

## CONSERVATION WORK, 2002

Zbigniew Godziejewski

## FUNERARY CHAPEL OF MEREF-NEBEF

An assessment of the condition of the wall decoration made upon opening the funerary chapel of Meref-nebef at the beginning of the present campaign revealed no actual losses, but multiple detachments occurring both in places where fragments of the decoration had been re-attached last year (e.g., southern and northern “false doors”) and in other spots (e.g., band 20 cm high adjoining the ceiling).

No new salinity concentrations were observed on the decorated surfaces. However, salty spots in the form of white down had appeared on the surface of the rock in the southern part of the facade, just beside the southern wall of the shelter.

Data from the ROTRONIC thermo-hygrometer (which had been reinstalled in November 2001 in the same spot as the year before) indicated much smaller fluctuations in humidity levels than previously registered<sup>1)</sup>. The lowest humidity level (45%) was registered in January and in late March/early April 2002, the highest (65%) in mid-July 2002. The fluctuation in the previous year was, for the sake of comparison, between 30% and 75%. The temperature fluctuations during the same period remained at their usual level, between 14°C in January, 30°C in July and August, and 29°C on 14 September 2002, when we re-opened the chapel. Also the daily fluctuations of both humidity and

temperature have diminished considerably. It seems that the climatic conditions inside the chapel have stabilized following the blocking of ventilation holes in 2001. This process of controlling the climatic conditions will be pursued over the intervening months prior to the next season as it is absolutely crucial to maintaining the state of the wall paintings.

Current work in the chapel of Meref-nebef required foremost a systematic pasting of all already detached and endangered places. A water solution (6-7%) of PRIMAL E330 was applied to surfaces dampened with 50% ethyl alcohol (water solution). Wherever, for example, the detachments were thicker than 3 mm, the strength of the PRIMAL solution ran to 9-10%.

Air pockets caused by the detachments and the disintegration of the rocky substance under the surface were filled with a putty made from an 8% water solution of PRIMAL E330 enriched with calcium carbonate and pure, sifted, fine-grained sand, colored with small quantities of pigments (natural sienna and bone black) to achieve color uniformity. This procedure concerned the small-sized fillings in the southern part of the eastern wall and on the facade. Broader and deeper degradations in the vizier's representation on the western wall of the chapel, just

1) Cf. previous report by the author in *PAM XIII, Reports 2001 (2002)*, 143

beside the southern wall, required a slightly different putty composition. This was a solution of PARALOID B-72 in toluene (c. 8%), enriched with sand and FUNCOSIL KSE FÜLLSTOFF A (mineral flour), as well as FUNCOSIL KSE FÜLLSTOFF (quartz powder), to which some pigments were added as above.

Powdering spots of the polychrome surface on the limestone slabs at the southern end of the chapel's eastern wall were secured with a solution of PARALOID B-72 in toluene (c. 3%). A pressure-sprayer was used for this purpose. A similar procedure was applied in a process of reinforcing peeling parts of the polychromy on the ceiling, i.e., painted imitation of Aswan granite, as well as on the upper part of the walls, i.e., in the 20 cm high zone adjoining the ceiling. In all these cases the process of impregnation was preceded by the damping of the polychrome surface with ethyl alcohol.

On the lateral walls of the doorway leading to the chapel, pasting with PRIMAL E330 was accompanied by the removal of streaks of gum substance and adhering dust

using tampons trickled with a 1:1 mixture of acetone and ethyl alcohol.

Also subject to conservation treatment this season was the decorated rock surface separating the facade of Meref-nebef's chapel from the facade of the unfinished chapel to the south of it. It had been consolidated provisionally in 1997 in an effort to prevent the eroded rock from falling; as the solution of PARALOID B-72 used then turned out to be too thick, causing excessive tightening of the pores in the rock, it proved necessary to remove it at least in part.

The most weakened spots in this part of the facade, including the lateral face with representation of the vizier, were dripped with REMMERS FUNCOSIL KSE 300E. Similar treatment had been applied to the most eroded parts of the rock in the central section already during the 2001 campaign. The detached parts of the rock were pasted with a filler made on the base of FUNCOSIL KSE 500 STE with FUNCOSIL FÜLLSTOFF A (mineral flour) and FUNCOSIL FÜLLSTOFF B (quartz powder) added in proportions of 2:1, plus pure sieved sand with pigments for assuring color uniformity.

## OBJECTS DISCOVERED DURING THE CAMPAIGN

### CARTONNAGE PIECES

An assemblage of dislocated and distorted pieces (Inv. No. S/02/1) of the mask with the face and forehead, the *usekh*-necklace, and fragments representing the goddess Nut. Binder degradation has resulted in disintegration and powdering of sections of the painted surface. The adhesion of the layer of plaster to the canvas (made in basket-weave technique) is extremely weakened (numerous flakes). Another fragment treated this season is a kind of small rectangular plaque with a border running around three sides (Inv. No. S/02/22); its state of preservation was

similar and consequently the same conservation procedures were applied.

The first step was to clean the pieces mechanically with a soft brush-pencil. This process removed the loosely sticking dirt. Then the technological layers, such as the linen, plaster and paint, had to be consolidated. The object was trickled with a 2-3% solution of KLUCEL GF in concentrated ethyl alcohol in order to protect the powdering layer of paint and to increase the elasticity of subsequent layers. The detachments were gradually pasted with a 4-5% solution of KLUCEL GF in ethyl alcohol diluted with water in



*Fig. 1. Burial 295 in the Late Necropolis. The wooden coffin and the cartonnage were subjected to conservation treatment immediately upon discovery (Photo M. Jawornicki)*

proportions of 1:1. The elasticizing qualities of applied substances assisted in removing deformations of various kinds, such as folds. The end effect is that all the technological layers have been consolidated, and the colors in the paint layer saturated.

#### WOODEN COFFIN (BURIAL 295)

Anthropoid coffin made of a single piece of wood cut longitudinally in two (*Fig. 1*).<sup>2)</sup> The disintegration of the wood is considerable, the piece having practically lost cohesion. The fact that it retains humidity for a long time denotes intense penetration by micro-organisms (fungi).

The polychromy decorating the coffin was in a very poor condition, particularly on the lid, where only scarce fragments of it could be discerned, but also on the outside of the case bottom. The poor state of the wood is the main reason why the paint layer no longer adheres to the ground. Removal of the coffin from the sand only aggravated this condition. Numerous cracks appeared and the polychromy became entirely detached.

Work was focused on saving the outer face of the case bottom which is painted blue at head level and has two parallel red zones running lengthwise and between them a white/yellowish strip filled with a black hieroglyphic inscription (*Fig. 2*). The main task was to increase wood cohesion to the point that it could become a stable ground for the flaking polychromy, which could then be pasted down. To achieve this goal, a 6-8% solution of PARALOID B-72 in toluene with acetone added was applied with a syringe under the detached flakes and inside the body of the wood; the procedure was repeated six times

at two-day intervals. After the last application, the object was left under a melinex and loaded with sand-filled plastic bags. This tightened the polychromy to the reinforced wooden ground.

#### MASKS OF WOODEN COFFINS (BURIALS 335,<sup>3)</sup> 340, 341)

The masks were removed from the destroyed lids of coffins. Facial parts and



*Fig. 2. Wooden coffin from Burial 295. Outer face of case bottom with painted decoration, state upon discovery (Photo W. Jerke)*

2) For the discovery of the coffin, see contribution by K. Myśliwiec in this volume.

3) Cf. contribution by A. Kowalska in this volume, especially Figs. 1-2 on pp. 142-143.

lateral elements of the wigs were cleaned mechanically in order to remove sand grains from the surface. The layer of white paint on the face was observed to crumble and become detached, thus uncovering large parts of the wood. The black layer on the wigs and the eyes has been preserved with few minor flakes and losses (Burial 335) or as little more than a fragment above the forehead (Burials 340 and 341). In the latter two cases, the wood is considerably rifted, both in the facial and lateral parts.

The surface of the paint layer was trickled with a 3-4% solution of acrylic resin PLEXISOL P550 in white spirit, the

substance being brushed on three times. This has reinforced the layer of polychromy and increased its adhesion to the ground. Larger flakes were pasted with a c. 10% solution of PVA MOWILITH-50 in alcohol with acetone added.

#### BRONZE FIGURINES<sup>4)</sup>

A group of bronze figures, fragmentarily preserved and thickly corroded, was first cleaned mechanically in order to remove loosely attached dirt. Separate fragments were then immersed in acetone and transferred to a 2% solution of PARALOID B-72 in acetone in order to reinforce and secure the eroded surface.

4) Cf. contribution by K. Myśliwiec in this volume, p. 119 and Fig. 10.