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THE HISTORY OF RESTORATION AND THE CONSERVATION OF WALL PAINTINGS: THE CASE OF VARAKHSHA

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Abstract. This article examines the historical development of wall painting restoration, the evolution of methods for preserving historical pictorial heritage, and the conservation experience associated with the Sogdian wall paintings discovered at the archaeological site of Varakhsha. Particular attention is given to the processes of uncovering archaeological paintings, transferring them from their original architectural supports, consolidating their material structure, and preparing them for museum display. The study also considers the advantages and limitations of traditional transfer techniques in the context of contemporary conservation principles. Based on international conservation standards, the article proposes measures for the long-term preservation of Varakhsha wall paintings, the protection of their original material structure, and the implementation of digital documentation.

Keywords: Varakhsha, wall paintings, restoration, conservation, Sogdian art, archaeological heritage, monumental painting, musealization, pigments, digital documentation.

The preservation of wall paintings occupies a significant position within the broader field of cultural heritage conservation. Wall paintings are not merely examples of visual art; they are also important historical sources that provide information about the religious beliefs, political life, court ceremonies, clothing traditions, artistic practices, and aesthetic concepts of past societies. However, their complex material structure, often consisting of earthen or clay-based plaster, gypsum, and mineral pigments, makes their preservation particularly challenging. Once exposed during archaeological excavations, wall paintings may deteriorate rapidly as a result of moisture, temperature fluctuations, salt crystallization, mechanical damage, and biological activity.[1]

Among the most significant examples of ancient monumental painting in Central Asia are the wall paintings discovered at Varakhsha. Located within the historical and cultural landscape of the Bukhara oasis, this archaeological site represents an important source for the study of the political and artistic development of the region during the early medieval period. The paintings identified in the palace complex, including hunting scenes and animal representations, demonstrate distinctive characteristics of Sogdian monumental art.[2]

The study and preservation of the Varakhsha paintings reveal important aspects of the history of restoration. During the twentieth century, when the conditions necessary for the in situ preservation of archaeological paintings were often limited, specialists employed techniques for detaching paintings from their original walls and transferring them to museum collections. Although these procedures sometimes helped protect the physical remains, they could also weaken the paintings' relationship with their original architectural and archaeological context.[3]

The purpose of this article is to examine the historical development of wall painting restoration through the example of Varakhsha, assess the opportunities and limitations of traditional transfer techniques, and identify contemporary conservation principles applicable to the preservation of this cultural heritage.

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The earliest practical approaches to preserving wall paintings were closely associated with the repair and decoration of historic buildings. Throughout different historical periods, paintings in temples, palaces, mausoleums, and other architectural structures were repainted, damaged sections were reconstructed, and new decorative layers were sometimes applied over earlier compositions. Such interventions were generally intended to renew the visual appearance of a building rather than to preserve the original historical condition of its paintings through scientific methods. As restoration gradually developed into an independent scientific and practical discipline, increasing attention was paid to the material structure of historical works, the preservation of original paint layers, and the distinction between authentic elements and later additions. During the twentieth century, advances in chemistry, physics, materials science, and microbiology introduced new methods for examining and conserving wall paintings. The identification of pigments, analysis of plaster composition, investigation of moisture sources, and assessment of deterioration mechanisms strengthened the scientific foundations of conservation practice.[4] During the 1970s, specialized research and training in wall painting conservation developed further within the framework of the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM). The publication La conservation des peintures murales (1977), by Paolo Mora, Laura Mora, and Paul Philippot, became an important reference work addressing the technical structure of wall paintings, deterioration processes, examination, cleaning, consolidation, and transfer procedures.[5]

During this period, several principal approaches to the preservation of wall paintings became established:

Conservation: stabilizing the existing material condition of an artwork and slowing further deterioration.

Restoration: undertaking scientifically justified interventions intended to support the legibility and historical or artistic integrity of an artwork.

Transfer of wall paintings: detaching a painted layer from its original support and transferring it to another supporting structure. Preventive conservation: reducing deterioration risks by controlling environmental factors such as temperature, relative humidity, light, dust, and air quality. Distinguishing between these concepts is essential. Restoration does not necessarily involve repainting an image or reconstructing missing sections on the basis of conjecture. Contemporary conservation practice instead prioritizes the preservation of original materials, the limitation of interventions to what is necessary, and the systematic documentation of all conservation procedures. The Venice Charter, adopted in 1964, established internationally recognized principles for the conservation and restoration of historic monuments and sites. Subsequently, the ICOMOS Principles for the Preservation and Conservation-Restoration of Wall Paintings, adopted in 2003, emphasized the importance of protecting monumental paintings in close connection with their architectural context.[6]

Varakhsha was one of the important political and cultural centres of the ancient Bukhara oasis. Its palace complex is particularly significant for the study of early medieval Central Asian architecture and monumental art. Archaeological excavations at the site have revealed architectural remains, decorative elements, carved gypsum ornamentation, and fragments of wall paintings. Systematic archaeological investigations at Varakhsha developed during the twentieth century. The results of research conducted under the direction of V. A. Shishkin were summarized in the monograph Varakhsha, published in 1963.[7] This study played an important role in documenting the architectural structure, historical development, and artistic remains of the site.

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The wall paintings of the Varakhsha palace are distinguished by their artistic expression, compositional organization, and repertoire of imagery. In particular, representations of animals and hunting scenes provide valuable evidence for examining the symbolic and decorative characteristics of ancient Sogdian art. These paintings should not be studied exclusively as independent works of visual art; they must also be interpreted within the decorative system of the palace architecture. The placement of the paintings, the configuration of the wall surfaces, the function of individual rooms, and the architectural composition were interconnected elements that contributed to their artistic meaning.

A major aspect of research on the Varakhsha paintings concerns the investigation of their material structure. Archaeological wall paintings generally consist of several interconnected layers: the primary wall material, a preparatory plaster layer, a finer finishing layer, and the pictorial surface containing pigments. If the physical and mechanical properties of these layers are incompatible, separation and detachment may occur between them.

Consequently, the conservation of the Varakhsha paintings requires more than the consolidation of their visible surfaces. The wall substrate, plaster composition, pigment stability, adhesion between layers, and influence of environmental conditions must be examined together. Such investigations provide the scientific basis for selecting appropriate conservation materials and reducing the risk of recurrent deterioration.

The preservation history of the Varakhsha wall paintings should be examined by distinguishing between archaeological excavation, preliminary field conservation, and subsequent laboratory treatment. A. F. Ulmasov's article, "About the History of Conservation of Sogdian Wall Painting from Varaksha," published in 2022, addresses these issues. The author examines the work of specialists involved in studying, transferring, and conserving the paintings, as well as the chemical materials and methods employed under field and laboratory conditions.[8]

The exposure of wall paintings during archaeological excavation creates complex conservation challenges. Walls and plaster layers that have remained buried for extended periods are suddenly exposed to the external environment. Changes in moisture conditions, temperature, and air circulation may cause previously relatively stable materials to deteriorate. As a result, cracking, detachment of plaster layers, pigment powdering, and salt efflorescence may occur.

Under these circumstances, the conservator's first responsibility is not necessarily to clean or consolidate the painting immediately, but to assess its condition. The overall appearance, damage distribution, stability of the plaster layers, degree of paint flaking, and moisture-related problems must first be documented. Only after this assessment can an appropriate conservation strategy be selected. During the twentieth century, the detachment of wall paintings from their original locations and their transfer to museum collections became an important practice at Varakhsha and other archaeological sites in Central Asia. Such decisions were frequently associated with the absence of adequate conditions for preserving paintings in situ. Transfer could reduce the immediate risk of deterioration and allow the paintings to be displayed in a more controlled environment. Nevertheless, the transfer of a wall painting is a technically complex procedure. Detachment may disrupt the bond between the pictorial layer and its original plaster support, result in the loss of fragments, or cause deformation of the individual layers. Mounting a painting on a new support also changes its physical structure and separates it from its original architectural context. Therefore, transfer should be considered only when other realistic preservation options are unavailable and when the decision is supported by specialist assessment and a documented conservation plan.

The scientific significance of the Varakhsha experience lies in demonstrating the need for collaboration among archaeologists, art historians, chemists, materials scientists, and

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conservators. Ulmasov's research provides a historical perspective on these processes and offers a basis for examining the methods and materials employed within the broader history of restoration.[8]

At the same time, determining which substances, concentrations, and procedures were used on particular fragments requires examination of original conservation reports, laboratory records, and museum inventory documentation. It would not be scientifically justified to assume that an identical chemical treatment was applied to all the paintings. Contemporary conservation practice consists of several interconnected stages. Each stage must be planned according to the material condition, historical significance, and long-term preservation requirements of the individual painting. The first stage is preliminary examination and documentation. The condition of the painting is recorded through photography, scaled drawings, damage maps, and, where appropriate, three-dimensional digital models. Digital documentation makes it possible to preserve a record of the original condition, compare deterioration over time, and monitor subsequent conservation interventions.

The second stage is scientific material analysis. Pigments, plaster composition, and substances introduced during earlier restoration campaigns should be examined using non-destructive or minimally invasive methods whenever possible. Depending on the research question, techniques such as optical microscopy, X-ray fluorescence analysis, infrared spectroscopy, and other instrumental methods may be employed. The selection of an analytical method must be determined by the material under investigation and the specific objectives of the study. The third stage is the consolidation of unstable layers. If the paint layer is powdering or separating from the plaster, a consolidant appropriate to its condition may be selected. Its chemical compatibility with the pigments and plaster, vapour permeability, ageing characteristics, and potential for future retreatment must be assessed in advance. Excessive application of consolidants can alter colour, produce unwanted surface gloss, or create additional stresses between layers.

The fourth stage is surface cleaning and the treatment of salt-related deterioration. Cleaning must not compromise the material structure of the painting. Before water, solvents, or mechanical methods are applied, their effects should be tested in a small, inconspicuous area. The removal of water-soluble salts requires an understanding of their composition and migration mechanisms. Otherwise, inappropriate wetting or drying may intensify the recrystallization of salts and accelerate deterioration.[1]

The fifth stage concerns the treatment of missing areas. When filling losses or reintegrating damaged pictorial sections, conservators must maintain a scientifically justified distinction between original material and modern additions. Reconstructing missing imagery in the absence of historical evidence may compromise the authenticity of the monument. Minimal intervention, comprehensive documentation, and the possibility of future reassessment are therefore essential principles.

The sixth stage is environmental monitoring. Completion of restoration work does not guarantee the long-term stability of a painting. Temperature, relative humidity, light exposure, dust accumulation, air circulation, and biological activity must be monitored regularly. ICCROM publications identify moisture fluctuations, water-soluble salts, inappropriate restoration treatments, biological activity, and temperature-related factors among the significant causes of wall painting deterioration.[1]

The Varakhsha wall paintings constitute an important source for the study of ancient monumental painting in Central Asia. Their conservation history illustrates the evolution of methods for protecting archaeological art. During the twentieth century, the detachment and

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transfer of wall paintings to museum collections enabled the physical preservation of certain fragments. At the same time, these interventions created the risk of weakening their relationship with the original architectural and archaeological context.

Contemporary conservation practice prioritizes the preservation of wall paintings in situ whenever feasible, scientific examination of their material composition, minimal intervention, and comprehensive documentation of all conservation procedures. Transfer should be considered only when preservation in the original location is not realistically achievable and when the decision is supported by a documented assessment and specialist recommendations.

Based on the Varakhsha experience, the development of a scientific catalogue, systematic digital documentation, environmental monitoring, and the investigation of historical conservation records represent important priorities. These measures would help improve the physical preservation of the paintings while safeguarding their historical, artistic, and scholarly value for future generations.

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