

AMERICAN RESEARCH CENTER IN EGYPT (ARCE)

TOMB OF MENNA (TT69) CONSERVATION AND DOCUMENTATION PROJECT

Assessment Season Report

April 8-16, 2007



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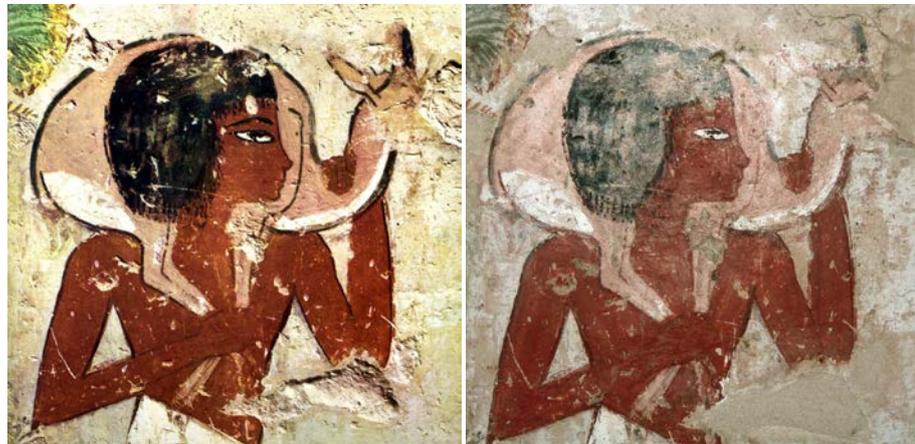
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The tomb of Menna (TT 69) is one of the finest painted non-royal ancient Egyptian tombs open to the public today. Despite its importance, to date there has been no systematic documentation of the paintings or previous conservation interventions. The Tomb of Menna Conservation and Documentation Project, a subgrant project of the Egyptian Antiquities Conservation (EAC) Project that is implemented by the American Research Center in Egypt (ARCE), will conserve, document, and protect the tomb and its paintings to guarantee its long term survival for future generations.

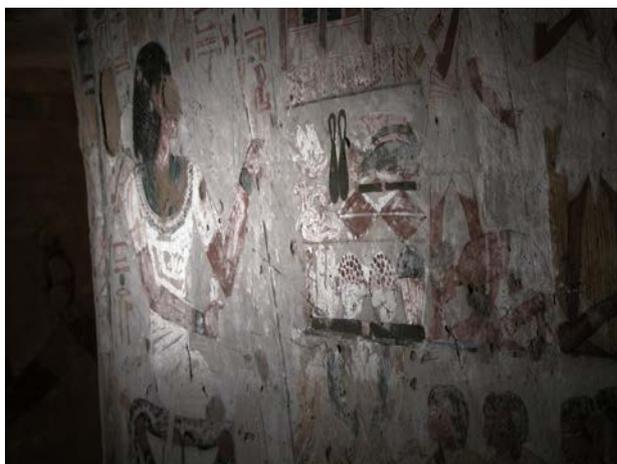
From the 8-16 April 2007, principal project members held a short Assessment Season at the tomb of Menna (TT 69) to draw up a plan of action. Those who participated were the Director, Dr. Melinda Hartwig, Dr. Kai Bruhn, Dr. Dimitri Laboury, Bianca Madden, Dr. Francois Mathis, and Andreas Paasch. We would like to thank Dr. Zahi Hawass, Secretary General of the Supreme Council of Antiquities, Dr. Sabry Abdel Aziz, Director General for the Antiquities of the Nile Valley, Magdy Ghandour, General Director of Foreign Missions Affairs, Dr. Monsour Bouriq, Director General of Antiquities- Luxor and Upper Egypt, Dr. Ali Asfar, Director General of Antiquities in West Thebes, Mohamed Aly Hassan Hamdan, Chief Missions Officer for the West Bank, and Monsour el-Bahdry Mostafa, our Inspector.

The chief conservator, Bianca Madden, identified a number of conservation issues based on a visual survey of the paintings with the help of raking light and cleaning tests. These issues are illustrated by means of comparison

between the photograph taken by Arpag Mekhitarian in 1954 (near right) and the photograph taken by our photographer, Andreas Paasch in April 2007 (far right). Immediately apparent is the lack

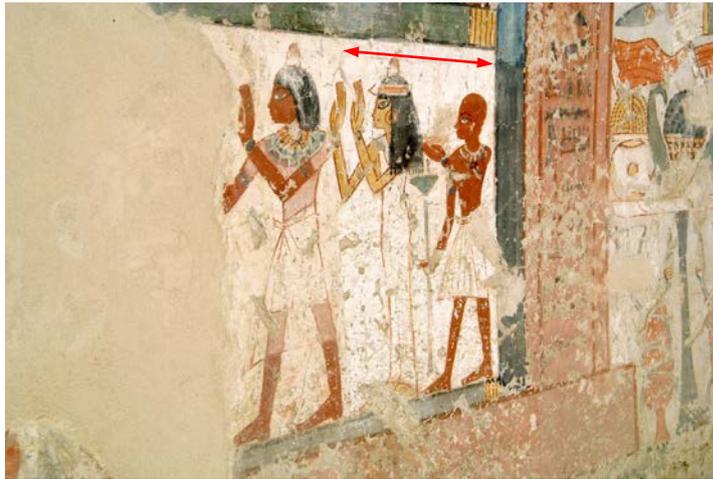


of cohesion between the plaster layer and the paint layer, pigment powdering, and repair mortar that goes over the original painting.



Throughout the tomb there is also evidence of Paraloid (an acrylic polymer) to fix powdering or flaking areas of pigment which is seen in the raking light photograph to the left of the near left wall in the broad hall of the tomb. Paraloid was popular in the 1970's to stabilize the pigment, but is problematic because it produces a heavy plastic layer that is visually distracting, catches dirt, and does not allow water vapor to pass through which could eventually result in the paint flaking off due to a build up of salts.

A test cleaning of a Paraloid-coated area showed how much dirt has bound with the coating. The photograph below shows the conserved area indicated by the red arrow. Removal of this



coating will reduce the distracting shine and the fluorescing effect. Removing the bound surface dirt will also make the paintings look significantly cleaner. The goal is to bring the paintings back to their near-original state.

Cracking and flaking of the pigment occur frequently in the tomb as seen here (below) in the black of a woman's wig. The flaking responded well to a 10% solution of Syton x30 (a silica)

that was brushed on through Japanese facing tissue, pressed with a spatula and then removed, fixing the flakes and removing the dirt. On areas with thicker paint flakes, Plextol B500 (an acrylic resin), used at low percentage was the most effective method. The advantage of these procedures are that they do not effect the color or texture of the paint layer or ground, and allow for water vapor permeability as well as avoid any future salt damage. Stabilization of the paintings and support structure will prevent further damage and loss, and ensure their continued survival.



Another significant problem in the tomb of Menna is the result of previous restoration attempts. These can be seen in over-painting of Menna's arm and elbow; the sloppy application of the fill layer that obscures many details as seen here on Menna's chin; and visually distracting fills that are recessed into the wall as seen here in the text register above. In addition, previous restorers removed the remains of wasp's nests which resulted in pigment loss.

The paintings in the tomb of Menna are also covered with a layer of dirt, and in a few places, bat droppings. Initially all the paintings will need a light cleaning of the surface to remove dust and droppings. This can be done with a soft dusting brush or, in the case of stable areas with lots of dirt, Wishab sponges (soft self-abrading sponges).

The following are The Menna Project's recommendations for the conservation treatment of the paintings in the tomb. The treatment will be non-invasive and non-damaging.

1. Surface clean
2. Fixing of powdering paint
3. Fixing of flaking paint
4. Removal of Paraloid from paint surfaces
5. Removal of old mortar repairs and lime wash colors from the surface of the paintings.
6. Reduction of the remains of wasp's nests and removal of bat droppings
7. Fix detachments between the paint and plaster layers
8. Repairs of small losses and edge repairs
9. Fill old fills and repairs to the level of the paintings to make them less visually distracting and more supporting to the surrounding plaster.
10. Reduction of old and visually distracting retouching
11. Injecting Hydraulic lime in hollow areas or areas with evidence of movement to stabilize the support.
12. Reintegration (no new retouching)

These procedures will be undertaken in two phases during Fall 2007 and Fall 2008 by a conservation team of 5 professional painting conservators, overseen by the chief conservator Bianca Madden.

Dr. Dimitri Laboury and Dr. Francois Mathis examined the importance of non-invasive, portable technologies to: 1, document the physical and chemical properties of the pigments, varnishes and binders for conservators, 2, to study pictorial practices by palette and painting technique to understand the painter's work process; and 3, to help preserve the chapel for future scholars and visitors. In addition to systematic analysis of the visual information (grids, styles, painting effects), different types of high definition photography will be used to record painting effects and identify organic and inorganic materials. An example of this is raking light photography which is used to photograph the offering table on the near right (see also cover page); the picture on the far right was done in regular light. The raking light photograph shows clearly: 1, brushstrokes and other painting effects; 2, the thickness of painted layers and pigments which are not visible normally. Other non-destructive archaeometric analyses will be done to record the color, physical and chemical properties of the paintings to help conservators restore the tomb to its near original state. All analyses will be done without touching or harming the paintings or the wall.



The importance of these technologies for the conservation of the tomb was discussed during Assessment Season by the Menna Project team. We decided to start Phase 1 of the documentation and analysis of the tomb in the Fall of 2007 so that the conservators could benefit from the findings. For this reason, the Menna Project asks that eight specialists be added to the security list, all of whom are notable authorities in their field. Their names are Dr. Peter Vandenabeele, Dr. Eric Laval, Dr. Francois-Philippe Hocquet, Dr. Said Rakkaa, Dr. Elsa Van Elslande, Dr. Maria Johanna Theelen, Dr. Dominique Allart, and Hugues Tavier. Their security documentation accompanies this report.

During the Assessment Season, the surveying of the tomb and the drawing of the decoration was planned by Dr. Kai Bruhn. During the Fall 2007, the interior and exterior the tomb will be surveyed. Digital photographs will be taken and downloaded into a computer with software programs that: 1, take the images with their 3-D coordinates and automatically correct the distortion; 2, join all photographs of the decoration of a given wall in true scale. The outlines of the decoration and epigraphy of these corrected drawings will then be traced



on the computer as vector drawings and saved as a separate file by an experienced digital draftsman, Pieter Collet. The benefits of digital drawings are two-fold: high-quality, true-to-scale drawings can be produced without harming the walls and can be sized accordingly. The photograph to the left illustrates a block from Elephantini and the resulting digital drawing that was done using the same process (Photo courtesy of P. Collet)

Because of the extensive painted decoration in the tomb of Menna, the tomb will be measured and digital photographs will be taken at the beginning of the season. This will give

Pieter Collet adequate time to trace the drawings so that they can be corrected during the 2008 season.

A new lighting and barrier system in the tomb was also discussed during the Assessment Season. The Menna Project's architect, Dr. Nicolas Warner, is currently researching this new system which will be refined during the Fall 2007 season.

One final note concerns the previous structural interventions in the tomb. In the tomb chapel, six metal bars in the long hall and one metal bar in the broad hall are bolted into the ceiling. These bars are visible in photos of the tomb taken during the 1960s. Most likely the bars are part of a grid system in the rock that is stabilizing the ceiling from above. In areas where the ceiling cracks were repaired, there are also patches of water damage. During the Assessment Season, it was noted that the house that was once above the tomb has been cleared and no longer exists. The grid system may have been built to reinforce the ceiling from the house which was built above the tomb. No evidence of new movement or cracking in the ceiling was observed since these repairs, and with the removal of the house, it can be assumed that the water problem is now resolved.



Based on the findings of the Assessment Season, the following schedule will be undertaken during the Fall 2007 Season, and overseen by the Director, Dr. Melinda Hartwig:

- Menna Project Fall 2007 Schedule (September 8-December 21, 2007)
 - Sept. 8-11: Removal of Glass Barrier
 - Sept. 12-Oct. 20: Photography (A. Paasch, K. Bruhn, K. Kobleff)
 - Sept. 22-Sept. 27: Survey (S. Ziegler, K. Bruhn, P. Collet)
 - Oct. 20-Nov. 17: Conservation, Phase 1 (B. Madden, A. Kosinova, G. Howarth, S. Livermore, C. Beretta, D. Thorp)
 - Oct. 16-23: Colorimetric readings (R. Garcia-Moreno)
 - Nov. 17-Dec. 20: Archaeometric Recording and Analysis of Pigments, Varnishes, Binders, and Painting Effects (D. Laboury, R. Garcia-Moreno, F. Mathis, P. Vandenabeele., S. Rakkaa, E. Van Elslande, E. Laval, F-P. Hocquet, M. Theelen, K. Leterme, D. Allart, H. Tavier)
 - Dec. 20-21: Barrier reinserted

We will require the tomb to be closed from September 8-December 22, 2007. The security documentation for the additional specialists who require security clearance is attached to this report.

Yours sincerely,

Dr. Melinda Hartwig, Director
The Tomb of Menna (TT 69) Conservation and Documentation Project