

A FLICKER OF LIGHT. LATE ANTIQUE GLASS GOBLETS FROM BEROE (TULCEA COUNTY, ROMANIA) (I)

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Abstract: The excavations conducted in the ancient city of Beroe (Tulcea County, Romania), during two campaigns (1958-1959 and 1970-1971), by A. Petre and D. Vilceanu, brought to light a large number of archaeological features and materials, of which an important part remained unpublished. The glass objects found on this site are in the same situation, only a handful being published in detail so far. The effort of the team from the Eco-Museum Research Institute (Tulcea), of putting old excavations and finds on the archaeological map of the county takes into consideration also the site from Beroe. In this case, the paper focuses on a specific category of glass items, namely goblets Isings Form 111, dated to the 5th – 6th c. AD. The artefacts discussed here represent a first batch of fragments belonging to this type, identified so far during the re-evaluation of the museum’s storerooms. Thus, the present article is the first in a series dedicated to this type of glass vessels, as the work is still in progress. Once all the identifiable material will be processed and published, the authors will attempt, based on typological and technological details, to discuss possible production centres and commercial relations, as well as their function, use and significance in the local cultural context.

Rezumat: Cercetările arheologice desfășurate în situl antic de la Beroe (jud. Tulcea, România), în cursul a două campanii (1958-1959 și 1970-1971), de către A. Petre și D. Vilceanu, au scos la lumină un mare număr de complexe și materiale arheologice, dintre care o parte importantă au rămas nepublicate. Piesele de sticlă descoperite pe acest sit se află în aceeași situație, doar un număr redus fiind publicate în detaliu până în prezent. Efortul echipei de la Institutul de Cercetări Eco-Muzeale Tulcea de a pune vechile săpături și descoperiri pe harta arheologică a județului ia în considerare și situl de la Beroe. În acest caz, articolul se concentrează asupra unei categorii specifice de obiecte de sticlă, cupe cu picior gol forma Isings 111, datate cel mai probabil în sec. V-VI p.Chr. Materialul discutat aici reprezintă un prim lot de fragmente aparținând acestui tip, identificate până acum în depozitele muzeului. Prin urmare, prezentul articol este primul dintr-o serie dedicată acestui tip de vase de sticlă, ținând cont de faptul că lucrul cu materialul este în desfășurare și mai multe piese reprezentând tipul ar putea fi identificate în viitorul apropiat. În momentul în care tot materialul va fi prelucrat și publicat, autorii vor încerca, pe baza detaliilor tipologice și tehnologice, să discute posibile centre de producție și legături comerciale, precum și funcția, utilizarea și semnificația lor în context local.

Keywords: Lower Danube, Beroe, glass goblets, Isings form 111, Late Antique necropolis, cemetery basilica

Cuvinte cheie: Dunărea de Jos, Beroe, cupe de sticlă, forma Isings 111, necropolă romană târzie, bazilică cemeaterială

INTRODUCTION

The collections of the Museum of History and Archaeology Tulcea (part of the "Gavrilă Simion" Eco-Museum Research Institute) preserve archaeological material found during the excavations conducted on the site known in the archaeological literature under the name of *Piatra-Frecăței*.

The name is based on the toponym "Piatra", used for the location of the ruins later attributed to ancient Beroe, and the village of Frecăței, on the island called Insula Mare a Brăilei. Despite the second half of the name, the site is in fact in the territory of Tulcea county, at a distance of 2.5 km SSW from the Ostrov village, as the crow flies, on the shore of the Danube River, more precisely on the Măcin (Băroi) branch.¹

The earliest records of archaeological finds from the ancient city of Beroe belong to P. Polonic (1898), who mentioned a Roman stronghold with stonewalls and a naturally advantageous location above the Danube². Furthermore, at the beginning of the 20th century, C. Moisil documented³ an octagon-shaped fortification with a perimeter of ca. 150 sqm. A survey in the area was conducted in the interval 24th – 30th June 1953 by E. Comșa, who found a wall segment on the promontory and assumed it was built during the 4th c. AD, based on its characteristics. This wall, with a visible length of 4.5 m, was made of small stones and large brick fragments kept together by lime-based mortar⁴. The publication of this survey also mentions several chance finds, at a distance of approximately 400 m SE from the fortification, at the base of the slope. Moreover, the archaeologist received the information that 14 human skeletons were found in a different area, alongside five bracelets and two beads made of blue glass, a coin issued for Diocletian, as well as an amphora (in the immediate vicinity of the skeletons). While the glass ornaments were dated by E. Comșa to the 10th – 12th centuries, the presence of the amphora and the closeness to the fortification and the civil Roman settlement made the author presume that a part of the disturbed graves could have been dated to the 4th – 6th c. AD⁵.

Finally, A. Petre and D. Vilceanu supervised the excavations necessary for the construction of a state-owned agricultural complex in the area, the "Ferma Cetate", identifying several features of the site: a fortification, part of a civilian settlement, and funerary spaces. The necessity of rescue excavations at that moment became clear

¹ Ailincăi et al. 2022, 13.

² Ailincăi et al. 2022, 13; Nuțu, Paraschiv 2009, 178; Boțan et al. 2010, 218.

³ Ailincăi et al. 2022, 13; Nuțu, Paraschiv 2009, 178; Petre 1987, note 6.

⁴ Comșa 1959, 761; Petre 1987, note 5; more recent excavations inside the fortification led to the identification of this wall as a cistern (Nuțu, Paraschiv 2009, 179).

⁵ Comșa 1959, 764.

when grave goods belonging to disturbed inhumation burials were brought to the “Vasile Pârvan” Institute of Archaeology in Bucharest, which delegated the above-mentioned specialists for this task. Two lengthy excavation campaigns took place: April 12th, 1958 – June 15th, 1959 (14 months), conducted by A. Petre and D. Vilceanu, and May 1st, 1970 – October 31st, 1971 (17 months), conducted solely by A. Petre. These brought to light an important part of what turned out to be one of the largest and richest ancient and medieval necropolises discovered in South-Eastern Europe, with 1,139 graves, dated between the 2nd and 13th c. AD.⁶

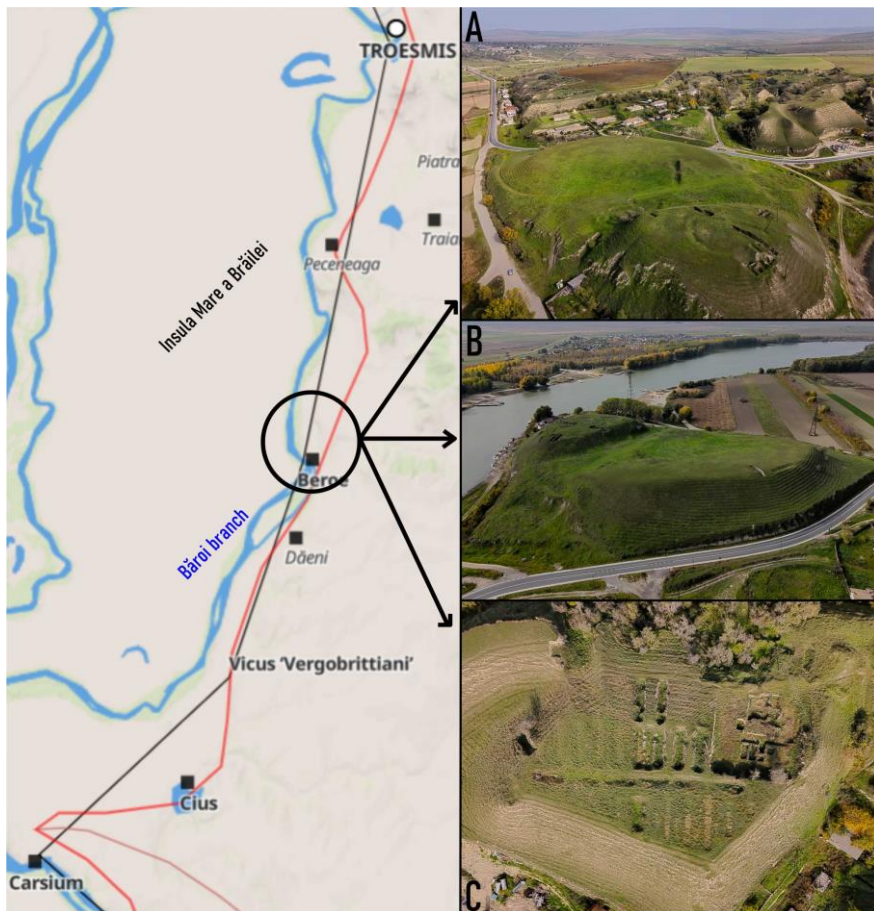


Fig. 1. Geographic location (map: <https://klokantech.github.io/roman-empire/#4.07/48.332/23.863>, processed by the authors) and aerial photographs of Beroe taken in 2024 (A – General view from SW; B – Sector “Cetate”; C – Sector C)

⁶ Ailincăi et al. 2022, 13; Nuțu, Paraschiv 2009, 178; Boțan et al. 2010, 218-219; Petre 1987, 6-7.

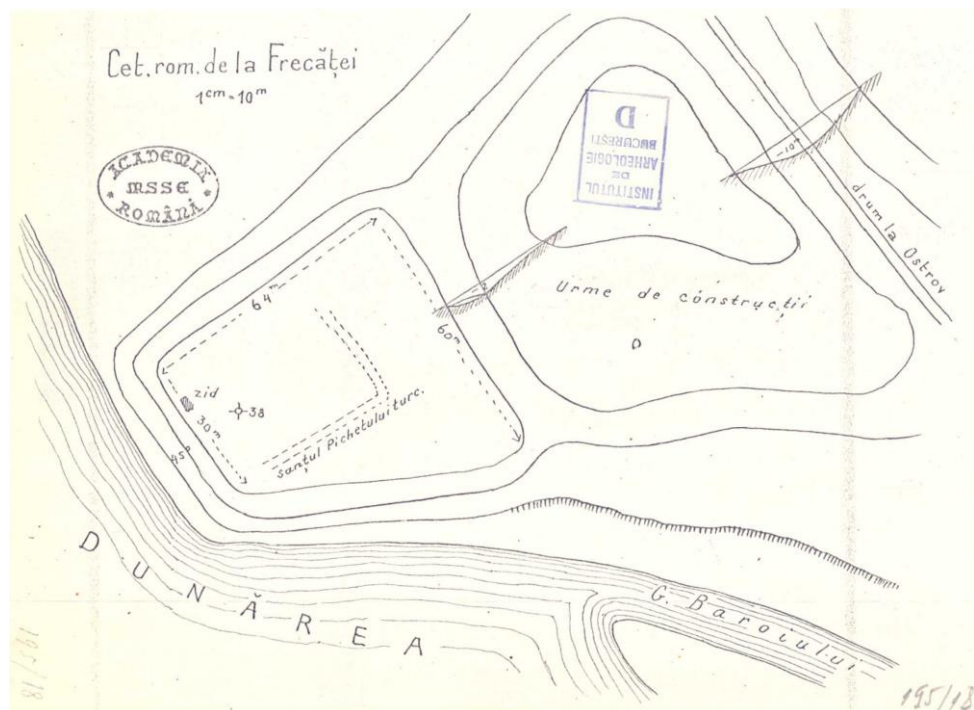


Fig. 2. Pamfil Polonic Archive – Manuscript XV: Frecăței (Beroe)

This 'necropolis' developed during its period of use on several high terraces separated by ravines, therefore conventionally and spatially split into five sectors, A-E (due both to natural land features and previous interventions, such as older constructions). The number of researched funerary structures per sector, ranging from Early Roman to the Middle Age, was as follows: 454 complexes in sector A; 164 complexes in sector B; 145 complexes in sector C; 61 complexes in sector D; 315 complexes in sector E. The only sector that was not completely investigated was sector C7.

Aurelian Petre published part of the results in 1987, in the form of an extended article/book, comprising information on 228 graves⁸. This number seems to cover the entirety of the funerary structures dated to the 2nd – 7th c. AD, found in all five sectors. The author also took the opportunity to present in the introduction the next stages of the research and publication of the finds. The second stage was intended to focus on

⁷ Petre 1987, 7.

⁸ Petre 1987 – it should be emphasised here that although there are two publications, both from 1987, in fact they represent the same work (identical text, identical illustration, and identical numbering of pages).

the unexcavated part of sector C and a planned sector F, together with material already recovered out of context before 1958. The third stage would have dealt with the Byzantine funerary structures from the necropolis, dated to the 8th – 13th c. AD⁹. The untimely death of the archaeologist ended abruptly this ambitious but necessary endeavour, and as a result a considerable number of archaeological finds was left unpublished.

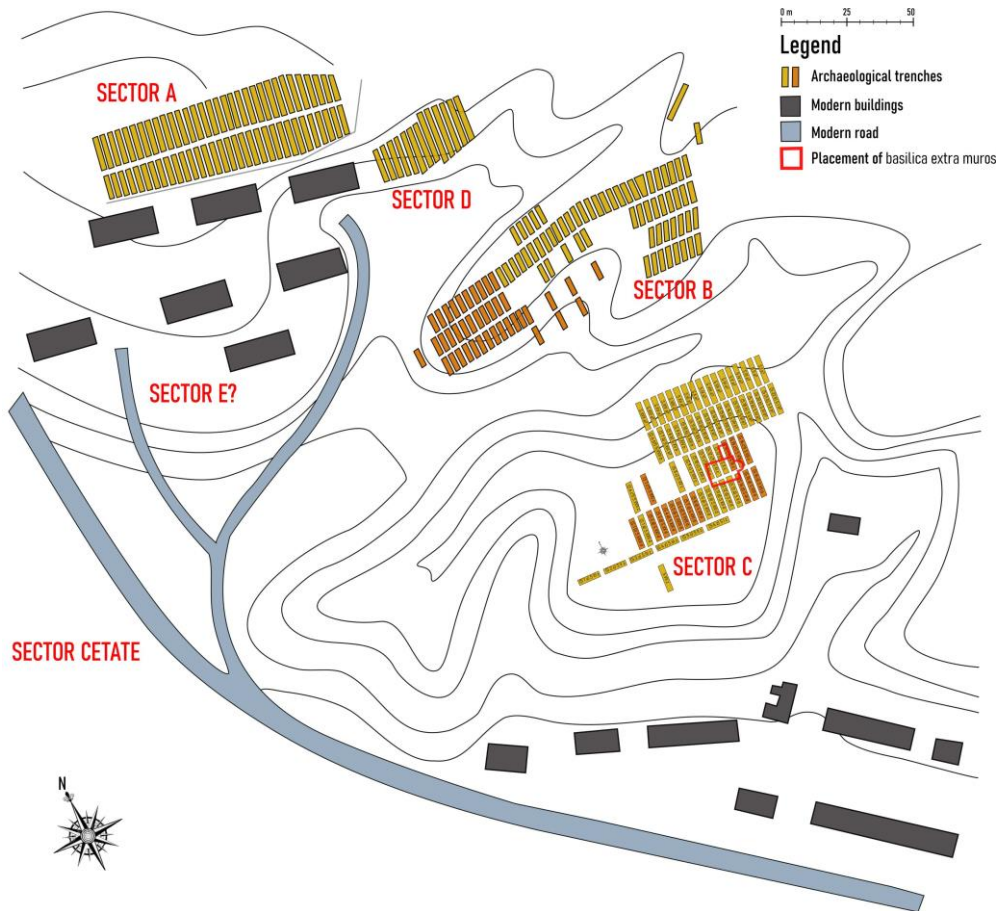


Fig. 3. General plan of the known archaeologically researched area, redrawn by authors (after Petre 1987)

⁹ Petre 1987, 7-8.

Therefore, most of the published information from Beroe focuses on the “Cetate” sector, excavated more recently by a different team¹⁰.

The unpublished finds (pottery, glass, coins, small finds etc.), the majority from sector C, and belonging to the Roman and Early Byzantine periods, receive a second chance after 50 years and are currently under study by a team of researchers. This paper explores a particular group of glass finds, with the mention that the work conducted during this phase is focused not on the grave goods, but on the material without clear context found in the funerary area. This situation, in combination with the incomplete character of the documentation recovered so far, makes the interpretation even more challenging.

THE ARCHAEOLOGICAL CONTEXT

Although there is no clear information regarding the moment when the fortification was built, there are finds (inclusively corresponding funerary structures in the necropolis) indicating that a settlement already existed in this area during the Early Roman period (2nd – 3rd c. AD). The fortified city – as well as the unfortified civilian settlement to the north – was inhabited until the beginning of the 7th c. AD, when it is supposed that it was abandoned, most probably during or immediately after the reign of Phocas. The settlement was to be revived during the Byzantine re-occupation of the area in the times of Ioannes Tzimiskes and immediately after (11th – 13th c. AD)¹¹. Still, further processing of the material dated to the Early Medieval period will perhaps bring more information regarding this aspect, as A. Petre’s observations made in his publication lead to the impression that the necropolis continued its existence uninterrupted during the 8th c. AD and beyond.¹²

As already mentioned, the funerary areas corresponding to the Roman/Early Byzantine period fortification and settlement seem to have been in use during the 2nd – 7th c. AD, being identified on several loess plateaus on the Danube valley; for the Christian period, there is also information that a basilica functioned in that area for funerary purposes.¹³

In order to gain a clearer perspective on the situation of the archaeological material in relation to the development and use of the funerary area, an overview of the chronological representation of the funerary structures, as presented in A. Petre’s

¹⁰ Ailincăi et al. 2022, 13; Nuțu, Paraschiv 2009, 178; Boțan et al. 2010, 218.

¹¹ Nuțu, Paraschiv 2009, 177-178; Petre 1987.

¹² Petre 1987, 8.

¹³ Ailincăi et al. 2022, 13; Nuțu, Paraschiv 2009, 178.

publication, will be provided. Thus, the 228 funerary structures discussed in his book¹⁴ were dated as follows:

- one structure to the 1st c. AD;
- 18 structures to the 2nd – 3rd c. AD;
- one structure to the 3rd c. AD;
- 100 structures to the 4th c. AD;
- 18 structures to the 4th – 5th c. AD;
- 17 structures to the 5th c. AD;
- 12 structures to the 5th – 6th c. AD;
- 33 structures to the 6th c. AD;
- 16 structures to the 6th – 7th c. AD;
- 12 structures to the 7th c. AD.

The funerary structures were clustered in this manner based on the analysis of the grave goods in combination, when possible, with numismatic analysis on the coins found associated with the deceased. It can be easily noticed that almost half of the total number of structures cover the 4th c. AD, which seems to be the interval when the necropolis reaches its peak, even allowing for the bias created by the destruction of several areas of the original necropolis. Other information, which could prove useful for the future interpretation of the material, concerns the distribution of the funerary structures between the five excavated sectors. The Early Roman to Early Byzantine funerary structures were distributed¹⁵ as follows:

- 41 in sector E;
- 73 in sector A;
- 20 in sector D;
- 50 in sector B;
- 44 in sector C.

In general, all the sectors present a peak in the number of structures during the 4th c. AD. While the complexes with an earlier dating were found in sectors E, A and D (in larger numbers in the first two – the northernmost ones), sectors B and C seem to start being used for funerary purposes in the 4th c. AD¹⁶. If this observation reflects the reality, it would mean that the funerary area developed in time roughly in a north-south direction, without the abandonment of the northern part, as later burials (5th – 7th c. AD) are “sprinkled” all over the area of the necropolis¹⁷.

¹⁴ Petre 1987, 140, table 6.

¹⁵ Petre 1987, 140, table 7.

¹⁶ Petre 1987, 140, table 7.

¹⁷ Petre 1987, 140, table 7.

A preliminary examination of the unpublished material, identified so far, both pottery (which forms the main bulk) and other categories of artefacts (of which glass represents an important part), indicates that this was recovered mainly from sector C. This situation raises a series of questions, as it can be explained in at least two ways. On one hand, it could reflect the state of the present research on the material (with further investigations bringing to light, from the museum's storerooms, more finds from the other sectors). On another hand, it could reflect the actual situation of the excavations, with the majority of this material retrieved from that specific area of the site. A clarification of this aspect will hopefully arise before the end of the team's endeavour, as it is a matter of paramount importance for obtaining a better image of the function and characteristics of specific parts of the funerary area. The main problem at this point is that it is almost impossible to be completely certain that new material will never be found in a storeroom somewhere in the future, which would completely change the current situation. Thus, it is important to keep in mind that any discussion and/or interpretation of the material, here and in future publications, will be delivered with a "Damocles' sword" over the heads of the authors, who nevertheless are willing to take this risk in an attempt to better contextualize the finds.

Nevertheless, the discussion will begin with the working hypothesis that the current information on the glass artefacts accurately reflects the situation on the ground. This assumption comes with its own set of uncertainties, as new questions arise, primarily concerning the original context of the analysed material. Again, several explanations can be advanced concerning this situation:

1. the material could represent, in fact, grave goods belonging to disturbed funerary structures;
2. the material, although associated with funerary practices, was originally left outside the structures (evidence of post-depositional acts);
3. the material was originally associated with the use of buildings in the area (either dwellings or other types of secular constructions, in use during intervals when the area did not function as a graveyard or in parallel with the development of the funerary space, or building(s) with religious character connected to the said space).

At this point of the discussion, we should return to the information mentioned above, regarding the existence of a Christian basilica, identified as such by A. Petre. It could be just a coincidence, but still it is important to emphasise the fact that this religious building was found during excavations in sector C (Fig. 4). The preliminary documentation of the monument, a crypt basilica with a surface of approximately 320 m², tentatively takes into consideration the existence of two phases, stretching between the 4th and 6th c. AD: the initial, 4th century phase, is structurally damaged

around the middle of the 5th c. AD, having been shortly reconstructed and expanded, only to be abandoned during the 6th century¹⁸.



Fig. 4. Detailed plan of Sector C, with reconstructed trench labels and highlighted glass goblet discoveries (green)

A possible explanation for the placement of the building may be the fact that this funerary area was not previously used for internments (as mentioned above), so its construction would not have disturbed earlier graves. It is the intention of the team to corroborate in the future as well as possible the existing information, regarding on one hand the sections/squares corresponding on the plan to the excavation of the basilica, and on the other hand the sections/squares indicated on the labels as finding spots for the various categories of material. Hopefully, this will indicate if there is any superposition or relation between them. This will allow the further interpretation of the function and use of the objects in connection (or lack of) to an important feature of the Christian funerary area.

THE GLASS FINDS

Several glass vessels and a large number of glass beads from Beroe are present in Petre's book¹⁹, documented as grave goods. Representatives of this category of finds are also discussed in a more recent article, presenting three complete glass vessels

¹⁸ Petre 1987, 104-106.

¹⁹ Petre 1987.

discovered in sectors A and C – a hemispherical *Nüppenglas* cup, an *unguentarium* with kicked-in walls, and a spindle-shaped *unguentarium* – of which two as part of grave goods and a chance find from the area of the necropolis²⁰. Glass fragments belonging to various types of vessels (including a fragment of wall with small handle from a goblet Isings form 111), dated from the 2nd to the 6th c. AD, were also recovered from inside the fortification, out of their original context, in the medieval layers.²¹

The unpublished glass material from A. Petre's excavations can be split, based on functionality, into two main groups: glass vessels/containers and windowpanes. At least at this point of the research no glass beads were identified in the analysed material, perhaps a noteworthy absence, especially since A. Petre took great care to make a special mention regarding both the abundance and the variety of beads found as part of grave goods²².

The present paper is meant to be the opening publication of a short series designed to cover all the glass fragments determined to belong to stemmed goblets on folded foot (Isings form 111). Therefore, the discussion will mainly focus on typological and technological aspects at this moment. It is hoped that, in the near future, analysing all the determinable shards will enable the finds to be interpreted in a broader context.

DISCUSSION

State of preservation

All the recovered glass material without clear context is characterised by an advanced degree of fragmentation (Fig. 5). So far, it was impossible to fully restore vessels, although there are several instances in which a vessel seems to be represented by more than one shard.

Iridescence represents a common occurrence, and, in many cases, the glass fragments were affected by pitting and weathering crusts. In addition, in some instances the corrosion layer at the surface presented colour and consistency indicating secondary exposure to fire (especially cat. no. 12, but also partially on cat. nos. 8, 11, 14, and 15). An important number of items (cat. nos. 8, 11-15) displays an interesting and novel affliction, at least in our experience: a sort of 'desquamation' affecting the surface of the glass. We will return to this point later in the paper, since there could be several explanations for this situation.

²⁰ Boțan et al. 2010, 219-223, nos. 2-4, figs. 1/2-4.

²¹ Nuțu, Paraschiv 2009, 182-183.

²² Petre 1987, 10 (2496 items, the majority made of glass, but also amber, carnelian, coral), plates 149-151 (for the typology proposed by the author).

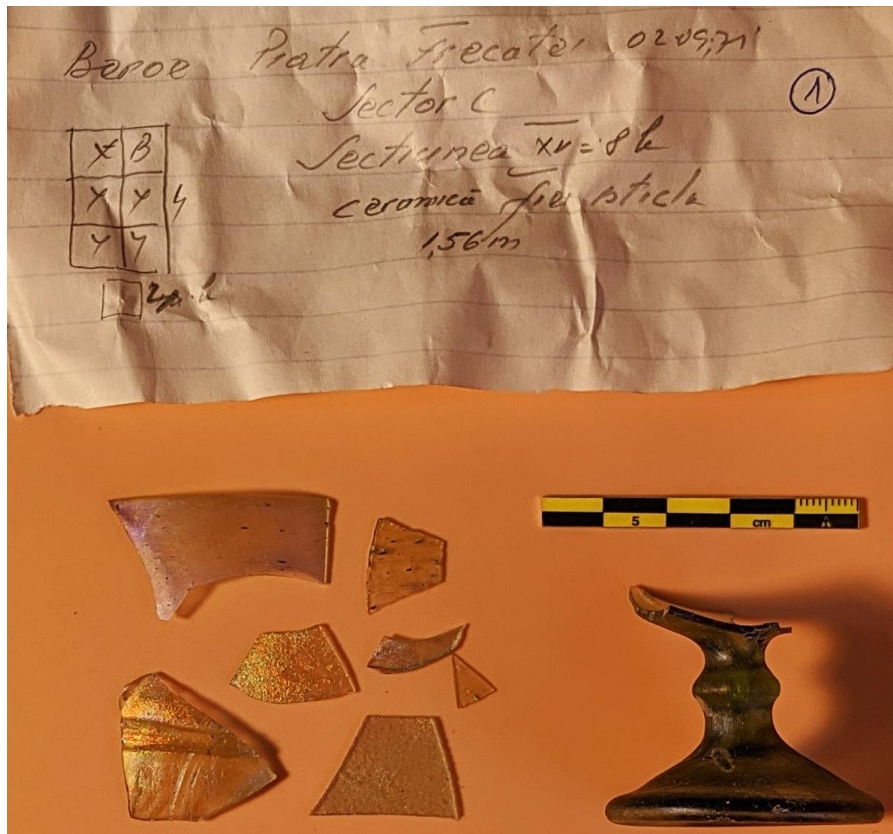


Fig. 5. Contents of one of the artefact bags containing glass objects, accompanied by the original tag

The high degree of fragmentation could indicate that the material comes from disturbed funerary structures, or that the vessels were originally domestic or religious implements, recovered from living structures. This situation is very similar to that observed on materials from other sites: Histria, such as those from the Episcopal Basilica, the Centre-North Sector and Acropolis Centre-South Sector²³. In Tropaeum Traiani, similar fragmentary objects were found in connection to habitation structures²⁴. As a further argument in favour of the association of the goblets with buildings, not graves, the vessel shards were found in the majority of cases mixed with fragments of windowpanes.

²³ Băjenaru, Băltăc 2000-2001, 471; Cliante, Țârlea 2019, 237; Țârlea, Cliante 2020; Paraschiv, Țârlea 2022; Țârlea, Cliante 2023.

²⁴ Boțan et al. 2020.

Typology

The glass fragments discussed in the present paper belong to the form Isings 111²⁵ (goblets on folded stemmed foot), a type of glass vessel widespread all over the empire, over a considerable time span. The degree of fragmentation of the vessels, briefly discussed above, makes the precise identification of the form/type difficult more often than not.

The most distinctive part of Isings form 111 is, in conformity with their definition, the folded stemmed foot. Even the first item of this type of goblet to ever be identified and published was represented by its inferior part, with the specific ringed base and hollow stem²⁶. Therefore, it should not come as a surprise that, of the 15 fragments discussed in this paper, 11 are bases (with or without surviving stem). This easiness in identifying the lower part of goblets Isings form 111, no matter its degree of fragmentation, in comparison to fragments belonging to their bowl (upper part) was often emphasised in the dedicated literature²⁷, and even led to the creation of typologies based only on the foot²⁸. Similar difficulties raised the finds of goblets Isings form 111 from other archaeological sites from the province of Scythia, with the exception of the fortunate cases when complete or restorable items were found, as for example the goblets and lamps deposit from the Episcopal Basilica in Histria²⁹.

The difficult part in identifying wall fragments is that they could belong to several types of vessels³⁰. Still, enough items were found completely preserved or in a state allowing the reconstruction of their profile, especially inside Late Antique churches and synagogues, as to show that they could have a variety of profiles (U-shaped, poppy-shaped, or bell-shaped), usually with a fire-rounded thickened rim, either vertical or slightly curved (towards the interior or the exterior)³¹. As this type of rim was found to be a feature of other types of lamp, beaker or bowl, it is often overlooked and remains unpublished due to the degree of uncertainty implied³².

In analysing the glass finds from Beroe, it was determined to take the chance of also researching and publishing other typical shards, in addition to feet, such as rim or

²⁵ Isings 1957, 139-140.

²⁶ Harden 1936, class VIIA, variant III, Cat. No. 489, Pl. XVI/489; Isings 1957, 140 – also presented as a third variant of stemmed goblets.

²⁷ Khruškova 2009, 343.

²⁸ Isings 1957, 139-140; Çakmakçı 2009; Golofast 2009, 305-319.

²⁹ Băjenaru, Bâltâc 2000-2001; Băjenaru, Bâltâc 2006.

³⁰ Khruškova 2009, 343; Cliante, Țârlea 2019.

³¹ Băjenaru, Bâltâc 2000-2001; Băjenaru, Bâltâc 2006; Golofast 2009, 315; Israeli 2003, 194; Khruškova 2009, 343.

³² Golofast 2009, 305, 315.

wall fragments with small vertical handle still attached. Even atypical shards will be given a chance if their general appearance, characteristics and associations with typical shards make attribution possible. In each case, the degree of uncertainty involved will be indicated.

Therefore, four bowl fragments were also included in the catalogue of the present paper. One of them represents a fragment of a fire-rounded rim (cat. no. 3). The other three are wall fragments considered typical enough based on the presence (complete or incomplete) of the small vertical handle characteristic for many representatives of Isings form 111. In one of these cases, the wall fragment is still retaining the end of a “rat-tail”, a telling sign that the goblet had initially small vertical handles applied below the rim (cat. no. 4). The other two small wall fragments have the small vertical handle still attached (cat. nos. 13 and 15).

Fabric and technological details

The selected shards display characteristics that tend to be typical for goblets on folded stem in general. The glass used for their production is of medium quality. In most cases, the glass, no matter its colour/tinge, presents large numbers of small and very small bubbles. These are mainly spherical, but, in some areas of the vessels, they become elongated, due to the technological process³³. For example, in the case of the lower part of a goblet (cat. no. 2), the bubbles are spherical on the base and stem, and elongated on the part still surviving from the lower part of the body.

Regarding the colour of glass, it was previously noticed in the case of goblets Isings form 111 that they cover a large palette of blues, greens, and yellows, and every combination in-between³⁴. In order to simplify this situation, in a previous paper it was proposed the use of only four main groups: green colour, greenish tinge, olive oil colour (covering yellows, yellow-browns, greenish yellows), and bluish tinge³⁵. The rarest in this region seem to be the goblets Isings form 111 made of bluish glass. True to form, at least among the 15 shards from Beroe selected for the present discussion there is no representative of the bluish tinge glass.

The best represented seem to be the various shades of green, from greenish tinge to strong green colour as, for example, in the case of Histria, where known specimens come from two different archaeological sectors.

³³ Țârlea, Cliante 2023, 208; Paraschiv, Țârlea 2022, 121; Băjenaru, Băltăc 2000-2001, 471, 476; Golofast 2009, 302; Stern 2001, 309-311, cat. nos. 172-174; Cliante, Țârlea 2019, 238 and catalogue; Țârlea, Cliante 2020, 305 and catalogue.

³⁴ Paraschiv, Țârlea 2022, 120.

³⁵ Cliante, Țârlea 2019, 238.

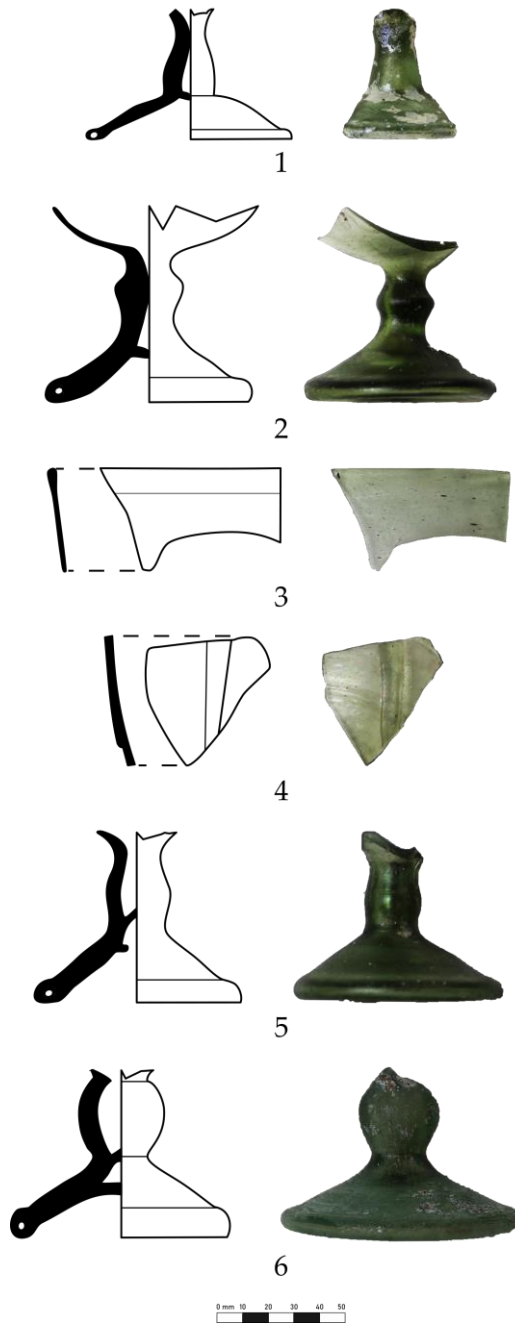


Fig. 6. Drawings and photographs of cat. nos. 1-6

The batch from Centre-North Sector comprises 75% of fragments in greenish tinge or green colour (12 out of 16 fragments)³⁶. The batch from Acropolis Centre-South Sector (42 items published so far) comprises more than 70% shards made of greenish or green glass³⁷. This predominance of greenish/green glass leaves relatively small room for vessels made of glass in olive oil colour or with bluish tinge. In the case of variations of olive oil colour, there are less than 10% items in the batch from Centre-North Sector³⁸, and approximately 16-17% in the batch from Acropolis Centre-South Sector³⁹.

From this point of view, the situation of the small batch of finds from Beroe discussed here tends to offer a slightly different image. Only eight of the 15 fragments are greenish (in some cases in stronger hues, towards green), while seven are made of glass in olive oil colour (greenish or brownish yellow) glass.

It should be emphasised at this point that, on one hand, as already remarked, there is a great variation in colour/tinge, and, on another hand, the state of preservation of the glass fragments tends to be very poor, making more difficult their certain attribution to colour groups. In addition, there are clearly variations in the intensity and depth of colour for the same item depending on the part of the vessel. The colour is stronger and deeper in the area of base and stem (where the glass is the thickest). Paler hues characterise the bowl of the goblets (where glass becomes very thin) – in some instances giving even the impression of being colourless.

Nevertheless, despite the degree of degradation of the surface of the items under discussion, a great similarity in hue and fabric could be observed in the case of the olive-coloured glass fragments, as opposed to the greater variety of shades displayed by the greenish/green shards. For now, it cannot be established whether the situation observed in the olive oil glass indicates that the goblets were made from the same batch of glass, or if they merely reflect the use of glass made using the same recipe.

The similarity is further strengthened by a characteristic already mentioned above, the surface 'desquamation' affecting most of the fragments made of olive oil colour glass (cat. nos. 8, 11-15). In addition to the presence of pitting, weathering crust and iridescence – as their greenish/green counterparts –, the surface gives the impression of missing flakes in places (especially visible in the case of feet, less clear in the case of wall fragments). There are several possible explanations: external factors (such as specific soil conditions and/or treatment at the moment of their disposal), technological factors, as well as a combination of the two. For now, we can only tentatively dismiss some of the theories, or rather suggest which ones are more

³⁶ Cliante, Țârlea 2019, 239; Paraschiv, Țârlea 2022, 121.

³⁷ Țârlea, Cliante 2023, 209.

³⁸ Paraschiv, Țârlea 2022, 120.

³⁹ Țârlea, Cliante 2023, 209.

probable. In our opinion, the effect of only external factors has the lowest chance of being the right answer, as these shards were found alongside other goblet fragments, windowpane fragments and fragments from other types of vessels. At least after a superficial evaluation, this phenomenon could not be identified in any of these. Although we cannot speculate whether there was something wrong with this batch (or these batches) of glass in terms of its composition, the technological factors carry more weight. Alternatively, it could be a reflection of the glassmaker's skills.

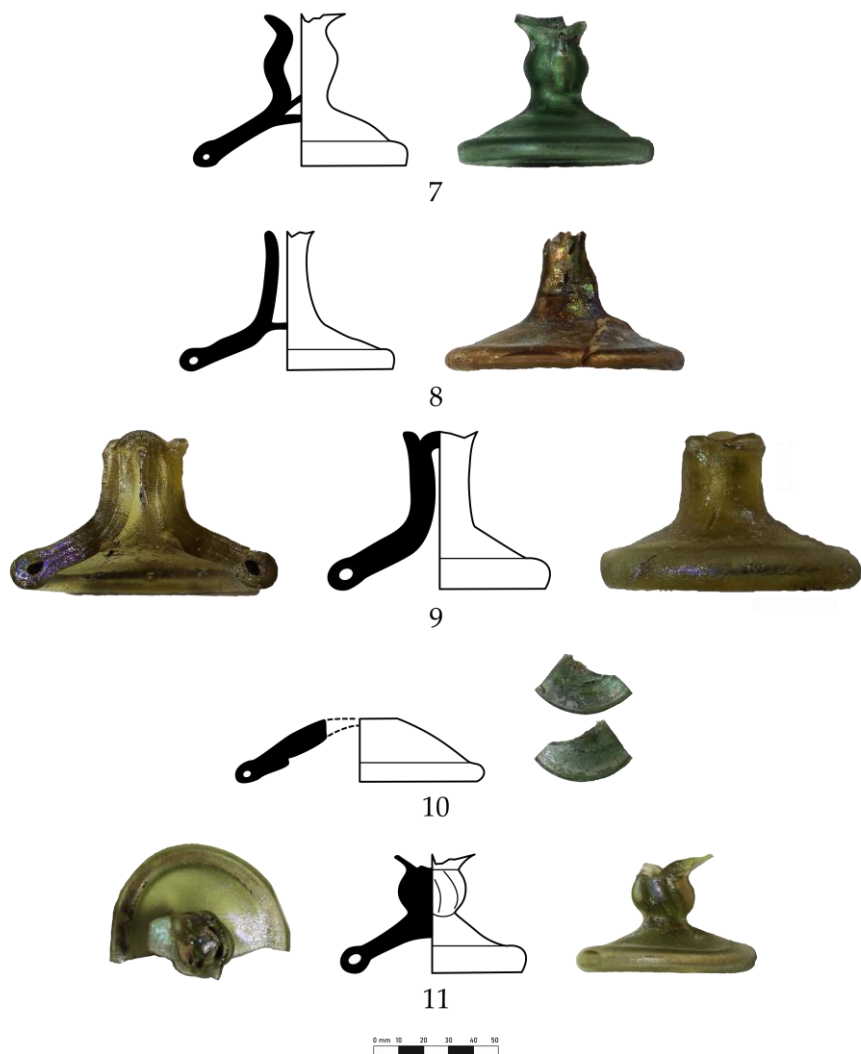


Fig. 7. Drawings and photographs of cat. nos. 7-11

Another distinctive similarity in the case of the goblets made of olive oil colour glass, alongside fabric characteristics, lies in the technological choices made during the production process. A comparison of the fragments preserving complete base and stem indicates a specific approach, but with some variations inside the group. Three of them are connected by the solution used for blocking the hollow stem – a ‘bubble’ created when pushing the glass sheet back inside the stem after creating the ringed base (cat. nos. 9, 12, and 14)⁴⁰. This ‘bubble’, of quite large dimensions, was surpassing the superior limit of the stem, being plainly visible on the bottom of the bowl (see Fig. 7/9, for a lateral view of a well-preserved ‘bubble’, and Figs. 8/12 and 8/14, for a view from above of the deflated ‘bubble’).

Still, they are also differentiated by other details: two of them have a more or less cylindrical stem, although with slightly curved walls (cat. nos. 9 and 12), while the third is almost reverse conical and channelled as a result of rotating the goblet during production – a torsion effect (cat. no. 14). This technological choice of creating a stem with channelled decoration is mirrored by another goblet (cat. no. 11), displaying a proper beaded stem, but with the same channelled decoration created through rotation during the production process. In this case, the torsion of the beaded stem was so strong and the glass sheet was thick enough that it also filled the interior of the stem, effectively blocking it.

Furthermore, with the exception of cat. no. 9, which has either no pontil mark or one that has not survived, all the other stems were also blocked by way of the pontil.

It's intriguing to compare these technological solutions for blocking the stem (glass bubble, high-forming that it enters at the bottom of the bowl, and/or torsion of the stem) with those applied in the case of the greenish/green goblets from this batch. Out of the five fragments preserving base and stem (cat. nos. 1-2, 5-7), three can be considered as having a fully beaded stem, although the bead varies in shape, dimensions, and position from item to item (cat. nos. 2, 6-7). The other two (cat. nos. 1 and 5) could be said to dither on the border between beaded stem and cylindrical stem. The two cylindrical stems have gently curving walls, so the items could be described at the limit as having stems with undefined bead.

Two of them (cat. nos. 1-2) have the stem blocked by the narrowing of its opening in the upper part and by pontil at the base. The other three (cat. nos. 5-7) have the stem blocked in its lower part by a small glass ‘bubble’ and by pontil underneath. In the case of these last three items, the main difference in comparison with those made of olive oil colour glass is that the glassmaker chose not to blow the glass sheet inside the hollow stem all the way up, being content to block it in this manner.

⁴⁰ Cat. no. 9 is especially illustrative as the stemmed foot was broken vertically in ancient times and only half of it was recovered, and this technological detail is plainly visible in the photo.

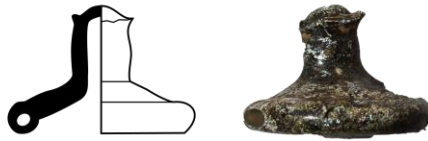
Interestingly enough, the only foot with clear cylindrical stem belongs to a goblet made of olive oil colour (cat. no. 8). In its case, the only way of blocking the hollow stem seems to have been by way of the pontil. It is impossible to say whether or not this solution was aided by a supplementary blockage in its upper part, at the point where it connects with the bowl, as not enough of the stem survived. The only thing that can be said with certainty is that the glass 'bubble' alternative was not used in this case.

A fragment of greenish glass revealed another interesting technological detail when analysed (cat. no. 10). In this case, there was not enough of the glass sheet left after forming the ring to bring it all the way to the point where the stem flares out to form the base. Consequently, the line where the glass sheet ends is clearly visible underneath the base. This is not a unique situation, although it is not common either. The same issue has been noticed before with items from Histria that have had a similar treatment to create the base and its surrounding ring. In one case, the ring seems to have been created by folding the end of the glass sheet⁴¹. As a result, the base consisted of only one sheet of glass, not two, 'sandwiched' together as usual and fusing completely or almost completely. In another case, more similar to the item from *Beroe*, the glass sheet was incompletely folded underneath the base, after forming the tubular ring⁴². It is unclear whether such a situation represents a technological solution employed to save glass, an idiosyncrasy of the glassmaker or a technological awkwardness whereby the glassmaker miscalculated the amount of glass needed to complete the task. Although the number of goblets mentioned here is very small and does not allow for definitive conclusions, they seem to have been made relatively carefully, at least compared to other examples of the type. Therefore, the possibility that this was a deliberate choice rather than a mistake cannot be ruled out.

Regarding the wall and rim fragments, there is not much that can be commented upon at this moment. The glass is very thin in all the cases and the rim was fire-rounded (a typical finishing for Isings form 111). The applied handles, two still surviving in a complete condition (cat. no. 13 and 15) and one of which only the end of the glass thread used for creating the handle is still present (cat. no. 4), are also a common occurrence; many goblets belonging to this type had the addition of three small vertical handles applied below the rim. For the moment, the only observation that can be made about them is that they are quite large and solid, giving the impression that they belong to big, heavy goblets. Their application to the glass wall was far from perfect, and they do not suggest that being perfectly vertical was necessarily a requirement.

⁴¹ Țârlea, Cliante 2023, cat. no. 32.

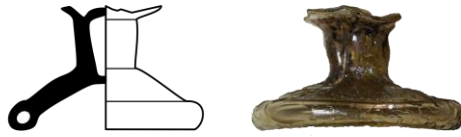
⁴² Țârlea, Cliante 2020, cat. no. 9.



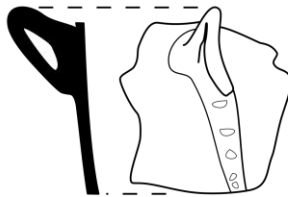
12



13



14



15



Fig. 8. Drawings and photographs of cat. nos. 12-15

As a general observation, most items are characterised by a lack of symmetry and minor technological faults, giving the impression of careless and/or rushed work.

Dimensions

As in many other cases when dealing with Isings form 111 recovered from habitation levels or disturbed contexts, the degree of fragmentation of the items from Beroe does not allow determining all of their dimensions. The most problematic are total height and diameter of the rim. Access to dimensions connected to the lower part of the vessels is much more frequent, such as the diameter of the base and stem, the diameter of the pontil mark, the thickness of the base ring and the thickness of the glass sheet at the base. In the case of surviving fragments from bowls, these can provide information about the thickness of the glass at the rim, wall and thread forming the handles. The measurements of the wall and rim fragments from Beroe reflect the above-mentioned characteristic: the bowl is formed from an extremely thin sheet of glass, in contrast to the parts forming the base and stem. The fragment from the rim is 2 mm thick in the fire-rounded part and less than 1 mm thick below the rim (cat. no. 3). Similarly, thin is the wall fragment preserving a rest of glass thread from a handle, 1 mm (cat. no. 4). The glass of the two fragments bearing handles is almost 2 mm thick (cat. nos. 13 and 15).

The base diameters fall inside the limits noticed in other published material, ranging from 3.6 cm (cat. no. 11) to 4.4/4.6 cm (cat. nos. 9 and 10). It was commented in other occasions that, although there are items with very small base (under 4 cm) or large base (up to 5.5 cm), most of the goblets of this type seem to have a diameter of the base between 4 cm and 4.8 cm⁴³. This observation is valid also in the case of the batch from Beroe, where most bases have the diameter between 4 cm and 4.2 cm.

The diameter of the stem ranges between 0.8 and 1.3 cm, matching well the situation noticed in the case of other representatives of Isings form 111⁴⁴.

The diameter of the pontil mark is situated between 0.9 and 1.3 cm, again frequent dimensions in the case of these goblets⁴⁵. Still, while in the case of pontil marks on the items from the Acropolis Centre-South Sector in Histria, their diameters tend to cluster in the range of 1-1.1 cm, in the case of Beroe, half of the surviving pontil marks have diameters of 1.2-1.3 cm.

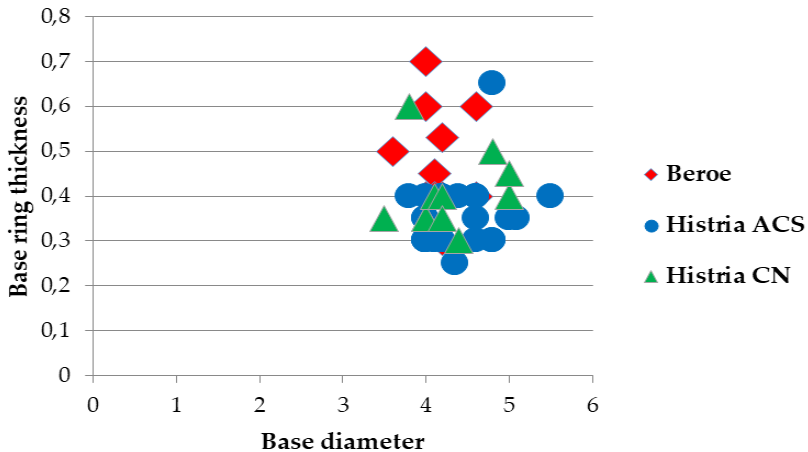
An interesting detail concerning the items from Beroe analysed so far is that, at first glance, they appear sturdy. Despite their bases being relatively small, compared to similar finds, the thickness of their glass, particularly that of their base ring, makes them look quite substantial. To determine whether this is merely an impression or a

⁴³ Țârlea, Cliante 2020, 307; Țârlea, Cliante 2023, 210.

⁴⁴ Țârlea, Cliante 2020, 307.

⁴⁵ Țârlea, Cliante 2020, 307; Țârlea, Cliante 2023, 210.

quantifiable difference compared to other items, the base diameter and ring thickness were compared to similar measurements from the Acropolis Centre-South and Centre-North sectors in Histria. The result of this comparison can be consulted in the graph below (Fig. 9).



Description: part of base with narrow ring; conical foot almost completely preserved; pontil mark blocking the foot at the base; iridescence

Transparency: transparent

Colour: greenish tinge

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Height: preserved 2.7 cm

Diameter:

- **Base:** estimated 4.2 cm
- **Stem:** 1/1.2 cm
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1.1 cm

Thickness: 0.3 cm (ring); 0.35 cm (base); 0.3 cm (beginning of body)

2. **Code:** BER 1971 C

ID: 1/1971

Trench: XV = 8b

Depth: -1.56 m

Context: -

Preservation: fragmentary

Description: complete base and beaded stem, with small part of the body preserved; flattened bead on the stem; uneven ring (varying diameter) and asymmetrical base; the body had a rounded bottom; pontil mark blocking the foot at the base; very sturdy item

Transparency: transparent

Colour: greenish tinge to green colour

Bubbles: spherical, very small (< 1 mm), numerous, on the base and body; elongated, very small, numerous on the lower part of the body

Quality: medium

Height: preserved 3.9 cm

Diameter:

- **Base:** 4.1-4.2 cm
- **Stem:** 0.9/1.3/1.1 cm
- **Body:** not preserved
- **Rim:** not preserved (?)
- **Pontil:** 1.15-1.3 cm

Thickness: 0.43/0.53 cm (ring); 0.2 cm (beginning of body); 0.1 cm (body)

Observations: eight fragments put in the same bag; most probably from the same goblet, one though seems to belong to a windowpane

3. **Code:** BER 1971 C

ID: 1/1971

Trench: XV = 8b

Depth: -1.56 m

Context: -

Preservation: fragmentary

Description: fragment of fire-rounded rim

Transparency: transparent

Colour: greenish tinge

Bubbles: elongated, very small (< 1 mm), numerous

Quality: medium

Dimensions: preserved 3.5 × 1.5/2.1 cm

Thickness: < 0.1 cm (wall); 0.2 (rim)

Observations: eight fragments put in the same bag; most probably from the same goblet, one though seems to belong to a windowpane

4. **Code:** BER 1971 C

ID: 1/1971

Trench: XV = 8b

Depth: -1.56 m

Context: -

Preservation: fragmentary

Description: fragment of body (with rest of rat-tail)

Transparency: transparent

Colour: greenish tinge (stronger on the base, much lighter on the rim and body fragments)

Bubbles: spherical, very small (< 1 mm), numerous, on the base and body; elongated, very small, numerous on the rim and lower part of the body

Quality: medium

Dimensions: 2.5 × 2.5 cm preserved

Thickness: 0.1 cm (body); 0.2 cm (rat-tail)

Observations: eight fragments put in the same bag; most probably from the same goblet, one though seems to belong to a windowpane

5. **Code:** BER 1971 C

ID: 48/1971

Trench: XV = 8b

Depth: -1.07 m

Context: sq. 2a

Preservation: fragmentary

Description: complete base and stem; very small part of the body also preserved; base round, symmetrical, well-made; beaded foot, with barely marked bead; stem blocked on the interior in the middle by 'bubble' and at the base by pontil (now broken, but traces still visible); very sturdy item

Transparency: transparent

Colour: greenish tinge to green colour

Bubbles: spherical (< 1 mm), small, numerous

Quality: medium

Height: preserved 3.2 cm

Diameter:

- **Base:** 4.1 cm
- **Stem:** 0.95/1.15/1.1 cm
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1.2 cm

Thickness: 0.45 cm (ring); 0.19 cm (beginning of body)

6. **Code:** BER 1971 C

ID: 43/1971

Trench: -

Depth: -

Context: -

Preservation: fragmentary

Description: base fragment with beaded stem fragment; well-made item, with large bead; stem blocked by pontil; rough surface and pitting

Transparency: transparent

Colour: greenish tinge to green colour

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Height: 3.1 cm preserved

Diameter:

- **Base:** estimated 4.2 cm
- **Stem:** 1/1.5/1.1 cm (with interior diameter 0.5 cm)
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1.2 cm

Thickness: 0.4 cm (ring); 0.4 cm (base)

7. **Code:** BER 71 C

ID: ?/1971

Trench: ?

Depth: ?

Context: -

Preservation: fragmentary

Description: base and stem; relatively well-made base; beaded stem with rounded bead; stem blocked by pontil; at the application of pontil the glass on the underside of the base around the spot swallowed

Transparency: transparent

Colour: greenish/green

Bubbles: spherical (< 1 mm), small, rare

Quality: medium

Height: 3.2 cm preserved

Diameter:

- **Base:** 4.2 cm

- **Stem:** 1/1.3/1.1 cm
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1.2 cm

Thickness: 0.4 cm (ring)

8. **Code:** BER?

ID: IN 34330

Trench: -

Depth: -

Context: -

Preservation: fragmentary

Description: fragmentary base and stem; the surviving base broken in two fragments which at some point after discovery underwent restoration (presently the glue is still visible but the two fragments separated again); well-defined ring; conical stem, blocked by pontil; iridescence; pitting or technological characteristic; dark weathering crust covering the pontil mark

Transparency: transparent

Colour: olive oil

Bubbles: spherical (< 1 mm), rare

Quality: medium

Height: 2.2 cm preserved

Diameter:

- **Base:** 4.1 cm
- **Stem:** 0.8/1.1 cm (interior diameter 0.5 cm)
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1 cm

Thickness: 0.4 cm (ring); 0.3 cm (base)

9. **Code:** BER 1971 C

ID: 67/1971 (19.08.1971)

Trench: XIII = 10c

Depth: -0.71 m

Context: sq. 6b

Preservation: fragmentary

Description: base and foot broken vertically in half; base with well-defined ring; cylindrical foot blocked by 'bubble' at the junction between foot and body; pontil mark not present or not preserved; a very small blob of glass in exactly the same colour stuck on the exterior of the ring (probably technological fault); iridescence; pitting; very sturdy

Transparency: transparent

Colour: olive oil

Bubbles: spherical (< 1 mm), rare; also several large bubbles

Quality: medium

Height: 2.9 cm preserved

Diameter:

- **Base:** 4.3/4.6 cm
- **Stem:** 1.2/1.5 cm (diameter 'bubble' 1 cm)
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** not present / not preserved

Thickness: 0.6 cm (ring); 0.4 cm (base)

10. Code: BER 1971 C

ID: 6/1971

Trench: XIV = 9b

Depth: -0.5 m

Context: sq. 2 cdef

Preservation: fragmentary

Description: base fragment; the sheet of glass was either cut after being folded in order to create the ring, or presented initially a supplementary fold on the lower part of the base (the state of preservation of the fragment does not allow drawing a clear conclusion); iridescence; small patches of weathering crust

Transparency: transparent

Colour: greenish tinge

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Height: 0.8 cm

Diameter:

- **Base:** 4.4/4.6 cm estimated
- **Stem:** not preserved
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** not preserved

Thickness: 0.4 cm (ring); 0.4/0.45 cm (base)

11. Code: BER 1971 C

ID: 47/1971 (20.08.1971)

Trench: XII = 11b

Depth: -1.15 m

Context: sq. 3b

Preservation: fragmentary

Description: base and foot; half of base preserved, sufficiently to notice that originally was more oval than perfectly round; well-defined uneven ring; beaded stem with well-defined, spherical bead; the bead has a channelled oblique decoration (the technological solution seems to have been the rotating of the item during production, leading to the twisting of the foot, similarly to twisting a rope, and subsequent creation of the "channels"; also this operation resulted in the almost complete filling of the interior of the foot); stem with smaller diameter towards the base than towards the body; foot also blocked supplementary

by pontil; iridescence; dark weathering crust remained on the pontil mark; pitting or technological characteristic (similar to a desquamation) – similar to Cat. Nos. 8, 12 and 13

Transparency: transparent

Colour: olive oil

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Height: 2.3 cm preserved

Diameter:

- **Base:** 3.6 cm maximum (asymmetrical)
- **Stem:** 1.1/1.3/0.9 cm
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 0.9 cm

Thickness: 0.5 cm (ring); 0.35/0.4 cm (base)

12. Code: BER 1971 C

ID: 72/1971 (27.05.1971)

Trench: XV C = 8c

Depth: -1.30/-1.40 m

Context: sq. 6e

Preservation: fragmentary

Description: base and foot (the base broken in two, most probably while in the soil, based on the fact that the breakage is clean, smooth, without depositions, but in the same time presenting iridescence on the bubbles exposed by the glass breaking); conical foot with very slightly convex walls, forming a undefined bead, blocked by 'bubble' at the junction between foot and body; traces of pontil; base and foot covered almost completely in dark smooth thick weathering crust, very persistent (indicating in our opinion exposure to fire); pitting or technological characteristic (similar to a desquamation) – similar to Cat. Nos. 8, 11 and 13

Transparency: transparent

Colour: olive oil

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Height: 2.7 cm preserved

Diameter:

- **Base:** 3.9/4 cm
- **Stem:** 0.9/1.2/1.2 cm (diameter of 'bubble' 0.8 cm)
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1 cm estimated

Thickness: 0.7 cm (ring); 0.4 cm (base)

Observations: one of two fragments of the base (the one preserving the foot) + wall with handle (same vessel?); pottery, charcoal, bones, painted plaster; glass – possibly windowpane

13. Code: BER 1971 C**ID:** 72/1971 (27.05.1971)**Trench:** XV C = 8c**Depth:** -1.30/-1.40 m**Context:** sq. 6e**Preservation:** fragmentary**Description:** small fragment of wall with rounded handle and “rat-tail” possibly belonging to the same vessel as cat. no. 12, based on colour and characteristics of glass; strong pitting**Transparency:** transparent**Colour:** olive oil**Bubbles:** spherical (< 1 mm), numerous**Quality:** medium**Dimensions:** 3×1.5 cm (approximately)**Thickness:** 0.4 cm (handle); 0.2 cm (wall)**Observations:** one of two fragments of the base (the one preserving the foot) + wall with handle (same vessel?); pottery, charcoal, bones, painted plaster; glass – possibly windowpane**14. Code:** BER 1971 C**ID:** 55/1971**Trench:** -**Depth:** -**Context:** -**Preservation:** fragmentary**Description:** base and stem with beginning of the body; conical stem with larger diameter in the upper part (reversed conical), blocked in the upper part by flattened ‘bubble’ and at the base by pontil; the stem presents a sort of vertical channels, created by turning the vessel during production; pitting or technological characteristic (similar to a desquamation) – similar to Cat. Nos. 11 and 12**Transparency:** transparent**Colour:** olive oil**Bubbles:** spherical (< 1 mm), numerous**Quality:** medium**Height:** 2.2 cm**Diameter:**

- **Base:** 4 cm
- **Stem:** 1.3/1.2/1.15 cm (diameter of the ‘bubble’ 1.1 cm)
- **Body:** not preserved
- **Rim:** not preserved
- **Pontil:** 1.1 cm

Thickness: 0.6 cm (ring)**15. Code:** BER 1971 C**ID:** 56/1971**Trench:** -

Depth: -

Context: -

Preservation: fragmentary

Description: part of the body, still presenting attached the small handle typical for variants of Isings form 111; the “rat-tail” was pressed from place to place with a blunt tool; thick corrosion layer

Transparency: transparent

Colour: olive oil?

Bubbles: spherical (< 1 mm), numerous

Quality: medium

Dimensions: 3 × 3 cm approximately

Thickness: 0.6/0.4 cm (handle); 0.2 cm (wall)

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