Gelati Monastery Complex

The Church of the Nativity of the Virgin Mary

The South Entrance

Summary of the Survey of the Wall Paintings

2024

Stakeholder: Gelati Rehabilitation Temporary Committee

Summary

Context

Based on the literature, the South Entrance together with the chapels on this side were built in the 1130-1140s. The remaining wall paintings in the South Entrance were executed in later periods: the beginning of the 14th century, the late 14th century, and the 16th century. Nevertheless, beneath these paintings, there is also evidence of an earlier layer of plaster, suggesting an earlier phase of painting.

The main painting scheme reflects two distinct stages in the development of Palaeologus wall painting. Its specific iconographic program—centered around the 'Judgment Day' scene, individual saints, and the sacrificial portrait of Bagrat V—clearly underscores the function of the Southern Entrance as a funerary chapel. It appears that at the end of the 14th century, Bagrat V repurposed the Southern Entrance as his burial space.

Bagrat preserved the 'Judgment Day' composition from the earlier painting layer, updated certain elements, and added his portrait along with several additional images to personalize and enhance the overall program.

Physical history

The earliest recorded conservation efforts made here in the modern period began in the second half of the 20th century (likely between the 1950s and 1980s). The interventions included the use of gypsum and lime-based repairs. These are documented in archival photographs and recorded in a 2008 survey and a 2013 report.

The Entrance has suffered from persistent water infiltration. Between 2012 and 2013, the wall paintings, along with those in the St. Marines chapel, underwent conservation work, which involved the replacement of earlier treatments. Interventions included localized stabilisation with tylose and Japanese tissue, news fills and edge repairs using lime-based plasters mixed with quartz and brick dust, and injections of lime-based grouts (Ledan®). Additionally, the paint layer was strengthened with acrylic consolidants/adhesives (Primal® and Paraloid®, respectively), while the plaster was also consolidated with acrylics (Paraloid®). Surface contamination was also cleaned.

In 2017, disintegrated stone and signs of biological activity were observed on the west and east walls following water infiltration. In 2018, a biocide treatment was applied to the green biological patinaa, halting further activity at this point.

During the same year, conservation work was carried out on the stone facade, while 3D scanning were completed under the auspices of the Cultural Heritage Agency. In 2019, the tin roof was replaced with glazed ceramic tiles, and in 2020, an additional temporary roof and gutter system were installed to prevent further water ingress. Monitoring of the facade and interior paintings has been ongoing since summer 2020, with specific assessments carried out in 2020 and 2021.

Since September 2024, the chapel has been incorporated under a secondary temporary roofing structure, which will stay in place for the duration of the current conservation project. A comprehensive survey of the wall paintings was completed in December 2024.

Original technology

Painting Scheme 1 has survived only in very small areas, primarily as fragments of plaster with traces of red pigment, suggesting the presence of a painted layer (either decorative or schematic). This layer has not been dated. The plaster is grey and contains numerous medium-grained inorganic fillers of various colors, predominantly dark tones. It closely resembles the plaster of Painting Phase 2 in the South-West Chapel, indicating that both were likely created around the same time.

Painting Scheme 2 is the main scheme of the South Entrance and is dated to both the beginning and last quarter of the 14th century, representing Bagrat V's updating of a pre-existing phase. Interestingly, two plaster layers are distinguishable within this scheme; however, they do not reflect two distinct periods. Both layers consist of identical white plaster with a high concentration of organic inclusions. This plaster resembles the upper layer of the South-East Chapel and appears to have been a preparatory layer for fresco painting. This is evident in the multiplicity of plaster joins. On the east wall, faces, hands, and individual objects (e.g., a book) were added as plaster patches, while on the west wall, the joins follow entire figures, with faces and hands also incorporated as patches. Notably, failure and loss in this scheme is closely related to the shapes of the plaster patches.

The color palette includes all the primary colors and their mixtures: red, yellow, blue, green, white, and black.

Painting Scheme 3, dating to the 16th century, is confined to the west wall near the entrance. Its most distinctive feature is the thickness of the painting layer, particularly noticeable in the modelling of faces. In some areas, this layer directly overlaps the earlier painting scheme. It appears to be applied over a ground layer, as seen at edges, such as in the painted frame of the south-east window.

The color palette of this phase includes red, green, yellow, and their various tones, with the addition of white and black.

Condition of the paintings

The South Entrance is the most severely damaged space in the Church of the Nativity of the Virgin Mary, particularly in terms of the scale of complete loss. This damage can be attributed to the long-term impact of environmental and human-induced factors, as well as persistent water infiltration over the centuries.

Despite past conservation efforts, the condition of the wall paintings here remains unsatisfactory. Significant deterioration is evident in both the remaining plaster and painting layers. The plaster exhibits complete and partial losses, cracking, delamination and powdering. Similarly, the paint layers show signs of loss, blistering, flaking, and alterations. A particularly notable type of blistering is present on the east wall, where salts are present in the paint layer. This specific deterioration is also found on the west wall of the south-east chapel, which is the opposite side of the same wall. This points to a localized cause of damage, likely related to water infiltration, with the most recent occurrence recorded in 2017.

As with other areas of the church, the presence of salts in the paint layer is a significant issue. The salts manifest in various forms, including crusts, white vails, and crystalline dots. Additionally, biological activity is present, particularly on the north and east walls, where pink microorganisms are visible.

In some areas, previous interventions have drastically altered the properties of the painting. For example, on the north wall, the painting layer has become hydrophobic, probably owing to the effects of a consolidation/fixing treatment.

Environmental conditions

The primary factor influencing the chapel's microclimate is the macroclimate, as the interior conditions closely follow exterior trends. Throughout 2024 absolute humidity (AH) levels ranged between **3.13 and 23.46 g/m^3**.

- Hygral behaviour: The South Entrance exhibits weak hygral buffering, providing limited regulation of exterior humidity.
- Thermal behaviour: The thermal buffering function is also extremely poor.

In 2024, relative humidity (RH) showed notable seasonal and monthly fluctuations:

- Autumn and Winter: High RH (≥70%) occurs less infrequently, for about 5% and 12% of the time, respectively.
- Spring: High RH (≥70%) is longer than in Autumn, around one-third of the season
- Spring: High RH is recorded more than half of the season (>60%).
- Summer: High RH increases significantly, about 80% of the season.

RH levels below 40% were detected in only a few occasions in of the spring, autumn, and winter seasons (no more than 6%), while in summer, they did not drop below this threshold at all.

According to the 2024 data, annual temperatures on the exterior vary from -3.95°C to 39.05°C. On the interior of the Chapel, recorded temperatures vary between 7.42°C and 28.74°C. Interior fluctuations are primarily limited to daily changes of approximately 1 or maximum of 2.5°C, and monthly changes up to 11°C. Of particular note is the significant rise in air temperature in the Entrance, which coincides with an increase in external temperatures. In April, the peak temperature inside the Entrance reaches 23°C, while the average seasonal temperature in the interior typically ranges from 10-15°C.

The spatial connections are organized as follows: the southern entrance opens to the exterior through a door in the south wall; internally, individual doors communicate with the south-west and south-east chapels; and a door in the north wall connects to the main space of the church. This arrangement creates a network of interconnected spaces, each facilitating movement and interaction within the structure and the exterior. Each of the southern chapels has two windows equipped with wooden shutters, allowing for further air exchange with the exterior.

The spatial interconnection and the distribution of these openings account for the similarities in environmental tendencies, such as temperature and humidity levels, across these areas. However, the southern entrance shows slightly higher variations in humidity and temperature compared with the south-west and south-east chapels. This difference is likely influenced by the function of the exterior door in the southern entrance, which exposes it more directly to external conditions.

List of literature

Survey of wall painting technology and condition at the South Entrance of the Church of the Virgin Mary in Georgian
Painting schemes of the South Entrance of the Church of the Virgin Mary in both languages
Graphic Documentation of the condition of the wall paintings and plaster joins in both languages
Environmental Monitoring Report for Southern buildings 2024 in Georgian and partly in English
Gelati, Church of Virgin, Envrionmental Monitoring report 2023 in English
Gelati, Church of Virgin, Envrionmental Monitoring report 2020-2022 in English
Gelati, Church of Virgin, Envrionmental Monitoring report 2021_September in English