The monastery of St. Catherine on Mount Sinai was built under the Byzantine emperor Justinian in the sixth century, on a site that had been venerated long before as the place where Moses encountered God in the form of the burning bush (Exodus 3:1-10). In the fourth century AD, a small shrine had stood there, built at the request of the Empress Helena, the mother of Constantine. For centuries, the high number of pilgrims, monks and hermits who had come to honor this holy place had endured the uninterrupted harassment of raiders and the harsh circumstances of the desert.

Located at the height of 1,500 meters in a ravine at the foot of Gebel Musa, where Moses received the Tablets of the Law, the massive, fortified walls of the monastery both enclose and protect the life of the monks who live there, their daily routine governed by the ringing of the church bells that call them to prayer from sunrise to sunset according to the monastic traditions of the Greek Orthodox rite.

The buildings within the walls form an ancient city, with manifold architectural styles from various ages. Narrow, twisted alleys make their way around the Basilica and the library, which houses one of the world’s most important literature collections. Opposite, only a short distance from the church’s bell tower, stands the minaret of a small mosque: evidence of peaceful coexistence between religions and peoples.

Restoration of the ‘Mosaic of the Transfiguration’ in St. Catherine Monastery on Mount Sinai

ROBERTO NARDI
CCA, Centre for Archeological Conservation, Rome
The church, built by the architect Stephen* of Alia (Eilat, Aqaba) between 548 and 565 AD, has a central nave separated from the two side naves by two rows of six monolithic columns of granite. Running along the sides of the lateral naves, in the north and south areas of the church, is a series of chapels and the sacristy. On the east side, behind the main altar, the building is endowed with the Chapel of the Bluming Bush, also called St. Helena’s Chapel in commemoration of the ancient sanctuary which, according to tradition, the Empress had had constructed. The apse of this chapel is decorated with a simple mosaic showing a central cross on a gold ground, the only manifestation of this artistic technique within the monastery complex other than the grand Mosaic of the Transfiguration.

The Mosaic of the Transfiguration, with its 46 square meters, covers the entire back wall of the church’s apse and is divided into two clearly delineated narrative sections: the apse and the arch. The apse depicts the episode described in the New Testament (Matthew 17:1-8, Mark 9:2-13, Luke 9:28-36) in which Jesus reveals his dual nature to his three first apostles, Peter, James and John, in the presence of the prophets Elijah and Moses. Christ is represented in the center of the apse, on a radiant gold background, surrounded by a mandorla of azure and blue. Eight rays of light, made of gold and silver tesserae, radiate out from the figure of Christ to the apostles and prophets. To the left and right of the mandorla, John (with Elijah standing near him) and James (with Moses standing near him) are depicted in a mirror-image composition. The two apostles shown kneeling, their arms wide open in amazement. Peter is lying at the feet of Christ.

* There is evidence of the identity of the architect thanks to an inscription preserved in one of the original wooden beams of the roof of the church.
Earthquakes have exposed the church and its mosaic to a kind of structural stress, affecting the most fragile parts of the artwork and causing not only immediate damage, but gradual flaking in several places. The mortar that reinforces the mosaic has broken away from the wall and the tesserae have begun falling, one by one, in those areas that are most affected by this phenomenon. Rain water has started coming through the windows at the top of the arch and running down the surface of the mosaic, corroding the materials and provoking a permanent loss of tesserae in the area immediate beneath the mullioned window.

Right in the heart of the entire decorative complex, at the level of the face of Christ, leaking water has strongly afflicted the preparatory layers of the mosaic, creating internal damage and causing debris to accumulate behind the tesserae. Here, at the most vaulted part of the apse, we find the most serious gap between the mosaic and its substrate; the mosaic surface bulges outward, separated from its support by at least 10 cm, disposed to fall at any time.

Other parts of the mosaic are likely to be lost: the scene showing the delivery of the Tables and the angel on the right above the arch, as well as the apsidal medallions depicting the Apostles Paul and Andrew. The central cross at the apex of the soffit has been largely destroyed. The seriousness of the situation is highlighted by a map of the various displacements compiled during the project phase for the maintenance procedures.

Other, less serious phenomena have also contributed to the deterioration of the mosaic’s materials. The overall appearance of the mosaic has become dull, entirely covered by the dust raised throughout centuries of high church attendance. Olly residue from the candle smoke and incense used during religious ceremonies has further darkened and affected the artwork.

The Mosaic of the Transfiguration has withstood the centuries to bear witness to a religion and its iconography, as well as to the techniques and materials that were used to depict them. Yet time has also taken its toll, as specific environmental trauma and general materials deterioration threaten the continued survival of the mosaic.
In the past, two interventions of conservation took place, both trying to stem the problems of the Mosaic of the Transfiguration. The first was carried out in 1847 by the Russian monk Samuel; he intervened at the time of Archbishop Costantinos of Byzantium and left evidence of his activities in an inscription on two marble tablets placed on the sides of the mosaic of the Chapel of the Burning Bush, where he also restored the small apse mosaic.

His interventions were aimed at ensuring the mosaic’s attachment to the wall in the same critical spots that were detected during the current operation, demonstrating not only that the same problems had existed in the 19th century, but also that a great deal of the fall of the tesserae had taken place long before.

In order to affix the detached parts of the mosaic to the wall, monk Samuel secured nails and iron brackets to the entire area of the depiction of Christ, the scene of the Tables, the area immediately below the mullioned window, and the angel at the right, following the restoration techniques practiced at that time. He also carried out a meticulous addition of thousands of tesserae that had fallen over the centuries, with the dual aim of bridging the mosaic’s gaps and fixing the tesserae that were likely to fall off next. In place of the stone and glass tesserae that had been lost, the monk used a gypsum- and cement-based plastering to which he then applied color, imitating the surrounding mosaic in an effort to restore the artwork’s aesthetic integrity.

The second intervention goes back to the year 1959, when an American expedition, sponsored by the Universities of Michigan and Princeton, went to this remote place of prayer to study, photograph, and help conserve the works hosted there. The diary of this expedition, in which George H. Forsyth and Kurt Weitzmann detail the significant stages of their mission, was published in National Geographic no.125, 1964.

During this operation, the area of Christ was subject to consolidation. The brackets that had been affixed in 1847 were removed and replaced with copper pins, inserted into voids within the mosaic and adhered to the wall substrate. The restorers then tried to create «safety-points» within the mosaic by introducing a mixture of plaster and casein into the sections most detached from the wall. At the end of their mission, the American team made a plea to proceed as soon as possible with a more extensive work of conservation that would fundamentally solve the mosaic’s problems of instability — problems which their own work had helped to arrest for the time being.

The seriousness of the situation is highlighted by a map of the various displacements compiled during the project phase for the maintenance procedures.
Almost fifty years after that call, the Center for Archaeological Conservation (CICA) in Rome was called in at the request of His Eminence Archbishop Damiano and the entire monastic community. After a project phase funded by the Getty Conservation Institute in Los Angeles, the conservation work started in November 2005, thanks to the generosity of the King of Qatar, Sheikh Hamad bin Khalifa Al Thani, and the support of the Supreme Council of Antiquities. The project was completed in April 2010.

In these months, the conservators were carried out to consolidate the preparatory layers and tesserae of the mosaic. Additional measures were taken to improve the legibility of the figures and the quality of their color by removing the various layers of dust and deposits on the artwork’s surface. Particular attention was paid to the analysis of the surfaces, the study of original materials and techniques, and the documentation of both current conditions and tasks performed. Initiatives for public information were developed in order to allow the dissemination of information gathered during the intervention and provide the monastery’s thousands of visitors with the opportunity to enjoy the artwork and learn more about the religious and artistic history of the church during the restoration process.

High-resolution photographs taken by Araldo De Luca during the campaigns in early 2005 and again after the cleaning of the surfaces allowed the elaboration of a documentation system that permits the precise registration of a variety of information and the detailed reading of the tesserae on a scale of 1:1. Photographs and computer graphics were used to record the conservation status of the mosaic, its previous restorations and ongoing interventions, giving an overall picture of the mosaic before, during, and after “surgery.”

The serious problems of the mosaic’s detachment from the wall substrate, of particular severity – in both extension and quantity – within the apse, made it necessary to create an external support system, lying outside the mosaic, before any intervention could be applied. The support had to be fully self-supporting and independent of the scaffolding, while allowing the discharge of forces outside the mosaic. It had to ensure stability, operational flexibility, the mobility of the workers within the limited space of the apse. The tool designed by CCA is composed of a metal rib structure comprising eight tilted square sections that follow the curvature of the apse at a distance of 5 cm, tightly screwed to a steel disc that protrudes from the apex of the softh. This structure allowed the team to apply extendible brackets where necessary and to safely carry out the required consolidation.

When there were gaps between the different plaster layers that supported the mosaic and the wall, the restoration team provided consolidation with mortars based on hydraulic chalk poor in stone. In all cases, the areas to be treated were first cleaned from debris by mechanical means, vacuum exhaust, jets of air, or by lavatone with ethyl alcohol and distilled water. This procedure served to facilitate the penetration of the fastener and the progressive bracing of the surfaces.

The dust of centuries, the smoke produced by the oil lamps, candles and incense of the church, and the natural resin used to revive the surfaces during the restorations of 1847 were all subject to a long and thorough cleaning. The removal of these substances required the use of wet packs with a mixture of organic solvents that had to set on the surface allowing the discharge of forces. A mechanical cleaning with sponges, brushes and distilled water completed the operation. Tessera after tessera, the mosaic came to life once more, revealing a multitude of colors and subtle pictorial effects that had long been imperceptible. The cleanup was completed with repeated rinses, a finishing with a scalpel, and the extraction of solvent residues. The former plastering restorations that had been carried out in gypsum were removed, revealing sections of the mosaic that had been previously covered by plaster.

Approximately 4% of the original tesserae, about 20,000 in number, were subject to a corrective operation: to correct reading regarding the areas of restoration by recording, tessera by tessera, each new element added to the original. If future generations wish to undo these additions, all of which are fully reversible, they can easily identify all interventions via the location maps and close-up imaging of the project documentation. On the contrary, it would have been a mistake to make operational decisions that did not make allowances for new technological opportunities. It would have meant polluting the original monument with extraneous material and ignoring the opinion of the monastic community who has lived with the mosaic ever since its creation.

Since the mosaic conservation was carried out high above the main altar, it was not possible to allow public access to the site. A full-size reproduction of the mosaic was depicted on the front wall of the scaffolding to avoid interfering with the liturgy, and the restoration process was broadcast live by four cameras. The video was shown on three screens located outside the church, as well as in the office of His Eminence the Archishop, enabling both the churchgoers and the clergy to watch the intervention in progress, even without access to the scaffolding.

A fully illustrated, colored booklet of fifty-two pages was printed, which recalls the history of the mosaic and describes the different phases of the conservation in understandable terms. It is available in the eight most common languages among pilgrims: Italian, French, German, Spanish, Greek, Russian, Arabic and English. 40,000 copies were issued and offered to the monastery to be sold in support of further maintenance projects.

The conservation operation program has been completed. Thanks to the perfect execution of the original mosaic, the age-long custody of the monks who kept it, the contributions of those who financed the operation, and five years of patient endeavor on the part of the conservators, the message of prayer and faith of the mosaic of the Transfiguration has been restored to all its glory. The spirit of tolerance that has accompanied the monastic community of St. Catherine at Mount Sinai for fourteen centuries lives on.

From the Gospel according to Matthew: «And Jesus took Peter, James, and John his brother, and brought them up into a high mountain apart. And he was transfigured before them: and his face shone like the sun, and his raiment was white as the light. And, behold, there appeared unto them Moses and Elias talking with him. . . While he yet spake, behold, a bright cloud overshadowed them: and behold a voice out of the cloud, which said, This is my beloved Son, in whom I am well pleased. Hear ye him» (Matthew 17:1-3, 5).

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Roberto Nardi

Received his Bachelor's degree in archaeology from the University of Rome, and in conservation of archaeological materials from the Istituto Centrale per il Restauro, Rome. In 1982, he founded the Centro di Conservazione Archeologiche (CCA), a private company carrying out public commissions in the field of conservation of ancient monuments and archaeological sites. He has directed over fifty projects and courses in fourteen countries. Vice President of the International Committee for the Conservation of Mosaics (ICCM). Roberto Nardi is a Kress Lecturer at the American Institute of Archaeology for 2010/2011.