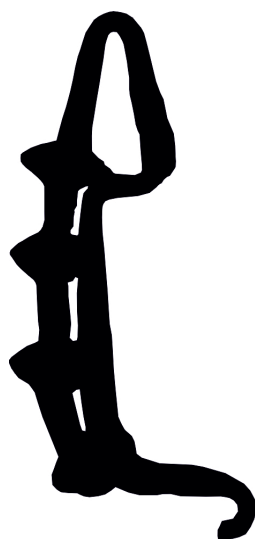


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This volume is dedicated to Tudor Soroceanu at 80 years

Acest volum este dedicat lui Tudor Soroceanu cu ocazia împlinirii a 80 de ani



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Seventh-eight centuries bead types/forms discovered in the Avar and Avar-Slavic cemeteries of Transylvania

Călin Cosma

Abstract: Among the Avar cemeteries of Transylvania, beads were discovered in the cemeteries of Câmpia Turzii, Cicău, Gâmbaş 1, Gâmbaş 2, Sâncrai, Şpălnaca and Teiuş. Biritual Avar-Slavic cemeteries from Transylvania where beads were identified count: Berghin, Bratei 2, Ghirbom 2 and Ocna Sibiului (Map 1). The raw materials of which the beads discovered in the Avar and Avar-Slavic cemeteries from Transylvania were made of glass, lead-tin yellow pigment, clay, solidified fossils, semiprecious stones and silver (Tab. 1a-b). Quantitatively, most numerous are the glass beads followed in descending order by lead-tin yellow pigment beads, those in silver, then of clay and lastly, of fossilised molluscs (Tab. 1a-b). Most glass beads are transparent/translucent and/or dull, of different hues. There are also blue, black, dark-gray with green hues, green, brown beads. Bead surfaces are glossy or porous. The lead-tin yellow pigment beads are yellow, light brown or yellowish-brown, while those in clay are brown. Semiprecious beads are made of orange-yellow, semi-transparent, dendritic limonite cryptocrystalline opal, black obsidian and greenish-yellow chalcedony. The main bead types/forms are the following: circular, with several versions; globular; ovoid-biconical with several versions; conical with several variations; biconical; square with several variations; rectangular with several variations; cylindrical; tubular with several variations (Fig. 1-9). Beads of transparent and/or dull glass, glossy or porous, ovoid-biconical or conical were decorated with spirals or horizontal lines. Coloured beads were decorated by inlay or painting with lines and dots of various colours or small spheres, attached to the bead body. Some of the beads of semiprecious stones are decorated with geometric patterns by finishing. A few of the silver beads were decorated with ovoid spheres by pressing (Fig. 10). All these beads were fashionable in the Avar and Avar-Slavic communities of Transylvania during the second half of the 7th century and the first three-five decades of the 8th century (Fig. 11).

Keywords: beads; typology; chronology; the early Middle Ages; Transylvania.

Argument. Chronological and geographical limits

In the archaeological literature centred on the study of the early Middle Ages, there is no study to catalogue and discuss the beads discovered in the 7th-8th centuries archaeological sites of Transylvania. Therefore, this study aims to fill a gap in jewellery research, particularly, of beads, which the human communities inhabiting Transylvania over the 7th-8th centuries had used.

However, why only Transylvania? Because, during the early Middle Ages as well, the Transylvanian Plateau was a distinct territory, where military and political events different from other geographical areas in Romania¹ occurred. Secondly, Transylvania is a unified geographical territory so that we believe that the goal of the research proposed here may provide a specific view of a well defined space geographically, yet also politically. Historically, the 7th-8th centuries is a well defined time period in the history of Transylvania. It corresponds to the Avar period in the Carpathian Basin.

Types of archaeological sites yielding beads

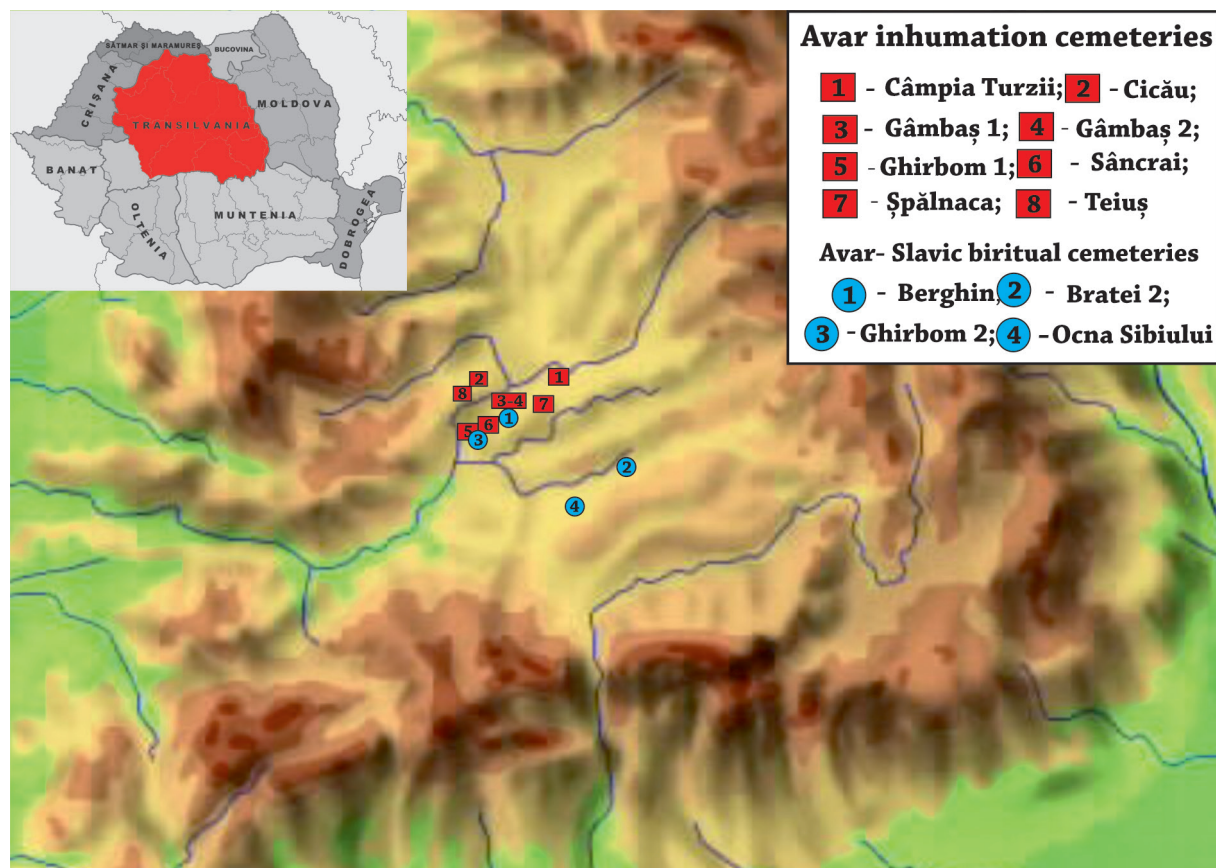
In this scientific approach we propose to catalogue only Avar inhumation cemeteries, excluding those in group Band-Noşlac-Bratei 3, and the Avar-Slavic biritual cemeteries where beads were identified.

We believe that analysis of beads discovered only in Avar cemeteries without Gepidic elements, as well as in those Avar-Slavic, is a research path that may provide accurate data on the bead types used by the members of the Avar or Avar-Slavic communities of Transylvania. Subsequently, these data may be used as basis of comparison with beads yielded by Gepidic cemeteries, yet especially those identified in the Avar-Gepidic cemeteries included in the Band-Noşlac-Bratei 3 group.

¹ Cosma 2017, 14-15; Cosma 2020, 7-8.

Within the Avar inhumation cemeteries of Transylvania, beads were discovered in the cemeteries of Câmpia Turzii², Cicău³, Gâmbaş/Cetățuie or Cimitirul reformat/hereinafter Gâmbaş 1⁴, Gâmbaş/Ogoarele de jos/hereinafter Gâmbaş 2⁵, Ghirbom/Gruicul Măciuliilor/hereinafter Ghirbom 1⁶, Sâncrai⁷, Șpălnaca⁸ and Teiuș⁹ (Map 1).

The Avar-Slavic biritual cemeteries of Transylvania that yielded beads include those of: Berghin¹⁰, Bratei/Cimitirul nr. 2/hereinafter Bratei 2¹¹, Ghirbom/Gruicul fierului/hereinafter Ghirbom 2¹² and Ocna Sibiului¹³ (Map 1).



Map 1. Geographical distribution of the Avar inhumation cemeteries and biritual Avar-Slavic cemeteries in Transylvania where the beads were discovered.

Bead analysis

The analysis of beads yielded by the Avar and Avar-Slavic cemeteries of Transylvania took in consideration a series of elements like for instance: the raw material of which the artefacts were made and bead colour and shape. Where applicable, we also mentioned bead decoration.

² Cosma 2017, 52-53, Pl. 12/C.12.

³ Winkler *et al.* 1977, 270, Pl. 3/2.4-6.

⁴ Cosma 2017, 58, 60, Pl. 17/Gr. 7/3, 18/Gr. 4/7-9, 20/Gr. 13/4-5.

⁵ Cosma 2017, 61-62, Pl. 21/Gr. 1/6, Gr. 2/2.

⁶ Stoicovici, Blăjan 1982, 139, 142-143, Fig. 2-3.

⁷ Cosma 2017, 65-75 (graves 1-33); archaeological excavations C. Cosma, G. Balteș, C. Florescu (graves 34-110).

⁸ Cosma 2017, 78, Pl. 42/Gr. 37/8, 10-13; the beads in graves 5, 15, 21, 40, 47 archive archaeological site Șpălnaca, National Museum of the Union Alba Iulia.

⁹ Cosma 2017, 80-84, Pl. 45/Gr. 4/1, Gr. 5/1, Gr. 6/6, Gr. 8/6, Pl. 47/Gr. 17/1, Pl. 48/Gr. 21/5, Pl. 49/Gr. 23/1, Pl. 50/Gr. 35/5.

¹⁰ Archive archaeological site Berghin, National Museum of the Union Alba Iulia.

¹¹ Zaharia 1977, 23-24, 35, 50, 54, 56-60, Fig. 35.

¹² Anghel 1997, 262, Fig. 6/10.

¹³ Protase 2004, 55-56.

The raw material of which beads were made. Technical details

A – Glass beads

The great majority of beads were made of sand molten at a temperature of 1300° C. The glass has a high, hard consistency. Some of the beads were made of a fine, glossy fabric, others of a porous material. The glass of which the light green, disc-shaped bead discovered in the Ghirbom 1 cemetery also contained iron oxides¹⁴ (Appendices 1a-b, Tab. 1a).

There are also lower quality glass fabric beads, which currently exhibit a white, dull, strongly corroded, brittle surface. They show numerous, variously sized pores, areas with translucent glass and completely opaque areas. Beads decayed over the course of time by chemical altering, owing to the chemical processes occurring in the acid soil where these lay buried. The poor quality of the material not only allowed such chemical altering, but in fact sped it up¹⁵. Such beads are yellowish-white and are very chalky. They were discovered in two graves from the Avar inhumation cemetery of Sâncrai and in one of inhumation from the Avar-Slavic biritual cemetery of Berghin (Appendix 1c, Tab. 1a).

In most glass beads, the perforation where the thread supporting the beads on the necklace was inserted, does not contain any other raw material (support), on top of which the glass fabric would have been cast (Appendix 1a-c, Tab. 1b).

There are though, glass beads which inside the perforation where the necklace thread was inserted contained thin bronze sheets, representing the support around which the glass fabric was cast. Such artefacts were discovered in the Avar inhumation cemetery of Sâncrai (Appendix 1d, Pl. 6/1.7, Pl. 7/3.6,11//1.10). Three thin bronze tubes were also identified in grave 8 from the Avar inhumation cemetery of Teiuş. In this case, the three bronze tubes could constitute a bead type themselves (Pl. 14/4.1-3). A dull glass bead with a bronze shell was found in a pit cremation from in the Avar-Slavic biritual cemetery of Berghin (Pl. 1/2.5, Appendix 1d, Tab. 1b).

Another glass bead type is that composed of beads with glass tube supports. The glass support was sheathed, by casting, with an additional glass layer. Such beads were discovered in the Avar cemeteries of Sâncrai and Şpálnaca, as well as in an inhumation from the Avar-Slavic biritual cemetery of Berghin¹⁶ (Appendix 1e, Tab. 1b).

In the Avar inhumation cemetery of Ghirbom 1 were identified glass beads with vegetal fibre tubular support. The vegetal fibre in the form of sun-dried paste represented the support encased later by cast glass fabric¹⁷. The vegetal paste was made of the cruciferous fruit/wild radish¹⁸ (Appendix 1f, Tab. 1b).

Some of the translucent, transparent and/or dull glass beads have many colours, like for instance: light brown, light green, light blue. Blue, black, gray, green or brown beads are of a darker or lighter tint of the base colour. For instance, black beads are dull/glossy black, but also porous, light black. Gray beads have a dark brownish-gray colour, with green tints, some glossy, other porous. Brown beads have orange-brown hues.

Beads of transparent and/or glossy glass, either glossy or porous, in different colour shades were identified in the Avar inhumation cemeteries of Câmpia Turzii, Gâmbaş 2, Sâncrai, Şpálnaca and Teiuş, as well as in the Avar-Slavic biritual cemeteries of Berghin, Bratei 2, Ghirbom 2 and Ocna Sibiului (Appendix 1a-c, Tab. 1a). Glass beads with bronze tubular support are either dull or translucent. Those with glass tubular support have the surface painted in blue, bright blue, brown, golden or white. Glass beads with vegetal fibre support, depending on the quantity of nacre in the fabric, are silverly, golden and bright blue¹⁹ (Appendix 1a-f, Tab. 1a).

Blue glass beads were yielded by the Avar inhumation cemeteries of Gâmbaş 2, Sâncrai, Şpálnaca and Teiuş, as well as Avar-Slavic biritual cemeteries of Berghin, Bratei 2, Ghirbom 2 and Ocna Sibiului (Appendix 2a-b, Tab. 1a).

¹⁴ Stoicovici, Blăjan 1982, 142, no. 1.

¹⁵ Optical microscopic analyses and scientific specifications Dr. Montana Puşcaş, Terra Analitic Ltd.

¹⁶ Optical microscopic analyses Dr. Montana Puşcaş, Terra Analitic Ltd.

¹⁷ Stoicovici, Blăjan 1982, 149-151.

¹⁸ Stoicovici, Blăjan 1982, 149.

¹⁹ Stoicovici, Blăjan 1982, 149.

Black glass items were discovered in the Avar inhumation cemeteries of Gâmbaş 1, Gâmbaş 2, Sâncrai, Șpălnaca and Teiuș, as well as the Avar-Slavic biritual cemetery of Berghin (Appendix 3a-c, Tab. 1a).

Dark brownish-gray glass beads with green tints come from the Avar inhumation cemeteries of Gâmbaş 1, Sâncrai and Șpălnaca, as well as the Avar-Slavic biritual cemetery of Berghin (Appendix 4, Tab. 1a).

Green glass items were discovered in the Avar inhumation cemeteries of Gâmbaş 2, Ghirbom 1, Sâncrai, Șpălnaca and Teiuș, as well as the Avar-Slavic biritual cemeteries of Berghin, Bratei 2 and Ocna Sibiului (Appendix 5, Tab. 1a).

Brown beads were identified in the Avar inhumation cemeteries of Gâmbaş 1, Gâmbaş 2, Ghirbom 1, Sâncrai and Teiuș, as well as the Avar-Slavic biritual cemeteries of Berghin, Bratei 2 and Ocna Sibiului (Appendix 6a-b, Tab. 1a).

B – Lead-tin yellow pigment beads

Such pieces were discovered in the poor burial cemeteries at Gâmbaş 1, Gâmbaş 2, Sâncrai and Teiuș (Annex 7, Tab. 1a). It should be noted that when the beads from Gâmbaş 1 were published for the first time, it was stated that they were made of paste, without details regarding the composition of this raw material²⁰. Subsequently, specimens from all four necropolises mentioned above benefited from mineralogical analyses. They revealed that the beads were made from a paste consisting of a yellow pigment of lead and tin (PbSnO₃). At present, it also contains lead carbonate (cerusite, PbCO₃) and possibly, lead-chloride oxide (merekheadite, Pb₂O(OH)Cl). The latter two mineralogical components were formed at a later date, by alteration after deposition into the grave or during storage²¹. The beads are yellow, light brown or yellowish-brown. Such items were discovered in the Avar inhumation cemeteries of Gâmbaş 1, Gâmbaş 2, Sâncrai and Teiuș (Appendix 7, Tab. 1a).

Tab. 1a. Distribution of beads in the 7th – 8th century cemeteries of Transylvania, upon raw material and color.

Avar inhumation cemeteries	Glass/Colors						Lead-tin yellow pigment beads	Clay	Fossilised molluscs	Semiprecious stones			Silver
	1	2	3	4	5	6				7	8	9	
Câmpia Turzii	•												•
Cicău	•												
Gâmbaş 1				•			•						•
Gâmbaş 2	•	•	•	•	•	•	•						
Ghirbom 1					•					•	•		
Sâncrai	•	•	•	•	•	•	•						
Șpălnaca	•	•	•	•	•								•
Teiuș	•	•	•		•	•	•						
Avar-Slavic biritual cemeteries													
Berghin	Cremation/ Funeral urn	•	•	•		•	•		•	•			
	Cremation/Pit Inhumation	•	•		•								
Bratei 2	Cremation/Pit and Funeral urn	•	•			•	•						
	Inhumation	•	•	•		•	•					•	•
Ghirbom 2	Cremation/ Funeral urn	•											
Ocna Sibiului	Inhumation	•	•			•	•						

1 – Transparent and/or dull glass; 2 – Blue glass; 3 – Black glass; 4 – dark gray/black glass with green hues; 5 – Green glass; 6 – Orange-brown glass; 7 – Opal; 8 – Obsidian; 9 – Calcedony

²⁰ Horedt 1958, 97, M. III, 6, Fig. 15/5, 98, M. VI, 3, Fig. 16/7.

²¹ Mineralogical analyses Reader Dr. Tudor Liviu Tămaș, Faculty of Biology and Geology, Babeș-Bolyai University of Cluj-Napoca.

C – Clay beads

Beads made of clay fabric became orange-brown after firing. Such artefacts were found in an urn cremation from the Avar-Slavic biritual cemetery of Berghin (Appendix 8, Tab. 1a).

D – Beads of fossilised molluscs

The item is light brown on the exterior and dark on the inside. It is a fossilised mollusc (snail), cracked into two pieces at a later date. It was discovered in a pit cremation from the Avar-Slavic biritual cemetery of Berghin (Appendix 9, Tab. 1a).

E – Beads of semiprecious stones

The semiprecious stones of which the beads in the Avar and Avar-Slavic cemeteries of Transylvania were made are the following: orange-yellow, semitransparent dentritic limonite cryptocrystalline opal (just one item in the inhumation cemetery of Ghirbom 1); Black obsidian (just one exemplar in the inhumation cemetery of Ghirbom 1); greenish-yellow chalcedony (just one item in an inhumation from the Avar-Slavic biritual cemetery of Bratei 2), (Appendix 10, Tab. 1a).

F – Silver beads

Almost all silver beads were made of thin silver sheets, glued together midway, on the maximum diameter line or the long axis of the items. The artefacts are hollow. Just one bead was made of silver by casting. Silver beads were discovered only in the Avar inhumation cemeteries of Câmpia Turzii, Gâmbaş 1, Sâncrai and Şpálnaca, as well as in inhumation graves from the biritual cemetery at Bratei 2 (Appendix 11, Tab. 1a).

Tab. 1b. Distribution of glass beads within the cemeteries according to the raw material which composes the support of the inner perforation.

Avar inhumation cemeteries		Glass bead production technique				
		Glass bead types/ forms without internal support		Glass bead types/forms with bronze tubular support	Glass bead types/ forms with glass fabric tubular support	Glass bead types/forms with vegetal paste tubular support
		Consistent paste	Friable paste			
Câmpia Turzii		•				
Teiuş		•				
Cicău		•				
Gâmbaş 1		•				
Gâmbaş 2		•				
Ghirbom 1		•				•
Sâncrai		•	•	•	•	
Şpálnaca		•			•	
Teiuş		•				
Avar-Slavic biritual cemeteries						
Berghin	Cremation/Funeral urn	•				
	Cremation/Pit	•				
	Inhumation	•	•		•	
Bratei 2	Cremation	•				
	Inhumation	•				
Ghirbom 2	Cremation	•				
Ocna Sibiului	Inhumation	•				

Typology of bead forms

In a rather large proportion, beads discovered in the Avar and Avar-Slavic Transylvanian cemeteries of the 7th – 8th centuries survived in relatively good condition, so that drafting an accurate typology is possible. There are though fragmentary items as well. For instance, in some of the cremations contained

in biritual cemeteries, particularly, the Berghin necropolis, were identified a series of burnt beads, with body deformed subsequent to their making. These artefacts are rather difficult to typologically frame with accuracy.

I. Glass bead types/forms without internal support

1 – Ring-shaped beads (Fig. 1/1)

Beads in this type have a diameter comprised between 1 and 1.5 cm. The items are of transparent and/or dull, glossy or porous glass, or of blue, black, green and orange brown glass. The transparent and/or dull beads are present in the graves from the Avar inhumation cemeteries of Gâmbaş 2, Sâncrai and Teiuş, as well as in the cremations from the Avar-Slavic biritual cemetery of Berghin (Appendix 1a). Those blue were identified in the Avar inhumation cemeteries of Gâmbaş 2, Sâncrai and Şpâlnaca, as well as in the urn cremations, urn and pit cremations, yet also the inhumations from the Avar-Slavic biritual cemeteries of Berghin and Bratei 2 (Appendix 2a). The black beads are of two types: undecorated and decorated. Just one ring-shaped bead, black, undecorated, was discovered in a pit cremation from the Avar-Slavic biritual cemetery of Berghin (Appendix 3a). Ring-shaped black beads, decorated, were discovered in the Avar inhumation cemetery of Gâmbaş 2 (Appendix 3b). Green glass beads were discovered in the Avar inhumation cemeteries of Ghirbom 1 and Sâncrai and the pit cremations and inhumations from the Avar-Slavic cemetery of Bratei 2 (Appendix 5). Orange brown beads are of two types: without ornament and with ornament. Those without ornament were yielded by the Avar inhumation cemeteries of Gâmbaş 2 and Sâncrai and the pit cremations in the biritual cemetery of Berghin (Appendix 6a). Ornamented orange brown beads were discovered in the inhumation cemeteries of Gâmbaş 1, Gâmbaş 2 and Sâncrai (Appendix 6b).

2 – Disk beads (Fig. 1/2)

The items have a 0.5 cm diameter. They are of transparent and/or dull, glossy or porous glass and of blue, green and orange brown glass. Those transparent and/or dull were discovered in the urn cremations or inhumations from the Avar-Slavic biritual cemeteries of Ghirbom 2 and Ocna Sibiului (Appendix 1a). Blue beads come from urn cremations and inhumations in the Avar-Slavic biritual cemetery of Ocna Sibiului (Appendix 2a). A green bead was found in an inhumation from the cemetery at Ghirbom 1 (Appendix 5). Orange brown beads come from pit cremations in the biritual cemetery of Berghin (Appendix 6a).

3 – Circular-biconical beads (Fig. 1/3)

The diameter of the items is of 1.8 cm. They are of dull and green glass. A bead of dull glass was discovered in the Avar inhumation cemetery of Sâncrai (Appendix 1). The green glass specimens were identified as follows: one in the Avar inhumation cemetery of Şpâlnaca and another in an inhumation from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 6).

4 – Globular beads (Fig. 1/4)

The diameter of these examples frames between 0.5 and 1.2 cm. The beads are of transparent glass and/or dull, glossy or porous, white, blue, black and dark-gray with green and orange brown hues. Those transparent and/or dull were discovered in the Avar inhumation cemetery of Sâncrai (Appendix 1a,c). Still from the Sâncrai cemetery comes a blue bead (Appendix 2a). Two globular, decorated, blue glass beads were discovered in the Avar cemetery of Şpâlnaca. The Şpâlnaca items have a diameter comprised between 1 and 1.2 cm (Appendix 2b). Black, undecorated beads were identified in the Avar inhumation cemeteries of Gâmbaş 1 and Sâncrai (Appendix 3a). Glossy, decorated black beads were found in the Avar inhumation cemeteries of Gâmbaş 1 (Appendix 3b). Globular, dark-gray/blackish glass beads with green hues come from the cemeteries of Gâmbaş 2 and Sâncrai. These are decorated (Appendix 4). Globular, orange-brown undecorated beads are found among the grave goods yielded by the Avar inhumation cemetery of Gâmbaş 2 (Appendix 6a). Those of orange-brown glass, decorated, were discovered in the inhumation cemetery of Gâmbaş 1 (Appendix 6b).

5 – Ovoid-biconical beads (Fig. 1/5)

5a – Ovoid-biconical beads with flat cut heads (Fig. 1/5a)

Bead lengths range between 1/1.2 and 1.5/1.6 cm, while their diameter between 0.4 and 0.7 cm. The beads are of transparent and/or dull, glossy or porous glass, and in black, glossy or porous glass, dark-gray/blackish with green hues, and green, and brown. Those transparent and/or dull were identified in the Avar inhumation cemeteries of Câmpia Turzii, Gâmbaş 2, Sâncrai, Șpălnaca and Teiuș, as well as in the pit cremations, urn and pit cremations and inhumations from the Avar-Slavic biritual cemeteries of Berghin and Bratei 2 (Appendix 1a). Black, undecorated beads were discovered in the Avar inhumation cemeteries of Sâncrai and Șpălnaca (Appendix 3a). Black, glossy glass beads, decorated, come from the inhumation cemetery of Gâmbaş 1 (Appendix 3b). Beads of black, porous glass, decorated, were identified in the Avar inhumation cemetery of Sâncrai (Appendix 3c). The dark-gray/blackish items with green hues, decorated, come from the cemeteries of Gâmbaş 2, Sâncrai and Șpălnaca, as well as the inhumations from the Avar-Slavic biritual cemetery of Berghin (Appendix 4). Beads of green glass were discovered in the Avar inhumation cemeteries of Sâncrai, Șpălnaca and Teiuș, as well as an inhumation from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 5). Brown beads are of two types: without ornament and with ornament. Those without ornament come from the inhumation cemetery of Sâncrai, as well as the pit cremations from the Avar-Slavic biritual cemetery of Berghin (Appendix 6a). Those decorated come from the Avar inhumation cemetery of Gâmbaş 2 (Appendix 6b).

5b – Ovoid-biconical beads with circular collar at one of the heads (Fig. 1/5b)

Item lengths are of 1.5 cm, with a maximum diameter of 0.5 cm. The beads are of transparent and/or dull glass. They were discovered in the Avar inhumation cemeteries of Câmpia Turzii and Sâncrai (Appendix 1a).

6 – Cone beads

6a – Cone beads with rounded body (Fig. 1/6a)

Bead lengths range between 1.2 and 1.7 cm and have a diameter between 0.4 and 0.7 cm. They are of transparent and/or dull glass and in a black, dark-gray/blackish colour, with green hues, and green, and brown. Those transparent and/or dull were discovered in the Avar inhumation cemeteries of Gâmbaş 2, Sâncrai, Șpălnaca and Teiuș, as well as the inhumations from the Avar-Slavic biritual cemeteries of Berghin and Bratei 2 (Appendix 1b). Black beads, without decoration, come from the Avar inhumation cemeteries of Sâncrai and Șpălnaca (Appendix 3a). Black beads, decorated, were identified in the Avar inhumation cemetery of Gâmbaş 1 (Appendix 3b). The dark-gray/blackish items with green hues were discovered in the Sâncrai cemetery and the inhumations from the Avar-Slavic biritual cemetery of Berghin. The beads have decorated body and heads (Appendix 4). Green beads were identified in the Avar inhumation cemetery of Sâncrai and an urn cremation from the Avar-Slavic biritual cemetery of Berghin (Appendix 5). Brown beads, without ornament, come from the Avar inhumation cemetery of Sâncrai, as well as the pit cremations from the biritual cemetery of Berghin (Appendix 6a).

6b – Cone beads with trilobed body (Fig. 1/6b)

Bead lengths vary between 1.2 and 1.6 cm, while the maximum diameter ranges between 0.4 and 0.7 cm. The beads are of transparent and/or dull glass and of black and green glass. Those transparent and/or dull were discovered in the Avar inhumation cemetery of Sâncrai and the inhumations from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 1b). Black beads were identified in the Avar inhumation cemeteries of Sâncrai and Teiuș (Appendix 3a). A green item comes from the Avar inhumation cemetery of Sâncrai (Appendix 5).

6c – Cone beads with flat body (Fig. 1/6c)

Their length frames between 1.2 and 1.6 cm, while their maximum diameter is between 0.4 and 0.7 cm. The beads are of transparent and/or dull glass, black, as well as blue glass. Those transparent and/or dull were discovered in inhumations from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 1b). Blue beads were discovered in the Avar inhumation cemetery of Teiuș (Appendix 2a). Black beads come from the Avar inhumation cemetery of Sâncrai (Appendix 3a).

6d – Four-sided cone beads (Fig. 1/6d)

Just one bead of the type was identified in an inhumation from the Avar-Slavic biritual cemetery of Bratei 2. The item is green and 1.5 cm long (Appendix 5).

7 – Truncated cone beads (Fig. 1/7)

The specimens have flat body. The upper head is cut flat. The lower side is pointed. Bead lengths vary between 0.9 and 1.1 cm and the maximum width between 0.7 and 0.9 cm. The beads are blue, black, green and brown. Those blue were discovered in the Avar inhumation cemetery of Teiuș (Appendix 2a). Black beads come from the Avar inhumation cemeteries of Sâncrai, Șpălnaca and Teiuș, as well as an urn cremation in the Avar-Slavic biritual cemetery of Berghin (Appendix 3a), and an inhumation graves in the Avar –Slavic cemetery of Bratei 2 (Appendix 3a). Green items were discovered in the Avar inhumation cemetery of Sâncrai (Appendix 5). Brown beads come from the Avar inhumation cemetery of Sâncrai, as well as the urn cremations from the Avar-Slavic biritual cemetery of Berghin and the inhumations in the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 6a).

8 – Square beads (Fig. 1/8)

An item of the type was identified in the Sâncrai Avar cemetery. The bead is green and sized 0.6 X 0.6 cm (Appendix 5).

9 – Square bilobed (binocular-shaped) beads (Fig. 1/9)

Such a bead was found in a pit cremation from the Avar-Slavic biritual cemetery of Berghin. It is blue. The shape of the item is square, with round edges, divided midway by an alveole. The two sides of the item are horizontally crossed by two grooves, which give the artefact the binocular shape. Its sizes are of 0.9 X 0.9 cm (Appendix 2a)

10 – Rectangular beads (Fig. 1/10)

The length of the specimen is of 1 cm and it is 0.6 cm wide. The bead is blue and was identified in the Avar inhumation cemetery of Sâncrai (Appendix 2a).

11 – Rectangular beads with five faces (pentagonal) (Fig. 1/11)

Such an exemplar was discovered in the Avar inhumation cemetery of Sâncrai. The bead is green, 1 cm long and 0.6 cm wide (Appendix 5).

12 – Flat rectangular beads (Fig. 1/12, Tab. 2)

A bead of the type was found in the Avar inhumation cemetery of Sâncrai. The bead is green, 0.8 cm long and 0.4 cm wide (Appendix 5).

13 – Cylindrical beads (Fig. 1/13)

Bead ends are cut flat or rounded. Their length ranges between 0.9 and 1.6 cm and their diameter is between 0.4 and 0.6 cm. The beads are of transparent and/or dull glass and in blue, dark, dark-gray/black glass with green hues, and green and brown. Those transparent and/or dull were discovered in the Avar inhumation cemeteries of Cicău, Gâmbaș 2, Sâncrai, Șpălnaca and Teiuș, but also in the urn cremations, pit and urn cremations and inhumations in the Avar-Slavic biritual cemeteries of Berghin and Bratei 2 (Appendix 1b). Blue beads come from urn cremations from the Avar-Slavic biritual cemetery of Berghin (Appendix 2a). Black beads, undecorated, were identified in the Avar inhumation cemeteries of Sâncrai and Șpălnaca (Appendix 3a). Black beads, decorated, come from the Avar inhumation cemetery of Gâmbaș 1 (Appendix 3b). The dark-gray/black items with green hues were discovered in the Gâmbaș 2 and Sâncrai cemeteries. The beads have their body decorated (Appendix 4). A green glass comes from an urn cremation in the Avar-Slavic biritual cemetery of Berghin (Appendix 5). Brown beads are of two types: without ornament and with ornament. Those without ornament come from the Avar inhumation cemetery of Sâncrai, as well as the urn or pit cremations from the biritual cemetery of Berghin (Appendix 6a). Brown, decorated beads were found in the inhumation cemeteries of Gâmbaș 1 and Gâmbaș 2 (Appendix 6b).

14 – Tubular beads (Fig. 1/14)

In this type, bead ends are cut flat or rounded. Their length varies between 1 and 1.6 cm and their maximum diameter is of 0.5/0.6 cm. The beads are of transparent and/or dull glass, but also of black, dark gray/black glass with green hues, and green and brown. Those transparent and/or dull were

discovered in the Avar inhumation cemeteries of Câmpia Turzii, Gâmbaş 2, Sâncrai, Șpálnaca and Teiuș, but also in the pit and urn cremations or inhumations from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 1b). The black beads, without ornament, were discovered in the Avar inhumation cemetery of Sâncrai (Appendix 3a). Black beads, decorated, come from the Avar inhumation cemetery of Gâmbaş 1 (Appendix 3b). The dark-gray/black items with green hues were identified in the Avar inhumation cemetery of Șpálnaca. The beads have decorated body and ends (Appendix 4). Green beads come from the Gâmbaş 2 cemetery (one of the beads is decorated (Appendix 5), and on inhumation grave from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 5). Brown beads are of two types: without ornament and with ornament. Those without ornament come from the Avar inhumation cemetery of Sâncrai, as well as from an inhumation in the Ocna Sibiului biritual cemetery (Appendix 6a). Brown beads, decorated, were discovered in the Avar inhumation cemetery of Gâmbaş 1 (Appendix 6b).

15 – Trilobed tubular beads (Fig. 1/15)

Only one piece of the type was discovered in the Avar inhumation cemetery of Gâmbaş 1. The bead is brown and has decorated body (Appendix 6b).

16 – Tubular beads divided into two to five ring-shaped beads (Fig. 1/16)

The ring width is of 0.3/0.4 cm and the diameter is 0.5/0.6 cm. Beads are of transparent and/or dull glass or of brown glass fabric. Those transparent and/or dull were discovered in urn cremations or inhumations from the Avar-Slavic biritual cemeteries of Berghin and Bratei 2 (Appendix 1b). The

		Glass bead types/forms without internal suport												
Type/Form		Avar inhumation cemeteries							Avar -Slavic biritual cemeteries					
		Câmpia Turzii	Cicău	Gâmbaş 1	Gâmbaş 2	Ghirbom 1	Sâncrai	Șpálnaca	Teiuș	Berghin	Bratei 2	Ghirbom 2	Oc. Sibiului	
1				●	●	●	●	●	●	●	●	●	●	
2						●							●	●
3									●					
4					●	●	●	●						
5a		●		●	●		●	●	●	●	●	●	●	
5b		●							●					
6a				●	●		●	●	●	●	●	●	●	
6b									●				●	
6c									●				●	
6d													●	
7									●	●	●	●	●	●
8									●					
9													●	
10														
11									●					
12									●					
13			●	●	●		●	●	●	●	●	●	●	
14		●		●	●		●	●	●					●
15				●										
16									●				●	
17													●	
18									●				●	

Fig. 1. Glass bead types/forms without internal support:

- 1. Ring-shaped beads; 2. Disk beads; 3. Circular-biconical beads; 4. Globular beads; 5. Ovoid-biconical beads: 5a. Ovoid-biconical beads with flat cut heads; 5b. Ovoid-biconical beads with circular collar at one of the heads;
- 6. Cone beads: 6a. Cone beads with rounded body; 6b. Cone beads with trilobed body; 6c. Cone beads with flat body; 6d. Four-sided cone beads; 7. Truncated cone beads; 8. Square beads; 9. Square bilobed (binocular-shaped) beads;
- 10. Rectangular beads; 11. Rectangular beads with five faces (pentagonal); 12. Flat rectangular beads; 13. Cylindrical beads; 14. Tubular beads; 15. Trilobed tubular beads; 16. Tubular beads divided into two to five ring-shaped beads; 17. Tubular beads divided into two to five globular beads; 18. Tubular beads divided into two cylindrical beads.

brown beads come from the Avar inhumation cemetery of Sâncrai, as well as the urn cremations, pit cremations and inhumations from the biritual cemeteries of Berghin and Bratei 2 (Appendix 6a).

17 – Tubular beads divided into two to five globular beads (Fig. 1/17)

The orb is 0.2/0.4 cm long and the diameter is 0.4/0.5 cm. The beads are of transparent and/or dull glass. They were discovered in urn cremations from the Avar-Slavic biritual cemetery of Berghin (Appendix 1b).

18 – Tubular beads divided into two cylindrical beads (Fig. 1/18)

The cylinder is of 0.5/0.6 cm long and its width is of 0.3/0.4 cm. The beads are of transparent and/or dull glass. They were discovered in the Avar inhumation cemetery of Sâncrai and the urn cremations from the biritual Avar-Slavic cemetery of Berghin (Appendix 1b).

II. Glass bead types/forms with bronze tubular support (Fig. 2)

Beads in this class are transparent or dull. They are ovoid-biconical or conical in shape. Such items were identified in the Avar cremation cemetery of Sâncrai (Appendix 1d, Tab. 1b).

III – Glass bead types/forms with glass fabric tubular support

1 – Ring-shaped beads (Fig. 3/1)

These have a diameter ranging between 0.5-0.9 cm and were yielded by the Avar inhumation cemetery of Sâncrai (Appendix 1e).

2 – Globular beads (Fig. 3/2)

The items have a diameter of up to 0.6 cm. They were discovered in the Avar cemetery of Sâncrai (Appendix 1e).

3 – Cylindrical beads (Fig. 3/3)

Their length varies between 0.6 and 1 cm, while the diameter is between 0.4 and 0.8 cm. Such specimens were discovered in the inhumation cemetery of Sâncrai (Appendix 1e).

4 – Tubular beads (Fig. 3/4)

Two such items were discovered in the Avar inhumation cemetery of Șpălnaca. One of the two beads is 0.9 cm long and has a diameter of 0.3 cm. The second bead is 1.4 cm long and has a diameter of 0.6 cm. The item is decorated (Appendix 1e).

5 – Tubular beads divided into two to five ring-shaped beads (Fig. 3/5)

The length of the shortest items is of 1 cm, and that of the longest of 2 cm. The ring diameter varies between 0.3 and 0.6 cm. The items come from the Avar inhumation cemeteries of Sâncrai and Șpălnaca, as well as an inhumation from the Avar-Slavic biritual cemetery of Berghin (Appendix 1e).

6 – Tubular beads divided into two to four globular beads (Fig. 3/6)

The shortest item is 1.6 cm long and the longest, 2.5 cm. The diameter of the globular beads varies between 0.5 and 0.6 cm. The items come from the Avar inhumation cemeteries of Ghirbom 1, Sâncrai and Șpălnaca, as well as an inhumation in the Avar-Slavic inhumation cemetery of Berghin (Appendix 1e).

7 – Tubular beads divided into two cylindrical beads (Fig. 3/7)

The shortest item is 1 cm long and the longest exemplar is 2.3 cm long. The diameter of the globular beads varies between 0.5 and 0.6 cm. The items come from the Avar inhumation cemeteries of Sâncrai



Glass bead types/forms with bronze tubular support	
Type/Form	Avar inhumation cemeteries
	Sâncrai
1	 ●
2	 ●

Fig. 2. Glass bead types/forms with bronze tubular support:
1. Ovoid-biconical beads with flat cut head; 2. Cone beads with rounded body.

and Șpălnaca, as well as an inhumation from the Avar-Slavic biritual cemetery of Berghin (Appendix 1e).

IV – Glass bead types/forms with vegetal paste tubular support

1 – Tubular beads divided into two to four ring-shaped beads (Fig. 4/1)

The ring of which the items are formed is sized 0.5 cm. The beads are silverly and golden. They were discovered in the Avar inhumation cemetery of Ghirbom 1 (Appendix 1/f).

2 – Tubular beads divided into two to three globular beads (Fig. 4/2)

The orbs have a diameter of 0.8 cm. They are silverly and golden in colour and were discovered in the Avar inhumation cemetery of Ghirbom 1 (Appendix 1f).

3 – Tubular beads divided into two cylindrical beads (Fig. 4/3)

Cylinder sizes are of 0.4 X 0.6 cm. They were identified in the Avar inhumation cemetery of Ghirbom 1 (Appendix 1f).

V. Bead types/forms of lead-tin yellow pigment

1 – Ring-shaped beads (Fig. 5/1)

Almost all beads are very small in size. Their diameter does not exceed 0.3 cm. The items are yellowish-brown or light brown in colour. Such artefacts come from the Avar inhumation cemeteries of Gâmbaș 1, Gâmbaș 2, Sâncrai and Teiuș. There are also larger beads, like that in the cemetery of Gâmbaș 2 (1.0 cm diameter; Appendix 7).

2 – Globular beads (Fig. 5/2)

The beads are very small. Their diameter does not exceed 0.3 cm. The items are yellowish-brown or light brown in colour. Such artefacts come from the Avar inhumation cemeteries of Gâmbaș 1 and Teiuș (Appendix 7).

3 – Ovoid-biconical beads (Fig. 5/3)

The beads are very small in size. Their length does not exceed 0.4 cm, while the maximum diameter is of 0.3 cm. The items are yellowish-brown and light brown. Such artefacts come from the Avar inhumation cemetery of Teiuș (Appendix 7).

4 – Flat rectangular beads with rounded heads (Fig. 5/4)

Such an object comes from the Avar inhumation cemetery of Gâmbaș 2. The bead is sized 1/0.4/0.2 cm (Appendix 8).








Glass bead types/forms with glass fabric tubular suport			
Type/Form	Avar inhumation cemeteries		Avar-Slavic biritual cemeteries
	Sâncrai	Șpălnaca	Berghin
1 	●		
2 	●		
3 	●		
4 		●	
5 		●	●
6 		●	●
7 	●	●	●

Fig. 3. Glass bead types/forms with glass fabric tubular support: 1. Ring-shaped beads; 2. Globular beads; 3. Cylindrical beads; 4. Tubular beads; 5. Tubular beads divided into two to five ring-shaped beads; 6. Tubular beads divided into two to four globular beads; 7. Tubular beads divided into two cylindrical beads.




Glass bead types/forms with vegetal paste tubular suport		
Type/Form	Avar inhumation cemeteries	
	Ghirbom 1	
1 	●	
2 	●	
3 	●	

Fig. 4. Glass bead types/forms with vegetal paste tubular support: 1. Tubular beads divided into two to four ring-shaped beads; 2. Tubular beads divided into two to three globular beads; 3. Tubular beads divided into two cylindrical beads.






Bead types/forms of lead-tinyellow pigment				
Type/Form	Avar inhumation cemeteries			
	Gâmbaș 1	Gâmbaș 2	Sâncrai	Teiuș
1 	●	●	●	●
2 	●			●
3 				●
4 		●		
5 				●

Fig. 5. Bead types/forms of lead-tin yellow pigment: 1. Ring-shaped beads; 2. Globular beads; 3. Ovoid-biconical beads; 4. Flat rectangular beads with rounded heads; 5 – Cylindrical beads.

5 – Cylindrical beads (Fig. 5/5)

The beads are very small in size. Their length does not exceed 0.4 cm, while their maximum diameter is 0.3 cm. The items are yellowish-brown or light brown. Such artefacts come from the Avar inhumation cemetery of Teiuş (Appendix 7).

VI. Clay bead types/forms

1 – Ring-shaped beads (Fig. 6)

These are very small in size. Their diameter does not exceed 0.7 cm. They are light brown in colour. Such beads were discovered in an urn cremation from the Avar-Slavic biritual cemetery of Berghin (Appendix 8).

VII. Fossilised molluscs bead types/forms

1 – Disk beads (Fig. 7)

The item is disk in shape, horizontally pierced. It has survived in two equal parts. Sizes: 1 – 0.8 X 1.0 cm; 2 – 0.7 X 0.9 cm. The artefact comes from a pit cremation in the Avar-Slavic biritual cemetery of Berghin (Appendix 9).

VIII. Semiprecious stone bead types/forms

1 – Dentritic limonite cryptocrystalline opal beads (Fig. 8/1)

The bead is rectangular in shape. It is yellowish-orange, semi-transparent. The edges are cut in eight triangular faces. The faces are decorated with rhombuses resulted from finishing. Item sizes are as follows: 1.3 X 0.9 cm. The artefact was discovered in the inhumation cemetery of Ghirbom 1 (Appendix 10).

2 – Obsidian beads (Fig. 8/1)

The bead is rectangular. The item is black, pigmented with iron oxides. The laterals are finished. Item sizes are as follows: 1.4 X 0.8 cm. The artefact was discovered in the inhumation cemetery of Ghirbom 1 (Appendix 10).

3 – Chalcedony beads (Fig. 8/2)

The bead is in a biconical circular shape. The artefact is greenish-yellow and sized as follows: Diameter = 2 cm, Height = 1.2 cm. It was discovered in an inhumation from the Avar-Slavic biritual cemetery of Bratei 2 (Appendix 10).

IX – Silver bead types/forms

1 – Ovoid-biconical beads Fig. (9/1)

The artefacts were made of two thin silver sheet pieces, attached midway, on the maximum diameter line. The items are hollow and their sizes range between the following values: L = 0.8 and 1 cm, $D_{\text{maxim}} = 0.4$ and 0.8-0.9 cm. This bead type was discovered in the Avar inhumation cemeteries of Câmpia Turzii, Gâmbaş 1 and Sâncrai (Appendix 11).

2 – Ovoid beads (Fig. 9/2)

The beads were made of two thin silver sheet pieces, attached together lengthwise. Both laterals of the beads are decorated with ovoid spheres, made by pressing prior to the attachment of the bead



Clay bead types/forms		
Avar-Slavic biritual cemeteries		
Type/Form	Berghin	
1		

Fig. 6. Clay bead types/forms:
1. Ring-shaped beads.



Fossilised molluscs bead types/forms		
Avar-slavic biritual cemeteries		
Type/Form	Berghin	
1		

Fig. 7. Fossilised molluscs bead types/forms: 1. Disk beads.






Semiprecious stone bead types/forms			
Type/Form	Avar inhumation cemeteries		Avar-Slavic biritual cemeteries
	Ghirbom 1		Bratei 2
	Opal	Obsidian	Calcedon
1			
2			

Fig. 8. Semiprecious stone bead types/forms:
1. Rectangular beads; 2. Biconical-circular beads.

two components. The artefacts are hollow. The perforation by which these were hung to the necklace is midway the items' length. Item sizes are the following: L = 1.4 cm, D_{maxim} = 0.8 cm. This bead type was discovered in the inhumation cemetery of Șpálnaca (Appendix 11).

3 – Ovoid beads with trilobed body (Fig. 3/3)

Although fragmentary, the surviving piece allows us to specify that the exemplars have three sides, divided by alveolate grooves. The ends finish in globular spheres. Two such items were discovered in the cemetery of Câmpia Turzii (Appendix 11).

4 – Propeller-shaped beads (Fig. 9/4.1-2)

4.1 – The bead was made of two thin sheet pieces, glued together midway. Propeller-shaped beads are provided with three lobes. The piercing made to attach these to the necklace lies midway the diameter. The beads were discovered in the Avar inhumation cemetery at Șpálnaca, and in inhumation graves in the Slavic-Avar biritual cemetery at Bratei 2. The diameter of the piece from Șpálnaca is 0.8 cm.. There is no size data for Bratei 2 pieces (Appendix 11).

4.2 – The bead was made by casting. It is in a propeller shape and provided with three lobes. It was attached to the necklace midway its diameter, which is of 0.6 cm. The example comes from the Avar inhumation cemetery of Șpálnaca (Appendix 11).






		Silver bead types/forms		
Type/Form		Avar inhumation cemeteries		
		Câmpia Turzii	Gâmbaș 1	Șpálnaca
1		●	●	
2				●
3		●		
4.1				●
4.2				●

Fig. 9. Silver bead types/forms: 1. Ovoid-biconical beads; 2. Ovoid beads; 3. Ovoid beads with trilobed body; 4. Propeller-shaped beads.

Decorations

Out of the entire bead lot object of study herein, there are bead types without any decoration on their body. These are part of the type of glass beads with glass tubular support, biconical beads, lead-tin yellow pigment beads and clay beads.

Among the decorated beads, it may be noted that all beads of dark-gray/black glass beads with green hues, regardless their type/form have decorated body. Moreover, it may be specified that most black, brown, orange-brown, ring-shaped, globular, ovoid-biconical or tubular beads have their body decorated in different manners. Ornaments also emerge on a series of beads of translucent glass or in other colours. All this shall be presented below.

Ring-shaped beads (Fig. 10/1-2)

The ring-shaped beads exhibit two decoration types. Some orange/brown beads of glossy or porous glass fabric are decorated by inlay or painting, with boxes and circles that enclose dots made by a white or yellowish-white paint. The items come from the Avar inhumation cemeteries of Gâmbaș 1 (Fig. 10/1, Pl. 5/1a.4-6,8-9,13, Pl. 5/3a.9,12-14,. Appendix 6b) and Sâncrai (Pl. 12/2.2, Appendix 6b). Other ring-shaped beads, one of glossy black glass, other of porous glass, dark-gray/black, and the third, of orange/brown glass were decorated with small spheres, of white glass, attached on the central lateral of the artefacts. The beads come from the Avar inhumation cemeteries of Gâmbaș 2 (Fig. 10/2, Pl. 4/2.1.85, Appendix 3b) and Sâncrai (Fig. 10/2, Pl. 9/1.19, 11/4.5, Appendix 4, Appendix 6b).

Disk beads (Fig. 10/3-4)

A disk green glass bead, identified in the Avar inhumation cemetery of Ghirbom 1, is decorated with a line traced in spiral shape (Fig. 10/3, Pl. 4/1/1.1, Appendix 5). Another disk bead of colourless glass with yellow hues discovered in the Avar-Slavic biritual cemetery of Ghirbom 2 is decorated

centrally with a circle, of which start four bundles composed each of five incised lines towards the edges of the item (Fig. 10/4, Pl. 3/2.1, Appendix 1a).

Globular beads (Fig. 10/5-6)

A series of globular beads of blue glass, glossy black or glossy brown/orange or porous are decorated by inlay or painting with lines and round spheres of white or yellow paint. Such exemplars were discovered in the cemeteries of Gâmbaş 1 (Fig. 10/5-6, Pl. 5/1a.12, 15, Pl. 5/1b.11, Pl. 5/3a.15, Appendix 3b, Appendix 6b) and Şpălnaca (Pl. 13/7.1,9, Appendix 2b).

Ovoid-biconical and conical beads (Fig. 10/7-11)

Beads of transparent and/or dull glass, glossy or porous, and of green glass, ovoid-biconical or conical glass were decorated with lines traced in spiral shape, encircling the body of the items. On some of these, lines were traced in the form of circles covering the entire bead body. Such lines on the bead body are deeper or less deep and finer. Most colourless/dull beads with such decoration were part of necklaces originating from the Avar inhumation cemeteries of Câmpia Turzii (Fig. 10/7-11, Pl.3/4.2.7, Appendix 1a), Sâncrai (Fig. 10/7-11, Pl. 6/1-2,4,6, Pl. 7/3, Pl. 8/3,5, Pl. 9/3-6, Pl. 10/1,2,7, Pl. 11/1-2, Pl. 12/1,3, Appendices 1a-b), Şpălnaca (Fig. 10/7-11 Pl. 13/4-5, Appendix 1a-b) and Teiuş (Fig. 10/7-11, Pl. 14/3,5-6, Appendix 1a-b). A conical bead of colourless glass decorated with incised lines traced in spiral shape was discovered also in the Avar-Slavic biritual cemetery of Bratei 2 (Fig. 10/7-11, Pl. 3/1.1). Decorated green beads were identified in the Avar inhumation cemeteries of Sâncrai (Fig. 10/7-11, Pl. 9/2.20, Pl. 10/8.1, Pl. 12/1.8, Appendix 5) and Şpălnaca (Fig. 10/7-9, Pl. 13/5.2, Appendix 5), A bitronconic ovoid bead made of m brown glass from the Sâncrai cemetery was ornamented with a wide incised line, traced in a spiral on the body of the piece (Pl. 7/6.4).

Black or dark-gray/black glass beads with green hues, ovoid-biconical or conical are decorated by inlay or gluing with narrower or wider lines and yellow round dots/spheres. These were discovered in the Avar inhumation cemeteries of Sâncrai (Fig. 10/10-11, Pl. 7/1-2,4, Pl. 9/2, Pl. 11/4.7, Appendix 4), Şpălnaca (Fig. 10/10-11, Pl. 13/3, Appendix 4) and the two inhumations in the Avar-Slavic biritual cemetery of Berghin (Fig. 10/10-11, Pl. 2/2, Appendix 4).

Square and rectangular beads (Fig. 10/12)

Square and rectangular blue glass or black, orange-yellow semiprecious beads are decorated on the laterals in the form of a rhomb obtained by finishing. Such items come from the Avar inhumation cemeteries of Ghiborom 1 (Fig. 10/12, Pl. 4/1.1.3, Pl. 4/1.2.4 Appendix 10) and Sâncrai (Fig.10/12, Pl. 6/7.9, Appendix 2b, Appendix 3c).

Cylindrical beads (Fig. 10/13-17)

Cylindrical beads of colourless glass, dark-gray with green or orange-brown hues are decorated by inlay, incision or painting, with vertical parallel or oblique lines and with narrower or wider lines and round yellow dots/spheres. The beads were discovered in the cemeteries of Cicău (Fig. 10/13, Pl. 3/3.1, Appendix 1b), Gâmbaş 1 (Fig. 10/15,18, Pl. 5/1a.2,10-11, Pl. 5/1b.1-8,12,15-18,20; Pl. 5/3a.1,5-7, 22-23,32,35,37, Pl. 5/3a.3,10,16-21,25-27,29-31,33,38-40, Appendix 3b, Appendix 6b), Gâmbaş 2 (Fig. 10/15-16, Pl. 4/2.1.75,89, Appendix 6b) and Sâncrai (Fig. 10/21, Pl. 7/4.3,5,8, Appendix 4).

Tubular beads (Fig. 10/18-22)

Tubular beads of glossy black glass, orange/brown, green, dark-gray/black with green hues were decorated by inlay or painting with lines, narrower or wider, white or yellow. On some items, the lines were set horizontally on bead body. On other artefacts are present curved lines traced vertically on bead body. Also, there are tubular beads with the body decorated with incised lines, traced in spiral. The items were discovered in the Avar cemeteries of Gâmbaş 1 (Fig. 10/19, Pl. 5/1a.7, Appendix 6b, Fig. 10/18, Pl. 5/1b.19,21-22, Pl. 5/3a.2,28, Appendix 4), Gâmbaş 2 (Fig. 10/22, pl. 4/2/1.169-170, Appendix 5) and Şpălnaca (Fig. 10/20, Pl. 13/2, Fig. 10/21, Pl. 13/3.6-8,13,16-17, Appendix 4).

Divided tubular beads (Fig. 10/23-24)

Tubular beads divided in two to five ring-shaped beads or globular-shaped beads with glass tubular support or of vegetal paste are decorated with incised horizontal lines, parallel, covering the entire surface of the artefacts. These come from the Avar inhumation cemeteries of Ghirbom 1 (Fig. 10/23-24, Pl. 4/1.2, Appendix 1f) and Sâncrai (Fig. 10/23-24, Pl. 9/1.20, Appendix 1b).

Silver beads (Fig. 10/25-26)

Ovoid silver beads discovered in the Avar cemetery of Șpălnaca have their body decorated by pressing with ovoid spheres (Fig. 10/25, Pl. 13/6.1-6, Appendix 11). The trilobed silver bead identified in the same cemetery of Șpălnaca is provided with bulbs midway the three sides (Fig. 10/26, Pl. 13/6.7a-b, Appendix 11).

		Bead ornament types											
Ornament	Avar inhumation cemeteries									Avar-Slavic biritual cemeteries			
	Câmpia Turzii	Cicău	Gâmbaș 1	Gâmbaș 2	Ghirbom 1	Sâncrai	Șpălnaca	Teiuș	Berghin	Bratei 2	Ghirbom 2	Oc. Sibiului	
1				●	●		●						
2							●						
3						●						●	
4											○		
5				●	●	●	●						
6										●		●	
7		○					○	●	○	●	○		
8							○	○	○		○	●	
9							○	●	○	○			
10							○	●	●		●		
11							●	●		●			
12						●	●	●					
13			○									●	
14							○						
15				●	●	●							
16				●	●	●							
17									●				
18				●					●				
19				●									
20									●				
21									●				
22						●						●	
23							○	○					
24							○						
25									●				
26									●		●		

Fig. 10. Bead ornamente types:

- - Clear/matte glass beads ● - Blue glass beads ● - Black glass beads
- - Dark gray/blackish glass beads with shades of green ● - Green glass beads
- - Brick-brown glass beads ● - Orange-yellow crystalline opal beads ● - Silver beads

Parallels. Chronological specifications

A series of bead types/forms from the Avar and Avar-Slavic cemeteries from Transylvania like those ring-shaped, globular, ovoid-biconical, cylindrical or rectangular flat with rounded heads are found in a time period previous and posterior to that object herein²². For instance, ring-shaped beads, of lead-tin yellow pigment, yellow, light brown or yellowish-brown, discovered in the Avar inhumation cemeteries of Gâmbaş 1, Gâmbaş 2, Sâncrai and Teiuş, are a type of beads present in previous²³ and post the 7th–8th centuries²⁴ date archaeological sites. A. Pástor specifies this bead type was part of the Avar fashion starting with mid 7th century²⁵.

Biconical beads (shaped as a yellow melon seed) are not found in the Gepidic cemeteries of Transylvania²⁶ or north-western Romania²⁷. Eva Garam notes that yellow melon-shaped beads (biconical beads in Transylvania) from the Tiszafüred cemetery are present during the phase of metal items decorated by pressing and become common during the period of cast metal items in the Avar Khaganate development from the Carpathian Basin²⁸. A. Pástor notes that yellow melon-shaped beads (conical beads in Transylvania) enter the Avar fashion sometime by late 7th century, remaining fashionable until the end of the Late Avar period²⁹.

There are also bead examples, like the ring-shaped bead type of brown or blue porous glass decorated with small spheres of white paste (the so-called eye-beads, Pl. 11/4.5, 12/2.2, 13/1.7,9), which are not found among the beads from the Gepidic cemeteries of Fântânele³⁰ and Ernei (Mureş county)³¹ or Carei-Bobald³². In the Avar-Gepidic cemetery of Bratei 3, the items date to the second phase of the cemetery placed between 570/580-670/680³³, a time when the Avars entered the Great Hungarian Plain.

For the bead type of dark-gray/black glass with green hues, of various types/forms decorated with narrower or wider lines and round dots/spheres of yellow glass from Transylvania (eye-beads), we could identify best parallels in the Tiszafüred cemetery. Eva Garam specifies that items of the type are few, these being specific to the Late Avar period, yet are also present in the Moravian space³⁴ during the 9th–10th centuries.

From the view of bead production techniques, we note that references for glass beads with bronze tubular support or with tubular support of vegetal fibre discovered in Transylvania (Appendices 1d-f) are missing. Is this manner of making beads an innovation of the Avar environment? It is a supposition that awaits confirmation. One must note that glass or vegetal tubular support beads, like those tubular divided in ring-shape, globular or cylindrical from Transylvania are also found as type/form among the glass artefacts discovered in the Avar setting of the geographical area west the Transylvanian plateau³⁵.

In the Tiszafüred cemetery were discovered bronze beads with the same form as those in silver identified at Câmpia Turzii (Pl. 3/4.1, 2/4) and Gâmbaş 1 (Pl. Pl. 5/3.b). For those in bronze, Eva Garam specifies that the items are found in a period subsequent to the Early Avar timeline³⁶.

The typological-chronological table drafted by A. Pástor for the beads yielded by the Avar milieu on the territory of Hungary, clearly shows that these are a series of bead types that enter the fashion at a certain date. Some disappear at some point, yet re-emerge at a later date³⁷.

²² See for instance Freedman, Wieczorek 1997.

²³ Bóna, Nagy 2002, 118-120; Dobos, Hógyes 2023, 63-81.

²⁴ Dragotă 2014, 72-84.

²⁵ Pástor 2008, 318.

²⁶ Anton 2015, 174, Taf. 8; Dobos, Hógyes 2023, 63-81, Fig. 23.

²⁷ Gindele 2020, 30-31, Fig. 7.

²⁸ Garam 1995, 294.

²⁹ Pástor 2008, 318-319.

³⁰ Dobos, Opreanu 2012, 36-37.

³¹ Dobos, Hógyes 2023, 63-81, Fig. 23

³² Gindele 2020, 3031, Fig. 7.

³³ Anton 2015, 174, Taf. 8.

³⁴ Garam 1995, 294-295.

³⁵ Garam 1995, 294-294; Pástor 1997, 224, Tab. 2.

³⁶ Garam 1995, 298, Abb. 166/11, 13.

³⁷ Pástor 2008, 322, Tab. 2.

Therefore, the chronological framing of the beads in the Avar and Avar-Slavic cemeteries from Transylvania must consider the dating of the graves and cemeteries where these were identified. From this point of view, circumstances are the following:

None of the four Avar finds from Transylvania framed between 630-670, of Aiud, Stremț, Târnăveni and Unirea 2/Veresmort, yielded beads.

The Avar inhumation cemeteries or graves of Cicău, Gâmbaș 1, Gâmbaș 2, Ghirbom 1, Sâncrai, Șpălnaca and Teiuș where beads were identified, chronologically frame between 650/670-710/720³⁸. The single Avar cemeteries and graves that may be dated to the 8th century and very likely, until the half of this time interval, which yielded beads, are those of Berghin, Bratei 2 and Câmpia Turzii³⁹.

Lastly, in reference to bead dating, it may be argued that recorded types were fashionable among the Avar communities inhabiting Transylvania during the time span between the second half of the 7th century and the first four-five decades of the 8th century (Fig. 11).

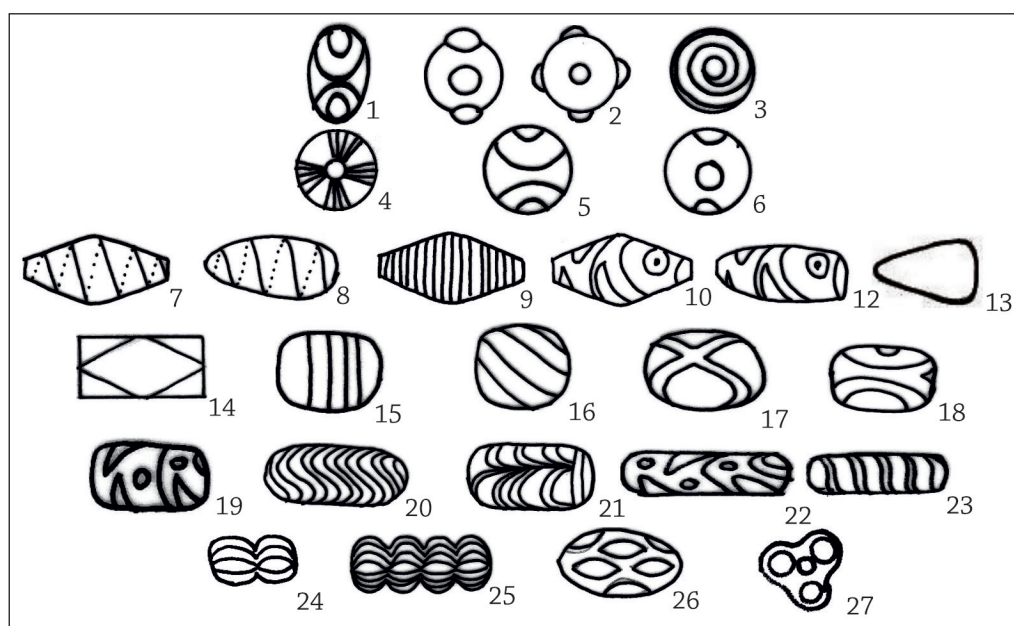


Fig. 11. Bead types/shapes from Transylvanian cemeteries, with and without ornaments, dated 650-750 (no scale): 1-4. Ring-shaped beads, with several variants. 5-6. Globular beads. 7-11. Ovoid-biconical beads, with several variants. 12. Cone beads, with several variants. 13. Truncated cone beads. 14. Square beads and rectangular beads, with several variants. 15-18. Cylindrical beads. 19-25. Tubular beads. 26. Ovoid-biconical silver beads. 27. Propeller-shaped silver beads.

Final notes

Among the Avar cemeteries of Transylvania, beads were discovered in the cemeteries of Câmpia Turzii, Cicău, Gâmbaș 1, Gâmbaș 2, Sâncrai, Șpălnaca and Teiuș. Biritual Avar-Slavic cemeteries from Transylvania where beads were identified count: Berghin, Bratei 2, Ghirbom 2 and Ocna Sibiului (Map 1).

The raw materials of which the beads discovered in the Avar and Avar-Slavic cemeteries from Transylvania were made of glass, lead-tin yellow pigment, clay, solidified fossils, semiprecious stones and silver (Tab. 1a-b). Quantitatively, most numerous are the glass beads followed in descending order by lead-tin yellow pigment beads, those in silver, then of clay and lastly, of fossilised molluscs (Tab. 1a-b). Most glass beads are transparent/translucent and/or dull, of different hues. There are also blue, black, dark-gray with green hues, green, brown beads. Bead surfaces are glossy or porous. The lead-tin yellow pigment beads are yellow, light brown or yellowish-brown, while those in clay are brown. Semiprecious beads are made of orange-yellow, semi-transparent, dendritic limonite cryptocrystalline opal, black obsidian and greenish-yellow chalcedony.

³⁸ Cosma 2019, 47-65; Cosma 2020, 89-93; Cosma 2022, 228-230.

³⁹ Cosma 2019, 47-65; Cosma 2020, 89-93; Cosma 2022, 228-230.

The main bead types/forms are the following: circular, with several versions; globular; ovoid-biconical with several versions; conical with several variations; biconical; square with several variations; rectangular with several variations; cylindrical; tubular with several variations (Fig. 1-9).

Beads of transparent and/or dull glass, glossy or porous, ovoid-biconical or conical were decorated with spirals or horizontal lines. Coloured beads were decorated by inlay or painting with lines and dots of various colours or small spheres, attached to the bead body. Some of the beads of semiprecious stones are decorated with geometric patterns by finishing. A few of the silver beads were decorated with ovoid spheres by pressing (Fig. 10).

All these beads were fashionable in the Avar and Avar-Slavic communities of Transylvania during the second half of the 7th century and the first three-five decades of the 8th century (Fig. 11).

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Appendix 1a – Graves with glass beads of higher consistency, transparent/dull, fine or porous, with different colour hues, without support on the inner perforation

1 - Ring-shaped beads. 2 - Disk beads. 3 - Circular-biconica beads. 4 - Globular beads. 5 - Ovoid-biconical beads: 5a – Ovoid-biconical beads with flat cut heads; 5b – Ovoid-biconical beads with circular collar at one of the ends.

Inhumation cemeteries	No. grave	No. plate	Type piece					
			1	2	3	4	5	
							5a	5b
Câmpia Turzii	G.?	Pl. 3/4.2.1-2, 6-7						•
		Pl. 3/4.2.3						•
Gâmbaş 2	G. 1	Pl. 4/2.1.84,93	•					
		Pl. 4/2.1.90						•
Sâncrai	G. 1	Pl. 6/1.1,4,7						•
	G. 7	Pl. 6/3.1						•
	G. 8	Pl. 6/4.3-4,11						•
	G. 20	Pl. 6/7.10				•		
	G. 24	Pl. 6/8.1-3, 5-6,8-9						
	G. 26	Pl. 7/4.14	•		•			
	G. 36	Pl. 7/2.9						•
	G. 37	Pl. 8/3.1-2	•					
	G. 43	Pl. 8/5.3,10,11						•
	G. 45	Pl. 9/2.18,30-31	•					
		Pl. 9/2.16-17,19,23,29						•
	G. 48	Pl. 9/1.9			•			
	G. 53	Pl. 9/5.2						•
	G. 62	Pl. 9/4.3,5,9						•
	G. 65	Pl. 9/6.1-4,9			•			
	G. 63	Pl. 9/3.1-4,6,12-14						•
	G. 68	Pl. 10/8. 3-4, 9, 12-13, 19-23, 27-28						•
	G. 75	Pl. 10/7.1-3,6-9,12-18						•
	G. 76	Pl. 10/2,8-9						•
	G. 79	Pl. 10/4.5						•
G. 80	Pl. 10/6.6						•	
G. 81	Pl. 10/5.3						•	
G. 84	Pl. 11/1.2-4,6						•	
G. 87	Pl. 11/4.8						•	
G. 95	Pl. 11/5.21						•	
G. 100	Pl. 11/2.5,7						•	
G. 106	Pl. 12/5.5			•				
G. 109	Pl. 12/3.2-3,9						•	
Șpălnaca	G. 15	Pl. 13/5.1,4-8,12-19,20,22-26						•
	G. 47	Pl. 13/4.9						•
Teiuș	G. 6	Pl. 14/3.4,6,8						•
	G. 17	Pl. 14/6.2						•
	G.21	Pl. 14/5.4	•					
Pl. 14/5.2,6							•	

Biritual cemeteries				
		G. 15	Pl. 1/2.1 ?	•
	Cremation/Pit	G. 245	Pl. 1/2.8.1-2	•
Berghin		G. 394	Pl. 1/2.5	•
	Cremation/Funeral urn	G. 157	Pl. 1/9	•
	Inhumation	G. 345	Pl. 2/1.1-5	•
Bratei 2	Cremation/Pit and Funeral urn	G. 177	Pl. 3/1.9	•
Ghirbom 2	Cremation/Funeral urn	G. 3	Pl. 3/2.1	•
Ocna Sibiului	Cremation/Funeral urn	G. 68	?	•
	Inhumation	G. 111	?	•

		G. 75	Pl. 10/7.5-8,10	•	
			Pl. 10/7.4		•
		G. 76	Pl. 10/2.3,10	•	
			Pl. 10/2.1-2,4		•
			Pl. 11/1.1,8-9	•	
		G. 84	Pl. 11/1,3		•
			Pl. 11/1.5,7		•
		G. 87	Pl. 11/4.9		•
		G. 95	Pl. 11/5.5-6,20	•	
		G. 99	Pl. 12/6		•
		G. 100	Pl. 11/2.6		•
			Pl. 12/1.11	•	
		G. 105	Pl. 12/1.1-5,7,9,15-22	•	
			Pl. 12/1.12		•
			Pl. 12/1.10		•
		G. 106	Pl. 12/5.1-2,8	•	
			Pl. 12/3.4	•	
		G. 109	Pl. 12/3		•
		G. 15	Pl. 13/5.11	•	
			Pl. 13/4.7		•
		G. 47	Pl. 13/4.8		•
		G. 5	Pl. 14/2		•
		G. 8	Pl. 14/4.4-6		•
			Pl. 15/6.7	•	
		G. 17	Pl. 14/6.1,3-4		•
			Pl. 14/6.5		•
			Pl. 14/5.5,7		•
		G. 21	Pl. 14/5.10-11		•
Bbiritual cemeteries					
		G. 162	Pl. 1/1.5		•
		G. 201	Pl. 1/1.6		•
		G. 350	Pl. 1/1.8		•
		G. 385	Pl. 1/1.10		•
			Pl. 1/1.15.1,3-6		•
		G. 445	G. 350		•
			G. 385		•
		G. 602	Pl. 1/1.13		•
			Pl. 2/2.8-9	•	
		G. 229	Pl. 2/2.7		•
		G. 189	Pl. 3/1.8		•
		G. 211	Pl. 3/1.6	•	
		G. 235	Pl. 3/2a		•
			Pl. 3/1.1a,e	•	
		G. 237	G. 235		•
			Pl. 3/1.1g		•
			Pl. 3/1.1f		•
		G. 244	Pl. 3/1.7d		•
			Pl. 3/1.7f		•
Ocna Sibiului	Inhumation	G. 111	?		•

Appendix 1c – Graves with beads of lower quality, brittle glass, without support on the inner perforation.

1 – Globular beads

Inhumation cemeteries		No. grave	No. plate	Type piece	
				1	
Sâncrai		G. 103	Pl. 11/6.11,15,17,19	•	
		G. 105	Pl. 12/1.14	•	
Bbiritual cemeteries					
Berghin	Inhumation	G. 227	Pl. 2/3	•	

Appendix 1d – Graves with beads with metal support (bronze tubes)

1 - Ovoid-biconical beads with flat cut heads. 2 - Cone beads.

Inhumation cemeteries		No. grave	No. plate	Type piece	
				1	2
Sâncrai		G. 1	Pl. 6/1.7a-c	•	
		G. 28	Pl. 7/3.6	•	
		G. 65	Pl. 9/6.10	•	
		G. 84	Pl. 11/1.10	•	•
Bbiritual cemeteries					
Berghin	Cremation/Pit	G. 394	Pl. 1/2.5	•	

Appendix 1f – Graves with beads with vegetal fibre tubular support

1 - Tubular beads divided into two to five ring-shaped beads. 2 - Tubular beads divided into two to five globular beads. 3 - Tubular beads divided into two cylindrical beads.

Inhumation cemeteries	No. grave	No. plate	Type piece		
			1	2	3
Ghirbom 1	G. 1	Pl. 4/1/1.2	•		
		Pl. 4/1/1.4			•
	G. 2	Pl. 4/1/2.2-3,5-6	•		
		Pl. 4/1/2.1,7			•

Appendix 2a - Graves with blue, undecorated glass beads

1 - Ring-shaped beads. 2 - Disk beads. 3 - Globular beads. 4 - Cone beads: 4.1 - Cone beads with rounded body; 4.2 - Cone beads with flat body. 5 - Truncated cone beads. 6 - Square bilobed (binocular-shaped) beads. 7 - Rectangular beads. 8 - Cylindrical beads.

Inhumation cemeteries	No. grave	No. plate	Type piece									
			1	2	3	4		5	6	7	8	
						4.1	4.2					
Gâmbaş 2	G. 1	Pl. 4/2.1.87	•									
	G. 20	Pl. 6/7.9									•	
	G. 48	Pl. 9/1.7	•									
	G. 87	Pl. 11/4.3	•									
Sâncrai		Pl. 12/4.14	•									
	G. 104	Pl. 12/4.19				•						
		Pl. 12/4.26									•	
Șpălnaca	G. 5	Pl. 13/1.18	•									
Teiuș	G. 4	Pl. 14/1.2						•				
		Pl. 14/1.1							•			
	G. 17	Pl. 14/1.8-9					•					
		Pl. 14/6.6							•			
Biritual cemeteries												
Berghin	Cremation/Funeral urn	G. 131	Pl. 1/1.4								•	
		G. 428	Pl. 1/1.14.2-4,6-7	•								
		G. 376	Pl. 1/2.4									•
		G. 428	Pl. 1/1.14.14-15,18-20	•								
		G. 452	Pl. 1/2.7									•
	Cremation/Pit	G. 175	Pl. 1/2.9.15							•		
Bratei 2	Cremation/Pit and Funeral urn	G. 199	Pl. 3/1.11	•								
	Inhumation	G. 244	Pl. 3/1.7a	•								
Ocna Sibiului	Cremation/Funeral urn	G. 68				•						
	Inhumation	G. 111				•						

Appendix 2b - Graves with blue, decorated glass beads

1 - Rectangular beads decorated on the laterals with rhombuses obtained by finishing. 2 - Globular beads decorated by painting with small, round spheres.

Cimitire de înmormântare	Nr. mormânt	Nr. planșă	Tip piesă	
			1	2
Sâncrai	M. 21	Pl. 6/7.9	•	
Șpălnaca	M. 5	Pl. 13/1.7,9		•

Appendix 3a - Graves with black glass beads without decoration

1 - Ring-shaped beads. 2 - Globular beads. 3 - Ovoid-truncated bicone beads. 4 - Cone beads 4a - Cone beads with rounded body. 4b - Cone beads with trilobed body. 4c - Cone beads with flat body. 5 - Truncated cone beads. 6 - Cylindrical beads. 7 - Tubular beads.

Inhumation cemeteries	No. grave	No. plate	Type piece								
			1	2	3	4			5	6	7
						4a	4b	4c			
Gâmbaş 1	G. 13	Pl. 5/1b.25		•							
	G. 2	Pl. 6/2.1-2							•		
	G. 7	Pl. 6/3.2							•		
			Pl. 6/7.1-3,5-6,12-15,18								•
	G. 21	Pl. 6/7.4		•							
			Pl. 6/7.16-17			•					
	G. 36		Pl. 7/2.4,18,20,31						•		
			Pl. 7/2.28-29								•
			Pl. 8/4.5-6			•					
	G. 38		8/4.4,18						•		
			Pl. 8/4.3,7								•
			Pl. 8/4.2						•		•
	G. 48		Pl. 9/1.2,12,16			•			•		
			Pl. 12/1.21							•	
	G. 71	Pl. 10/1.2,						•			
	G. 76	Pl. 10/2.5									•
	Sâncrai	G. 79	Pl. 10/4.1-2,7-8			•					
		Pl. 10/4.3-4,6								•	
		Pl. 10/6.1								•	
		Pl. 10/6.2-3,8,11			•						
G. 80		Pl. 10/6.7,10					•				
		Pl. 10/6.4,12						•			
		Pl. 10/6.5								•	
		Pl. 11/5.24			•						
		Pl. 11/5.1-4,7-9,14-19							•		
G. 95		Pl. 11/5.11		•							
		Pl. 11/5.10,22								•	
		Pl. 11/5.12									•
G. 100	Pl. 11/2.1-2								•		
G. 109	Pl. 12/3.6-7								•		
	Pl. 12/3.1,12-13							•			
Șpălnaca	G. 15	Pl. 13/5.3,9,10			•						
		Pl. 13/4.4-5			•						
	G. 47	Pl. 13/4.3					•				
		Pl. 13/4.1,6								•	
		Pl. 13/4.2								•	
Teiuș	G. 6	Pl. 14/3.1-3,5,7,9-10								•	
		Pl. 14/3.11						•			
	G. 35	Pl. 14/8.2								•	
Bbiritual cemeteries											
Berghin	Cremation/Pit	G. 124	Pl. 1/2.2		•						
	Cremation/Funeral urn	G. 127	Pl. 1/3							•	
Bratei 2	Inhumation	G. 233	Pl. 3/1.12							•	

Appendix 3b - Graves with glossy, black glass beads decorated by inlay or painting with white or yellow glass lines and/or yellow dots

1 - Ring-shaped beads. 2 - Globular beads. 3 - Ovoid-biconical beads. 4 - Cone beads with rounded body.
5 - Cylindrical beads 6 - Tubular beads.

Inhumation cemeteries	No. grave	No. plate	Type piece					
			1	2	3	4	5	6
Gâmbaş 1	G. 13	Pl. 5/1a.2,10-11						•
		Pl. 5/1a.14						•
		Pl. 5/1b.24						•
		Pl. 5/1b. 23						•
		Pl. 5/1b.1-8,12,15-18,20						•
		Pl. 5/1b.19,21-22						•
	G. 4	Pl. 5/3a.18						•
		Pl. 5/1b.11						•
		Pl. 5/3a.1,5-7,22-23,32,35,37						•
		Pl. 5/3a.2,28						•
Gâmbaş 2	G. 1	Pl. 4/2.1. 85					•	

Appendix 3c - Graves with beads of black porous glass decorated by inlay, painting or gluing with lines or dots and round yellow spheres

1 - Ovoid-biconical beads.

Inhumation cemeteries	No. grave	No. plate	Type piece
			1
Sâncrai	G. 27	Pl. 7/1	•

Appendix 4 – Graves with beads of dark gray/black glass with green hues, decorated by inlay, painting or gluing with lines, dots and round spheres of yellow or white glass

1. Ring-shaped beads. 2 - Ovoid-biconical beads. 3 - Cone beads. 4. Cylindrical beads. 5 – Tubular beads.

Inhumation cemeteries	No. grave	No. plate	Type piece					
			1	2	3	4	5	
Sâncrai	G. 26	Pl. 7/4.1-2,4,6, 9-10,12, 15, 20			•			
		Pl. 7/4.3,5,8				•		
	G. 36	Pl. 7/2.19		•				
		Pl. 9/1.19						
	G. 48	Pl. 9/1.4,10,18		•				
		Pl. 9/1.11,17				•		
G. 87	Pl. 11/4.7		•					
Șpâlnaca	G. 21	Pl. 13/3.9-12, 14-15,18			•			
		Pl. 13/3.6-8,13,16-17					•	
	G. 40	Pl. 13/2					•	
Biritual cemeteries								
Berghin	Inhumație	G. 227	Pl. 2/3.3,5,7,11,16,19,21, 23-24			•		
			Pl. 2/3.1,13				•	
		G. 229	Pl. 2/2.1-2			•		
			Pl. 2/2.3-6					•

Appendix 5 - Graves with green glass beads

1 – Ring-shaped beads. 2 – Disk beads. 3 – Circular-biconical beads. 4 – Ovoid-biconical beads. 5 - Cone beads: 5a Cone beads with rounded body; 5b - Cone beads with trilobed body-; 5c – Cone beads with four side. 6 - Truncated cone beads. 7. Cylindrical beads. 8 - Square beads. 9 – Rectangular beads with five faces (pentagonal) 10 – Flat rectangular beads. 11 - Tubular beads.

Inhumation cemeteries	No. grave	No. plate	Type piece													
			1	2	3	4	5			6	7	8	9	10	11	
							5a	5b	5c							
Gâmbaş 2	G. 1	Pl. 4/2.1.169-170														.
Ghirbom 1	G. 1	Pl. 4/1/1.1		.												
		Pl. 6/1.2				.										
		Pl. 6/1.5					.									
	G. 1	Pl. 6/7.8									.					
		Pl. 6/7.7										.				
		Pl. 6/7.11											.			
		Pl. 9/1.13					.									
Sâncrai	G. 48	Pl. 9/1.8						.								
	G. 63	Pl. 9/3.15			.											
	G. 68	Pl. 10/8.1				.										
	G. 83	Pl. 10/3.4,7				.										
		Pl. 10/3.1-3,5-6,8								.						
	G. 87	Pl. 11/4.6	.													
	G. 105	Pl. 12/1.8						.								
Spâlnaca	G. 5	Pl. 13/1.8			.											
	G. 15	Pl. 13/5.2				.										
Teiuş	G. 23	Pl. 14/7.1-2				.										
Bbiritual cemeteries																
Berghin	Cremation/Funeral urn	G. 408	Pl. 1/1.11								.					
		G. 421	Pl. 1/1.12					.								
	Cremation/Pit	G. 182	Pl. 3/1.10	.												
		233	Pl. 3/1.12										.			
			Pl. 3/1.7c	.												
Bratei 2	Inhumation	G. 244	G. 244			.										
			Pl. 3/1.7g			.										
		G. 225	Pl. 3/1.5a							.						
Ocna Sibiului	Inhumation	G. 111	G. 111									.	.			

Appendix 6b - Graves with beads of brown or orange/brown glass, glossy or porous, decorated by inlay, painting or gluing, with lines made of white paint and dots or spheres of white glass

1 - Ring-shaped beads. 2. Globular beads. 3 – Ovoid-biconical beads; 4. Cylindrical beads. 5. Tubular beads. 6. Trilobed tubular beads.

Inhumation cemeteries	No. grave	No. plate	Type piece						
			1	2	3	4	5	6	
Gâmbaş 1	G. 4	Pl. 5/3a.9,12-14	•						
		Pl. 5/3a.15		•					
		Pl. 5/3a.3,10,16-21, 25-27,29-31,33,38-40					•		
		Pl. 5/3a.34,36						•	
	G. 13	Pl. 5/1a.4-6,8-9,13		•					
		Pl. 5/1a.12			•				
		Pl. 5/1a.1			•				
		Pl. 5/1a.3					•		
		Pl. 5/1a.7							•
		Pl. 4/2.1.81,88						•	
Gâmbaş 2	G. 1	Pl. 4/2.1.75,89					•		

Appendix 6c - Graves with beads of orange/brown glass, porous, decorated by inlay, or gluing, with lines made of white paint and dots or spheres of white glass

1 - Ring-shaped beads.

Inhumation cemeteries	No. grave	No. plate	Type piece
			1
Sâncrai	G. 87	Pl. 11/4.5	•
	G. 108	Pl. 12/2.2	•

Appendix 7 – Lead-tin yellow pigment beads

1 - Ring-shaped beads. 2 - Globular beads. 3 - Ovoid-biconical beads. 4 - Flat rectangular beads. 5 - Cylindrical beads.

Inhumation cemeteries	No. grave	No. plate	Type piece				
			1	2	3	4	5
Gâmbaş 1	G. 4	Pl. 5/3c	•	•			
		Pl. 5/2	•	•			
Gâmbaş 2	G. 1	Pl. 4/21.1-73, 95-168	•				
		Pl. 4/2.1.84	•				
		Pl. 4/2.1.91					•
Sâncrai	G. 108	Pl. 4/2.2	•				
		Pl. 12/2.1,3	•				
Teiuş	G. 35	Pl. 14/8.10-18, 21-22,32-36,38,40, 42, 46, 54,59-64,67-68,70,75-76,79,88,89	•				
		Pl. 14/8.28,31,86			•		
		Pl. 14/8.37,43-44,53,55					•
		Pl. 14/8.5,9,26,41					

Appendix 8 – Graves with clay beads

1 - Ring-shaped beads.

Bbiritual cemeteries		No. grave	No. plate	Type piece
				1
Berghin	Cremation/Funeral urn	G. 428	Pl. 1/1.14.1-13	•

Appendix 9 - Graves with fossilised molluscs beads

1 – Disk beads.

Bbiritual cemeteries		No. grave	No. plate	Type piece
				1
Berghin	Cremation/Pit	G. 228	Pl. 1/2.3	•

Appendix 10 – Graves with opal, obsidian and chalcedony beads

1 - Mărgea poliedrică din Opal. 2 - Mărgea dreptunghiulară din Obsidian. 3 - Mărgea circulară bitronconică din Calcedon.

Inhumation cemeteries		No. grave	No. plate	Type piece		
				1	2	3
Ghirbom 1		M. 1	Pl. 4/1/1.3	•		
		M. 2	Pl. 4/1/2.4		•	
Bbiritual cemeteries						
Bratei 2	Inhumation	M. 212	Pl. 3/1.3			•

Appendix 11- Silver beads

1 - Ovoid-biconical beads. 2 - Ovoid beads. 3 - Ovoid beads with trilobed body. 4 - Propeller-shaped beads: 4a - The bead was made of two thin sheet pieces, glued together midway; 4b – The bead was made by casting.

Inhumation cemeteries		No. grave	No. plate	Type piece			
				1	2	3	4
							4a 4b
Câmpia Turzii		G. ?	Pl. 3/4.2.4	•			
			Pl. 3/4.1			•	
Gâmbaş 1		G. 4	Pl. 5/3.b	•			
			Pl. 13/1.16				•
Șpălnaca		G. 37	Pl. 13/6.1-6		•		
			Pl. 13/6.7a-b				•
Biritual cemeteries							
Bratei 2	Inhumație	G. 214	Pl. 3/1.14				•
		G. 224	Pl. 3/1.7				•

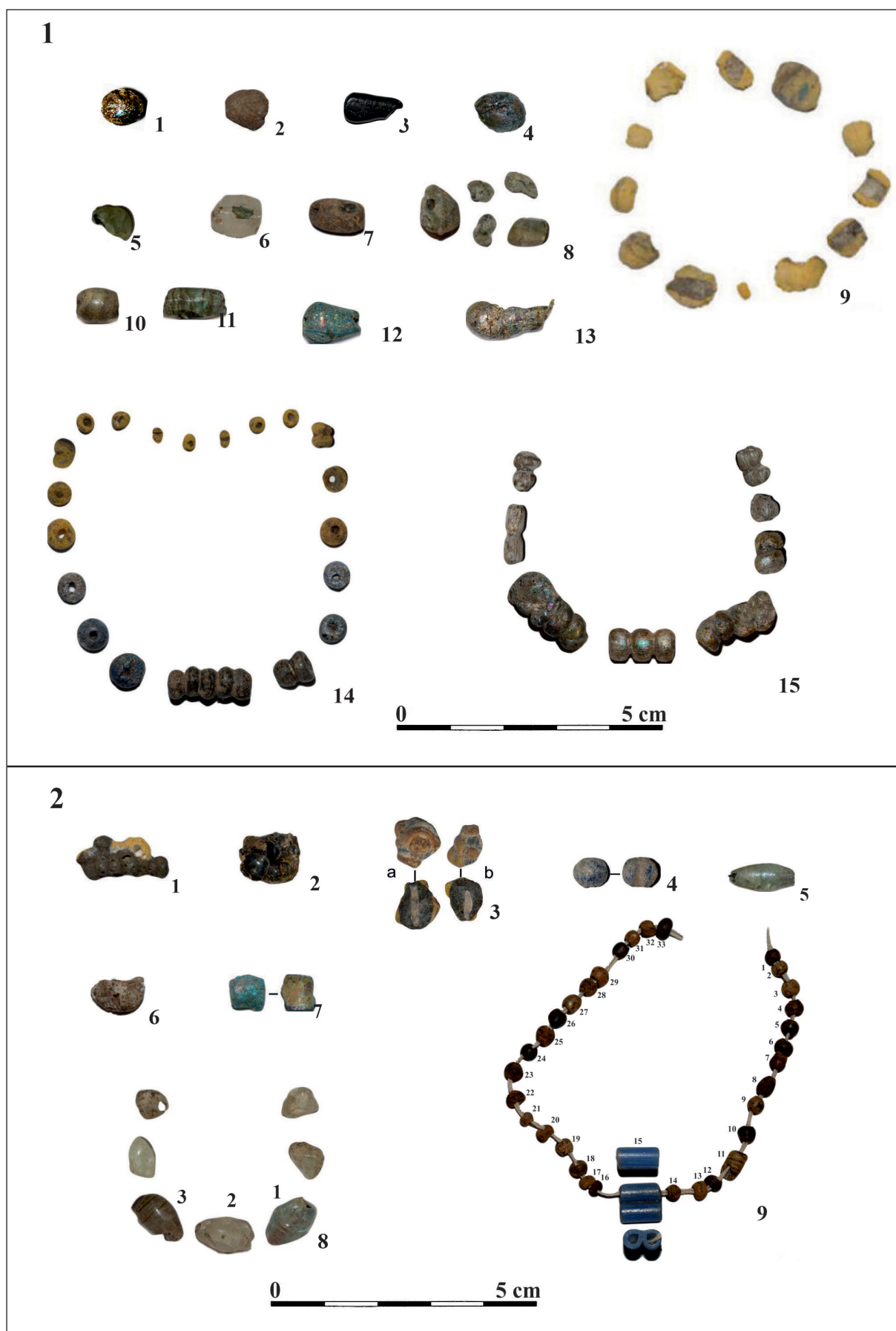


Plate 1. Beads from the biritual cemetery at Berghin: 1. Urn cremation graves: 1 - G. 8; 2. G. 21; 3. G. 127; 4. G. 131; 5. G. 162; 6. G. 201; 7. G. 236; 8. G. 350; 9. G. 157; 10. G. 385; 11. G. 408; 12. G. 421; 13. G. 602; 14. G. 428; 15. G. 445. 2 - Pit cremation graves: 1 - G. 15; 2 - G. 124; 3 - G. 228; 4 - G. 376; 5 - G. 394; 6 - G. 308; 7 - G. 452; 8 - G. 245; 9 - G. 175.



Plate 2. Beads from the biritual cemetery at Berghin: Inhumation graves: 1. G. 345; 2. G. 229; 3 – G. 227.

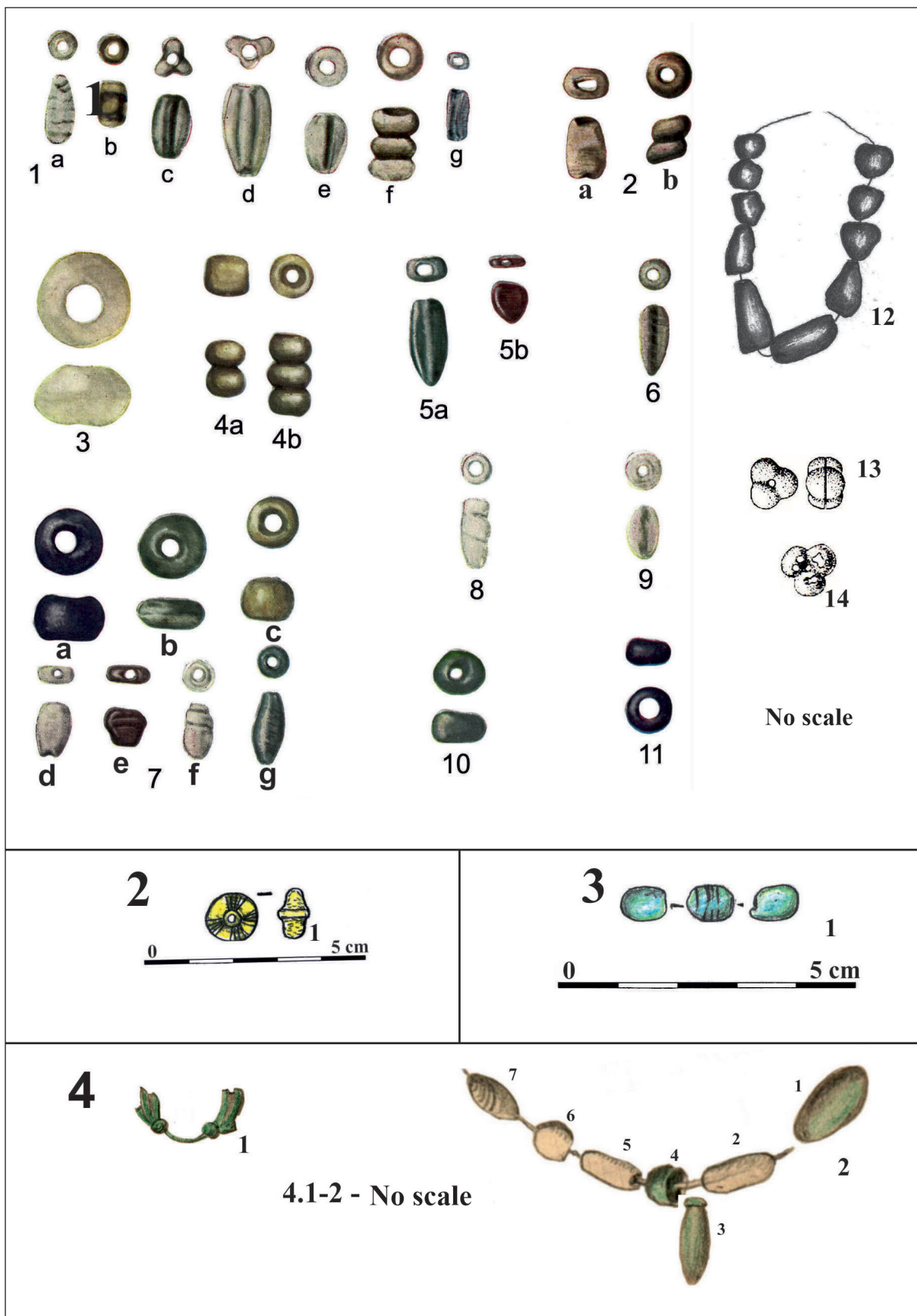


Plate 3. 1. Beads from the biritual cemetery at Bratei 2: 1.1. Inhumation graves: 1 - G. 237; 2 - G. 235; 3 - G. 212, 5 - G. 225, 6 - G. 211, 7 - G. 244, 12 - G. 233, 13 - G. 214, 14 - 224. 1.2. Cremation graves: 4 - G. 210; 8 - G. 189; 9 - G. 177; 10 - G. 182; 11 - G. 199 (after Zaharia 1977, Fig. 32/4-5, 34/3, 35). 2 - Beads from the biritual cemetery at Ghirbom 2: 1 - G. 3 (cremation). 3. Beads from inhumation cemetery at Cicău: 1- G. 2. 4 - Beads from inhumation cemetery at Câmpia Turzii: 1-2 - destroyed graves (after Cosma 2013, Fig. 19).

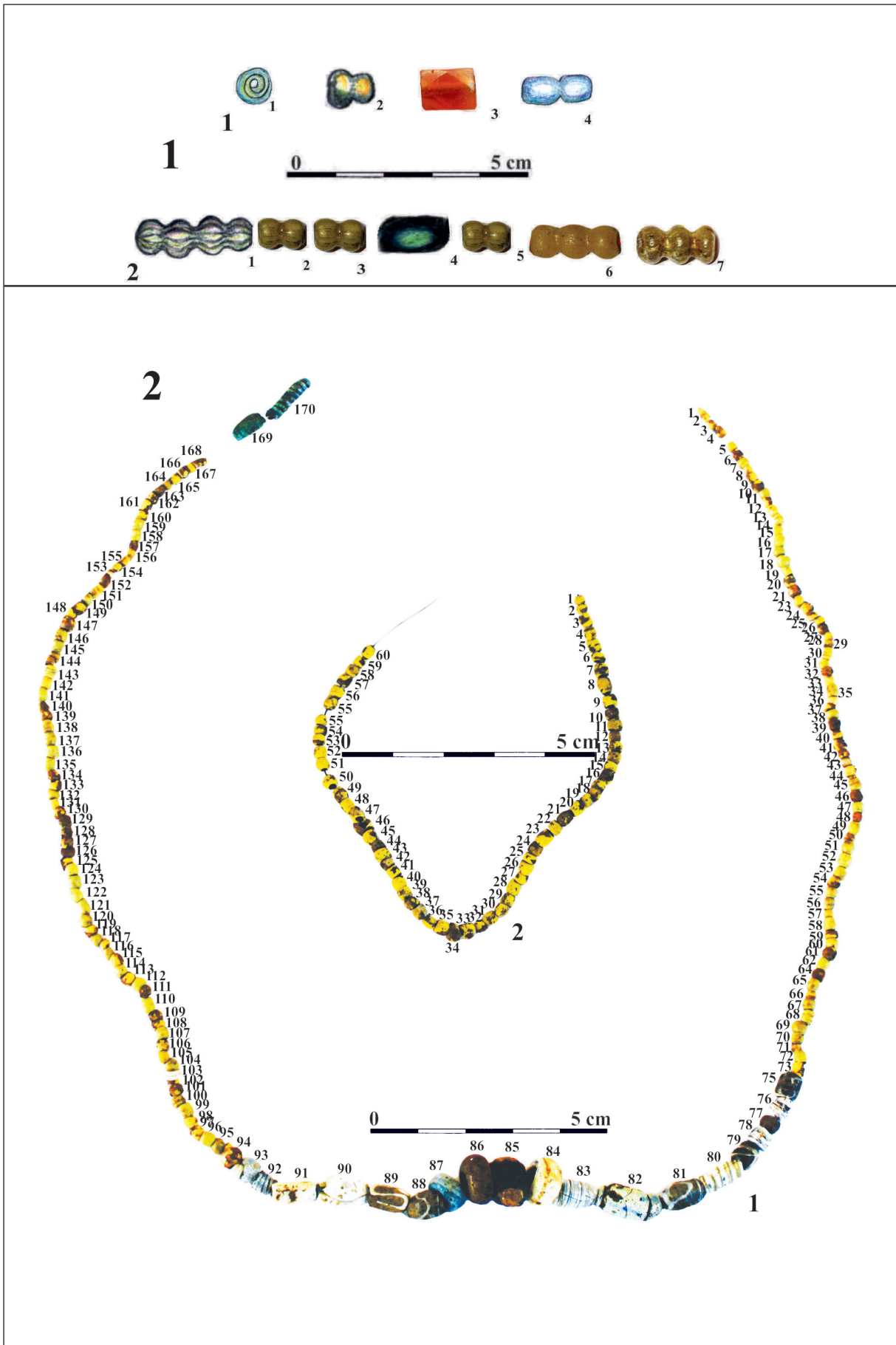


Plate 4. 1. Beads from inhumation cemetery at Ghirbom 1: 1 - 1 - G. 1; 2 - G. 2; 2. Beads from inhumation cemetery at Gâmbaș 2: 1. G. 1; 2. G. 2.

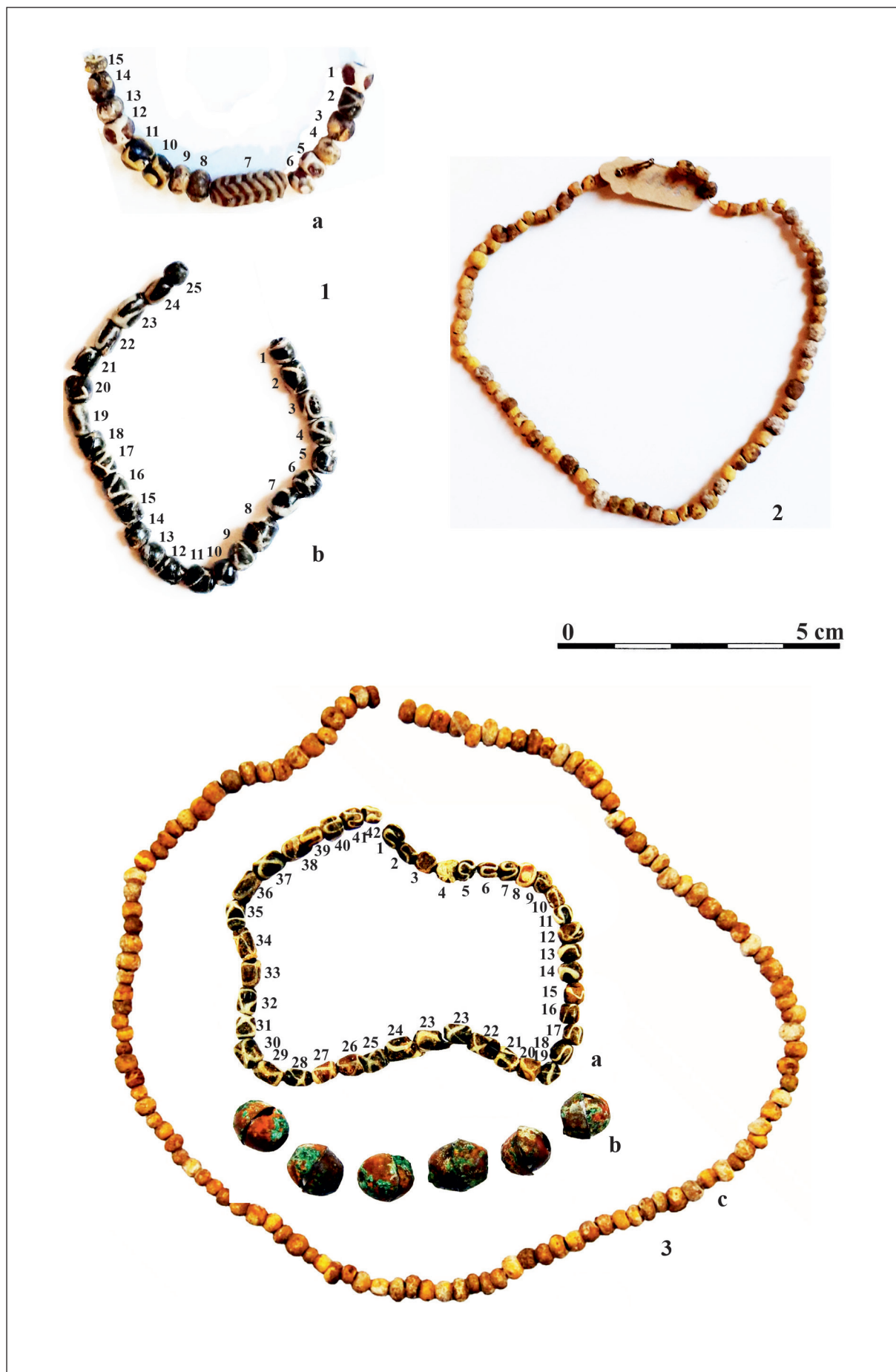


Plate 5. Beads from inhumation cemetery at Gâmbaş 1: 1. G. 13; 2. G. 7; 3. G. 4.

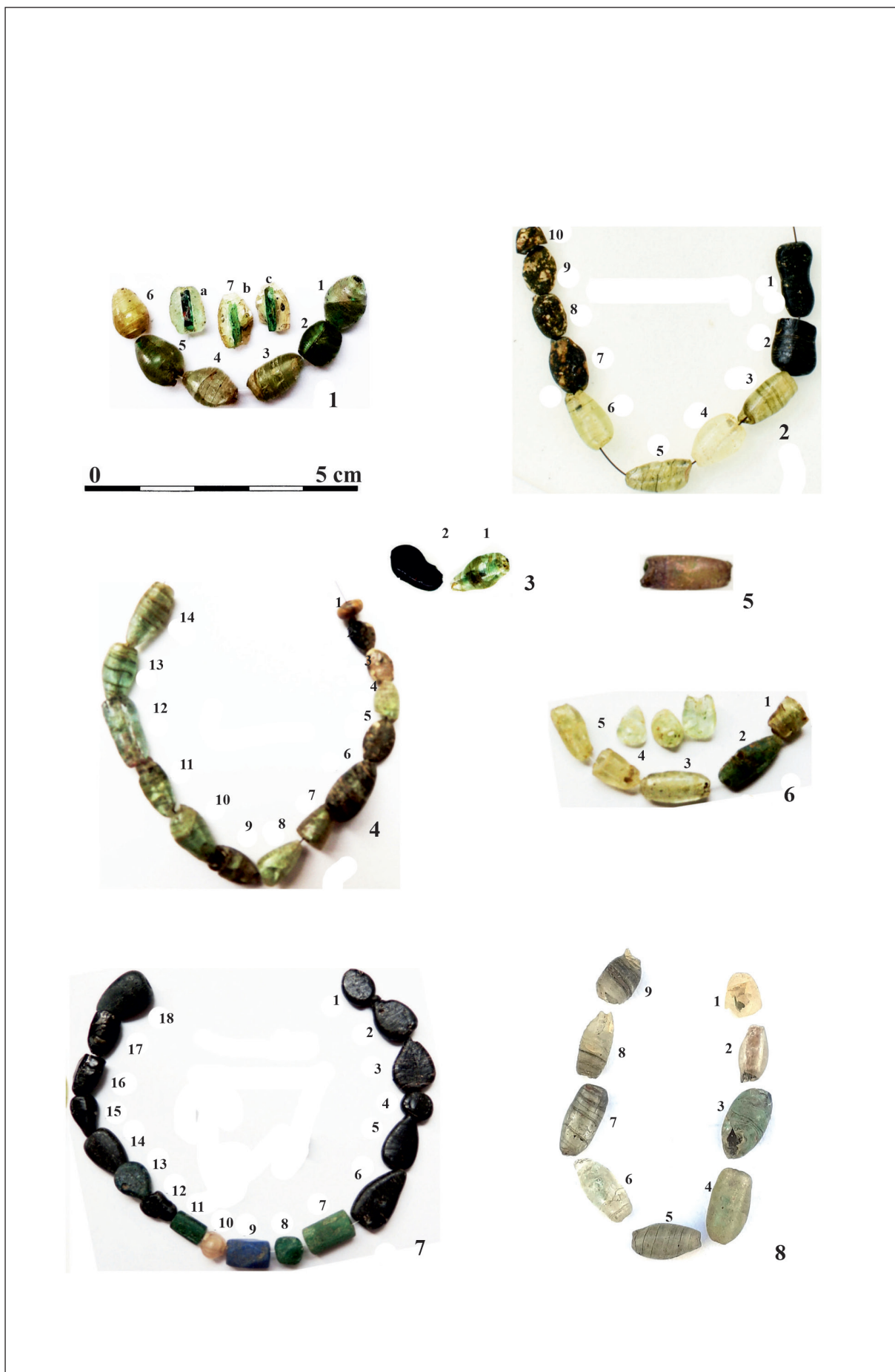


Plate 6. Beads from inhumation cemetery at Sâncrai: 1. G. 1; 2. G. 2; 3. G. 7; 4. G. 8; 5. G. 19; 6. G. 23; 7. G. 20; 8. G. 24.



Plate 7. Beads from inhumation cemetery at Sâncrai: 1. G. 6; 2. G. 27; 3. G. 26; 4. G. 28; 5. G. 36; 6. G. 30.



Plate 8. Beads from inhumation cemetery at Sâncrai: 1. G. 41; 2. G. 44; 3. G. 37; 4. G. 38; 5. G. 43.

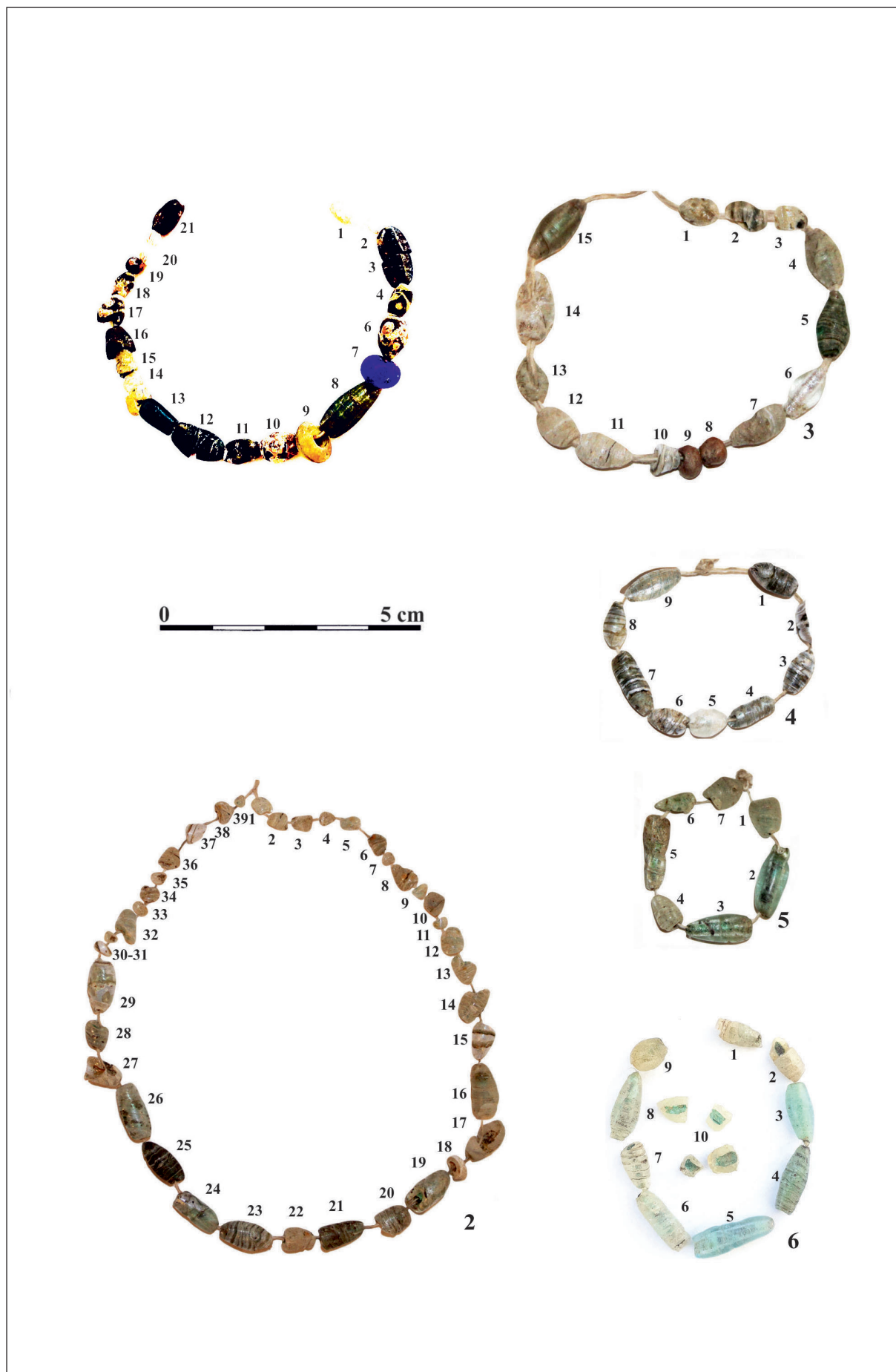


Plate 9. Beads from inhumation cemetery at Sâncrai: 1. G. 48; 2. G. 45; 3. G. 63; 4. G. 62; 5. G. 53; 6. G. 65.



Plate 10. Beads from inhumation cemetery at Sâncraia: 1. G. 71; 2. G. 76; 3. G. 83; 4. G. 79; 5. G. 81; 6. G. 80; 7. G. 75; 8. G. 68.



Plate 11. Beads from inhumation cemetery at Sâncrai: 1. G. 84; 2. G. 100; 3. G. 86; 4. G. 87; 5. G. 95; 6. G. 103; 7. G. 97.



Plate 12. Beads from inhumation cemetery at Sâncrai: 1. G. 105; 2. G. 108; 3. G. 109; 4. G. 104; 5. G. 106; 6. G. 99.



Plate 13. Beads from inhumation cemetery at Șpâlnaca: 1. G. 5; 2. G. 40; 3. G. 21; 4. G. 47; 5. G. 15; 6. G. 37.



Plate 14. Beads from inhumation cemetery at Teiuș: 1. G. 4; 2. G. 5; 3. G. 6; 4. G. 8; 5. G. 21; 6. G. 17; 7. G. 23; 8. G. 35.