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# ANCIENT GREEK, ROMAN AND BYZANTINE GLASS WORKS FROM CILICIA

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Keywords: Archaic, Hellenistic, Roman, alabastron, amphoriskos, glass

Abstract: This article examines the historical development and common forms of glass objects produced in the Eastern Mediterranean and the Roman Empire. A total of 146 pieces are presented. The earliest examples of glass are the alabastron and amphoriskos forms, which were used as perfume containers influenced by Greek pottery. These glass objects generally have blue lower parts, with exceptions such as those from Adana that have white lower parts. During the Hellenistic period, glass from the Eastern Mediterranean, particularly from Cyprus, was produced and spread to various other regions of the Mediterranean. At the advent of the Roman period, glass production had become more concentrated in local centers, with balsamaria used in funeral rites playing a significant role. Although these glass objects show regional differences, they were primarily used as perfume and essence containers. The article details the production centers, aesthetic features, and regional distribution of these glasses, shedding light on the historical context of ancient glass production.

Cuvinte-cheie: perioada arhaică, perioada elenistică, perioada romană, alabastron, amphoriskos, sticlă

Rezumat: Acest articol examinează dezvoltarea istorică și formele comune ale obiectelor de sticlă produse în Estul Mediteranei și în Imperiul roman. Sunt prezentate 146 de piese. Cele mai vechi obiecte din sticlă sunt cele reprezentate de alabastron și amphoriskos, folosite pentru păstrarea parfumului, forme influențate de ceramica grecească. Aceste obiecte de sticlă prezintă, în general, în partea inferioară o culoare albastră, excepție făcând cele de la Adana care au o culoare albă. În timpul perioadei elenistice, sticla din Estul Mediteranei, în special cea din Cipru, este produsă și se răspândește și în alte regiuni ale Mării Mediterane. În timpul perioadei romane, producția de sticlă o găsim mai mult concentrată în centrele locale, vasele de tip balsamarium folosite în ritualurile funerare jucând un rol semnificativ. Deși aceste obiecte din sticlă prezintă diferențe regionale, ele au fost folosite în special ca recipiente pentru parfumuri și esențe. Articolul de față prezintă detalii referitoare la centrele de producție, trăsăturile estetice și distribuția regională a obiectelor din sticlă, aducând un plus de informații despre contextul istoric al producerii sticlei din cele mai vechi timpuri.

#### **INTRODUCTION**

Glass, as a valuable material used for both aesthetic and functional purposes in antiquity, carries traces of cultural interactions between civilizations. Especially in the Eastern Mediterranean and the Roman Empire, glass objects had a wide range of uses, from daily life to funeral rites. This article aims to examine the historical development and various forms of glass production in the region, providing information about the production centers, techniques used, and aesthetic values. Through glass examples from Adana and its surroundings, significant data will be obtained regarding the artistic and craft understanding of the period. Beginning with some of the earliest glass forms such as alabastron and amphoriskos, which were used as perfume containers, this research will also discuss local glass production during the Roman Empire and its spread across the Mediterranean world.

#### **ARCHAIC PERIOD GLASSES**

Here is a small anthology of the most common glass forms found in the region. The oldest glasses include an

alabastron and an amphoriskos made with a friable core. These containers held scented oils and were miniaturized imitations of larger Greek ceramic vessels. The forms are typically Greek; only an alabastron and an amphoriskos are presented here. Fragments of around one hundred vessels with friable cores have been found at Gordion<sup>1</sup>. In most cases, the vessels in this group have a blue base, but here, there is also one with a white base. The reason the workshops that produced these items ceased operations around 400 BC is unknown<sup>2</sup>.

#### **HELLENISTIC PERIOD GLASSES**

In time, Eastern Mediterranean glasses became more frequent in what is now southeastern Turkey. Almost half of the known alabastra are found in Cyprus<sup>3</sup>. Their places of discovery are concentrated in the Eastern Mediterranean (Greek world) and the island of Rhodes. They represent also evidence of the interactions between the Greeks and the Persians who ruled Asia Minor, but they are widely

<sup>&</sup>lt;sup>1</sup> Duncan Jones 2005, p. 103.

<sup>&</sup>lt;sup>2</sup> Stern, Schlick-Nolte 1994, p. 38.

<sup>&</sup>lt;sup>3</sup> Stern, Schlick-Nolte 1994, p. 232.

present along the Mediterranean coasts and even in the Italian peninsula.

#### **Unguentaria** (Perfume Bottles)

Containers of this form<sup>4</sup> are primarily found along the Eastern Mediterranean coast, from the Black Sea to the Syro-Palestinian shore. They likely come from the same workshop as the unguentaria of Form II:2<sup>5</sup>. However, our two examples, which closely resemble two other amphoriskoi in the Toledo Museum of Art<sup>6</sup>, are considered by Grose to be of Eastern Mediterranean or Italic production.

Mediterranean Group II<sup>7</sup>.

#### 1. Cup from Adana (Pl. I/1)

From Adana (?)

Dating: late 4<sup>th</sup> – 3<sup>rd</sup> century BC.

Adana Museum

This is a hemispherical, colorless glass cup decorated with linear-cut concentric circles to the rim. It was produced in a mold. The shape, reminiscent of older Achaemenid cups, is common, and many Hellenistic cups with an outward-curved, convex rim have been found. An example was discovered in 1928 at Canosa in the so-called "Tomb of the Ornaments"<sup>8</sup>, in a context dated between the late 4<sup>th</sup> and 3<sup>rd</sup> centuries BC. The decoration also recalls examples from the Hellenistic period<sup>9</sup>.

#### **ROMAN PERIOD GLASSES**

Roman glass is all of local production, as is clearly evident from its color<sup>10</sup>. It is difficult to precisely identify local glass production workshops in the Cilicia region, but archaeological findings and historical data point to several important centers. In Anemurium, glass vessels from the Roman and Byzantine periods have been discovered. It is believed that local workshops produced glass, as the glass vessels found in burial sites indicate the existence of local production. In Soli-Pompeiopolis, findings such as glass bottles, cups, and cosmetic containers support the presence of local glass workshops. Due to its location on trade routes, both imported and locally produced glass objects may be found here. Archaeological excavations in Olba-Diokaesareia have revealed glass beads, perfume bottles, and other glass objects. These findings suggest the presence of small-scale glassworking workshops in the region. The glass objects found in Tarsus indicate that, in addition to local production, imported products were

 $^{\rm 4}~$  Grose Class II:G, Amphoriskos Form II:3B, Harden Form 5B.

also used. In Elaiussa Sebaste, especially from the Roman period, glass remains have been discovered, pointing to the possible existence of a local workshop. The surface is often covered with layers of decomposition, which present the characteristic luminescent appearance common in Middle Eastern products, particularly those from Syria. The number of complete objects presented here is not large, but this is explained by the great fragility of these items. The widespread use of glass containers (for essences and perfumes) and their use in funerary rites is attested by the discovery of about thirty containers from the "Köylü Garajı" tomb found in Tarsus in 1993<sup>11</sup>, a few examples of which are presented here. During the archaeological campaigns of 1997 and 1998, large quantities of glass were found in the area adjacent to the Roman road in Tarsus<sup>12</sup>.

The shapes, especially those from the early imperial period, do not differ from those known in the western part of the empire.

Many authors have studied the glass in Asia Minor and the Eastern Mediterranean, from the classic works of Vessberg in the 1950s to more recent studies<sup>13</sup>. The presence of Roman glass in Asia Minor is also evident in the numerous catalogs that have been published recently. In addition to the one from the Pergamon Museum, those from the Kocabaş Collection in Istanbul<sup>14</sup> should be noted.

As in other parts of the Roman Empire, perfume containers hold the leading position in the Eastern Aegean<sup>15</sup>. Since the contents were more valuable than the container, it is always difficult to determine whether an item is of local or imported origin. The entire area lies between the two major production centers: the Middle East and Italy.

#### **Bottles**

Some of the glass items considered here belong to tableware, such as bottles with cylindrical or spherical bodies, and cups. For this reason, as allusions to *refrigerium*, they were placed in tombs, often with remains of food.

#### Three Bottles of Form Isings 52a

These represent a form produced sporadically across the Roman Empire from the mid-1<sup>st</sup> century to the 2<sup>nd</sup> century AD, and possibly even later. A distinguishing feature of the following bottles, of Isings Forms 50a and 50b, is the shape of the rim, which, beneath the flattened and expanded edge, has a sort of external step. This detail, typical of Eastern production, is not found in Western production.

#### 2. Mono-handled Bottle from Tarsus (Pl. I/2)

Measurements h. 12.1 cm; diam. 8.5 cm; handle w. 3.1 cm From Tarsus (?).

<sup>&</sup>lt;sup>5</sup> Grose 1989, p. 160.

<sup>&</sup>lt;sup>6</sup> Grose 1989, nos. 143 and 144.

McClellan 1984, p. 123–128, Type III.G.I, p. 159–160, Type IC.C.I; Grose 1989, p. 128 and 132, Class II:G, Unguentarium Form II:2; Stern, Schlick-Nolte 1994, p. 39, 42, 44, and 230.

<sup>&</sup>lt;sup>8</sup> Stern, Schlick-Nolte 1994, p. 98.

<sup>&</sup>lt;sup>9</sup> *e.g.*, Stern, Schlick-Nolte 1994, p. 252–254, no. 66.

<sup>&</sup>lt;sup>10</sup> Erten 2001; Gençler Güray 2011; Stern 1985; Köroğlu 2009.

<sup>&</sup>lt;sup>11</sup> Yurtseven 2006.

<sup>&</sup>lt;sup>12</sup> Olcay 2001.

<sup>&</sup>lt;sup>13</sup> Vessberg 1952; Vessberg 1956; von Saldern 1980; Barag 1985; Canav 1985; Stern 1989; Lightfoot 1989; Lightfoot, Arslan 1992; Gürler 2000; Yurtseven 2006.

<sup>&</sup>lt;sup>14</sup> Akat *et alii* 1984.

<sup>&</sup>lt;sup>15</sup> Arveiller-Dulong, Nenna 2005, p. 271.

Dating: mid-1<sup>st</sup> – 2<sup>nd</sup> century AD

Tarsus Museum.

#### 3. Mono-handled Bottle from Alanya (Pl. I/3 a-b)

Inv. no. ---22.46; measurements h. c. 12.1 cm; diam. 8.5 cm; handle w. 3.1 cm

From Alanya (?)

Dating: mid-1<sup>st</sup> – 2<sup>nd</sup> century AD

Alanya Museum.

Opaque white glass. The shape is similar to the previous example and is presumably of the same date.

#### 4. Mono-handled Bottle from Tarsus (Pl. I/4)

Inv. no. 5.1.1993; measurements h. 12.1 cm; diam. 8.5 cm; handle w. 3.1 cm  $\,$ 

From Tarsus, "köylü Garajı" tomb.

Dating: Early 2<sup>nd</sup> century AD

Tarsus Museum.

The rim is flattened at the top with an external keel, a short cylindrical neck, and a wide, tapering body with a curved wall. The handle is a ribbon bent at a right angle. The body features six horizontal lines placed at regular intervals, which may have also served to measure the liquid contained. The glass is green with impurities, and the external surface has incrustations.

A similar pitcher, but with a more elongated body and also tapered towards the bottom, from the Pergamon Museum, was published by Atila and Gürler in 2009 $^{16}$ , with a dating ranging from the  $2^{\rm nd}$  to the  $4^{\rm th}$  centuries AD.

Bibliography: Vessberg 1952, p. 125, 128, type A III  $\alpha$ , Pl. V:21, XV: 4; Isings 1957, p. 65, form 52a; von Berger 1960, p. 80, tav. 13, no. 203, tav. 21, 85; Yadin 1963, p. 102, Pl. 30, Fig. 38; de Franciscis 1963, p. 139; Spartz 1967, tav. 14, no. 53; Hayes 1975, p. 59, Pl. 11, no. 147; Goethert-Polaschek 1977, p. 200, tav. 67, no. 1232; Czurda-Ruth 1979, p. 137–138, tav. 15, no. 1013; Rohde 1980, p. 169–170, fig. 55; Barag 1985, p. 98, Fig. 10, no. 137; Welker 1985, p. 32, tav. 9, no. 105; Welker 1987, p. 26, no. 23; Harden 1988, p. 97, no. 39; Stern, Yağcı 1989, p. 603; Sternini 1990, p. 110–111, tav. 40, nos. 227–232; Lightfoot, Arslan 1992, p. 50–51, nos. 17–18; Menninger 1996, p. 83, no. 388, tav. 28, 1; Dussart 1998, p. 156, 287, BXI, 22; Özet 1998, p. 110, no. 70; Yurtseven 2006, p. 108, fig. 41.

#### **5. Square Base Bottle from Tarsus** (Pl. I/5)

Measurements h. c. 15.5 cm; max diam. 7 cm; handle w. 3 cm From Tarsus (?)

Dating: mid-1<sup>st</sup> – 2<sup>nd</sup> century AD

Tarsus Museum. Type Isings 50b.

#### 6. Spherical Body Bottle from Tarsus (Pl. I/6)

Measurements h. c. 15 cm; max diam. 8.5 cm; handle w. c. 5 cm

From Tarsus (?)

Dating: mid-1<sup>st</sup> - 2<sup>nd</sup> century AD

Tarsus Museum.

Type Isings 54. Greenish glass. In this case, the rim is flattened and outward-curved, similar to Western examples.

#### 7. Globular Balsamarium Bottle from Tarsus (Pl. I/7)

Inv. no. 984-7.400; measurements h. c. 9 cm; max diam. c. 8.5 cm

From Tarsus (?)

Dating: late 1st - 2nd century AD

Tarsus Museum.

Again, the rim is flattened and outward-curved. The type of glass suggests a dating that leans towards the middle imperial period.

#### 8. Cylindrical Neck Bottle from Mersin (Pl. I/8)

Measurements h. c. 10 cm; max diam. c. 7 cm

From Mersin (?)

Dating: late 1<sup>st</sup> - 2<sup>nd</sup> century AD

Mersin Museum.

The rim is thickened, outward-curved, with a tall neck and a "pear-shaped" body, either a large balsamarium or a bottle in colored glass.

#### Glasses

Here are two glasses with different profiles, attesting to a moment when shapes were not yet fully standardized.

#### 9. Glass from Tarsus (Pl. I/9)

Measurements h. c. 8 cm; max diam. c. 9 cm; th. 0.1 cm From Tarsus (?)

Dating: late 1st - 2nd century AD

Tarsus Museum.

Blown glass. The rim is thickened and rounded, the belly expands downward forming a keel. Opaque green-yellow glass.

The shape (Isings 12) is found in some mosaic-glass cups, probably of Italic production, between the late 1st century BC and early 1st century AD, like those now in the Toledo Museum of Art1st. Due to its simplicity, the shape is quite common in several areas. A similar cup is in the Cesnola Collection. The shape is probably associated with Cypriot production1st. In fact, objects like these come from funerary assemblages found on the island, such as Xyliatos, Vasa, Troodos, Amatunta, and Limassol. The same collection holds numerous other cups, but these differ in the contour of the wall, rim, and base. A similar cup, but with a thickened and outward-curved rim, is found in the Bergama Museum (in green glass) and is dated by Atila and Gürler (2009) to the 2nd-3rd centuries AD.

A similar glass was found in the "köylü Garajı" tomb in 1993<sup>19</sup>.

<sup>&</sup>lt;sup>16</sup> Atila, Gürler 2009.

<sup>&</sup>lt;sup>17</sup> Grose 1989, p. 332–333, nos. 572.

<sup>&</sup>lt;sup>18</sup> Arveiller-Dulong, Nenna 2005, p. 193, no. 533.

<sup>&</sup>lt;sup>19</sup> Yurtseven 2006, p. 107–108, fig. 39.

Bibliography: Vessberg 1952, p. 120, Pl. III, nos. 1–3; Isings 1957, p. 27–28, form 12; Spartz 1967, tav. 7, fig. 32; von Saldern 1980, p. 13–14, fig. 46, 49, 51; Oliver 1983, p. 255, Pl. XLI, nos. 10–12; Lightfoot, Arslan 1992, p. 65–67, figs. 24–26; Özet 1998, p. 98, no. 58; Erten 2001, p. 96, 98, 102, fig. 1, diss. 1–2.

#### 10. Wide-neck Glass from Tarsus (Pl. I/10)

Measurements h. c. 7.6 cm; max diam. c. 5 cm; th. 0.2 cm From Tarsus, Roman tomb.

Dating: late 1<sup>st</sup> – 2<sup>nd</sup> century AD

Tarsus Museum.

Similar to the previous example. In an advanced state of exfoliation.

#### Balsamaria (Balsamarium Bottles)

Specific containers were used to hold perfumes during funerary rituals, which were then thrown into the flames of the funeral pyre or buried with the deceased, as they were considered sacred. In this respect, the funerary ritual of Cilicia during the Roman period did not differ from that of other regions, and the forms of the containers were the same. What changes is only the color and, at times, the glass composition, which depended on the local craftsmanship traditions.

#### Globular Body Balsamaria

A small group of balsamaria (four pieces) shows typical variations of this form<sup>20</sup>. Common characteristics include the long, variably shaped neck and the globular body. In our case, the flare of the mouth (funnel-shaped), the relatively long neck, and the constriction at the base suggest that this is an evolved form, possibly dating to the end of the 1st century AD.

Similar balsamaria, common throughout the Roman Empire, were produced in several manufacturing centers. It appears that by the beginning of the 2<sup>nd</sup> century AD, they were no longer in use. They are relatively well-distributed in the Eastern Mediterranean area. A preliminary list is provided by Atila and Gürler<sup>21</sup>. The glass colors are typical of the early imperial period.

#### 11. Balsamarium from Tarsus (Pl. I/11)

Measurements h. c. 12 cm; max diam. c. 11 cm

From Tarsus (?)
Dating: c. 25–100 AD

Tarsus Museum.

Dark purple glass. Flattened rim at the top.

Bibliography: Vessberg 1952, p. 132, type A I α, Pl. VII:5; von Berger 1960, p. 76, Taf. 12: 192, Taf. 20: 69; Hayes 1975, Fig. 14, no. 486; Barag 1985, p. 95, Pl. 14, fig. 9, no. 124; Dussart 1998, p. 167, BXIII. 1312a, Pl. 54, no. 2; Whitehouse 1997, p. 127, 343, nos. 200–202; Gürler 2000, p. 24–25, nos. 1–3.

#### 12. Balsamarium from Alanya (Pl. I/12)

Measurements h. c. 12 cm; max diam. c. 11 cm

From Alanya (?)
Dating: c. 25–100 AD
Alanya Museum.

Green glass. Expanded, oblique rim.

#### 13. Balsamarium from Tarsus (Pl. I/13)

Measurements ---

From Tarsus, Roman tomb

Dating: c. 25-100 AD

Tarsus Museum.

Fragmented at the upper part and missing the rim.

#### 14. Balsamarium from Alanya (Pl. I/14)

Measurements h. c. 12 cm; max diam. c. 9.5 cm

From Alanya (?) Dating: c. 25–100 AD

Alanya Museum.

Fragmented at the mouth. Green glass with bluish hues.

#### Pyriform Body Balsamarium

This form is attested both in the East and the West: it corresponds, in Italy, to De Tommaso's type 18 in his classification. In our case, the bluish-purple glass is identical to that of the previous balsamarium and likely indicates the same manufacturing center.

#### Balsamaria of De Tommaso Type 67

The characteristics of this group include a sharp-edged cut rim, a short neck, and an elongated body, often with a convex termination. Numerous variants are known, probably reflecting local tastes. These types were very common from the Augustan period to the Flavian period. As seen in our examples, they were likely placed (probably emptied of their contents) in the ustrinum alongside the deceased.

#### Balsamaria of De Tommaso Type 22

This form, characterized by the outward-turned lip, a thin neck, an oval body, and a flat base, is dated in Italy to the late 1<sup>st</sup> century BC, but it is particularly common in the first half of the 1<sup>st</sup> century AD up to the Flavian period. A date in the early imperial period also corresponds with the yellow coloration of the glass.

#### **15.** Balsamarium from Tarsus (Pl. II/1)

Measurements h. c. 10 cm; max diam. c. 3 cm; mouth diam. c. 1.9 cm

From Tarsus (?)

Dating: early 1st century AD - Flavian period

Tarsus Museum. Isings type 28.

# Balsamaria with a Truncated Conical and Bell-Shaped Body

The form classified as Isings type 28b corresponds to De Tommaso type 43. Typical characteristics include

Which, for the Italian examples, De Tommaso (1990) has divided into four subgroups corresponding to his types 6, 7, 12, and 14.

<sup>&</sup>lt;sup>21</sup> Atila, Gürler 2009, p. 26, cat. no. 19.

a funnel-shaped mouth with a cut lip, a long cylindrical neck taller than the truncated conical body, with straight or slightly rounded walls. The seven examples presented here show a variety in shape, size, and glass color. It is generally believed that these remained in use from the Neronian period to the Antonine period.

#### **16.** Balsamarium from Tarsus (Pl. II/2)

Inv. n. 13.1.1993; measurements h. 11.2 cm; max diam. 3.1 cm

From Tarsus, "Köylü Garajı" tomb

Dating: late  $1^{st}$  century AD – early  $2^{nd}$  century AD

Tarsus Museum.

Comparative Bibliography: Vessberg 1952, p. 141, Pl. IX, 24; Gürler 2000, p. 35, nos. 24–26, 28.

Published in Yurtseven 2006, p. 105, no. 31, fig. 24.

#### Balsamaria of De Tommaso Type 42

These are characterized by a turned-back lip, a long cylindrical neck, and a truncated-conical body. They generally appear in the second half of the 1<sup>st</sup> century AD.

#### 17. Balsamarium from Tarsus (Pl. II/3)

Measurements h. c. 11.2 cm; max diam. c. 3.1 cm From Tarsus, "Köylü Garajı" tomb Dating: late 1<sup>st</sup> century AD – early 2<sup>nd</sup> century AD Tarsus Museum.

#### 18. Balsamarium from Tarsus (Pl. II/4)

Inv. no. 10.1.1993; measurements h. 12.6 cm; max diam.  $5.7\ \mathrm{cm}$ 

From Tarsus, "Köylü Garajı" tomb

Dating: late 1<sup>st</sup> century AD – early 2<sup>nd</sup> century AD Tarsus Museum.

Similar to Isings type 28a; De Tommaso type 18/32.

Originally transparent green glass with numerous iridescences. The rim is outward-turned, the neck is cylindrical, separated from the piriform body by a groove. The very long neck suggests a date probably no earlier than the end of the 1<sup>st</sup> century AD. Similar examples are found, among others, in Istanbul in the Kocabaş collection<sup>22</sup>, Cyprus<sup>23</sup>, and Jerusalem.

Bibliography: Vessberg 1952, Pl. XXIII, no. 120; Isings 1957, p. 43, Form 28; Dusenbery 1967, p. 42, no. 23; Spartz 1967, Pl. 15, no. 55; von Saldern 1980, p. 23–25, Pl. 5, no. 110; Stern, Yağcı 1989, p. 601, Figs. 7.1, 8.1–6, 9.1–5; Sternini 1990, p. 70, Pl. 25, 151–152; Lightfoot, Arslan 1992, p. 80–83, nos. 36–39; Özet 1998, p. 118, no. 75c; Yurtseven 2006, p. 107, no. 44, fig. 37.

#### **19.** Balsamarium from Tarsus (Pl. II/5)

Measurements h. c. 12.6 cm; max diam. c. 5.7 cm From Tarsus, "Köylü Garajı" tomb Dating: late 1<sup>st</sup> century AD – early 2<sup>nd</sup> century AD Tarsus Museum.

#### 20. Balsamarium from Tarsus (Pl. II/6)

Inv. n. 8.1.1993; measurements h 5.6 cm From Tarsus, "Köylü Garajı" tomb Dating: mid  $1^{\rm st}$  century – early  $2^{\rm nd}$  century AD Tarsus Museum.

A balsamarium with a similar form to the previous one (De Tommaso type 18/32), but with a shorter neck and wider base. These characteristics likely suggest a date in the  $2^{nd}$  century AD.

Comparative example: similar piece in the Bergama  $Museum^{24}$ .

Bibliography: Vessberg 1952, Pl. XXIII, no. 120; Dusenbery 1967, p. 42, no. 23; Spartz 1967, Pl. 15, no. 55; von Saldern 1980, pp. 23–25, Pl. 5, no. 110; Stern, Yağcı 1989, p. 601, Figs. 7.1, 8.1–6, 9.1–5; Sternini 1990, p. 70, Pl. 25, 151–152; Lightfoot, Arslan 1992, p. 80–83, nos. 36–39; Özet 1998, p. 118, no. 75c; Yurtseven 2006, p. 107, no. 43, fig. 36.

#### Balsamaria of De Tommaso Type 43

This form is widely found in Italy and the western provinces between the Neronian period and the Antonine period.

#### 21. Balsamarium from Alanya (Pl. II/7)

Measurements h. c. 12.5 cm; max diam. cm 5.5 cm From Alanya (?)

Dating: mid 1<sup>st</sup> century – early 2<sup>nd</sup> century AD Alanya Museum.

#### 22. Balsamarium from Alanya (Pl. II/8)

Measurements h. c. 12.6 cm; max diam. c. 5.7 cm From Alanya (?)

Dating: mid-1<sup>st</sup> century – early 2<sup>nd</sup> century AD Alanya Museum.

#### Balsamaria of De Tommaso Group/Type 67

This group, extremely widespread throughout the Empire, has a vast number of variations, distinguished by the neck/body ratio, the shape of the body, and other details. It falls under the group of Isings form 28a. The examples presented here are made of marbled glass, which is an important feature for a form generally produced on a large scale in a rather unrefined manner. The three examples shown here exhibit slight differences in the length of the neck, the presence or absence of a constriction at the junction of the body, and overall size.

Bibliography: Vessberg 1952, p. 141, Pl. IX: 24; Isings 1957, p. 42–43, form 28a; Gürler 2000, p. 35, nos. 24–26, 28.

#### 23. Balsamarium from Mersin (Pl. II/9)

Measurements h. c. 8 cm; max diam. c. 1.5 cm From Mersin (?) Dating: Tiberian-Flavian period Mersin Museum.

#### 24. Balsamarium from Mersin (Pl. II/10)

Measurements h. c. 8 cm; max diam. c. 1.5 cm

<sup>&</sup>lt;sup>22</sup> Akat *et alii* 1984, p. 78.

<sup>&</sup>lt;sup>23</sup> Vessberg 1956, fig. 48, no. 24.

<sup>&</sup>lt;sup>24</sup> Atila, Gürler 2009, p. 42, no. 51.

From Mersin (?)

Dating: Tiberian-Flavian period

Mersin Museum.

#### 25. Balsamarium from Mersin (Pl. II/11)

Inv. no. ---; measurements h. c. 8 cm; max diam. c. 1.5 cm From Mersin

Dating: Tiberian-Flavian period

Mersin Museum.

#### Tubular Balsamaria

This shape is also widespread throughout the Roman Empire, particularly during the Flavian and Trajanic periods. It is primarily known from funerary contexts, so we can assume it was used for balms and essences. Compared to the examples from the previous group, the profile shows a certain rigidity, and the glass used is almost always a pale green color.

#### **26.** Balsamarium from Tarsus (Pl. II/12)

Inv. n. 31.1.1993; measurements h. 8.5 cm; max diam. 1.7 cm

From Tarsus, "Köylü Garajı" tomb Dating: mid-1<sup>st</sup> – early 2<sup>nd</sup> century AD

Tarsus Museum.

Balsamarium of Isings 28b form; De Tommaso group/type 70.

Greenish-blue glass.

Outward-turned lip, long neck, separated from the pear-shaped and elongated body by a constriction.

A similar example, although with a shorter neck, from Bergama, has been dated by Atila, Gürler 2009, no. 106, p. 70, to the period between the 1<sup>st</sup> and 4<sup>th</sup> centuries AD. Bibliography: Yurtseven 2006, p. 107, no. 42, fig. 35.

#### 27. Balsamarium from Tarsus (pl. II/13)

Measurements h. c. 8 cm; max diam. c. 1.5 cm

From Tarsus

Dating: Flavian-Trajanic period

Tarsus Museum.

#### Balsamarium with depressions on the body

This container features a well-known shape in the western provinces during the 2<sup>nd</sup>-3<sup>rd</sup> centuries AD, so named because often in these medicinal containers, the symbol of Mercury was used as a maker's mark (for the balm) on the bottom. It corresponds to Form 8.6.20 in the Lazar classification<sup>25</sup>. The form is somewhat rare and various dates were suggested, ranging from the 2<sup>nd</sup> to the 4<sup>th</sup> centuries AD.

#### 28. Balsamarium from Tarsus (Pl. II/14)

Measurements h. c. 8.5 cm; max diam. c. 1.7 cm

From Tarsus

Dating: 2<sup>nd</sup>—4<sup>th</sup> century AD

Tarsus Museum.

#### Series of seven balsamaria from the Tarsus Museum

**29–35.** Tarsus Museum (Pl. II/15–21)

Measurements h c. 4–6 cm, diam c. 3–4 cm

From Tarsus, various provenances

Dating: 1st-3rd century AD

Tarsus Museum.

#### Balsamaria with low conical bodies

This particular shape, corresponding to De Tommaso Type 50, has a flattened body and a tall neck. Notably, the typical intense green color of the glass recalls late Egyptian products, particularly containers for kohl, which, however, have a slightly different shape.

#### 36. Balsamarium from Alanya (Pl. II/22)

Measurements h. c. 5 cm; max diam c. 3 cm

From Alanya

Dating: late 2<sup>nd</sup>-3<sup>rd</sup> century AD

Alanya Museum.

#### 37. Balsamarium from Alanya (Pl. II/23)

Measurements h. c. 5 cm; max diam c. 3 cm

From Alanya

Dating: late 2<sup>nd</sup>-3<sup>rd</sup> century AD

Alanya Museum.

#### 38. Balsamarium from Alanya (Pl. II/24)

Measurements h. c. 5 cm; max diam c. 3 cm

From Alanya

Dating: late 2<sup>nd</sup>-3<sup>rd</sup> century AD

Alanya Museum.

#### Balsamarium with a wide mouth

This is also a relatively rare shape, especially appearing in the later periods, starting from the 2<sup>nd</sup> century. It is an evolution of Lazar form 8.6.12.

#### **39. Balsamarium from Tarsus** (Pl. II/25)

Measurements h. c. 7 cm; max diam c. 6 cm

From Tarsus

Dating: 2<sup>nd</sup>-3<sup>rd</sup> century AD

Tarsus Museum.

#### Finger spindle whorl fragment

For a long time, the function of these small, often twisted spindles, formed by the union of components in different colors, remained uncertain due to their always fragmentary condition. Only in recent years has it been determined that they are spindle whorls, similar to examples made of bone, ivory, and amber, found in the tombs of women of high social status.

#### Late period bottle

Bottles with a globular, more or less flattened body and a long neck, of Isings form 104 b, are typical of the Late Antiquity period, specifically the  $3^{rd}$ – $4^{th}$  centuries AD.

<sup>&</sup>lt;sup>25</sup> Lazar 2003.

In this case, both examples have a body that widens toward the shoulder and a neck that tapers downward.

#### 40. Bottle from Alanya (Pl. II/26)

Measurements h. c. 5 cm; max diam c. 4 cm

From Alanya

Dating: 3<sup>rd</sup>-4<sup>th</sup> century AD

Alanya Museum.

#### Medieval Glass Object

#### 41. Cup from Tarsus (Pl. II/27)

Measurements h. c. 5 cm; max diam c. 4 cm

From Tarsus

Dating: 11<sup>th</sup>–13<sup>th</sup> century

Tarsus Museum.

This vessel has a vertical stem in the center, ending with a loop. A vertical handle on the side. The rim is worked with a series of sharp triangles. On the wall, there are raised elements resembling plant motifs (?), followed by a series of vertical elements. Based on the type of glass and decoration, it can be compared to other objects dated between the 11<sup>th</sup> and 13<sup>th</sup> centuries, see a vessel from the Metropolitan Museum<sup>26</sup>.

## **42–93.** Various Containers and Balsamaria from Adana (Pl. II/28)

Measurements h. c. 5 cm; max diam c. 4 cm From Adana (?)

Dating: Roman, Late Roman, and Byzantine periods Adana Museum.

#### **Ornamental Objects**

Among ornamental objects, glass bracelets are particularly numerous, continuing from the Roman period into the medieval era. However, in the 11th-13th centuries, they seem to have been less frequent in certain areas, such as Constantinople, compared to elsewhere<sup>27</sup>. Nevertheless, from the Byzantine period onwards, glass ornamental objects, especially bracelets, were quite common throughout the Mediterranean. Recent studies have increased knowledge of these items, as demonstrated by contributions presented at the International Congress in Izmir, published in the proceedings volume<sup>28</sup>. Without a specific archaeological context, it is impossible to determine their exact dating<sup>29</sup>. At Sagalassos, 113 examples were found, with nine recognized types. Excavations have shown that during the middle Byzantine period (11th-13th centuries), bracelets were worn by women of lower social status<sup>30</sup>.

As in the entire Ionian coast, and even inland, glass bracelets are numerous in Cilicia, largely similar across the centuries. For example, the Museum of History and Art in Izmir has a rich collection of these bracelets. It contains

numerous examples (35) of various colors and types. This is a significant number, considering the Museum of Bergama only holds  $9^{31}$ , while the Tire Museum has  $24^{32}$ .

The simplest of these belong to Spaer A1 type and are made of opaque colored glass. Others (6) have a twisted appearance. These were a common type of ornament in Byzantine contexts between the 8<sup>th</sup> and 14<sup>th</sup> centuries<sup>33</sup>. A production of bracelets in present-day Turkey is also attested in the middle Byzantine period, for instance, at Amorium<sup>34</sup> and Sagalassos<sup>35</sup>.

#### Necklaces

It is uncertain whether the necklaces were part of excavation finds or were rather "constructed" within the museum. The suspicion arises from the inclusion of melon-shaped beads (widely common in Roman times) alongside beads of other shapes, possibly of a different age.

#### 94. Bracelet from Alanya (Pl. III/1)

Measurements width c. 0.7 cm; diam c. 8.3 cm.

From Alanya (?)

Dating: Late Roman or Byzantine period Alanya Museum.

#### 95. Bracelet from Tarsus (Pl. III/2)

Measurements width c. 0.7 cm; diam c. 8.3 cm.

From Tarsus, Roman baths

Dating: Late Roman or Byzantine period

Tarsus Museum.

#### 96-99. Bracelets from Tarsus (Pl. III/3)

Measurements width c. 0.7-0.5 cm; diam c. 8.3-7.9 cm.

From Tarsus, Roman baths

Dating: Late Roman or Byzantine period

Tarsus Museum.

#### 100–107. Bracelets from Tarsus (Pl. III/4)

Measurements width c. 1.5 cm; diam c. 8 cm.

From Tarsus, Donuktaș

Dating: Late Roman or Byzantine period

Tarsus Museum.

#### 108-114. Bracelets from Tarsus (Pl. III/5)

Measurements width c. 1.5 cm; diam c. 8 cm.

From Tarsus, Donuktaș

Dating: Late Roman or Byzantine period

Tarsus Museum.

# **115–142.** Bracelets, Rings, and Necklace from Hatay (Pl. III/6)

From Hatay (?)

<sup>&</sup>lt;sup>26</sup> Jenkins 1986, p. 33, fig. 36.

<sup>&</sup>lt;sup>27</sup> As noted by Hayes 1992, p. 401.

<sup>&</sup>lt;sup>28</sup> Lafli 2009.

<sup>&</sup>lt;sup>29</sup> Schwarzer 2009, p. 74.

<sup>30</sup> Lauwers et alii 2010.

<sup>&</sup>lt;sup>31</sup> Atila, Gürler 2009, p. 193.

<sup>&</sup>lt;sup>32</sup> Gürler 2000, p. 119–130.

<sup>&</sup>lt;sup>33</sup> e.g., at Saraçhane and Iasos, see Baldoni, Berti 1998, p. 76–77; Berti 2012, p. 192.

<sup>&</sup>lt;sup>34</sup> see Ristovska 2009.

<sup>35</sup> Lauwers et alii 2010.

Dating: Late Roman and Byzantine periods Hatay Museum.

**143–146.** Bracelets and Necklaces from Hatay (Pl. III/7–9) Measurements width c. 1.5 cm; diam c. 8 cm.

From Hatay (?)

Dating: Roman, Late Roman, and Byzantine periods Hatay Museum.

#### CONCLUSION

This study has explored the rich history of ancient glass production, particularly focusing on the Eastern Mediterranean and the Roman Empire, two regions where glasswork was both an artistic expression and a practical craft. The glass objects produced in these regions, ranging from small perfume containers to elaborate vessels, reveal a great deal about the cultural and technological evolution of the era. By examining the various forms of glass, from early Hellenistic examples to Roman adaptations, we can better understand the role of glass in daily life, religious rituals, and trade networks.

The most fundamental forms of early glass, such as the alabastron and amphoriskos, were directly influenced by Greek ceramic vessels but were often produced on a smaller scale. These early forms demonstrate a blend of functionality and craftsmanship, as they were primarily used to store perfumes and oils, essential products in the ancient world. The glassmaking techniques developed during the Hellenistic period, especially in regions like Rhodes and Cyprus, laid the foundation for the more intricate and localized forms that emerged during the Roman period. These regional production centers were responsible for spreading glass objects throughout the Mediterranean, as evidenced by their wide distribution from the Eastern Mediterranean to Italy.

The Adana region, with its significant archaeological finds, provides a crucial link in understanding the local production of glass objects. The alabastron from Adana, for instance, offers an insight into the stylistic evolution of glassware, characterized by the distinct cobalt blue hues and decorative patterns. The interplay of different colors, such as the blue, yellow, and turquoise, found in glass pieces from this region suggests a high level of technical skill and aesthetic sensibility, likely shaped by both local craftsmanship and wider cultural influences from the Greek and Roman worlds.

One of the most significant developments in glass production during the Roman period was the creation of balsamaria, used to store perfumes and oils for funerary rituals. These items were not only part of daily life but also the symbolic of the cultural and religious practices of the time. The widespread use of balsamaria across the Mediterranean, from Syria and Palestine to Italy, attests to the mobility of Roman goods and the cultural connections between various regions. These vessels, often designed

with intricate shapes and delicate features, were used in both personal and ritual contexts, further emphasizing the sacred and functional qualities of glass objects.

The study of these glass objects also highlights the role of local production centers in creating forms that met the specific needs and tastes of different regions. For example, the varying shapes of balsamaria, from globular to piriform, reflect regional preferences and cultural distinctions, while the use of glass in different colors, such as cobalt blue, yellow, and green, marks the technical innovation in glassmaking. The prevalence of glass vessels in funerary contexts, such as those found in Tarsus and other locations, demonstrates the importance of these objects not only in daily life but also in the rituals surrounding death and the afterlife.

Roman glass, particularly from the imperial period, reveals a shift towards more localized production with distinctive characteristics, such as unguenteria with some local typological features, local production of rectangular jugs and bottles with facial features of a child. The introduction of new forms, such as those used for perfumes, cosmetics, and medical ointments, reflects the growing demand for such products, further signifying the importance of trade networks across the empire. The color variations, from transparent to opaque glass, and the increasingly sophisticated techniques in molding and blowing glass are indicative of the technical advancements achieved during this period.

In conclusion, the study of ancient glass, particularly from the Eastern Mediterranean and the Roman Empire, provides valuable insights into the cultural exchanges, technological developments, and artistic trends that shaped the ancient world. Glass objects served not only as functional tools but also as symbols of trade, religion, and identity, reflecting the interconnectedness of the Mediterranean world. As evidenced by the rich variety of glass forms and techniques, these objects continue to serve as a testament to the craftsmanship and creativity of ancient societies, offering a window into the daily lives and rituals of past civilizations.

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Plate I. 1. Cup from Adana; 2. Mono-handled Bottle from Tarsus; 3a-b. Mono-handled Bottle from Alanya; 4. Mono-handled Bottle from Tarsus; 5. Square Base Bottle from Tarsus; 6. Spherical Body Bottle from Tarsus; 7. Globular Balsamarium Bottle from Tarsus; 8. Cylindrical Neck Bottle from Mersin; 9. Glass from Tarsus; 10. Wide-neck Glass from Tarsus; 11, 13. Balsamaria from Tarsus; 12, 14. Balsamaria from Alanya.



Plate II. 1–6. Balsamaria from Tarsus; 7–8; Balsamaria from Alanya. 9–11. Balsamaria from Mersin; 12–14. Balsamaria from Tarsus; 15–21. Series of seven balsamaria from the Tarsus Museum; 22–24. Balsamaria from Alanya; 25. Balsamarium from Tarsus; 26. Bottle from Alanya; 27. Cup from Tarsus; 28. Various Containers and Balsamaria from Adana.



Plate III. 1. Bracelet from Alanya; 2–5. Bracelets from Tarsus; 6. Bracelets, Rings, and Necklace from Hatay; 7–9. Bracelets and Necklaces from Hatay.

#### **ABREVIERI / ABRÉVIATIONS / ABBREVIATIONS**

AAC – Acta Archaeologica Carpatica, Kraków

ACMI - Anuarul Comisiunii Monumentelor Istorice, București

ACMIT – Anuarul Comisiunii Monumentelor Istorice, Secțiunea pentru Transilvania, Cluj

ActaArchHung – Acta Archaeologica Academiae Scientiarum Hungaricae, Budapest

ActaMM – Acta Moldaviae Meridionalis, Vaslui

ActaMN - Acta Musei Napocensis, Cluj

ActaMP - Acta Musei Porolissensis, Zalău

ActaMT – Acta Musei Tutovensis, Bârlad

AIGR – Anuarul Institutului Geologic al României, București

AJPA - American Journal of Physical Anthropology

Alt-Thüringen – Alt-Thüringen: Jahresschrift des Museums für Ur- und Frühgeschichte Thüringens

Aluta – Aluta. Revista Muzeului Național Secuiesc Sfântu Gheorghe

Anatolia Antiqua – Anatolia Antiqua. Revue internationale d'archéologie anatolienne. Institut Français d'Etudes anatoliennes d'Istanbul

Anatolica – Anatolica. The Netherlands Institute for the Near East in Leiden

AnB – Analele Banatului, Muzeul Banatului, Timișoara

AncNearEastSt - Ancient Near Eastern Studies, Leuven, Belgia

Angustia – Angustia. Arheologie, Etnografie, Sfântu Gheorghe

Anmed – Anmed. Anadolu Akdenizi Arkeoloji Haberleri, Antalya, Turcia

Antiquity – Antiquity. A Quarterly Review of Archaeology, University of York

AnuCraiova – Analele Universității din Craiova, Craiova (seria Istorie)

AO – Arhivele Olteniei

Apulum – Acta Musei Apulensis. Muzeul Național al Unirii, Alba Iulia

Archaeol Anthropol Sci – Archaeological and Anthropological Sciences

ArchBulg – Archaeologia Bulgarica, Sofia

Archért – Archaeológiai Értesítő, Budapest

ArchHung – Archaeologia Hungarica, Acta Archaeologica Musei Nationalis Hungarici, Budapest

Area – Area. Royal Geographical Society, London

Argesis – Argesis. Muzeul Județean Argeș. Pitești

ArhDIUkrajn - Arheologija i Danija Istorija Ukrajni, Institut Arheologij NAN Ukraini, Kijv

ArheologijaKiiv – Arheologija. Nacional'na akademija nauk Ukraini. Institut archeologii, Kiev

ArheologijaSSSR – Arheologija SSSR. Svod Archeologičeskih Istočnikov, Moscova

ArhMold - Arheologia Moldovei, Iași

ArhPrevMoldova - Arheologia Preventivă în Republica Moldova

BA – Biblioteca de Arheologie, București

BARIntSer – British Archaeological Reports. International Series, Oxford

BCH – Bulletin de Correspondance Hellénique, Athènes-Paris

BCMI – Buletinul Comisiunii Monumentelor Istorice

BerRGK – Bericht der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts, Frankfurt am Main

BiblistroPontica-A - Biblioteca Istro-Pontica. Seria Arheologie, Tulcea

BiblMemAnt - Bibliotheca Memoriae Antiquitatis, Piatra-Neamţ

BiblThrac – Bibliotheca Thracologica, București

BMC – Coins of the Roman Empire in the British Museum, Londra; II, Vespasian to Domitian, 1930; IV, Antoninus Pius to Commodus, 1968; V, Pertinax to Elagabalus, 1950 (H. Mattingly)

BMI – Buletinul Monumentelor Istorice

BMJT – Buletinul Muzeului Județean Teleorman, Alexandria

BOR - Biserica Ortodoxă Română

BSA – British School at Athens, Athens

BSNR - Buletinul Societății Numismatice Române, București

BSPF – Bulletin de la Societé Préhistorique Française, Paris

BSSC – Buletinul Societății de Științe din Cluj

CA – Cercetări Arheologice. Muzeul Național de Istorie a României, București

Carpica – Carpica. Complexul Muzeal "Iulian Antonescu" Bacău, Bacău

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CCA – Cronica Cercetărilor Arheologice din România, București

CCDJ – Cultură și Civilizație la Dunărea de Jos, Călărași

CercIst – Cercetări Istorice, Muzeul de Istorie a Moldovei, Iași

Cumidava - Cumidava. Culegere de studii și cercetări. Muzeul de Istorie Brașov

Current Anthropology – Current Anthropology. University of California, Merced

Dacia – Dacia (Nouvelle Série). Revue d'archéologie et d'histoire ancienne. Académie Roumaine. Institut d'archéologie « V. Pârvan », Bucarest

Danubius – Danubius, Revista Muzeului de Istorie Galați

DHA - Dialogues d'histoire ancienne, Institut des Sciences et Techniques de l'Antiquité

DissArch - Dissertationes Archaeologicae. Eötvös Loránd University, Budapest

Documenta Praehistorica – Documenta Praehistorica, University of Ljubljana, Faculty of Arts, Department of Archaeology, Ljubljana

EphemNap – Ephemeris Napocensis. Academia Română, Institutul de Arheologie și Istoria Artei, Cluj-Napoca

FolArchPoznan – Folia Praehistorica Posnaniensia, Instytut Archeologii, Poznań

Germania – Germania. Anzeiger der Römisch-Germanischen Kommission des Deutschen Archäologischen Instituts, Frankfurt

Hill<sup>1</sup> – P.V. Hill, The dating and the arrangement of the undated coins of Rome, A.D. 98–148, Londra, 1970

Hill<sup>2</sup> – P.V. Hill, The coinage of Septimius Severus and his family of the mint of Rome, A.D. 193–217, Londra, 1964

HOMO – HOMO. Journal of Comparative Human Biology, Stuttgart

Howgego – C. J. Howgego, *Greek Imperial Countermarks*. Studies in the provincial coinage of the Roman empire, Londra, 1985

Human Evolution – Human Evolution, International Institute for Humankind Studies and University of Florence

IJO - International Journal of Osteoarchaeology

Istros – Istros, Muzeul Brăilei, Brăila

JAMÉ – A nyíregyházi Jósa András Múzeum Évkönyve

JAnat - Journal of Anatomy

JAS - Journal of Archaeological Science

JDAI – Jahrbuch des Deutschen Archäologischen Instituts, Deutsches Archäologisches Institut, Berlin

JFS - Journal of Forensic Sciences

JHE - Journal of Human Evolution

JRA - Journal of Roman Archaeology

JRGZM – Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz, Mainz

JRS - The Journal of Roman Studies

Klio – Klio. Beiträge zur Alten Geschichte, Berlin

KST – T. C. Kültür Bakanlığı, Eski Eserler ve Müzeler Genel Müdürlüğü, I. Kazı Sonuçları Toplantısı, Ankara, Mayıs 1979 [Republic of Turkey, General Directorate of Ancient Monuments and Museums, first Turkish annual meeting for the results of excavations, Ankara, May 1979] (1979–2020).

LRBC, I – Late Roman Bronze Coinage A.D. 394-498, Londra, 1965; I, The Bronze Coinage of the House of Constantine A.D. 324–346 (P.V. Hill, J.P.C. Kent)

LRCW – Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean. Archaeology and Archaeometry MAIASP – Materialy po Arheologii i Istorii Antičnogo i Srednevekovogo Pričernomor'ja (Материалы по Археологии и Истории Античного и Средневекового Причерноморья), Nižnevarovsk.

Marisia - Marisia. Studii și materiale. Arheologie - Istorie - Etnografie, Târgu Mureș

MCA – Materiale și Cercetări Arheologice, București

MemAnt - Memoria Antiquitatis, Piatra Neamţ

MHÁS – Magyarország honfoglalás kori és kora Árpád-kori sírleletei, Miskolc–Budapest–Szeged–Szombathely

Mousaios – Mousaios. Buletinul Științific al Muzeului Județean Buzău

MPR – I. Barnea, Les monuments paléochrétiens de Roumanie, Sussidi allo studio delle antichità cristiane pubblicati per cura del Pontificio Istituto di archeologia Cristiana 6, Città del Vaticano, 1977

Musaica – Musaica Archaeologica, Univerzita Komenského v Bratislava, Bratislava

Olba - Mersin University Publications of the Research Center of Cilician Archaeology, Mersin, Turkey

Oltenia – Oltenia. Studii și Comunicări, Craiova

Pallas – Pallas. Revue d'Etudes Antiques, Toulouse

PATABS – Production and Trade of Amphorae in the Black Sea

PBF - Prähistorische Bronzefunde, Münster

Peuce – Peuce. Studii și cercetări de istorie și arheologie, Institutul de Cercetări Eco-Muzeale, Tulcea

Pontica – Pontica. Studii și materiale de istorie, arheologie și muzeografie, Muzeul de Istorie Națională și Arheologie Constanța

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PZ – Präehistorische Zeitschrift, Berlin-Mainz

Quaternary International – Quaternary International. The Journal of the International Union for Quaternary Research

RAASI – Revista de Arheologie, Antropologie și Studii Interdisciplinare, Institutul de Cercetări Bioarheologice și Etnoculturale, Republica Moldova

Radiocarbon – An International Journal of Cosmogenic Isotope Research, Cambridge

RAN – Revue archéologique de Narbonnaise, Montpellier

RCRF – Rei Cretariae Romanae Fautorum

Recueil – W.H. Waddington, E. Babelon, Th. Reinach, *Recueil général des monnaies grecques d'Asie Minéure*, I-IV, Paris, 1904–1912

RevArh – Revista Arheologică, Academia de Științe a Moldovei, Chișinău

RevMuz - Revista Muzeelor, București

RGZM – Römisch-Germanisches Zentralmuseums Mainz, Mainz

RIC – The Roman Imperial Coinage, Londra. II, Vespasian to Hadrian, 1926; III, Antoninus Pius to Commodus, 1930; IV.1, Pertinax to Geta, 1968 (H. Mattingly, E.A. Sydenham); IV.2, Macrinus to Pupienus, 1938; IV.3, Gordian III – Uranius Antoninus, 1949 (H. Mattingly, E.A. Sydenham, C.H.V. Sutherland); VII, Constantine and Licinius A.D. 313-337, 1966 (P.M. Bruun)

RIC, II<sup>2</sup>.1 – I.A. Carradice, T.V. Buttrey, *The Roman Imperial Coinage*, II.1, *Vespasian to Domitian*, Londra, 2007 (ediția a II-a, revizuită)

RossArch – Rossijskaya Arheologiya. Institut arheologii Rossijskoj akademii nauk, Moskva

RPC III – M. Amandry, A. Burnett, J. Mairat, *Roman Provincial Coinage*, III, *From Nerva to Hadrian (AD 96–138)*, Londra / Paris, 2015; versiune online https://rpc.ashmus.ox.ac.uk/search/browse?volume\_id=3

RPC IV.1 – V. Heuchert, *Roman Provincial Coinage*, IV.1, *From Antoninus Pius to Commodus (AD 138–192): Cyrenaica to Bithynia-Pontus*, online (2005); https://rpc.ashmus.ox.ac.uk/search/browse?volume\_id=4

RPC V.3 – A. Burnett *et alii*, *Roman Provincial Coinage*, V.3, *From Pertinax to Macrinus (AD 193–218): Lycia-Pamphylia to Egypt*, online (2024); https://rpc.ashmus.ox.ac.uk/search/browse?volume id=10

RPC VI – D. Calomino, A. Burnett, *Roman Provincial Coinage*, VI, *From Elagabalus to Maximinus Thrax (AD 218–238)*, online (2017, 2022); https://rpc.ashmus.ox.ac.uk/search/browse?volume\_id=11

RPC VII.2 – J. Mairat, M.S. Butcher *et alii, Roman Provincial Coinage*, VII.2, *From Gordian I to Gordian III (AD 238–244): all provinces except Asia*, Londra / Paris, 2022; versiune online https://rpc.ashmus.ox.ac.uk/search/browse?volume\_id=14

RPC VIII – J. Mairat *et alii, Roman Provincial Coinage*, VIII, *Philip I (AD 244–249)*, online (2020); https://rpc.ashmus.ox.ac. uk/search/browse?volume\_id=15

SA – Sovetskaja Arheologija, Akademija Nauk SSSR, Institut Arheologii, Moskva

SAA – Studia Antiqua et Archaeologica, Iași

SCIV(A) – Studii și Cercetări de Istorie Veche (și Arheologie), București

SCN – Studii și Cercetări de Numismatică, București

SEAT – Studien zur Eisenzeitlichen Archäologie Thrakiens, Rahden/Westphalia

Simpozion Chişinău 2004 – Simpozion de numismatică organizat cu ocazia comemorării Sfântului Ștefan cel Mare, Domn al Moldovei (1504–2004), Chişinău, 29 septembrie – 2 octombrie 2004. Comunicări, studii și note, București, 2007.

ŚląskieSprawArch – Śląskie Sprawozdania Archeologiczne, Wroclaw, Polonia

SMMIM – Studii și Materiale de Muzeografie și Istorie Militară, București

SNG-ANS, Macedonia I – Sylloge Nummorum Graecorum. The Collection of the American Numismatic Society, Part 7, Macedonia I: Cities, Thraco-Macedonian tribes, Paeonian kings, New York, 1987

SNGCop 5 – Sylloge Nummorum Graecorum. The Royal Collection of Coins and Medals, Danish Royal National Museum, Copenhaga, 1942-1969 (serie reeditată); V, Ionia, Caria and Lydia, West Milford, 1982

SP – Studii de Preistorie, București

SprawArch – Sprawozdania Archeologiczne, Warsaw

StArchBrno - Studia Archaeologica Brunesia, Masaryk University, Brno

Starinar – Starinar. Arheološki institut Beograd

StComPitești – Studii și Comunicări, Seria Istorie, Muzeul Județean Argeș, Pitești

StMatTârguMureș – Studii și Materiale, Târgu Mureș

StratumPlus – Stratum Plus, Școala Superioară de Antropologie, Chișinău, St Petersburg, București

Studia Hercynia – Studia Hercynia. Journal of the Institut of Classical Archaeology, Univerzita Karlova, Cehia

Studia Praehistorica – National Archaeological Institute with Museum of the Bulgarian Academy of Sciences

Syria – Syria. Archéologie, art et histoire. Institut Français du Proche-Orient

Terra Sebus – Terra Sebus. Acta Musei Sabesiensis, Anuarul Muzeului Municipal "Ioan Raica", Sebeș

Th-D – Thraco-Dacica, București

428 Abrevieri

Transylvanian Review - Transylvanian Review. Centrul de Studii Transilvane, Cluj-Napoca

Tyragetia – Tyragetia. Anuarul Muzeului Național de Istorie a Moldovei, Chișinău

UPA – Universitätsforschungen zur Prähistorischen Archäologie, Bonn

VAH – Varia Archaeologica Hungarica V. Redigit Csanád Bálint. Publicationes Instituti Archaeologici Academiae Scientiarum Hungaricae, Budapest

Valachica – Valachica. Studii și cercetări de istorie și istoria culturii, Complexul Muzeal Național Curtea Domnească Târgoviște

Varia Anatolica – Varia Anatolica. L'Institut Français d'Études Anatoliennes, Istanbul

Vărbanov I – I. Vărbanov, Greek imperial coins and their values (the local coinage of the Roman Empire), I, Dacia, Moesia Superior, Moesia Inferior, Burgas, 2005

Varbanov II - I. Vărbanov, Greek imperial coins, II, Thrace (from Abdera to Pautalia), Burgas, 2005

WorldA – World Archaeology

ZAM – Zeitschrift für Archäologie des Mittelalters, Bonn

Ziridava – Ziridava. Studia Archaeologica, Arad