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The 'Egyptian House' (el Beit el-Masry) is one of 24 tombs (no. 21) discovered by Sami Gabra of Cairo University between 1931 and 1952 on the Greco-Roman necropolis in Tuna el-Gebel, situated about 14 km east of the ancient city of Hermopolis (modern Ashmunein) in Middle Egypt. The tomb lies in the southeastern part of the necropolis. It consists of four vaulted rooms above ground, three of them deployed in a row behind the facade with the entrance in the central one, and a fourth hall located in the back, standing above the burial chamber. The walls of the entrance hall and the back room were decorated with murals.

The Supreme Council of Antiquities in association with the Polish Centre of Mediterranean Archaeology of Warsaw University has initiated a conservation project to preserve the murals decorating certain of the chambers of this tomb. The work of this mission started in 2005 with a first season for assessing the present state of the wall paintings and implementing conservation procedures that would end in the murals being remounted in the original location.[1]

1 Team members included: Dr. Ahmed S.A. Shoeib, conservator, Head of the Central Directorate of Restoration and Conservation of Monuments, SCA; Dr. Adel I.M. Akarish, General Director of the Centre of Research and Conservation of Antiquities, SCA; and Dr. Robert Rogal, conservator-restorer from the Institute for the Study, Restoration and Conservation of Cultural Heritage, Nicholas Copernicus University in Toruń, Poland. The work lasted from the middle of February to the middle of April in 2005. Conservators from the SCA: Messrs Tharwat M. Hegazy, Mahmoud F. Abdallah, Shihab H.A. Naser, Vivian S. Zaki, Sami Z. Gerges, Atef N.A. Ahmed, Nabil I. Armanyous, Ishak J. Attia, Amir N. Jossef, Heba H. Mikhael participated in the procedures.
The Mission enjoyed the invaluable help and friendly support of Dr. Zahi Hawass, Secretary General of the Supreme Council of Antiquities. We also wish to thank Mr. Magdy EL-Ghandour, General Director of the Foreign Mission and the Permanent Committee of the SCA, Dr. Samir A. Salib, General Director, Middle Egypt Antiquities Department, and Prof. Dr. Michał Gawlikowski, Director of the Polish Centre of Mediterranean Archaeology, for their assistance.

TOMB STRUCTURE, STATE OF PRESERVATION AND CAUSES OF DEGRADATION

The tomb[2] was built of mud brick and only the doorjambs were of nummulithic limestone; the window lintels were reinforced with wooden beams. The walls were plastered with mud mortar tempered with chaff, and given a coat of lime-and-sand plaster which acted as ground for the painted decoration. The outer coat of plaster was rusticated, imitating stone blocks. The inner coats were smoothed. The walls of the anteroom and sanctuary were painted. Paint was also observed on the outside plaster. The paints were based on an organic binder and traditional pigments (azurite, hematite, ochre, vegetable black). Neither preliminary sketches nor the drawing grid have

Fig. 1. Interior of Tomb No. 21 (after S. Gabra, Rapport sur les fouilles d'Hermoupolis Ouest (Touna el Gebel, Le Caire 1941, Pl. X)

2 Discovered in 1935. The necropolis was discovered in 1919, cf. G. Lefebvre, Le tombeau de Petosiris, 3 vols (Le Caire 1923-24); AA.VV., Un siecle de fouilles françaises en Egypte, 1880-1980 (Paris 1981), 312-313; Gabra's excavations brought to light at least 17 funerary chapels and 24 tombs, called "houses", as well as an underground animal necropolis dedicated to Thoth, cf. S. Gabra, Rapport préliminaire sur les fouilles de l'Université égyptienne à Touna (Hermopolis Ouest), in: *ASAE* 32 (1932), 56; id., Fouilles de l'Université Fouad el Awal à Touna el Gebel (Hermopolis Ouest), in: *ASAE* 39 (1939), 483; id., Raport sur les fouilles d'Hermoupolis Ouest (Touna el-Gebel), (Le Caire 1941); P. Pensabene, Elementi architettonici di Alessandria e altri siti egiziani. Repertorio d'Arte dell'Egitto Greco-Romano (Rome 1993), 257.

been observed. The paintings inside the tomb comprise funeral scenes with ancient Egyptian gods, cartouches with hieroglyphic inscriptions and imitation of marble revetment. The figures painted in the anteroom are turned towards the sanctuary, emphasizing the importance of that room. The painting are executed in traditional Egyptian manner. Only the two long-haired figures in the anteroom are rendered in the convention and attire characteristic of Greco-Roman painting. While these paintings have not been specifically studied, the tombs from the Tuna el-Gebel necropolis are generally dated to the first half of the 2nd century AD.

When the tomb was discovered in 1935, its vaults were destroyed. To reconstruct them, the inside of the tomb was filled with sand, the vaults were bricked-up and then the sand was removed.[3] Some bricks with traces of color, coming presumably from the original vault, are still in store in one of the rooms of the tomb. Gabra's photographs of the conditions inside the tomb upon discovery reveal the murals inside and the facade plaster to be in very good condition [*Fig. 1*].

In the following years the interior was infested by termites feeding on the plant fibers in bricks and mortars, causing the painted layer to become detached from the support. No suitable means of pest control and consolidation were available at the time. At first, the missing parts of plaster were replaced with plaster-of-Paris and the missing parts of the decoration were painted anew. Over time the process of degradation was admitted to be irreversible and in 1964 it was decided to take the paintings off the walls, transfer them to a new support and then remount in the original location. An unknown team of conservators applied a facing of cotton canvas and paraffin to the surface of the paintings. The decoration was divided into sections that were separated from the wall together with a layer of plaster. Most of the paintings from the sanctuary and anteroom were removed in this manner. Some murals were transferred to new supports made of plaster-of-Paris reinforced with canvas and wooden battens, protected against termites with some tarry substance. Unfortunately, the work was interrupted for unknown reasons and for the past 41 years the paintings have been stored in a neighboring building (no. 4, referred to as *el Beit el-Serir*).

No monitoring of the storage conditions and state of preservation was conducted over the years and there was no opportunity for emergency conservation treatment. In 2005, the condition of the paintings was disastrous. The murals that were not mounted on new supports but laid out in several layers on wooden platforms were in the worst condition. The termites, which had not been eliminated originally, continued their destructive action, now feeding on the wood of the platforms and the cotton canvas. In consequence, the brittle plaster collapsed and was crushed. Different profiles of the storage platforms caused further deformation of the paintings. Plaster falling from the ceiling and unknown trespassers were responsible for further damage.

The murals which had been placed on temporary supports turned out to be in better condition. Prolonged exposition to changing temperatures has caused large

3 Gabra 1941, 39.

blisters to form, causing the facing and the paint layer and mortar to delaminate. Additional damage was caused by an unprofessional attempt to remove the facing.

Termite action and improper storage conditions can thus be identified as the main causes of deterioration. Left on the walls of the tomb, the murals would have likely fared better.

CONSERVATION TREATMENT

During the first working season treatment of c. 40 m^2 of murals was undertaken. The biggest difficulty, beside the overall catastrophic condition of the paintings, was the lack of documentation of the treatment carried out in 1964.

Preventive disinfection with a 4% solution of DURSBAN EC in paraffin oil (Dow Agro Sciences, England) was necessary to deal with the termite issue.[4] The first task was to clean the thick layer of dust and debris from the paintings. The original position of the paintings on the walls of the tomb was reconstructed based on an analysis of their dimensions and shapes.

The supports, on which the paintings were mounted in 1964, were in need of repair. Loose elements, metal handles and wooden battens were reinforced with plaster-of-Paris mixed with a water dispersion of PVA (VINAVIL 59, product of C.T.S., Italy, and OKAY, product of Siag Chemicals Co., Egypt). Whenever the support had to be removed in part, the plaster-of-Paris was removed mechanically, after having been wetted with solutions of sodium hexametaphosphate or EDTA (C.T.S.). Extensive delaminated sections of facing, paint layer and mortar were reattached using PVA dispersions and paraffin heat-activated with a hot spatula. The type of adhesive used depended on the extent of saturation of the layers with the facing adhesive.

The paintings without supports demanded full conservation treatment [*Fig. 2*]. Their back was cleaned of residual ancient mud mortar and the excessive mortar and plaster-of-Paris applied in the past to fill in the gaps. The reverses were subsequently consolidated with 3% solution of PARALOID B-72 (Rohm & Haas, USA) in toluene. A polypropylene net was attached as a lining layer, using lime-and-sand mortar with PRIMAL AC-33 (Rohm & Haas, USA). The intervention layer consisted of polystyrene foam (ADREFOAM, product of Advechems, Egypt) attached with a water dispersion of PVA (OKAY, product of Siag Chemicals Co., Egypt). Sandwich-structured supports were built up on the reverses. The cladding was made of 450-grade fiberglass mats reinforced with epoxy resin KEMAPOXY 31/150 (CMB, Egypt). The cores were made of 4 mm FIRET COREMAT XX (Lantor BV, Holland), reinforced with the same resin as the cladding. The applied technology allowed for quick building of supports of complicated shapes and required thickness. Moreover, supports of this kind are resistant to climate and biological factors.[5]

4 Disinfection performed by Mrs. Samia Amara of the SCA.

5 They have already been applied in Egypt in the conservation of mural paintings at the Sitt Wasilli House in Cairo, cf. R. Rogal, J. Mowińska, M. Roznerska, Zastosowanie włókien Firet Coremat do wykonania podłoży zastępczych dla przenoszonych malowideł ściennych, sgraffit i mozaik, *Acta Universitatis Nicolai Copernici* XXXIV (Toruń 2005), 369-393; R. Rogal, M. Filip, Transfer i konserwacja malowideł ściennych z Domu Sitt Wasilli w Kairze, Toruńskie Studia o Sztuce Orientu (Toruń 2006), in print.

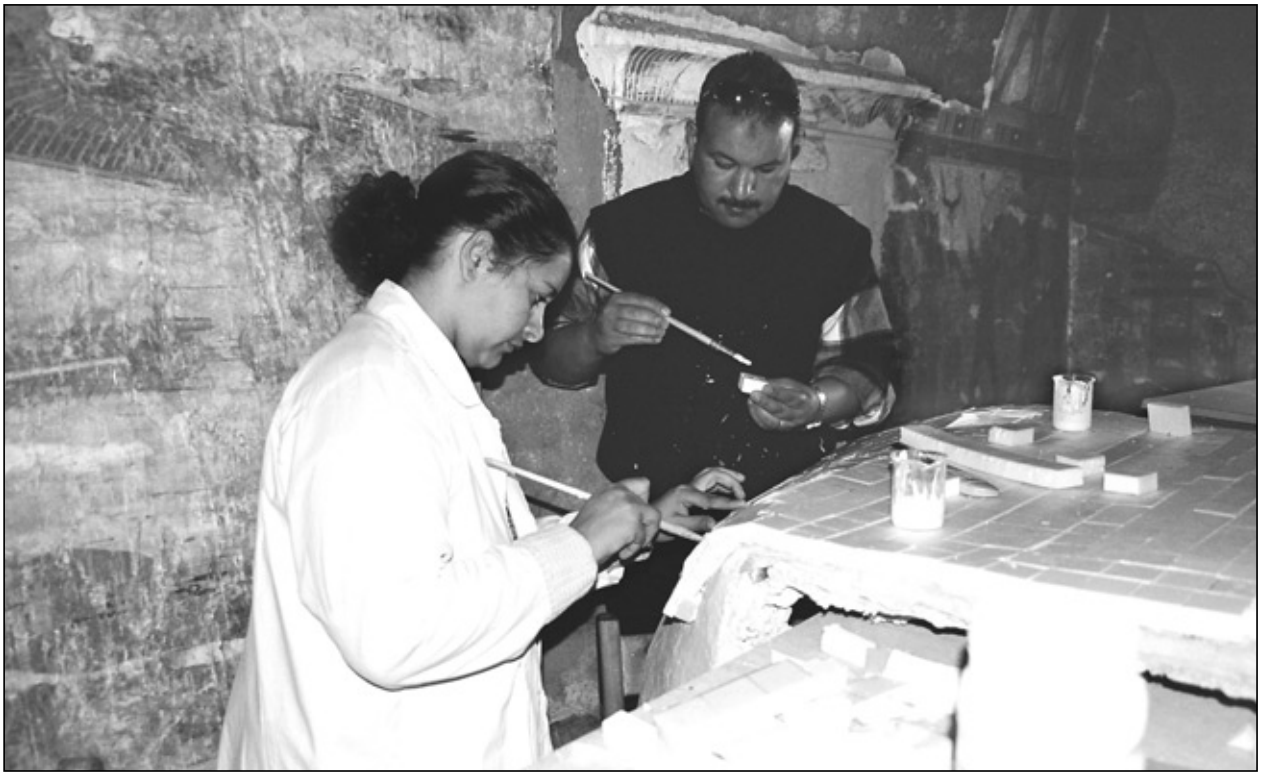

Fig. 2. Fragment of painting during conservation (Photo R. Rogal)

Fig. 3. West wall of the sanctuary after remounting of the mural paintings. Condition in 2005 before removal of the facing (Photo R. Rogal)

All the preserved paintings from the sanctuary have now been remounted in their original location [*Fig. 3*]. To mount paintings attached to supports made of plaster-of-Paris both the plaster and polyurethane foam (FUROFOAM, product of Den Braven Sealants, The Netherlands) were used. Paintings on sandwich-type supports were mounted with screws and foam. The protective facing has been left in place until the repairs on the vault will be completed. The paintings from the anteroom are in various stages of conservation. Some of them, lying in several layers on the floor in the Beit el-Serir, have to be separated, which is a difficult task, requiring further time-consuming work. Other fragments have reached the stage of the treatment when the intervention layer will be applied.