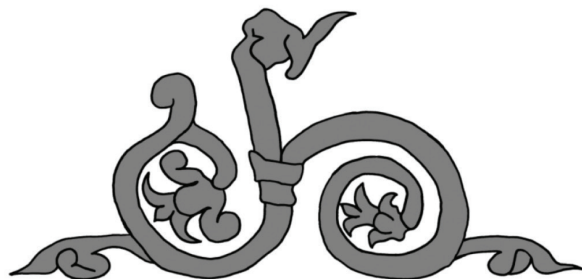


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Glass Recipients from Sarmizegetusa Regia. *Unguentaria* and Bottles^{*}

Liliana Daniela Mateescu-Suciu

Abstract: In time, a significant quantity of glass fragments (coming from containers, jewellery or raw glass) was found, during excavations in Sarmizegetusa Regia. This paper aims to publish glass containers: *unguentaria* and bottles. Most of the artefacts are imports coming from the Roman world, but a local production cannot be overruled, especially taking into account the already known evidence of the activity of a workshop. Both types of containers were used in Sarmizegetusa Regia, as they were elsewhere, for transporting and keeping cosmetics, pharmaceuticals and beverages. Some of these artefacts could have been used by the roman soldiers garrisoned in Sarmizegetusa after the conquest but, some others certainly belonged to the pre-roman Dacian inhabitants, since they were found within structures (dwellings and workshops) dating back to the 1st c. A.D. and the beginning of the next one.

Keywords: Sarmizegetusa Regia, glass, *unguentaria*, bottles, the Dacians, La Tène.

The number and diversity of glass items from the area of the Dacian fortifications and settlements from the Orăştie Mountains are remarkable, especially compared to the discoveries made in the rest of Dacia. The first statistic on the topic, performed on items known until 1974, showed that 47.7% of all glass artifacts focused in the above mentioned area¹. Subsequent archaeological researches carried out either in Grădiştea de Munte – Sarmizegetusa Regia or on the other sites around it have led to the significant increase of their number. Thus, specialists currently are taking into account an intense commerce with such artefacts in the area of the capital of the Dacian Kingdom, but also of the possible local production of certain glass containers or objects.

The presence of a glass production workshop in Sarmizegetusa Regia is almost certain, attested by large quantities of raw glass, mainly greenish yellow in color, and by a great number of colored glass flakes (red, green, black, blue etc.) resulted from the process of producing glass objects. One can also add the discovery of a long iron pipe (89 cm) used for glass blowing and of a fragment from a clay container (crucible) that still preserves a 1–1.5 cm-thick glass crust, on terrace VIII². According to these data, besides finished goods brought from the Roman world, raw glass was also imported into the Dacian milieu, at least in the second half of the first century A.D., that local artisans transformed locally into various objects through blowing³ or pressing.

The main categories of glass artifacts frequently discovered in Sarmizegetusa Regia are raw glass lumps, pots, jewelry items (beads) and construction materials (window panes). The category of glass tableware from the site under discussion includes bottles, *unguentaria*, cups, glasses, tureens and bowls of various sizes. If glass items used part of tableware sets (glasses, bowls, cups etc.) are most often fragmentarily preserved, glass containers mainly used for the transportation and storage of liquid or semi-liquid products (bottles and *unguentaria*) have been preserved much better. The artefacts are often entirely preserved or can be completed and this might suggest that they were manipulated

^{*} English translation: Ana M. Gruia. The current research is financed by the project “Minerva – Cooperare pentru cariera de elită în cercetarea doctorală şi postdoctorală”, contract no: Posdru/159/1.5/S/137832, project co-financed from European Social Fund (FSE) through Sectoral Operational Programme Human Resources Development 2007–2013. The illustrations of this paper were provided by M. Măndruţău, R. Mateescu (photo) and R. Gaciu (drawing).

¹ Glodariu 1974, 73–76.

² Iaroslavschi 1981, 169–171.

³ Glass blowing technique, developed during the first century B.C., revolutionized the production of glass in the entire ancient world. Until then glass mold casting was a complicated procedure and knowledge required for glass production was complex, after the invention of glass blowing things became simpler and glass production craft experienced an unprecedented development.

occasionally, not daily, and the containers were thus preserved and used with greater precaution than common tableware.

The present paper aims at presenting two types of containers: *unguentaria* and bottles.

Unguentaria are among the first items produced in the Roman world through glass blowing⁴. They are also the most wide spread shapes of containers, discovered throughout the Roman Empire starting with the first century A.D. and until the fifth century A.D. or even later⁵. Sometimes called *balsamarii* or *lacrimarii*, they were most likely used for the transportation and storage of various products, most often liquid ones. Starting from the diversity of *unguentaria* types, specialists have suggested several typologies over time⁶. I shall not insist on them here, but note that for the present study I have mainly used the typologies published by C. Isings⁷, I. Lazar⁸ and Biaggio Simona⁹.

The following entire or fragmentary *unguentaria* are known so far from Sarmizegetusa Regia:

1. *Unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, Inv. VD 3799, Fig. 1/1, Fig. 6/1.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Platoul Cetăţii* (terrace no. I – construction level).

Description: Thin glass paste with a slight greenish hue and numerous air bubbles in the composition, including a large one in the area of the base. The rim is flat, rounded towards the outside and asymmetrical (one side higher, the other lower). The neck is tall and thin and the body (also asymmetrical) is slightly disproportionate. The proportion between neck and body is 1:3. The base is almost flat, with a slight concavity.

Dimensions: h. 9.2 cm; d. rim 2.1 cm; d. neck 1.1–1.3 cm; d. maximum 3.4 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D. The similar items discovered in Ticino are dated to the second half of the first century A.D. – first half of the second century A.D.¹⁰, De Tomassodates them back to the period between the Flavian and the Antoninedynasties, while the finds from Poetovioconfirm the use of these shapes during the same interval, even extended until the beginning of the third century A.D.¹¹

Bibliography: Florea, Suciu 2004, 65, fig. V/5; Sarmizegetusa Regia 2015, 109.

Analogies: Isings 28 b; Lazar 8.6.5.

2. *Unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, Inv. V 18525, Fig. 1/2, Fig. 6/2.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Eastern civilian sector* (terrace of the blacksmith workshop from Căprăreăta).

Description: Thin yellowish glass paste, with bubbles in the composition, especially in the area of the body. The rim is flat, slightly evertedand rounded, the neck is tall and thin and the body is slightly asymmetrical, the constriction stronger on one side. The proportion between neck and body is 1:3. The base is flat, slightly concave in the central area.

Dimensions: h. 11.75 cm; d. rim 2 cm; d. neck varies between 1.3 cm under the rim and 1.6 in the area of the constriction; d. maximum 3.1 cm.

Dating: end of the first century I A.D. – 106 A.D (according to the context of discovery). The shape is dated during the period between the second half of the first century A.D. and the first half of the third century A.D.¹² According to Isings the shape is specific to the eastern areasof the Roman Empire and is dated from the second half of the first century A.D. until the first half of the third century A.D.¹³

Bibliography: Glodariu 1974, 245; Glodariu 1975, 109–110, fig 3/3; Sarmizegetusa Regia 2015, 109.

Analogies: Isings 82 A1; Lazar 8.6.6.

3. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, Inv. VD 3801, Fig. 1/3, Fig. 6/1.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Platoul Cetăţii* (terrace no. I – construction level).

Description: Transparent glass paste with a slight greenish hue and with air bubbles in the composition. The item preserves the body and a small part of the neck. The walls are rather thick and the base is flattened, slightly concave in the central area and thickened at the bottom.

⁴ Lazar 2003, 195.

⁵ Harden 1936, 265.

⁶ See the discussion in Boţan 2015, 196, footnote 908.

⁷ Isings 1957.

⁸ Lazar 2003.

⁹ Biaggio Simona 1991.

¹⁰ Biaggio Simona 1991, 133–134.

¹¹ Lazar 2003, 196.

¹² Lazar 2003, 183.

¹³ Isings 1957, 97–98.

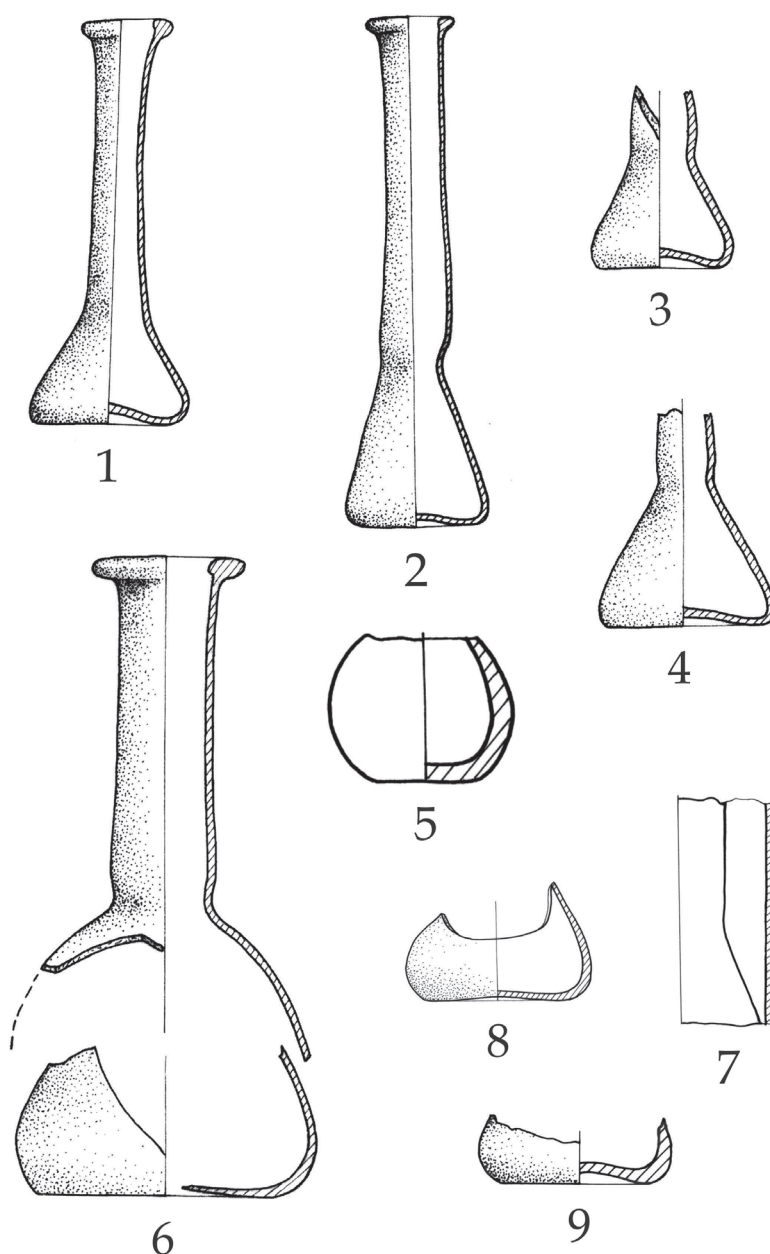


Fig 1. 1–9. *Unguentaria*. Grădiștea de Munte – Sarmizegetusa Regia.

Dimensions: h. preserved 4.2 cm (of which h. body 2.6 cm), d. maximum 3.4 cm.

Dating: end of the first century A.D. – beginning of the second century A.D. For the dating of similar items see no. 2.

Bibliography: Florea, Suciu 2004, 65, fig. V/4; Sarmizegetusa Regia 2015, 109.

Analogies: Isings 82 A1; Lazar 8.6.6.

4. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, Inv. VD 3800, Fig. 1/4, Fig. 6/1.

Findspot: Grădiștea de Munte – Sarmizegetusa Regia, *area of the fortress*.

Description: The item preserves the body and part of the neck. The glass paste is transparent, with a slightly greenish hue, with very numerous and very large air bubbles in the composition. The base is flattened, slightly concave in the central part.

Dimensions: h. preserved 5 cm (of which h. body 3.3 cm), d. maximum 4 cm.

Dating: second half of the first century A.D.–first half of the second century A.D. see item no. 2.

Bibliography: Sarmizegetusa Regia 2015, 109.

Analogies: Isings 82 A1; Lazar 8.6.6.

5. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, F.N., Fig. 1/5.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no. VIII* (terrace of the blacksmith workshop).

Description: Only the item's body has been preserved, as it is broken before the contact area between the body and the neck. The glass paste is transparent, with a slightly greenish hue and with air bubbles in the composition. The base is flattened.

Dimensions: h. preserved 4 cm, d. maximum 5 cm.

Dating: second half of the first century A.D. – 106 A.D. (according to the context of discovery).

Bibliography: Florea 1994, 59, fig. II/8.

Analogies: probably Isings 82 A1.

6. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, Inv. VD 3803, Fig. 1/6, Fig. 6/6.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *The western civilian sector* (terrace II on *Platoul cu şase terase*-terrace of the polygonal dwelling).

Description: The upper part of the item is preserved (rim, neck and part of the walls). Several other glass fragments were found in the same location and two of them seem to have been part of the same container (from the base of the *unguentarium*), but the entire shape cannot be reconstructed. The item looks like a long-necked flagon with globular or pear-shaped body and concave base. It is made of transparent glass paste with very few air bubbles in the composition. The rim is flat and rounded towards the outside and a constriction can be seen between its cylindrical neck and the body.

Dimensions: h. preserved of the upper side 11.1 cm, h. preserved of the body 3.6 cm, d. rim 3.5 cm; d. neck ca. 2.3–2.4 cm, d. maximum preserved 6.9 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D. (according to the context of discovery). Pear-shaped *unguentaria* are widely shaped in the Roman Empire from the beginning of the first century A.D. until the end of the third century A.D.¹⁴

Bibliography: Sarmizegetusa Regia 2015, 109.

Analogies: Isings 82 A1 (?); Biaggio Simona 8.1.9.

7. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, F.N., Fig. 1/7.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Platoul Cetăţii* (terrace I – construction level).

Description: Only part of the neck has been preserved. Transparent glass paste with a slightly greenish hue, with air bubbles in the composition.

Dimensions: h. preserved: 5 cm.

Dating: end of the first century A.D. – beginning of the second century A.D.

Bibliography: Florea, Suciu 2004, 65, fig. V/3.

Analogies: the fragmentary state does not allow for the identification of the type.

8. *Fragment of unguentarium* – Museum of Dacian and Roman Civilisation, Deva, Inv. 51448, Fig. 1/8.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no. III* (inside the fortress – construction level).

Description: Only the lower part of the item has been preserved, namely the body and the base. The latter is slightly concave. Transparent glass paste with a slightly greenish hue, displaying air bubbles in the composition over the entire surface of the fragment.

Dimensions: h. preserved 3.5 cm, d. maximum 4.5 cm.

Dating: end of the first century A.D. – beginning of the second century A.D.

Bibliography: Florea et al. 2010, 69.

Analogies: probably Isings 28b; Lazar 8.6.5; Biaggio Simona 8.1.4.

9. *Fragment of unguentarium* – National Museum of Transylvanian History, Cluj-Napoca, VD 3874, Fig. 1/9.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no IV* (inside the fortress).

Description: Only half of the base and a small part of the body have been preserved. The base has flat edges and a slight central concavity. The transparent glass paste, with a slight bluish hue, displays air bubbles in the composition, among which some rather large.

Dimensions: h. preserved 1.5 cm, d. maximum preserved 4.7 cm.

Dating: first century A.D. – beginning of the second century A.D.

Bibliography: previously unpublished item.

Analogies: probably Isings 28b; Lazar 8.6.5; Biaggio Simona 8.1.4.

¹⁴ Scatozza Hörich 1995, 64.

Unguentaria were usually employed in body care, cosmetic and medicine-related activities. Their use for keeping or selling of perfumes is supported by the analysis of their contents¹⁵ and by iconographic depictions (such as those in Pompeii for example)¹⁶. Recent pluri-disciplinary researches indicate that the *unguentaria* contained not only liquid perfumed substances (a use suggested by their shape as well) but also a series of cosmetic powders¹⁷. At the same time, analyses performed on the residue in some *unguentaria* discovered in the tombs of physicians have demonstrated that the contained substances could have been used in medical practices¹⁸. In the Roman World, cosmetic products and pharmaceutical substances often had similar compositions, based on oils or other unguents, a fact that impedes one's attempts today of establishing a relation between a certain type of *unguentarium* and a certain type of content¹⁹.

Some items display on the base a series of decorations, impressions or stamps, the function of which could have been varied: indicating the content, marking its authenticity, a mark of the workshop or the name of the craftsman who produced the container, possible taxes or even an imperial monopoly on the manufacture that produced the item or on their contents²⁰. The artefacts discovered in Sarmizegetusa Regia do not have such stamps, nor do they preserve residual traces inside. It is thus difficult to state if they contained substances for body care and cosmetics or for medical practices.

It is interesting to note that in the Roman Empire the *unguentaria* were discovered mainly in necropolises, less in settlements²¹, while in Sarmizegetusa Regia the artefacts were exclusively found in the civilian districts or inside the fortress²²: on the upper plateau or on the terraces in its close proximity. Large scale works for terrace construction (filling) performed in this area of the Dacian capital in the context of the wars from the beginning of the second century A.D. often prevent archaeologists from deciding if some findings belonged to the Dacian occupation phase or to the Roman one. In other words, it is not excluded that some of the *unguentaria* in the area of the fortification belonged in fact to the Roman soldiers stationed in Sarmizegetusa Regia.

On the other hand, the three *unguentaria* discovered in the blacksmith workshops (no. 2, no. 5) and in a dwelling (no. 6) can be attributed with all certainty to the Dacian period. According to the archaeological data, both the workshop from the eastern civilian sector of Căprăreăța and the workshop from terrace VIII functioned during the second half of the first century A.D., maybe the end of it, and were destroyed in the beginning of the subsequent century during the above mentioned conflicts²³. Their presence in pre-Roman complexes can be related to commerce, but the hypothesis that they were produced in a local workshop²⁴ can also be considered.

Unguentarium no. 6 is part of the inventory of one of the most important Dacian constructions in the western civilian sector, namely the polygonal dwelling known, among other things, by the discovery there of a ceramic basin bearing the inscription: "DECEBALVS PER SCORILO". Similarly to the workshops, this dwelling burnt down during the wars with the Romans from the beginning of the second century A.D.

¹⁵ During Antiquity perfumes were obtained through the maceration of certain plants in oil. The analysis of the residues inside certain *unguentaria* from Pompeii suggests the fact that they probably contained oil-based perfumed substances with essences of bergamot or nutmeg. Scatozza Höricht 2012, 34.

¹⁶ Robin, Silvino 2012, 186–188.

¹⁷ 1200 *balsamaria* have been examined from Pompeii and residues were identified in ca. 150 of them. The analysis of the residual substances from a series of *balsamaria* discovered in the imperial *villa* from Oplontis has been possible. In the case of the items from Pompeii the substances were mainly common, while the content of the *balsamaria* from Oplontis is much more exotic. Thus, in most of the items from Pompeii the analyses have identified coal powder used for eye contour or eyebrow coloring, as well as chalk powder. The latter was used instead of ceruse, a lead-based paint, the toxic effects of which were known. In combination with wine dregs, chalk powder was used in the making of cheek make-up. The *unguentaria* from Oplontis, on the other hand, contained much more refined cosmetic substances, obtained from beeswax and glycerin mixed with exotic substances such as patchouli (*Pogostemon cabalin*) essential oil imported from India. Ciarallo 2004, 97–98, 106–107; Scatozza Höricht 2012, 346–359.

¹⁸ Ciarallo 2004, 101; Santrot, Corson 2012, 207–211. Some of the *balsamaria* from Pompeii contained medicine made of resin or emulsions and coniferous (juniper) syrup with various pharmaceutical properties. Scatozza Höricht 2012, 34.

¹⁹ Devroe 2008, 300.

²⁰ Lazar 2003, 195; Robin, Silvino 2012, 186; Boțan 2015, 66.

²¹ Boțan 2015, 136, footnote 907; Robin, Silvino 2012, 179.

²² No tombs have been yet identified in the Dacian capital.

²³ Glodariu 1975, 114–115; Florea 1993, 109.

²⁴ V. supra; Iaroslavl'schi 1981, 169–173.

Bottles could have been used as tableware, but also for liquid products transportation. The bottles had different shapes: quadrilateral, cylindrical or, more rarely, hexagonal. In size they varied between few centimeters and 40 cm. The items had been blown into molds or freely blown and then flattened by being pressed against a flat surface, but also through the combination of the two methods. The majority of these artefacts were made of very good quality glass, usually translucent or with slight blue and green hues. Most of them had the rim inwardly folded and horizontally flattened²⁵. Some of them had decorations, mainly on the base, sometimes even inscriptions (probably the mark of the workshop or the name of the craftsman, or its owner)²⁶.

Several glass bottles were found in Sarmizegetusa Regia and the neighboring settlements, either cylindrical in shape or square, almost all with a single handle. One notes they are made of good-quality paste, that the proportions of the different parts are special and that the handles are beautifully decorated.

1. *Single-handled cylindrical bottle* – National Museum of Transylvanian History, Cluj-Napoca, Inv. 379, Fig. 2, Fig. 7/1.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no. VIII* (the blacksmith's workshop).

Description: The entirely preserved item is made of translucent paste with a slightly bluish hue and with small air bubbles in the composition. The rim is flat, flared and slightly turned, displaying a groove on the inside at the junction with the neck. The neck is short (3.5 cm), cylindrical, narrower under the rim and wider in the area of the shoulder. The body is cylindrical, wider in diameter in the area of the shoulder and narrower towards the base. The base is slightly concave and lacking decoration. The handle, attached to the upper half of the neck and to the shoulder is decorated with ribs in the central part, while the lateral extremities are plain.

Dimensions: h. preserved: 22.3 cm, d. rim 4 cm, d. neck 3.1–3.5 cm, d. maximum 9.5 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D. (according to the context of discovery).

Bibliography: Daicoviciu *et al.* 1953, 169; Glodariu 1974, 245, pl. XLVIII, S 8/a; Sarmizegetusa Regia 2015, 109.

Analogies: Isings 51 b.

2. *Single-handled cylindrical (?) bottle* – National Museum of Transylvanian History, Cluj-Napoca, Inv. VD 3802, Fig. 3, Fig. 7/4.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no. IV* (inside the fortress).

Description: The item is incomplete (rim, neck and handle), made of good-quality glass, with few air bubbles in the composition (more numerous in the area of the rim) and with greenish hue. The rim is flat, flared and slightly turned. The neck is short (4.4 cm), cylindrical, narrower under the rim and wider in the area of the shoulder. The handle, attached to the upper half of the neck and to the shoulder is decorated with very fine ribs over almost the entire surface. The item's body is probably cylindrical (in the same trench several scattered fragments of curved walls were found that seem to have been part of the same container, but its entire shape cannot be reconstructed).

Dimensions: h. preserved 6.8 cm, d. rim 6.3 cm, d. neck 3.8–5 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D.

Bibliography: Sarmizegetusa Regia 2015, 109.

Analogies: Isings 51b.

3. *Single-handled quadrilateral bottle* – National Museum of Transylvanian History, Cluj-Napoca, VD 3871, Fig. 4, Fig. 7/5.

Findspot: Feţele Albe²⁷ (on a terrace located in the eastern part of the hill).

Description: The artefact is fragmentary, but all its typical parts were conserved. It is made of translucent glass paste with bluish hues and some air bubbles in the composition. The rim is flat, flared and slightly turned and on the inside displays a groove by the junction with the neck. The neck is short (5 cm), cylindrical, narrower under the rim and wider in the area of the shoulder. The handle, attached to the upper half of the neck and on the shoulder is decorated with four much stressed ribs. The distance between them is not equal, i.e. the distance between the outer and inner ones is wider while the central ribs are placed closer together. The body is quadrilateral, with the

²⁵ Isings 1957, 64.

²⁶ Boţan 2015, 132.

²⁷ I have also included the artefact from Feţele Albe to the present study as the terraces there were very likely during Antiquity more like a district of Sarmizegetusa Regia.

shoulder and the base rounded. The walls measure 0.3-0.6 cm in thickness and on the outside one can also note circular and ovoidal rougher patches due to the mold or the support in which the item has been pressed. The base is quadrilateral, flat and displays a decoration consisting of concentric circles in relief.

Dimensions: h. preserved ca. 20 cm, d. rim 7.8 cm, d. neck 3.8–5 cm, base sides 12 × 12 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D. Items of this type became common during the Flavian period and remained in use until the first half of the fourth century A.D.²⁸

Bibliography: previously unpublished.

Analogies: Isings 50 b.

4. *Fragmentary bottle, probably without a handle* – National Museum of Transylvanian History, Cluj-Napoca, Inv. V 31789, Fig 5/1, Fig. 7/2.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, *Terrace no. XI* (Small round temple)

Description: Only the rim and part of the neck are preserved. The glass is greenish and few air bubbles in the composition. The rim is slightly lowered towards the outside, rounded and rather asymmetrical (on one side it measures 1.1 cm in width and in another place it reaches 1.5 cm). The cylindrical neck is narrower under the rim and wider in the shoulder area. As the item is broken at the neck, it is unclear if it had a handle or not.

Dimensions: h. preserved 5.5 cm, d. rim 5.5 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D.

Bibliography: Iaroslavski 1985–1986, 454.

Analogies: the fragmentary state does not allow for the precise identification of the type.

5. *Bottle handle* – National Museum of Transylvanian History, Cluj-Napoca, VD 3870, Fig. 8/1.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia, terrace X.

Description: Only the handle has been preserved, highly chipped. The item is made of yellowish blown glass with air bubbles.

Dimensions: preserved length: 6.7 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D.

Bibliography: Glodariu 1974, 245, pl. XLVIII, S 8/b.

Analogies: unidentifiable because its fragmentary state.

6. *Bottle fragment* – Museum of Dacian and Roman Civilisation, Deva, Inv 37755, Fig. 5/2.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia *Terrace no. IV* (from the filling of the cistern).

Description: Only the handle has been partially preserved, together with part of the neck and wall from what was probably a quadrilateral bottle. The container has been made of blown, transparent glass, with a slight greenish hue and with numerous air bubbles. The handle is decorated with numerous very fine grooves/ribs.

Dimensions: h. preserved 6.7 cm.

Dating: first century A.D. – beginning of the second century A.D.

Bibliography: Gheorghiu 1994, 43, fig. 1/1, 2/2.

Analogies: Isings 50 (a more precise identification of the subtype is impossible because of the fragmentary state).

7. *Wall fragments from glass bottles* – Museum of Dacian and Roman Civilisation, Deva, Inv. 37806 (1–9), Fig. 8/4.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia *Terrace no. IV* (from the filling of the cistern).

Description: the nine wall fragments were part of several (at least three) quadrilateral bottles. The fragments belong to containers made of transparent, blown glass with slight bluish and greenish hues and many air bubbles.

Dimensions: the length of the fragments varies between 2.8 cm and 8.9 cm.

Dating: first century A.D. – beginning of the second century A.D.

Bibliography: Gheorghiu 1994, 44, fig. 3/3.

Analogies: Isings 50 (a more precise identification of the subtype is impossible because of the fragmentary state).

8. *Fragmentary bottle* – Museum of Dacian and Roman Civilisation, Deva, Inv. 38596, Fig. 5/3, Fig. 8/2

Findspot: Grădiştea de Munte – Sarmizegetusa Regia *Terrace no. IV* (from the filling of the cistern).

Description: Base fragments from a rectangular bottle. The glass is transparent, with a slight greenish hue. On the base the bottle displays a decoration consisting of concentric circles (one can be seen on the preserved fragment).

Dimensions: h. preserved 5.8 cm, preserved length 6.7 cm.

Dating: first century A.D. – beginning of the second century A.D.

Bibliography: previously unpublished.

Analogies: Isings 50 (a more precise identification of the subtype is impossible because of the fragmentary state).

²⁸ Isings 1957, 67.

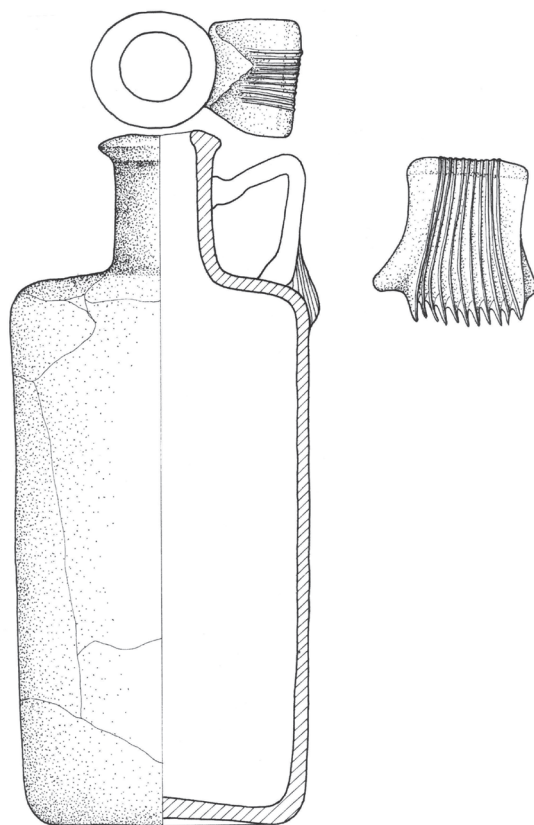


Fig. 2. Single-handled cylindrical bottle. Grădiștea de Munte – Sarmizegetusa Regia.

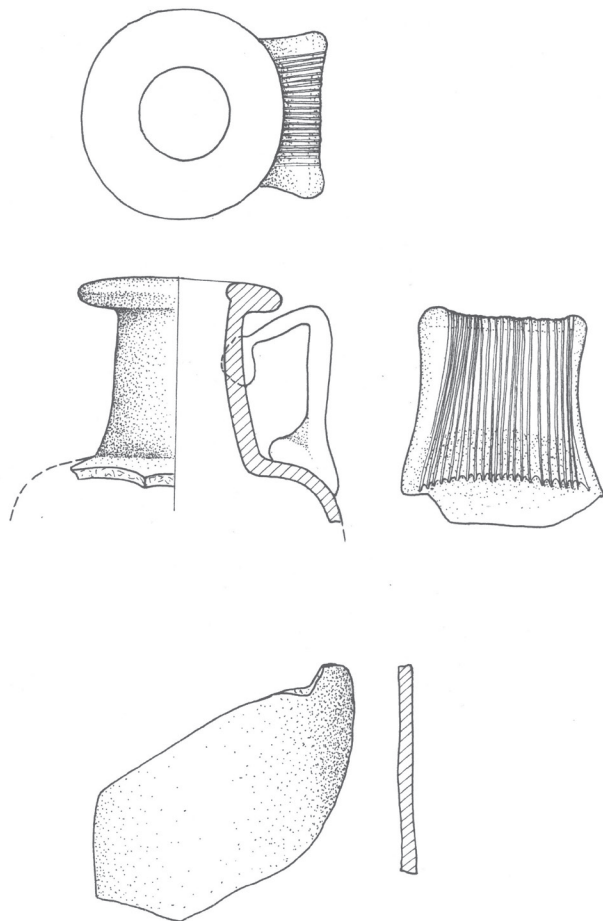


Fig. 3. Single-handled cylindrical (?) bottle. Grădiștea de Munte – Sarmizegetusa Regia.

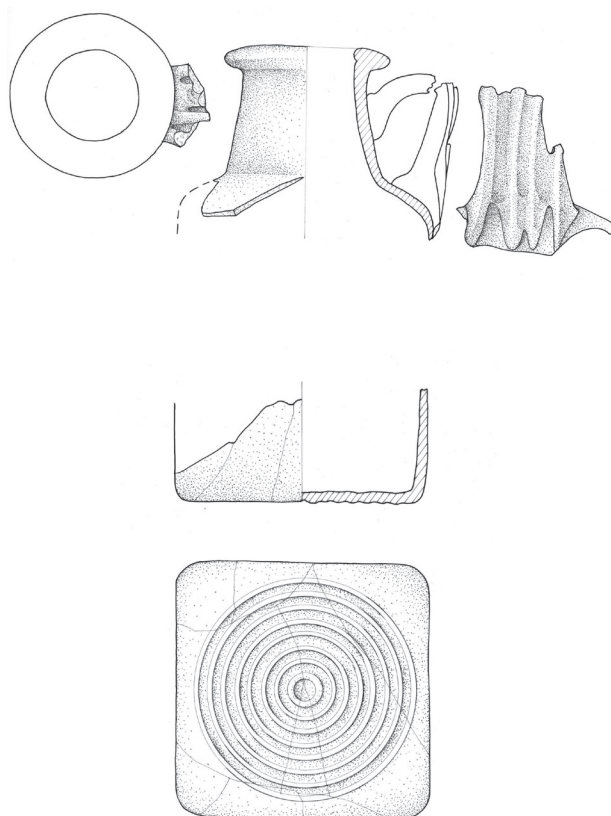


Fig. 4. Single-handed quadrilateral bottle. Fețele Albe.

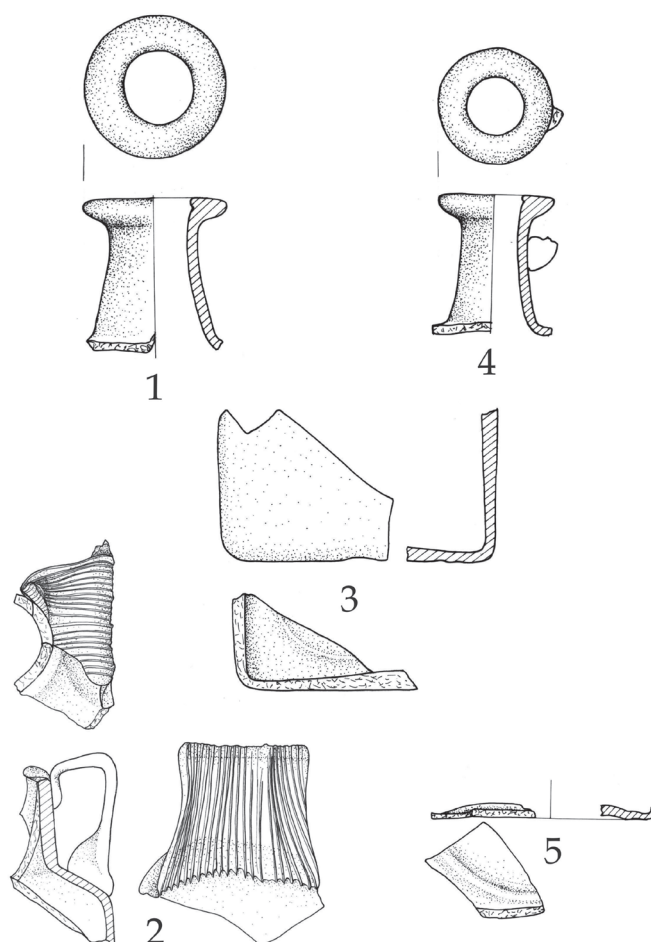


Fig. 5. 1-5 Fragmentary bottles. Grădiștea de Munte – Sarmizegetusa Regia.

9. *Fragmentary bottle* -National Museum of Transylvanian History, Cluj-Napoca, VD 3872, Fig. 5/4, Fig. 7/3

Findspot: Grădiştea de Munte – Sarmizegetusa Regia (area of the fortress).

Description: Only the rim, neck and a small part of the handle have been preserved. The item was made of glass paste with bluish hues and air bubbles. The rim is flat, flared and slightly rounded. The neck, almost cylindrical, is narrower under the rim and wider in the area of the shoulder. The handle, separately crafted, was attached to the bottle in the upper half of the neck, ca. 1 cm. under the rim.

Dimensions: h. preserved 5.3 cm, d. rim 4.4 cm.

Dating: first century A.D. – beginning of the second century A.D.

Bibliography: previously unpublished.

Analogies: The fragmentary preservation of the item does not allow for the precise identification of the type.

10. *Fragmentary bottle* – National Museum of Transylvanian History, Cluj-Napoca, VD 3873, Fig. 5/5, Fig. 8/3.

Findspot: Grădiştea de Munte – Sarmizegetusa Regia (area of the fortress).

Description: Base fragment from a rectangular bottle. The glass, with small air bubbles inside, is transparent, with a slight greenish yellow hue. On the base the bottle displays a decoration consisting of concentric circles (two can be seen on the fragment), of which one is prominent while the other (the outer one) is slightly more flattened.

Dimensions: preserved length: 4.8 cm, preserved width 3.1 cm.

Dating: second half of the first century A.D. – beginning of the second century A.D.

Bibliography: previously unpublished.

Analogies: Isings 50 (a more precise identification of the subtype is impossible because of the fragmentary state).



1



3



Fig 6. 1–3. *Unguentaria*. Grădiştea de Munte – Sarmizegetusa Regia.



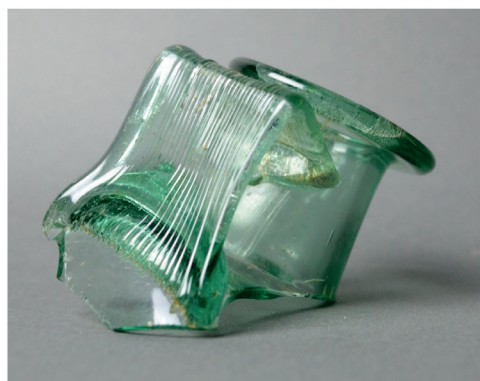
1



2



3



4



5

Fig. 7. 1 Single-handled cylindrical bottle; 2-5. Fragmentary bottles.
Grădiştea de Munte – Sarmizegetusa Regia.



1



2



3



4

Fig. 8. 1–4. Fragmentary bottles. Grădiștea de Munte – Sarmizegetusa Regia.

As previously mentioned, the bottles were mainly used for the transportation and storage of liquids and less for serving them²⁹. The discoveries made in Pompeii attest the fact that quadrangular bottles were kept in wooden cases or small boxes³⁰, while wooden traces from a box specially constructed for holding quadrangular bottles have been found in Helshoven and Cortil-Noirmont-Penteville³¹. Rectangular bottles were very appropriate for transportation as they could be placed one besides the other making optimal use of available space³². Similar to the *unguentaria*, the content of the bottles could be diverse. Specialists believe that they contained substances considered valuable as

²⁹ The use of bottles part of tableware sets is confirmed by the discovery in the Roman milieu of such containers in kitchens or by some mosaics on which (quadrangular) bottles are associated with other wine serving vessels (glasses, cups, *simpula* etc.). Masseroli 1998, 43.

³⁰ Isings 1957, 63; De Carolis 2004, 320–322, cat. 4.34, 4.39 or the finds from Boscoreale. Scatozza-Höricht 1995, 45; Scatozza-Höricht 2012, 32–33.

³¹ Massart 2008, 315.

³² Lazar 2003, 152.

in some situations the containers were preserved in boxes with locks³³. The analysis of the residues preserved in such bottles has indicated that they often contained oils or terpenes (hydrocarbonic substances contained by the aromatic oils of plants, from which etheric oils are isolated)³⁴. Residues rich in fatty acids (probably from olive oil) were also identified in a series of bottles discovered in Pompeii³⁵. It is plausible that these containers were used in the storage of products for cosmetics and body care or of medicinal substances³⁶.

Another use of such bottles, especially of the quadrangular ones, is connected to the field of determining / measuring the different quantities of products³⁷.

In the case of bottles as well specialists have noted the fact that they were marked with stamps, impressions, decorations etc. on the bottom. Such features can be seen on bottle no. 3, from Fețele Albe, that consists of a decoration made of concentric circles, and on items no. 8 and no. 10 from Sarmizegetusa Regia that displays one (in the first case) and two (in the second) concentric circles that once formed the decoration. The motif is frequently encountered in the Roman world and items with such decoration have been discovered in Pompeii, Herculaneum, but also in the western provinces of the Roman Empire³⁸. P. Donati attempted to demonstrate the fact that the motif of concentric circles, more precisely the number of such circles, can be connected to the container's capacity, but this theory needs more arguments³⁹.

The overview of the bottle fragments from Sarmizegetusa Regia shows that they were largely found inside the fortification, in secondary positions. It is thus uncertain if they were used during the period prior to the Roman conquest or subsequently. One should also note here that in the study dedicated to the glass artifacts discovered in the filling of the cistern on terrace IV the author brings a series of indirect arguments in favor of the use, possibly also of the production of the containers in question during the Dacian period⁴⁰.

Fragment no. 5, found in the area of the temple on terrace X was also in secondary position. Until further excavations are performed on the terrace where the bottle from Fețele Albe was found, the ancient context remains unknown (considering the fact that only traces of Dacian occupation have been attested in Fețele Albe, the bottle under discussion most probably belonged to a Dacian structure).

On the other hand, the context of discovery recorded for three of the bottles indicates their use before the Roman conquest. Thus, bottle no. 1 was found in the area of the metallurgic workshops and bottle no. 4 was discovered inside the small round temple.

In the absence of inter-disciplinary analyses for the possible residues inside the *unguentaria* and bottles from Sarmizegetusa Regia, only analogies can provide a few indications on the substances they contained during Antiquity. At first glance, for example, one is tempted to associate with the containers from the metallurgic workshops contents with medicinal-pharmaceutical function, for the healing of wounds, and with the containers from the dwellings substances used for body care or cosmetics. Still, at this stage, these are but hypotheses that require extra data for confirmation.

The number of *unguentaria* and bottles in Sarmizegetusa Regia is large by comparison to the rest of Dacia⁴¹ and it attests the commerce in such products that were often considered part of the luxury

³³ Massart 2008, 314–315.

³⁴ Massart 2008, 315.

³⁵ Massart 2008, 315.

³⁶ In two of the dwellings there the bottles were accompanied by surgical instruments. Massart 2008, 315; ScatozzaHöricht 2012, 34.

³⁷ The analysis was performed on a series of bottles discovered in Pompeii type Isings 50 and has demonstrated the fact that they were used in measuring their capacity. Di Pascuale 1999, 225, 245; De Carolis 2004, 320–322, (cat. 4.34–4.39).

³⁸ ScatozzaHöricht 1995, 43.

³⁹ Donati 1980, 291–292 *apud* Biaggio Simona 1991, 180.

⁴⁰ Gheorghiu 1994, 44.

⁴¹ The number of such items discovered on other sites in Dacia is rather small. Thus, one cylindrical and one rectangular bottle were found in Popești (Glodariu 1974, 247), the handle of such a container was uncovered in Tinosu (Glodariu 1974, 248), two fragments from two different bottles were found in Buridava (Popescu, Iosifaru 2012, 78, 82) and a single item was identified in Căndești (Bobi 1999, no. 2). To these one can add seven items found in the *davae* along River Siret: four on the site in Poiana, two in Barboși, two in Răcătău and one in Brad (Boțan 2015, 133, 156–157, 168, 213–215, 228–229). Just like the bottles, the *unguentaria* were also found in small numbers, mainly in the large *davae*: one item each from Brad and Răcătău (Boțan 2015, 157, 168; Căpitanu 1976, 61), three items were discovered in Barboși

products. I envisage here not only the glass containers themselves, but especially their contents (oils, cosmetic substances, pharmaceutical products, spices etc.). The presence of such goods in the capital of the Dacian Kingdom, mainly during the second half of the first century A.D., is also revealed by other categories of imports (bronze tableware, medical instruments, body care utensils etc.).

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(Boțan 2015, 229–230), while ten other fragments from *unguentaria* were uncovered in Poiana (Teodor, Chiriac 1994, 190–191, cat. 50–56; Boțan 2015, 215–218).

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Abbreviations

AAASH	Acta Archaeologica Academiae Scientiarum Hungaricae. Budapest.
Acta Ant et Arch Suppl	Acta Antiqua et Archaeologica Supplementum. Szeged.
AAC	Acta Archaeologica Carpathica. Krakow.
ACMIT	Anuarul Comisiunii monumentelor istorice. Secția pentru Transilvania. Cluj.
ARA	Annual Review of Anthropology. Stanford.
ActaArchHung	ActaArchHung Acta Archaeologica Academiae Scientiarum Hungaricae. Budapest.
AEM	Archäologische Epigraphische Mitteilungen aus Österreich-Ungarn. Heidelberg.
AIIA Cluj	Anuarul Institutului de Istorie și Arheologie. Cluj-Napoca.
AISC	Anuarul Institutului de Studii Clasice. Cluj-Napoca.
AMP	Acta Musei Porolissensis. Zalău.
ATF	Acta Terrae Fogarasiensis. Făgăraș.
ATS	Acta Terrae Septemcastrenses. Sibiu.
Agria	Agria. Annales Musei Agriensis. Az egri Dobó István Vármúzeum évkönyve. Eger.
AnB S.N.	Analele Banatului. Timișoara.
AMS.CEU	Annual of Medieval Studies at CEU. Budapest.
ACN	Archaeological Computing Newsletter. Florence.
ArchÉrt	Archaeologiai Értesítő. A Magyar Régészeti és Művészettörténeti Társulat tudományos folyóirata. Budapest.
ArchJug	Archaeologia Iugoslavica. Beograd.
ArhPregled	Arheološki Pregled. Arheološko Društvo Jugoslavije. Beograd.
ArchSlovCat	Archaeologia Slovaca Catalogi. Bratislava.
Archaeológiai Közlemények	Archaeológiai Közlemények. A hazai Műemlékek Ismeretének Előmozdítására. Budapest.
ArchKorr	Archäologisches Korrespondenzblatt. Mainz.
ArhMold	Arheologia Moldovei. Iași.
AMN	Acta Musei Napocensis. Cluj-Napoca.
AMP	Acta Musei Porolissensis. Zalău.
ArchRozhl	Archeologické Rozhledy. Praga.
ArhMed	Arheologia Medievală. Cluj-Napoca, Brăila, Reșița.
ASMB	Arheologia Satului Medieval din Banat. Reșița 1996.
AVSL	Auftrage des Vereins für siebenbürgische Landeskunde, Wien.
Banatica	Banatica. Reșița.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BAR Int. Ser.	British Archaeological Reports. International Series. Oxford.
BCMI	Buletinul Comisiunii Monumentelor Istorice. București.
BCȘS	Buletinul Cercurilor Științifice Studențești. Arheologie – Istorie – Muzeologie. Alba Iulia.
BG	Botanical Guidebooks. Kraków.
BerRGK	Bericht der RömischGermanischen Kommission. Frankfurt a. Main.
BHAB	Bibliotheca Historica et Archaeologica Banatica. Timișoara.
BHAUT	Bibliotheca Historica et Archaeologica Universitatis Timisiensis. Timișoara.
BMB. SH	Biblioteca Muzeului Bistrița. Seria Historica. Bistrița Năsăud.
BMÉ	Bihari Múzeum Évkönyve. Berettyóújfalu.
BMI	Buletinul Monumentelor Istorice. București.
BMN	Bibliotheca Musei Napocensis. Cluj-Napoca.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMMN	Buletinul Muzeului Militar Național. București.
BThr	Bibliotheca Thracologica. Institutul Român de Tracologie. București.

CAB	Cercetări Arheologice în București. București.
CAH	Communicationes Archaeologicae Hungariae. Budapest.
Carpica	Carpica. Muzeul Județean de Istorie și Arheologie, Bacău.
CAMNI	Cercetări Arheologice. Muzeul de Istorie al R. S. România/Muzeul Național de Istorie. București.
CIL	<i>Corpus Inscriptionum Latinarum</i> . Berlin.
CCA	<i>Cronica cercetărilor arheologice (din România)</i> , 1983-1992 <i>sqq.</i> (și în variantă electronică pe http://www.cimec.ro/scripts/arh/cronica/cercetariarh.asp).
Classica et Christiana	Classica et Christiana. Iasi.
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania. Cluj-Napoca.
Crisia	Crisia. Muzeul Țării Crișurilor, Oradea.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. București.
Danubius	Danubius - Revista Muzeului de Istorie Galați. Galați.
DDME	A Debreceni Déri Múzeum Évkönyve. Debrecen.
DolgCluj	Dolgozatok az Erdélyi Nemzeti Érem- és Régiségtárából, Klozsvár (Cluj).
DolgSzeg	Dolgozatok. Arbeiten des Archäologischen Instituts der Universität. Szeged.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
EMEÉ	Az Erdélyi Múzeum-Egyesület Évkönyve. Cluj-Napoca.
EMÉ	Erdélyi Múzeum Évkönyve. Cluj-Napoca.
EAZ	Ethnographisch-Archäologische Zeitschrift. Berlin.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumentelor arheologice din Dacia Porolissensis. Zalău.
File de Istorie	File de Istorie. Bistrița.
FolArch	Folia Archaeologica. Budapest.
Forsch. u. Ber. z. Vor- u. Frühgesch. BW	Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg.
GPSKV	Gradja za proučavanje spomenika kulture Vojvodine. Novi Sad.
GSAD	Glasnik Srpskog Arheološkog Društva. Beograd.
HOMÉ	A Herman Ottó Múzeum Évkönyve. Miskolc.
HTRTÉ	Hunyadvármegye Történelmi és Régészeti Társulat Évkönyve. Déva (Deva).
JAMÉ	A nyíregyházi Jósza András Múzeum Évkönyve. Nyíregyháza.
JahrbuchRGZM	Jahrbuch des RömischGermanischen Zentralmuseums Mainz.
JAHA	Journal of Ancient History and Archaeology. Cluj-Napoca.
Lohanul	Lohanul. Revistă culturală științifică. Huși.
MCA	Materiale și Cercetări Arheologice. București.
MCA-S.N.	Materiale și Cercetări Arheologice-Serie Nouă. București.
MA / MemAnt	Memoria Antiquitatis. Piatra Neamț.
MFME	A Móra Ferenc Múz. Évkönyve. Szeged.
MFME StudArch	A Móra Ferenc Múzeum Évkönyve, Studia Archaeologica. Szeged.
MN / MuzNat	Muzeul Național. București.
NumAntCl	Numismatica e antichitàclassiche. Milano.
Opitz Archaeologica	Opitz Archaeologica. Budapest.
Opuscula Hungarica	Opuscula Hungarica. Budapest.
OM	Orbis Mediaevalis. Arad, Cluj-Napoca.
OTÉ	Orvos- Természettudományi Értesítő, a Kolozsvári Orvos-Természettudományi Társulat és az Erdélyi Múzeum-Egylet Természettudományi Szakosztálya.
Palaeohistorica	Acta et Communicationes Instituti Archaeologici Universitatis Groninganae.
PamArch	Památky Archeologické. Praha.
Past and Present	Past and Present. Oxford.
PIKS/PISC	Die Publikationen des Institutes für klassische Studien/ Publicațiile Institutului de studii clasice. Cluj-Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PMÉ	Acta Musei Papensis – Pápai Múzeumi Értesítő.
PZ	Prähistorische Zeitschrift. Berlin.

ReDIVA	Revista Doctoranzilor în Istorie Veche și Arheologie. Cluj-Napoca.
Revista Bistriței	Revista Bistriței. Bistrița.
RevMuz	Revista Muzeelor. București.
RIR	Revista Istorică Română.
RMM-MIA	Revista Muzeelor și Monumentelor. Seria Monumente istorice și de artă. București.
RMMN	Revista Muzeului Militar Național. București.
RESEE	Revue des Études Sud-Est Européennes. București.
Ruralia	Ruralia. Památky Archeologické – Supplementum. Praha.
RVM	Rad Vojvodjanskih Muzeja. Novi Sad.
Sargetia	Sargetia. Muzeul Civilizației Dacice și Romane, Deva.
Savaria	Savaria. A Vas megyei Múzeumok Értesítője. Szombathely.
SCIV(A)	Studii și Cercetări de Istorie Veche. București.
SCN	Studii și Cercetări Numismatice. București.
SlovArch	Slovenská Archeológia. Nitra.
SIA	Studii de Istoria Artei. Cluj Napoca.
SIB	Studii de istorie a Banatului. Timișoara.
SKMÉ	A Szántó Kovács János Múzeum Évkönyve. Orosháza.
SMIM	Studii și Materiale de Istorie Medie. București.
SMMA	Szolnok Megyei Múzeumi Adattár. Szolnok.
SMMIM	Studii și Materiale de Muzeografie și Istorie Militară. București.
Starinar	Starinar. Arheološki Institut. Beograd.
Stratum plus	Stratum plus. Archaeology and Cultural Anthropology. Kishinev.
StCl	Studii Clasice. București.
StComBrukenthal	Studii și comunicări. Sibiu.
StudArch	Studia Archaeologica. Budapest.
StudCom	Studia Comitatus. Szentendre.
Studii și Comunicări	Studii și Comunicări. Arad.
StudUnivCib	Studia Universitatis Cibiniensis. Sibiu.
StudCom – Vrancea	Studii și Comunicări. Muzeul Județean de Istorie și Etnografie Vrancea. Focșani.
StudŽvest	Študijne Zvesti Arheologického Ústavu Slovenskej Akadémie Vied. Nitra.
Symp. Thrac.	Symposia Thracologica. București.
Századok	Századok. A Magyar Történelmi Társulat Folyóirata. Budapest.
TIR L34	D. Tudor, <i>Tabula Imperii Romani</i> . București 1965.
Tempora Obscura	Tempora Obscura. Békéscsaba 2012.
Tibiscus	Tibiscus. Timișoara.
VAH	Varia Archaeologica Hungarica. Budapest.
VIA	Visnik Institutu arkheolohii. L'viv.
Ziridava	Ziridava. Arad.
ZSA	Ziridava Studia Archaeologica. Arad.
w.a.	without author