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OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2022 Issue: 09 Volume: 113

Published: 30.09.2022 <http://T-Science.org>

Issue

Article



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ABOUT THE HISTORY OF CONSERVATION OF SOGDIAN WALL PAINTING FROM VARAKSHA

Abstract: This article presents the history of the study and analysis of the wall paintings found at the archaeological site of Varakhsha, one of the oldest historical-cultural regions Central Asia Sogd (Sogdiana) and known from the scientific literature. In particular, the methods of conservation of paintings in the field and laboratory conditions, the properties of chemicals, as well as the activities of the chemists and artist-restorers who were directly involved in the process of removing and conservation of wall paintings.

Key words: Ancient Sogd, Varakhsha, archeology, monument, wall painting, analysis, methods, conservation, chemist, artist-restorer.

Language: English

Citation: Ulmasov, A. F. (2022). About the history of conservation of Sogdian wall painting from Varakhsha. *ISJ Theoretical & Applied Science*, 09 (113), 179-184.

Soi: <http://s-o-i.org/1.1/TAS-09-113-34> **Doi:**  <https://dx.doi.org/10.15863/TAS.2022.09.113.34>

Scopus ASCC: 1200.

Introduction

On the territory of Central Asia, in particular Uzbekistan, wall paintings were found on many monuments of the early middle ages, such as Afrasiab, Varakhsha, Balaliktepa, Tavka, etc. The paintings of these monuments have much in common, in particular raw materials, techniques and technology, style and etc. But plots, colors, drawing and painting styles, composition of paintings are differ. Since their discovery, these elegant and graceful masterpieces have demanded special attention. They need to be fixed in place, processed in the laboratory, and most importantly, their museification is a uniquely complex process. This article discusses the issue of preserving

unique monuments of this type on the example of Varakhsha wall paintings by specialists involved in this process.

Varakhsha is located 30 kilometers west of Bukhara (Uzbekistan). This is part of an ancient settlement, on the territory of which there was a residence of the Bukharkhudats, who ruled in the Bukhara oasis before the Arab conquest. In the XI century, life on Varakhsha stops. The reasons for the decline of Varakhshi was the lack of water in the irrigation systems of the oasis. The area of the settlement is 100 hectares (Fig. 1).

Historical context



Fig 1. Archaeological site Varakhsha in Bukhara. 6th-7th centuries A.D.
(photo by author)

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The wall painting of Varakhsha is not only sufficiently studied and published in the scientific literature, but are also known and popular with the general public. These works of art were discovered as a result of archaeological excavations carried out in 1937-1954 by the archaeological expedition of the Institute of History and Archeology of Uzbekistan of the Academy of Sciences of Uzbekistan under the leadership of famous archaeologist V.A. Shishkin [8, p.250]. The murals date back to the end of the 6th – 7th

centuries, and were found on the monument after the reconstruction of the palace building (Fig. 2).

The paintings on the walls of the East and Red Halls of the palace are painted in polychrome colors and differ in subject matter and color. The East Hall was dominated by a complex color combination of blue, grey, pink, yellow and red, while the Red Hall used white, red, yellow, black and their shades. As for the themes of the murals, the East Hall reflects palace life, while the murals in the Red Hall represent a hunting scene involving elephants [10, p. 55].



Fig 2. The Wall Painting of Red Hall, Varakhsha. 6th-7th centuries A.D.
(source: <https://www.centralasia-travel.com>)

Technique of Wall Painting

The painting technique is the same as for the paintings found in other similar monuments of Central Asia. That is, a wall made of raw brick or “*pakhsa*” (sometimes in mixed technique from both) is plastered with clay mixed with straw (sometimes cane). A thin second layer is applied on top of the clay plaster layer, which serves as the base. A white paint is applied to a smooth surface, consisting of a mixture of chalk and natural glue (sometimes “*ganch*” – *clay gypsum*), and this layer serves as a background. The researchers described in detail the composition of the glue added to the dyes, noting that it is obtained from the root of the eremurus plant, common in Central Asia. The author also established that the plaster was applied in two layers: the first (black plaster) was applied directly in a thick layer on the wall, and the next (white plaster) was applied on top of it. The last layer is carefully sanded with clay to get a smooth surface. Next, a thin white primer was applied to apply the pattern. According to V.N. Kononova, analysis of a soil sample in Panjakent shows that the primer was made of gypsum with the addition of kaolin [8, p.151], (Fig. 3).

The History of Conservation

As noted above, the Varakhsha murals are known and popular not only among scientists, but also among the public. However, little is known about the colossal work of restorers, thanks to whom the murals were saved and survived to this day. From the notes of V.A. Shishkin, can find out that archaeologist L.I. Albaum, architect-painter V.A. Nilsen, V.N. Kedrin and G.N. Nikitin took part in the 1949 expeditions. There are records in archival materials, the artist-restorer P.I. Kostrov and E.G. Sheinina were invited to the expedition from the Hermitage for a short time. Among the diary notes of 1950, it is recorded that numerous fragments of paintings were found among the dumps, and five large fragments were copied and painted with watercolors. According to the description of V.A. Shishkin, the painting technique was similar to the paintings on the palace wall, but differed in background and drawings. Examining these fragments, the researcher noticed that these images belong to a much later period, i.e. 11th century [3, p. 6].

¹ Pakhsa – a multi-layer pressed clay, rectangular in shape, used for buildings in Central Asia.

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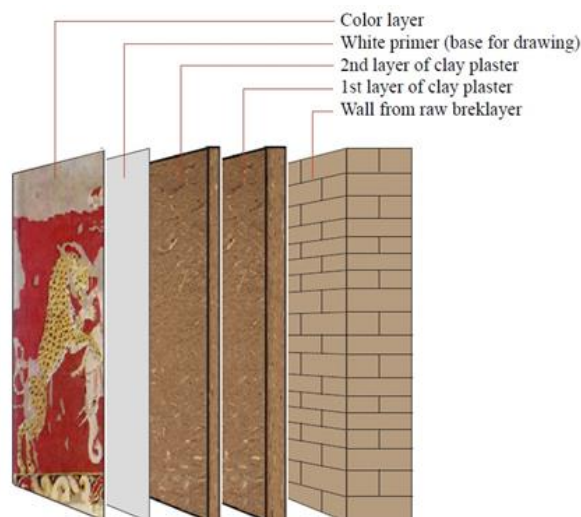


Fig 3. The structure of Varakhsha's Wall Painting
(based on Shishkin V.A. Varakhsha. Ed. AN SSSR. 1963. – P. 151)

Under the guidance of the artist-restorer P.I. Kostrov, restorers I.B. Bentovich and E.G. Sheinin, who worked in the Hermitage in the late 40s of the last century. I.B. Bentovich and E.G. Sheynina, in collaboration with chemists, worked on the creation of new developments in the field of conservation and restoration. They were the first to create a solution of the chemical polybutyl methacrylate (PBMA) in

organic solvents, which was developed to fix wall paintings. This elaboration was first used in the conservation of paintings found on the monument of Penjikent in 1952-1954 with the participation of I.B. Bentovich and E.G. Sheinina directly under the guidance of P.I. Kostrov [6, p. 139].



Fig 4. Restorers in process of removing wall painting layer (source: IICAS,2015)

In the 1970s, the Institute of Archeology of the Academy of Sciences of the Republic of Uzbekistan and the Moscow Institute of Restoration organized a joint expedition to continue researching the monument. It was necessary to remove the paintings on the southern wall of the Blue Hall. Later, in 1987-

1991, excavations were carried out at the site by the "Central Asian Archaeological Expedition" led by G.V. Shishkina. As a result, a large collection of architectural decorations was discovered on the territory of the Palace, and fragments of the painting of the Red and Western Halls of the Palace were

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copied, among which was a hunting scene with elephants in the Red Hall, known from scientific and popular literature [2, p. 88].

It should be noted that other scientific institutions were also engaged in the conservation of the Varakhsha paintings. For example, in 1974, specialists from the All-Union Central Research Laboratory for the Conservation and Restoration (now The State Research Institute for Restoration – GOSNIIR) of museum valuables worked at this monument, who conducted experiments on the field conservation of monumental paintings on a clay basis. At the first stage, they used new synthetic polymeric substances to strengthen the layers of paint and clay in the paintings. The experience of using polyvinyl alcohol (PVA) was also tested to increase the mechanical strength of the edges of the walls and seal the initially hardened surfaces (Fig. 4). As a test, on some fragments, where the remnants of the paint layer, preserved by the experts, were fixed with different resin adhesives in different solvents. In particular, low-viscosity and high-viscosity PBMA

solution, polymers of the BMK-5 type, PVA and solvents such as xylene, acetone, ethyl acetate, propanol and ethyl alcohols, water were used [4, p. 11].

The specialists of this Central Laboratory also carried out physical and chemical analyzes of soils and pigments of magnificent paintings found in many ancient archaeological sites of Central Asia. In particular, the analysis of the red paint used in the painting of Varakhshi showed that it was made from mercury (HgS). In their studies, they used the methods of microcrystallography, chromatography and infrared spectroscopy. As a result of these analyses, the authors were able to isolate the components used in painting - binders containing proteins and carbohydrates. It turned out that as binding pigments in the processing of paintings, the craftsmen used animal (gluten) and casein, flour glue, as well as egg white and wood glue (gum), as well as carbohydrates such as honey, sugar and milk [5, p. 17].



Fig 5. Restorers in process of fixing wall painting layer (source: IICAS,2015)

The Restorers, who involved conservation

As for the restorers, first of all it is necessary to mention P.I. Kostrov, who made a significant contribution to the preservation of the murals. In Information about Pavel Ivanovich Kostrov there is fiction, for example, in the novel by Yu.B. Ripenko and V.A. Chernukhin "General Pyadusov" says that before the war he worked as an artist-restorer in the Hermitage. Before the war, he received the rank of senior lieutenant and graduated from the Russian Academy of Arts, then continued his education in Hamburg and was fluent in German. In the regiment, he was an artillery reconnaissance, translator,

organizer and artist; even in the war he found time to be creative. According to the memoirs of colleagues, there was no one to replace him. As the authors of the novel describe, his sketch of the enemy defense was more accurate than in the photo. Artillery commanders noted that the drawing by P.I. Kostrov was a help and a great help, so that his service was highly appreciated, and he was awarded the Order of the Red Star [7, p. 420].

In 1927-1928 scientific expedition of Museum of Oriental Cultures (now The State Museum of Oriental Art) in Moscow led by B.P. Denike conducted archaeological research. This expedition also included

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Petr Kornilov, at that time the head of the graphic department of the State Russian Museum in St. Petersburg, an art critic, professor. As a photographer and restorer, he was directly involved in the processing of plaster copies of pylons and carved plaster ornaments on the walls of the Reception Hall of the Palace of the Termez kings. Later P.E. Kornilov was the deputy director of the Bukhara Museum of Local History and visited many cities of Uzbekistan. He photographed the life of the urban and rural population, as well as architectural and archaeological monuments in the color characteristic of that period (Fig. 5).

In the scientific literature of the 1930s there is information that, for repair work in the Kukaldosh Madrasah in Bukhara under the leadership of V.A. Shishkin was attended by Nikolai Bachinsky [3, p. 8].

Research by scientists of Varakhsha murals continues. So, at one of the scientific conferences in 2018, the American researcher Aleksandr Naymark noted in his report that the gaps in the paintings were cut off intentionally. That is, before the final destruction of the roof structure in the Red Hall, someone cut off several fragments of the painting. True, V.A. Shishkin considered these violations an act of vandalism by Muslim iconoclasts. However, A. Naymark interprets this phenomenon differently. According to him, some fragments, such as a human head or the wings of a griffin, were very skillfully cut and removed. The one who cut out pieces of paintings in the Red Hall first marked the boundaries of the pieces of interest to him, cutting out circles around them. Then he cut deep into the wall, so that the final product of his work looked like a cone, the flat base of which was the painted surface of the wall. In other words, these cuts appear to be the result of very careful and painstaking work aimed at removing fragments of

walls with an intact painted surface. He explains this unusual phenomenon by the transition of elements of the pre-Islamic artistic tradition into the art of the early Islamic period [1, c. 20].

Conclusion

In conclusion, it should be noted that the study of the Varakhsha murals gives an idea of the high artistic school of the early medieval Sogd. An analysis of the technique of applying murals and their components, as well as methods of conservation and restoration, showed that each school has its own characteristics. On the Varakhsha samples, these features are also noticeable in the composition of plots, color schemes, etc. It should be noted that many specialists took an active part in the process of removing the paintings from the walls and their processing. In this work, they have made a huge contribution, trying their best, applying best practices and adhering to a scientific approach. The study of studies on conservation and restoration provides important information to historians and art historians in understanding the plots and images depicted on the murals. And most importantly, by studying the history of previous conservation work, we get the basis for the correct implementation of practical work that can be undertaken in the future in connection with the discovery of new wall paintings.

Acknowledgments

The author expresses his gratitude to Dr. Sergei Baratov from the Institute of Archeology named after Ya. Gulyamov for editing the article and valuable advice.

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