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Glassware Production in Barda

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Abstract

In this article information is given about the glassware of Barda in the early Middle Ages. Glass production is considered as a sample of ancient craftsmanship. It began to develop in the early Middle Ages. Glass crafting has been a delicate craft, and the techniques of making it are varied. There were casting method, blowing method, pressing in the mold methods, etc. The study of glassware production techniques in Barda suggests that in the early Middle Ages, craftsmen in Barda had extensive experience in the production of glassware. They used this experience to make a variety of glassware and utensils. From the first centuries AD, glass cups were used in the life of the population in Caucasian Albania. The cups for drinking wine, liquid, etc on the table indicate a table culture and the use of glass. It should be noted that in ancient and early medieval times, glass was considered more valuable than gold. It was also a sign of wealth. Most of these dishes are also found in Georgia.

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This was due to the connection between the ancient cities and, most importantly, the location of the city of Barda, the center of Caucasian Albania in the Middle Ages, on the Tbilisi road. This road connected the cities of Azerbaijan with the Black Sea. The glassware which found in Barda reflects the culture of the Middle East and the Mediterranean. However, scientists have proved that these glass jars were local glass jars of Barda. Merchants from northern Azerbaijan, Russia, Iraq, Iran, Tbilisi and others came to Barda, which is considered the center of trade. In Barda, the intensity of domestic and foreign trade in the VII-IX, IX-XIII centuries, the expansion of economic ties, indicates the existence of money circulation here.

Keywords: Barda, City, Glass, Art, Technique

Barda'da Cam Eşya Üretimi

Öz

Bu yazıda Barda'nın erken Ortaçağ'daki cam ürünleri hakkında bilgi verilmektedir. Cam üretimi, antik sanatkarlığın bir örneği olarak kabul edilir. Orta Çağ'ın başlarında gelişmeye başladı. Cam işçiliği hassas bir zanaat olmuştur ve yapım teknikleri çeşitlidir. Döküm yöntemi, üfleme yöntemi, kalıpta presleme yöntemleri vardı. Barda'daki cam eşya üretim teknikleri üzerine yapılan çalışmalar, Orta Çağ'ın başlarında Barda'daki ustaların cam eşya üretiminde geniş deneyime sahip olduğunu gösteriyor. Bu deneyimi çeşitli cam eşyalar ve mutfak eşyaları yapmak için kullanmışlar. MS ilk yüzyıllardan itibaren, Kafkas Arnavutluk'taki nüfusun yaşamında cam bardaklar kullanılmıştı. Masanın üzerinde bulunan şarap, sıvı, içme kapları bir sofra kültürünü ve cam kullanımını gösterir. Antik ve erken orta çağda camın altından daha değerli kabul edildiğine dikkat edilmelidir. Aynı zamanda zenginlik göstergesiydi. Cam kavanozların içinde cam kavanozlar (çeşitli şekillerde), desenli ve boyasız vazolar, fincanlar (desenli, oymalı ve boyalı), şekerlikler, cam şekilli kaseler bulunmuşdu. Bu taslar çoğu Gürcistan'da da bulunmuşdur.

Bunun nedeni antik kentler arasındaki bağlantı ve en önemlisi Orta Çağ'da Kafkas Arnavutluk'un merkezi olan Barda şehrinin Tiflis yolu üzerindeki konumuydu. Bu yol Azerbaycan şehirlerini Karadeniz'e bağladı. Barda'da bulunan cam eşyalar Ortadoğu ve Akdeniz kültürünü yansıtır. Ancak bilim adamları bu cam kavanozların Barda'nın yerel cam kavanozları olduğunu kanıtladılar. Ticaretin merkezi sayılan Barda'ya kuzey Azerbaycan, Rusya, Irak, İran, Tiflis ve diğer ülkelerden tüccarlar geldi. Barda'da VII-IX, IX-XIII



yüzyıllarda iç ve dış ticaretin yoğunluğu, ekonomik bağların genişlemesi, burada para dolaşımının varlığına işaret etmektedir.

Anahtar Kelimeler: Barda, şehir, cam, sanat, teknik

Introduction

Although glassware has been known in Azerbaijan since the beginning of the era, experts belong the production of local glass to the early and middle periods of the Middle Ages. Archaeological research shows that the people of Caucasian Albania were engaged in pottery, weaving, stone carving, as well as glass crafts. The discovery of pottery decorated with patterns and drawings during the excavations proves once again that glass crafts in Azerbaijan developed in the early Middle Ages. Although there is no written source on the date of glass production in Azerbaijan, glass samples obtained during excavations were found in monuments dating back to the beginning of the first millennium. Glass production in Azerbaijan was based on local raw materials. In most of the medieval cities studied, there is a field of glass crafts, pottery, etc.

In the III-VII centuries in Azerbaijan there were rich raw materials that are the basis for the production of glass - kvass sand, soda, lime, forest materials, refractory clay, etc. It should be noted that in the early Middle Ages, glass was made mainly by two technological methods. These were the ancient methods of casting and blowing. The oldest glass sample in the territory of our republic was found in Jalilabad region. It should be noted that the oldest glass vessel belonging to the III century AD was found in Mingachevir.

Glassware Production Techniques

It is known that the shape of glass containers is mainly determined by their production techniques. It is possible to determine the production technique of glass containers found in Barda - free-blowing or mold-blowing. Blowing containers are characterized by the presence of a trace of a blowpipe at the bottom. In addition, V.A.Qalib's chemical analysis of the composition of ancient glass also provided information about the history of glass. He said that the first



glass was produced in the Middle East because there were all the alkalis for the production of glass in Mesopotamia. In the III-II millennia BC, the production of glass developed on the banks of the Nile¹.

Firstly, thoughts about glassware can be found in the works of the legendary Plinius and *Naturalis Historia*. The first glass was reportedly found in a swampy area called Kandebia between the low hills of Mount Carmel in Syria. The first information about the glass found near the Menon Monument on the banks of the Belos River was given by Strabo².

In the 2400s BC, small glassware was produced on the banks of the Nile. After about 1000 years, the production of glassware in these areas was developing³. At the end of the 1st century BC, with the invention of the blowing technique (Greco-Roman period), glass tableware was mass-produced⁴. The transparency and subtlety of glass attract many people. If in the beginning, the use of glassware belonged to the rich, with the development of blowing techniques all segments of the population used glassware⁵.

Free-blown pottery technique was described in detail by N.N.Kachalov. N.N. Kachalov's monograph "Glass" gives wide coverage to these issues⁶. There are two main methods used to make glass containers: 1) Mold pressing 2) Blowing method. Both methods required speed in the master⁷. It was used to make larger and more

¹ Ostroverkhov A.S. V.A. Galibin and his contribution to the study of chemical technology of ancient and medieval glass. (to the 75th anniversary of the day of birth). *Stratum plus*, №3, 2005-2009. p.418.

² Ceren Baykan. *Underground Glass Findings. Protection and Repair*. Istanbul. Homerkitabevi. Press May 2014 p.5-6

³ Lilyquist C., Brill R.H. *Studies in Early Egyptian Glass*. The Metropolitan Museum of Art New York Second Printing 1995. p.6

⁴ Grossman R.A. (Richard A.) _ *Ancient Glass*. Yale University Art Gallery. Copyright 2002. p.14

⁵ Baykan Ceren, Daniş Baykan. *Glass in the old days*. Turkish Institute of Antiquities. Editor Ali Akkaya. Baskı, İstanbul 2012. p.36

⁶ Kachalov N.N. *Glass*. Moscow, 1959, 70-73 p.

⁷ Nuriyev A.B. *History of Caucasian Albania's Glass Products and Production*. Science Publishing. Baku 1981, p. 86

transparent, closed-shaped containers by the method of blowing. At the same time, there was a method of blowing into the mold. This method has been widely used in many ancient glass centers around the world since the 1st century BC⁸. The most common type of blowing method is "free blowing". This method was used in ancient times in Syria, Palestine, Jerusalem, Israel - on the western shores of the Dead Sea⁹.

In addition, there are decorative pots, which are made by mold method during blowing in the mold or by decorating these dishes during cold processing. These decorations are mainly as follows: 1. Application of medallions depicting the human face. The medallions are blown into a mold and then glued to the wall of a dish that is hot enough. 2. Glass ropes in the form of "snakes" are made to stick on them. 3. The rope is glued. 4. Straight circles and oval medallions are glued on it. It should be noted that glued and flat oval medallions sometimes consist of "waffle" ornaments. Fragments of pottery with bright pictures were also found in Barda.

In this article, we will examine the technique of glass production in ancient times on the basis of archeological glass in Barda. Barda was one of the centers of glass art in Azerbaijan in the early Middle Ages. It is a fact that Barda was the capital for almost five centuries and this had a positive effect on the development of urban trade. For this reason, the city has attracted the interest of historians and archaeologists. The name of Barda is mentioned in the sources as Partav, Firuzabad, Barda, Berda, etc¹⁰. The city was located at the junction of caravan routes of Iran, Central Asia, South Azerbaijan, Georgia, Arab countries, Byzantium and the North Caucasus. Therefore, the city has become one of the largest shopping centers in the Middle East. At the same time, Barda was the political, religious and cultural center of Caucasian Albania in the early Middle Ages. The city was inhabited by the last representatives of the Albanian Arshakis,

⁸ Ceren Baykan. Underground Glass Findings. Protection and Repair. Istanbul. Homerkitabevi. Press May 2014 p.32-33

⁹ Vural Y. Cam Archeology. Yeşilyurt Kitabevi Yayınları - 2. İzmir 2019. p. 50-51

¹⁰ Lilyquist C., Brill R.H. Studies in Early Egyptian Glass. The Metropolitan Museum of Art New York Second Printing 1995. p.13

the great Mehravi dynasty, and from the 5th century by the Albanian Catholics. The city, also known as Firuzabad in history, was built by Vache II by the order of Shah Firuz of Iran. Musa Kalankatli gives detailed information about the nature of Barda as the "Capital city", "Great Partav"; Ibn Khalkhal, an Arab historian who lived in the 10th century described Barda as the mother of Arra in "Ummu-r-Ran", and Al-Istakhri as the great city of Barda. In the 10th century, al-Muqaddas called Barda the Baghdad of these places¹¹.

Most of the glass vessels found in Barda are glass jars, sugar bowls, shallow plates, vials, vases, and glass bowls with symbolic paintings in the form of forging¹².

In addition to the free-blown containers in Barda, there were also blown-on containers in the mold, among which the free-blown ones were prepared as follows. A set of bottles is quickly blown into a mold with a pattern inside without turning. Then the master stops blowing and blows light air through the tube. The glass bubbles are reduced and separated from the mold. Then it is blown into a smooth-walled mold.

As a result of spinning during casting in a mold with straight walls, decorations are made by pouring into a patterned mold to make the walls of the pot smooth. These dishes look a bit smooth and patterned on the outside. We see that the thickness of the ornament on the outside of the wall of such a vessel corresponds to the thickness on the inside. These dishes have a smooth surface without high relief. These containers are the same size as the mold. The relief of some dishes is one-sided, only on the outside, the inside is smooth. In this case, the relief is very sharp. This is usually due to the production technique of the body of the vessel itself.

After completing the blowing, the master takes the bowl to the pontia. One of the features of this technological method is the presence of a small glass mass under the container. After separating the vessel from the tube, the craftsman flattens the glass mass under

¹¹ Nuriev A.B. Craft of Caucasian Albania (III-VIII centuries). Baku: MVM, 2009, 4 p.

¹² Nuriyev A.B. History of Caucasian Albania's Glass Products and Production. Science Publishing. Baku 1981, p. 145

the vessel with a hollow roller, smoothes the mouth of the vessel, thickens it, and straightens the part bent outwards. While working on the wheel, the craftsman is sometimes asked to reheat the glass because it cools down quickly. The seat of the vessel, as a rule, was smoothed in the simplest way by pressing the bubble inwards with the help of a pontoon. A fragment of the walls of a polished pottery in the Barda collection is similar to the pottery with thick walls and other vessels with less thick walls, similar to the pottery found in other monuments. It is assumed that they are produced by the same technical method. Among them, a dark-colored glass fragment was found, which was found in other monuments¹³.

Here, attention is paid to the classification of Barda glass containers and the periods of production. Thus, the classification of containers which found in Barda is based on their functional purpose, the shape of the containers and production techniques. It should be noted that all glassware is considered in chronological order. It is also taken into consideration that when glassware is usually broken or lost, it accidentally falls into the other layer. In this case, the history of the layer does not always coincide with the history of the material, because the previous object can fall into the next layer. The repetition of the same objects in synchronous layers allows us to correctly determine the historical period of such objects.

It should be noted that Barda is a city of a multi-layered monument. As already mentioned, the city was founded BCE and continues to exist today. Researchers in Barda also confirm the discovery of coins from different periods when determining the period on the based on stratigraphic data. These are typical for several periods. It is mainly defined by stratigraphic layers, ceramics and numismatic patterns of the ancient period, IV-V centuries, early VI-VII centuries and VII-VIII centuries, XI-XII centuries and XIII-XIV centuries¹⁴.

¹³ Raspopova V.I. Application: B.A. Galibin Composed of glass vessels from Penjikent. LLC "Synthesis Book", St. Petersburg, 2010, 19 p.

¹⁴ Mammadov A.M., Aliyev T.V., Rajabov M.I. Researches of Barda Archaeological Expedition 2013-2014 / Institute of Archeology and Ethnography of ANAS. Archaeological research in Azerbaijan in 2013-2014. Baku, Khazar University Publishing Center, 2015, p.420

Based on the above mentioned, special attention is paid to the conditions under which the samples were found and the substantiation of the dates of the layers in which they were found. Whenever possible, the material is presented in chronological order. One of the main goals here, as mentioned earlier, is to conduct a comprehensive study of glassware obtained during the archeological excavations of the ancient city of Barda, including the study of production techniques. Just as there are analogies with the archeological monuments of the countries, the similarity in their production techniques is obvious.

We determine the location of Barda glass products, similarities and differences in production techniques in comparison with the above similarities only in the Caucasus, the Middle East, as well as in all glass production in Eastern Europe. During an archeological excavation in the city of Barda, fragments of a glass jar were found, almost completely glued together. They were found together with pottery and coins of the V-VI centuries¹⁵. Since the found vessels are dated not later than this time, the same glass container belongs to the same period. One of them is a miniature glass vessel with a spherical body, a fairly long neck and a curved handle. It is made of very thin, transparent, colorless glass. Similar pottery has been found among Central Asian glassware. This is a pot of the same shape found in Panjakent. The glassware of the VI-VII centuries, mentioned as a fragment of a glass jar found in Barda, is similar to the samples in the city museum of Panjakent, belongs to Sassanid period¹⁶. This vessel was found to be similar to the many thin-walled, light green glass vessels found during the Chakalak-Hill excavations in Afghanistan.

During the study found that a vessel in the tomb of the Tell Mahuz necropolis in Mesopotamia was very similar to the Barda glass vessel, although it was slightly different in size. The glass vessel found in the Haftavan-Hill excavations in Iran during archeological excavations is similar to the glass vessel found in Barda.

¹⁵ Hajiyeu G.A. History of Barda city (III century BC-XVIII century BC), Baku, "T" NM, 2000, p.25-26

¹⁶ Raspopova V.I. Application: B.A. Galibin Composed of glass vessels from Penjikent. LLC "Synthesis Book", St. Petersburg, 2010, 59 p.

Thus, along with all the features and characteristics of this type of glass product, it was learned that the production techniques are similar, which allows us to study and compare the production techniques of the local glass product we studied. In this case, it is important to study the chemical composition of these products, as well as the nature of production technology and equipment.

As noted by V.A. Galibi, the peculiarity of the composition of the perfume bottle found in Central Asia also applies to the glass of other Eastern countries¹⁷. However, it should be noted that the glassware found in the layers of Barda in the late VII-VIII centuries has been studied more extensively, which should also apply to the study of glassware production techniques. Similar products of this period in Barda were found in archeological monuments in the region.

The similarity of the pottery found in Barda with the pottery found in Japan is also interesting. V.I. Raspopova was told that two glass jars were taken from Iran to Central Asia and from there to Japan. The technique of making such dishes began in Iran during the Parthian period, and their production stopped in the second half of the 7th century. One of these vessels was found in the tomb of Emperor Anka in Japan (VI century) and the other in Syosoi. It is said that both vessels were brought to Japan until the 6th century¹⁸.

A vessel made of clear glass found in the 7th century excavation layer of Barda also attracts attention in terms of production techniques. The surface of the dish is polished. The container is said to be produced by free blowing. Similar glass vessels in Barda were also found in the glass collection of the Corning Glass Museum. During the excavations in Tirentepe, such a vessel decorated with round facades was found in the excavation layer of the Sassanid period¹⁹.

Fragments of similar vessels were found in many monuments in Georgia, especially in the burial monument during archeological excavations in Rustavi, which MN Chkhatarashvili dates back to the I-III

¹⁷ Gadzhiev M.M. Ancient Derbent. Makhachkala, Daguchpedgiz, 1991, 95 p.

¹⁸ Raspopova V.I. Application: B.A. Galibin Composed of glass vessels from Penjikent. LLC "Synthesis Book", St. Petersburg, 2010, 7 p.

¹⁹ Belenitsky A.M. Mediterranean city of Central Asia. L., 1980. 173 p.

centuries. He considered many of these vessels to be the product of local production²⁰.

Glassware from the Sassanid period is very similar to pottery from the early Islamic period. Numerous pieces of pottery discovered by a joint expedition of the German State Museum and the Metropolitan Museum in 1932 were found in the Metropolitan Museum, and we witness the similarity of this glassware with Barda glassware. At the bottom of one of these vessels is a large deep protrusion, around which, above, are a number of small pentagons. The glass is covered with a dark layer. Another part of the vessel found with it is made of transparent yellow-pink glass. It is possible to say that these glass vessels are similar in color and shape to Barda glass vessels, and the same can be said about the production technique and technology.

Interestingly, the chemical analysis of such containers shows that the glass is made according to the usual Syrian recipe, contains the same elements as in ordinary soda glass, and, presumably, does not contain lead. According to the results of chemical spectral analysis, Barda glass does not have lead in its content. V.A Galib, who studied the same container by quantitative spectral analysis, noted that the Russian glass contained 0.003 PbO²¹.

The technique of making such containers is related to the production of glassware using the method of free blowing and the completion of production by cold processing.

Inside the Barda glassware, there are also decorated dishes, one of which is a fragment of a very small round bowl. About 3/4 of this glass fragment, which survived, is 1.9 cm in diameter. The glass of the container is transparent, yellowish. A bowl, which is considered a bowl, has a semi-circular body, the facades of which are covered with patterns. There are three rows of stripes on the bowl. This pottery was found on a plate with objects dating back to the first quarter of the VIII century. Therefore, it is very likely that this vessel has an earlier date than the first quarter of the VIII century. Another polished pottery

²⁰ Chatarashvili M.N. Field archeological researches in 1980. Tbilisi, Metzireba, 1982, 97 p.

²¹ Galibin V.A. Made of glass as an archeological source. SPb 2001. 216 p.

fragment was found. Along with a fragment of the same complex, coins were found at this excavation site. This fragment belongs to a bowl made by free-breathing method. It is difficult to determine the shape of the vessel. The glass is transparent green with a blue tint.

Thus, it is known that polished dishes were used in the life of Barda people in VII-VIII centuries. They are similar to the dishes sometimes used by contemporaries from very distant lands. Such dishes were not cheap. It is also interesting that such expensive and interesting glassware and other glassware came into the life of the Japanese emperor.

The Barda glass collection also includes a number of glass pottery fragments found in the VII century, which are fragments of pottery found during archeological excavations. They also consist of a fragment of the wall of a vessel made by free-blowing; The second unadorned fragment of the pot wall shows that the profile of this pot is round. Both fragments consist of clear blue and green glass. The workshop existed for a long time and was used from the end of VII the century to the VIII century²².

Conclusion

Excavation layers of VIII-IX centuries in Barda are almost well studied by archeologists A. Nuriyev, A. Mammadov, G. Hajiyeu). Therefore, the discovery of glassware in the layers of the VIII century is more than in the V-VII centuries. In this regard, we identify the containers according to the chronological features, production technique, purpose and form of filling. Among the dishes of the VIII century are tableware (cups, goblets, bowls, plates, jugs, bowls, barrels) and pharmacies and perfumes (conical items, alembic, funnels, flasks, small dishes).

The glassware which found in Barda belongs to the same group in terms of production equipment and has similarities with production equipment in Central Asia and the Middle East.

²² Chatarashvili M.N. Field archeological researches in 1980. Tbilisi, Metzireba, 1982, p.232-233

We can say that in the early Middle Ages, glassware and glass crafts were highly developed in Azerbaijan. Despite the wars and destruction, traces and examples of craftsmanship have remained underground. Today, many centuries-old cities of Azerbaijan are rich in a treasure trove of masterpieces. All this is the basis of our centuries-old history of craftsmanship.

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