GELATI

Gelati Monastery (XII-XVIIIcc.)
Kutaisi, Georgia

Project:
Diagnostic Studies & Determination of Conservation Needs
of the Frescoes in the Church of the Virgin
Narthex and Chapels

Funded by:
U.S. Embassy in Tbilisi, the Ambassador’s Fund for Cultural Preservation

Implemented by:
Foundation of Georgian Arts and Culture
THE AIM OF THE PROJECT: Carry out a study of the physical condition of the narthex, Southern and Northern annexes of the Church of the Virgin at Gelati; identification of the mural damage, its underlying causes, and determination of conservation needs. The damage to the murals of the annexes of the Church resulting from environmental and microbiological conditions made this project an urgent priority.

ACTIVITIES COMPLETED

I. ARCHIVED DOCUMENTATION: Documentation on the previous conservation and restoration work on the structure & murals of the Church are all absent from the archives. The study is based on verbal information of the specialists, on data from the scientific literature, and on the photos (1953, 1975-77, 1979-80) kept in the archive of the Monument Protection Department of Georgia. Part of the schemes and sketches (implemented in 1955, 1981, 1990) are kept in the same archive and in archive of G. Chubinashvili Institute of Georgian Art History.

II. GEOLOGICAL EVALUATION. The Monastery complex is built on a slope, which is made up of the Cretaceous limestone (CaCO3) and marl. The direction of the dip is northwestern. The monastery itself lies on the limestone tract. The dampness of the Northern and Southern Annexes of the church is caused by the influence of the surface water. The water comes down from the roof, washes the walls and seeps into the foundation. The non-planar relief results in bad drainage of the rainwater to the well and its collecting on the nearby territory of the church. The soil around the Church is saturated. The water infiltrates intensively into the foundation because of damaged socle and pavement.

III. HYDROLOGICAL STUDY. The temperature and the relative humidity were measured by thermosyphon in the interior and exterior of the church. The measurements showed high relative humidity in the Northern annex and the Southwestern Chapel of the church. The temper in the plaster (measured by a DENSSEL protimeter) is above the mark W=2.5%. The main source of dampness is the air.

IV. STUDY OF THE ARCHITECTURAL STRUCTURE. Though the general condition of the structure of the Church of the Virgin is satisfactory, damage to the various tin roofs, wooden beams of the annexes, and window frames of the church was revealed. The precipitation comes down, damaging the walls from outside and penetrates into the interior. The breakdown of the facing on the facades is visible as well. The lime mortar is washed out from the joints of the facing. The amortized pavement cannot ensure proper drainage of water from the building. The cement pavement used during the restorations negatively affects the building.
V. STUDY OF THE CONDITION OF THE PAINTING
A. The technique of the murals. The painting of Northerm, Southwestern, and Northwestern Chapels are executed in fresco technique. The painting of the Southwestern Chapel, the Northern and Northwestern Porches, as well as the second layer of the murals of Northwestern & Southwestern Chapels is executed in fresco (painting on wet plaster).  The main part of the Southern porch is executed in fresco (painting on wet plaster) technique, which is rare in Georgia. The total area of the interior walls of the Northerm, Southern, and Northern Annexes is 1,656.14 square meters. The painting remained only on 1,079.00 square meters.  

B. Damage. The damage to the painting is mainly: flaking, powdering, cracking and delamination from walls on the part of the plaster, flaking and powdery of the painted layer, deformation of pigments, and salt crystallization. Biological damage is "pink coloration", fungus, mold and moss. The gypsum binder is used as the strengthening medium during the previous restorations have a negative effect on the murals.

VI. LABORATORY STUDY OF PAINTINGS: CHEMICAL AND BIOLOGICAL ANALYSES. The chemical study of the painting was carried out using four methods: Observation and analysis by stereomicroscope; Analysis of polished cross-sections; Analysis by plane-polarized light; Microchemical analyses. The biological research of the painting: Microscopographic analyses and microchemical tests; FPIR (infrared spectrophotometer). Cultural-historical analyses (following NORMAL 8/88).

THE RESULTS OF THE ANALYSES: 1. The salt analyses. Crystalline salts were detected on every mural. They mainly belong to the group of soluble salts. On the murals of the Northern annex there are more sulfides and lower quantities of carbonates, nitrates and chlorides. The largest quantities of carbonates were found on the murals of the Southwestern and Southwestern Chapels and North. Sulfides were also found along with the carbonates here.

2. Color deformation. The darkened pigments on the murals of the Northwestern Chapels and North is due to red lead. The water loss to the composition of yellow ochre in the paintings of the Southeast Chapel caused its transformation into the red. Deformation of ochre is result of fire.

3. The plaster. Everywhere the main component of the plaster is lime with sand and intersections. In the plaster of the Southwestern Chapel and the Southern Porch lime and stone, sand and plaster are also used. Microbiological analyses. The following microorganisms are present on the surface of the paintings: moss (algae - The Northwestern Chapel and Northwestern Porch), mild (North- Western Porch), and dermatophyllum fung (Northwestern and Northwestern Porch).
VII. DOCUMENTATION AND PHOTO FIXATION OF THE PAINTINGS.

In the course of the project was created: graphic documentation indicating the existing damages of the building; the graphic schemes of the murals of the Southwestern chapel and South Porch. This project makes use of previous graphic schemes (authors: T. Virsaladze, A. Goglidze, V. Giorgadze). The restoration plans indicate the types, areas and breadth of all existing mural damage. 400 colored photos were taken. The ultraviolet photography is provided as well.

VIII. RESULTS. The causes of the damage to the body of the church and murals in the annexes are the inappropriate environmental conditions and the plentitude of microbiological agents. The dampness of the air and the high level of humidity in the walls damage the building and the murals. The high humidity caused the various damage to the plaster and murals, including the microbiological ones.

IX. RECOMMENDATIONS AND PLANS FOR CONSERVATION ACTIVITIES

A. First stage emergency works. Rehabilitation of the architectural structure:
- Replacement of the damaged pavement with the new drainage trenching pavement.
- Solving the problem of water drainage from the church grounds above.
- Replacement of the wooden beams and tin roofs.
- Replacement of the frames of the windows with new wooden ones.
- Filling the weathered places of the socle (foundation).
- Filling the weathered joints of the cornices.
- Filling the weathered joints of the facing with lime. Injecting the walls with lime, if necessary.
- Replacement the cement mortar with lime mortar.
- Relaying of the limestone floor of the Southwestern Chapel on the lime mortar.
- Rehabilitation of the damaged wall in Southwestern Chapel.
- Relaying of the detached facing of the Northwestern apse on the lime mortar.
- Addressing the ventilation issue. Improve control of humidity and temperature.
- Restoration of the entrance doors of the church.
- Creation of photo-documentation reflecting the working process.

B. Second stage emergency works. Conservation of the murals:
- Treatment of the murals with appropriate biocides (1118 sq. meters).
- Strengthening of the plaster (107 sq. meters).
- Replacement of the gypsum borders with lime mortar (415 sq. meters).
- Cleaning the painted layer of salts (385 sq. meters), dirt and soot (1348 sq. m.).
- Strengthening of painted layer (746 sq.m.).
- Creation of photo-documentation reflecting the working process.

C. RECOMMENDATION: The emergency works should be implemented on the murals of the Southwestern Chapel, Southern Porch, Southeastern Chapel and Narthex. The preventive activities should be carried out on the northern annexes. The conservation materials should be chosen with an eye to the nature of the damage and the results of laboratory research.
The Gelati Monastery and Academy is one of the most important religious and cultural landmarks in Georgia. It was founded by King David the Builder in 1106. During the medieval period the monastery served as an important religious and cultural-educational center of Georgia and the burial place of the Georgian Kings. King David the Builder is buried at the southern entrance of the Monastery. The Monastery itself is located on the mountain plain on the outskirts of the village with the same name, approximately 12 km from Kutaisi, in western Georgia.

The construction of the Gelati Monastery took place during a period of political and economic development in Georgia, when a centralized and strong feudal monarchy was established.

The Gelati Monastery consists of several buildings from different periods.

The cross-domed construction with three apses projecting on the east of the main Church of the Nativity of the Virgin began in the 12th century. The narthex (room leading to the nave), the southern annex with the portal, and the east and west chapels were added later in the same century. The northern annex with two chapels and two portals were built during the 13th century. The paintings inside the Church of the Virgin consist of multi-layered murals dating from the 12th to the 19th centuries. Of the original 12th century murals, only the famous mosaic of the apse—the Virgin with child Christ juxtaposed with the archangels—remains. The other frescoes of the central hall of the church belong to the later 15th, 16th and 17th century periods. Some of the paintings were restored in the 19th century.

**12th century murals in the narthex:** Consists of the "Ascension of the Cross", the Seven Ecumenical Councils, the "Miracle of St. Euphemia". The remains of 14th and 17th century frescoes are preserved as well.

**13th century murals in the Southeastern Chapel:** Consists of the "Deisis", "Hospitality of Abraham", the figures of apostles, prophets, bishops, saint martyrs and the royal portraits. Some fragments of 12th century painting also survive in the chapel.

**14th century murals in the southern portal:** Consist of the "Last Judgment", the portrait of King Bagrat V standing before the Virgin. Saints Warriors. The figures of saints martyrs date from the 18th-19th centuries.

**15th-16th century murals in the Southwestern Chapel:** Consist of scenes of "the Deisis", "the Crucifixion", "the Descent from the Cross", "the Descent into the Hell", the figures of apostles, bishops, martyrs and the portraits of donors. There are also historic portraits dating from the 18th century.

**Murals from the second half of the 16th century in the Northeastern portal:** Consist of scenes from the life of John the Baptist and the figures of various saints and martyrs. The scene of the coronation of the King belongs to 15th-16th centuries.

**17th century murals in the Northeastern Chapel:** Consist of the "Deisis", the Great Feast scenes, the figures of the bishops, prophet and portraits of various donors.

**The program of the murals of the Northwestern Chapel** (the second half of 17th) includes Christ with angels, "The Holy Trinity", "The Great Feast scenes and the two scenes from the life cycle of the Virgin, the figures of the bishops, prophets and saints, as well as the donator portrait. The remains of the 13th-century frescoes are also visible on the south wall.

Only the "Deisis" and the fragments of two figures are survived from the murals of the Northwest Portal (16th-17th cc.).

The frescoes of the Church of the Virgin reflect the creative life of the Gelati monastery during the 12th to the 18th centuries. Each layer of the painting, together with its iconographic and stylistic features, with its abundance of historic portraits and inscriptions, provides valuable material for the study of medieval Georgian art as well as for the culture of the entire Orthodox medieval world. The murals of the Church of the Virgin at Gelati Monastery offer a unique glimpse of nearly the whole history as well as the important stages of the development of Georgian church painting.

Research on the Gelati monastery and its mosaics (art in which picture are made by inlaying small bits of colored stone, glass, and tile into mortar) and frescoes is ongoing.

Gelati Monastery is included in the list of World Heritage Sites of UNESCO.

2006 marks the 900th anniversary of Gelati Monastery.
The project was implemented under the GAUC grant program - "Save Georgian Cultural Heritage". The priorities of the program are: carrying out the studies of microbiological damages, the causes and influence of conservational conditions onagi damage, and determinations of the treatment methods. Following the international restoration practice these studies are indispensable initial phase for provision of the full conservation and restoration of the monuments. In connection with these goals and with assistance of international experts GAUC have executed the studies on the Kintsvisi, Tithorebani and Martschil Church.

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