

GLASS SMALL-FINDS DISCOVERED AT ARDEU-CETĂȚUIE, BALȘA COMMUNE, HUNEDOARA COUNTY

*Adrian Cătălin Căsălean**

* Institute of Archaeology and Art Studies, Cluj-Napoca; adicasalean@yahoo.co.uk

Rezumat. Acest studiu analizează o categorie importantă de artefacte reprezentată de obiectele din sticlă. Materialul arheologic include 10 fragmente de sticlă descoperite în timpul cercetărilor arheologice efectuate în incinta cetății dacice de la Ardeu-Cetățuie și aflate în colecțiile Muzeului Civilizației Dacice și Romane din Deva. Fragmentele analizate provin de la vase de sticlă larg răspândite în cuprinsul Imperiului Roman, ce au fost realizate prin tehnica suflării la liber și a suflării într-o matriță. Pornind de la informațiile tehnologice, fragmentele menționate au fost împărțite în două grupe distincte pe criteriul tehnicii de producție. Mai mult, din punct de vedere funcțional, formele identificate sugerează diversitatea artefactelor de sticlă de la Ardeu, fiind descoperite: boluri, cupe, pahare, *unguentaria* și recipiente destinate păstrării lichidelor. Acestea au fost identificate tipologic și arată preferințele grupurilor și indivizilor ce au locuit în cadrul fortificației. Deși fragmentele de sticlă sunt puține la număr, pe baza tehnicii de producție, a contextelor de descoperire, a încadrărilor tipologice și a evenimentelor istorice petrecute la finalul celei de-a doua epoci a fierului, circulația acestor artefacte se poate încadra în perioada cuprinsă de mijlocul secolului I dHr și începutul secolului II dHr. Pornind de la aceste artefacte, studiul de față urmărește să explice evoluția rutelor locale de aprovizionare, luând în considerare evenimentele istorice ce au influențat expansiunea influențelor romane spre comunitățile dacice. În afară de existența unor activități “comerciale”, materialul arheologic poate sugera și alte moduri de achiziție, din moment ce unele descoperiri arheologice indică prezența unui meșter roman ce activa și locuia în incinta cetății de la Ardeu¹.

Cuvinte cheie: importuri romane, sticlă, tehnici de producție, cetate dacică, Ardeu, interacțiune, modele de consum.

1. The site

Archaeological site Ardeu-Cetățuie is situated in the southern part of the Ardeu village's territory, Balșa Commune, Hunedoara County, guarding one important access route towards the rich gold resources in the Apuseni Mountains (**Fig. 1**). The site is composed of a hill named “Cetățuie” or “Cetățeaua” (having maximum altitude from the Black Sea level of 455 m), an eastern high plateau, southern terraces, and the “Gura Cheilor” gorges, at the base of the hill towards south-west. The hill having steep slopes is surrounded by the Ardeu Valley, whose northern and western segments form a short

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Fig.1. Location of Ardeu-Cetățuie archaeological site.

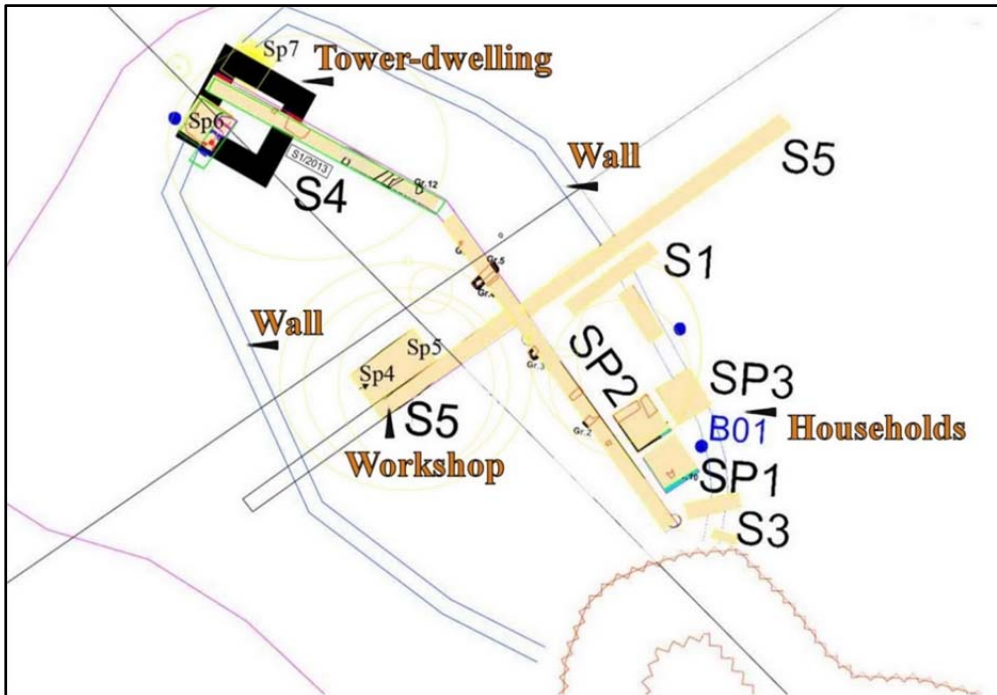


Fig. 2. Main structures discovered at Ardeu-Cetățuie.

sector of gorges. Though most of the published information includes artefacts related to the Late Iron Age, different areas of the site have been inhabited during several historical periods². The end of the 19th century marked the beginning of the archaeological research at Ardeu, carried out under the supervision of TÉGLÁS Gabor³. Additionally, the opening of a stone quarry in the area, leading to the identification of various metal artefacts, determined further research on the site in the form of small scale excavations organized by the Museum from Deva together with the National History Museum of Romania from Bucharest⁴. Starting with 2001 the Museum of Dacian and Roman Civilisation from Deva resumed the field research at Ardeu together with various institutional partners.

The field research contributed to the identification of the precinct wall made of local stone bound with clay and completed with timber structures which surrounded the hilltop. The space inside the fortress seems to have been divided in two distinct areas, the residence of the leader, the so-called tower-house or tower-dwelling was identified to the north, on a rocky knoll dominating the whole plateau⁵. The southern part was probably inhabited by members of the “court” or by warriors and their families. Traces of a workshop manufacturing iron, bronze, bone and antler objects were identified in the western area (**Fig. 2**). The discovery of raw materials, semi-finished objects, debris from osseous materials, iron, bronze, or other metals, as well as ferrous and non-ferrous slag, convincingly testify for these activities. Furthermore, the excavation of the workshop unearthed the majority of glass artefacts. The archaeological finds discovered during several research campaigns indicate that the density of habitation peaked during the time of the Dacian kingdom in comparison with other historical periods⁶. The excavation of Dacian layers in the settlement produced a large number of imports with diverse functionalities, though mainly comprising household items. Older or newer discoveries of this kind from Ardeu have been constantly present in the archaeological literature of the last decades⁷.

2. Glass fragments

The group of finds analysed in the present article includes ten glass fragments which were found in various contexts; these are mostly small and poorly preserved pieces that make difficult any detailed identification. The preservation of a few rims and bases allows the typological identification of some pieces, while in other cases the manufacturing technique and the shape of the fragments are also used. After care-

² Ferencz, Roman, 2010, p. 173.

³ Téglás, 1885, p. 299-307; Téglás, 1888, p. 134-138.

⁴ Nemoianu, Andrițoiu, 1975.

⁵ Beldiman *et alii*, 2013c, p. 40.

⁶ Ferencz, Roman, 2010, p. 175.

⁷ Beldiman *et alii*, 2013a; Beldiman *et alii*, 2013b; Beldiman *et alii*, 2013c; Ferencz, 2013a; Ferencz, 2013b; Ferencz, 2013c; Ferencz, 2016a; Ferencz, 2016b; Ferencz, Florea, 2013; Ferencz, 2012a; Ferencz, 2012b; Ferencz, 2010a; Ferencz, 2010b; Ferencz, 2010c; Ferencz, Dima, 2009; Ferencz, Gurgu-Țirdoi, 2009; Ferencz, 2006; Ferencz, 2005; Ferencz, 2003; Ferencz, Bodo, 2003.

fully identifying the technological characteristics of the vitreous pastes (thickness, colour, decoration, shape, bubble level, iridescence) some considerations regarding their production technique, analogies and dating can be provided. Accordingly, at Ardeu-Cetățuie have been identified free blown glass wares as well as mould blown wares. The following part of the analysis divides the archaeological material into the two mentioned production techniques along with the contexts, analogies and dating for each piece, a detailed description being reserved for the catalogue section of the article.

2.1. Free blown vessels

The free blowing technique emerged around the middle of the 1st century BC and became a commonly used technique in the time of Augustus, gradually replacing all older techniques. This technique allowed a mass production of glassware, thus making these vessels cheaper and more accessible to the wider population. Furthermore, the free blowing method enhanced the decorative and symbolic meaning of glassware by giving the craftsman a chance to express himself in his own work. From this viewpoint, luxury glass vessels included multi-layered parts and colours, gold threads and other types of extravagant decorations. The free blowing technique enabled the manufacturing of vessels with very thin walls which also made the glass even more transparent and the glassmakers were thus given more room for their creativity. Applying this technique, the craftsmen heated a chunk of glass and using a metal or ceramic tube blown in its content, rotating constantly to create a shape. Decoration could be applied after the creation of the shape or during the rotation of the heated shape with the help of metal tools⁸.

At Ardeu-Cetățuie were found two fragments of glass wares that were made



Fig. 3. Free blown glass vessels discovered at Ardeu-Cetățuie.

using this technique. Their identification as free blown vessels is based on the fine structure of the glass paste, as well as the shape and smoothness.

These are two possible fragments of *balsamaria/unguentaria* (Catalogue nos. 1–2; **Fig. 3.1–2**). The first fragment was found in the area of the collapsed tower-dwelling and the second one was found in the context of the workshop, in a Dacian layer of habitation. The fragments probably belong to some vessels resembling the Isings form 82 which consists of candlestick *balsamaria / unguentaria*⁹. They can be dated according to the context of discovery and some analogies

⁸ Baćani, 2017, p. 9.

⁹ Isings, 1957, p. 97

from the end of the 1st century and the beginning of the 2nd century AD¹⁰. The thickness of their walls and the colour could indicate that they were small sized. Vessel no.1 was of a better quality than vessel no. 2 due to the lower number of bubbles present in the glass paste. This type of vessels usually had a bell-shaped or conical body with a short or long neck, semi-transparent or transparent walls revealing its content and a flat base to enhance its stability.

Different types of *balsamaria/unguentaria* are well represented in many sites from the Roman Empire, being frequently used in funerary contexts. They held substances that covered the unpleasant smells of human incineration and were commonly deposited in funerary contexts besides the deceased ashes. Similar vessels were also used to store cosmetic substances which were used daily and were also found together with pharmaceutical ointments or dried herbs. The mass production of glass *balsamaria/unguentaria* began in the time of Augustus due to the development of the free blowing technique, and maintained their presence in the Roman world until the 4th century AD¹¹.

2.2. Mould blown vessels

The mould blowing technique appeared shortly after free blowing, being first used at the beginning of the 1st century AD, and coexisted with the free blowing. This technique consisted of blowing heated glass chunks into relief moulds. Initially, the mould was composed of several parts, but because of the fragility of the finished products, many usually got broken in the process of removing the moulds. Consequently, moulds made of only two parts emerged and the technique was generally used in making tableware decorated with several geometrical or vegetal motifs. This technique also allowed objects to have a standardized look and demanded lesser glass-making skills to complete an elaborated shape. The vessels were usually produced using semi-transparent or transparent glass paste, with a brownish or bluish hue obtained by adding ferrous oxides such as cobalt oxide, for example¹².

The group of glass fragments discovered at Ardeu-*Cețățuie* includes seven fragments of vessels made using the mould blown technique. Because of the poor preservation of archaeological material, the identification is again based on the shape, colour and decoration of the fragments in question.

One fragment was probably part of the lower neck of an *aryballos* (Catalogue no. 3; **Fig. 4.1**), based on the thickness of the fragment, its brownish colour and the three horizontal wheel-cut lines present on its surface. The piece was discovered in the workshop and can be identified as an Isings form 61 *aryballos*¹³. Based on the context of discovery and other analogies, the vessel can be dated between the second quarter of the 1st century and the 2nd century AD. The glass *aryballos* was also widespread in the Roman world. Its main function was to store oils used for personal hygiene at the baths. This vessel had a small spherical body with two ring-shaped handles. The body is often decorated with incisions and indentations, having a large range of colours and thicker

¹⁰ Isings, 1957, p. 97-99; Isings, 1971, p. 9.

¹¹ Baćani, 2017, p. 22.

¹² Baćani, 2017, p. 9-10.

¹³ Isings, 1957, p. 78-81.

walls. Such vessels were often worn tied around the wrist with a string attached to their handles¹⁴. Regarding the fragment discovered at Ardeu, it can be assumed that the main function of this artefact and its contents was different, just because no proper baths were discovered in the area so far. It can be therefore presumed that it more likely contained oils or other substances for therapeutic or cosmetic use.

Another type of mould blown glass found at Ardeu is the beaker with indented walls (Catalogue nos. 4–5; **Fig. 4.2**). Two fragments have been found in the workshop, being probably parts of the same vessel. The vessel can be typologically identified as an Isings form 32¹⁵. Given its deep vertical indentations, the piece can be dated between the second quarter of the 1st century and the 2nd century AD. The form was later replaced by the light brown beakers with globular body or straight walls. This type was used extensively both in daily life and in ceremonial events or banquets. There is a significant typological variation, based on the number of indentations and their width. The most common variant is the beaker with four larger indentations. The presented fragments could be potentially included in this variant, although half of the wall profile is missing. The vessel has a pronounced *umbo* on the base and thin walls. Similar examples had been found in Roman provinces as well as in barbarian settlements across the frontier¹⁶.

Another identified vessel is the hemispherical bowl with out-turned rim (Catalogue no. 6; **Fig. 4.3**). The fragment has been found at Ardeu in the workshop and can be ascribed to the Isings type 42 a, b¹⁷. This type of bowls is common in the western provinces of the Roman Empire and their proximity. Their production started in the time of Augustus and continued until the 2nd century AD, with some examples unearthed in Pannonia and the eastern provinces. The form was later replaced by the hemispherical, free blown type, which is simpler in design and can hold a larger volume of food. Examples of such vessels were found also at Siscia¹⁸.

One other fragment found in the workshop is poorly preserved, so it can only be said that it has a globular shape. Accordingly, it could belong either to a bowl or cup (Catalogue no. 7; **Fig. 4.4**). Still, the colour and the decoration point out to a more luxurious item of tableware, perhaps a drinking cup. These types of luxury glassware included vessels decorated in diverse techniques and with diverse materials, starting from crushed glass flakes to gold insertions. They were more difficult to make and included precious ingredients and additions. The fragmentary vessel from Ardeu has cobalt blue and white wave striped decoration, made with the help of metal oxides, which may suggest that it was perceived as luxury. Accordingly, it could have been used by the elites or on some special occasions like banquets¹⁹. Its presence in the context of the workshop may suggest a redistribution of luxury objects within the

¹⁴ Baćani, 2017, p. 23.

¹⁵ Isings, 1957, p. 46-47.

¹⁶ Baćani, 2017, p. 24-25.

¹⁷ Isings, 1957, p. 57.

¹⁸ Baćani, 2017, p. 24.

¹⁹ Egri, 2014, p. 235.

fortress, from the “aristocratic” quarters of the tower-dwelling where the upper class of Ardeu fortress probably stayed, and could afford such goods, towards the craftsmen from the workshop.

The last two identified fragments are thick, rough and have a greenish colour. These features, as well as their straight walls, tend to identify them as fragments of square bottles (Catalogue no. 8–9; **Fig. 4.5–6**) belonging to the Isings type 50a, b²⁰. In the Roman world, this type of glassware was intended for storing liquids. The vessels have a square body with smooth edges and a base with indentations usually bearing the craftsman’s stamp, including coin imprints or vegetal motifs. The shape of the first fragment and the indentation in the middle of it point out to a bottle base of this kind. Because of their fragmentary state of preservation, it is impossible to identify a stamp or any kind of decoration. This type of glassware circulated in the Roman world from the 1st century until the 4th century AD²¹.

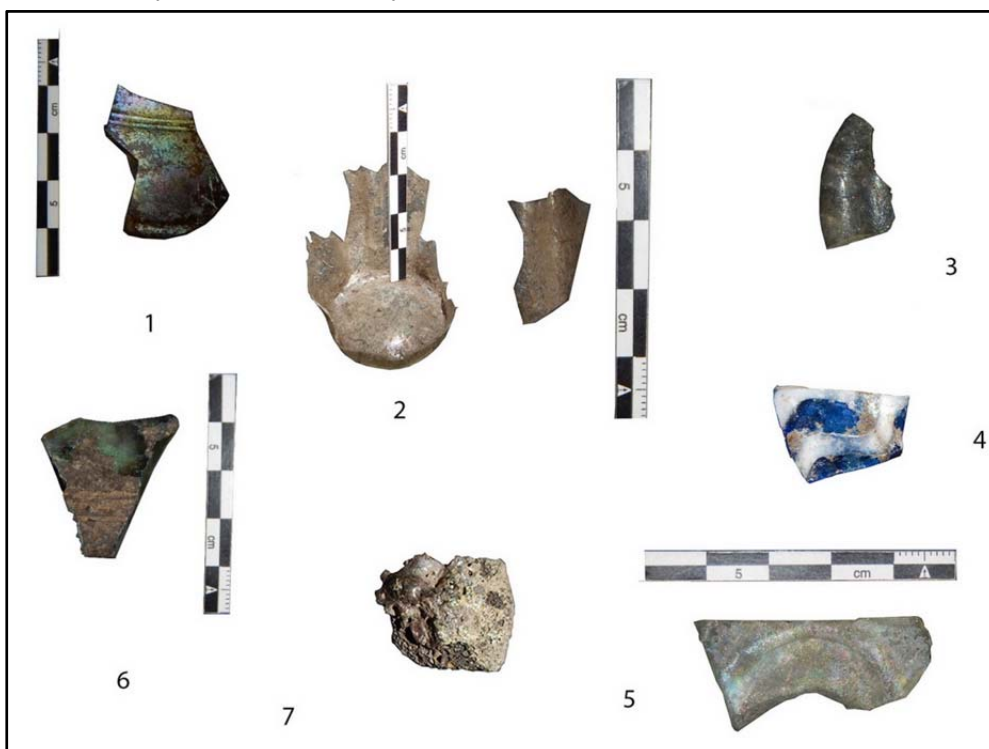


Fig. 4. Mould blown glass vessels discovered at Ardeu-Cetățuie.

2.3. Varia

At Ardeu-Cetățuie, the Roman military campaigns marked the destruction of the fortress in the early 2nd century AD. Archaeologically, this can be observed in a thick, white layer that was interpreted as the destruction level of the fortress, which

²⁰ Isings, 1957, p. 63-67.

²¹ Baćani, 2017, p. 26-27.

also contained relevant artefacts, like a *pilum* and stone projectiles²². In the context of the workshop was found a piece of melted glass (Catalogue no. 10; **Fig. 4.7**) that was stuck to a fragment of ceramic and could be an indication of the fiery destruction of the fortress. Because of its altered state, the vitreous fragment couldn't be integrated in any production technique or typologically identified.

3. Discussion

The analysis and interpretation of the glass fragments found at Ardeu can offer some perspectives upon the evolution of exchanges with the Roman Empire, the routes, means of transportation and distribution among the inhabitants of the fortress, as well as observations regarding the needs and preferences of the Dacian community on the upper plateau of the fortress.

First, the dating of the fragments in question can be placed between the middle of the 1st century AD and Trajan's campaigns in Dacia at the beginning of the 2nd century AD, which led to the destruction of the fortress. This assumption is based on technological and morphological details and typological identifications, which were already discussed above, and the political and military context of the time, which provides a *terminus ante quem*.

The increasing exchanges between Dacia and the Roman world were a result of the development of trading routes from northern Italy towards the Lower Danube²³. After Augustus' campaign against the Iapodes and Pannoni in 35–33 BC, the space between the eastern Alpine region and Segestica (Siscia) was pacified and brought under Roman control, facilitating the circulation towards the eastern regions. Furthermore, the Roman advance to the Lower Danube and the organization of the provinces Pannonia and Moesia at the end of the 1st century BC and the beginning of the 1st century AD established a safe passage to the region north and east of the middle and lower Danube basin, intensifying the exchanges in the region in question. In this military and political environment, and with the Roman control of the southern banks of the Lower Danube, the range of goods imported in Dacia diversified and increased in quantity²⁴.

Secondly, it is possible that, several Mediterranean goods were transported along the Drava and Sava rivers and down to the Lower Danube, then taking the course upstream along the Tisza River and up to the Mureş valley. This was also a main supply route identified in the case of the Late Republican bronze vessels which reached Dacia²⁵. This route is also the most convenient option for supplying Ardeu fortress, which is situated in close proximity to the Mureş valley. Taking into account the military and administrative developments in southern Pannonia, and the contextual dating of the glass finds from Transylvania, it can be assumed that most glassware reached the region probably not earlier than around the middle of the 1st century AD. The major supply centre for glassware, and not only glass, but also a wider range of goods, must

²² Ferencz, Căstăian, Socol, 2016, p. 269-274; Ferencz, Căstăian, Socol, 2014, p. 123.

²³ Rustoiu, 2005, p. 70-82.

²⁴ Rustoiu, 2005, p. 84.

²⁵ Rustoiu, 2005, p. 83.

have been Aquileia²⁶. On the route from northern Italy to Transylvania, most likely merchants passed through Siscia, where similar types of glassware like the ones from Ardeu, were found during the excavations.

The very small number of glass vessels discovered at Ardeu, indicate that they were occasional imports, coming through mixt cargoes that consisted in various goods. Considering the context of discovery of the glass fragments, it can be presumed that they were more likely used by members of the local elite. Due to rarity, these could have been perceived as symbols of status alongside other imported goods, and could have been incorporated into various socially-relevant practices, including feasting. The apparent elite-oriented consumption opens the possibility that some foreign objects were obtained through gift giving, from the Roman side, in order to open political relationships with a local leader. It has already been suggested that Romans used the practice of gift giving to obtain the allegiance of local leaders and gain trustworthy friends beyond the limes²⁷.

Looking at the distribution of the vitreous material on the upper plateau of the fortress, it can be observed that there are two main areas of discovery. On one hand, in the context of the tower dwelling and the zone where it collapsed after its destruction were found two fragmentary vessels: a *balsamarium* and a square bottle. The tower dwelling has been considered a place of residence for the elites of the Dacian society. This interpretation is based on the location of the structure, its architecture, function and inventory, the latter being mostly composed of local fine wares and imports, including glassware and exotic ointments delivered in glass bottles. Their presence indicates the interest of local elites in purchasing and using such goods, perhaps also as means of signalling their social status²⁸.

On the other hand, seven glass fragments belonging to five different vessels, come from the workshop. These include a *balsamarium*, an indented beaker, an *aryballos*, and two bowls, of which one is decorated in an exquisite manner. The analysis of the archaeological material and the organization of the interior space of the workshop indicate the presence of foreign craftsmen²⁹. This may suggest that some of the glass artefacts discovered at Ardeu arrived as a result of individual mobility. In spite of this it is possible that the craftsmen purchased the mentioned objects at their own expense and through their own means. Although, the craftsmen who operated the workshop might not be considered members of the elite, the presence of glass objects could also indicate a redistribution of goods from the tower-dwelling towards the individuals that had important roles in the fortresses wellbeing.

It has to be mentioned that another fragment of a square bottle was found near the eastern wall of the fortress, close to the dwellings from the south-eastern part of the upper plateau, and could have been related to them and to their occupants, who probably formed the entourage of the chieftain from the tower-dwelling.

²⁶ Baćani, 2017, p. 12.

²⁷ Green, 2007, p. 1-13.

²⁸ Egri, 2014, p. 234.

²⁹ Rustoiu, Ferencz, Căşălean, 2017, p. 330, note 28.

Taking into consideration the functional purposes of the glass material, some particularities regarding the daily needs of the consumers from the precinct of the fortress can be discussed.

Three of the fragments discovered at Ardeu-*Cetățuia* belong to vessels which held cosmetic or medical products. Similar artefacts were documented mainly in domestic contexts at several sites from Transylvania and outside of the Carpathian arch³⁰. At Poiana fragments of *unguentaria/balsamaria* and an *alabastron* were discovered in a thick level of habitation composed from successive layers of burnt material and ash with traces of households, hearths and pits, rich in archaeological material³¹. Furthermore, several ceramic *unguentaria* were discovered in the same layer of habitation, associated with the glass types³². Other *unguentaria/balsamaria* were discovered at *Sarmizegetusa Regia*, in the context of various construction levels, households and workshops situated within the precinct of the fortress and on the adjacent terraces³³.

The discovery of such vessels in household related contexts suggest that pharmaceutical and cosmetic substances were integrated within the Dacian consumption pattern and probably used according to the local needs and practices. Their presence in the precincts of fortresses as well as the adjacent terraces indicates that a larger part of the population had access to such goods through various ways and means. At Ardeu the presence of *unguentaria/balsamaria* only in the precinct of the fortress may due to the extent of the archaeological research that mainly covered the upper plateau of the “Cetățuia” hill.

Apart from the use of imported substances within various domestic contexts, the discovery of glass *unguentaria/balsamaria* in the context of several workshops suggests that some substances were kept in the working space of the craftsmen, probably used in case of injuries, considering that some of these recipients held medical treatments.

Four other glass vessels belong to the tableware category, holding or serving foods or beverage, while two bottles were more likely used for liquids storage. Similar glass objects belonging to the same functional categories have been documented in other Dacian sites. With few exceptions, these types were discovered in household contexts, workshops and various layers of habitation, along with functionally similar ceramic vessels³⁴. Their context of discovery as well as the absence of a clear documented assembly of glass vessels suggests that glass bowls, beakers, cups and storage recipients were adopted in the local consumption pattern along with their ceramic counterparts. They indicate towards a more complex way of serving and consuming food and beverage.

³⁰ Teodor, Chiriac, 1994, p. 203; Boțan, Chiriac, 2011, p. 158-159.

³¹ Teodor, Chiriac, 1994, p. 183-184.

³² Teodor, 1994, p.78.

³³ Mateescu-Suciu, 2017, p. 138-141.

³⁴ Boțan, Chiriac, 2011; Florea *et alii*, 2015, p. 21-22; Glodariu, 1974, p. 70-83; Mateescu-Suciu, 2017; Mateescu-Suciu, Gheorghiu, Găzduc, 2016, p. 99-101; Plantos, 2006; Pop, 2003, p. 159-165; Popescu, Iosifaru, 2013; Popescu, Ursachi, Căpitanu, 2010; Teodor, Chiriac, 1994.

ages that was probably reserved for special occasions or specific practices. Their integration in the local patterns of consumption may due to their rarity in the “barbarian” communities, morphological aspect, as well as advantages granted by the material, that didn’t soak the contained substances and was easy to clean and maintain. The glass bowls and cups probably enhanced the serving of edibles and liquids, while glass bottles most likely signal the importation of foreign beverages. Regarding glass bottles, several fragments were discovered at Sarmizegetusa Regia in the context of a water reservoir³⁵. They suggest that some of these recipients were further reused in storage and transportations of liquids, which can be the case for other such recipients in pre-Roman Dacia.

The analysis of the glass fragments from Ardeu-*Cetățuie* revealed a series of aspects regarding the supply network of the fortress, the pattern of consumption as well as the social categories that acquired and used such items. The analysis could be further refined by the study of the chemical composition of the questioned artefacts that could indicate a more detailed picture about the manufacturing technology, chronology, typology and place of origin.

³⁵ Gheorghiu, 1994, p. 43-44.

CATALOGUE

No. 1	Balsamarium
A. Context of discovery	Ardeu, Sp5 (workshop)
B. Material	glass
C. Technology	free blown
D. Colour	greyish
E. Bubble level	low
F. Transparency	semi-transparent
G. Morphological description	semi-circular with a tubular rim and thin straight wall underneath, smooth surface
H. Decoration	–
I. State of preservation	fragmentary
J. Typology	Isings, 1971: 10 form 82 a, b?
K. Dating according to the technology and typology	end of the 1 st century – 3 rd century AD
L. Dating according to the context of discovery and circulation in Dacia	end of the 1 st century – beginning of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished
No. 2	Balsamarium
A. Context of discovery	Ardeu, S4M [?] (zone where the tower-dwelling collapsed)
B. Material	glass
C. Technology	free blown
D. Colour	greenish
E. Bubble level	medium
F. Transparency	semi-transparent
G. Morphological description	globular shape with a thin and rough surface
H. Decoration	–
I. State of preservation	poor, fragmentary
J. Typology	Isings, 1957: form 82a
K. Dating according to the technology and typology	end of the 1 st century – 3 rd century AD
L. Dating according to the context of discovery and circulation in Dacia	end of the 1 st century – beginning of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished

No. 3	
A. Context of discovery	Aryballos
B. Material	Ardeu, SP4 (workshop)
C. Technology	glass
D. Colour	mould blown
E. Bubble level	brownish
F. Transparency	low
G. Morphological description	semi-transparent
H. Decoration	spherical shape, thick and rough surface
I. State of preservation	three semi-circular indents
J. Typology	fragmentary
K. Dating according to the technology and typology	Isings, 1957: form 61
L. Dating according to the context of discovery and circulation in Dacia	second quarter of the 1 st century – 2 nd century AD
M. Storage	half of the 1 st century – first quarter of the 2 nd century AD
N. Bibliography	Museum of Dacian and Roman Civilization, Deva, Hunedoara County unpublished

No. 4	
A. Context of discovery	Indented beaker
B. Material	Ardeu, SP4 (workshop)
C. Technology	glass
D. Colour	mould blown
E. Bubble level	grey
F. Transparency	low
G. Morphological description	semi-transparent
H. Decoration	circular base and body with a interior umbo on the base
I. State of preservation	four visible indents
J. Typology	50% of the body preserved, with the base fully preserved. Missing the rim and 50% of body
K. Dating according to the technology and typology	Isings, 1957: form 32
L. Dating according to the context of discovery and circulation in Dacia	second quarter of the 1 st century – 2 nd century AD
M. Storage	half of the 1 st century – first quarter of the 2 nd century AD
N. Bibliography	Museum of Dacian and Roman Civilization, Deva, Hunedoara County unpublished

No. 5	
A. Context of discovery	Indented beaker
B. Material	Ardeu, SP4 (workshop)
C. Technology	glass
D. Colour	mould blown
E. Bubble level	grey
F. Transparency	low
G. Morphological description	semi-transparent
	circular shape, probably part of the upper body
	of the previous fragment
	two visible indents
H. Decoration	fragmentary
I. State of preservation	Isings, 1957: form 32
J. Typology	second quarter of the 1 st century – 2 nd century
K. Dating according to the technology and typology	AD
L. Dating according to the context of discovery and circulation in Dacia	half of the 1 st century – first quarter of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished

No. 6	
A. Context of discovery	Bowl with out-turned rim
B. Material	Ardeu, SP5 (workshop)
C. Technology	glass
D. Colour	mould blown
E. Bubble level	colourless
F. Transparency	low
G. Morphological description	transparent
	wide circular shape with a out-turned rim,
	thick glass structure and smooth surface
H. Decoration	–
I. State of preservation	fragmentary
J. Typology	Isings, 1957: form 42 a,b ?
K. Dating according to the technology and typology	second quarter of the 1 st century – 2 nd century
L. Dating according to the context of discovery and circulation in Dacia	AD
M. Storage	half of the 1 st century – first quarter of the 2 nd century AD
N. Bibliography	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
	unpublished

No. 7	
A. Context of discovery	Bowl or cup
B. Material	Ardeu, SP4 (workshop)
C. Technology	glass
D. Colour	mould blown
E. Bubble level	cobalt blue and white stripes
F. Transparency	low
G. Morphological description	opaque
	Globular shape whit smooth surface and interior, light thickness
H. Decoration	blue cobalt colour of the glassware whit wave shaped white stripes from witch two are visible
I. State of preservation	fragmentary
J. Typology	–
K. Dating according to the technology and typology	second quarter of the 1 st century – 2 nd century AD
L. Dating according to the context of discovery and circulation in Dacia	half of the 1 st century – first quarter of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished
No. 8	
A. Context of discovery	Square bottle
B. Material	near S4M' on the upper plateau
C. Technology	glass
D. Colour	mould blown
E. Bubble level	greenish
F. Transparency	low
G. Morphological description	semi-transparent
	straight shape with a circular indent, probably the main section of a bottle base, thick structure and abrasive surface
H. Decoration	circular indent
I. State of preservation	fragmentary
J. Typology	Isings, 1957: form 50 a, b
K. Dating according to the technology and typology	second quarter of the 1 st century – 2 nd century AD
L. Dating according to the context of discovery and circulation in Dacia	half of the 1 st century – first quarter of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished

No. 9	
A. Context of discovery	Square bottle Ardeu, S1A (near the east Dacian wall)
B. Material	glass
C. Technology	mould blown
D. Colour	greenish
E. Bubble level	low
F. Transparency	semi-transparent
G. Morphological description	straight shape with a thick structure and abrasive surface
H. Decoration	–
I. State of preservation	fragmentary
J. Typology	Isings, 1957: form 50 a, b
K. Dating according to the technology and typology	second quarter of the 1 st century – 2 nd century AD
L. Dating according to the context of discovery and circulation in Dacia	half of the 1 st century – first quarter of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished
No. 10	
A. Context of discovery	Melted glass fragment Ardeu, SP5 (workshop)
B. Material	glass
C. Technology	–
D. Colour	dark grey with greenish bubbles
E. Bubble level	high
F. Transparency	opaque
G. Morphological description	Irregular shape, melted and stuck on a fragment of ceramic
H. Decoration	–
I. State of preservation	fragmentary, altered
J. Typology	–
K. Dating according to the technology and typology	–
L. Dating according to the context of discovery and circulation in Dacia	half of the 1 st century – first quarter of the 2 nd century AD
M. Storage	Museum of Dacian and Roman Civilization, Deva, Hunedoara County
N. Bibliography	unpublished

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