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Title: Research and conservation in Marina el-Alamein in the 2012 and 2013 seasons. The Polish-Egyptian conservation mission.

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Abstract: In 2012 and 2013, the Polish–Egyptian Conservation Mission to Marina el-Alamein focused on research and conservation in the public part of the ancient town, the dwelling houses and the necropolis. A site presentation program was continued in the area south of a public square, where remains of Roman public baths, in use from the 2nd to the 4th century, have survived. Current maintenance and conservation was carried out on the site of dwelling houses and, in 2013, on the aboveground mausoleum of tomb T21 in the necropolis. Conservation of mural paintings was undertaken also during the seasons.

Keywords: Marina el-Alamein, southern baths, town center, dwelling houses, tomb T21, architecture, research, preservation, conservation

البحث والصيانة في مارينا العلمين للموسمين 2012 و 2013 . البعثة البولندية - المصرية .

Rafał Czermer, Grażyna Bąkowska-Czermer, Wiesław Grzegorek

الملخص : في 2012 و 2013 البعثة البولندية المصرية للصيانة في مارينا العلمين ركزت عملية البحث والحفظ في مكان عام من المدينة القديمة والدور السكنية و المقابر . موقع تقديم البرنامج إستمر في المنطقة الجنوبية من ساحة عامة حيث بقايا حمامات رومانية عامة ما زالت موجودة إستخدمت في القرن الثاني إلى القرن الرابع . إن عملية الصيانة والحفظ الحالية جرت في موقع الدور السكنية وفي موسم 2013 فوق ضريح 21.T في المقبرة الإسلامية كما تمت صيانة و ترميم لوحات جدارية خلال الموسم .

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RESEARCH



ABBREVIATIONS

<i>AA</i>	<i>Archäologischer Anzeiger; Jahrbuch des Deutschen Archäologischen Instituts</i> (Berlin)
<i>ANM</i>	<i>Archéologie du Nil Moyen</i> (Lille)
<i>ASAE</i>	<i>Annales du Service des Antiquités de l'Égypte</i> (Cairo)
<i>AV</i>	<i>Archäologische Veröffentlichungen, Deutsches Archäologisches Institut, Abteilung Kairo</i> (Berlin–Mainz am Rhein)
<i>BAAL</i>	<i>Bulletin d'archéologie et d'architecture libanaises</i> (Beirut)
<i>BAH</i>	<i>Bibliothèque archéologique et historique</i> (Paris)
<i>BAR IS</i>	<i>British Archaeology Reports International Series</i> (Oxford)
<i>BASOR</i>	<i>Bulletin of the American Schools of Oriental Research</i> (Ann Arbor, MI)
<i>BCH</i>	<i>Bulletin de correspondance hellénique</i> (Paris)
<i>BdE</i>	<i>Bibliothèque d'étude</i> (Cairo)
<i>BIFAO</i>	<i>Bulletin de l'Institut français d'archéologie orientale</i> (Cairo)
<i>BSAA</i>	<i>Bulletin de la Société d'archéologie d'Alexandrie</i> (Cairo)
<i>BSFE</i>	<i>Bulletin de la Société française d'égyptologie</i> (Paris)
<i>CCE</i>	<i>Cahiers de la céramique égyptienne</i> (Cairo)
<i>EtTrav</i>	<i>Études et travaux. Travaux du Centre d'archéologie méditerranéenne de l'Académie des sciences polonaise</i> (Warsaw)
<i>FIFAO</i>	<i>Fouilles de l'Institut français d'archéologie orientale</i> (Cairo)
<i>GAMAR</i>	<i>Gdańsk Archaeological Museum African Reports</i> (Gdańsk)
<i>GM</i>	<i>Göttinger Miszellen</i> (Göttingen)
<i>IAMS</i>	<i>Institute of Archaeo-Metallurgical Studies</i> (London)
<i>JARCE</i>	<i>Journal of the American Research Center in Egypt</i> (Boston–Princeton–New York–Cairo)
<i>JEJ</i>	<i>Journal of Egyptian Archaeology</i> (London)
<i>JGS</i>	<i>Journal of Glass Studies</i> (Corning, NY)
<i>JJP</i>	<i>Journal of Juristic Papyrology</i> (Warsaw)
<i>JRS</i>	<i>Journal of Roman Studies</i> (London)
<i>MDAIK</i>	<i>Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo</i> (Wiesbaden)
<i>OIP</i>	<i>Oriental Institute Publications</i> (Chicago)
<i>OLA</i>	<i>Orientalia lovaniensia analecta</i> (Louvain)
<i>PAM</i>	<i>Polish Archaeology in the Mediterranean</i> (Warsaw)
<i>PSAS</i>	<i>Proceedings of the Seminar for Arabian Studies</i> (London)
<i>SAAC</i>	<i>Studies in Ancient Art and Civilisation</i> (Kraków)
<i>SAK</i>	<i>Studien zur altägyptischen Kultur</i> (Hamburg)
<i>SAOC</i>	<i>Studies in Ancient Oriental Civilization</i> (Chicago)
<i>WVDOG</i>	<i>Wissenschaftliche Veröffentlichungen der deutschen Orient-Gesellschaft</i> (Berlin–Leipzig)

RESEARCH AND CONSERVATION IN MARINA EL-ALAMEIN IN THE 2012 AND 2013 SEASONS. THE POLISH–EGYPTIAN CONSERVATION MISSION

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Abstract: In 2012 and 2013, the Polish–Egyptian Conservation Mission to Marina el-Alamein focused on research and conservation in the public part of the ancient town, the dwelling houses and the necropolis. A site presentation program was continued in the area south of a public square, where remains of Roman public baths, in use from the 2nd to the 4th century, have survived. Current maintenance and conservation was carried out on the site of dwelling houses and, in 2013, on the aboveground mausoleum of tomb T21 in the necropolis. Conservation of mural paintings was undertaken also during the seasons.

Keywords: Marina el-Alamein, southern baths, town center, dwelling houses, tomb T21, architecture, research, preservation, conservation

The work program for 2012 and 2013 of the Polish–Egyptian Conservation Mission to Marina el-Alamein included research and conservation in the public part of the town, the dwelling houses and the necropolis. Priority was given to the site presentation project, involving research and conservation of a civic basilica and neighboring public bath from the Roman age located to the south of the central town square [*Fig. 1*]. Despite several years of study, the baths and their complex technical and construction design con-

tinue to be an interesting research issue and a serious conservation task (for a detailed report, see Czerner, Bąkowska-Czerner, and Majcherek 2015, in this volume).

Major conservation and maintenance was carried out concurrently on buildings conserved years ago, which had increasingly succumbed to aggressive weather conditions on site. Continuous restoration is a must to prevent erosion and indeed the extensive ancient repairs observed in the ancient ruins, in the

form of frequent replastering of missing parts, replacing of damaged elements and pointing of walls, are proof that a similar approach was adopted in ancient times. Erosion of stone remains has been exacerbated in the past few years, requiring urgent conservation intervention which in the 2012 season was conducted in the housing quarter, on houses H2, H2a, H9, H9a, H10, H10a, H19 and H21c. A more extensive program going beyond current protection was carried out in the H2 and H2a complex. In 2013, the southern baths and civic basilica were the focus of current conservation, which was concentrated on the eroding column shafts.

In 2013, the aboveground part of tomb T21 was protected as well. This stately funerary mausoleum leading to

a subterranean burial chamber resembled in character tomb T6, conservation of which was carried out by the mission in earlier seasons. Its exposed position on the top of the ridge overlooking the city and necropolis demands all the more rigorous conservation and presentation.

Enabled access after 2011 to some relics of wall painting discovered by the mission a decade ago and conserved at the time revealed the necessity for further treatment. This was duly accomplished in 2013 on the most important pieces.

A broader range of documentary and measurement activities was undertaken as well, measurements being updated and supplemented employing new documentary and inventory methods, including photo scanning.

Team

Dates of work: 1–31 May 2012; 4–31 May 2013

Director: Prof. Rafał Czerner, architect (Wrocław University of Technology; 2012, 2013)

MSA representatives: Dr. Khaled Abul-Hamd (Marina Site Director; 2012, 2013), Mrs. Nama Sanad Yakoub (Deputy Director; 2012, 2013), Abdel Bassit Ali Abdel Fattah (SCA inspector; 2012), Medhat Saleh Kamal Yousif (SCA inspector; 2013)

Archaeologists: Dr. Grażyna Bąkowska-Czerner (Jagiellonian University, Kraków; 2012, 2013), Walter Wójtowicz (MA student, University of Rzeszów; 2012; PCMA associate, 2013)

Archaeologist, pottery expert: Dr. Grzegorz Majcherek (PCMA UW; 2012, 2013)

Archaeologist, glass expert: Renata Kucharczyk (PCMA UW; 2012)

Architects: Wiesław Grzegorek (PCMA associate; 2012, 2013), Karolina Majdzik (PhD candidate, Wrocław University of Technology, Faculty of Architecture; 2013), Anna Kubicka (MA student, Wrocław University of Technology, Faculty of Architecture; 2013)

Stone and sculpture conservator: Wojciech Osiak (freelance; 2012, 2013)

Painting conservator: Marlena Koczorowska (freelance; 2013)

Documentalist: Agnieszka Dzwonek-Kozieł (PCMA associate; 2013)

Acknowledgments

The Egyptian side, represented by the General Director of the Marina el-Alamein site Dr. Khaled Abul-Hamd, deputy director Mrs. Nama Sanad Yakoub and inspectors Abdel Bassit Ali Abdel Fattah and Medhat Saleh Kamal Yousif, was instrumental in accomplishing most of the scheduled work program despite restrictions on time and staff falling beyond the mission's control. Their commitment to ironing out post-transformation problems in Egypt and their assistance on a daily basis throughout the seasons is duly and sincerely appreciated.

MAIN STRUCTURES

The baths from the Roman period [*Fig. 1: No. 4*] are connected to the basilica, and together they are situated adjacent to the central square of the town on the south. The complex discovered in 1987 (Daszewski 1995: 19–20) and excavated in 2005 (Daszewski 2007: 79–82) by a mission run by Wiktor A. Daszewski from the Polish Centre of Mediterranean Archaeology, University of Warsaw, continued to be explored in 2006 and 2007 by Egyptian archaeologists contracted by the ARCE/EAP Marina el-Alamein Site Presentation Project. In

2007, the Polish–Egyptian Conservation Mission, also from the PCMA UW, was requested by the Egyptian side to undertake protection work on the rapidly deteriorating ruins. The bath complex was conserved in 2008–2009 and 2011 (Medeksza et al. 2011: 116–118; Medeksza, Czermer, and Bąkowska-Czermer 2012: 84–99) and the conservation and research program was broadened in the 2012 and 2013 seasons to include further chambers in the baths and the southern part of the basilica.

Houses H2, H2a, H9, H9a, H10, H10a, H19 and H21c had been un-

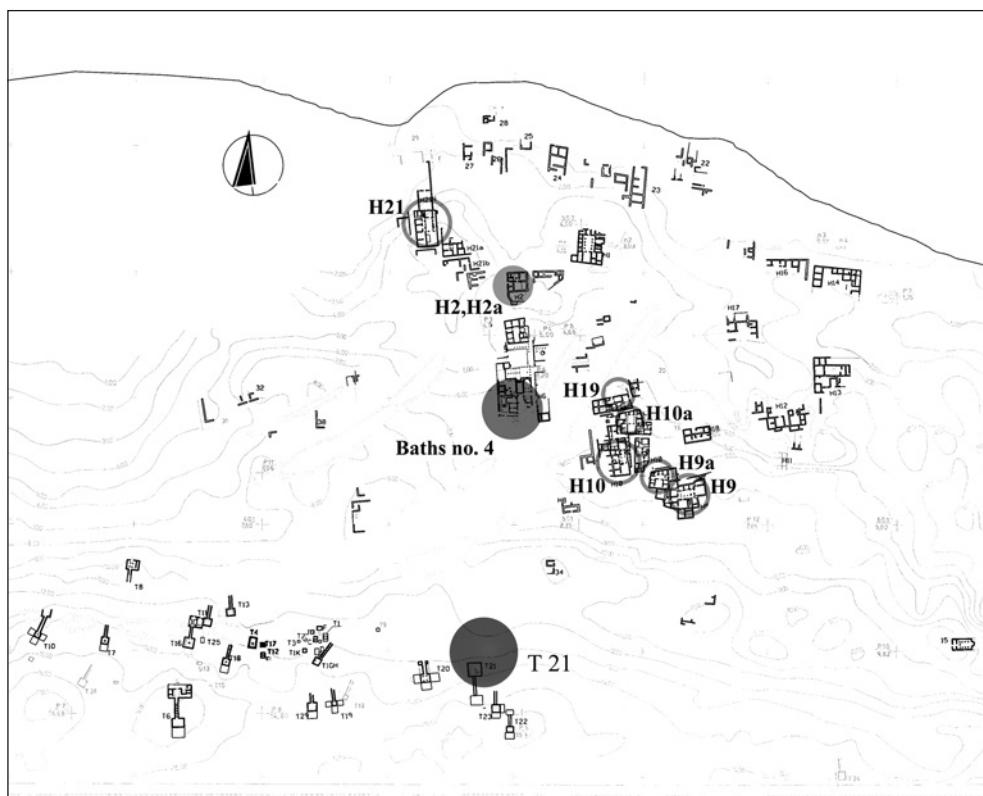


Fig. 1. Marina el-Alamein site plan: circles mark areas of work in the 2012 and 2013 seasons (PCMA Mission Archives)

covered and protected successively, starting from 1987, by the Polish Archaeological Mission and by teams of Egyptian archaeologists from the Alexandrian branch of the Egyptian Antiquities Organization. The Polish–Egyptian Conservation Mission started work on the H9 and H9a complex in 1995 and continued until 1998. Next were houses H10, H10a, H19, from 1997 to 2004. Conservation of house H21 was completed in 2001 and 2002, and of house H2 in 2006–2008. Continuous monitoring of the state of preservation of the remains over the years had raised the issue of progressing deterioration of the parts of the architecture conserved more than a decade ago. It was found that exposure to wind and rain for more than ten years had much degraded the stone elements and wall pointing. Especially prone to deterioration are the reconstructed columns, the original stone elements used in the reconstruction being rather weakened. The columns started to be protected again in 2011 and work on this project continued on a considerably larger scale over the course of the next two seasons. Work was also done on filling out the wall structure in the lower parts affected the strongest by damp and washing away by heavy winter rains.

In the case of the mausoleum of tomb T21, it was originally located by inspectors from the Egyptian Antiquities Organization during salvage excavations in the 1980s (Daszewski 2005: 81). Wiktor Andrzej Daszewski discovered three mosaic emblemata in the main banquet room of the mausoleum and protected them in 2001 (Daszewski 2002: 79, Fig. 5), then embarked on regular excavation in 2004, uncovering relics

of a portico affronting the mausoleum and its interior layout (Daszewski 2005: 81–85). The hypogeum was opened but its excavation was interrupted when the mission was formally suspended after the 2005 season. Following that, the conservation team regularly monitored the state of preservation of the remains, eradicating the vegetation encroaching on the structure and addressing conservation issues as they appeared. Progressing erosion necessitated action, which the team undertook in the seasons reported in this article.

CONSERVATION AND RESTORATION METHODS

Conservation and restoration methods in Marina el-Alamein have remained unchanged over the years (see successive reports published in the *Polish Archaeology in the Mediterranean* journal over the years from 1995 through 2011). Progressive deterioration of wall structure: powdering joints, flaking stone and rainfall penetrating into walls requires continuous maintenance in the form of pointing work, rebuilding and overbuilding of walls. Masonry work and consolidation of wall tops is a measure against penetrating rainfall.

A modified approach to the anastylosis of fallen columns was adopted in 2012. It was decided now to start plastering the shaft surfaces in an effort to improve protection against the deleterious action of rain and wind.

For practical and protective reasons the lime mortar used at the site has a limited addition of white cement (the issue has been discussed repeatedly in the mission reports). Standard proportions are: six parts sand to three parts lime and no more

than one part white cement. For plastering the columns, where especially the mortar cannot be strong, the proportions applied

were: nine parts sand to three parts lime and one part white cement.

[RC]

COMPLEX OF HOUSES H2, H2A

The complex of houses marked as H2 and H2a is located north of the central square. It consists of relics of two adjoining houses, both equipped with portico courtyards in the middle and main halls in the south. The occupational level of the western house H2a was about 0.70–0.90 m higher than that of the eastern H2. Conservation in 2006–2008 covered mostly the eastern house [Fig. 2] and included first of all protecting and building up the wall tops in the main hall, and anastylosis of the portico column in the courtyard. In 2012 further conservation was carried out.

[RC]

ARCHAEOLOGICAL RESEARCH

Houses H2 and H2a were first cleared in 2006–2008 (see Medeksza et al. 2008: 73–75, 81; Medeksza 2010: 86–88, 96; Medeksza et al. 2011: 109, 120–121). They were investigated only in part, leaving unexplored the northern and western parts. The buildings were damaged extensively, especially the higher-lying H2a. In some places only the foundations of walls were preserved. Based on currently available evidence, the houses can be said to have been destroyed and then reconstructed in the mid-3rd century and in the middle of the 4th century, after an earthquake (Bąkowska-Czerner 2014: 359–370). The buildings were equipped with water cisterns and their floors were paved with stone slabs. Small rooms were introduced during this rebuilding in the

courtyard space. The new walls were not raised on any foundation and the stone blocks of which they were constructed were not well fitted together. Some doors were walled up as a result of the reconstruction; new doorways were pierced in other places. Traces of smaller or larger furnaces were found above the stone floors; these furnaces were built of stones, bricks and clay. The layers underlying the slabs proved to be firmly packed sand.

The wall separating house H2 from house H2a was heavily tilted eastward in its northern part and threatened to collapse.

Pottery, glass, animal bones, small fragments of painted plaster and a fragment of a lamp were found in the fill in room 5. Pottery was recovered also from a profile cleaned when the east wall of room 6 was reconstructed to a height of 0.80–0.90 m. In room 9 with the cistern under it, restoration of the leaning east wall led to testing of the under-floor deposits. Finds from the trial pit under slabs of the floor by the wall included pottery, glass, fragments of painted plaster, a few small shells, remains of charred wood and some animal bones. The pottery was examined and dated by Grzegorz Majcherek to the 1st–3rd century AD.

[GB-C]

CONSERVATION WORK

Reconstruction and protection work in 2012 was carried out on the wall dividing houses H2 and H2a. Owing to the considerable difference in altitude between

occupational levels, the lower parts of this wall acted also as a retaining structure. However, being built of very narrow (about 0.20 m thick) upright slabs, it had started to lean dangerously toward the east and was in danger of collapse [Fig. 3 top]; indeed, it had already collapsed in one

place, next to room 6, along with the vault of a cistern in room 9. The aim of the protection and reconstruction project was to dismantle the top two courses of the endangered east wall in rooms 5, 6 and 9, as well as the parts of floor on the higher level adjacent on the west, and to rebuild

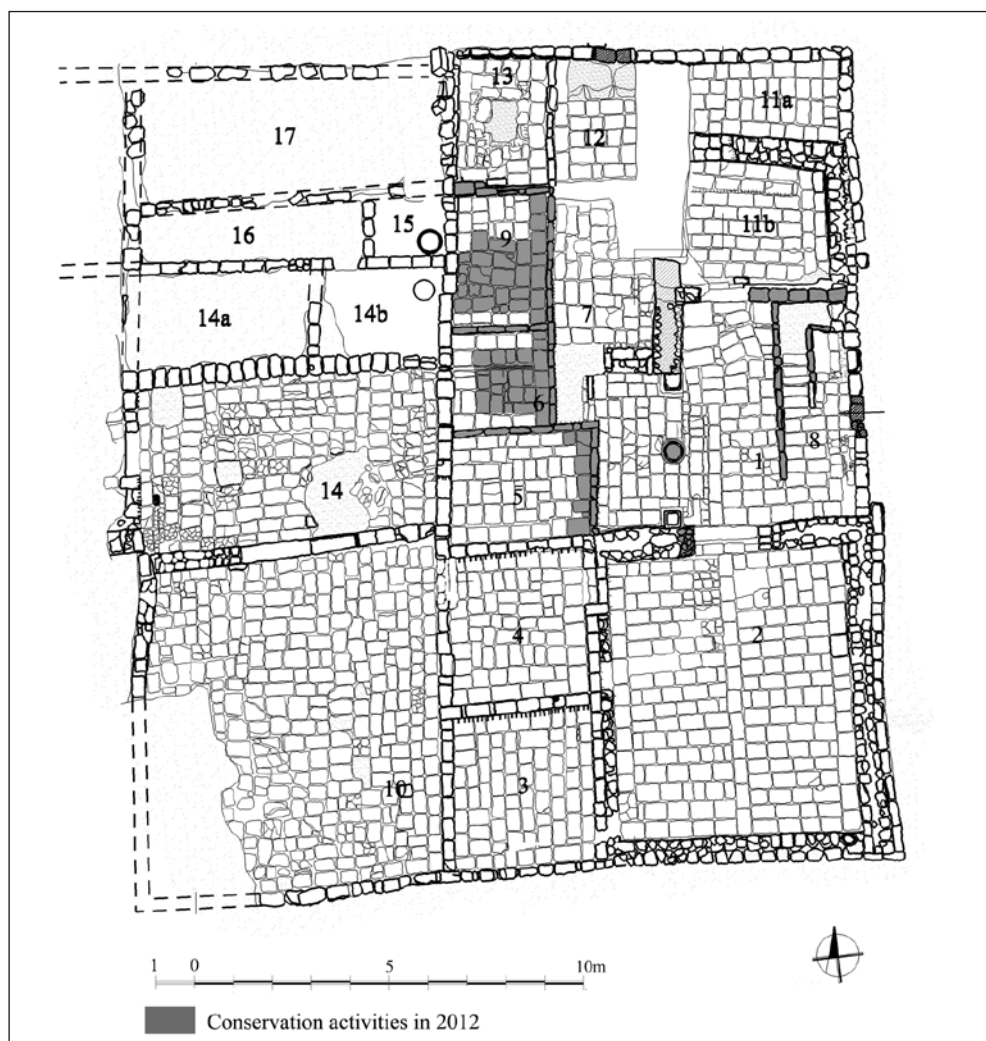


Fig. 2. Houses H2 and H2a. Plan showing areas of conservation activities in 2012
(Drawing R. Czerner, M. Krawczyk-Szczerbińska, S. Medeksza)

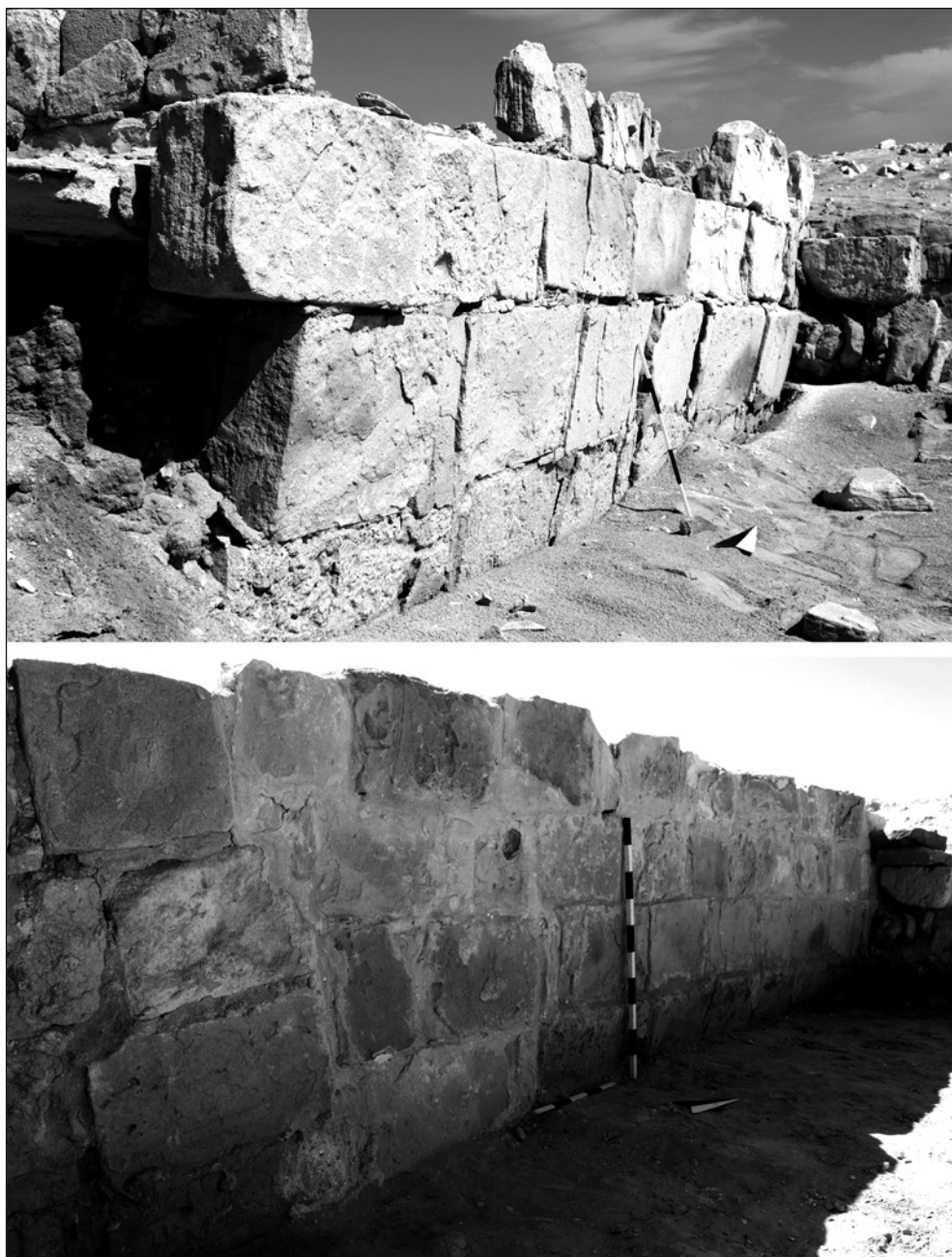


Fig. 3. Houses H2 and H2a: retaining wall before (top) and after (bottom) conservation in 2012 (Photos R. Czermer)

them restoring the correct geometry [*Fig. 3* bottom]. The damaged part of the cistern vault in the room 9 was also rebuilt and the floor above it was reconstructed.

Additionally, to make the plan of house H2a more evident, one layer of stone

blocks was added on the top of the repaired walls. Most of the other walls in rooms 5, 6 and 9 were similarly overbuilt. The current conservation activities also called for filling in the joints in some of the walls.

[RC]

CURRENT MAINTENANCE AND CONSERVATION

Annual monitoring of the state of preservation of individual architectural monuments (houses H2, H9, H9a, H10, H10a, H19 and H21c) revealed progressing damage to the material structure of the architecture, the condition caused by recent heavy winters with difficult weather conditions that aggravated the situation.

INDIVIDUAL STRUCTURES

In houses **H9** and **H9a**, where the upper parts and tops of walls of broken stone had been added as part of the conservation effort in 1996–1999, water flowing along the walls of the building caused erosion of limestone and mortar in the joints of the walls in the lower (ground) zone up to a height of 0.20–0.40 m, resulting in the collapse of some parts of the walls, collapse of the right jamb of the entrance to the “tavern” [*Fig. 4* top], collapse of a 2-m-long fragment of south wall in the “tavern” under the wall top [*Fig. 4* top], considerable washing out of the mortar and stones in the northwestern corner of house H9a. Repairs were carried out in 2013.

Heavy winter rains, blowing winds and high salinity also caused losses of mortar in joints of columns and powdering of limestone used to built houses **H21c**, **H10**, **H10a**, **H19**, **H2**. A progressing weathering was observed of stones in the wall and the drums of the columns, which

had undergone anastylosis in 1998–2005 [*Fig. 5* left]. Original drums had been used then, following a study of the scattering of the elements and replacing missing elements with new drums carved from limestone.

Conservation now aimed to clean the side surfaces of stones and the inner spaces of joints, to soak them thoroughly with water and to fill in the losses in joints with lime–cement mortar in standard proportion, and to apply one or several (bigger losses) layers of plaster using lime–cement mortar in a proportion of nine parts sand to three parts lime to one part cement [*Fig. 5* right]. White Portland cement and hydrated lime were used.

Some walls were also pointed, and walls and the cistern ceiling were filled in with stones in places where rainwater action had caused big losses of mortar from the joints and losses of stone (powdering of surfaces, washing by water and sand-blasting).

The repairs were made using original stones from the site, found heaped around the buildings. The stones were placed in such a way that their worn surfaces, resistant to weather conditions, were situated in the wall face.

Conservation in individual structures encompassed the following:

House H21c: joints and plasters on the columns;

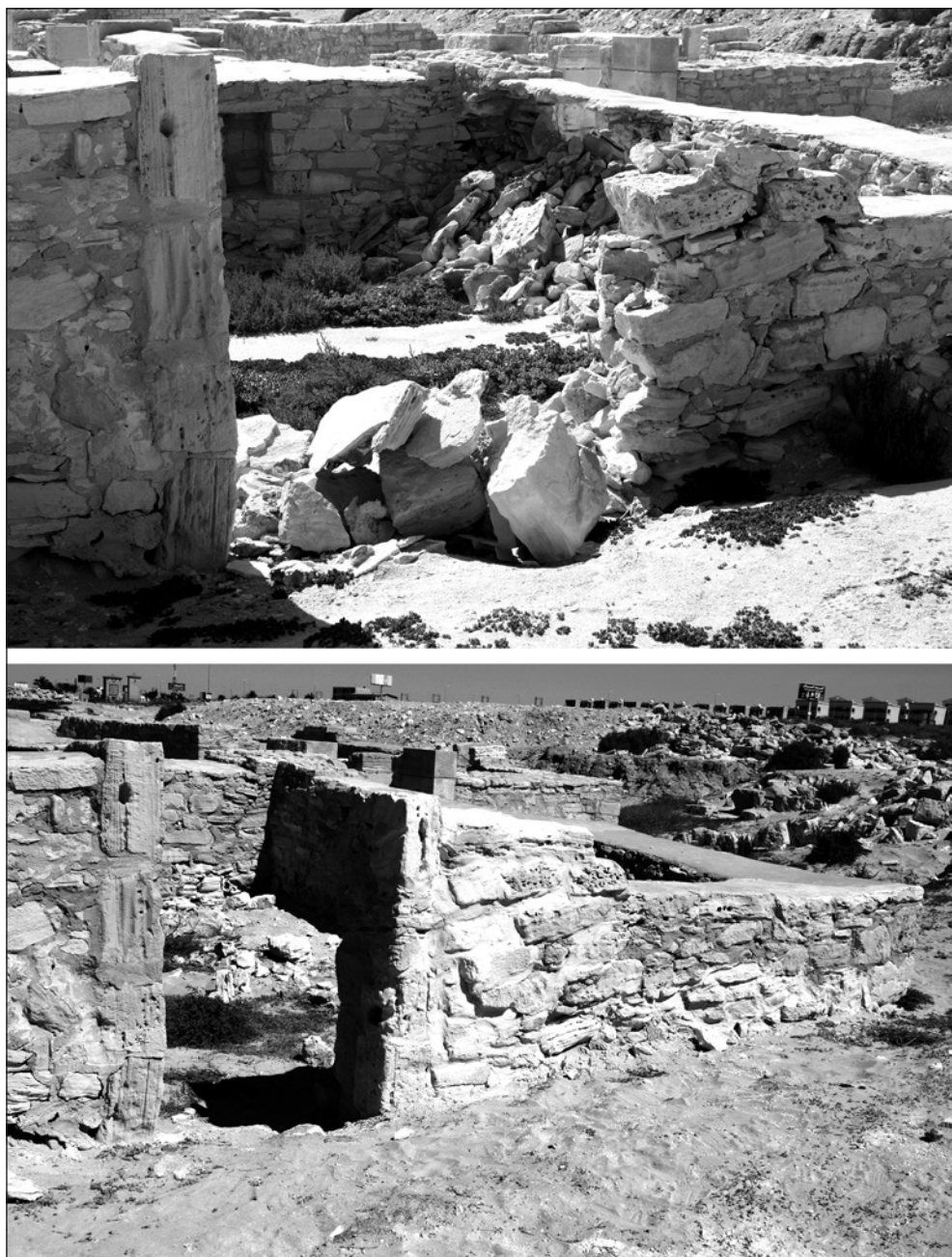


Fig. 4. House H9. Walls and door jamb of the “tavern” before conservation (top) and after, view in 2013 (Photos R. Czerner)



Fig. 5. House H10a. Damaged columns before conservation in 2012 (left) and after (Photos R. Czerner)

House H10: joints and plasters on six columns and two engaged columns; joints in some parts of the walls;

House H10a: joints and plasters on six columns;

House H19: joints and plasters on two columns;

House H2: joints and plasters on one column; fragments of upper parts of the walls made of stone slabs and of the walls made of broken stone; filling in the stones and joints in the cistern ceiling.

FUNERARY MAUSOLEUM T21

After excavation in 2004, the standing walls of the mausoleum were preserved to a height of one or two courses of stone

blocks, with single blocks from a third course still in place here and there. In rooms 1, 3, 4, 5, 7, 10 and 11, the floor paving survived; it consisted of limestone slabs, most of them measuring 0.36 m by 0.55–0.58 m.

Fronting the mausoleum was a portico of eight columns, behind which was a front wall pierced by the main entrance situated on the main axis and 2.30 m wide. The entrance was framed with two engaged columns having a base diameter of 0.54 m. Two door openings in a symmetrical layout pierced the front wall on either side of the main door. The outer walls of the mausoleum were built of limestone blocks that were 0.24 m by 0.30 m by 0.42–0.61 m. The front wall with the main entrance was 0.44 m thick.

The triclinium or banquet room (No. 3), which was the focal point of the structure, contained two couches, *klinai* (Nos 3.1 and 3.2), arranged symmetrically relative to the axis of the interior. In the middle between them, relics of three mosaic emblemata survived in the flooring. Two were round with diameters of 0.36 m and 0.35 m, and one was rectangular, sized 0.42 m by 0.44 m.

Under room 2 an underground cistern had been fitted. The outer walls of the chamber rose 0.42–0.47 m above the floor. The inner height of the cistern up to the footing was 0.61 m. The total depth of the cistern was 4.45 m.

Conservation work added a course of stone blocks to the walls of room 1. Blocks from the excavation, which had been stored next to the tomb, were used for the purpose [Fig. 7]. Blocks were cut to size to be placed in the jambs of the entrances. In room 2, some stones from the second course were replaced with blocks that had

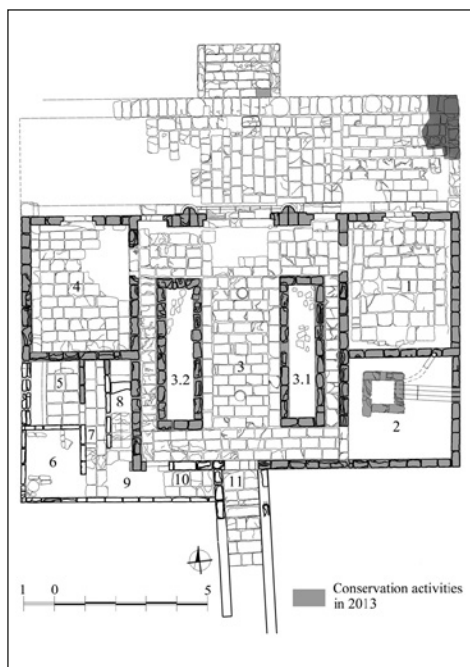


Fig. 6. Tomb T21. Plan showing areas of conservation activity in 2013 (Drawing W.A. Daszewski, A. Błaszczuk; PCMA Mission Archives)



*Fig. 7. Tomb T21. Mausoleum before (top) and after (bottom) conservation in 2013
(Photos R. Czerner)*

a patinated, resilient surface. To the south and to the east, a third course was laid from blocks stored next to the tomb. An original block cut to hold a downspout carrying rainwater into the cistern was left in place (another drain ran into the cistern from the outside of the tomb on the east). The third course in the east wall was laid using blocks sized 0.20–0.24 m by 0.28 m by 0.48–0.54 m.

In the triclinium (room 3), the gaps in the upper course of blocks making up the *klinai* couches were filled in with

material from excavation, stored next to the tomb. Using old stone, two drums of engaged columns were reconstructed and placed on original bases which survived *in situ* on both sides of the main entrance in the front wall. In the eastern part of the portico, a fragment of the stylobate was filled in with original stone.

For masonry work lime–cement mortar with sand, hydrated lime and white Portland cement (6:3:1) was used.

[WG]

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