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GLASS BIJOUTERIE IN SAMPLES OF ANTIQUE CRIMEAN ART FROM MUSEUM COLLECTIONS OF UKRAINE AND RUSSIA

The article examines samples of glass bijouterie of the largest museum collections of Ukraine and the Russian Federation that include Crimean archaeological finds. During the Soviet period, Russia appropriated the best preserved specimens. Thus, out of the 54 selected items, 33 (and these are only bijouterie items) are collected in the State Hermitage. In this study, the items have been systematized by colour, place and date of discovery, transparency, size and decorative components of beads after careful analysis of each sample. A transparency scale and a colour palette have been created. The methods and places of glass production of the Ancient Era have been considered in the article. Finds of semi-finished products, as well as a large number of defective or deformed beads have been considered to indicate that they were manufactured locally. However, the results of the analysis of the chemical composition of glass in similar finds interpreted by Soviet scientists in the 1960s and 1970s have not been taken into account.

The nature of raw materials used for their manufacture cannot be determined unambiguously due to the fact that the coloured glass of beads often does not find parallels among the materials of the found glassware in terms of their composition. Samples of the Crimean region from the Ancient Era held in museum collections of Ukraine and the Russian Federation have been systematized according to their location for the first time. As a result, certain common features have been identified. All data on fifty items from four museums have been statistically processed and conclusions have been drawn based on percentages and an artistic and comparative analysis. For example, Chersonesus bijouterie is characterized by unique skilfully manufactured pendants in the form of a woman's or man's head. The most popular colours among the selected samples were white and light turquoise. There are also samples with clear imitation of precious stones and pearls. The beads with decorative components in the said period amounted to more than 50%, where the most popular decorative component, among others, was an eye bead.

Key words: glass, bijouterie, ancient art, Crimea, bead, necklace, antiquity.

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СКЛЯНІ ПРИКРАСИ В ЗРАЗКАХ АНТИЧНОГО МИСТЕЦТВА КРИМУ З МУЗЕЙНИХ КОЛЕКЦІЙ УКРАЇНИ ТА РОСІЇ

У статті розглядаються зразки скляних прикрас найбільших музейних колекцій України та Російської Федерації, які включають кримські археологічні знахідки. Росія за часів радянського періоду присвоїла собі найбільш уцілівши зразки, так з 54 обраних в Державному Ермітажі знаходяться 33, і це тільки прикраси. Вироби були систематизовані за кольором, місцем і датою знахідки, прозорістю, розміром та декоративною складовою намистин після ретельного аналізу кожного зразка. Створено шкалу прозорості та кольорну палітру. В статті розглянути способи та місця виробництва скла античного періоду, де ознаками вважається наявність знахідок напівфабрикатів, а також великої кількості бракованих або деформованих намистин. Проте не враховано результати аналізу хімічного складу скла аналогічних знахідок, інтерпретовані радянськими вченими у 1960-х та 1970-х роках. Характер сировини, використаного для їх виготовлення, не може бути визначений однозначно у зв'язку з тим, що кольорове скло намиста часто не знаходить паралелей серед матеріалів знайденого посуду за своїм складом. Вперше було систематизовані зразки Кримського регіону античної епохи, які перебувають у музейних зборах по місцю знаходження і виявлені певні відповідності. Усі дані з п'ятдесяти предметів із чотирьох музеїв статистично опрацьовано та зроблено висновки на основі відсоткового співвідношення та художньо-порівняльного аналізу. Так, наприклад особливостями херсонеських прикрас є наявність унікальних майстерно-виконаних підвісок у вигляді жіночої або чоловічої голови. Найпопулярнішими кольорами серед обраних зразків були білий та світло-бірюзовий, також зустрічаються зразки з явною імітацією дорогоцінного каміння та перлів. Наявність намистин з декором в озанчений період становило більш, як, 50%, де найпопулярнішим оздоблення подібних виробів в Криму був декор «з вічками», але зустрічаються і інші варіанти.

Ключові слова: скло, прикраси, античне мистецтво, Крим, намистина, намисто, античність.

Relevance. Judging by archaeological findings, bijouterie appeared in people's lives a great while ago and can be used not only to understand the aesthetic inclinations of consumers, but also determine the level and quality of the mastered technology, the distance of trade routes, which means cross-cultural interaction. Excavations and studies over the past hundred years have yielded a large amount of material, including glass items. However, no systematic research of various museum collections was carried out specifically on Crimean bijouterie.

Due to their fragility, glass items require special treatment and, therefore it is important to describe and classify the existing glass items in the museum collections of Ukraine. A number of difficulties during the work are related to the scientific processing of glass items, which is due to the insufficient descriptive base of most samples in Ukrainian museums and state of knowledge about the organization of glass production in the Late Antiquity period. That is why only those items that can be subjected to detailed analysis for scientific and accurate classification were chosen for the study.

Analysis of the latest research. All materials related to this research are rather generalized, comparative and descriptive in nature. Thus, glass bijouterie of the Ancient Era are in the focus of such art critics. In particular, O. Rumyantseva, in her publication "Glass bijouterie of Late Antiquity and the early Middle Ages: evidence of production, ethnographic parallels, problems of interpretation of archaeological material", considers the problems of systematization according to the chemical composition and means of production of beads.

Instead, Yu. Lichter and Yu. Shchapova, in their work "Hnizdovo beads based on the materials of excavations of barrows and settlements", developed a systematization of beads according to the method of their formation, design and chemical composition. At the same time, M. Kashuba and E. Kaeser, in their publication "Problems of studying glass products of the Bronze Age in the Northern Black Sea region", consider individual excavations, without comparing their own finds of artefacts with the results of other excavations in this region of the Ancient Era.

In this regard, to carry out a comprehensive study on the specified topic, it is necessary to use the analysis of materials from archaeological explorations, as well as photographs of works from museum collections. For this purpose, it is worth considering the collections of glass bijouterie that were found on the territory of Crimea and are kept in the following museums: the Chersonesus State Historical and Archaeological Museum-Reserve, the National Museum of the History of Ukraine, the Odesa Archaeological

Museum of the National Academy of Sciences of Ukraine and the State Hermitage Museum in St. Petersburg. After a thorough analysis of most of the collections kept in the mentioned museums, 54 items from the ancient cities – Chersonesus, Panticapaeum, Bosphorus and Scythian Neapolis were selected as a result. They were systematized according to colour, transparency and artistic features.

The purpose of the article is to determine the criteria for the systematization of the Ancient Era glass bijouterie of Crimean origin according to their artistic features.

Based on the geographical location, it should be noted that the Crimean peninsula belongs to the regions where early finds of glass and vitreous materials, similar to the heritage of other states of the Northern Black Sea region, have been discovered.

Analysing the conclusions of previous researchers of the Ancient Era, it should be noted that most of the beads cited by them are foreign samples connected with local trade, and not local production. For example, the city of Navkratis in Egypt was the most distant centre from which glass items from among the studied samples were imported (Боднар, 1954).

However, domestic manufacture on Crimean lands already existed in this period. Thus, two samples of glass items made by local workshops were found on the territory of Crimea. The first found furnace for melting glass was located in Alma-Kermen and dates back to the period of Roman rule on the peninsula around the 2nd century BC – 1st century AD.

The presence of semi-finished products, as well as a large number of defective or deformed, punctured beads as well as beads with deformed channels and other defects are considered to indicate that they were manufactured locally.

Next to the furnaces on the site of the Alma-Kermeni hill fort, the charge was prepared – a mixture of quartz sand and soda, derived during the burning of marine or forest plants (Кашуба, Казер, 2016: 25). Sometimes lead was added to the charge in small quantities, which gave the glass its strength and yellow colour. Probably, the furnace did not work for a long time, and its products were not numerous: at least, there are no glass pieces similar to those found at the site of manufacture in the burials on the hill fort.

This is the first example of the glassmaking industry on the territory of modern Ukraine. Instead, during the time of the Bosporan Kingdom, a primitive furnace in the form of an inverted neck with the shoulders of an amphora was found in Phanagoria. On this basis, it was possible to age-date the workshop to 530's BC.

It is also known about later glass furnaces in Chersonesus, the dating of which varies according to

the studies of individual authors. Thus, based on the low quality of the vessels, N. Sorokina and I. Hushchyna consider the products of the Chersonesus glass workshop to be similar to the Bosphorus balsamariums, which date back to the middle of the 1st century – the middle of the 3rd century AD (Белов, 1969).

The analysis of pieces from the museum collections of the Ancient Era of the Crimea and the Northern Black Sea region revealed that their description was inaccurate: errors in dimensions, dating, location, lack of fixation of material production, in particular with respect to items made of stone or glass. It was established that most of the studied findings consist of glass, rarely they are mixed necklaces, with an accurate description of the constituent parts. Here we can see that beads which are completely different in material, colour, size, and decorative components were attached to the same product.

Glass beads are usually classified according to production technology through systematizing traces of technological operations (surface condition and defects) or a chemical analysis. Based on the material available for the study, we should note that it is impossible to determine the way some of the products were made.

At the same time, we distinguish the works made:

- from tubes A 1–6, 8, 10–16
- from sticks A 7–9

– by winding method B 16, 17 (Ліхтер, Щаплова, 1991: 247).

Making beads by winding or mosaic methods represents more complicated technology. The quality of beads depends on the manufacturer's skills and quality of tools. Glass mass of different colour and composition and a craftsman who is skilful in the technology were required.

After careful analysis of the studies of predecessor scientists, the principle of systematization introduced by Yu. Shchapova was chosen for the classification of existing beads according to artistic features. So, the beads are distinguished by the following criteria.

– without decorative components in fig.1: samples 1–5, 11–16; column 9, table 1,

– decorative components applied by pressing the tube symmetrically from different sides with faces, or in the form of tubs or cylinders of different lengths and thicknesses: fig. 1, samples 6, 10, 13–15,

– decorative components applied with the help of moulds or tools to give the necessary shape: fig. 1, samples 2, 3, 12,

– decorative components applied by drawing with hot glass threads: 7-9,

– complex decorative components applied with the help of manipulations with tools and drawing (complex beads from Chersonesus in the form of a head).

In addition, it should be noted that beads and pendants differ in the position of the through hole: in the former, it passes through the centre of gravity of the body, and in the latter, the hole is always located higher than the centre of gravity and they are most often amphora-shaped.

Rounded shapes predominate among the studied beads. It should be noted that seed beads were not examined in this article (seed beads refer to beads made by method of dividing the tube by cutting and having a diameter of 2–3 mm).

The next classification was carried out according to colour and transparency criteria, taking into account the fact that there were no beads that were completely transparent, like modern glass, because the very first truly transparent beads began to be made at the end of the 17th century.

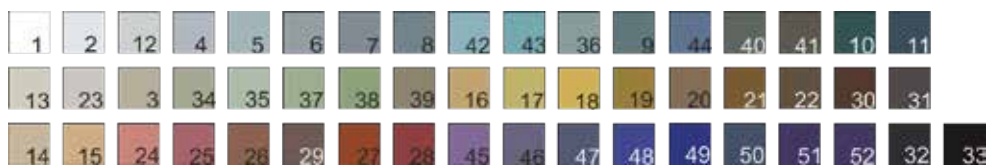


Fig. 1. Colour palette of glass bead colour samples made using the Corel Draw program

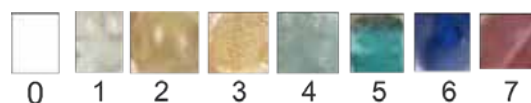


Fig. 2. Transparency scale: 0 – non-transparent, almost rough surface, 1 – transparent, almost like modern glass, 2 – transparent and bright surface, reminiscent of pearls, 3 – very bright surface, reminiscent of gold, 4 –cloudy glass surface reminiscent of glass used in modern bottles, 5 – almost non-transparent, but with a bright shine, 6 – non-transparent, but with a shine, reminiscent of ceramics, 7 – non-transparent, almost without shine

Glass is a material from the group of silicates, which is formed by fusion of three main elements: ash, sand and potash. It is burnt out at an average of 1400-1500 degrees Celsius.

The following items were chosen to carry out an art study of art glass bijouterie stored in museums of Ukraine: 1.34–1.40 Chersonesus State Historical and Archaeological Museum-Reserve 1.41–1.49 Odesa Archaeological Museum 1.50–1.54 National Museum of the History of Ukraine, Kyiv and 1.1– 1.33 Russia State Hermitage Museum:

1.1. A 16.3 cm long string of 12 beads with different composition (glass, lignite, faience, paste) and colours. The following colours in particular can be found according to the above mentioned palette: 1, 2, 4, 5, 17, 18, 48. Especially it is worth emphasizing that the composition of single-toned light turquoise beads is combined with eye beads of the same colour as in beads with glass paste faces. According to the degree of transparency, all the mentioned beads are be classified as types 5 and 6, i.e., there are no transparent beads among them. This item was found in Panticapaeum and dates back to the 6th century BC – 4th century AD.

1.2. A 17 cm long string of 29 beads with a central, much larger faceted bead and all other rounded beads. It was found in Panticapaeum and dates back to the 6th century BC – 4th century AD. The subdued colouring of beads – 13, 14, 15, 38, 47 – clearly imitates dark and light pearls. According to their transparency, the beads can be classified as type 2 and 4.

1.3. A string of 113 black beads made of glass paste, combined into a minimalist ensemble that could be used as both male and female bijouterie. It was found in Panticapaeum. It is 51 cm long, opaque beads correspond to types 0 and 6. This string dates back to the 6th century BC – 4th century AD.

1.4. A 85 cm long bijouterie item consists of 329 pieces. Beads from Panticapaeum are distinguished by different shapes: cylinder, sphere and disc. The ensemble consists of patterns and is made of various materials – glass, lignite, faience, glass paste. The colour scheme of the items is based on a combination that corresponds to palette numbers 3, 13, 16, 34, 48, 50. As for the transparency criterion, most beads correspond to 0, but 3 golden beads belong to the second type of transparency. The emphasis on bright shiny beads against the background of the matte grey majority makes this bijouterie very attractive.

1.5. A 60 cm long string of 73 beads from Panticapaeum, dates to the 6th century BC – 4th century AD. The bright colour palette corresponds to numbers 1, 2, 3, 4, 10, 12, 14, 15, 24, 32, 38, 45 of different degrees of transparency – 2, 4, 5. The

ensemble includes, in addition to glass ones, beads from chalcedony, amethyst and carnelian.

1.6. A 21 cm long string of 17 beads, without shine, corresponds to numbers 2, 4, 6 on the transparency scale. This bijouterie piece has an unusual composition and colour scheme: 1, 2, 4–6, 10, 27, 28, 32. There are beads with eyes, stripes and waves. The item includes beads made of glass, glass paste and faience. It was found in Panticapaeum and dates to the 6th century BC – 4th century AD.

1.7. A 13 cm long string of 7 glass beads, transparency: 0, a wide colour palette: 1, 2, 5, 32, 35, 42, 43. The item was made using various techniques: from tubes, sticks and amphora-shaped beads skilfully made by winding. The beads date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.8. A 3 cm long string of 6 beads. Each of them is of unique goldish colour (15, 42), has a shine, and is classified 3 in the transparency scale. It resembles aventurine, supplemented with a light blue bead with a rough surface. Quite possible that there were many more of these beads in the chaplet. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.9. A 14.4 cm long string of 14 glass beads, made of clusters of different colours (2, 3, 5, 16, 18, 30, 42, 51) and transparency (0, 6). The beads have decorative components “eyes” and “stripes”. There is also an exceptional spindle-shaped bead in the form of wasp’s belly. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.10. A 10 cm long string of 6 striped beads, where one bead is much larger than the others and has an ornament of yellow and blue colours, transparency: 0.2 (one bead is too transparent for a fossil artefact of the Ancient Era). All beads correspond to palette numbers 1, 2, 14, 31, 42, 51. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.11. A 18.6 cm long string of 16 glass beads, four of which are imitation pearls and 12 are similar to blue and green ceramic bars (1, 2, 5 10, 38, 48), non-transparent (0, 2). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.12. A 86 cm long string of 58 beads, which are made of glass, glass paste, carnelian, amber and chalcedony. Many different variations of decorative components, colours: 3–5, 25–28, 33, 37, 47, 51, and sizes, united by almost the same transparency (4, 7). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.13. A 33 cm long string of 33 beads, made of glass, glass paste, agate, lignite, amber and amethyst. An unusual composition with an amphora-like pendant. A combination of different colours (1–5, 13, 24–30, 33, 42) and transparency (0, 6, 7). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.14. A 15 cm long string of 20 beads, made in a blue colour, non-transparent (0), colours correspond to numbers 1-4, 8, 33, 37, 42, 44, 47, 48, consists of glass, faience and lignite. Pyramidal pendants are added to the composition where most beads have an “eye” decorative component. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.15 A 8.5 cm long string of 20 beads made of opaque glass paste (0) in one colour (47, 48), imitate raw amethyst stones. Beads have no decorative components and are of a rectangular shape. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.16. A 41.5 cm long string of 74 beads made of glass, glass paste, faience, lignite and carnelian. It is unique due to the presence of gold-glass elements and painted and eye beads. The colours are varied (1–5, 16, 24–26, 33, 42, 44), transparency: 2, 4, 7. They date back to the 6th century BC – 3rd century AD and were found on the territory of Panticapaeum.

1.17. A 12.6 cm long string of 73 beads made of glass and glass paste with a similar level of transparency and shine: 4, 5, 6. There are elements containing decorative components, but most of them imitate stones and pearls, with a wide colour palette 1-3, 7, 24-29, 34–37, 46. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.18. A 8 cm long string of 18 beads, non-transparent (0) and consisting of rare green glass (2, 3, 10, 13 – 15, 10, 27, 31, 33, 38, 46), glass paste and lignite. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.19. A 49 cm long string of 50 beads in one colour scheme (1–4, 35). The uniqueness of the necklace is in the presence of almost transparent beads, colours: 1, 2; transparency: 1. The ensemble consists of rock crystal, agate and chalcedony. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.20. A string of 147 glass beads of different sizes and colours: 1–6, 15, 16, 25, 26, 32, 43, 40, 51, and transparency: 1, 2, 4. The ensemble consists of gold-glass beads that imitate pearls, made from cloudy glass, as well as beads with different variations of decorative

components: eyes, stripes and depressed facets. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.21. A string of 74 beads made of glass and glass paste, almost free of shine and decorative components. Colours: 1, 2, 3, 24, 26, 47, 48, transparency: 0, 7. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.22. A 28 cm long string of 120 beads made of glass paste. The beads are made in one size and blue-violet colour: 46, 47; almost free of shine, reminiscent of ceramics; transparency: 0. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.23. Glass bead with "eye" decorative components, 0.8 cm long, free of shine, non-transparent: 0, colours: 15, 17, 47. The only sample from the city of Nymphaeum. Dates back to the 6th century BC – 4th century AD.

1.24. A 28.5 cm long string of 46 beads, in the form of two cones connected by a base, with a high degree of transparency: 1, in blue colour: 48, 49, without decorative components. They were found on the territory of Panticapaeum and date back to the 6th century BC – 4th century AD. However, the author has doubts about the correct dating, because similar transparency/shape/colour chaplets of this period were not found anywhere else.

1.25. A 19 cm long string of 79 glass beads, non-transparent (7), free of decorative components, of almost the same size and colour (47–52). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.26. A 7.4 cm long string of 10 glass beads, made from glass paste and carnelian, without decorative components and with a pyramid pendant in various colours (3, 15, 27, 42). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.27. A 32 cm long string of 90 beads made of glass, glass paste of various sizes, colours (12-16, 30, 43, 44, 47) and transparency (0, 1, 5). 7 beads with a rare decorative components with stripes in the form of waves, as well as gold-glass and imitation pearls beads. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.28. A 5.1 cm long string of 4 opaque glass (0) beads of various sizes, where one is a large lenticular bead with six large eye balls. Colours: 10, 28, 32, 51. They date back to the 4th century BC – 3rd century AD and were found on the territory of Panticapaeum.

1.29. A 13.8 cm long string of 6 beads made from glass, glass paste and carnelian. The glass bead is made by

glass winding method and decorated according to the "eye" style. They are of different transparency (4, 7) and colour (17, 27, 47, 51). They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.30. A 8 cm long string of 8 glass beads, made from glass paste and lignite of different sizes and colours (20, 22, 33, 38, 52), transparency (0, 7), different shapes, reminiscent of ceramics. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.31. A 41 cm long string of 115 small beads made of glass, glass paste, carnelian, lignite of various sizes, transparency (0-7) and colour (1-6, 15, 18, 21, 26-28, 33, 42, 43, 48), but of a similar shape. They date back to the 6th century BC – 4th century AD and were found on the territory of Panticapaeum.

1.32. One 3.1 cm long bead, grey-green (5), non-transparent (4), with a round-oval shaped glass insert. The sample was found on the territory of Chersonesus. It dates back to the 3rd century BC – 3rd century AD.

1.33. One 3.2 cm long bead, grey-green (12), non-transparent (4), a round glass insert with one flat facet and the opposite one in the shape of a cone. The sample was found on the territory of Chersonesus and dates back to the 1st century BC – 3rd century AD.

1.34. A string of 8 glass beads in various sizes, colours (1-5, 32, 37, 47) and shapes, non-transparent (6, 7), seven of the beads are smooth. One of the beads has facets. The sample was found on the territory of Chersonesus and dates back to the 1st century BC – 3rd century AD.

1.35. A 3.1 cm long figured pendant in the form of a demon head in red, blue and white, respectively (1, 28, 48–51), almost non-transparent, with ceramic shine. It dates back to the 6th century BC – 4th century AD and was found on the territory of Panticapaeum.

1.36. A 3.3 cm long figured pendant in the form of a rooster head in blue, white and yellow (1, 18, 51, 52), non-transparent (0), with ceramic shine. This sample was found in Chersonesus and dates back to the 6th century BC – 3rd century AD, the manufacture style corresponds to samples 1.35, 1.37, 1.38, 1.39, 1.40.

1.37. A 3.2 cm long figured pendant in the form of a bearded male head, in blue, white and bright yellow (1, 18, 48, 49, 52), non-transparent (0), with ceramic shine. This sample was found in Chersonesus and dates back to the 6th century BC – 3rd century AD, the manufacture style corresponds to samples 1.35, 1.36, 1.37, 1.38, 1.40. 1.35, 1.36, 1.38, 1.39, 1.40.

1.38. A 3.1 cm long figured pendant in the form of a bearded male head in blue, white, turquoise and yellow (14, 18, 43, 49), non-transparent (0), with ceramic shine. This sample was found in Chersonesus

and dates back to the 6th century BC – 3rd century AD, the manufacture style corresponds to samples 1.35, 1.36, 1.37, 1.39, 1.40

1.39. Two 2.8 cm long figured pendants in the form of a face in blue, white and bright yellow colours (1, 18, 48, 49), non-transparent (0), with ceramic shine. This sample was found in Chersonesus and dates back to the 6th century BC – 3rd century AD, the manufacture style corresponds to samples 1.35, 1.36, 1.37, 1.38, 1.40.



Fig. 3 Beads from the exposition of the Chersonesus State Historical and Archaeological Museum-Reserve

1.40. A 5.0 cm long figured pendant in the form of a bearded man's head in blue, white and yellow colours (1, 18, 48, 49), non-transparent (0), with ceramic shine. This sample was found in Chersonesus. It dates back to the 6th century BC and 3rd century AD, the manufacture style corresponds to samples 1.35, 1.36, 1.37, 1.38, 1.39.



Fig. 4. Bijouterie found in the Crimea from the exposition of the Odessa Archaeological Museum

1.41. A string of 30 beads made of glass and glass paste of various types of compositions (with eyes, stripes, waves), sizes (0.5 cm – 3.5 cm), colours (2, 11, 12-14, 44, 47, 49) and transparency (0, 7). Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.42. A string of 45 beads in one colour scheme (1-3, 12-14), imitation pearls without decorative components, with a large transparent (1) central pendant, and gold glass beads (3). Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.43. A string of 9 glass, glass paste and agate beads in the same colour scheme (1-3), composition and transparency (1). Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.44. A string of 48 glass and glass paste beads, non-transparent (0), in various shades of turquoise (2, 12–14, 11, 35, 37, 42, 43, 47) with facets and three amphora-like pendants. Dates back to the 3rd century BC – 1st century AD, found on the territory of the Bosporan Kingdom.

1.45. A string of 82 beads in a rhythmic composition with eight elongated cylindrical and round beads of medium transparency (4, 7) and imitation pearls with colour variations 12–14, 23, 24, 26, 29. Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.46. A string of 17 glass beads, highly transparent (4, 5, 6), but not completely transparent as in other antique examples (1.24, 1.42, 1.43) with different variations of pendant decorative components and a lavalier consisting of four beads. Colours: 5, 11–14, 36, 37, 43, 44, 47, the same type of decorative components. Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.47. A string of 32 glass beads of various colours (12–14, 16, 19, 21, 22, 26, 39, 40, 47) and decorative components, most of them are non-transparent (4) and round in shape. Many beads are decorated with "eyes". Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.48. A string of 26 beads made of glass and glass paste, transparency: 1-6, decorative components: eyes, facets, imitation of amethyst, rock crystal and pearls, colour variations: 1–3, 5, 9, 12, 42, 43, 46. Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.49. A string of 22 beads made of glass, glass paste and faience. Combination of colours (1–3, 5, 16, 23, 49–52), transparency (1, 2, 6). There is a gold-glass (2) bead, an eye bead, a transparent (1) bead, and two blue beads made of tubes. Dates back to the 3rd century BC -1st century AD, found on the territory of the Bosporan Kingdom.

1.50. A string of 11 beads of the same size and transparency (0), with various variations of decorative components: simple without decorative components; with eyes; with stripes; with facets. They differ in colour (1–4, 12, 23, 33, 56). Dates back to the 3rd century BC -1st century AD, found on the territory of Panticapaeum.

1.51. A string of 27 small glass beads, high shine and transparency (1, 2), made in one style and by unusual colourful piercings (1–3, 12–15), without decorative components. Dates back to the 3rd

century BC -1st century AD, found on the territory of Panticapaeum.

1.52. A string of 11 beads made of glass, glass paste and faience with a matte and non-transparent surface (0). The composition includes a pendant and one dark bead with an unusual decorative component of intersecting stripes. The colours of the beads correspond to numbers 2–6, 23, 24, 33, 43, 44. Dates back to the 3rd century BC -1st century AD, found on the territory of Panticapaeum.

1.53. A string of 19 beads made of glass, glass paste and faience, with decorative components: eyes or facets, or without any decorative components, almost transparent white (1), the colours of the beads correspond to numbers 11-13, 16, 26, 33, 42-44. Dates back to the 3rd century BC -1st century AD, found on the territory of Chersonesus.

1.54. A string of 71 beads made of glass, glass paste and faience, transparent (7), a rhythmic composition of beads without decorative components, colour fluctuations (1, 12–15, 24, 27, 33, 36). Dates back to the 3rd century BC -1st century AD, found on the territory of Scythian Neapolis.

Conclusions. After a careful analysis of the samples, it can be concluded that plain glass bijouterie of the Ancient Era was not very popular in the Crimea (3 out of 54 ensembles which is 5%), while decorated beads in the said period accounted for more than 50%. The eye decorative components were the most popular in such bijouterie pieces in Crimea (26% of all samples). The length of the examined beads varies from 0.4 cm to 4 cm. When examining the transparency and shine of the samples, we see the following pattern: glass beads are combined in the item with other beads (in particular stone ones) according to similar indicators.

The particular features of Chersonesus bijouterie are unique skilfully made pendants and beads. In this regard, it can be assumed that these are the first examples of imitation of precious materials, in this case – pearls. It is also worth paying attention to the fact that truly transparent beads, which resemble modern glass, are found in only two bijouterie items, which make up 3.7% of all samples. The most popular colours at that time in glass bijouterie were white and milky, while light turquoise is also found in a tonal range from light to bright, which makes up 35% of all beads. Also, shades of blue and flesh colours make up about 30% of the total number of items. Instead, black colour is found in only 23% of bijouterie items, other colours were used much less often, for example, mustard-yellow was used only once.

Such percentage ratios in terms of colour are visualized for 83% of bijouterie where there are more than three and up to ten colours in one item. This may

indicate both the trends of the fashion at that time and the specifics of the paying capacity in the ancient period, when the inhabitants of Crimea could afford to purchase only several beads at different times and assembled them by themselves into necklaces, just as the inhabitants of the territories of mainland Ukraine did when forming the Ukrainian national costume in the 18th–19th centuries.

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