

Archaeology

The Evolution of Carnelian Beads and Pendants in Different Chronological Groups – The Middle Bronze – Early Christian Age (According to Samtavro Cemetery)

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(Presented by Academy Member David Lordkipanidze)

The present paper is an introduction to the research on the carnelian beads and pendants discovered in the Samtavro Cemetery – one of the most important sites in the eastern part of Georgia, where from the Early Bronze Age (middle of the 3rd millennium BC) the 3000 years history of the community buried here is continuously represented and it is the main reason why this monument was selected for study the typological and chronological classification of carnelian beads. Here we can trace the development of carnelian beads and pendants over a fairly large chronological framework: in 311 various types of burial complexes dated back to the 17th c. BC – 8th c. AD 14655 units of beads and pendants were attested. According to the mineralogical studies, it was determined that most of the raw materials used for carnelian artefacts are identical to the agate-chalcedony deposits in Georgia; as for classification, we grouped the beads and pendants into six main chronological groups and determined the general features characteristic of each period. © 2022 Bull. Georg. Natl. Acad. Sci.

carnelian, bead, pendant, typology, mineralogy

Beads have been interpreted as one of the oldest and main markers of social, spiritual and artistic values in the international scientific community. Their thorough research determines the level of development and social ties of different societies. In Georgia widespread use of beads and jewelry is associated with the Early Farming Culture (8th-6th millennia BC). At this time, the high level of artistic taste is evidenced not only by the ornamental motifs

of ceramics and sculptures but also by a wide variety of jewelry. Due to the fact that Georgia is rich in various mineral resources, especially the mineral of the Agate-Chalcedony group, the pre-historic community residing here was soon attracted by the diverse and picturesque pebbles abundantly available along the river banks. Later, the purposeful exploitation of mineral deposits was started, which is confirmed by the special abun-

dance of carnelian material in various monuments of Georgia. The oldest jewelry made of carnelian on the territory of Georgia, a teardrop-shaped pendant, was found in the Kotias Kldis Mghvime (8th millennium BC, GNM-10-2004: 769). From this period pendants and necklaces made of beads are one of the most widely used types of old jewelry in the history of mankind [1: 171].

Carnelian Beads and Pendants

The present paper will show the evolution of carnelian beads and pendants through different chronological groups according to the materials of the largest burial ground known in the Caucasus-Samtavro Cemetery. According to current data, the beads and pendants were confirmed in 311 different types of tombs dating from the 17th c BC – to 8th c. AD. We find specimens of high-quality carnelian with symmetrical geometric shapes and well-processed surfaces, as well as beads of low-quality carnelian with asymmetrical shapes and uneven

surfaces. The raw materials used to make beads are mostly heterogeneous, they differ in colour, transparency and texture due to colour variability and are of the same appearance as the raw material in the regions of Georgia. Today on the territory of Georgia more than 40 sites are known for the mineralization of agate and chalcedony. Industrial facilities are concentrated in 4 main regions: Akhaltsikhe, Adigeni, Kaspi, Marneuli and Terjola municipalities, where ore-outcrops related to Jurassic, Cretaceous and Paleogene volcanic formations have been identified [2: 247-251]. Most of the products are characterized by relatively low quality: they are badly or non-polished with asymmetrical forms, mostly made of brown-reddish or orange-pinkish carnelian with abundant inserts and non-homogeneous texture. The same is true for most of the jewelry found in other regions of the Caucasus (north Caucasus, Armenia, Azerbaijan). High quality, homogenous and relatively transparent carnelian materials are obtained in relatively

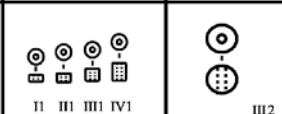
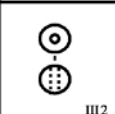
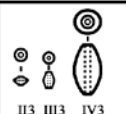
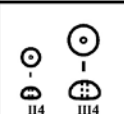
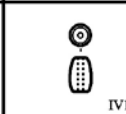



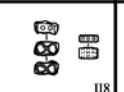



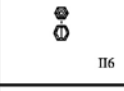

Cut-Shape	Cylinder	Circular	Bicone	Circular Oblate	Ellipsoid	Rectangular	Barrel-Shaped
Rounded	 II III III1 IV1	 III2	 II3 III3 IV3	 II4 III4			 IV11
Elliptical		 III9	 II5		 IV12		
Rectangular						 II8	
Square			 III10 IV10			 IV13 IV14	
Pentagonal			 II7	 II6			
Hexagonal			 IV15 IV16				

Fig. 1. Typological classification of the carnelian beads.

small quantities in the Caucasus region [3: 57-68]. Together with these specimens, we find about ten percent of high-quality carnelian with distinctive symmetrical geometric shapes and good surface treatment. According to the drilling, three types of beads and pendants were identified: 1. One-sided conical holes with a flint drill and abrasive 2. Single-sided cylindrical holes made of copper sticks and abrasive, and 3. Double-cone holes drilled with copper sticks and sometimes diamond drill [4: 185-209]. Beads and pendants were mostly discovered in the area of head, neck and chest of the deceased or they were scattered throughout the grave. During the Bronze Age beads were mainly discovered in female's burials. It seems that the various spiritual or social functions of this mineral were determined not only by shapes and producing technology, but by the sort and colour of mineral as well.

Research of the carnelian beads and pendants of the Samtavro cemetery identified 17 types of beads (Fig. 1) and 12 types of pendants (Fig. 2) according to their profile and shape. Typology we developed according to the classification of Beck (H. Beck.

Classification and nomenclature of beads and pendants. *Archaeologia*, 77. 1928), where the size of a bead is calculated by the ratio of its length to its diameter. Each chronological group describes beads and pendants according to their shape, color, and hole. Dimensions of beads are indicated with Roman (I – disc shaped, II – short, III – standard, and IV – long) and the form with Arabic numerals (form 1 – to 17).

The largest number of beads found in the graves were: 1. Short, rounded cylinder shaped – 4121 units (30,35%); 2. Short, rounded oblate shaped – 3218 units (23,7%); 3. Short, pentagonal oblate or circular shaped – 2615 units (19,2%); 4. Short, rounded truncated bicone shaped – 1240 units (9,13%) and 5. Long, rounded barrel shaped – 118 (0,86%) beads (Fig. 1). Of these only long, rounded barrel shaped bead occurs in all chronological groups. Most of the carnelian beads and pendants are probably made from local raw materials in local workshops. Etched beads from the Hellenistic and Roman graves, a long, square rectangular bead (type IV13) and two pendants



Fig. 2. The types of pendants.

from the Early Christian graves are undoubtedly imported.

Of interest is that teardrop-shaped pendant (Fig. 2) from the Middle Bronze Age grave finds an exact analogue in Ananauri Great Kurgan (according to C14) dated to the 24th c. BC. In this kurgan, such pendants were discovered together with similar shaped good quality amber pendants, which in a whole represented a special type of necklace [5: 316, pl. 22]. We can assume that the complex in which a similar pattern of Ananauri pendant was found probably belonged to a warrior. This is evidenced by other burial inventory found here: bronze weapons, pottery, gold, jet and mountain crystal beads [6: 33].

Depending on the type and shape of the mineral, some of the beads of Samtavro cemetery bear a great resemblance to the specimens made of gold and other precious materials found on the bronze and Iron Age monuments of Trialeti – short/standard rounded/barrel-shaped carnelian beads and short, standard and long cylinder-shaped beads, while various types of teardrop-shaped and triangular pendants are mostly rough-worked, in some cases with cracked texture.

The special abundance of carnelian beads and pendants is noticeable in the central Colchis of the Iron Age: Paluri, Merkheuli, Mukhurcha, Kulankhva, Tsiteli Shukura, Eshera and other cemeteries, e.g. in the vicinity of the regions where their production centers were established. Ureki, Ergeta and Tsaishi cemeteries contain a large number of standard rounded circular, short bicone shaped beads and teardrop-shaped pendants [7]. Of special interest is the fact, that several types of the most popular beads of the Late Bronze-Early Iron Age burials of the Samtavro Cemetery – short pentagonal oblate-shaped and short rounded truncated bicone-shaped beads are not characteristic of Trialeti region. They were widely discovered in the Late Bronze – Early Iron Age sites of Colchis (in Ergeta, Tsaishi, etc.) in western Georgia. It is quite possible that these types became popular in Sam-

tavro culture as a result of the dissemination of Colchian elements.

From the 6th century BC onwards, carnelian beads gradually lost their relevance. They were replaced by beads made of artificial material on which the craftsman could more easily get the desired shape, colour combination and transparency. The use of carnelian from this period is mainly confirmed in the glyptic material. Carnelian was widely used during Roman times to make engraved gems for signet or seal rings. A similar picture is typical not only for the tombs of the Samtavro cemetery but also for other monuments in Georgia and abroad.

In the Bronze and Iron ages, carnelian was mainly used for creating beads and pendants by the peoples of the Caucasus. Probably some of the amulet-shaped pendants and exotic beads came to the site by trade. The cowrie shells and other kinds of imported artefacts discovered in the archaeological contexts together with the exotic carnelian items point out the distant trading connections.

What concerns ancient bead production in Georgia, at present carnelian workshops are identified only in western Georgia, in Mukhurcha, Ochkhauri and Nokalakevi, where various tools and raw materials related to bead processing are revealed. It is interesting, that the tools found here are similar to those from the main ancient bead-making centres. For example, many of the bead production scenes found in ancient Egyptian tombs depict the use of large blocks for rubbing the stone by abrasive into its desired shape. Such blocks are made of a hard or gritty stone such as basalt, or a softer and finer-grained material such as terracotta or sandstone [8: 45-46]. In Georgia, such stones with a sunken groove made of basalt are known from Nokalakevi (western Georgia) [1: 177]. These facts altogether suggest that the beads found in this region underwent the same technological process. Most beads of Samtavro cemetery have a roughly-sculpted shape which supposedly was done by chipping the stone with a soft hammer (bone or

antler) upon an anvil, or by grinding the stone between two large flat stones [9: 42]. It is likely that, as in other bead-making centres, the beads were baked or heated prior to processing also here. Such a process required a great deal of knowledge and experience, as overheating would make the mineral more brittle and breakable, and slight heating could not change its physical properties. In terms of drilling probably the most perforation was made using a vertical handheld bow drill, or a vertical handheld drill turned by hand motion. Bow drills with green jasper bits were used in Mehrgarh between the 5th and 4th millennia BC to drill holes into lapis lazuli and carnelian. Carnelian manufacturing workshop with bow drill was discovered in Harappa and is still in use today [10: 66]. As the nature of the abraded surface of the drill hole shows, the majority of beads from the Samtavro cemetery are perforated using metal with abrasives. On a few early samples the packing technique was also attested. In a few cases, mostly exotic samples have double-diamond drilling. This technique is known only in India since the first half of the 1st millennium BC [4].

Conclusion

We separated several types characteristic of different chronological groups and suggested that

many beads from the Samtavro cemetery besides the exotic specimens derive from the local sources and this is discharged by the following facts: 1. Mineralogical research confirmed that the mineral used to make most of the bead-adornments on the Samtavro cemetery is identical to the resource available in local ores. 2. Among the beads we find many defective, unfinished specimens and semi-finished products. 3. Bronze pins adorned with carnelian are inherent to only this region. Neither on the territory of Georgia nor abroad do they have parallels. 4. Among the glyptic materials there are locally produced samples of carnelian, which suggests that the raw material from the central part of Georgia was used to make seals or signet rings.

The paper is the first attempt of study of carnelian beads and pendants found in Georgia. We suppose that the present paper will encourage this type of research and will highlight the significance of beads in the cultural and social life of the society of that time.

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არქეოლოგია

სარდიონის მძივების ევოლუცია სხვადასხვა ქრონოლოგიურ ჯგუფებში – შუაბრინჯაოს ხანა – ადრექრისტიათული პერიოდი (სამთავროს სამაროვნის მიხედვით)

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(წარმოდგენილია აკადემიის წევრის დ. ლორთქიფანიძის მიერ)

წინამდებარე ნაშრომი წარმოადგენს საქართველოს აღმოსავლეთ ნაწილში მდებარე უმნიშვნელოვანეს ძეგლზე, სამთავროს სამაროვანზე აღმოჩენილი სარდიონის მძივების კვლევის შედეგებს. სამაროვანზე დაკრძალული საზოგადოების 3000-წლიანი ისტორია ადრე ბრინჯაოს ხანიდან (ძვ. წ. III ათასწლეულის შუახანები) განუწყვეტლივ არის წარმოდგენილი და ეს არის მთავარი მიზეზი იმისა, რომ ეს ძეგლი შეირჩა სარდიონის მძივების ტიპოლოგიური და ქრონოლოგიური კლასიფიკაციის შესადგენად. აქ, ჩვენ შეგვიძლია თვალი გავადევნოთ სარდიონის მძივების ევოლუციას საკმაოდ დიდ ქრონოლოგიურ მონაკვეთში – ძვ.წ. XVII – ახ.წ. VIII საუკუნეებით დათარიღებულ 311 სხვადასხვა ტიპის სამარხში; საერთო ჯამში 14655 სარდიონის მძივი დადასტურდა. მინერალოგიური კვლევების შედეგად დადგინდა, რომ სარდიონის არტეფაქტებისთვის გამოყენებული ნედლეულის უმეტესობა საქართველოში არსებული აქატ-ქალცედონის საბადოების იდენტურია; რაც შეეხება კლასიფიკაციას, ჩვენ დავაჯგუფეთ მძივები ექვს ძირითად ქრონოლოგიურ ჯგუფად და დავადგინეთ თითოეული პერიოდისთვის დამახასიათებელი ზოგადი ნიშნები.

REFERENCES

1. Lordkipanidze N. (2012) Ancient Georgian jewellery (in Georgian).
2. Poporadze N., Zukhbaia V. (1998) Precious and hand-crafting stones. Tbilisi (in Georgian).
3. Brunet O. (2009) Bronze and Iron Age carnelian bead production in the UAE and Armenia: new perspectives. *Proceedings of the Seminar for Arabian Studies*, no 39.
4. Lemlein G.G. (1951) Kamennye busy samtavrskogo nekropol'ia. *Materiali k arkhologii gruzii i kavkaza*, no. 2 (in Russian).
5. Makharadze Z., Kalandade N., Murvanidze B. (2016) Ananauri Big Kurgan 3. Georgian National Museum. Tbilisi.
6. Kalandadze A. (1982) Mtskheta VI. The results of archaeological investigations: I Samtavro sites of before Classical Period, II The results of archaeological investigations of 1976–78. Tbilisi (in Georgian).
7. Papuashvili R., Esebua T., Jikia L., Papuashvili I. (2015) Tsaishi cemetery. Tbilisi (in Georgian).
8. Ogden J.M. (1982) Jewellery of the ancient world. New York.
9. Lucas A., Harris J.R. (1962) Ancient Egyptian materials and industries. London.
10. Kenoyer J.M., Frenez D. (2018) Stone beads in Oman during the 3rd to 2nd millennia BCE. New approaches to the study of trade and technology. *BEADS: Journal of Society of Bead Researchers*, 30.

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