 6B čine samo mali dio.

Prve su dvije amfore (sl. 4; T. 3: 1, 2) tipa Forlimpopoli, ali očito je da potječu iz različitih radionica. Amfora T. 3: 2, žučkaste je i mekše strukture, i možda potječe iz italske radionice u samom Forlimpopoliju. Druga amfora (T. 3: 1) crvenkaste je i tvrđe strukture, i slična je amforama iz nedavno otkrivene lokalne radionice Seksta Metilija Maksima (*Sextus Metilius Maximus*) u Crikvenici (Lipovac-Vrkljan 2011, sl. 8, T.1. 6). Još jedan gornji dio amfore s nalazišta Janice (nije prikazana) pripada tom tipu, a postoji mogućnost da potječe iz radionice u uvali Plemići. Dno T. 3: 3 zasigurno je isto tako pripadalo amfori tipa Forlimpopoli.

Na nalazištu Janice dobro je zastupljen i tip Portorecanati, s najmanje pet ulomaka (T. 3: 5, 7, 10, 11, 12) koji se mogu datirati u 1. do 2. stoljeće (Bezeczky 1987, sl. 28). Četiri ulomka (T. 3: 4, 6, 8, 9) mogu se prepoznati kao tip Dressel 2-4 (Bezeczky 1987, sl. 15, 16). Nađeno je i jedno dno (T. 3: 13) koje vjerojatno pripada tipu Dressel 6B (Bezeczky 1987, sl. 21, 148).

Na tabli 4. prikazano je nekoliko tipova amfora koje nisu toliko česte u hrvatskom dijelu Jadrana. Među njima vrijedi istaknuti kretsku amforu koja je očuvana u dva velika dijela (T. 4: 9, 10), i to Kretskog tipa AC1, koji je poznat i kao Agora 197 (Robinson 1959, G197; Marakoulaki et al. 1989, sl. 10.a). Trbuh amfore koji se sužava prema dolje (T. 4: 7) odgovara donjem dijelu amfore tipa Kapitän 1 (Caravale, Toffoletti 1997, 167).

Različite amfore mogu se pronaći na sidrištima i lokacijama mogućih brodoloma oko Pakoštana i tamošnje luke iz rimskog razdoblja na plaži Janice. Radi se uglavnom o amforama tipa Lamboglia 2 u ranijim razdobljima, dok su u onim kasnijima češći afrički i istočnosredozemni tipovi (Pešić, Meštrović 2012a, 2012b).

RADIONICE AMFORA NA ISTOČNOJ OBALI JADRANA

U analizi pojavnosti lokalnih tipova amfora u rimskim lukama u Hrvatskoj potrebno je navesti i njihovo moguće podrijetlo. Dosad su u Hrvatskoj i Sloveniji potvrđena četiri kompleksa radionica, iako se u literaturi ponekad navodi mogući veći broj (Červar Porat, Antenal, Monforno, u: Džin 2011, 68, 70, 71; Perariol, Neblo Borg, u: Vidrih-Perko, Župančić 2011, 155-158; Podšilo,

and harder fabric, resembles amphorae from the recently discovered local workshop of *Sextus Metilius Maximus* in Crikvenica (Lipovac-Vrkljan 2011, fig. 8, T.1. 6). Another upper part of amphora from Janice (not illustrated) belongs to this type, and there is a chance that it originates from the Plemići workshop. Base T. 3: 3 is certainly also from a Forlimpopoli amphora.



Sl. 4 Usporedba amfora tipa Forlimpopoli: lijeva je iz Crikvenice, a desna iz izvornih radionica u Forlimpopoliju (fotografija: L. Bekić).

Fig. 4 Comparison of the Forlimpopoli types amphorae. The one to the left is from Crikvenica and the one to the right is from the original Forlimpopoli workshops (photo: L. Bekić).

The Portorecanati type is also well represented at Janice, with at least five sherds (T. 3: 5, 7, 10, 11, 12) that can be dated to the 1st to 2nd century (Bezeczky 1987, fig. 28). Four sherds (T. 3: 4, 6, 8, 9) are recognisable as the Dressel 2-4 type (Bezeczky 1987, fig. 15, 16). And finally there is one base (T. 3: 13) that likely is of the Dressel 6B type (Bezeczky 1987, fig. 21, 148).

Depicted on table 4 are several types of amphorae that are not common in the Croatian part of the Adriatic. Noteworthy among these is a Cretan amphora preserved in two large sections (T. 4: 9, 10) of the Cretoise AC1 type, also known as the Agora 197 (Robinson 1959, G197; Marakoulaki et al. 1989, fig. 10a). A downward tapering amphora belly (T. 4: 7) corresponds to the lower section of a Kapitän I type amphora (Caravale, Toffoletti 1997, 167).

Various amphorae can be found at anchorages and at the locations of possible shipwrecks around Pakoštane and its Roman period harbour at Janice beach. These are for the most part amphorae of the Lamboglia II type in earlier periods, while African and eastern Mediterranean

Lopar, u: Lipovac-Vrkljan 2009, 453-454). Buduća istraživanja zasigurno će biti usmjerena na proučavanje brojnih novih, većih i manjih radionica koje treba locirati.

Najsjevernija poznatija radionica na hrvatskim obalama Jadrana je Loron blizu Poreča (Gregorutti 1886; Maggi, Marion 2011), gdje su otkriveni tragovi proizvodnje manjeg posuđa i većih količina amfora tipa Dressel 6B, a možda i amfora sličnih tipu Forlimpopoli. Poznati su neki pečati proizvođača iz tog nalazišta, a posebno su česti oni koji nose ime *Calvia Crispinilla*.

Druga velika radionica nalazila se u jezgri današnjeg gradića Fažane. Ta je radionica već dugo poznata arheolozima (Gnirs 1910), a nedavna su istraživanja usmjerena na peći i vodene bazene koji su se upotrebljavali tijekom proizvodnje (Bulić, Koncani-Uhač, 2010). Među ostalim proizvodima, amfore tipa Dressel 6B nastajale su ondje u velikim količinama, a vlasnici radionice tijekom mnogo godina bili su moćni *C. Laecanius Bassus* i njegovi nasljednici (Bezeczky 1998, 14-16).



Sl. 5 Karta sjeveroistočnog Jadrana; okrugle točke pokazuju dvije radionice koje su proizvodile amfore, uglavnom tipa Dressel 6B; pravokutni simboli pokazuju položaj dviju luka iz ranog rimskog razdoblja koje su obrađene u ovom radu; trokutasti simboli pokazuju radionice koje su uglavnom proizvodile amfore ravnog dna slične tipu Forlimpopoli (označio: M. Pešić).

Fig. 5 A map of the north-eastern Adriatic. The round points indicate two workshops that manufactured amphorae, mostly of the Dressel 6b type, the rectangular symbols indicate the positions of the two early Roman harbours that are treated in this paper, while the triangular symbols indicate workshops that for the most part manufactured flat-bottomed amphorae similar to the Forlimpopoli type (drawn by: M. Pešić).

types are frequent in later periods (Pešić, Meštrović 2012a, 2012b).

AMPHORAE WORKSHOPS ON THE EASTERN ADRIATIC COAST

In analysing the prevalence of local amphora types at Roman ports of Croatia the possible provenance of these amphorae should also be indicated. To date only four workshop complexes have been confirmed in Croatia and Slovenia, although a possibly greater number of these workshops are sometimes cited in literature (Červar Porat, Antenal, Monforno in Džin 2011, 68, 70, 71; Perariol, Neblo Borg in Vidrih-Perko, Župančić 2011, 155-158; Podšilo, Lopar in Lipovac-Vrkljan 2009, 453-454). Future research will certainly be aimed at investigating numerous new, larger and smaller workshops that have to be located.

The northernmost well known workshop on the Croatian shores of the Adriatic is Loron near Poreč (Gregorutti 1886; Maggi, Marion 2011), where traces were discovered of the manufacture of smaller vessels and amphorae of the Dressel 6B type in large quantities, and perhaps also of amphorae similar to the Forlimpopoli type. We know of some manufacturer's stamps from this site, especially frequent being those bearing the name *Calvia Crispinilla*.

Another major workshop was located at the core of the present day small town of Fažana. This workshop has long been known to archaeologists (Gnirs 1910), and recent research has been focused on the kilns and water pools used during manufacture (Bulić, Koncani-Uhač, 2010). Amphorae of the Dressel 6B type, among other products, were manufactured here in great quantity, and the workshop was the property of the powerful *C. Laecanius Bassus* and his heirs over a period of many years (Bezeczky 1998, 14-16).

Both workshops are situated in the vicinity of Veštar, one around 15 km to the south and the other around 30 km to the north, and it is thus evident that the inhabitants of Veštar procured the bulk of the packaging for their products from these workshops.

Much farther to the south are the other two archaeologically confirmed workshops. They are situated about 140 and about fifty kilometres respectively from the port at Janice in Pakoštane. The first is located in the small town of Crikvenica, at a site known as Igralište, where the remains

Obje radionice nalaze se nedaleko od nalazišta Veštar, jedna 15-ak km južno, a druga 30-ak km sjeverno, i stoga je jasno da su stanovnici Veštra većinu ambalaže za svoje proizvode nabavljali iz tih radionica.

Južnije se nalaze druge dvije arheološki potvrđene radionice. Smještene su oko 140, odnosno oko 50 kilometara od luke na nalazištu Janice u Pakoštanima. Prva se nalazi u Crikvenici, na nalazištu Igralište, gdje su otkriveni ostaci lončarskih peći i obilje otpada iz radionice. Ondje su se proizvodile amfore tipa Forlimpopoli, a otkrivene su i brojne podvarijante karakteristične za ovu radionicu (Lipovac-Vrkljan 2011, T.1, T.2). Ime vlasnika ove radionice, *Sextus Metilius Maximus*, potvrđeno je pečatima proizvođača na crjepovima.

Radionica koja je posljednja otkrivena nalazi se u uvali Plemići na području sela Ljubač. Iako je istraživanje, koje predvodi Mato Ilkić sa Sveučilišta u Zadru, tek nedavno započelo, prvi nalazi ukazuju na postojanje naslaga otpada iz radionice (sl. 6) visokog do deset metara na obali, među kojima prepoznajemo ostatke brojnih amfora s ravnim dnom. Sudeći po njihovim elementima, i ovdje se radi o amforama nalik na tip Forlimpopoli, iako još treba pronaći dovoljan broj čitavih primjeraka ne bi li se prikazala cjelovita amfora. Na tabli 5 prikazani su prvi ulomci amfora pronađeni u otpadu iz radionice u uvali Plemići.

Daljnijim istraživanjima dobit ćemo preciznije tipološko određenje i dataciju te razjasniti pitanje njihove distribucije na Jadranu i dalje. Također, važno je istražiti namjenu tih novih tipova ili varijanti amfora, jer znamo da su se čak i oni bolje dokumentirani upotrebljavali za transport različite robe ili pak nije poznato što su sadržavali (npr. tipovi Portorecanati, Bezeczky 1994, 112). Pitanje je, ako je tip Dressel 6B upotrebljavan isključivo za maslinovo ulje (Bezeczky 1994, 99), koji su onda korišteni za lokalno proizvedeno vino i druge proizvode?

Zasad možemo na zadovoljavajući način opravdati distribuciju lokalnih tipova blazinom radionica – jasno je da je na lokaciji Veštar najprisutniji tip amfore Dressel 6B, dok je tijekom istog razdoblja u luci Janice najčešće u upotrebi tip Forlimpopoli⁴.

of pottery firing kilns and an abundance of workshop waste were discovered. The amphorae manufactured here were of the Forlimpopoli type and reveal numerous sub-variants characteristic of this workshop (Lipovac-Vrkljan 2011, T.1, T.2). The name of the proprietor of this workshop has been confirmed by manufacturer's stamps on roof tiles as *Sextus Metilius Maximus*.

The latest workshop to be discovered is at Plemići bay in the area of the village of Ljubač. Although research – led by Mato Ilkić of the University of Zadar – has only recently begun, the first finds indicate that there are deposits of workshop waste (Fig. 6) up to ten metres high on the shore among which we recognise the remains of numerous flat-bottomed amphorae. By their elements these too are similar to the Forlimpopoli type, although a sufficient number of complete samples has yet to be found to show an integral amphora. Table 5 shows the first sherds of amphorae excavated from the workshop waste at Plemići bay.



Sl. 6 Sakupljanje ulomaka u otpadu iz radionice u uvali Plemići (fotografija: M. Pešić).

Fig. 6 Collecting amphorae sherds among the workshop waste in Plemići bay (photo: M. Pešić).

Further research will indicate their more precise typological determination and dating and shed light on the issue of their distribution in the Adriatic and further afield. It is also important to investigate the purpose of each of these new amphora types or variants, as we know that even the better documented types were used for the transport of different goods and that often their content remains unknown (e.g. Portorecanati types, Bezeczky 1994, 112). If the Dressel 6B type was used for olive oil exclusively (Bezeczky 1994, 99), which containers were then used for the locally produced wine and other products?

⁴ Slična se distribucija može vidjeti u luci u Zatonu, 50 km od Pakoštana (informacije iz izlaganja Dina Tarasa u Nikoziji 2013.).

Međutim, to nije posljedica samo upotrebe proizvoda lokalnih radionica, jer su amfore tih tipova prevožene i sa zapadne obale Jadrana. Iz proučavanja sastava gline i podvarijanti tih tipova jasno je da na istočnoj obali Jadrana postoje brojne amfore tipova Dressel 6B, Forlimpopoli, Dressel 2-4 i Portorecanati, koje potječu iz radionica na talijanskom kopnu. Možemo primijetiti da na lokacijama luka koje smo analizirali postoje dokazi i o lokalnim i o uvezenim amforama istih tipova. Na kraju, možemo reći da su najčešće upotrebljavane amfore na najsjeveroistočnijem dijelu Jadrana tijekom 1. i 2. stoljeća one tipa Dressel 6B, a slijede tipovi Forlimpopoli, Dressel 2-4 i Portorecanati. U istom su razdoblju u središnjem dijelu istočnog Jadrana najčešće amfore tipa Forlimpopoli, iza njih tipovi Portorecanati i Dressel 2-4, a na kraju tip Dressel 6B.

Tih tipova amfora dosad nije mnogo pronađeno u teretima potopljenih brodova na istočnom Jadranu. Jedna pošiljka s teretom amfora tipa Portorecanati otkrivena je na nalazištu Unije-Školjić, a druga s teretom amfora tipa Forlimpopoli kod otoka Ilovik i Gušteranski te možda na nalazištu Pula-Verudica (Jurišić 2000, 14, 20, 21, 22). Donedavno nisu bili poznati brodolomi u kojima je bilo amfora tipa Dressel 6B pa, na temelju toga, Jurišić navodi da su te amfore upotrebljavane samo za transport na kratkim pomorskim putovima od Istre do sjeverne Italije (Jurišić 2000, 11, 12). Međutim, nedavno je otkriveno da je u brodolomu kod hridi Sika blizu Ližnjana bilo i amfora tipa Dressel 6B (Bekić 2012b, 589, T.4:5). Situacija s amforama tipa Dressel 2-4 je drukčija, nalazimo ih u svim varijacijama podrijetla na više od deset nalazišta brodoloma na istočnom Jadranu (npr. Ilovik, Svetac, Plavac, itd.; Jurišić 2000, 13, 14). Nažalost, do danas još uvijek nemamo dokaze da je u tim brodolomima bilo i amfora lokalne, istočnojadranske proizvodnje.

Osim znatne lokalne proizvodnje, na sjevernom i središnjem Jadranu nalazimo brojne amfore uvezene iz udaljenih područja tijekom 1. i 2. stoljeća. U to je vrijeme dominirao uvoz iz egejskog područja, Krete i Galije. U kasnom rimskom razdoblju svjedočimo prestanku lokalne proizvodnje i gotovo potpunoj dominaciji amfora sjevernoafričkih tipova, uz istočnosredozemne tipove, sve do ranog bizantskog razdoblja (npr. Tarsatica, Višnjić 2009, 134). Ta je revolucionarna promjena u opskrbi jadranskog područja tijekom kasnog rimskog razdoblja već objašnjena (Glicksman 2005, Kingsley 2008). Domaća proizvodnja na istočnoj obali Jadrana tijekom tog je razdoblja gotovo u potpunosti prestala ili nam ostaje nepoznata.

For now we can satisfactorily justify the distribution of local types by the proximity of workshops – it is evident that the most prevalent amphora type at Veštar is the Dressel 6B, while at the port of Janice the Forlimpopoli type amphora is most frequently in use during the same period⁴.

However, this is not only as a result of the use of the produce of local, nearby workshops, because amphorae of these types are also transported from the western Adriatic coast. In observing the fabric and sub-variants of these types it is evident that there are numerous amphorae of the Dressel 6B, Forlimpopoli, Dressel 2-4 and Portorecanati types on the eastern Adriatic coast that originate from workshops on Italian soil. We can see that at the port sites we have analysed, there is evidence of local and imported amphorae of the same types. In closing we can say that the most frequently used amphorae in the far northeastern Adriatic during the 1st and 2nd centuries is the Dressel 6B type, followed by the Forlimpopoli, Dressel 2-4 and Portorecanati types. Most frequent in the central part of the eastern Adriatic during the same period are amphorae of the Forlimpopoli type, followed by the Portorecanati, Dressel 2-4 and lastly the Dressel 6B types.

These types of amphoras are not common in the cargos of sunken ships on the eastern Adriatic. One consignment with a cargo of Portorecanati amphorae was discovered at the Unije-Školjić site, and another with a cargo of Forlimpopoli amphorae off the islands of Ilovik and Gušteranski and perhaps at Pula-Verudica (Jurišić 2000, 14, 20, 21, 22). There were, until recently, no shipwrecks with Dressel 6B amphorae, and based on that, Jurišić cites that these amphorae were used only for transport on short maritime routes from Istria to northern Italy (Jurišić 2000, 11, 12). Recently, however, there was a discovery of a shipwreck with Dressel 6B amphorae at Sika rock near Ližnjan (Bekić 2012b, 589, T.4:5). The situation with cargos of Dressel 2-4 amphorae is different, found in all provenance variations at over ten shipwreck sites in the eastern Adriatic (e.g. Ilovik, Svetac, Plavac, etc.; Jurišić 2000, 13, 14). Unfortunately, to this day we still do not have evidence that any of these shipwrecks contained amphorae of local eastern Adriatic production.

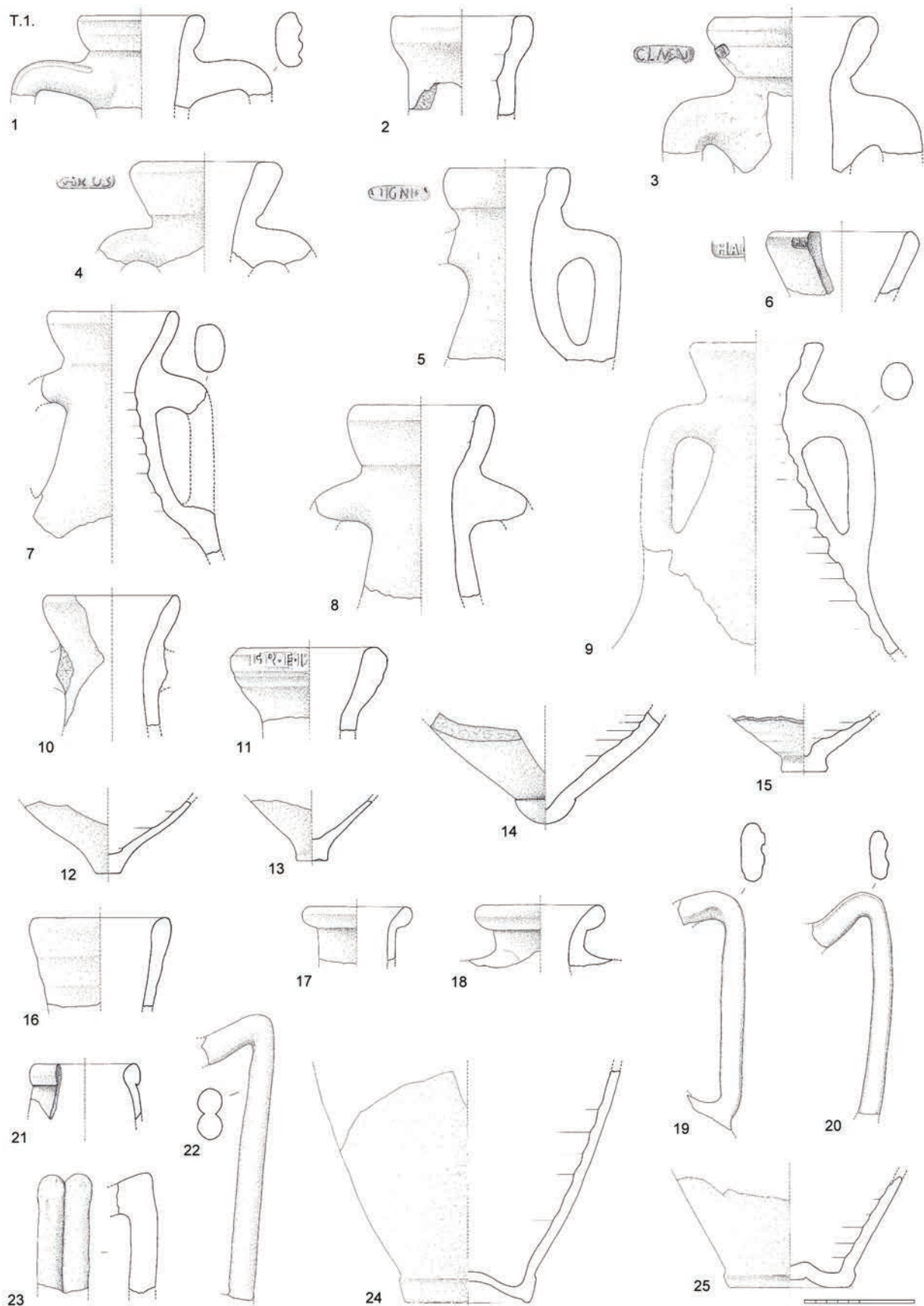
Beside substantial local production, numerous amphorae imported from distant regions are found in both the northern and central Adriatic, during the 1st and 2nd

⁴ Similar distribution can be seen at the harbour at Zaton, fifty km from Pakoštane (information from Dino Taras presentation in Nicosia 2013).

Ova kratka analiza skupina amfora razdoblja ranog Carstva, koja potječe iz nedavno istraživanih rimskih luka, predstavlja preliminarno izvješće i temelj za daljnja proučavanja skupina amfora s hrvatskih podvodnih nalazišta, koja u načelu tek počinju. Postoji još mnogo toga za istražiti, poput pravog podrijetla svakog primjerka amfore, s obzirom na činjenicu da su neke od radionica tek otkrivene (npr. nalazište Plemići) ili čekaju da budu otkrivene. Također, broj valjano dokumentiranih skupina amfora s hrvatskih nalazišta je još uvijek toliko mali da je količina podataka dostupna za analizu daleko od onoga što je potrebno za značajnije sinteze.

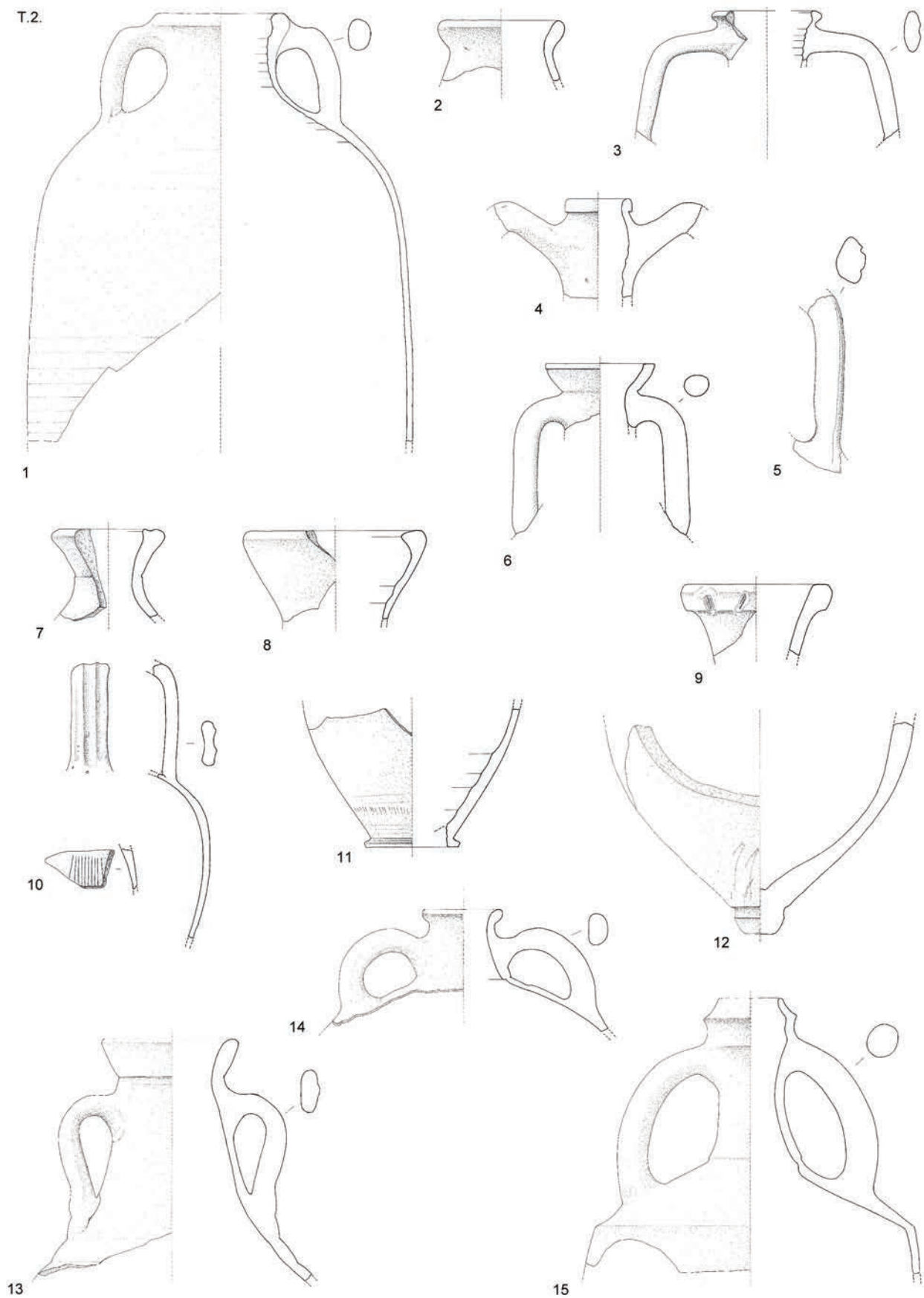
centuries. At that time imports dominated from Aegean areas, Crete and Gaul. The late Roman period saw discontinuation of local production and an almost complete predominance of northern African amphorae types, along with eastern Mediterranean types, up to the early Byzantine period (e.g. Tarsatica, Višnjić 2009, 134). This revolutionary change in the supply of the Adriatic area during the late Roman period has already been explained (Glicksman 2005, Kingsley 2008). Domestic, eastern Adriatic production ceased almost entirely during this period or remains unknown to us.

This short analysis of amphorae assemblages from the recently excavated Roman ports of the Early Imperial period serves as a preliminary report and a base for further research of amphorae assemblages from Croatian underwater sites, which is generally, in fact, just beginning. There is still much more to be investigated, such as the proper origin of each piece of amphora, considering the fact that some of the workshops are just recently discovered (e.g. Plemići site) or waiting to be discovered. Also, the number of well published amphora assemblages from Croatia is still so low that the amount of data to be analysed is still far from what is needed to make proper evaluations.



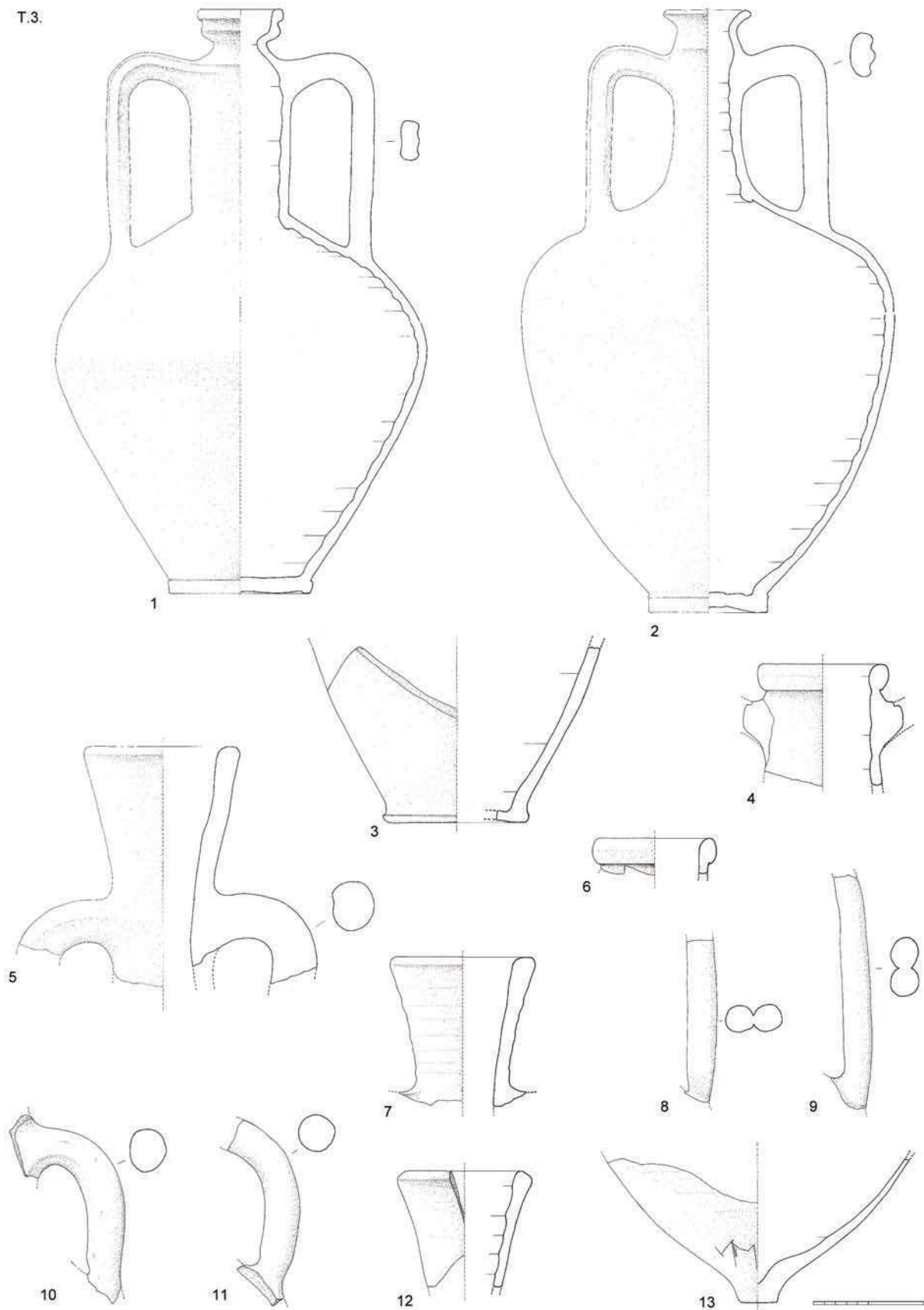
T.1 Amfore tipa Dressel 6B i drugih jadranskih tipova iz luke Rovinj-Veštar (crteži: L. Bekić)

T.1 Amphorae of the Dressel 6B type and other Adriatic types from the port at Rovinj-Veštar (drawings by L. Bekić)



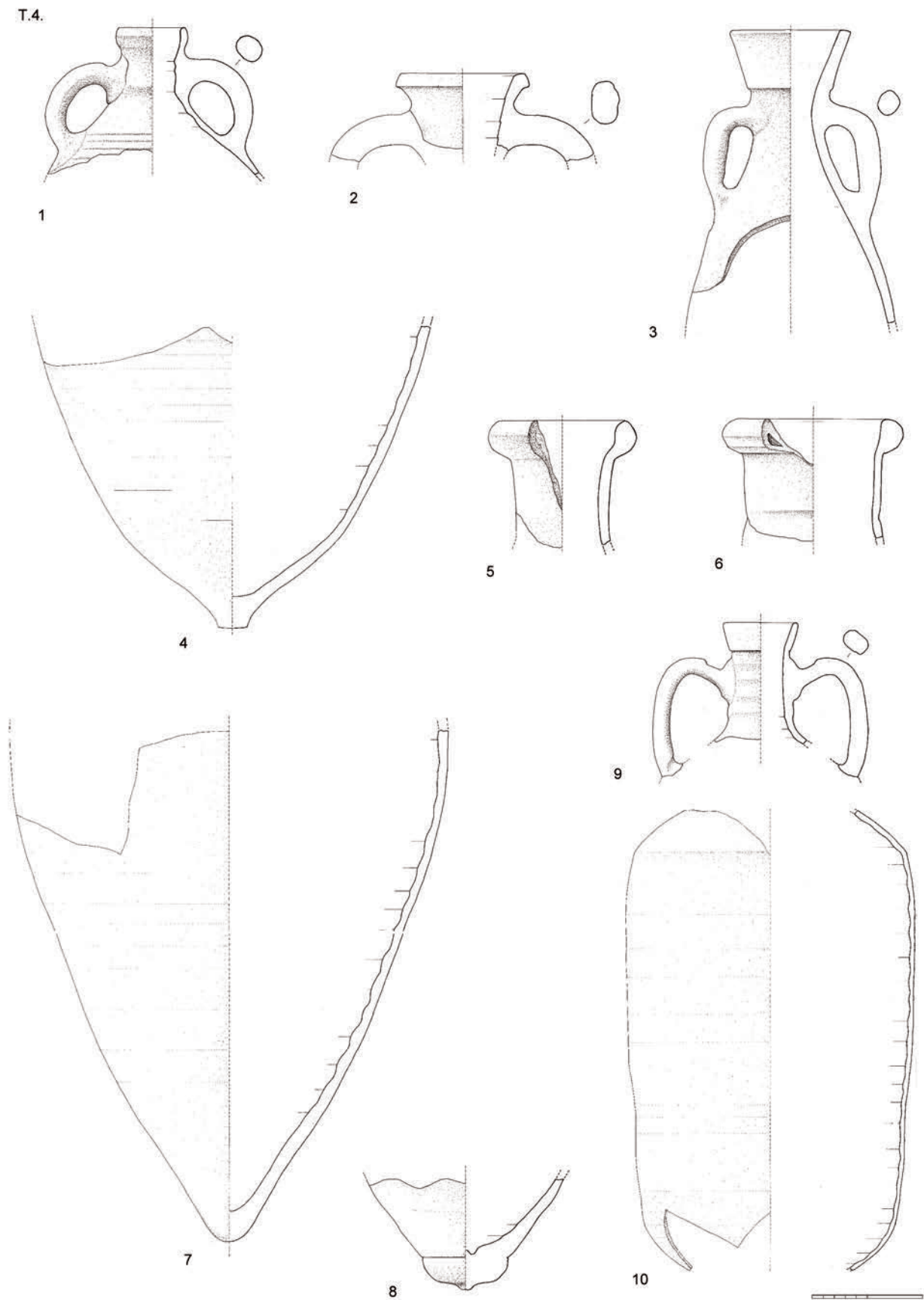
T.2 Amfore drugih tipova iz luke Rovinj-Veštar i njezinog neposrednog okruženja (crteži: L. Bekić)
 T.2 Amphorae of other types from the port at Rovinj-Veštar and its immediate environs (drawings by L. Bekić)

T.3.



T.3 Amfore tipa Forlimpopoli i drugih jadranskih tipova iz luke Pakoštane-Janice (crteži: L. Bekić)

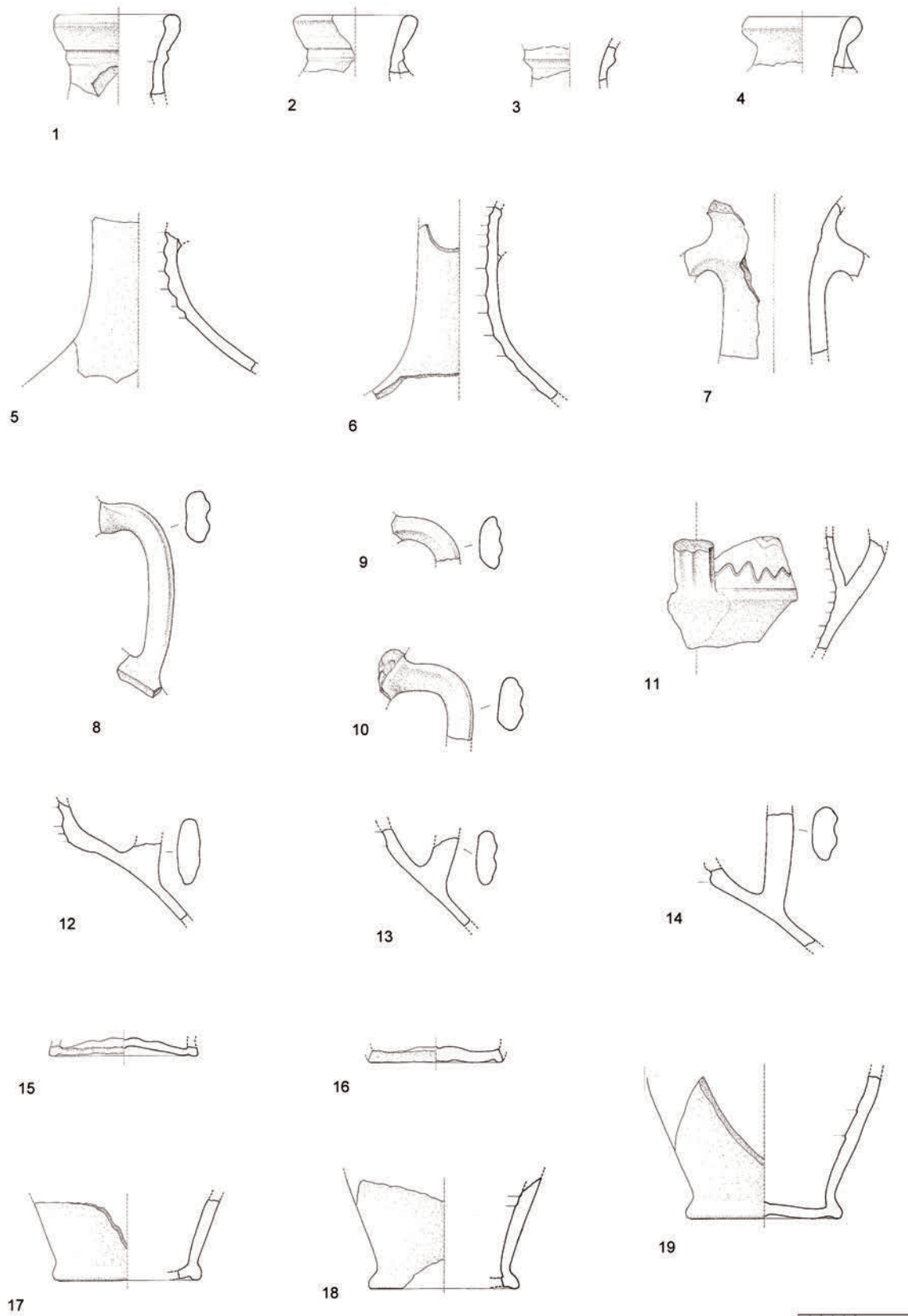
T.3 Amphorae of the Forlimpopoli type and other Adriatic types from the port at Pakoštane-Janice (drawings by L. Bekić)



T.4 Amfore drugih tipova iz luke Pakoštane-Janice (crteži: L. Bekić)

T.4 Amphorae of other types from the port at Pakoštane-Janice (drawings by L. Bekić)

T.5.



T.5 Amfore srodne tipu Forlimpopoli iz novootkrivene radionice Ljubač-uvala Plemići (crteži: L. Bekić)

T.5 Amphorae related to the Forlimpopoli type from the newly discovered workshop at Ljubač-Pleмиći bay (drawings by L. Bekić)

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