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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

**GLASS PRODUCT OF BARDA CITY IN ANCIENT TIMES
AND MIDDLE AGES**

Specialty: 5505.02 - Archeology

Field of science: History

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Bakı – 2024

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I. GENERAL CHARACTERISTIC OF THE DISSERTATION

Relevance and development of the topic. Studying the ancient settlements of the Azerbaijan Republic, especially the cities, from the historical-archaeological point of view is one of the actual problems of the history of Azerbaijan.

The planned research of ancient and medieval cities in Azerbaijan began during the Soviet rule. In the period of independence, a number of cities of Azerbaijan were studied again and comprehensively from the historical and archaeological point of view. Since then, various organizations and societies were created to study the socio-economic, political and cultural history of the country. Fundamental works have been written on many aspects of the history of Azerbaijan. Researchers have obtained scientific results related to the history of the emergence of individual art fields, metalworking, pottery, glass production, jewelry, shipping and other fields. Materials obtained from archaeological monuments of different types and periods were of special importance for the study of the production area in ancient times and the Middle Ages. Beside Barda, a large number of glass items were obtained during the archaeological excavations in Nakhchivan, Gabala, Beylagan, Shamakhi, Shabran, Ganja and Shamkir, among the ancient and medieval cities of Azerbaijan, which made it possible to trace the history of the formation and development of that production area.

The International Society of Glass History, which investigates the issue of studying the history of glass production of the countries of the world and summarizes the scientific results of the collected materials, was established, which promotes glass products and their historical significance. We think that the research and promotion of glass products discovered in Barda city will be of great scientific importance from this point of view.

There are a lot of glass objects of various purposes found in the archaeological excavations of Barda from the ancient and medieval period. Unlike the special research problems of craftsmanship - pottery production, metalworking, jewelry and others, the glassware of Barda was not a special research object. Therefore, many questions

related to the ancient glass products of Barda, including the classification of glass, its production technology and technique, the special place of glass in the social and spiritual life of the population, have not found their full scientific solution. Acquaintance with the scientific literature shows that although the description and classification of the glassware of the monuments belonging to different regions of Azerbaijan has been interpreted, no special research has been devoted to the glassware of the city of Barda in ancient times and the Middle Ages, the history and technology of its production.

The study of Barda glassware, on the one hand, allows us to determine the social structure and lifestyle of Azerbaijani cities, and on the other hand, the place and role of glass production in the urban craft sector, as well as allows us to follow the existing traditionality and the ongoing innovation in the form and artistic design of glass objects of various types and with different purposes. This creates a clear idea about the understanding of the traditions and legends that have reached the present day in the spiritual imagination of the people. All of the above determines the relevance of the dissertation topic we are addressing.

Interesting information about the history of Barda city is given in the written sources. Special mention should be made of Moisey Kalankatli's work entitled "History of Albania"¹. In the works of Arab authors Ibn al-Asir, Ibn-Havqal, Ibn Khordadbeh, Hamdullah Qazvini and others, information is provided about the city buildings, crafts, nature, economy and abundant products of Barda². Arab author al-Istakhri's³ extensive information about Barda being a big city has been an important direction for historians and archaeologists.

¹ Moisey Kalankatli. Albaniya tarixi./ Tərcümə Z.M.Bünyadovundur. – Bakı: Elm, -1993, -235 s. Moisey Kalankatli. Albaniya tarixi./ Tərcümə Z.M.Bünyadovundur. – Bakı: Elm, -1993, -235 s.

² Vəlixanlı, N.M. IX-XII əsr ərəb coğrafiyaşünas-səyyahları Azərbaycan haqqında./ Vəlixanlı N.M. – Bakı: Elm, -1974, -223 s.

³ Истахри. Китаб масалик ал-мамалик (Книга путей и царств). Перевод Н.А.Караулова. СМОМПК, вып. XXIX, Тифлис, 1901, с.8-39

Alam Nuriyev⁴ had special services in the archaeological research of the city of Barda. Four cultural layers of the city were identified in the archaeological excavations conducted in Barda in 1984-1985 under the leadership of Alem Nuriyev.

Coins minted in other countries were also discovered during excavations. Finding money belonging to different countries shows that Barda played an important role in international trade activities. Its importance as a craft center was specially emphasized in A.B.Nuriyev's monograph "The History of Glassware and Production of Caucasian Albania".

In the monograph "History of the city of Barda (III BC - XVIII century BC)" by G. A. Hajiyeu⁵, dedicated to the study of the history of the city of Barda during the years of independence, A.B.Nuriyev and A.H.Babayev co-authored the "Historical-archaeological essay of the city of Barda⁶" the work contains valuable information about the ancient and medieval history of Barda.⁷

Archaeological research conducted by A.B.Nuriyev (1986-1991) in the city of Barda⁸ was continued by Arif Mammadov during the years of independence (2008-2017). Archaeological excavations were carried out in the Shortepa⁹ monument of Barda in 2015, and at the same time in the Hasangaya¹⁰ village of Barda district, and glass

⁴ Nuriyev, A.B. Qafqaz Albaniyasının şüşə məmulatı və istehsalı tarixi./ A.B. Nuriyev.- Bakı: Elm, -1981, -150 s.

⁵ Hacıyev, Q.Ə. Bərdə şəhərinin tarixi (b.e.ə.III əsr-b.e.XVIII əsri)/ Q.Ə.Hacıyev. - Bakı: "T" NM, -2000, -320 s.

⁶ Nuriyev, A.B., Babayev, Ə.H. Bərdə şəhərinin tarixi-arxeoloji öçerki (antik və ilk orta əsrlər) ./ A.B.Nuriyev, Ə.H.Babayev.- Bakı: Nurlan, -2001, -182 s.

⁷ Məmmədov, A.M., Hacıyev, Q.Ə. Orta əsr Süttur (Sətəl) şəhərinin arxeoloji tədqiqinə dair ./ Qarabağın tarixi arxeologiyası, etnoqrafiyası və Bərdə şəhərinin 3000 illiyi, Elmi praktik konfrans materialları. Bakı Xəzər Universitetinin nəşriyyatı 2009. 91-96 s.

⁸ Nuriyev, A.B. Bərdə arxeoloji ekspedisiyasının hesabatı. -1986-cı il./ AMEA AEİÇTİBA, inv. N: H-453, -s.5

⁹ Bərdə arxeoloji ekspedisiyası tərəfindən Bərdənin Şatırlı kəndi yaxınlığında "Şortəpə" adlı qədim və orta əsr yaşayış yerində aparılmış arxeoloji qazıntıların hesabatları dissertasiya işinə daxil edilmişdir.

¹⁰ Məmmədov, A.M. Bərdədə 2015-2016-cı illərdə aparılmış arxeoloji qazıntı və çöl tədqiqat işlərinin nəticələri. / A.M.Məmmədov, Ə.H.Babayev, T.V.Əliyev,

products from the beginning of the first millennium AD were discovered.

The glass items found in the jar grave in the monument - pendants, beads, perfume bowl, etc. The materials were researched and added to the thesis.

On the basis of the "Barda Archaeological Research Project"¹¹, archaeological excavations were carried out in the Garatepe area of Barda under the leadership of the British archaeologist Paul Wordsworth and with the participation of 24 archaeologists in total in 2015-2016. As a result of the research, a large number of glassware and parts of ornaments were discovered from the IV-V century settlement discovered in the Garatepe area in 2017. While working on the dissertation, the study of the archaeological glassware found in Garatepe was also of great importance in terms of the study of the glass craftsmanship of Barda city.

During the research work, the works of scientists studying the chemical composition of archaeological glasses were also consulted and a comparative analysis was carried out.

The object and subject of the research. The research object of the dissertation is the glassware discovered during the archaeological excavations in ancient and medieval settlements, grave monuments, defense buildings of the city of Barda.

The subject of the dissertation work is the analysis of the archaeological materials obtained from the ancient and medieval archaeological monuments of the city of Barda, their similarities and differences, chronological analysis and creating a general idea about the material culture.

The production period of the glassware discovered in Barda chronologically covers the period of Antiquity, the Early Middle Ages, and the Advanced Middle Ages. The period of development of the production of glass products in Barda is VIII-IX centuries.

M.İ.Rəcəbov, S.A.Quliyeva, H.A.Məmmədzadə// Azərbaycanca Arxeoloji Tədqiqatlar.- 2015-2016, -Bakı: -2017, -s.234-245

¹¹ Bərdənin arxeoloji tədqiqi layihəsi/ Paul Vördsvorz.;üzvləri M.Ağalarov, K.Kempbel və b.Azərbaycan və Qafaz dilləri və mədəniyyətləri üçün N.Gəncəvi adına proqramı, Oksford Universiteti. 31 iyul-9 sentyabr, Bakı, 2017. S.31.

The source science base of the subject is made up of the glassware discovered during the archaeological research conducted in the city of Barda (from the 80s of the XX century to the recent times), archaeological reports stored in the Archives of the Institute of Archeology and Anthropology of ANAS, printed and unpublished reports of expedition members, and photos taken by them.

Research goals and objectives. The purpose of the research is to study all types of glass products found in Barda (morphological, technological, etc.), to specify their use in the household life of the population, as well as to determine their place in the country's economy. The discovered different types of glassware and the materials related to its production, to a certain extent, allow creating a general picture of the history of glass production in Azerbaijan in the ancient and medieval times. For this purpose, all information related to different categories of glass products found in Barda is systematized. The following specific tasks are performed in the research work:

- The chronology of the glassware, which is one of the main tasks when working on the dissertation, is drawn up;
- The place of the city of Barda in the history of Azerbaijan and its historical-archaeological study;
- All information about different categories of glass products found in Barda is systematized;
- Give the classification of the glass products found in the city of Barda;
- Glass products are divided according to their forms, purpose and production technology;
- The technological and technical characteristics of the glass products of Barda city are explained;

Research methods. In order to achieve the goals, set for Garcia, various scientific research methods were used in the research process. The most basic of these methods and used in archeology is the typological comparison method. Typological analysis, historical-comparative analysis, description, classification and scientific-historical generalization methods were used in the study of the glass

products found in the ancient and medieval archaeological monuments of Barda while writing the dissertation work.

As a result of archaeological excavations, the classification of glass products found in the ancient and medieval archaeological monuments of Barda city is given. In the research work, a comparative analysis of the glassware found in the city of Barda with the glassware found in other cities of Azerbaijan was carried out. Research methods of Azerbaijani archaeologists A.B.Nuriyev, F.L.Osmanov, A.M.Mammadov, T.M.Dostiyev, as well as M.A. Bezborodov, Y.L.Shapova, V.A.Galibin, N.N. Kachalov and other researchers, who studied the history, chemical composition and production technology of ancient archaeological glasses, were used during the research.

The main provisions of the defense: The tasks facing the research work are as follows:

- In the early Middle Ages, Barda experienced a period of intensive economic, socio-political and cultural development. The presence of intensive living in the area where the city of Barda is located has led to its gradual development, a production center, and has become an important craft and trade center.

- Barda was a major exporter of a number of handicraft products in the Middle Ages. At this time, glass products took an important place.

- The wealth of raw materials available for the production of craft products in the territory of Azerbaijan has provided a great opportunity for the production of glass products in this city. For this reason, the production of glass products in Barda has developed widely.

- The fact that the region where the ancient city of Barda is located is close to the copper-mining regions, which made it possible to widely use local ores. It has led to the emergence and development of many types of crafts, especially the art of glassware production. In the region where Barda is located, sand and soda, the main materials for producing glass, were plentiful. Spectral analysis of the glass found in Barda city shows that the majority of its composition is sea sand as a raw material for glass production.

- Another important raw material for glass is ash, and the presence of different types of trees and bushes in the forests of Barda played an important role in this regard.

- According to the shape and purpose of the glass products found in Barda archaeological excavations, they are divided into 3 groups: tableware; laboratory and perfume containers; decorations.

- In addition to producing glassware according to market demand, Barda glassmakers satisfied the needs of buyers by producing these products in various ways. Mold casting, mold blowing and free blowing methods were used in the production of glassware.

- Barda masters used to embroider the tableware they produced in different ways. At that time, various methods were used more, especially the carving method (in the XI-XII centuries).

- The discovery of alembics in Barda, which are characteristic chemical vessels of the Muslim world of the East from the 9th century, confirms economic and trade relations with these countries.

- Many of the vials that make up the majority of the glassware found in Barda were made in a mold, while others were made by free blowing.

- 5 groups of vials were discovered in Barda, some of which are characteristic only for Barda. Similar ones of some of them were found in archaeological excavations in other areas of Azerbaijan and monuments of foreign countries.

- Archeological glass samples of Barda constitute a rather large chronological period. The period of production of archaeological glassware from antiquity to the end of the Middle Ages is chronologically divided into antiquity, the early Middle Ages, and the advanced Middle Ages. The heyday of Barda glassware falls on the 8th-9th centuries.

- Barda glassware consists of several chemical ingredients - sodium-potassium, calcium-magnesium. The composition of the products belonging to this type consists of a type of mixed raw materials and various plant ashes, which was traditionally used in the Eastern glassmaking school in ancient times.

- Extensive research results on glass decorations, which are a separate field in independent glassmaking, were obtained in the

dissertation work. During the archeological excavations in Barda, glass decorations were found mainly in the developed medieval layer.

- Glass ornaments were associated with mass production of glazed earthenware in the IX century. The glass-containing solution prepared for glazing pottery was also used to make glass ornaments.

- In the city of Barda, the production of glass products has developed and gained value as one of the main types of general crafts.

- Glass production and products in Barda have become famous as a symbol of happiness, beauty and purity in people's lives and lives. This quality of glass is reflected in folk folklore, poetry, ethnography and folk beliefs.

The scientific novelty of the research. The scientific novelty of the research consists of the following:

The dissertation work is the first general scientific research work dedicated to the study of the ancient and medieval period of glassware of Barda, the capital of Albania.

Barda glassware and its production are studied not only in the historical-archeological plan, but also in the chemical-technological and technical aspect for the first time in Azerbaijani historiography. Also, the Barda glassware is studied in the folklore-ethnographic aspect and presented to the scientific community. As one of the huge craft centers of the city of Barda, its place is defined in the historical scene of glass products of Azerbaijan. One of the signs showing the main feature of the glass products of Barda city - the chemical composition is compared with the chemical characteristics of contemporary monuments of Azerbaijan and glass samples of other countries, and general conclusions are drawn.

During the research, the local production characteristics of the archaeological glasses of Barda were determined, and the features that distinguish them from imported glass products were also investigated.

Theoretical and practical significance of research. Studying the history of glassware, which is a branch of Barda's craft history, is of great practical importance. In order to follow the development history of glass craft in Azerbaijan, the importance of the researched dissertation topic is high. This research work is important for the study of the history of the production of ancient glassware in Azerbaijan,

glass craftsmanship, and at the same time the high and refined table culture. It is very important from the point of view of studying the religious worldviews and beliefs of that period in the ethnographic information carried by the studied archaeological glasses from ancient times to the present day. The results of the research work can be used by those engaged in the history of crafts, historians conducting research in the field of science and education, as well as bachelors and masters of educational institutions.

Approbation of research. The dissertation consists of an introduction, three chapters, a conclusion, a list of references, abbreviated words, tables and pictures attached to the work, and illustrations. The main results of the plaintiff's scientific research work entitled "Glassware of the city of Barda in ancient times and the Middle Ages" were discussed and published in 22 articles and theses published in the Department of Archeology and Anthropology of ANAS Institute of Archeology and Anthropology. Reports dedicated to the main results of the dissertation work were heard at international conferences organized in Turkey, Russia, Ukraine and Azerbaijan.

Name of the organization where the dissertation work is performed. The dissertation work was carried out in the "Medieval Archeology of Azerbaijan" department of ANAS Institute of Archeology and Anthropology, discussed with the participation of employees invited from other departments of the Institute and submitted for defense.

The volume of the structural sections of dissertation separately and general volume with sign. Dissertation work consists of introduction, three chapters, conclusion, bibliography and illustrations. The "Introduction" part of the dissertation consists of 20,413 characters, Chapter I has 60,000, 318 characters, and Chapter II has 66,000, 411 characters. Chapter III of the dissertation is covered by 65,627 characters, and the "Conclusion" part is covered by 8,541 characters. The text of the dissertation work (without literature and illustrative materials) totals 221 thousand, 311 characters.

II. MAIN CONTENT OF THE DISSERTATION

The thesis consists of introduction, three chapters, conclusion, tables, list of used literature, list of used abbreviations, illustrative materials, map, pictures and tables.

In the "Introduction", the relevance of the topic, degree of development, the purpose and tasks of the research, the methods of the research, the main propositions defended, the scientific novelty of the research, the theoretical and practical importance of the research, the approval and application of the dissertation, the name of the organization where the dissertation work is performed, the structure of the dissertation, the dissertation the total volume of the dissertation is indicated with a note indicating the volume of the structural sections separately.

Chapter I is named "**The place of the ancient and medieval glassware of Barda city in the history of Azerbaijan and the state of its study from the historical-archaeological point of view**". This chapter consists of three sub-chapters. The place and role of the city of Barda in the history of Azerbaijan, the study of the city of Barda from the historical-archeological point of view and the fact that the city is an ancient craft center are studied here. In this chapter, information about the geographical-geostrategic area, relief and geological structure, flora and fauna, as well as underground and surface resources of the area where Barda is located, and the existence of all conditions for the production of glassware are justified. The place of the study of the ancient and medieval glassware of the city of Barda in the history of Azerbaijan and the state of its study from the historical-archeological point of view are studied.

The first paragraph is named "**General characteristics of ancient and medieval historical-archaeological monuments of the city of Barda**", referring to the written sources, it is explained that the ancient and medieval glass products of the city of Barda have an important place and role in the historiography of Azerbaijan. The city of Barda played an important role as a central city in the political, economic and cultural life of the country in the early Middle Ages and

created valuable traditions in the history of our people, especially in the history of craftsmanship are reported in this paragraph.

The scientific literature on the study of the city of Barda allows you to get very interesting information about the general historical-geographical conditions of the city, its natural resources, economic power, craft and trade life. Evidence found during archaeological excavations confirms the information contained in written sources.

The further development of the archaeological research conducted in Barda since the 80s of the XX century in the years of independence, the study of the discovered material culture samples, and the study of the city's craft history are of special importance.

During the study of the city of Barda and glass products in particular, it is of great importance for the study to make comparisons with other large settlements of Azerbaijan. In this regard, while studying the life of Azerbaijani cities in ancient and medieval times, special attention was paid to Barda's parallels with other cities.

The second paragraph is named "**Ancient and medieval history of the city of Barda and the place of glassware production in the craft history of Azerbaijan**", the city is studied from the historical and archaeological point of view. Here, along with written sources to study the history of Barda, it is reflected in archeology in order to study the ground that determines the formation of the city and its belonging to an older period.

It is reported that the researches started by foreign archaeologists in the Barda area at the end of the IX century and the beginning of the XX century were continued by Azerbaijani historians and archaeologists. The discovery of material culture samples from different periods in the city of Barda, the existence of intensive living in the city area since ancient times, the richness of life and lifestyle in the ancient and medieval period are explained.

The third paragraph "**Barda city as an ancient craft center**" deals with the interesting information provided by the research works on the existence of artisan quarters engaged in various types of art in the city of Barda. It is said that glass production has a special place, along with pottery, metalwork, jewelry and weaving, which are

particularly different from these types of art.¹² Here, in medieval sources and scientific literature, the mention of the city of Barda as a huge craft center, the study of the craft of that period on the basis of archaeological materials, the materials discovered during archaeological excavations allow us to draw scientific conclusions about the craftsmanship of the city of Barda both in the ancient period and in all stages of the Middle Ages. It is justified that it creates opportunities. Also, the impact of the emergence of art types on different areas of craftsmanship at the level of development dynamics is analyzed.

Chapter II of the dissertation is named "**Glassware found in the city of Barda and its classification**" provides an analysis of the ancient and medieval glassware found in the city of Barda and its classification. Classification of archaeological glass was studied in the form of glass tableware, glass lab and perfume vessels, glass ornaments, glass bracelets, glass rings, beads and pendants. This chapter is explored in six sections. Scientific analysis of glass samples obtained from different layers of archaeological monuments of Barda during archaeological excavations allows to follow the evolutionary process of glass craftsmanship. The study of glassware according to those cultural layers shows that the production of glass ornaments began in antiquity, and the production of glassware began in the early Middle Ages.

In the first sub-chapter of Chapter II entitled "Glass ware discovered from Barda and its typological classification", it is stated that the glass ware discovered from archaeological excavations in Barda is completely different in terms of its shape and purpose. Written source data and the results of archaeological research show that glass products in Barda both met the needs of the city population and were imported to foreign markets¹³.

¹² Məmmədov, A.M. Bərdədə son arxeoloji qazıntı işləri // A.M.Məmmədov. -Bakı: Arxeologiya jurnalı, -2010, № 3, -s.28-37.

¹³ Məmmədov, A.M. Cəfərov, P., Hasilov, Ş., Əliyev, T. Dünya ticarətində Bərdə şəhərinin rolu / A.M.Məmmədov, P.Cəfərov, Ş.Hasilov, T.Əliyev.//-Bakı: Azərbaycan Arxeologiyası və Etnoqrafiyası, -2005, №2, -s.47-52

The second paragraph of chapter II of the thesis work is named "**Glass Tableware**". Here is a classification of glassware important for urban life. So, tableware, laboratory and perfumery containers, glass ornaments are analyzed in separate clauses.

The glass tableware discovered from the archaeological excavations in Barda is completely different in terms of its shape, purpose, and manufacturing technique. The glass tableware found in the city of Barda during the research consists of bowls of different sizes, jugs, decanter-like vessels, cups, etc. consists of shaped containers. The study of these vessels was of great interest from the point of view of determining the character of medieval glass craftsmanship original to

Barda, and studying their place and role in the history of Azerbaijani craftsmanship. While conducting research, we are following the development of the production of glass tableware in the VI-VIII centuries. Similar and different characteristics of the investigated glass tableware are compared with the glassware found in other cities of Azerbaijan. The dishes are decorated with different patterns and different colors. When studying the glass tableware found in Barda, it is necessary to focus on one characteristic aspect. This is, first of all, the patterning of those vessels determined according to the artistic taste of Barda craftsmen. Determining the method of production of glassware in the period we are studying, studying the role of different types of glassware in the household of the population allows us to draw the conclusion that the glassmakers of Barda made glassware of different appearance and purpose.

The third paragraph of chapter II is called "**Glass laboratory and perfume vessels**". In this sub-chapter, it is stated that the glassware discovered from the archaeological excavations in Barda is completely different in terms of its shape and purpose. As in other medieval cities, these fragmentary examples are household items or artefacts of artistic importance. These containers were widely used in the Middle Ages to store medicines and perfumes. In Azerbaijan, this type of vessels was more widely used since the VIII century. These vessels were made by blowing method. The discovery of these small containers from the city of Barda was not accidental. Because rare

plant minerals and medicinal solutions were supposed to be transported abroad in these glass containers. It can be concluded from this that pharmacies operated in the city of Barda in the early Middle Ages. The small perfume containers found in the graves, containing a special solution, were placed in the graves as a gift to the deceased.

The small containers found in Barda city were used not only for perfumes and medicinal solutions, but also for storing paint.

The fourth paragraph of Chapter II is named "**Glass Ornaments**" and deals with a large number of glass ornaments were discovered during the archaeological excavations conducted in Barda. Ornaments in Azerbaijan have a long history as an independent art form.¹⁴ Not only in Barda, but in general, the first glass items produced in history were decorative items. Its development started only from the IX century. This is confirmed by finding numerous material remains of that period.

During the production process, glass alloy, which is a semi-finished material, was used to make glass ornaments. Glass ornaments were made in various shapes and colors. Many glass ornaments consisting of beads and bracelets of different colors were found in the archaeological monuments of Barda. Most of the glass ornaments found in the city of Barda belong to the ancient period (IV-III century BC) according to the archaeological evidence. While investigating the research topic, various types and varieties of ornaments were comprehensively studied, described and classified. Various types and varieties of glass ornaments found in Barda were involved in a comprehensive study, described and classified. The glass ornaments discovered from Barda were conventionally divided into three large groups and studied under the name: 1. Bracelets, 2. Beads, 3. Rings.

The fifth paragraph of Chapter II is named "Glass Bracelets". In this paragraph it is stated that the bracelets which found in Barda are very different in shape and color. Quantitative analysis results show that bracelets are the most common type of jewelry. Basically, three types of bangle shapes are common, including round body, smooth-

¹⁴ Rəcəbova, B.B. Azərbaycanın ənənəvi sənətkarlıq məmulatı və isehsalı tarixindən (IV-XVII əsrlər)/ B.B.Rəcəbova. – Bakı: Elm, -2009, -180 s.

flat and twisted bangles. Based on the color of the glass bracelets found in Barda, they can be divided into separate chronological periods. Among the bracelets, black, green, blue, blue, transparent glass bracelets prevail.

The sixth paragraph of Chapter II is named "**Glass rings, beads and pendants**" and it deals with beads, which are one of the most common types of ornaments, up to 350 found in Barda archaeological excavations. It is reported that glass rings and other types of ornaments are not very common among barda glass ornaments. These rings were mostly flat-protruded, without eyebrows. These rings were discovered from the IX-XII centuries.

Beads, which are the most common type of jewelry found in Barda, have different morphological and technological information. Morphologically, beads divided into several groups have a round, rhombic, tubular, screw-shaped, rib-shaped, conical appearance. When studying beads, all forms of beads produced in Azerbaijan (Caucasus Albania)¹⁵ are encountered. Glass beads found in shades of green and brown are local glass due to their production characteristics.

One of the pendants with decorative glass objects found in Barda is a glass object called "shaitan". This one-of-a-kind example is made of quality grayish clear glass. This studied object resembles the head of some animal. The pendant was discovered from an archaeological layer dating back to the XII century. It should be noted that this item is a stylized zoomorphic object and has an ethnographic meaning.

Among the beads found in Barda, locally produced products prevail. The location of the city on trade routes led to the acquisition of imported beads.

Chapter III of the dissertation is named "**Technological and technical characteristics of glassware production in Barda**". In the first paragraph of this chapter is named "**Chemical-technological characteristics of Barda glassware**" it is explained that there are special conditions for the creation of a number of crafts since ancient times. Here it is shown that among the types of crafts, glass crafts have

¹⁵ Безбородов, И.А. Стеклоделие в древней Руси. / И.А.Безбородов. -Минск: Академия наук БССР,-1956, -92 с.

a special place. The location of the city of Barda near the Lesser Caucasus mountain range made it convenient for obtaining natural raw materials for glass. At the same time, there were abundant forests with natural tree species that were suitable for obtaining high heat for melting the raw material mixture to obtain the glass solution and they were used.

Collecting and mixing the raw materials needed to produce glass required great skill from the craftsman. First of all, it consists of collecting sand containing quartz (silicon oxide-SiO₂), the main material for glass production. The quartz-containing raw materials used for glass production were formed as a result of natural weathering of mountain rocks. At the same time, the sand contained other substances. These are aluminum oxide (Al₂O₃), iron oxide (Fe₂O₃), or magnesium oxide (MgO), calcium oxide (CaO), potassium oxide (K₂O), etc. consisted of Calcium (CaO) solution was obtained from wood ash.¹⁶

During the production of glass, Bardali craftsmen used various methods to make the glassware clean, transparent and beautiful. For this, they used different materials. This is proved by the chemical analysis of the glass samples discovered during the archaeological excavations in Barda¹⁷, which determined the content of calcium oxide. This shows that wood ash is widely used in the production of those glasses. Interestingly, the master added ash to the glass mixture as an alkali during the melting process. They had to sift through the sand and remove foreign, unnecessary objects from it. Because the sand mixture contained unnecessary substances (limestone and river stone fragments, large pieces of sand, etc.), which did not allow the glass solution to melt properly, and also prevented the composition of the solution from being obtained in the desired purity.

The study of the production technology of glass products in Barda suggests that great experience in the production of glass products was created, developed and became a tradition in the ancient

¹⁶ Фоменко, В.П. О технике изготовления стеклянных изделия из Байлакана (Оренкала).// В.П.Фоменко. – Баку: МКА, том VIII, -1976, -с.219-22

¹⁷ Качалов, Н.Н. Стекло. / Н.Н.Качалов. -Москва: Издательство Академии наук СССР,- 1959, -465 с.

and medieval ages. Important results were obtained by making comparisons with the chemical analysis of ancient glasses found in Barda and other monuments.

In the second paragraph of Chapter III is named "**Glassware production technique**", and it deals with a collection of knowledge about the ability to prepare glassware, production methods and tools during the production process.

Glass production in Barda, which started with the method of casting in a mold, which is a primitive glass product production method, continued with mold blowing and free blowing methods, and various types and different shapes of products were produced. Undoubtedly, the glass craft, which was natural in the early period of feudalism, developed into a field that produced goods for the market.

If the Barda area has favorable conditions for the creation and development of glass crafts, it is a sign of its natural-geographical feature, and the acquisition of a large number of different types, shapes, varieties and colors of glass products is a characteristic feature of the development of the craft.

While analyzing the technological and technical characteristics of the glassware of Barda city, its chemical-technological characteristics, production technique and technology of glassware are focused on, which allows to determine the level of glassware production.

The discovery of the glass alloy and raw materials of the 5th-8th centuries discovered in Barda, and the presence of glass melting spheres in this region at the same time indicate the massive nature of local production.

The scientific analysis of glass samples obtained from different excavation layers in Barda allows to follow the evolutionary process of glass craftsmanship. The study of that glass product shows that the production of glass ornaments began in antiquity, and the production of glassware, as well as laboratory and perfume containers, began in the early Middle Ages.

The first paragraph of the Chapter III is named "**Technical characteristics of Barda glassware and the chronological sequence of production period**", and deals with the chronological sequence of

the technical characteristics of Barda glassware is interpreted with reference to modern research methods and new research works. Attention is paid to the conditions particularly in which the discovered specimens were found and to the justification of the dates of the layers in which they were found. At this time, the development direction of their production technique is determined by involving a part of Barda glass products in the research. While developing the research topic, we follow the studied glassware in the period of Antiquity, Early Middle Ages and Advanced Middle Ages. Most of Barda glassware was discovered from the VIII-IX centuries. We also follow the development of glass production during this period.

Fragments of Barda's glassware were restored in most cases on the basis of whole copies, and the characteristics of the production technique were determined.

The third paragraph of Chapter III is named "**Folklore examples related to glass and references to glass in the works of Azerbaijani classics**" it deals with the widespread distribution of glass in household items and its important place in the life of the population for centuries are explained. Folklore-ethnographic observations about glass in the Barda area - examples of folklore about glass, references to glass in the works of Azerbaijani classics, ethnographic information about glass allow us to determine the place and role of glass in the spiritual life of the people of Barda.

Glass household items have occupied an important place in the life of the population for centuries, and gained special importance in the Middle Ages. Among the population of Barda, there are a large number of proverbs and folklore examples related to glass items, and a large number of poems glorifying the beauty of glass, folk-ethnographic information have been collected in the anthology of Azerbaijani folklore. In the anthology of Azerbaijani folklore, many old sayings (bayati) ¹⁸ glorifying the beauty of glass have been collected.

¹⁸ Bayatılar. Tərtib edən və ön söz müəllifi -V.Vəliyev, red. -A.Vəfalı // -Bakı: Yazıçı, -1985, -199 s.

In one tale, the physical beauty of a person was compared to the transparency and fragility of glass, and it was emphasized that since ancient times in Azerbaijan, glass has been valued as a symbol of delicacy and fragility. Here too, using the physical essence of the glass, a spiritual concept has been brought to attention. Interesting information about glass is given in the works of N.Ganjav,¹⁹ Mohammad Fuzuli²⁰, Khagani Shirvani²¹, among the Azerbaijani classics. In these works, the divine force that keeps the human heart alive was presented as glass, and it was mentioned that the human heart is as fragile as glass. According to tradition, glass is considered a calming presence.

One of the interesting issues related to the glass in the first paragraph of the third sub-chapter of the third sub-chapter of the dissertation entitled "**Ethnographic data on the glass**" is that the glass has been considered a symbol of purity for a long time from an ethnographic point of view. "Pure-clean, like glass", "pure as glass, transparent", "like crystal", "water clear as crystal" etc. are widespread among the people. Some ideas in the meaning of purity, cleanliness, and clarity are still used in the El language.

Traditionally, since ancient times, such a belief has been preserved that if a glass is tested at home before any ceremony, it was thought that any planned work will be successful. There is even such a belief among the people that if one glass container is limited, its number should be increased to three²².

Among the population of Azerbaijan, one of the ethnographic traditions related to glass is related to beads, especially "gozmunjugu". People carry round transparent glass beads with eyelets on them to ward off evil forces and protect them from prying eyes. The amulet

¹⁹ Nizami Gəncəvi. Poemaları./redaktor R.M.Əliyev. -Bakı: Maarif, -1985, -550 s.

²⁰ Məhəmməd Füzuli. Leyli Məcnun/ redaktor –H.Araslı.//- Bakı: Yazıçı, -1984, -182 s.

²¹ Şirvani Xaqani. Seçilmiş əsərləri. /Tərtib ed. Məmmədəğa Sultanov.- Bakı: Lider, -2004, -672 s.

²² Abdullayev, B.A. Güzgülü xalq yaradıcılığıdır. //- Bakı:Azərbaycan jurnalı, -1980, № 1,-s.169-174

also represents an animal, a house, valuables - in general, property, etc. are used to protect.

The tattooed patterns on the beads and other bead pendants found in the archaeological monuments of Barda city convey different meanings, but also the meaning of infinity. The small glass perfume containers found in the graves were placed next to the deceased as a grave gift. The custom of burial with these objects was valued by the fact that the person will live forever. All these items not only provide information about the history of their production, but also provide information about the religious ideas and customs of the people living in that period.

In general, in the research topic, the ethnographic information related to the glass in the people's memory is also investigated and explained with the relevant archaeological glass.

Thus, as well as glassware entering the everyday life of the population, it also had a positive effect on the formation of its spiritual world. Folklore-ethnographic information about the glassware of Barda proves that the glassware of the city of Barda was valuable from a material point of view as well as from a spiritual point of view.

Conclusion. The research paper concludes with the following conclusions:

The city of Barda was one of the huge economic and trade centers of Azerbaijan in the Middle Ages and was a communication center on the main caravan routes.

The period of production of glass products discovered in Barda can be chronologically divided into the period of antiquity, the early Middle Ages, and the advanced Middle Ages. The heyday of Barda glassware falls on the VIII-IX centuries.

One of the main conditions that indicate the strong development of glass production in Barda is the availability of raw materials for glass production - sand, wood ash, limestone, etc. is rich with.

At first, glassmaking in Barda had a natural character, and later the main products of glass artisans were intended for the market.

Tableware, laboratory and perfume containers, as well as decorative items, especially bracelets, beads and rings, were widely

produced in Barda. Most of the tableware consists of cups, bowls and pots of various sizes.

Bottles are the most common among perfume containers.

The discovery of alembics from Barda, which were characteristic of the chemical vessels of the Muslim world of the East since the 10th century, also confirms the connections with other countries. The simple form of the medieval glass objects found in Barda, the large number of them, and a number of other features and signs confirm that this product is mainly a locally produced product.

Glass products produced in Middle Eastern countries were also discovered from Barda. Imported glass differs sharply from the glassware produced in Barda in terms of its shape, pattern and chemical composition.

The studied Barda glass has a different biochemical composition. Barda craftsmen used all available methods and various rules of the time for glass production, including mold casting, mold blowing and free blowing. In the ideology of the people, glass and glassware, a certain tradition related to its production, was founded, it generally became a symbol of purity and happiness. Therefore, many ceremonies, customs and beliefs related to glass have been formed among the people. Also, interesting ideas about glass have taken place in folk customs, reflected in folklore, folk creativity and poems of poets.

By studying the glassware found in Barda during archaeological excavations, I believe that I have succeeded in learning the history of the appearance and development of glassware, which occupies a special place in the history of craftsmanship of one of the ancient cities of Azerbaijan, in antiquity and the Middle Ages, and thereby solving an actual problem of our history.

The glass ware discovered from Barda belongs to the same group according to the production technique and has similarities with the production technique of the countries of Central Asia and the Middle East. Bardali masters produced glass products of various colors and types. On the basis of experience, glassmakers have mastered the technology of selecting, melting and obtaining different colors of the raw materials that make up the composition of glass.

The main content of the dissertation is reflected in the author's published scientific works:

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22. Glassware production technique in Barda during the early middle ages. VII International New York academic research congress on humanities and social sciences proceedings book, Turkey, USA, - February 18-20, -2023, p.449-450

The defense of the dissertation will be held on _____2024 at _____ at the meeting of the Dissertation council ED 1.30 of Supreme Attestation Commission under the President of the Republic of Azerbaijan operating at A.A.Bakikhanov Institute of History and Ethnology of the Azerbaijan National Academy of Sciences.

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The dissertation is available at the Scientific Archive and Library of A.A.Bakikhanov Institute of History and Ethnology of the Azerbaijan National Academy of Sciences.

Electronic version of the abstract are available on the official website of A.A.Bakikhanov Institute of History and Ethnology of the Azerbaijan National Academy of Sciences.

Abstract was sent to the required addresses on _____2024.

Signed for print:
Paper format: A5
Volume: 39027
Circulation: 20