Conservation in Marina el-Alamein in 2017
(Polish–Egyptian Conservation Mission)

Abstract: The conservation program of the Polish–Egyptian Conservation Mission in Marina el-Alamein in 2017 included restoration of wall structures and architectural decoration elements damaged as a result of unfavorable climate conditions (Houses H9/H9a and H21, Rooms 10 and 11 in the Roman baths). Wall paintings exposed to weather conditions in situ were treated as part of another conservation project. Minor metal finds were also treated using both chemical and mechanical means in order to identify the objects.

Keywords: Marina el-Alamein, stone conservation, architectural decoration, wall paintings, House H9, House H21, Roman baths, restoration in situ, metal relics

An important task of the Conservation Mission in Marina el-Alamein (Egypt) is to continuously monitor the state of preservation of the architectural remains and to take up the required interventional conservation works. Standard conservation of archaeological finds is also carried out on a regular basis (for the current work at the site, see Czerner, Bąkowska-Czerner, and Grzegorek 2018, in this volume).

ARCHITECTURAL CONSERVATION

As a rule, winter at the site escalates unfavorable climatic conditions resulting in damage to wall structures and architectural decoration elements. Consequently, progressive degradation of masonry bondwork was observed in 2017, due to the heterogeneity of the technical parameters of stone blocks used for wall building and the destructive effects of water and salt contained in the stone. Therefore, choosing materials of appropriate technical parameters, varying in accordance with location, ground and function, for the conservation of walls was a key issue in the whole procedure. Long-term observations made by the conservation team have shown that
poorer quality mortar is easily eroded by water and wind action (Medeksza et al. 2010: 88; Czerner and Medeksza 2010: 109–112). There is a need for replacing mortar made of 3 parts sand to 1 part lime and 0.5 part white cement and vary-
stronger the strength of the bonding agent. Stronger mortar is necessary in the case of structurally bonded elements like column drums and capitals, but for bands protecting the edges of historical plaster, a weaker mortar is better suited to avoid the strong mortar detaching the weaker substrate.

In the 2017 season, joints were repaired in a small aedicule in House H9 [Fig. 1], capitals were remounted in the commemorative monument in House H21 [Fig. 2], and bands were introduced to protect the edges of ancient plaster in Rooms 10 and 11 of the Roman baths south of the main square [Fig. 3].

The joints and losses of stone in the architectural elements in House H9 were filled with a mineral mortar: 3 parts sand to 1 part lime to 0.5 part cement. Mortar with relatively low durability was used, adjusted to the weakened structure of...
the stone. The same mortar was used for the bands to protect the edges of plaster in the Roman baths. As for the architectural elements repaired in House H21, a stronger mortar was used, 3 parts sand to 1 part lime to 1 part cement, this in

Fig. 3. Bands protecting ancient plaster edges in the Roman baths: top, before reconstruction; bottom, after reconstruction (Polish–Egyptian Conservation Mission Marina el-Alamein/photos P. Zambrzycki)
view of the fact that the previous joint, being made of the weaker mortar, had been washed away, posing the danger of losing the stability of the connection (Medeksza et al. 2011).

**PAINTED WALL DECORATION CONSERVATION**

Conservation of painted wall decoration, another regular team project, concerned painting discovered in Room 9 of the Roman baths. This was conservation of a salvage nature [Fig. 4], and it initiated research aiming to assess the odds of being able to preserve painted wall decoration in situ, exposed to the all-year weather conditions prevalent in Marina el-Alamein. The project will be implemented in coming seasons.

The painting, a fragment of which was discovered on the south wall of the room, decorated probably the whole interior. There was a dado in the bottom part, a frieze consisting of three colors above it, and presumably geometrized panels higher up. The preserved decoration is located a little above the floor level. The lowermost part is painted black, the upper part is in shades of red. The decoration was painted against the background of white plaster laid without any ground directly on the stone surface. The painting layer is characterized by good adhesion to the plaster with high cohesion and hardness. However, larger pockets are created in places where the edges of the plaster, impacted by strongly unfavorable climatic factors, are weakened and partly detached from the wall.

No evidence of salt precipitation was observed on the surface of the painting. The painting was cleaned of loose fragments of plaster and sand. Cracks were not deepened due to the high degree of hardness of the plaster, this because vibrations during this procedure would have posed a danger for the
adhesion of the mortar to the ground. A lime–sand mortar with carefully chosen strength parameters was used for the bands and for filling cavities and larger cracks. This mortar was composed of lime, fine-grained sand, cement and a small amount of crushed brick sand, 1:3:0.5:0.08 parts respectively. To increase mortar flexibility, a 2% solution of Primal AC 33 in water was added (Chmielewski 2013: 206–207). The addition of crushed brick dust served to enhance the hydrophobic properties (making the mortar waterproof). The conserved surfaces were first moistened with water. A test was made on a part of the painting to see how reinforcing the painting layer with a 2% solution of Primal AC 33 in water, applied to the surface with a soft brush, would work (Jakubowski 2008: 130–131).

The team also undertook to assess the preservation condition of polychromed objects stored in the Marina el-Alamein storeroom [Fig. 5]. The collection consists of paintings on an artificial substrate (transfer) and natural stone (limestone blocks). An essential factor, determining the preservation condition of the objects, is the high air humidity in the storeroom resulting from the proximity of the sea. In such conditions, mineral salts migration is possible, damaging the structure of objects.

The following objects were inspected: a) a polychromed column drum [Fig. 5 left]; b) a painting on a transfer ground: fragment showing a head, most probably a personification of Alexandria; c) a painting on a transfer ground: fragment of painting depicting three figures: personifications of Helios, Harpokrates and Serapis; d) a painting on a ground reinforced with mineral mortar: fragment showing the figure of a man: personification of Heron; e) a painting on a stone ground: fragment with a floral motif; f) a painting on a stone ground: fragment
with floral and figurative decoration; 
g) a polychromed shell made using the
 technique of a floating coat.

The general preservation condition
of the stored paintings is good. In most
objects no loss of adhesion to the ground
or the structural cohesion of technologi-
cal layers was observed. Preventive work
was deemed essential only in the case of
the polychromed column drum shaft; the
slightly powdering painting layer was
reinforced with a 2% water solution of
Primal AC 33 and a 5% analogous solu-
tion was applied to the uncovered stone,
the protective mortar bands and mortar
replacement wherever salt precipitation
and stone and mortar erosion had reap-
peared. Surfaces were first moistened
with ethanol (1 : 1 with water) to lower
surface tension and increase penetration
of the adhesive binder.

The use of a lower concentration of
the solution was aimed at avoiding pos-
sible gloss on the surface of the painting.
In view of earlier ineffective applications
of Paraloid B-72 (Ciabach 1998: 121–122),
the present project tested Primal AC 33
in this application to observe the effec-
tiveness of this resin in subsequent years.
[AS]

**CONSERVATION OF ARCHAEOLOGICAL SMALL FINDS**

Small finds of bronze discovered by the
team included fragments of jewelry, coins
and nails. Conservation essentially aimed
at halting degradation of the material
substance and restoring the original ap-
pearance to facilitate identification and
classification of the find (Medeksza et
al. 2010: 97).

Standard conservation procedure in
these cases started with photographic
documentation of the condition of
a given object. Next, products of metal
corrosion were removed in a bath of a 1%
solution of disodium EDTA in water.
The process was carried out in an ultrasonic washer. Subsequently, the objects
were desalinated in distilled water us-
ing the same ultrasonic washer. A glass
fiber pencil was used to remove products
corrosion where necessary. Objects
were then coated for protection with
a 3% solution of Paraloid B-72 in toluene.
The procedure was completed with a full
final documentation of the conserved
find.  

[PZ]

**Piotr Zambrzycki**
Inter-academy Institute of Conservation and Restoration of Works of Art,
Academy of Fine Arts in Warsaw
00-379 Warsaw, Poland, ul. Wybrzeże Kościuszkowskie 37
mik@asp.waw.pl

**Anna Selerowicz**
Inter-academy Institute of Conservation and Restoration of Works of Art,
Academy of Fine Arts in Warsaw
00-379 Warsaw, Poland, ul. Wybrzeże Kościuszkowskie 37
mik@asp.waw.pl
References


