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## OVERVIEW OF CONSERVATION AND RESTORATION APPROACHES TO THE PROTECTION AND PRESENTATION OF VIMINACIUM WALL PAINTINGS

### ABSTRACT

*This paper will present methods of protection and presentation, i.e., conservation-restoration approaches, applied to the remains of wall paintings found within the archaeological site of Viminacium, from the Roman period, that have been applied since 2006. The material was conserved in the conservation and restoration studio on the site itself by conservators and associates of the Institute of Archaeology, while in the previous period it was carried out by the conservators of the Institute for the Protection of Cultural Monuments of Serbia – Belgrade.*

*The found paintings differed in their degree of preservation, which gave rise to the reasons for the chosen method of conservation and presentation. The presentation of one of the found painted graves and the partially preserved painted composition on one of the walls of the city baths enabled the preservation of examples of painting in its original context, providing visitors with a unique experience. Viminacium is one of the few archaeological sites in Serbia where conservators pay special attention to fragmented wall paintings, and to the restoration of the units that the fragments formerly created. With the help of conservation works carried out on the fragments of the painting, several units were obtained that can allow us to see what the wall decoration looked like in a historical environment. Some of the fragments throughout the presentation remained unrelated to the context from which they originate, so the contribution of hypothetical reconstructions carried out by restorers as well as the use of modern digital technologies is important for their comprehension.*

*The aim of the work being done by conservators in Viminacium since 2006 is, therefore, that all the remains of the wall paintings of Viminacium are physically preserved and protected, but also that their artistic content, materials and production technology are in some way visible outside the space of the studio, that is presented to other researchers and conservators, as well as the museum audience.*

**KEYWORDS: ROMAN WALL PAINTING, FRAGMENTS, PRESENTATION, CONSERVATION, RESTORATION, RECONSTRUCTION, VIMINACIUM.**

### INTRODUCTION

Conservation-restoration treatments of wall paintings are long-term and expensive operations, and without them, most of the archaeological and artistic finds of this type would never be able to be presented to the public. Conservation interven-

tions aim to stop degradation without changing the original shape and appearance of the painting, while during restoration procedures any lost continuity of the painting is restored. Restoration, reconstruction, hypothetical artistic as well as digital, could not be carried out without a lot of previously collected data, which includes photos and

documentation from excavations or previous conservation works, but also work on the scientific interpretation of the images through the discussion of iconography and the search for analogies. Since the 1960s, the conservation profession around the world has strived to preserve wall paintings *in situ*, with the aim of maintaining the integrity of the architectural and archaeological context. Detachment of a wall painting, i.e., removing the painting from the structure of which it was an integral part (Weyer *et al.*: 2015: 344), is considered the last resort, something that is performed only when there is no possibility of its preservation *in situ* (Rainer 2010: 6; Бранди 2007: 187).

Viminacium is one of the archaeological sites found in Serbia with a rich fund of Roman wall paintings (Rogić 2018b: 897–903) (**Figure 1**). Most of the preserved wall paintings originate from funerary structures, since the largest part of the archaeological excavations were conducted in the necropolises. Thus, it has specially preserved wall paintings from graves, and tombs (Pećine site and Pirivoj site) (Anđelković Grašar, Nikolić and Rogić: 2012; Rogić 2018a; Anđelković Grašar, Rogić and Nikolić 2020; Anđelković Grašar, Nikolić and Rogić: 2017; Redžić *et al.* 2018: 85–86, 88–89). The archaeological excavations of Viminacium public buildings were carried out on a smaller scale, but a number of fragmented wall paintings and smaller painting areas from

public buildings, among which are the city baths - *thermae* (Rogić, Despotović and Milovanović 2008; Nikolić, Rogić and Milovanović 2015); amphitheatre (Rogić and Bogdanović: 2012, 46–49; Rogić 2018: 897–899); and small buildings near the amphitheatre (Nikolić *et al.* 2014: 52; Nikolić *et al.* 2017: 65–67) were found. Recent excavations of the legionary fortress also brought to light painting fragments in *principia* (Mrđić, Marjanović and Golubović 2023: 79–80). The excavations of residential buildings, including those from the central urban area of Viminacium, whose modern research has just recently started (Čair site - only small-scale excavations of this part were carried out in 1902 – Vassitz 1904), resulted in the uncovering of many painting fragments (Gavrilović and Milovanović 2021). Finally, the excavations of the private buildings in the suburban settlements and agricultural estates, revealed rare fragments of wall paintings (Nad Klepečkom and Pirivoj sites - Redžić, Danković and Milovanović 2021: 144; Jovičić and Redžić 2014: 58–59; Mrđić and Jovičić 2012: 51).

The exploitation of coal and the production of electricity in the territory that once included the wider area of the Roman Viminacium (**Figure 1**) are considered to be in the national interest so, unfortunately, since 2009, behind the line of protection against the progress of the Drmno strip coal mine, there has been a territory where



**Figure 1.** The map of Viminacium sites with found wall paintings (Tags: author on Google Earth Pro, photo printed on December 11<sup>th</sup> 2023 (historical image from March 2023)).

Roman suburban settlements and villas were later explored, while the largest necropolis, the excavations of which was started many decades ago, is under the thermoelectric power plant complex. This necessitated the demolition or relocation of several investigated buildings, graves, and tombs after archaeological excavations, and also the removal of wall paintings that originated from them. Any detachment of wall paintings from the walls of buildings certainly led to the loss of the archaeological and architectural context, but this was the only way for the paintings to remain physically preserved and accessible to future generations (Nikolić, Rogić and Anđelković Grašar 2013: 209–210).

During the construction of the Kostolac B thermal power plant in the village of Drmno, in the 1980s, a large number of graves and tombs were explored on its current site. Among them are a grave marked as G-2624, found in 1983, and grave G-5517, found in 1990, both at the Pećine site (Korać 2007: 33–124, 247–248). The paintings from these graves were detached and conserved by the experts of the Institute for the Protection of Cultural Monuments of Serbia, - Belgrade (Жикић 1984; Станојловић 1991; Станојловић 1994), and then exhibited in the National Museum in Požarevac. During 1987, grave G-5313 was also found at the Pećine site, and its paintings were conserved by experts from the Institute for the Protection of Cultural Monuments of Serbia – Belgrade, after their detachment (Станојловић 1988). The wall paintings detached from the grave marked G-5464 found at the Pećine site in 1988 and conserved by experts from the same Institute (Korać 2007: 18–22, 258–259; Станојловић 1990), are exhibited in the Viminacium Museum at the archaeological site itself.

Since 2006, the conservation of wall paintings has been carried out in a conservation and restoration studio at the archaeological site of Viminacium. This paper will give a brief overview of the conservation-restoration approaches carried out so far in this studio and on the buildings themselves for the purpose of their protection and presentation, seen in many examples, as well as an example of one of the graves with preserved *in situ* wall painting, which is part of the Viminacium Archaeological Park, and whose conservation was carried out previously by the experts

of the Institute for the Protection of Cultural Monuments of Serbia – Belgrade. In addition to the examples shown, during the last seventeen years, the conservation of numerous fragments of paintings found during Viminacium excavations was accomplished in the studio, but their presentation has not yet been completed.

## APPLIED CONSERVATION AND RESTORATION APPROACHES

In the studio for the conservation of wall paintings at the archaeological site of Viminacium (**Figure 2**), different methods are applied. Fragmented wall paintings, are given special attention during conservation in Viminacium, and their hypothetical reconstructions with the aim of their comprehension are executed to allow scientific interpretation of the iconography and presentation.

Today, during archaeological excavations, very fragmented wall paintings are often found in the ground, which are most often collected by archaeologists. In such cases, the most important thing for a conservator is to have good photographic documentation compiled during the archaeological excavations. However, it is always more desirable for conservators to extract wall painting fragments from the ground during archaeological excavations, which has mostly been the case at the Viminacium sites, including the amphitheatre (Rogić and Bogdanović 2012: 47–48), from which a large number of wall paintings originate, both from the arched wall of the amphitheatre, and from the structures within the building, which have undergone conservation and restoration processes in the conservation-restoration studio within the archaeological site.<sup>1</sup>

<sup>1</sup> The conservation of wall paintings originating from several structures of the amphitheatre was carried out during the period from 2013 to 2015 and in 2017 as part of the projects *Conservation and presentation of wall paintings from the archaeological sites of the Amfiteatar (Amphitheatre)*, *Objekat sa apsidom (Building with an Apse)* and *Skladište mazuta (Mazut Storage) - Viminacium* and *Conservation and presentation of wall paintings from the archaeological site of the Amfiteatar (Viminacium)*. Conservation of the so-called *memoria* explored in 2016 within the Kostolac B thermal power plant, as well as the wall paintings of grave G-3130, were carried out in 2017 as part of the project *Conservation and presentation of wall paintings from the archaeological sites of the Amfiteatar*





**Figure 2.** Studio for conservation and restoration in Viminacium (photo by the author).

The units of wall paintings that were within the buildings in the endangered zones of the Drmno strip coal mine or the Kostolac B thermal power plant had to be detached from the masonry structures, which then underwent dismantling or relocation. This process was carried out in two ways, both known in conservation: the *stacco a massello* technique, which involves the removal of the paint layer with the plaster (rendering) layers (*intonaco* and *arricio*), but also with a part of the wall support; and the *stacco* technique, whereby the paint layer is detached only with the plaster (rendering) layers (Mora, Mora and Philipot 1984: 247; Dragutinović Komatina: 2004: 9; Weyer *et al.* 2015: 344–345). As far as new supports are concerned, polyester supports were made for all paintings conserved before 2013. Since then, they have been used occasionally, in the cases of curved or polygonal walls, while the aluminium honeycomb panels (sandwich panels) are used generally as new supports. Aluminium honeycomb panels are characterised by their high durability, lightweight material, and the possibility of later separation of the painting where need-

ed. These supports were used for the conservation of wall paintings in Serbia for the first time in the Viminacium studio. Before that, in Serbia, they were used in the conservation of mosaics<sup>2</sup>.

When considering the materials to be used for conservation and restoration of wall paintings in Viminacium, those compatible with the characteristics of the materials of the original paintings have been always used. Since 2006, nanolime has been used to consolidate the plaster, while previously it was lime-casein acrylic binder that was used for these purposes. As for the consolidation of paint layers, the Paraloid B72 solution was the choice in all conservation treatments in Viminacium. Acrylic resins are used for the purpose of conservation of the fragments and their subsequent joining together into units. Conservation and joining of fragments were not carried out at all prior to 2008.

Conservation extends the lifespan of a work of art, while restoration reveals and complements its aesthetic value, integrates new parts into existing ones, but with respect for the authenticity of the original painting. As for restoration, the *tratteggio* retouching technique is applied in the Viminacium

(*Amphitheatre*), *Objekat sa apsidom (Building with an Apse)* and *Skladište mazuta (Mazut Storage)* - Viminacium. All projects were financed by the Ministry of Culture and Information of the Republic of Serbia. The principal investigator was dr Dragana Gavrilović.

<sup>2</sup> Dr Maja Franković, conservator from the National Museum in Serbia, introduced the use of aluminium honeycomb panels in the conservation of mosaics in Serbia (Франковић 2010: 218–220).

studio, which unequivocally separates the original painting from the restored one, together with standard retouch (reintegration), which has a weaker colour intensity compared to the original painting.

Leaving a wall painting in its original physical context does not always mean that it will have optimal conditions for preservation, because if it is exposed to direct atmospheric influences, its deterioration is inevitable (Rizzi 2007: xxii). The climate in Viminacium is drastic, the summers have markedly high temperatures, with strong gusting winds that bring abrasive sand from the strip coal mine and alternating stormy and rainy days being quite usual, while the winters are very cold, with a lot of precipitation and frosty periods. Thus, the presentation of any wall painting *in situ* in these conditions certainly requires the protection of the space in which it is located. Today, in Viminacium, preserved *in situ* paintings can be found within the city baths – *thermae*, and in a grave of the necropolis at the Pirivoj site, i.e., in sheltered areas, covered with protective structures (Nikolić 2018).

Within the Viminacium Archaeological Park, the wall paintings are presented *in situ*, but also in the form of museum exhibits, after the transfer of the entire painting units or the collection of fragments found in the ground, which were later joined into units. Various conservation and restoration techniques have been applied to these paintings, depending on the conditions of their future exposure and their state of preservation. The creation of painted or digital hypothetical reconstructions is an indivisible part of the scientific interpretation of wall paintings in Viminacium, not only regarding damaged painted surfaces, but also when only a few small painting fragments have survived.

## WALL PAINTINGS PRESENTED *IN SITU*

### *Wall paintings in public buildings*

**City baths - *thermae*.** The *thermae* of Viminacium are covered with a protective structure and have been archaeologically investigated on several occasions, since the 1970s (Nikolić, Milovanović and Raičković Savić 2017: 3-4). In the south-eastern part of the thermal baths, on

the outer wall of the so-called room 4, in 2004, a preserved wall painting *in situ* was discovered (Gavrilović and Milovanović 2021: 22; Рогич 2014a: 162–163) (**Figure 3**). Archaeological finds confirm that room 4 was used during the 3<sup>rd</sup> and 4<sup>th</sup> centuries (Миловановић 2008: 53).

Two layers of wall painting were found, one over the other. The painting from the earlier phase contains an imitation of marble panelling, while the painting from the later phase has a floral decoration, as well as border strips (Gavrilović and Milovanović 2021: 22; Рогич 2014a: 162–163). During the conservation of this painting in 2008, only the edging repair was done, which is a common conservation procedure, when the weakened edges of the wall painting are strengthened with plaster. The paint layer was stable and there was no need for any other interventions. The entire process of conservation was carried out by experts from the Institute of Archaeology.

### *Wall paintings in a funerary context*

**Tomb with Cupids.** The Tomb with Cupids (G-160) is dated to the very beginning of the 4<sup>th</sup> century (Korać 2007: 125–140; Anđelković Grašar, Nikolić and Rogić 2013: 73–100; Рогич 2014a: 210–222). The painting was preserved and presented *in situ*, at the Pirivoj site (where it was found during archaeological excavations in 2003), within the visitor space under the protective structure (**Figure 4**).

This is the first painted grave at Viminacium where conservation of painting was carried out *in situ*. In the period from 2003 to 2005, conservation was carried out by the Institute for the Protection of Cultural Monuments of Serbia. The wall paintings were cleaned, consolidated, filled, and restored (Станојловић 2008: 147–148). Given that the floor was removed from the grave, that a corridor was built through the ground to the area in front of the grave, today visitors can enter the grave space from the level below the floor and view the painting, which is probably the first example of such an exhibition of funerary wall paintings in our region (Anđelković 2012: 1–6; Anđelković Grašar, Nikolić, Rogić 2013: 74); Станојловић 2006: 144; Станојловић 2008: 145–146).



**Figure 3.** City baths – thermae, room 4, wall painting *in situ* (photographic documentation of the Institute of Archaeology).



**Figure 4.** Grave G-160, wall painting *in situ* (photographic documentation of the Institute of Archaeology).



## WALL PAINTINGS AS MUSEUM EXHIBITS

### *Wall paintings from public buildings*

**Amphitheatre, Construction 1.** Within the so-called Construction 1, found north of the eastern entrance to the arena, which represents a small built structure of supposed cult purpose, fragments of wall paintings were found in 2008. The construction is dated to the first half of the 2<sup>nd</sup> century (Bogdanović 2019: 88, 90, 397, fig. 97). The uniqueness of its painted representation is reflected in the specificity of the artistic content, as well as the existence of the painting from an earlier phase below it (Рогіћ 2014a: 131–138; Rogić 2014b: 507–512; Rogić 2017: 154). First, the floral decoration was noticed, and then, after detaching the painting with the plaster layers, a wall painting from an earlier period appeared ((Рогіћ 2014a: 132). The surface of this painting was deliberately damaged in the past (keying by

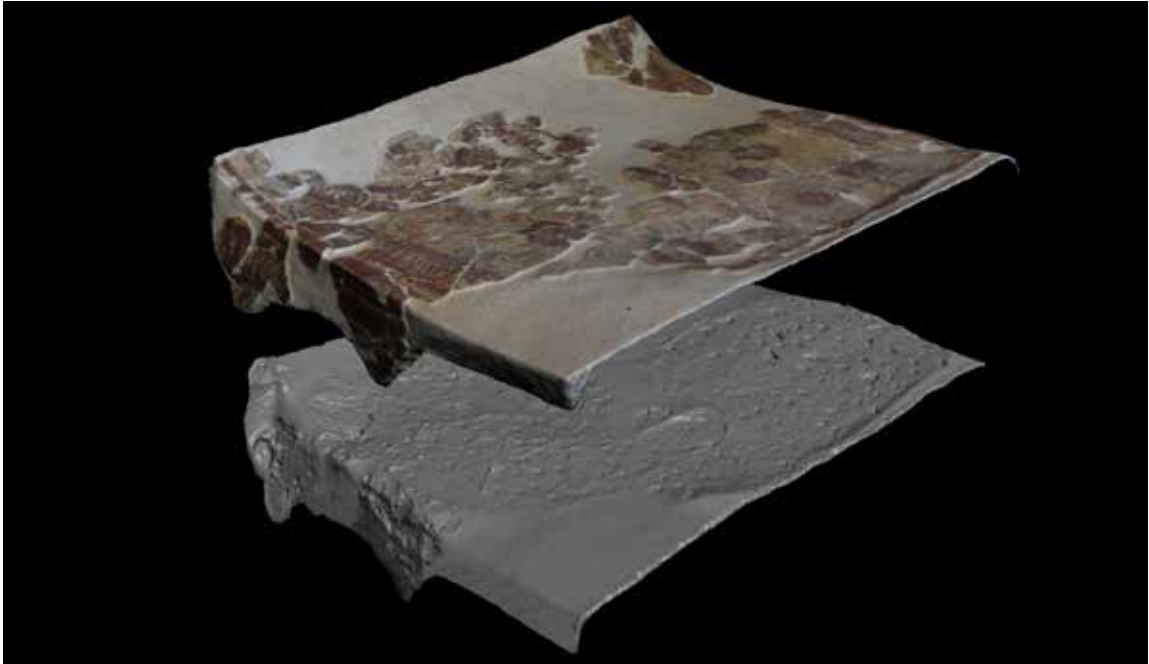
hammering) in order to better set the plaster layer for the painting from the later phase.

Fragments from the later phase were joined back together (**Figure 5a**) and the resulting unit was transferred to a new support. A completely reversible conservation procedure was then carried out. The original plaster was not levelled, but with the help of 3D scanning, a composite support was created that follows all the unevenness of the original plaster (Rogić 2017: 153–154) (**Figure 5b**). The basic idea was to preserve the back of this plaster, and for this reason, glue was applied only to those parts where there was no original plaster.

Fragments of painting from the earlier phase were joined together, then, after consolidation, the back of the plaster was thinned, and then a reinforced polyester support was made (**Figure 5c**). It was decided to use a polyester support because of the curved side of the wall painting unit. In order to consider the iconographic presentation, a hypothetical painted reconstruction of the painting from the later phase was done (Rogić 2018: 899,



**Figure 5a.** Construction 1 - Merging fragments of the wall painting from the later phase (photo by the author).



**Figure 5b.** Construction 1 - Wall paintings from the later phase were put on a composite support that was created to follow all the unevenness of the original plaster (model by Ž. Jovanović).



**Figure 5c.** Construction 1 - Conservation of wall painting from the earlier phase (photo by the author).



fig 2). The conservation and restoration of this wall painting was carried out by the experts of the Institute of Archaeology from 2013 to 2015, after which the painting was exhibited in the Viminacium Museum in the Viminacium Archaeological Park.

The entire process of conservation, restoration and reconstruction of the context of this painting was carried out by conservators from the Institute of Archaeology with the help of experts from the Centre for New Technology Viminacium

**Amphitheatre, Construction 2.** A small collapsed masonry structure called Construction 2, of presumed cultic purpose, was discovered and investigated in 2010 under the auditorium of the amphitheatre. It dates back to the first half of the 2<sup>nd</sup> century (Bogdanović 2019: 88, 90, 397, fig. 97). Fragments of a wall painting were found within it, while only a small part of the painting remained preserved *in situ*. After detaching all the fragments from the structure and collecting others from the ground, they were all transferred to the conservation studio.

During conservation and restoration in the period from 2013 to 2015, the fragments were joined

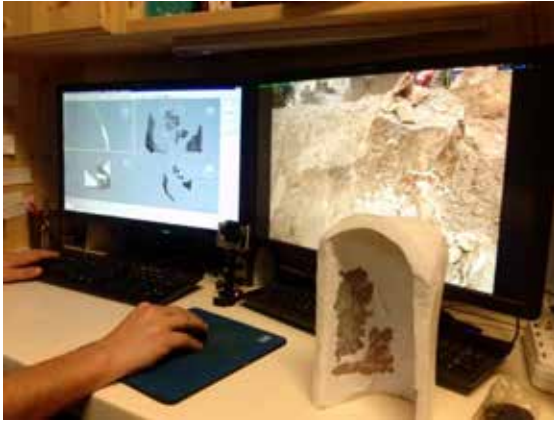
together to the extent that the available material allowed (**Figure 6a**), so that one large unit was obtained, as well as a number of smaller ones (Poriš 2014a: 139–149). Due to the very uneven thickness of the plaster, it was decided to level the backs of the joined units with the use of a grinder. Based on numerous analogies, we came up with the possible appearance of the interior of the structure. The photogrammetric method was used to measure all the curvatures of the joined units (**Figure 6b**), on the basis of which a model of the interior of the structure was created. A real-size reconstruction of the structure was made of polyester resin and fibreglass (Rogić 2017: 154–156) (**Figure 6c**).

The biggest problem was the curvature of the surfaces of the conserved units, because each unit had to be glued together separately. After that, a decorative plaster was applied and, finally, a *tratteggio* retouching technique was used, which visually mutually connected the installed units. In order to gain a better comprehension of the iconography, a painted reconstruction of the painting was done as well (Rogić 2018: 899, fig 2).

The entire process of conservation, restoration



**Figure 6a.** Construction 2 - Merging fragments of the wall painting (photo by the author).



**Figure 6b.** Construction 2 - Photogrammetry process (photo by the author).

and reconstruction of the partial context of this painting was carried out by conservators from the Institute of Archaeology with the help of experts

from the Centre for New Technology Viminacium.

**Amphitheatre, wall of the arena.** During archaeological excavations in 2009, it was found that in the soil next to the arena wall (south-western part of the arena) there were layers of irregularly distributed wall painting fragments that had fallen from the once painted arena wall (**Figure 7a**). The painting is dated to the first quarter of the 2<sup>nd</sup> century (Rogić and Bogdanović: 2012).

The largest part of the work was the extraction of these fragments from the ground, which was done by conservators from the Institute of Archaeology, after which they worked on the classification of materials by colour and type of rendering, consolidation of the fragments and joining them together into units as much as the available material allowed (**Figure 7b**).

Due to the very uneven thickness of the type of



**Figure 6c.** Construction 2 - Reconstruction of Construction 2 with the fragments of the original wall painting (photo by the author).



**Figure 7a.** Amphitheatre arena wall - Drawing the layout of the fragments *in situ* near the arena wall (photo by the author).



**Figure 7b.** Amphitheatre arena wall - Joined fragments of one of the painting units from the arena wall (photo by the author).



rendering, which at the same time had no special visual characteristics, it was decided to level the back of the joined units with the use of a grinder. The units obtained (nine units have so far been made, and a separate publication about them is being prepared) were transferred onto aluminium honeycomb panels. Edging repairs, decorative rendering and retouching were carried out and the *tratteggio* retouching technique was applied, with conservation lasting from 2013 to 2015 (Рогић 2014a: 148–154; Rogić 2017: 153, 156–157). Additionally, part of the hypothetical painted reconstruction of the arena wall painting was completed (Рогић 2014a:153; Bogdanović, Rogić and Vuković-Bogdanović 2018: 46) (**Figure 7c**).

### **Wall paintings from funerary context**

**Grave G-3130.** The grave marked G-3130 was found during archaeological research in 1983 at the Pećine site (location Skladište mazuta). It is dated to the second half of the 4<sup>th</sup> century. This grave was vaulted, and the painted vault had a lavish iconographic representation. In the remains of the painting on the longitudinal sides (western and eastern), one can see exactly the same iconographic scheme that is, an imitation of stone panels, while on the front sides, parts of peacock legs can be seen (Копан 2007: 23–24; Рогић 2014a:

223–226; Rogić 2018a) (**Figures 8a and 8b**).

After the detachment of paintings from the structure, in the period from 1983 to 2009, the western longitudinal and southern front sides were conserved by experts from the Institute for the Protection of Cultural Monuments of Serbia - Belgrade (Станојловић 1990). The northern and eastern sides were conserved in 2017 in the Viminacium studio by conservators and associates of the Institute of Archaeology (**Figure 8c**).

Conservation works in 2017 were started by removing the bricks from the back of the wall paintings, with which they were transferred in 1983. After consolidation and levelling of the plaster, i.e., its thinning, a reinforced polyester support was made and applied to the already conserved units. Also, a similar decorative plaster was chosen, whose grey, neutral colour highlighted the painted content. A standard retouch was performed.

Although the wall paintings of this grave were conserved and restored, and exhibited in the Viminacium Museum (**Figure 8a**), without the proposed hypothetical reconstruction of the painting carried out as part of the conservation process (**Figure 8b**), the iconographic representation could not easily be comprehended. For this reason, these reconstructions of the painting are extremely significant, but only when it comes to



**Figure 7c.** Amphitheatre arena wall - Painted hypothetical reconstruction of the part of the painted decoration from the arena wall, made on the basis of the original painting (after: Рогић 2014a: 153, fig. 11; and Bogdanović, Rogić and Vuković-Bogdanović 2018: 46, fig. 3).

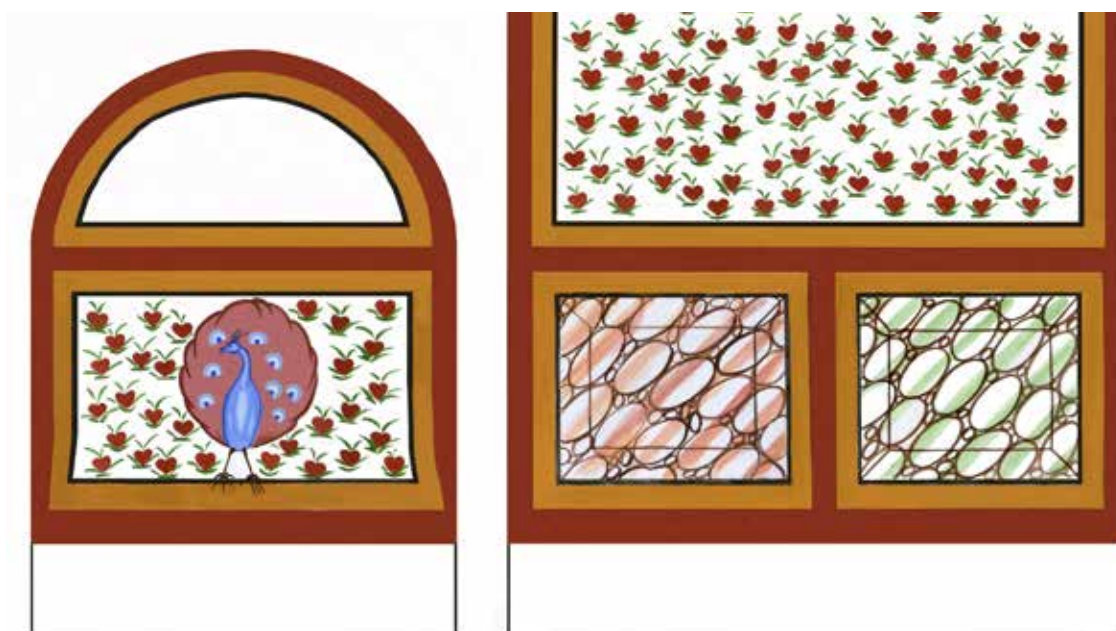


**Figure 8a.** Grave G-3130 - Removal of old facing (photographic documentation of the Institute of Archaeology).





**Figure 8b.** Grave G-3130 - Eastern longitudinal and southern front side of the grave after conservation (after: Rogić 2018a: 173, fig. 6, 180, fig. 15).



**Figure 8c.** Grave G-3130 - Painted hypothetical reconstruction of the painting (after: Rogić 2018a: fig 23, 188).



artistic elements whose existence can be assumed with a high degree of certainty.

**Memoria.** During the archaeological excavations for the construction of a new industrial facility within the thermal power plant Kostolac B in the village of Drmno, carried out in 2016, a tomb was found, the so-called *memoria*, with the remains of a wall painting *in situ* (**Figures 9a and 9b**), dated to the middle of the 4<sup>th</sup> century (Redžić *et al.* 2018: 85–86; Vojvoda, Redžić 2020: 225). On the remains of wall paintings, imitation of stone panels can be recognised (**Figure 9c**).

Unfortunately, the tomb had to be relocated, given its position. This meant detaching the paintings from the walls beforehand. First, the wall paintings were cleaned (**Figure 9b**) in order to determine their state of preservation and then they were protected with facings. The paintings were protected with rigid supports - solid wooden structures, after which they were removed. The wall was cut from the back, the bricks were gradually separated to the plaster of the wall painting, and the paintings were transferred to the conservation studio. Then, work was carried out on the stabilisation of the plaster, so the creation of polyester

supports was initiated. Edging repair was done and, after drying, decorative plaster was applied, the lacunas were filled, and retouching was carried out (Redžić *et al.* 2018: 86). The conservation process was carried out in 2017. After the conservation, the wall paintings were displayed on the walls of the Viminacium Museum (**Figure 9c**).

Conservation works were done by the experts of the Institute of Archaeology.

## HYPOTHETICAL RECONSTRUCTIONS OF WALL PAINTINGS

In the previous text some painted hypothetical reconstructions of paintings found in fragments but later joined into units, were shown. There are cases when the discovered fragments would not allow us to physically form larger painted units by joining them together. However, they can be *joined* in a wider picture by making various hypothetical reconstructions as well.

**Nad Klepečkom site.** During the period from 2008 to 2009, protective excavations were carried out at the Nad Klepečkom site, in probe no.19.



**Figure 9a.** *Memoria* - Wall painting in the corner of the central room (photo by the author).



**Figure 9b.** *Memoria* - Cleaning of the painting layer *in situ* (photographic documentation of the Institute of Archaeology).



**Figure 9c.** *Memoria* - Conserved and restored wall paintings (photo by the author).



**Figure 10.** Hypothetical reconstruction of the painting scheme from the structure of the Nad Klepečkom site (after: Рогоћ и Марковић 2010: 181, fig. 4).

Fragments of wall painting were found in a hole that primarily served as a lime-slaking pit, which, in its secondary use, became a waste pit. According to archaeological finds, it can be dated to the 2<sup>nd</sup> or 3<sup>rd</sup> century. Whether the paintings decorated the walls of the tomb or a building of an unknown purpose, cannot be determined with any certainty (Рогоћ 2014: 184–189).

Based on the measurements that were taken from the fragments, the hypothetical reconstruction was made using computer programmes and photos of the original fragments (**Figure 10**). A more detailed analysis of all the fragments led to the idea that the yellow and green rectangular fields were joined by diagonals starting from the corners of the rectangular fields. The diagonals and fields together create irregular hexagonal areas that contain a floral motif in their centre, with petals that are mostly heart-shaped. By drawing the conceptual solution, and de-composing this scheme, it was concluded that there were two octagon schemes to be considered. The intertwining colours of these schemes on the white background are yellow and green, with the yellow coming to the fore, giving the impression of depth (Рогоћ и Марковић 2010).

## DISCUSSION

The conservation approaches in Viminacium before the 2000s included the work of conservation experts on the detachment of the wall paintings found in the graves and tombs during a large archaeological campaign of protective excavations in the area under the present Kostolac B thermal power plant complex, in the pe-

riod from 1977 to 1997 (Zotović 1986, 41–60; Zotović, Jordović 1990; Korać, Golubović 2009; Golubović, Milovanović, Redžić 2022), and their later conservation and presentation to the public as museum exhibits. These were exceptionally well-preserved wall paintings found in the graves excavated among more than 13,500 of them during the campaign (Korać, Golubović 2009, 12). The protective nature of the excavations did not allow for the preservation of the paintings *in situ*, so these paintings needed to be detached from the walls.

The only Viminacium funerary paintings preserved and presented *in situ* are those from the grave named Tomb with Cupids. Its preservation *in situ* was only made possible by having appropriate conditions in which to do so. In 2002, the formation of the Viminacium Archaeological Park began, when the newly established conditions for the preservation and presentation of excavated structures were introduced, using modern wooden constructions as shelters above the excavated structures. Soon after, the erection of a modern building for the researchers and visitors was started, offering a space for the Viminacium on-site museum that included an area for the exhibition of the wall paintings (Николић 2014). Finally, the conservation studio was built at the site of Viminacium, to complement the excavations and multidisciplinary research that have been carried out constantly at this site since 2002 (Korać 2019). These modern excavations brought to light a large (~2,500), but still smaller compared to the previous excavation campaign, number of graves (Vojvoda, Anđelković Grašar 2022: 13; Redžić,



Golubović, Vojvoda 2022) with partially preserved wall paintings.

Although no paintings that, in terms of preservation and richness of iconographic content, can be compared with those found during the large excavations of the necropolis in the last century have been found since then, modern excavations have yielded numerous buildings (Korać 2019) of public or private purpose whose walls were painted. These mostly fragmentarily found paintings are carefully collected and later joined together into units in the conservation studio. Restoration, as the greatest challenge for conservators, became a frequent activity, since large parts of the painting compositions were often missing. The Viminacium conservators are also scientific researchers, dealing equally with material analysis, iconography studies, and practical conservation work. This has brought a new perspective on the need for research and preservation of found fragments in Viminacium, irrespective of their condition or size.

The development of technology brought modern methods for the recording and visualisation of artifacts into archaeology, which greatly helps in the interpretation and virtual reconstruction of numerous painting fragments in Viminacium. One example was a fragmented composition, previously described as Construction 1 from the amphitheatre, where additional effort was made to present all the original plaster layers. A digital model of the once-painted structure was of immense help in this process, allowing a real physical structure as a support for the fragments to be made. Regarding the conservation activities carried out on the paintings from Construction 2, also excavated in the area of the amphitheatre, the physical reconstruction of a structure done with the help of digital technologies and its use as a new support for the original painting fragments had never been carried out in Serbia before. This type of physical reconstruction satisfies the elementary principle of presenting the integrity of the structure, for which former Viminacium conservators advocated through their texts on the presentation of paintings detached from Viminacium graves (Stanojlović 1997). However, it has been realised only with the conservation and presentation of Construction 2 from the amphitheatre at this archaeological site in 2015.

The constant presence of conservators, who are responsible only for this site, at Viminacium since 2006, a site where archaeological excavations continue throughout the year, has also influenced the improved attitude of all Viminacium researchers towards the remains of wall paintings and their careful collection during archaeological excavations, as well as the efficiency of conservation that has since been taking place simultaneously with excavations. The existing positive conditions for carrying out continual conservation on the site means that the paintings no longer have to wait for the interventions for a long period of time after they are excavated and initially treated, as was often the case in the earlier period. Additionally, they allow the collected fragments to be stored and later joined together into units, which can later become museum exhibits as well, which was not possible in the previous period.

## CONCLUSION

In Viminacium, archaeological excavations have so far been carried out mostly in the context of the necropolis, so Viminacium paintings found almost in their entirety and preserved *in situ*, originate from burial structures, while small painting units found *in situ* and fragments buried in the soil next to collapsed structures, are mostly associated with secular structures. The excavations of Viminacium, apart from the necropolis, included mostly locations outside the city zone, as well as suburban settlements, so numerous private houses, and estates were found, which belonged to owners of different property status, according to which the walls were decorated. Unfortunately, these remote locations were exposed to greater destruction in the past, as were the paintings found in them. The city centre and the legionary fortress were explored to a much lesser extent, but, in contrast to the periphery, these excavations yielded more significant results related to the extent of preservation of wall painting, as evidenced by the wall paintings of the city baths and amphitheatre, preserved in smaller *in situ* units or the large number of fragments that were later, however, integrated into units, following a further conservation process.

During seventeen years of conservation work in Viminacium, each project has been different,

depending on the state of preservation of the wall painting and the conditions in which it was found. The work on the conservation includes the participation of conservators in two contexts - work in the field and work in the studio. Regarding the work in the field, the activities differ depending on the level of preservation of the paintings themselves. Apart from the wall paintings that were preserved and presented *in situ* within the city baths and the necropolis at the Pirivoj site, both covered by protective structures, some wall paintings had to be detached from the walls in order to be conserved, while many were found in fragments already separated from the structures to which they once belonged. Here, wall painting conservators and archaeologists generally work in sync, which contributes to conservation and restoration activities being better organised, and more efficient. In the studio for the conservation of wall paintings in Viminacium, various methods and techniques of conservation and restoration are applied in order to preserve paintings and then present them to the public. When fragments are conserved and put together into a unit, and missing elements are added through the restoration process, they form portable exhibits that are displayed in the museum space. When there is no reliable data for the complete physical restoration of the wall painting, hypothetical reconstruction is carried out.

Viminacium is an extremely important and rich archaeological site, considering the amount of data it has provided to researchers, based on which conclusions can be drawn regarding all aspects of life in a city territory in a province of the Roman Empire. It is also one of the few archaeological sites in Serbia where conservators pay special attention to fragmented wall paintings, and to the restoration of the units that the fragments formerly created. Future excavations inside the city and the fortress will surely yield discoveries of many wall painting remains. Based on their research, we will be able to make many precious conclusions about their different characteristics: the materials used, and the applied technology and presented iconography, which was often dependant on the status of the building owner, the building's function, its complexity, or its importance.

The aim of the work, carried out since 2006, of conservators in the studio at Viminacium has been and continues to be to ensure all the remains of

the wall paintings of Viminacium are physically preserved and protected, but also that their artistic content, materials and production technology are in some way visible outside the space of the studio, scientifically interpreted and presented to other researchers and conservators, as well as to the museum audience.

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## REZIME

### PRIKAZ KONZERVATORSKO- RESTAURATORSKIH POSTUPAKA U ZAŠTITI I PREZENTACIJI ZIDNOG SLIKARSTVA VIMINACIJUMA

**KLJUČNE REČI: RIMSKO ZIDNO SLIKARSTVO, FRAGMENTI, PREZENTACIJA, KONZERVACIJA, RESTAURACIJA, REKONSTRUKCIJA, VIMINACIUM.**

U ovom radu su prikazani načini zaštite i prezentacije, odnosno konzervatorsko-restauratorski pristupi primenjeni na ostacima zidnog slikarstva pronađenog u okviru arheološkog nalazišta Viminacium iz rimskog perioda, a koji su danas izloženi *in situ* ili kao muzejski eksponati u istoimenom arheološkom parku. Ovaj materijal je do sada bio konzerviran od strane konzervatora i saradnika Arheološkog instituta, kao i konzervatora Republičkog zavoda za zaštitu spomenika kulture.

U ateljeu za konzervaciju zidnih slika na arheološkom nalazištu Viminacium od 2006. godine primenjuju se različite metode i tehnike konzervacije i restauracije zidnog slikarstva. Tokom dugogodišnjeg rada svaki konzervatorsko-restauratorski projekat je bio različit. Razlozi za odabranu metodu konzervacije i prezentacije su zavisili od stanja i stepena očuvanosti zidnog slikarstva, kao i uslova u kojima je ono pronađeno tokom arheoloških iskopavanja. Viminacium je jedno od retkih arheoloških nalazišta u Srbiji čijem se fragmentisanom zidnom slikarstvu posvećuje posebna pažnja u vidu konzervacije i restauracije, ali i hipotetičke rekonstrukcije, u cilju koja se vrši u cilju njegove naučne interpretacije.

U okviru arheološkog parka Viminacium, *in situ* su konzervirane delimično očuvana slikana kompozicija na jednom od zidova gradskog kupatila, kao i zidno slikarstvo grobnice G-160, pružajući mogućnost za jedan od posebnih vidova prezentacije. Do samog groba dolazi se podzemnim hodnikom, a iz groba je uklonjen pod kako bi posetilac ušao u grobni prostor i razgledao slikarstvo. Veće celine zidnih slika koje su bile u okviru objekata u ugroženim zonama površinskog kopa uglja Drmno i termoelektrane Kostolac B, morale su biti odvojene od zidanih struktura kojima je sledilo razgrađivanje ili izmeštanje. Ovaj proces je vršen na dva načina, oba poznata u konzervaciji, odnosno tehnikom *stacco a massello* koja predstavlja odvajanje zidne slike sa malternim slojevima i zidnim nosiocem; i *stacco* kada se vrši odvajanje zidne slike samo sa malternim slojevima. Od 2013. godine kao novi nosači upotrebljavani su paneli od aluminijumskog saća, ali se nastavilo i sa upotrebom poliesterskih nosača ukoliko



su postojala zakrivljenja zidova. Što se tiče restauracije, u viminacijumskom ateljeu se primenjuje *trattegio* restauracija, kojom se nedvosmisleno odvaja originalno slikarstvo od restauriranog, ali i standardni retuš koji ima slabiji intenzitet boje u odnosu na originalno slikarstvo.

Cilj rada konzervatora u Viminacijumu koji se obavlja od 2006. godine je, dakle, da svi ostaci zidnog slikarstva Viminacijuma budu fizički sačuvani i zaštićeni, ali i da njihova umetnička vrednost, upotrebljeni materijali i tehnologija izrade budu na neki način vidljivi i svima van prostora konzervatorskog ateljea, odnosno da se prikažu istraživačima, konzervatorima i muzejskoj publici.

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