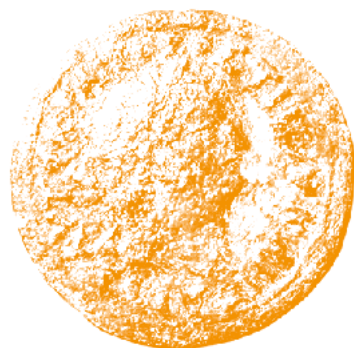


# Research and architectural conservation in Marina el-Alamein in 2017

## (Polish–Egyptian Conservation Mission)



**Abstract:** Activities undertaken by the Polish–Egyptian Conservation Mission to Marina el-Alamein in 2017 comprised research and conservation in the public district of the ancient town as well as in private houses. Work focused foremost on research and exhibition of the remains of a street running east of the southeastern corner of the main town square and monuments in the area of the square itself. Research and conservation continued also in the area south of the square, concentrating on the remains of public Roman baths dating from the 1st to the 3rd century AD. Maintenance conservation was carried out in private houses and in the ancient town center.

**Keywords:** Marina el-Alamein, town center, east–west street, main square, southern baths, houses, research, preservation, conservation

In September 2017, the Polish–Egyptian Conservation Mission worked at the site of the Hellenistic and early Roman town of Marina el-Alamein for the twenty-second time.

The imminent opening of the archaeological excavation site in Marina el-Alamein for tourism demanded that the team undertake work first of all in the center of ancient town, that is in the area to be included in the visitors' itinerary. The scope of conservation and preservation work, especially current maintenance, was also determined to a large extent by the damages caused by unfavorable weather conditions in the autumn and winter seasons of 2015/2016 and 2016/2017.

Research and conservation were focused in four different areas of the site [Fig. 1] and encompassed several issues aimed primarily at preparing the site for presentation to visitors.

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## **Team**

*Dates of work:* 30 August–21 September 2017

*Director:* Prof. Rafał Czerner, architect (Wrocław University of Science and Technology)

*SCA representatives:* Nama Sanad Yakoub (Marina Site Director), Enas Mohamed Mosaad Elsayed and Medhat Saleh Kamal Yousif (SCA inspectors)

*Archaeologist:* Dr. Grażyna Bąkowska-Czerner (Jagiellonian University)

*Architects:* Wiesław Grzegorek (freelance, PCMA UW associate), Szymon Popławski (student, Wrocław University of Science and Technology)

*Stone and sculpture conservator:* Piotr Zambrzycki (Inter-academy Institute of Conservation and Restoration of Works of Art, Academy of Fine Arts in Warsaw), responsible also for copper-alloy/small finds preservation

*Painting conservator:* Anna Selerowicz (Inter-academy Institute of Conservation and Restoration of Works of Art, Academy of Fine Arts in Warsaw)

*Cooperating specialists*

*Numismatist:* Prof. Barbara Lichočka (Institute of Mediterranean and Oriental Cultures, Polish Academy of Sciences)

*Pottery expert:* Dr. Grzegorz Majcherek (PCMA UW)

*Glass expert:* Renata Kucharczyk (PCMA UW)

*Archaeozoologist:* Dr. Urszula Iwaszczuk (PCMA UW)

## **Acknowledgments**

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The areas in question comprised the main square of the ancient town (forum) and the areas east and south of it (continuation of work from past years), concentrating in 2017 on the street running east of the southeastern corner of the forum. Research and protection work were carried out also in the relics of a Roman bath south of the square. Maintenance conservation was required in the complex of houses H9/H9a, as well as in H21, where rains during the rainy season had

caused some damage to the architectural substance.

Objects, especially fragments of painted decoration conserved by the team in past seasons, underwent routine inspection of their condition in storage and interventions were undertaken where required (see Zambrzycki and Selerowicz 2018, in this volume). Conservation of bronze finds from this season was another task carried out by the team.

[RC]

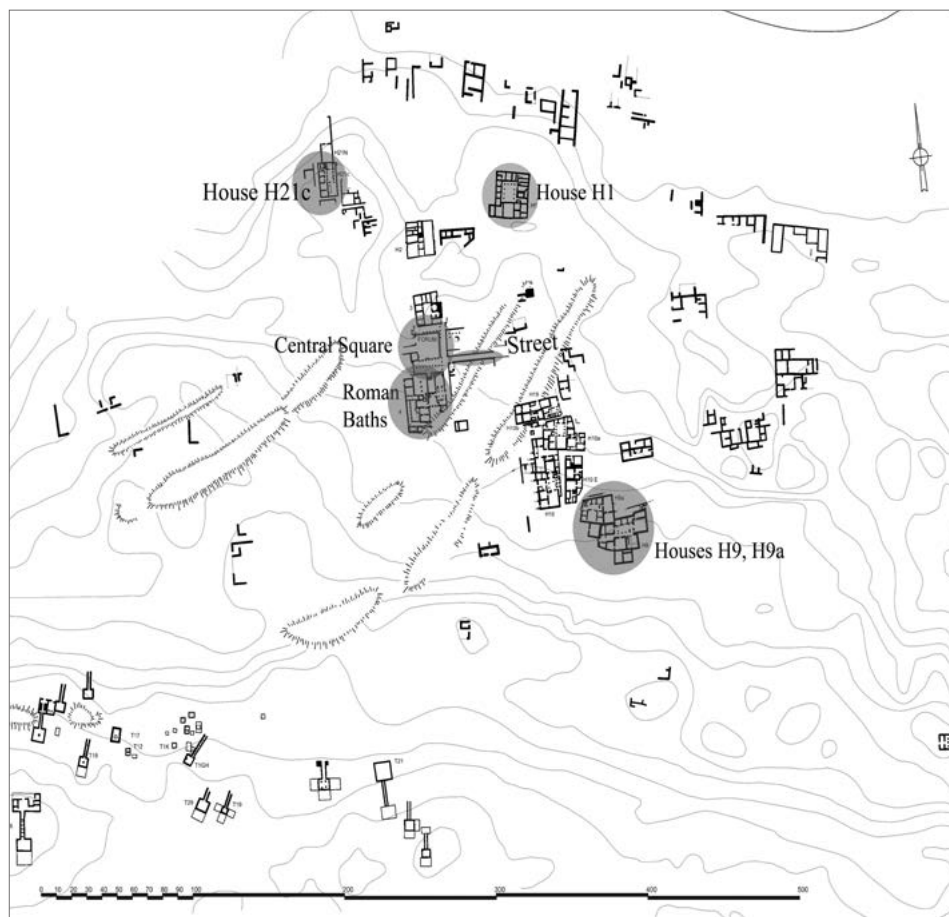


Fig. 1. Areas of research and conservation work in Marina el-Alamein in 2017 (Polish–Egyptian Conservation Mission Marina el-Alamein)

## ARCHITECTURAL CONSERVATION AND SITE PRESENTATION

### MAIN SQUARE (FORUM)

The square, together with the relics of buildings around it, was discovered by the Polish Archaeological Mission from the Polish Centre of Mediterranean Archaeology University of Warsaw in 2001–2005 (Daszewski 2002: 80–86; 2003: 59–65; 2011: 423–429; Daszewski et al. 2005: 86–89; 2007: 76–77) and is identified as a forum (or agora). Being a central point of the excavation site, surrounded by remains of public buildings, it should become an important feature of a future tourist visit, and can easily be included in the itinerary. For this reason, the research, conservation and exhibition activities of the Mission have been focused in this area since 2008 [Fig. 2]. In 2017, the team concentrated on the street leading east from the forum and continued work within the Roman baths south of the square. Complementary conservation activities were also carried out on the forum itself. [RC]

### STREET EAST OF THE FORUM

The excavations east of the main square, carried out by the PCMA Archaeological Mission in 2002, uncovered substantial relics of the western part of a peristyle adjacent to the square (Daszewski 2003: 59–61), as well as the western part of a street running east from the southeastern corner of the forum (Daszewski et al. 2005: 89–90). The eastern part of the street had been excavated by the Archaeological Mission in 2000 (Daszewski 2001: 58–61). The part of the street in between, which remained unexplored after

Daszewski's mission ceased to function in 2007, was finally excavated by the Conservation Mission in 2017 [Fig. 3 top].

The outcome is important for scientific as well as presentation reasons: another broad street opening from the stately square. Together with a neighboring one, uncovered and restored earlier (by the MASP/ARCE project) and running from the same corner of the square to the south, they give an idea of what the streets in the ancient town looked like. Open in its entirety, the street can be included in the itinerary, linking the forum with a well-exhibited group of residential houses located to the east.

The excavated section of the street is 20.72 m long and 3.44 m wide at its western end. Further to the east, the street narrows slightly to 3.24 m in the eastern part, where at a distance of 2.41 m from its eastern end (18.31 m from the western one) it regains its width of 3.44 m thanks to a 0.22 m setoff on the southern side. Still further to the east, the street widens considerably to the north turning into another square (see Daszewski 2001: 58–61). The street is paved with rectangular limestone slabs. The slabs along the walls of the buildings are laid lengthwise in two border strips; between them are transverse rows of slabs. The drop in the ground descending northwest in the vicinity of the forum resulted in a crack in the pavement displacing the outermost northern row of slabs in the western section.

Constructed using diverse techniques, the walls of the buildings situated along

the street stand to a maximum height of about 0.90 m [Fig. 3 bottom]. Relics of several entrances remain. On the southern side of the street, the wall is 0.58–0.60 m wide for most of its length. At a distance of 1.78 m from the western corner, a door 0.82 m wide opens in it, the jambs made of

limestone blocks. It leads to a corner room excavated already in 2004 (Daszewski et al. 2005: 90–92) and preserved by the Conservation Mission. East of this entrance, up to the offset mentioned above, the wall was built of rubble masonry with only the lowest foundation layer made of limestone

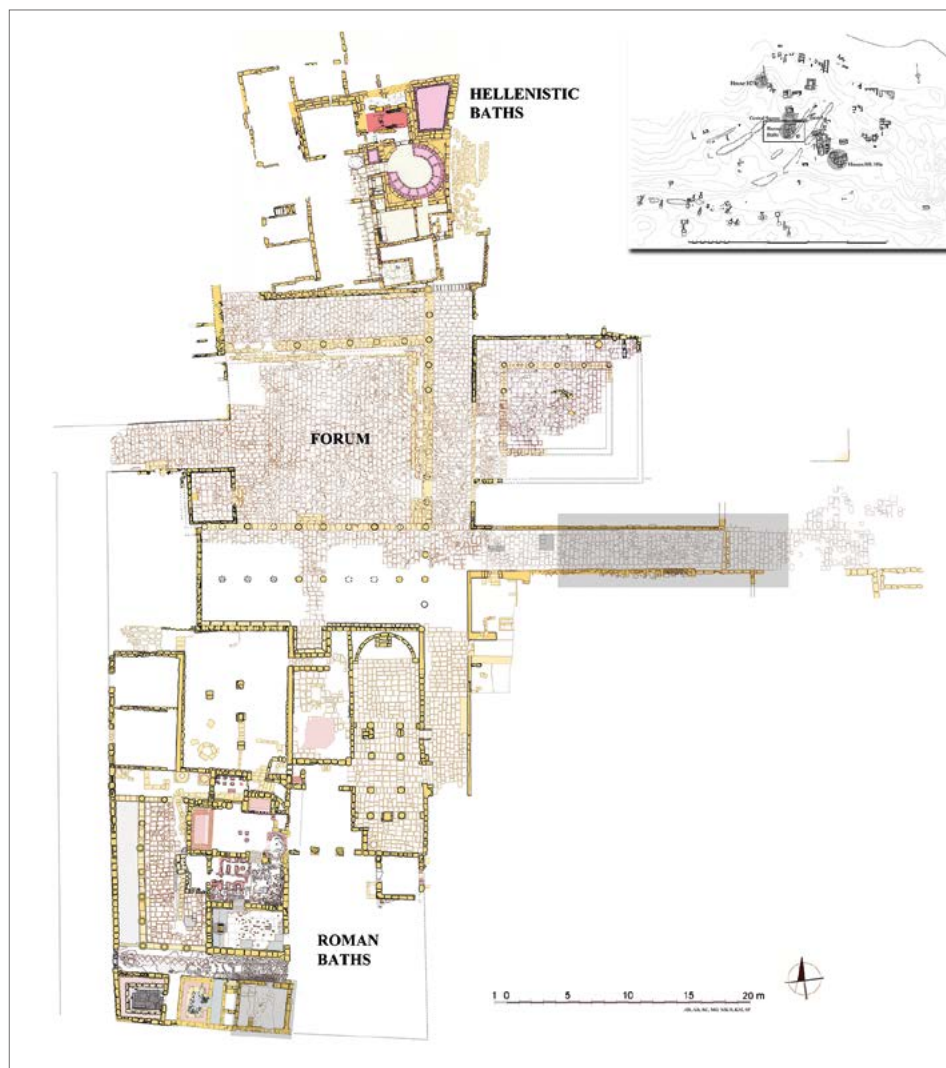


Fig. 2. Areas of research and conservation in the ancient town center of Marina el-Alamein in 2017 (Polish–Egyptian Conservation Mission Marina el-Alamein/drawing A. Błaszczuk, A. Brzozowska, R. Czermer, M. Grzegorek, M. Krawczyk-Szczerbińska, K. Majdzik, S. Popławski)

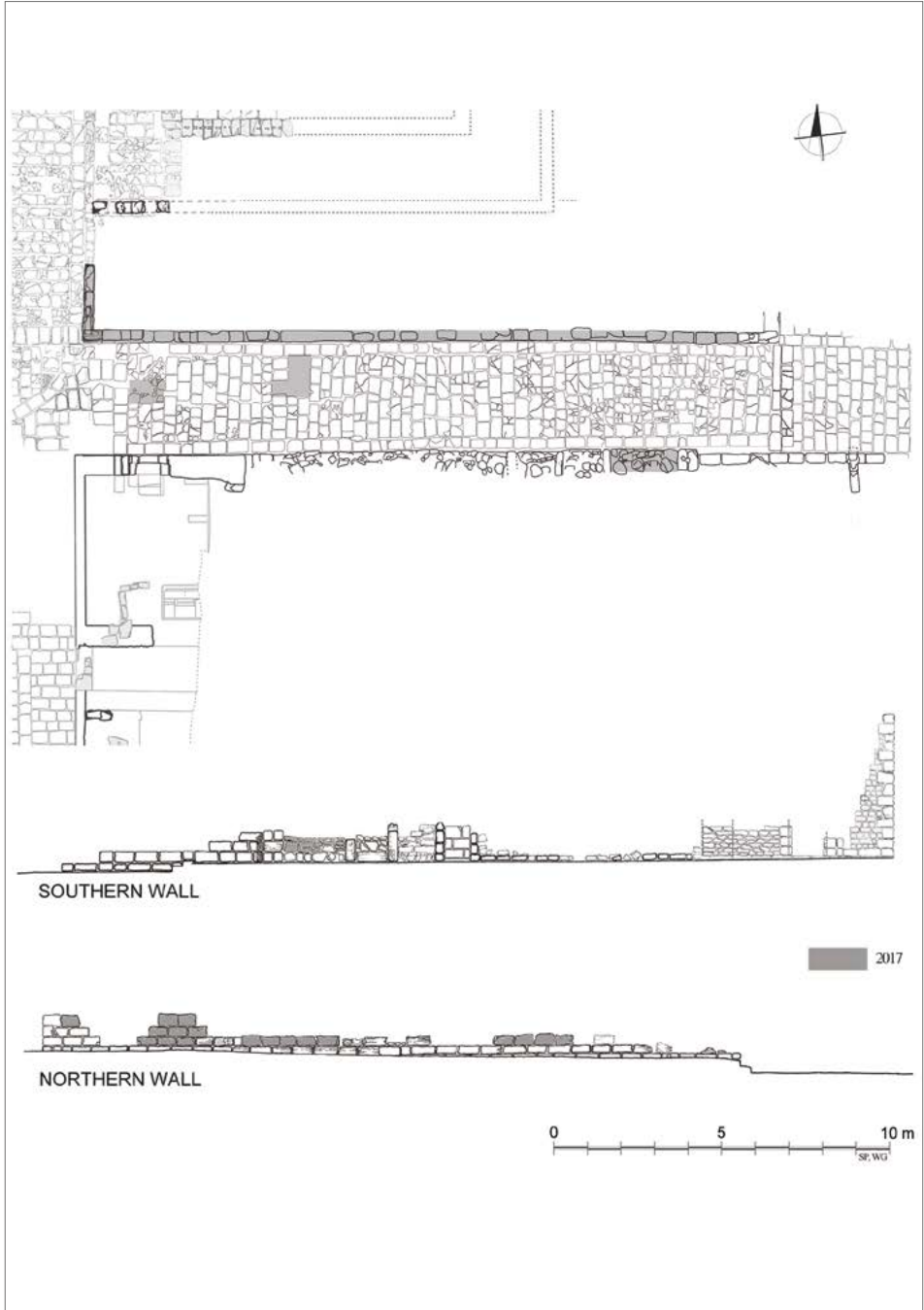


Fig. 3. Street running east from the forum: top, plan showing areas of conservation in 2017; bottom, façades of the street running east from forum, with areas of conservation in 2017 (Polish–Egyptian Conservation Mission Marina el-Alamein/drawing S. Popławski, W. Grzegorek)

blocks. Two entrances in this wall comprised a wider one (0.95 m) at a distance of 2.74 m west of the offset mentioned above and a narrower one (0.76 m wide) 1.71 m west of the first one. Both had jambs of huge limestone slabs: blocks that have survived are 0.60–0.90 m high, 0.60 m wide and about 0.30 m thick. The thresholds were also made of limestone blocks. At a later time, thin walls of reused, slightly smaller limestone blocks were laid in an irregular bond, blocking these entrances. The part of the wall by the offset was also built of big limestone blocks (averaging 0.30 x 0.30 x 0.57 m). Further east from the offset, the whole wall (now only 0.30 m wide) was built of such blocks.

The entire length of the north wall of the street, including its foundation, was made of similar limestone blocks. The upper edge of the foundation, which is

visible from the street level, is also made of limestone blocks 0.30 m wide. The only entrance in this wall opens in it 1.70 m from the western corner. It is 1.10 m wide and leads to a small room. Sockets for a wooden threshold can be observed in the lower part of the jambs on their southern sides.

Crossing the width of the street are two steps in the pavement, 2.41 m east of the said offset in the south wall and descending eastward, one 0.14 m and the other 0.12 m high. The lower one was made of slabs 0.34 m wide, the upper one of narrower stones (about 0.20 m). The steps and the widening of the street near them, as well as the sounder building technique of the walls in this part, come together to form a noticeable entrance zone to the area of the forum.

[RC]

## ARCHAEOLOGICAL RESEARCH IN THE STREET AREA

Covering the pavement was an accumulated fill of sand and randomly scattered stones, about 1.10–1.20 m thick in places. Irregular stones from the rubble masonry wall on the southern side of the



Fig. 4. Roman coin of Vespasian (AD 76/77) from east of the forum (Polish–Egyptian Conservation Mission Marina el-Alamein/ photo R. Czerner)

street were discovered at the western end, next to the forum. Most of them lay on a layer of sand 0.05–0.10 m thick. The situation looked similar on the eastern side, but there big, regular stone blocks were found, the majority of them coming also from the south wall. Rather random ceramics were found in the deposit, dated to the 2nd–4th century (G. Majcherek, personal communication). Small fragments of sherds in the layer directly above the floor were dated provisionally to the 2nd–3rd century.

A large well-preserved Roman bronze coin turned out to be an interesting surface find from the area east of the street [Fig. 4]. It is an Alexandrian

coin issued in year 9 of the reign of Vespasian (AD 76/77; B. Lichočka, personal communication). The reverse shows a laureate head of Titus right (*RPC II*: 326, No. 2456).

In 2016, conservation of the pavement next to the eastern side of the southern portico uncovered steps from an earlier phase, leading to the portico. A small test pit (about 1.20 m by 0.80 m) cut now next to the steps situated on the longer side of the southern portico [*Fig. 5*] revealed four slabs and then more slabs under a layer of soil, 0.13–0.15 m thick. The latter were placed at a slight angle compared to the slabbing in the forum and represent probably a fragment of pavement from an earlier phase. The test was dug to a depth of 0.40 m. Several animal bones (cattle, pig; U. Iwaszczuk, personal communica-

tion) were found there, as well as small fragments of pottery and glass vessels. The relics are dated provisionally to the 1st century, which concurs with earlier dating of the forum in general. [GB-C]

### RESTORATION AND EXHIBITION OF STREET REMAINS

The presentation of this part of the site has been greatly enhanced by opening the entire length of the street [*Fig. 6*]. The wall on the northern side of the street and part of the wall on the southern side were protected: first to a limited extent on both sides in the western section in 2015 (Czerner et al. 2016: 162–163) and now along the entire length of the street [see *Fig. 2*]. One to three layers of original limestone blocks tumbled from the north wall were replaced in position. The



Fig. 5. Test trench next to steps leading to the southern portico of the main square (Polish–Egyptian Conservation Mission Marina el-Alamein/photo R. Czerner)



jambes of the entrance were made more distinct. Some parts of the wall on the southern side were protected in similar manner. At the eastern end, the rubble

masonry wall was pointed after having been cleaned. The wall between the easternmost entrance and the setoff, of which barely one course above the street



Fig. 6. Street east of the forum, view from the east: top, before cleaning and preservation; bottom, after cleaning and preservation in 2017 (Polish–Egyptian Conservation Mission Marina el-Alamein/ photos R. Czermer)

paving was preserved, was reconstructed with original blocks to a height of about 0.65 m, matching the height of the blocking of the doorway. The missing slabs in the street pavement were replaced as well. [RC, WG]

### COMPLEMENTARY CONSERVATION IN THE FORUM AREA

Complementary conservation was carried out to a limited extent in the area of the forum in 2017. The plaster on the shaft of a column about 1.65 m high, located in the southeastern section of the square, was recreated. A lime-

cement mortar was used for this purpose (sand, lime and white cement in 6 : 3 : 1 parts), around the shaft circumference to a height of 0.50 m and locally in places. The plaster on the shafts of three full-height columns in the southwestern part of the square was also completed locally. Wherever rainwater had entered through the eroded fragments of paving slabs, flushing sand out from the underfloor part and lowering the ground level, the resulting hollow spaces under the pavement were filled in. Wherever the paving slabs had eroded (due to salt migrating from inside the stone in con-



Fig. 7. Room 17 of the Roman baths south of the main square; view from the south after excavation in 2017 (Polish–Egyptian Conservation Mission Marina el-Alamein/photo W. Grzegorek)

sequence of rainwater puddles forming on the surface and causing salt precipitation and, in effect, powdering of the stone and defects in slab thickness), the stone surface and the missing joints were repaired with mortar. [WG]

**ROMAN BATHS SOUTH OF THE FORUM**

The public baths from the Roman period, dating from the 1st to the 3rd century AD, were discovered in 1987 by the Polish Archaeological Mission and explored further in 2005–2007 (Daszewski 1995: 19–20;

Daszewski et al. 2007: 79–82). Since 2007, the Conservation Mission has been continuing research and conservation work in this structure. In 2017, it completed the excavation, begun in 2015, of Room 17 in the southern part of the baths, east of the previously discovered latrines [Figs 7, 8]. Two floor levels were uncovered, both lower than in the corridor on the north, from which the room was accessible through a very narrow entrance, measuring only 0.80 m. Both floors were made sloppily, like the structures inside the room.

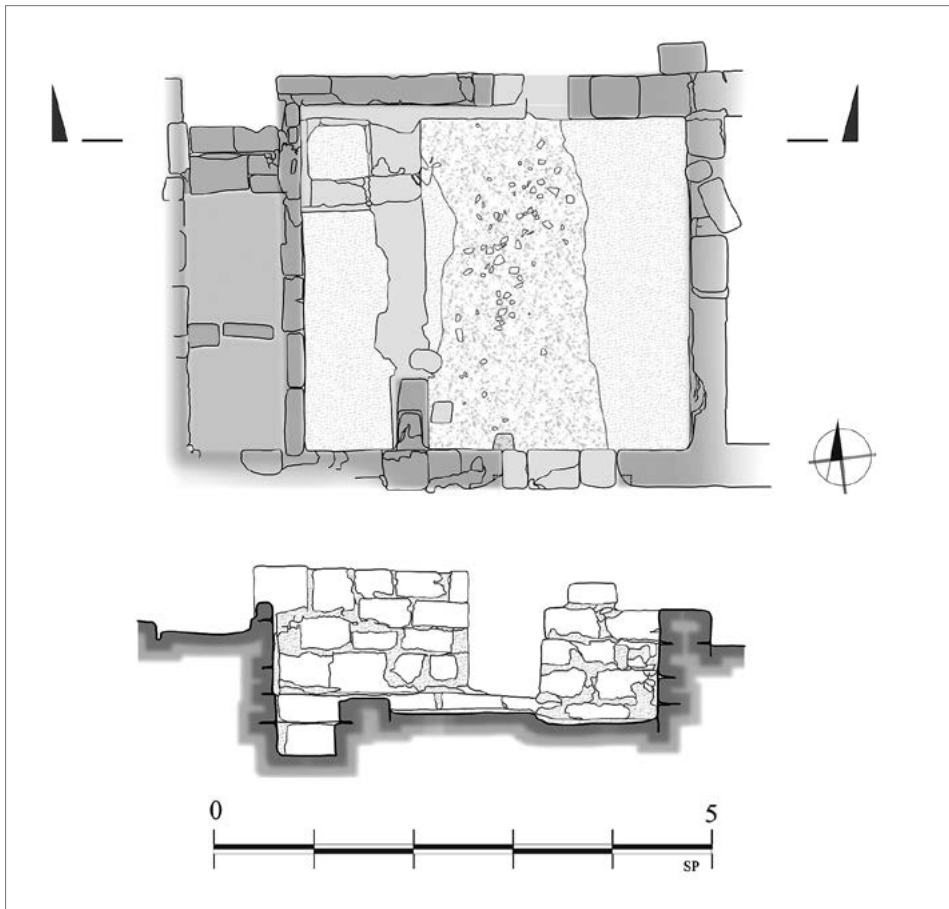


Fig. 8. Room 17 of the Roman baths south of the main square: plan and section (Polish–Egyptian Conservation Mission Marina el-Alamein/drawing S. Popławski)

Discovered in 2016, an inner wall, about 0.50 m wide, projecting north from the south wall, 0.91 m from the western corner, may have supported the landing of the stairs, the first flight of which was in the neighboring room. The foundation of this wall was examined in 2017 and was found to run as far as the north wall of the room. Another low wall, 0.27 m wide, built between the foundation and the west wall of the room, set off an almost square shaft in the northwestern corner. It measured 1.13 m by 0.99 m on the outside (inner dimensions 0.58–0.63 m) and was 0.63 m deep with a stone slab forming the bottom. [RC]

### ARCHAEOLOGICAL RESEARCH IN ROOM 17

Excavation of Room 17 started this year on the level of the threshold in a door opening in the north wall where it had halted the previous year (Czerner et al. 2017: 90–93).

On the threshold, fragments of bricks were preserved on either side. A layer of packed soil, 0.10–0.15 m thick, yielded potsherds, including fragments of a large mortarium, and a small, oblong vessel, which has survived almost complete.

Among several small fragments of lamps was a base with a signature in



Fig. 9. Finds from Room 17 of the Roman baths: (counterclockwise from top right) bone hairpin; bone game pawn; fragment of an oil lamp base with a producer's inscription; terracotta bust of Isis (Polish–Egyptian Conservation Mission Marina el-Alamein/photos R. Czerner)

Greek: ΜΑΡΚΟΥ [Fig. 9 bottom left]. Lamps with this kind of signature were discovered primarily on islands of the eastern Mediterranean (Katsioti 2014: 157–158). Researchers point to a Cypriot workshop. Dating is not certain; it seems that they were produced no later than in the 3rd century. The context of the Marina find is dated mainly to the 2nd century or the beginning of the 3rd century. Pottery coming from the eastern Mediterranean, including Cyprus, was also discovered in this context. It is not known, however, whether the lamp from Marina could have come from the same Cypriot workshop. Further research should bring more data to bear on the issue.

Other finds from this layer included a considerable number of fragments of glass vessels and of windowpanes. In the layer, there were also many animal bones (sheep/goat, cattle, pig, bird and fish). Several bronze objects were found by the east wall: a small bell, a nail, a thumbtack, and a coin from the Roman period, tentatively attributed to the Alexandrian mint, 1st–2nd century, but a precise identification due to heavy wear and corrosion is not possible (B. Lichočka, personal communication).

Bone objects from the context included a damaged pin, another intact one with a conical wider end [Fig. 9 top right]. Hairpins like this complete one, relatively thick compared with other types, served to fasten knots and were commonly used in the Roman Empire (Bìrò 1994: 31, 78–79, Nos 134–151; Bartus 2003: 23–24, Fig. 1.1). Such pins could have been made of bronze as well (Riha 1990: 182, Nos 2632–2644). They are dated mostly from the 2nd to the 3rd century. Three pins of

the type were found in Marina in house Η10Ε in 2003; similar specimens were also discovered in Alexandria (Rodziewicz 2007: 200–201, Nos 417–419). Another bone object is a board game pawn [Fig. 9 top left]. Of cylindrical shape, it is hollow inside, at the foot decorated with two rings and a groove between them. A similar pawn was found in Alexandria (see Rodziewicz 2007: 237, No. 542).

A fragment of an object made of lime mortar was also found. Traces of white color, and in some places of yellow, have survived on it. Perhaps it is a part of a figurine of a woman, the head of which had been found in the previous season (Czerner et al. 2017: 91–92, Fig. 1).

A partly preserved amphora was discovered lying in the southwestern corner of the room, whereas the northwestern corner contained a rectangular structure built of stone blocks in place of the hearth from the upper layer discovered in 2016 [see Figs 7, 8]. Traces of mortar were found on its bottom and, in the fill, fragments of pottery including among others amphorae and frying pans from the 2nd–3rd century AD (G. Majcherek, personal communication), and animal bones. This structure could have served to store food. Several centimeters under the floor of marble tiles, a low wall, 0.40 m wide and with traces of mortar on its surface, was discovered running from north to south.

A distinctive layer of packed, dark soil 0.12 m thick and about 1.00–0.90 m wide was observed in the eastern part of the room [see Figs 7, 8]. The lower sections of the east, north and south walls, up to 0.30 m, are blackened. The layer yielded fragments of pottery, identified as, among others, kitchenware, ampho-

rae and a Cypriot jug of terra sigillata, glass vessels and window panes, as well as a Ptolemaic bronze coin, most probably from 261–240 BC (B. Lichočka, personal communication), a big bronze hook, small pieces of lamps, a fragment of a flat iron object, a damaged bone pin and a small terracotta bust depicting Isis [Fig. 9 bottom right]. The goddess is wearing a chiton with a fringed shawl thrown over it, its ends tied over her breast in the so-called Knot of Isis. The goddess has a characteristic hairstyle: in front, the hair frames a triangular forehead, and at the back, eight long locks fall over the shoulders. The head was probably decorated with a basileion. The figurine is damaged; among other things the bottom part, that is a cylindrical base, is missing (Dunand 1990: 153, No. 408). Fragments of another terracotta statuette, possibly an animal, were found near the figurine of Isis.

The floor found under this layer was made of lime mortar with addition of ceramic filler. It is situated about 0.30 m below the level of the floor in the corridor (Room 11). A partly preserved flooring of marble tiles lies approximately 0.12 m above this floor.

A considerable number of irregular grey marble tiles was found in the fill of this room. The tiles probably came from the flooring, fragments of which have survived opposite the door opening, about 0.15 m below the threshold. Included among them were some distinctive ob-

long tiles (5/7 cm by 2/3 cm), worked on one longer side, which may have formed a trim finishing of the floor, a low base-board. Marble tiles of the upper flooring were set in mortar on a bedding of crushed brick; remains of this substructure could be observed on some of the tiles.

No plaster has survived on the walls of the room, but evidence from this and earlier seasons, in the form of small pieces of plaster colored yellow, black, brown, green and red, was found indicating that the walls had indeed been plastered. No reconstruction of the actual design is possible based on these fragments. The fragments may come from various periods or from different rooms nearby, just as fragments of windowpanes discovered here are no evidence that the windows in this particular room were provided with such. However, numerous windowpane pieces discovered in the area of the baths prove that windows in at least some of the chambers must have been paned with glass.

The room was restructured repeatedly and its function kept changing. The most recent phase consisted of several small hearths. Food was prepared in the room, as evidenced by large numbers of fragments of shells and animal bones.

Most of the finds date from the 2nd century, but there are objects from the 1st and 3rd centuries as well. The two floors indicate that the baths were rebuilt probably in the 2nd or at the beginning of the 3rd century. [GB-C]

## CONSERVATION WORK IN THE ROMAN BATHS

Current conservation and protection work in numerous places within the Roman baths was necessitated by the damage caused by progressing weathering of stone blocks in the walls, joints and plasters due to atmospheric factors. The edges of original plaster in Rooms 5–9 and 12–17 had become detached and had to be protected with bands of mortar based on sand, lime and white cement (6 : 3 : 1) with the addition of crushed ceramic filler. The plaster coating of the column shafts was patched where needed. Vestiges of polychrome decoration on the walls of several rooms in the southern section of the baths were conserved and protected. [RC]

### CURRENT CONSERVATION

Unfavorable atmospheric factors triggered processes of degradation and erosion in earlier restored and protected structures: weathering of stone and plaster surfaces, destruction of joints by wind and water. Current conservation is the result of annual monitoring by the team and in 2017 it concerned, beside the Roman baths area, also House H21c, where deteriorating elements of a commemorative monument to Commodus were protected, and the H9/H9A house complex, discovered in 1986 and protected in 1995–1997. At the time the mostly rubble masonry walls of the building were restored, faces and joints were filled in, and a coping was placed at the top of some of them for protection. Over the years, rain in particular has taken a toll on the ruins, washing out the lower parts

of the walls and causing them even to collapse. Interventional restoration and reconstruction undertaken in 2016 and 2017 concerned primarily the walls most damaged or in danger of collapsing: west wall (in the northern section) of the tavern situated between houses H9 and H9a, the neighboring outer wall of House H9a on the south side, and the middle and eastern parts of the southern outer wall of House H9. The wall aedicule in House H9 was also protected. [RC]

Winter rains were also responsible for washing out the pavement in some places inside House H1, necessitating some salvage archaeological operations in Room 20. An amphora was noted sunk into the ground below the paving slabs by the west wall. A similar find in 2002 in House H21c had brought a bronze incense burner and a statuette of Aphrodite (Medeksza et al. 2003: 95–96). The vessel in House H1 was filled with sand with some small potsherds mixed in. [GB-C]

### PROTECTING RESTORED WALLS

The unchecked flow of rainwater has repeatedly been demonstrated as the largest single cause of damage to the restored architectural substance, necessitating continuous repair work. It has also resulted in the inadvertent loss of dried mud brick walls, decorative architectural elements of limestone (cornices with dentils and modillions, architraves, friezes, column shafts, bases, capitals of columns and engaged columns, etc.) as well as casing elements and plain stone blocks which have

eroded away. The reconstruction effort in this case is hampered by the lack of good building stone.

In order to minimize in future the scope of restoration necessitated by the undue effect of unfavorable weather conditions, it is necessary to direct winter rainfall away from building walls to prevent leaching of the mortar from the joints and water saturation of limestone blocks and salt efflorescence in effect. The walls in question are of rubble masonry, bonded with lime mortar in the faces and clay mortar in the core. Another reason

for directing water away from the walls is to avoid undercutting of the structures, which has led to the collapse of large sections in several places in the past.

A tested procedure, applied by the team in recent years, consists of forming sandy escarpments a few meters in front of building walls, on the eastern, southern and western sides of the protected complexes, directing water around them without letting it penetrate. These escarpments are also part of the visual presentation of the site and as such play an aesthetic role. [WG]

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