

**ASSOCIAZIONE GIOVANNI SECCO SUARDO**

*Centro Studi e Progetti per la conservazione e il restauro dei Beni Culturali*

Via Mazzini, 13 – 24050 Lurano (BG)

**REPORT ON THE STATE OF CONSERVATION OF THE GELATI  
MONASTERY WORLD HERITAGE PROPERTY, GEORGIA**

Mission of 05-12 November 2021

Conservation specialists of wall paintings:

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## ***ACKNOWLEDGMENTS***

On the initiative of the Minister of Culture of Georgia, **Hon.Tea Tsulukiani**, through a contract stipulated by the National Agency for Cultural Heritage Preservation of Georgia with the Studies and Projects Center for the Conservation and Restoration of Cultural Heritage Giovanni Secco Suardo Association, in the figures of Lanfranco Secco Suardo and Cinzia Gimondi who sincerely thank each other, on 05 November 2021 the third exploratory mission for monitoring and diagnostic studies began, conducted by the Italian restorers Mario Pulieri on behalf of the companies TECNI.CO.R snc on the cycle of wall paintings dating back to periods between the 14th and 17th centuries located in the Church of the Nativity inside the Gelati Monastery, Kutaisi (Georgia), a UNESCO heritage site included in the sites at risk. The mission ended on November 12, 2021.

We also thank for the kind and precious collaboration:

<b>Karlo (Kaha) Sikharulidze</b>	<i>First Deputy Minister of Culture</i>
<b>Manana Kavtaradze</b>	<i>National Agency for Cultural Heritage Preservation of Georgia</i>
<b>Nick Aznaurashvili</b>	<i>Logistics assistance</i>
<b>Merab Buchukvri</b>	<i>Wall paintings Chief Conservator</i>
<b>Nikoloz Kiknadze</b>	<i>Conservator</i>
<b>Zaza Sumbadze</b>	<i>Conservator</i>
<b>Cia Casitashvili</b>	<i>Conservator</i>
<b>Wino Crikviladze</b>	<i>Interpreter</i>



## ***Premise***

On behalf of the Ministry of Culture of Georgia, the 3rd Supervision Mission on the state of conservation of the mural paintings of the Gelati Monastery, in Georgia, took place from 05 November to 12 November 2021, following that carried out by the restorer Vincenzo Centanni from 16 to 21 September. The mission was carried out by the restorer Marco Pulieri who had already participated in the 1st, in June 2021, together with the restorer Vincenzo Centanni.

Architect Alessandro Massari also participated in the mission, as a microclimate expert, with the task of carrying out studies, surveys and monitoring of the internal and external environmental situation of the Monastery. The collaboration and comparison of the data obtained on site between the restorer and the microclimatic expert was very fruitful and served to make a first point on the conservation situation of the monastery's paintings; however, the results of the instrumental laboratory analyzes are expected together with the relative report to accurately determine the microclimatic situation of the monument and the state of the walls, and to define the overall and definitive picture of the health of the paintings.

The area affected by the monitoring of this mission was limited to the west arm of the Church, in the ensemble of vault and south and north walls.

## ***Mission objectives***

The partial objectives set for the mission of the restorer Marco Pulieri were:

- monitor the general state of conservation of the pictorial surface by comparing it with that found in the two previous interventions
- Check the tightness of the interventions of color consolidation, consolidation of the plasters and extraction of soluble salts, both as regards the methodology implemented and the materials used, carried out in the tests of the previous missions and verify the absence of any problems arising as a result of the intervention.
- After having carried out this check, start the capillary consolidation campaign, according to the previously established methodology, of all the numerous points in which the painted surface was strongly uncoated, with phenomena of pulverization and exfoliation and at risk of immediate fall, caused by disintegrating action of the soluble salts present on the surface and in the plaster.
- After having found a positive result from the monitoring, continue with the execution of the consolidation of the layers of plaster, according to the methodology already verified previously, where this shows the danger of imminent fall.
- Continuation of the training of the team of Georgian restorers appointed to carry out the conservative restoration undertaken by the restorer Vincenzo Centanni in September 2021, as regards the methodology developed and the materials to be used in the conservation intervention.
- Photographic documentation and technical report of what has been achieved

The final goal to be achieved, at the specific request of the Minister of Culture himself, was to complete, by November 2021, the cycle of securing the entire painted surface and plaster of the

vault and north walls and south of the western arm, that is, the areas that were heavily damaged by the copious infiltration of water from the roof.

Achieving this goal would have allowed the conservation operations to be temporarily suspended, in complete tranquility, for the winter period while waiting to be able to resume the large-scale restoration work in the following spring.

## **REPORT**

The first operation performed on the scaffolding was the timely verification of all the individual tests carried out in the first mission and the portions of the largest paintings on which Vincenzo Centanni and the team of restorers intervened in the second mission, in order to ascertain the good seal of the fixing of the color, the reappearance or not of new saline efflorescence, and the re-establishment of the adhesion of the plaster to its structural support.

In light of the very critical situation of the paintings that had been monitored at the end of the second mission, mainly due to the action of various deteriorating factors, including the deeply wet masonry, the migration of salts, the slow evaporation, etc., in this third mission it was expected to find a significant worsening of the state of conservation due to the expected advancement of the deterioration factors.

In reality, compared to the previous monitoring, a completely stabilized, indeed perhaps improved, general conservative situation was surprisingly recorded; the preliminary diagnostic investigations carried out in the field, pending those that require laboratory verification, have in fact established that the walls were drier than in June and that the infiltration of water, which took place almost two years ago, was it was an episodic phenomenon, extremely damaging to the paintings, but now in the process of settling down.

The instruments that allow investigations inside the masonry, like those used on the surface, have recorded temperature variations within the norm; even on the pictorial surface where the presence of infiltration humidity seemed to be found visually, the measurements, while still attesting the presence of humidity, however, gave lower values than could be expected, indicating a substantial homogeneity and stabilization of the general thermohygrometric structure.

It is no coincidence that in the whole pictorial surface affected by the previous interventions no new signs of decay were found (rising of color, saline efflorescence), except for a very slight resurfacing of soluble salts on a small portion of the painting on the cross of the vault, and a similarly slight appearance of biological attacks in the area of the halos of the saints on the south wall of the west arm; on the whole remaining surface a perfect seal was found of the re-adhesion of the pictorial film carried out in the two previous interventions with acrylic resin emulsion Acril 33, through Japanese paper tissue.

The new salts that appeared on the surface in these localized areas were then removed with soft brushes and in the same way the small colonies of fungal microorganisms that emerged on that limited area of the faces of the saints were removed.

In these small areas, a biocidal intervention was subsequently carried out with a spray applied solution of quaternary ammonium salts for preventive purposes.

In order to inhibit a possible new proliferation of fungal colonies, in the event of significant variations in humidity, the same intervention was extended to each area where the paint film was fixed.

At the same time as checking the color fixing performed in the previous missions, an accurate examination of the previous tests on the consolidation of the crumbling plaster was conducted.

Also in this case it was possible to record an excellent maintenance of the adhesion obtained with the consolidating product and above all, and this is a very important aspect considering the humidity factor and salts present inside the walls, it was found that this did not occur. No migration of saline efflorescence from the masonry towards the surface, confirming the validity of the methodology adopted and the substance used.

Having ascertained that the methodology adopted up to that point turned out to be perfectly suitable for the degraded situation, in accordance with the final goal to be achieved, that is the safety of every critical point of the pictorial cycle of the western arm, it was decided to launch a color and capillary plaster consolidation campaign extended to the entire painted surface with the aim of making it definitively safe by the end of November 2021.

In agreement with the Georgian chief restorer Merab Buchukvri, the work team was then organized by dividing the contextual fixing of the color and plaster between the restorers Zaza Sumbadze, Nikoloz Kiknadze, Cia Casitashvili.

With regard to the first, we therefore began to proceed extensively on the entire pictorial surface with the method developed which preliminarily provides for the dry removal of the soluble salts that have surfaced and then the application with distilled water of the Japanese paper tissue on which it was spread the acrylic resin. After keeping it in contact with the color for about 1 minute and following the crushing of the same through a light pressure with a cotton swab on the paper itself, the Japanese paper was removed. In this way the saline efflorescences present were also removed.

Previously, the Italian restorer Marco Pulieri had identified on the south wall of the west arm a series of points where the plaster was strongly detached which required an urgent consolidation intervention.

Following one of the targets of the mission which also consisted in the training of local restorers, the restorer Marco Pulieri again illustrated to the restorer Merab Buchukvri, who took the task of carrying out it directly, the intervention for the deep consolidation of the detached plaster.

It was then explained that very often, prior to the injection of PLM consolidating mortar, a series of precautionary measures had to be prepared in the areas of plaster in danger of falling, aimed at making them safe.

Some temporary "support" grouting was then carried out with mortar based on slaked lime and sand in a ratio of 1: 3 along the edges of the plaster gaps, blocking its imminent fall. Holes have been left along the grouting for the subsequent injection of the consolidating product.

Another preliminary operation to the depth consolidation that was illustrated to the Georgian team was the temporary protection of the unsafe portions of plaster with the application of Japanese paper soaked in Paraloid B72 acrylic resin.

This expedient allows you to perform mortar injections with syringes in complete tranquility, having anchored the part in danger of falling to the nearest solid part with the bandage.

Once the consolidation of these parts was completed, the process of removing the protective bandage was also illustrated, which took place by means of acetone compresses which removed, dissolving it, the acrylic resin Paraloid B72, subsequently allowing easy removal of the Japanese paper tissue.

During the mission, the restorer Marco Pulieri began experimenting with the consolidation of the plaster where the color fell that showed a strong disintegration due to the mechanical action of the soluble salts, through the use of ethyl silicate, ammonium diphosphate and ammonium oxalate. All the products seem to have reacted very well with the disintegrated surface, but it is absolutely

necessary to make an instrumental check of the results obtained; for this reason refer to the next restoration campaign in spring to conduct a scientific experimentation with the appropriate instrumentation to detect which of these products performs better for conservation purposes, in order to obtain useful information on their possible use in the continuation of the general restoration.

During the drafting of this report, it was confirmed that the team of Georgian restorers has achieved the pre-established goal of completing the safety of the entire surface of the west arm.

## COLOR CONSOLIDATION



*Georgian Conservator during fixing the color*



*Before consolidation*

*After consolidation*





*Georgian Conservator during fixing the color*



*Before consolidation*

*After consolidation*





*Georgian Conservator during fixing the color*



*Before consolidation*



*After consolidation*





*Before consolidation*



*After consolidation*

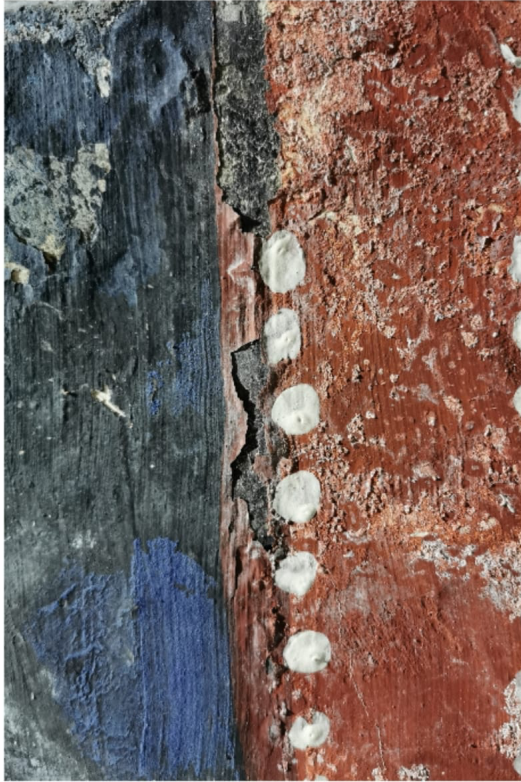


*Before consolidation*

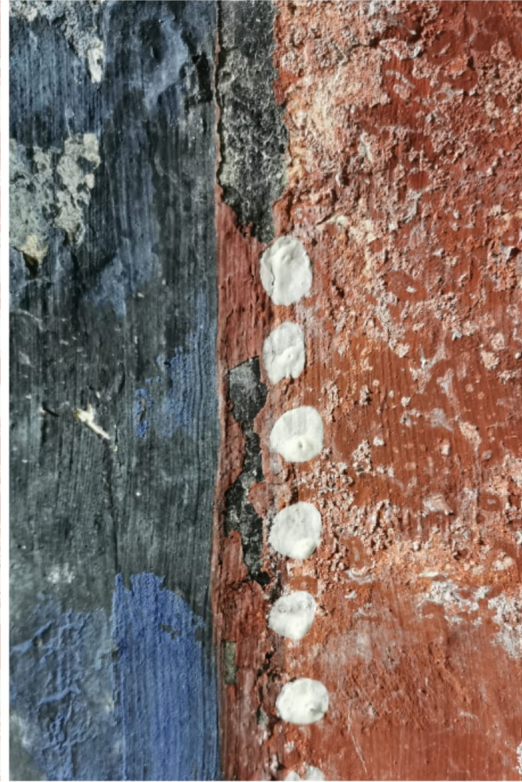


*After consolidation*





*Before consolidation*



*After consolidation*



*Before consolidation*

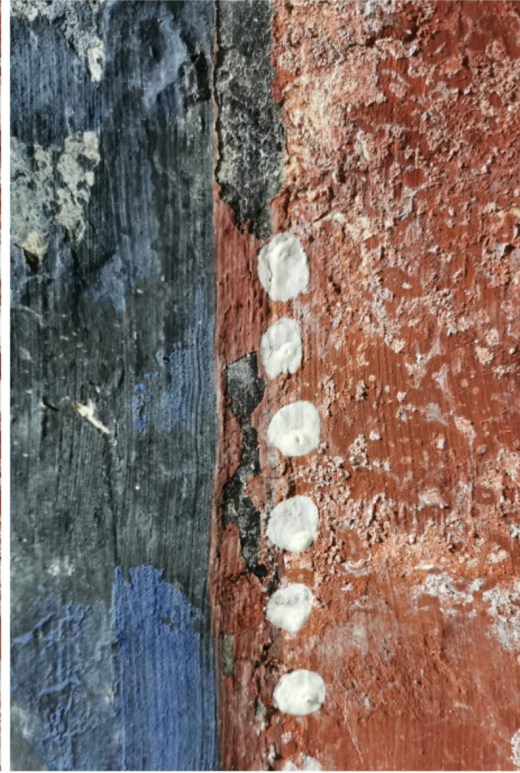


*After consolidation*





*Before consolidation*



*After consolidation*

## **PLASTER CONSOLIDATION**



*Georgian Conservator while consolidating the plaster*





*application of velinatura with Paraloid B72 to consolidate the plaster*



*temporary anchoring grouting for consolidation of plaster*