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CERAMIC AMPHORA STOPPERS FROM THE EAST COAST OF THE ADRIATIC

Abstract: Ceramic amphora stoppers in a very characteristic shape of a ceramic disc with a central handle have been found in large numbers in the Adriatic region. The most numerous finds come from the eastern part of the basin. They are also found on the Italian coast of the Adriatic, in Austria and (individual finds) in Malta, Cyprus and Egypt. The stoppers are typically closely linked to amphorae they used to seal, but there have also been finds of secondary use.

Key words: amphora stoppers, Adriatic, amphorae, stamps, finds

Introduction

In antiquity, ever since the beginnings of maritime transport, there existed the need for hermetic sealing of containers. From a very early period, plugs of various kinds are known to have been made of timber, ceramics, plaster or clay and to have been sealed with mortar, organic mixtures or resin. In contrast to organic stoppers (mixtures of mud, grasses, clay and leather or textiles), which rarely survive, and seals, which were destroyed in unsealing the containers, ceramic stoppers survive very well and were reusable.

In the Adriatic basin, numerous finds have been made of very characteristic ceramic amphora stoppers. Their shape resembles a ceramic disk with a central handle. The stoppers are of fairly standardised sizes since they sealed several types of morphologically similar amphorae (Greek--Italic MGS VI, Lamboglia 2, Dressel 6A and the slightly smaller Dressel 6B amphora). The radius of stoppers falls in the range of 6 cm to 12 cm. The largest group consists of disks with a 9–10 cm radius. Their thickness oscillates between 0.5 cm and 3.5 cm, though an overwhelming majority is 1–2 cm thick.

Classification

Classification of the stoppers from by morphological characteristics is not easy, as practically every disk is a slightly different shape. Broad categories may, however, be distinguished on the basis of production mode: stoppers were made from a mould, on a potter's wheel or cut out of bodies of larger vessels (primarily amphorae, but occasionally tiles) [Fig. 1]. There are also very sporadic handmade specimens [Fig. 2].

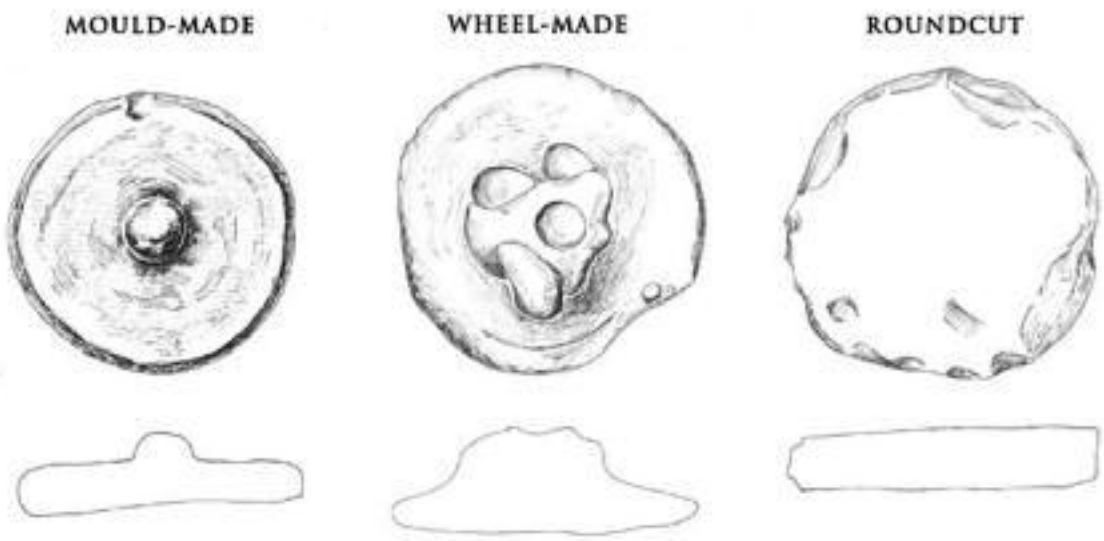

Fig. 1. Classification of stoppers by mode of production
(graph. M. Różycka, M. Bajtler)

Fig. 2. A handmade stopper, find from Risan
(photo J. Recław, graph. M. Bajtler)

In spite of just a few modes of manufacture, each stopper is different, as they were individually formed by the potter (even specimens from the same mould have individual characteristics). Differences in shape were erased in the process of sealing and filling in the gaps between the stopper and the neck of the vessel.

The largest group is made up of stoppers best described as ceramic disks. These stoppers have a flat or nearly flat bottom and a central knob of small or medium dimensions. These specimens are made in a mould, divided in halves or not [Figs. 3 & 4]. Clay was presumably squeezed into the mould by hand. The bottom surface was also polished by hand, hence occasional finger-marks and an uneven surface. Some disks also bear signs of removing excess clay with a wooden tool, leaving characteristic traces [Fig. 5].

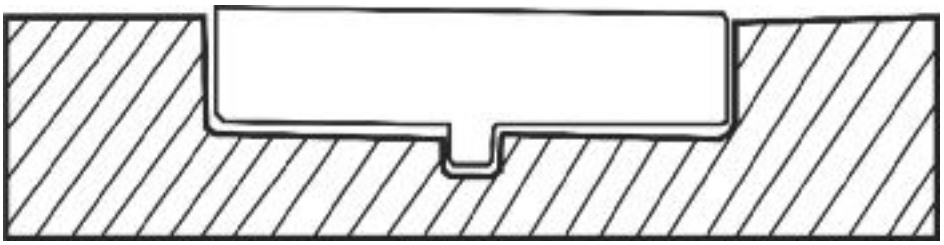

Fig. 3. A one-part mould for stopper production
(graph. M. Bajtler after Lete 2005)

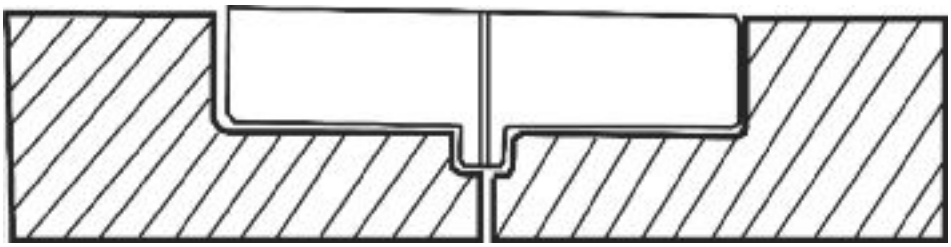

Fig. 4. A two-part mould for stopper production
(graph. M. Bajtler after Lete 2005)

Fig. 5. Marks of a wooden tool to remove excess clay, find from Risan
(photo J. Recław, graph. M. Bajtler)

Disks with a characteristic stripe running through the middle confirm use of moulds with two halves, as clay accumulated in the place where the halves were joined. The disks also frequently have an unevenly attached handle or unevenly glued parts [Fig. 6]. Such imperfections resulted presumably from detaching the mould in order to take out the stopper.

Decoration and handles were also made from a mould. Among the handles, the most frequent shape is round: small or large. There are also rectangular or square, oval or irregular shapes. Some also bear finger-marks. At first glance, these marks resemble those formed during the potter's forming of the handle during work on the wheel. The disks were, however, formed from a mould, since they bear impressed decoration and the handle looks as if it was deliberately squeezed after the impression [Fig. 7].

Fig. 6. Disconnected stopper halves, find from Risan
(photo J. Recław, graph. M. Bajtler)

Fig. 7. Disk from mould with deliberately squeezed handle, find from Risan
(photo J. Recław, graph. M. Bajtler)

Use of the mould allowed for mass production of stoppers of a uniform radius and thickness, while not calling for specialist skills. Manufacturing of the stoppers on a potter's wheel required more specialised skills [Fig. 8]. These stoppers have a characteristic weaving surface, sometimes a hollow at the centre of the bottom (under the handle) and a big, irregular handle, frequently with the potter's finger-marks. Not all of these features always coincide on a stopper. The greater part of the finds have a flat bottom and a large, handmade handle in widely variable shapes: some are extended upwards, slightly curled and massive, broad, formed in the shape of a hand or extensive cones, which take up most of the disk surface. Such stoppers also bear characteristic marks of being worked on the wheel.

The least numerous category of finds are the so-called "roundcuts", that is plugs cut out of bodies of larger vessels, typically amphorae [Fig. 9].

Fig. 8. Wheel-made stoppers, finds from Risan
(photo J. Recław, graph. M. Bajtler)

Fig. 9. Stopper cut from amphora body (or tile), find from Risan
(photo J. Recław, graph. M. Bajtler)

Decorations and inscriptions

Another characteristic feature of the Adriatic stoppers is that they bore decorations and marks [Fig. 10]. Decorations, individual letters or entire words turn up only on disks made from moulds (of one or two parts). They were impressed in the form of a convex relief during the stopper's production. Stoppers with the same relief frequently differ slightly in shape, which confirms they were formed individually.

Fig. 10. Stopper with PHILESPOTUS inscription impressed by mould, find from Risan (photo J. Recław, graph. M. Bajtler)

Among the decorations are found linear, solar or geometrical motifs. These may be single lines or bumps spread irregularly over the disk surface, but also more complex ornaments resembling the sun, star, rosette or floral motifs. There are also sporadic depictions of the anchor or trident.

Inscriptions were made in both Greek and Latin alphabets. In both are found single letters or letter sequences that fail to make up words. Sometimes — in inscriptions in both languages — entire names may be deciphered: Latin PHILESPOTUS[1] (Risan), SABBAIS[2] (Risan), ALEXANDER[3] (Narona), HILARIONIS[4] (Narona), HILARII[5] (Aquileia), PHILODA(mi)[6] (Narona); Greek ΦΙΛΟΝ[7] (Resnik), ΦΙΛΟ[8] (Aquileia), or abbreviations: CVE[9] (Risan) / GAE[10] (Resnik), DIO[11] (Risan), SISE[12] (Lorun). There is also a number of pseudo-inscriptions which merely imitate a seal with a name or are ineligible. The seals presumably belonged to the owner of the pottery workshop, the potter or wine producer, who would mark his product. Single letters may have been his initials or an abbreviation of the name. To date, only a small number of seals have been matched to similar examples on amphorae.[13]

[1] Bajtler 2013, p. 80.
[2] Bajtler 2013, p. 81.
[3] Abramić 1926–1927, p. 130, fig. 4a; Buljević 1997–1998, p. 233, pl. XXIX, 76.
[4] Abramić 1926–1927, p. 130, fig. 4c; Buljević 1997–1998, p. 234, pl. XXIX, 77.
[5] Braidotti, Magnani, Rosset 2012–2013, p. 41.
[6] Abramić 1926–1927, p. 130, fig. 4b.
[7] Lete 2005, p. 12.
[8] Braidotti, Magnani, Rosset 2012–2013, p. 41.
[9] Bajtler 2013, p. 82.
[10] Lete 2005, p. 12.
[11] Bajtler 2013, p. 82.
[12] Kovačić *et alii* 2011, p. 519.
[13] Bajtler 2013, 81-82; Kovačić *et alii* 2011, p. 519; Lindhagen 2009, p. 88.

Plugging

The process of plugging the amphorae may only be reconstructed on the basis of stoppers found intact in the vessel's neck. Several such examples are known[14] [Fig. 11]. For all of them, nothing but the stopper has survived. That does not indicate that no additional sealing was performed. A ceramic plug alone was insufficient to ensure a hermetic sealing of the amphora. Since, however, the amphorae found *in situ*, as well as the disks themselves (found in their hundreds at archaeological sites) fail to show any evidence of a sealing material, it must be concluded that the material used was less durable than mortar or resin. It may be presumed that unburned clay was used or some sort of an organic mixture. Such sealing must have covered only the space between the neck of the amphora and the stopper, since covering the seal on the stopper would make no sense [Fig. 12]. The stopper was secured inside the neck of the amphora with the handle up by squeezing it until it was fixed. It is known that the stoppers came in many sizes, but thanks to the shape of the vessel's neck, which widened towards the top, this meant merely that it would become fixed at a higher or lower point. It could be said that the stopper itself served merely as a plug and would only become a full stopper after further sealing.

Fig. 11. Amfora with stopper found *in situ*, find from Risan (photo M. Bajtler)

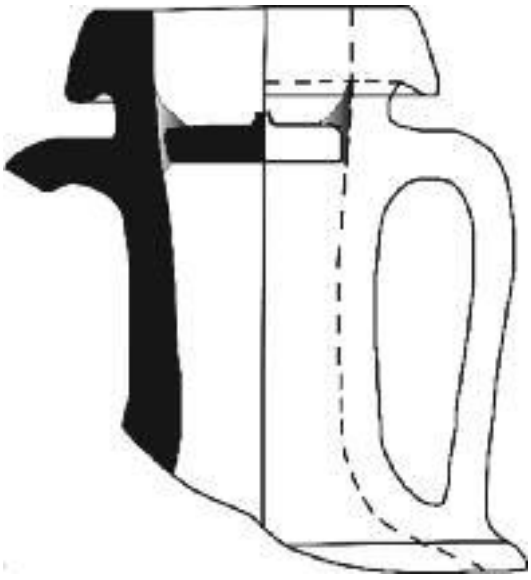

Fig. 12. Reconstruction of sealed amphora (graph. M. Bajtler after Lete 2005)

[14] Wreck Boka Kotorska 2 (Montenegro) (http://www.rpm-nautical.org/bokakotorska2.html — date of access: 17.06.2015); Wreck Sason 1 (Albania) (http://www.rpm-nautical.org/albania2011.html — date of access: 17.06.2015); southern Istria (Croatia) (Koncani Uhač 2008, p. 39).

Sealed amphorae

Ceramic stoppers were used over several centuries to seal several types of amphorae: the Greek--Italic MGS VI (3rd–2nd century BC), Lamboglia 2 (end of 2nd century BC – 1st century AD), Dressel 6A (end of 1st century BC – 1st century AD) and Dressel 6B (1st–2nd century AD). The former three types were used for transporting wine and represent a continuity of form. The earliest, Greek-Italic form evolved into Lamboglia 2 and then into Dressel 6A. This path of evolution is confirmed by existence of intermediate forms with morphological features of both types. The type Dressel 6B was an amphora produced in Istria to transport olive oil. Securing it with the same stoppers as wine amphorae may be evidence of adoption of cultural patterns that had functioned locally over prolonged periods.

Geographic range of finds

Finds of ceramic stoppers are most numerous at sites along trade routes, both maritime and overland. Their presence is confirmed in north Italy (Friuli and Veneto) and along the western coast of the Adriatic (Marche and Puglia) and in Austria, Slovenia, Croatia, Bosnia-Herzegovina, Montenegro and Albania. Sporadic finds are also known from Greece, Cyprus, Malta and Egypt [Fig. 13].

Fig. 13. Map of ceramic stopper finds (graph. M. Bajtler)

The sites found inland in contemporary Slovenia and Austria are linked to the amber route and the presence of Roman legions in conquered provinces and are the northernmost finds. The rest of the sites lie primarily along the shores of the Adriatic and its maritime routes. Hence the fairly frequent underwater finds, which however tend to contain only single specimens.[15] The exception is the Hutovo Blato lake[16] in Bosnia-Herzegovina. Hundreds of Lamboglia 2 amphora fragments and ca. 700 stoppers have been found at the site.[17] The amphorae are dated to the second–first century BC. A majority of the stoppers were made from one- or two-part moulds. There are also single finds of stoppers cut from the bodies of amphorae. The ceramic disks bore decorations and inscriptions in Greek or Latin. There are also single letters or a whole word HILA.[18] It is not quite known why and how boats transporting the wine in amphorae found their way to the bottom of the lake. It is clear that this was not a one-off occurrence (for example, a Roman attack on a pirate port), but a long-lasting process since the amphorae represent different stages of development. It is interesting that nearly all were found in fragments — just two among the hundreds were complete (type Dressel 6A).[19]

On the western shore of the Adriatic — in contrast to the east — sites with ceramic disks are counted in single digits. This may have several causes. One is the location of trade routes. From the Hellenistic period, the route along the eastern shore was more frequently used thanks to its easier navigability and numerous small trading posts developed on the littoral. Another is the possibility that the stoppers were manufactured on the eastern shore since they are found on practically every ancient site.

I am at present aware of 45 sites where a ceramic disk has been found, of which 39 are in the Adriatic basin. The finds come from land and underwater sites and are usually directly linked to amphora finds — for example at Risan (Rhizon[20]) in Montenegro or Vid (Narona[21]) and Resnik (Siculi[22]) in Croatia.

[15] Underwater archaeology has a unique character. It is rare for the entire cargo to be lifted from the water with only diagnostic elements selected for recovery, while the rest of the finds are documented. It is not always that the entire cargo survives. Artefacts can be spread over an area undersea and only a part of the cargo may be found.

[16] Desilo is a small valley in the vicinity of Narona and in antiquity was probably linked Neretva river via the Hutovo Blato lake (at present, the area is waterlogged). Desilo functioned presumably as an Illyrian trading point (some hypothesise a pirate settlement). Just like Narona, it functioned as a meeting point for influences from the sea and inland. Remains of a settlement, port buildings have been found alongside more than 10 small local boats (*lembi*) submerged with z amphorae they were presumably carrying (Lindhagen 2009, p. 90; Zmaić, Mihojlek 2013; http://www.apollon.uio.no/english/articles/2008/illyrer-english.html — date of access: 29.06.2015).

[17] Lindhagen 2009, p. 90.

[18] Zmaić, Mihojlek 2013, p. 180.

[19] Zmaić, Mihojlek 2013, p. 180.

[20] Contemporary Risan lies on the site of ancient Rhizon/Risinium, at the end of the meandering Bay of Kotor in Montenegro. The beginnings of settlement in the area go back to the 6th century BC. The site also contains Hellenistic and Roman occupation layers. Rhizon enjoyed its maximum prosperity in the 3rd century BC. Queen Teuta moved her capital from Shkodra to Rhizon in that period. The settlement extended over a small plateau on the Spila river, overlooked by a rocky acropolis on the Gradine hill. Excavators uncovered living quarters, amphora warehouses, city walls and an ancient ancorage (Dyczek *et alii* 2004; Dyczek *et alii* 2007; Dyczek 2011).

[21] Ancient Narona lied on the site of contemporary Vid near Metković in Croatia. The city was fairly distant from the Adriatic, to which it however enjoyed a connection via the navigable Naron (Neretva) river. Thanks to the link, Naron served as the gateway linking the Illyrian interior with the Hellenised coast. As early as the Hellenistic period, an emporium functioned here with both Greek and Illyrian occupation and Augustus granted the city the status of colony (Lindhagen 2009, p. 94).

[22] Resnik (ancient Siculi) lies on the Bay of Kaštela in Croatia. It is found between the ancient sites of Salona and Tragurium. Founded in the late Republic in the second half of the 2nd century BC, it was abruptly abandoned in the second half of the 1st century AD, as seen from a layer of destruction. Archaeological research has been carried out underwater on the Hellenistic port and within the ancient city (primarily rescue excavations). Remains of houses, roads and fortifications have been found here (Šuta 2011; Šuta 2012–2013).

Over 1,000 ceramic amphora stoppers have been found at Risan over 15 years of excavations, mostly in the context of warehouses,[23] where mostly Greek-Italic MGS VI and Lamboglia 2 types were stored. The most frequent disks were made from a mould (with one or two parts) or on the wheel. There are also infrequent specimens cut from the bodies of amphorae or tiles. Some disks produced from a mould bore decorations and inscriptions in Greek or Latin. Among the decorative motifs, the most frequent are simple linear, geometric and solar patterns or more complex elements, such as floral motifs or anchors.[24] At Narona ceramic stoppers are mostly found in the context of Lamboglia 2 and Dressel 6A amphorae. There are also disks made on the wheel or mould, decorated, inscribed or plain.[25] At Siculi as well as Rhizon ceramic stoppers are among the most frequent finds, numbering over 500. The largest number comes from the rescue excavations of 2007 but many were found in other seasons or during underwater research. They are found in the context of several amphora types: the late Greek-Italic type, Lamboglia 2 and Dressel 6A with Lamboglia 2 and Dressel 6A the most numerous. Just several fragments have been found of the earliest Greek--Italic amphora type. All types of disks are found: impressed in a mould, wheel-formed, cut from amphorae or tiles. Some stoppers bear decorations or inscriptions.[26]

In a few cases stoppers were reused for drainage or as construction material. At Croatian Pula (Pola[27]), in the Sveti Teodor district, a deposit of z 2119 amphorae has been found (98 % of the amphorae are type Lamboglia 2), which were used for the construction of hillside terrace to serve as the site of a church. Some of them (62 specimens) were sealed with a stopper, which was then fixed with a layer of mortar. Some of the containers were also sealed with a mixture of mortar and seaweeds, while three contained remains of a yellow, spongy organic material (these lacked a ceramic stopper). All the amphorae in the deposit were empty, which indicates they were sealed purely for construction purposes.[28] In north Italy, at the site of Concordia Sagittaria (Iulia Concordia[29]), excavations at via San Pietro yielded a find of 1912 stoppers, including 1317 that survived *in toto*. The stoppers, together with amphorae (mainly Dressel 6A) were reused in the Roman period for paving.[30]

Most ceramic stoppers are found in contexts dating to the Roman period. I am aware of just a few sites, where stoppers were found with amphorae dated to the late Hellenistic period, that is the Greek-Italic MGS VI type: Sermin[31] (Slovenia), Pola (finds at the forum), Resnik,

[23] Dyczek 2012, p. 70.
[24] Bajtler 2013.
[25] Abramić 1926–1927; Buljević 1997–1998; Lindhagen 2009, p. 94; Patsch 1908, p. 93, fig. 7; Topić 2004, pls. 101, 102.
[26] Šuta 2012–2013.
[27] Contemporary Pula lies on the site of ancient Pola, rendering regular archaeological work impossible in practice. Pola was located on the southern coast of Istria as the last important site on the peninsula's west. This location led to its development as an important port and stopping point on a maritime trade route, which branched out to Italy from Pola. The earliest occupation goes back to Illyrian times, when a fortification was erected, around which grew the Roman-era Colonia Iulia Pola (Matijašić 1986, p. 15).
[28] Starac 2009, pp. 388, 389.
[29] The Roman colony Iulia Concordia was probably founded in 42 BC at the crossroads of two important roads, Via Postumia and Via Annia. The beginnings of pre-Roman settlement go back to 750 BC. The city rapidly developed into an important centre, thanks in part to its location between such centres as Aquileia and Altinum (http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.04.0006:entry=iulia-concordia — date of access: 26.06.2015).
[30] Rinaldi, Gobbo, Sandrini 2012–2013, p. 68.
[31] The site of Sermin lies on an isolated hill in the central section of the Bay of Koper (north Istria), close to the mouth of the Rižana in contemporary Slovenia. In this area crisscrossed influences from northern Italy, Istria and south-eastern Alps. The area of Sermin was populated in prehistoric times, which yield numerous finds. Roman--era layers are also found. Rescue excavations of 1987–1991 yielded many amphora and stopper finds. The best represented amphora type is Lamboglia 2. There are also numerous finds of the late Greek-Italic type, intermediate forms between it and Lamboglia 2 and several items of Dressel 6A. Also found are amphorae of the locally produced Dressel 6B type and Dressel 2-4, as well as late Rhodian. In total 64 stoppers have been found, of which 49 specimens (or nearly 80 % of the total) were wheel--made. The rest of the disks were made from mould or cut out of vessel bodies. All the wheel-made disks have a hol-

Salona[32] (intermediary form between the Greek-Italic MGS VI and Lamboglia 2) and Risan. It is at present impossible to say how to date a given type of stopper or its decorations and inscriptions. Several finds from central Dalmatia lead to several conclusions. I. Šuta in his publication of stoppers from Siculi mentions prevalence of stoppers made on the wheel, which correspond to amphorae of the type intermediate between the Greek-Italic and Lamboglia 2 types and of Lamboglia 2. A similar situation is found at Salona and Epetion, where excavations have only yielded wheel-made stoppers.[33] On this basis, it has been concluded that in Dalmatia the first century BC brought an intensification of disks from the mould, which bear decorations and inscriptions. J. Horvat reaches similar conclusions in his publication of the site of Sermin.[34] The finds from Risan, where in analogous Hellenistic contexts the majority of stoppers are made from the mould and bear decorations and inscriptions, have to date failed to confirm this hypothesis.

At the present stage of research on ceramic disks from the eastern shore of the Adriatic, questions continue to outnumber answers. A detailed analysis of geographic distribution of finds and their contexts may yet bring information on the dating of specific disks or their decorations and inscriptions. Ceramic studies may in turn help identify sites of production of the artefacts under consideration.

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low in the bottom and a small, irregular handle, sometimes with the potter's finger-marks. Just like wheel-made stoppers from Risan, they are undecorated. Stoppers made from mould have a small round or square handle and several specimens have simple linear decoration. All the disks have the same ceramic mass, described by Horvat as S1 (Horvat 1997, pp. 77–82).

[32] Ancient Salona lied on the outskirts of contemporary Split, near today's Solin (Croatia). The city lied directly on the sea and had a natural port. In the 4th century the area was conquered by the Dalmatians. Soon afterwards Salona was colonised by Greek settlers from Issa (Vis). The Romans showed up as early as the 2nd century BC, using Salona as the base for military operations in the region. In 47–44 BC Caesar gave Salona the status of a colony (Colonia Martia Iulia Valeria), and in AD 9 it became the capital of the newly created province of Dalmatia. The context of 1st century BC and 1st century AD stoppers has yielded finds of wheel- and mould-made ceramic discs (Šuta 2012–2013, p. 83; Horvat 1997, p. 81).

[33] Šuta 2012–2013, p. 113.

[34] Horvat 1997, p. 81.

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http://www.apollon.uio.no/english/articles/2008/illyrer-english.html

Preseus Digital Library
http://www.perseus.tufts.edu/hopper/text?doc=Perseus:text:1999.04.0006:entry=iulia-concordia

RPM Nautical Foundation
www.rpmnautical.org

Streszczenie

Ceramiczne korki do amfor ze wschodniego wybrzeża Adriatyku

W strefie adriatyckiej na stanowiskach lądowych oraz podwodnych licznie odkrywane są bardzo charakterystyczne ceramiczne korki do amfor. Swoim kształtem przypominają ceramiczny dysk z centralnie położonym uchwytem. Stopery te posiadają dosyć zestandaryzowane wymiary, gdyż zamykały kilka typów amfor zbliżonych do siebie morfologicznie (amfora grecko-italska MGS VI, Lamboglia 2, Dressel 6A oraz trochę mniejsza Dressel 6B). Stopery zazwyczaj mają 9–10 cm średnicy i 1–2 cm grubości.

Korek mocowany był wewnątrz szyi amfory uchwytem do góry, poprzez wciśnięcie go aż do momentu zaklinowania. Następnie przerwa, która powstawała pomiędzy stoperem a ścianką amfory, wypełniana była substancją uszczelniającą (niewypalona glina lub inny materiał organiczny).

Opierając się na sposobie produkcji korki można podzielić na trzy podstawowe typy: korki robione w formie (jedno- lub dwuczęściowej), na kole garncarskim oraz wycinane z brzuśców większych naczyń (amfor, czasami z dachówek). Na niektórych dyskach produkowanych z formy pojawiają się dekoracje i inskrypcje w formie wypukłego reliefu. Wśród dekoracji pojawiają się motywy liniowe, solarne oraz geometryczne. Bywają to proste pojedyncze linie oraz guzki nieregularnie rozrzucone po powierzchni dysku, a także bardziej skomplikowane ornamenty przypominające słońce, gwiazdę, rozetę lub motywy roślinne. Pojawiają się także pojedyncze przedstawienia kotwicy lub trójzębu. Inskrypcje zapisywane były w alfabecie greckim i łacińskim. W obydwu alfabetach pojawiają się pojedyncze litery lub grupy liter niełączących się w jeden wyraz. W przypadku obydwu typów inskrypcji można również niekiedy odszyfrować całe imiona. Stemple te prawdopodobnie należały do właściciela oficyny garncarskiej, garncarza bądź producenta wina, który znakował w ten sposób swój wyrób.

Ceramiczne korki najliczniej odkrywane są na stanowiskach położonych wzdłuż szlaków handlowych, morskich oraz lądowych. Ich występowanie potwierdzone jest w północnej Italii (prowincje Friuli i Veneto), wzdłuż zachodniego wybrzeża Adriatyku (prowincje Marche i Puglia) oraz w Austrii, Słowenii, Chorwacji, Bośni i Hercegowinie, Czarnogórze i w Albanii. Pojedyncze znaleziska pochodzą także z Grecji, Cypru, Malty i Egiptu.

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