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MARINA EL-ALAMEIN

CONSERVATION WORK 1995

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It was the first season for a Polish-Egyptian Preservation Mission composed of Wrocław University of Technology staff,¹ organized by the Polish Centre of Archaeology and working in close cooperation with the Egyptian Supreme Council of Antiquities. The season lasted from March 23 to April 26, 1995. The mission focused on a complex of two houses from the Graeco-Roman period, designated as 9 and 9a, which will be called H9 and H9a for the purposes of this report. Their dating is encumbered by a lack of data from the Egyptian excavations. It can be said generally that the city along with the necropolises, which are being investigated by Polish archaeologists, was in existence from the 2nd century BC to the 3rd century AD² and later. The houses in question are tentatively dated to the late 1st and 2nd century AD. They were rebuilt at a later date, presumably following damages incurred during an earthquake.

The houses are located in the southern part of the ancient town, whose suggested name, still to be proven beyond doubt, is Leucaspis or Antiphrae.³ The area has been explored archaeologically since

¹ The Mission comprised the director, Prof. Dr. Stanisław Medeksza, architect; Dr. Maciej Małachowicz, architect, and Dr. Józef Adamowski, constructor. The Egyptian side was represented by Inspector Adli Rujdi Amin to whom we are indebted for help at every stage of the project.

² W.A. Daszewski, Marina el-Alamein. The site of an unknown Graeco-Roman settlement on the Mediterranean coast of Egypt, in: *Marina El Alamein. Archaeological background and conservation problems. The Polish-Egyptian Preservation Mission at Marina 1988. The Polish Excavation Mission at Marina 1987-1989*, vol. 1, Warsaw 1991, p. 12.

³ W.A. Daszewski, Temoignage de l'urbanisation de la côté méditerranéenne de l'époque hellénistique et romaine à la lumière des fouilles de Marina el Alamein, *Bulletin de la Société Française d'Égyptologie* 132, 1995, pp. 14-16.

1986. The urban architecture is being investigated by a team of Egyptian archaeologists from the Alexandrian division of the SCA, directed by Mohammed Ali. Explorations of the western necropolis are conducted by an archaeological mission from the Polish Centre of Archaeology of Warsaw University, directed by Prof. Dr. Wiktor A. Daszewski. Parallel with the excavation work, the Polish Centre has sponsored successive PKZ conservation missions in the years 1988-1993: first under the supervision of architect Włodzimierz Bentkowski, then as a joint Polish-Egyptian mission directed by architect Jarosław Dobrowolski. Successive missions concentrated upon the reconstruction of the complex of columnar tomb monuments discovered by Polish archaeologists on the western necropolis.

In addition to this work, Polish architects from both the conservation and the archaeological missions helped in preparing the architectural documentation of the ancient houses excavated by the Egyptians in the area of the city itself. House H9 was recorded in 1988 by Bentkowski and team.⁴ Based on this documentation and their own observations made in 1993, architects Jarosław and Agnieszka Dobrowolski prepared for the Egyptian side a restoration project for the complex of Houses H9 and H9a.⁵

Between 1987 and 1995, that is from the actual clearing of the two houses to the beginning of conservation work in 1995, no preservation measures were taken with respect to the buildings.⁶ The ruins suffered extreme devastation as a result of active saline rains and seasonal strong winds carrying abrasive

⁴ W. Bentkowski and J. Radzik, U. Fidecka, A. Sawecki, Report no. 3. The activity of the Polish-Egyptian Preservation Mission at Marina, part one. Season 1988 (documentation at the Polish Center of Archaeology).

⁵ A. and J. Dobrowolski, Report on Possibilities of Restoration of House No. 9/9A at Marina El Alamein, 1993 (documentation at the Center).

⁶ In 1994, the Egyptians restored three perpendicular walls of a total length of 8 m.

sand which aggressively attacked the stones. The decoration of architectural elements have suffered considerable damage, painted representations have faded from the plaster and the plaster itself has been washed away from the walls in many cases. The surfaces of limestone blocks have become powdery, rendering the stones useless in any reconstruction.

The architectural-conservation documentation prepared by Bentkowski and team lost its validity and the present Mission was forced to prepare new documentation recording the current state of the buildings. The total absence of any kind of technical workshop for conservation activities at Marina is an additional problem which probably will not be alleviated in the near future. A specialist conservation approach is necessary in the case of many of the elements of architectural decoration, and hardly possible in view of the lack of any supporting technical workshop. In spite of these hardships, it was found that a number of preservation steps can be taken to protect the buildings from further devastation, making it worthwhile to take on the risks of the project.

The short duration of the mission in 1995 (barely a month) necessitated the concentration of all activities on H9. House H9a does not have ready conservation documentation and the inventory plans need to be verified with the present state of the ruins; thus, work in H9a will begin in the next season.

HOUSE H9

Although the mission was frequently forced to realize particular stages of the work concurrently for lack of time, the general sequence was as follows:

- verification of the inventory drawings;
- verification of the conservation project based on the 1988 and 1993 documentation;
- clearing of the area of the house, including stone floors, walls and environs;

- partial dismantling of eroded wall tops, cleaning of wall joints and faces;
- partial reconstruction of chosen walls surrounding the portico courtyard;
- partial anastylosis of the columns;
- protection and consolidation of wall tops, pointing of the wall faces under conservation.

As already indicated in the introduction, the present condition of houses H9 and H9a forced us to verify the old inventory drawings. The documentation also failed to present the vertical and horizontal stratigraphy of the walls, aside from the obvious damages and losses in walls, plaster and architectural elements. This concerns at least two fundamental stages: a broken-stone wall bonded in lime or mudlime mortar, and a mud-brick wall in mud mortar. This technological diversity will require a specialist conservation approach to particular elements. At present, it is technically possible to protect only the first building stage, owing to the almost complete washing away of the "mud-brick" stage during successive rainy seasons. Several building additions and repairs to the stone wall preceding the "mud-brick" phase were also observed.

Only minor changes could be introduced in the conservation project during this brief season. The main goal was to organize the work in a small section of the ancient building, which would be important enough to achieve the required outcome.

A necessary change to the restoration project was a different projected height of the reconstructed walls which were originally supposed to rise gradually moving east. The walls were intended as efficient protection from destructive winds. However, our observations of prevailing westerly and northerly winds and rains indicated that the walls on these sides should rather be the higher ones and appropriately protected from the elements.

The mission chose a small section of H9 to begin conservation. The selected part of the house included the portico courtyard and

surrounding walls. The assumption is that work will proceed centrifugally, gradually moving toward the outer house walls. A program for the next three years has been prepared.

The first practical step was to clear the area of the house. Compared with the 1988 documentation, the house was in very bad condition: collapsed walls, powdered limestone surfaces, fallen plaster, faded colors, architectural elements eroded sometimes beyond recognition, vegetation everywhere. Thorough cleaning was needed to bring out the undamaged ancient substance. All the stone floors, walls and the environs of the building were cleared; blocks stored in particular rooms of the house were moved away from the wall faces in search of remaining painted plaster. The cognitive results of this work are hardly satisfactory, because the process of deterioration of the ancient substance has proceeded slowly but surely over the years.

The greatest damage was incurred by the wall tops, column shafts and architectural elements of the decoration piled outside the trenches. Upon excavation, these parts of the ancient structure were highly susceptible to the detrimental action of the elements. To stop or at least delay the erosion process, it was necessary to partly dismantle sections of the walls and to clean mechanically all the joints and stone faces. Successive sections of walls, or rather their top and side surfaces, were prepared directly preceding preservation measures, this in order not to leave any work undone before the end of this short season. Ancient substance can suffer considerable damage over the course of just one year, if left unprotected.

The tops of the walls had to be dismantled to the technically sound courses, sometimes down to the foundations. Powdering limestone, missing joints and dangerous fissuring combined to make the structure unsound. Unfortunately, it proved impossible to save the "mud-brick" phase of the structure. Over the eight years that these parts of the structure were exposed to the elements, the mud-brick walls have disintegrated, the plaster first falling off and then the bricks themselves dissolving in the rain. The floors of the house

were covered with thick layers of the clay used to make the bricks, mixed with drifted sand and eroded plaster. It must be reiterated here: The "mud-brick" phase in the development of these houses cannot be saved.

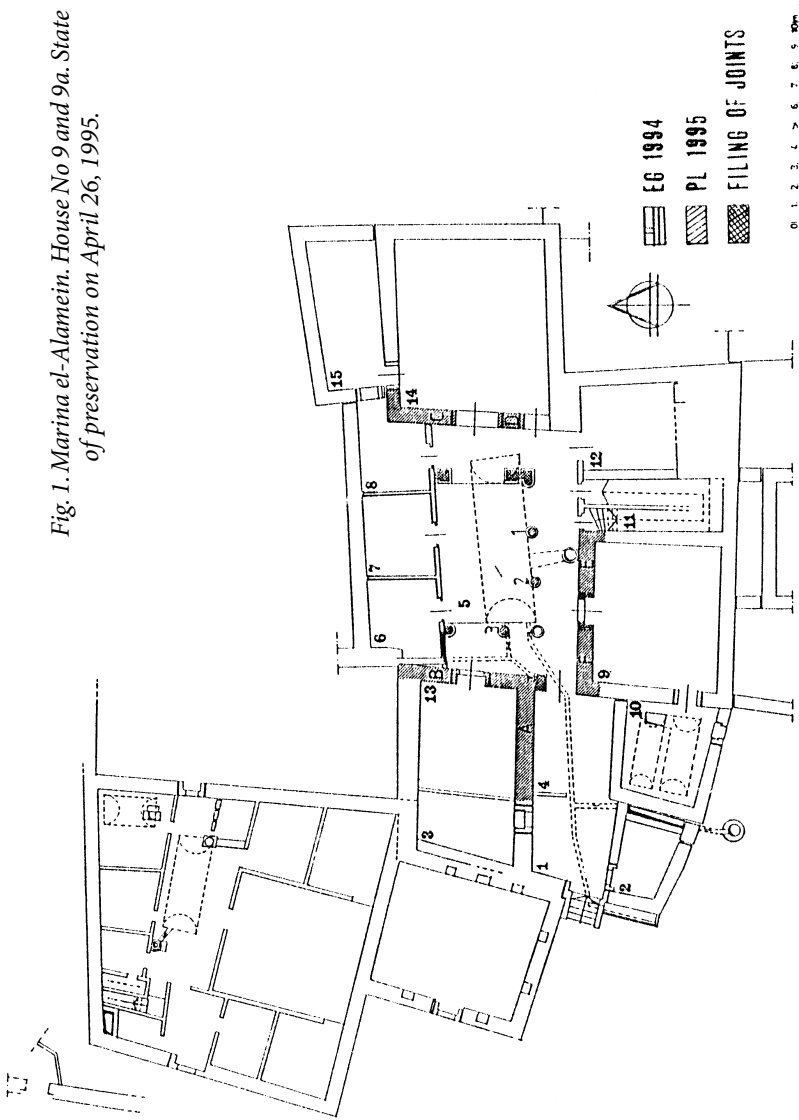
In order to emphasize the portico courtyard of the house, it was necessary to reconstruct the surrounding walls which were preserved to different heights, but never exceeding 0.70 m above the stone pavement. Following dismantling of the eroded tops, the walls measured: 0.45 m western wall, 0.20 m eastern wall. For the purposes of the reconstruction, these walls had to be built up to no less than 1 m, the western walls being higher than the eastern ones for reasons explained above. This, of course, concerned only walls not preserved to the projected minimum.

The first stage covered building up the southern courtyard wall. The lack of a stonecutter throughout most of the season prevented the mission from preparing new door jambs and column shafts; it also influenced the manner of reconstruction of particular walls. Projected levels of the walls were reached only in the corners; in the doorways the height of the walls could not exceed the existing original door jambs. In effect, the appearance of the courtyard is far from satisfactory. The intended outcome will be achieved in the next season, once a Polish stonecutter joins the team.

The next walls to be raised were the western and eastern ones. The same problems with door jambs were encountered. The experiment in the east wall with simple straight blocks replacing the door jambs seems hardly pleasing in effect, and so new door jambs will be substituted for the blocks in the coming season. It was possible to experiment with such a solution in the case of this wall, because the original jambs had no technical profiling requiring professional stone-dressing.

The west wall was completed in much the same way as the south one, that is, gradually descending toward the doorway locat-

Fig. 1. Marina el-Alamein. House No 9 and 9a. State of preservation on April 26, 1995.



ed in the centre. Attempts were made to remand the displeasing aesthetic result once an Egyptian stonecutter joined the mission in the last week. All that he managed to dress in this time, however, were four door jamb blocks, which were mounted in the western door connecting the courtyard with room 13.

Preliminary protection and building work was completed on walls separating the courtyard from rooms: 13, 9 and 14, and between rooms 8 and 14 and 4 and 13. The latter wall does not belong to the courtyard perimeter, but the efficient work of the entire team, including the mason, allowed the mission to include it in the 1995 program.

There are four column bases and two engaged column bases, one on the north wall and the other set against the northeastern pillar on the east, preserved in the courtyard. Remains of two pillars flank the entrance to the *prostas* and, in line, the *oikos*. Yet another pillar was attached to the northern wall separating the courtyard from room 8. The planned anastylosis of at least three columns and the conservation of the engaged columns and pillars was prevented because of the absence of a stonecutter. It was possible, nevertheless, to put together four incomplete columns, not exceeding 1.50 m in height, from the column drums scattered all over the courtyard and the few pieces which were removed with the debris during excavations in 1987. It is assumed that the missing drums and capitals will be cut in the coming season, permitting at least two columns to be raised.

Very thorough pointing was necessary in all of the built walls, because of the extensive erosion suffered by the joints and wall tops. The process of disintegration, which obviously started following excavations in 1986/87, first touched the plasters and then the joints. The walls which were technically sound when excavated, to judge by excavation photographs, are now in a condition which excludes any hope of preserving the ancient substance in its original form. As indicated already, the only way is to carry out comprehensive rebuilding and

building up of the walls in order to reinforce the structure and to make the house's functional plan more comprehensible.

The building technology of the original walls at Marina during the construction of House H9 was very simple. Ancient technology required the facing blocks to be laid practically without bonding mortar, while the inner fill consisted of stone debris heavily saturated with a thin mortar. The mortar bonded the debris and filled in empty spaces between facing blocks. Once the walls were finished and the ceilings introduced, the interiors were plastered. The first layer of the plaster contained a thick fraction of pebbles and stone grit; on the outside, it entered the joints between facing blocks quite deeply, giving the outer surface of the wall extra bonding. Successive layers of plaster, from one to three, had increasingly smaller fractions of sand. After polishing, the surface finishing layer of plaster constituted the ground for wall painting.

The reconstruction process did not assume recreating ancient technology because, first of all, the goal was not to recreate the original condition, but to protect remains of walls from further erosion. Secondly, missing plaster was neither recreated nor restored for technical and aesthetic reasons. The preservation of the largest still existing fragments of original plaster is planned for the next season.

The lack of good-quality basic building materials, particularly stone and mortar, constituted a considerable hardship. Owing to the bad quality of the lime (not quite hydrated), it was necessary to add a small amount of Portland cement to the lime mortar, obtaining in effect a rather dark shade. Consequently, the mortar was used for filling wall cores. The mortar for pointing the wall faces was made of lime mixed with sand and a small amount of white cement. The joints were recessed by about 1 cm, providing the right shadow effect and permitting old walls to be distinguished from new ones. Since the original structure of the wall face was retained as much as possible, this measure helps to indicate the degree of erosion of both the ancient stone and mortar. In the future, a different color will be

introduced in the new joints and the joint separating the old substance from the new one will be given a different thickness.

The last course of wall tops was consolidated for protection against the elements. This means that the blocks were laid more closely and that crossfalls were shaped in the direction of the wall faces to prevent water from gathering on the wall tops.

The mortar used to reinforce and seal the wall tops was similar to that used for the joints effacing blocks, with more white cement being added to the sealing mortar. Since the upper courses of walls are most endangered by the excessive changes of daily temperature in northern Egypt (20 to 30°C), too much cement in the mortar can cause fissuring and crushing of weak stone. The usefulness of the basic composition of the mortar adopted this season will be proven after one year. In case of any cracking or fissuring of the mortar, it will be necessary to seal the wall tops once again.

The short duration of the 1995 season made it more of an introduction to the variety of conservation problems facing the mission in future campaigns. The completed work is a sample of what will be done in the next, longer missions. The three-month season in 1996 will be devoted to completing the preservation of walls in house H9 and verifying the inventory documentation of H9a, as well as preparing a conservation project for the remains located there.

Another important task is to present the Egyptian side with a comprehensive proposal for the conservation of other monuments excavated at Marina. Constant regular maintenance conservation of the architectural elements of the decoration is absolutely necessary. After just a few years following the excavations, the condition of these pieces of architectural decorations is disastrous. To stop the process of disintegration, it is essential that such elements of the decoration are stored away from the detrimental influence of the elements, after full documentation and place of

discovery is recorded and before the piece is restored to its place in a reconstructed building. The stored stones could undergo chemical treatment during this time, effectively protecting them from deterioration in the future. The method that is most advantageous and generally the best is to preserve the element immediately upon excavation and to restore it to its original position while comprehensively protecting whole complexes from the deleterious influence of the elements.

Problems connected with a comprehensive conservation of the uncovered parts of the ancient city at Marina should be discussed by Polish and Egyptian specialists. The Egyptian side should also be convinced of the need to carry out architectural research and conservation activities in conjunction with the excavations, in order to preserve a record of the contexts and to protect pieces of architectural decoration from being left at the mercy of the sun, wind and saline rains. It is absolutely necessary that architectural inventory documentation be carried out on a regular basis and that the protection of the stone substance from progressing erosion be started immediately.