

ALEXANDRIA

EXCAVATIONS AND PRESERVATION WORK

PRELIMINARY REPORT 2006/2007

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The work covered in this report was carried out between September 2006 and the end of August 2007.¹ This season's busy schedule was filled with multiple tasks covering both conservation and archaeological work. With pending completion of the first stage of the Kom el-Dikka Preservation Project (southern zone of the site), our activities were conditioned to a large extent by the requirements of this project. Top priority was given to the work in the bath complex where most of the preservation operations were concentrated.

A vast collection of Islamic-age finds originating from both former and present excavations continued to be documented and studied, the work being carried out by Małgorzata Redlak, assisted by Szymon Maślak. The finds were catalogued, duly photographed and drawn. Likewise, a collection of some 80 inscribed funerary stelae was studied by Dorota Malarczyk. Both groups of finds are to be published soon.

1 The Kom el-Dikka Project is funded jointly by the Supreme Council of Antiquities (restoration work) and the Polish Centre of Mediterranean Archaeology of the University of Warsaw (archaeological research). The team headed by Dr. Grzegorz Majcherek included: Renata Kucharczyk, Deputy Director, archeologist-ancient glass specialist; Emanuela Kulicka, Kinga Bigoraj, Ewa Czyżewska, Iwona Zych, Szymon Maślak, archaeologists; Robert Mahler, anthropologist; Dorota Malarczyk, islamologist; Marta Momot, documentalist; Dr. Wojciech Kołtáj, Alexandra Brzozowska, Daria Tarara and Aureliusz Piszarski, architects; and Monika Więch, Piotr Maliński and Szymon Zdziębowski, students of archaeology. The Supreme Council of Antiquities was represented throughout the season by Iman Mohsen Shahawy, Said Mohammed Atallah, Anhar Abdel Hady, and Mohsen Shahawy, all of whom actively participated in our work. The Mission also offered field training to two junior SCA archaeologists. The Mission would like to express its sincere gratitude to all SCA authorities and officials, especially to Dr. Zahi Hawass, Secretary General of the SCA, as well as Dr. Mohammed Abdel Maqsood and Dr. Atiya Radwan for their all-encompassing assistance and support. Last but not least, we would like to thank Mr. Ahmed Musa, Director of the Kom el-Dikka site, for his invaluable help in facilitating our work and solving everyday problems.

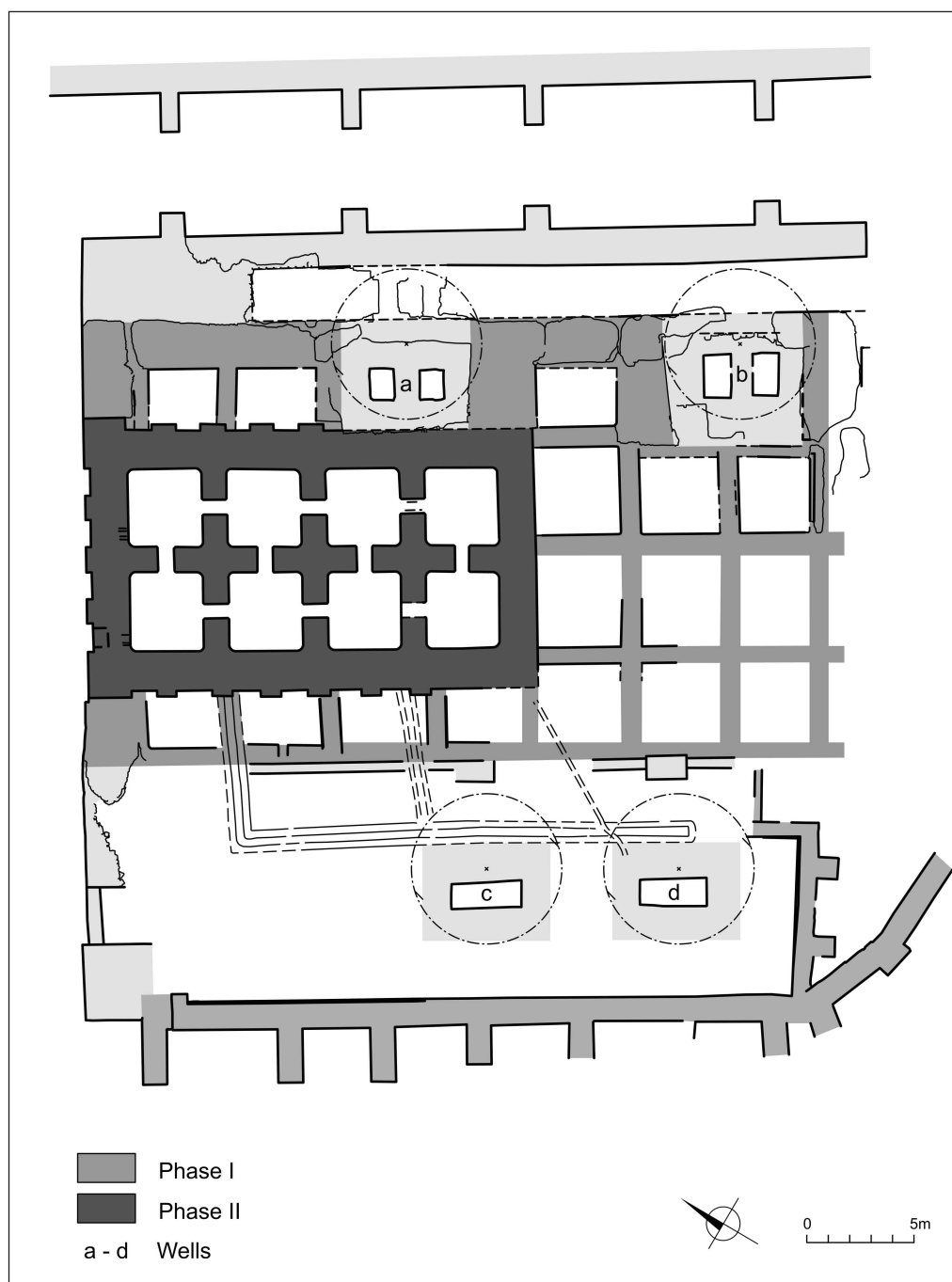


Fig. 1. Plan of the cistern installations from different phases
(Drawing W. Kolątaj, updated by A. Brzozowska)

ARCHAEOLOGICAL WORK

The year saw continued archaeological work focusing on the cisterns (Area L) and the central part of the site (Area F).²

AREA L

Last year's clearing of an extant fragment of the medieval Moslem cemetery overlying the southwestern part of the cistern (the highest point on the site) opened the way to the exploration of vestiges of the cistern installations below [*Fig. 1*].

Two large wells were cleared directly below (marked *c* and *d* in the plan in *Fig. 1*).

Both structures are rectangular in plan, measuring approximately 1.25 x 3.25 m. The shafts were built of surprisingly massive masonry, some of the blocks measuring even 1.10 x 0.60 x 0.55 m [*Fig. 2*]. The blocks were additionally joined with metal clamps, as evidenced by large openings of dove-tailed shape on their surfaces. The heads of the wells are not preserved; they were damaged most probably even before the medieval burials encroached upon the area. The walls inside turned out to be heavily incrustated with calcium–lime deposits,



Fig. 2. Masonry wells in the southwestern part of the cisterns, view from the north (Photo G. Majcherek)

2 The excavations in the cisterns, as well as in area E were supervised by Emanuela Kulicka.



*Fig. 3. Channel from the drawing well to the tanks, view from the east
(Photo G. Majcherek)*



*Fig. 4. Water outflow from the last-phase cistern, view from the south
(Photo G. Majcherek)*

indicating prolonged use. The wells must have been operated by a *saqiya* device despite no traces of the lifting gear remaining. This assumption is based not only on the large number of *saqiya* pots found in associated layers, but also on the unexpected discovery of a path trampled down in a circle around the northern well. The path, of which only a fourth of the original circumference has been preserved, was made of brick rubble, consolidated with clay and lime, and beaten hard by oxen driving the installation.

Last season, a stretch of water-channel feeding the cistern was cleared next to the wells. It appears to have supplied water from the nearby drawing well to the cistern tanks located further along. The channel, which is trapezoidal in section, was built of red bricks (28 x 28 x 4.5 cm) lined with waterproof plaster and covered with horizontal limestone slabs [*Fig. 3*]. It was laid on massive foundations (1.40 m wide and 0.85 m deep), made of several layers of bricks interlaced with small limestone blocks. This year an additional bifurcation of the channel was cleared next to the southern well. It was built as a double-level channel, to control water distribution to particular tanks. Both wells were in operation during the second phase of the cisterns and went out of use sometime in the 6th century. By the time the last set of tanks was constructed, they were already abandoned and covered with limestone flagging (for previous excavations in the cisterns area, see Kubiak 1967: 47–81; Rodziewicz 1984).

Quite unexpectedly, explorations of the previously unexcavated southwestern tank of the last-phase cistern revealed an additional water outflow [*Fig. 4*]. The outflow pipe (not preserved) had been placed at the bottom of the tank, within a vaulted opening some 0.85 m wide and 1.55 m high. There can be no doubt as to its

contemporaneity with the original construction. A likely interpretation is that it was supposed to supply water to yet another public building (possibly baths as well) located further to the south, beyond the limits of the excavation area.

AREA F

Substantial progress in the evacuation of modern dumps from the central part of the site advanced the archaeological work in this area. The area of excavations was expanded further south, removing about 2 m of the upper layers including modern intrusions from an area of almost 2000 m² during the autumn months.

Previous fieldwork in the central part of the site included trial pit H dug in 1960 in the western part (Lipińska, Riad 1966), and trench H-II dug in 1994, further to the north and in line with the previous one (Majcherek 1998: 23–26, *Fig. 6*). Burials belonging to the medieval Islamic cemetery lying at approximately 14.00–15.00 m a.s.l. were uncovered in both the trenches. Underlying the burials were thick deposits of ashes and urban refuse burying an N-S wall. The function of this massive wall, which is 0.50 m thick and is built of a single course of masonry, was obscure at the time. Last season, after clearing the old trench H, yet another large section of the said wall (11 m long) was excavated. It turned out that the western face of the wall was supported with several fairly small piers in an apparent attempt to counteract the pressure exerted by the rising mound of rubble and refuse accumulating behind it. This impression was further corroborated by the fact that its eastern face was never shaped, apparently backing up against the dump behind it. Thus, it should be viewed as a large retaining wall sealing the mound from the west. Repairs were made on this structure at some time in the 7th century,

adding to its height in its southern run, close to where it joins a wall of similar masonry bordering the theatre on the north [Fig. 5]. The added courses consisted of large blocks cut from brick walls, quite likely from the abandoned water tanks in the cisterns or baths.

Exploration of this archaeologically complicated terrain started with a stratigraphical trench, approximately 21 by 20 m big, dug in the easternmost part, right next to the cisterns and bath complex.³ On the eastern side, the trench adjoined area F which had been excavated already in the 1990s (for the latter work, cf. Majcherek 1999b).

The pits dotting the area should be associated in part with medieval robbing activity, as indicated by finds found in their fill. One such pit was identified next to the extant section of the massive southern wall of the bath. Mamluk pottery recovered from the pit dated this activity to the 13th–14th century.

An analysis of the stratigraphy in this trench verified the view that the central area



Fig. 5. *Dump-retaining wall in central part of the site, view from the north*
(Photo G. Majcherek)

of the site was most probably never built over and apparently served as a dumping ground for ashes evacuated from the bath over the long period of its operation. Starting from the 4th century, the dump accumulated very quickly, rising eventually to a height of 4–5 m above the floor level of the baths. Having explored the upper, 6th–7th century layers last season, the team now focused on the excavation of lower deposits from the 4th–5th century. A thick stratum of ashes turned out to be especially rich in finds: notably pottery, glass fragments and lamps (on the glass finds, see contribution by R. Kucharczyk in this volume). The material proved to be of great value for a reassessment of the chronological development of the bath complex and the entire Late Roman civic zone discovered on the site.

Amphorae formed an overwhelming majority of the recorded fragments, with Gazan products (LRA4) making up more than 70% of the total. Other amphorae types include Cilician–Cypriot LRA 1, Asia Minor LRA 3, and Egyptian E 172 and LRA 7. Of particular interest was a large group of small flagons of Egyptian manufacture, most probably serving as oil containers, used by bathers and discarded in large quantities (more than 300 examples have been recorded so far).

Immediately below the deposits of ashes intermixed with rubble resulting from subsequent rebuildings of the bath, excavators cleared a partly preserved lime kiln. The structure, located in the southeastern corner of the trench, featured a circular (c. 1.00–1.10 m in diameter) updraft kiln built of red bricks set in clay mortar [Fig. 6]. The vaulted entrance to the furnace chamber had been discovered already in 1999, next to an almost identical

3 Trench supervised successively by Emanuela Kulicka and Szymon Maślak.

kiln located further east (Majcherek 1999a). The structure was surrounded with a large semicircular wall, built of several courses of assorted limestone blocks, most probably originating from earlier dismantled buildings.

A similar but fragmentary structure was cleared further to the west, giving rise to the assumption that another lime kiln had been located there. Associated layers in the vicinity of the kilns, found to slope insignificantly in the direction of the bath, consisted almost entirely of lime refuse, ashes and slag with heavy concentrations of marble detritus, partially fired or half melted.

It seems obvious that the kilns formed part of a building construction site, assuring a regular supply of lime for the construction of the nearby bath complex. It is therefore

quite probable that more kilns will be discovered in the area once the excavation area has been extended.

Structures of earlier date appeared immediately below the lime deposits. They belonged to Early Roman house FB, partly uncovered already in 1998. The northern part of the house has been seriously damaged by later building activity, where the baths' huge outer wall was constructed across all existing structures. Current work in an area to the west of the previously explored section revealed a series of contiguous rooms, forming a purely domestic section of the building under exploration [Fig. 7]. The extent of house FB was not determined, but there is a strong possibility that the building extended another 10–12 m to the west.



Fig. 6. Kiln discovered below the layers of ash in Area F, view from the west (Photo G. Majcherek)

An opening (0.90 m wide), almost in line with the stylobate of room 1, provided easy access from this part of the house [Fig. 9]. No traces of any kind of door mounting were discovered and the mosaic floor discovered in hall 2 ran over the threshold into room 4, which served most probably as a passage giving access to the as yet unexplored western wing of the house. The small room next to the entrance (5), measuring 3.00 by 1.65 m, was accessible also from this side. A much larger room next to it (12), approx. 3.25 x 3.50 m, appears to have adjoined a latitudinal side street. So far, no doors leading to it have been identified and the room seems to

have been isolated from the rest of the house. The southern part of the room has yet to be explored, it being sealed by a lime kiln constructed over it at a later time. Should a door be found in this part, the room could then be interpreted as a shop, accessible from the street. Similarly located shops were identified in nearby house FA. Rooms 10 and 11 both have entrances in line, opening onto passage 4. Both were closed from the west with a narrow screen wall built of vertically set limestone slabs (not exceeding 0.13–0.15 m in thickness), separating it from the next room 9. At a distance of some 1.55 m from room 11, a pit left by a wide wall was excavated down



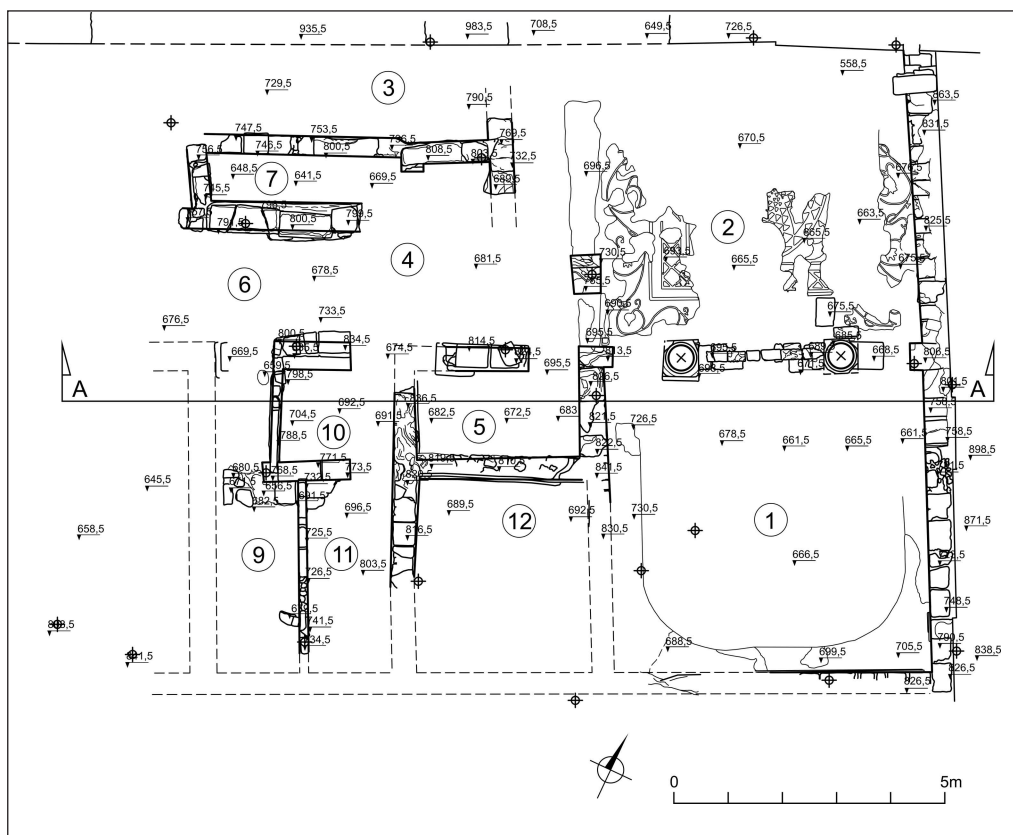
*Fig. 7. Early Roman House FB in Area F, view from the west
(Photo G. Majcherek)*

to about 1 m below the floor layer. The chronology of this wall is still unclear, but it may have been part of the earlier Late Ptolemaic layout and was dismantled at an unknown date.

Judging by the evidence of a row of rectangular socket holes that have been preserved in the north wall of room 6, the house would have had a second storey or at least a terraced roof. The stairs appear to have been supported additionally on a stone-made vault, of which only the springing has survived [Fig. 8]. The adjacent narrow room 7 (0.85 m wide) must have been intended for an upper flight of the staircase. The empty



Fig. 8. Springing of stone vault under staircase in House FB, view from the south (Photo G. Majcherek)



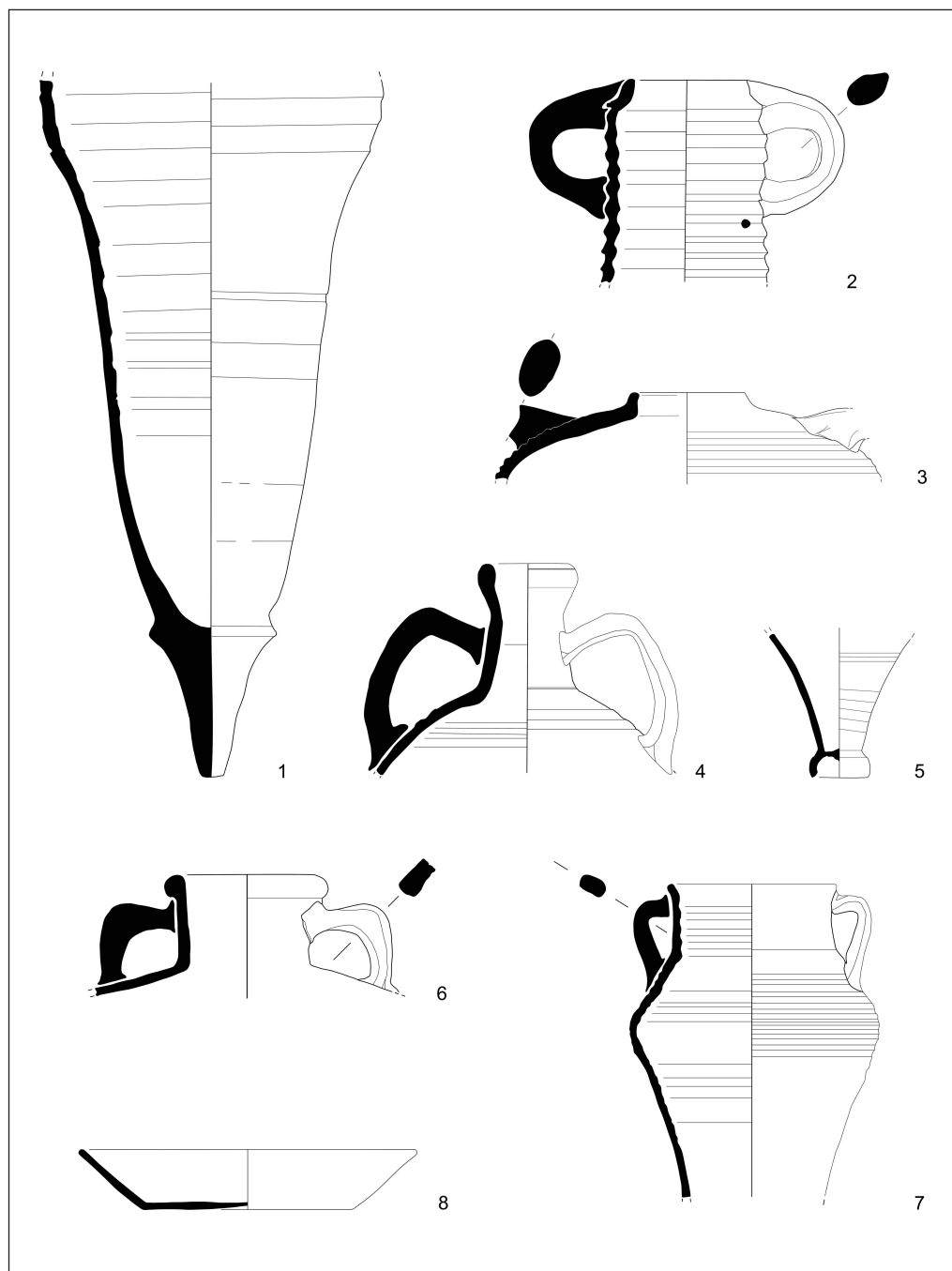


Fig. 10. *Amphorae and other pottery from a deposit in House FB*
(Drawing S. Zdziebłowski)

space under the stairs was used most likely as a handy storeroom, later filled to the top with a large deposit of discarded pottery. Most of the recorded fragments belong to amphorae [Fig. 10]. The Egyptian *bitronconique* Nile silt amphorae formed a substantial group here, although imported vessels predominated [Fig. 10:1–2]. The majority of the recorded vessels belonged to the LRA 4a class originating from Gaza [Fig. 10:3]. Other imported products included Cretan (AC 1) [Fig. 10:4], Asia Minor (LRA 3a) [Fig. 10:5] and Cilician “pinched handles” amphorae [Fig. 10:6]. Among the unexpected forms one should mention several examples of exotic Schörgendorfer 558 amphorae (most probably of North Italian manufacture), not reported yet from Egypt. Large quantities of Egyptian-made kitchen wares were also recorded in the deposit [Fig. 10:7]. Tablewares were represented by several examples of late Eastern Sigillata A forms [Fig. 10:8].

The entire deposit could be dated to the 2nd–3rd century and coincides most probably with the final abandonment of the house. The finds from other rooms were rather scarce, consisting mostly of broken amphorae and a few cooking pots. Among the better preserved pieces, there was a fine example of an imported *Firmalampen* class lamp [Fig. 11].

The monumental façade of the oikos or triclinium (room 1), uncovered already in 1998, contrasts vividly with the modest finishing of the interiors in the newly explored rooms. The floors were mostly of lime pugging, mosaic pavements were scant and the walls were more than modest as regards the decoration — plain white plaster with painted decoration ever so rare. Nevertheless, some fragments of painted polychrome plaster (yellow, green and blue) were also found in the fill. None of the potential stonework decoration survived with the exception of a single fragment of

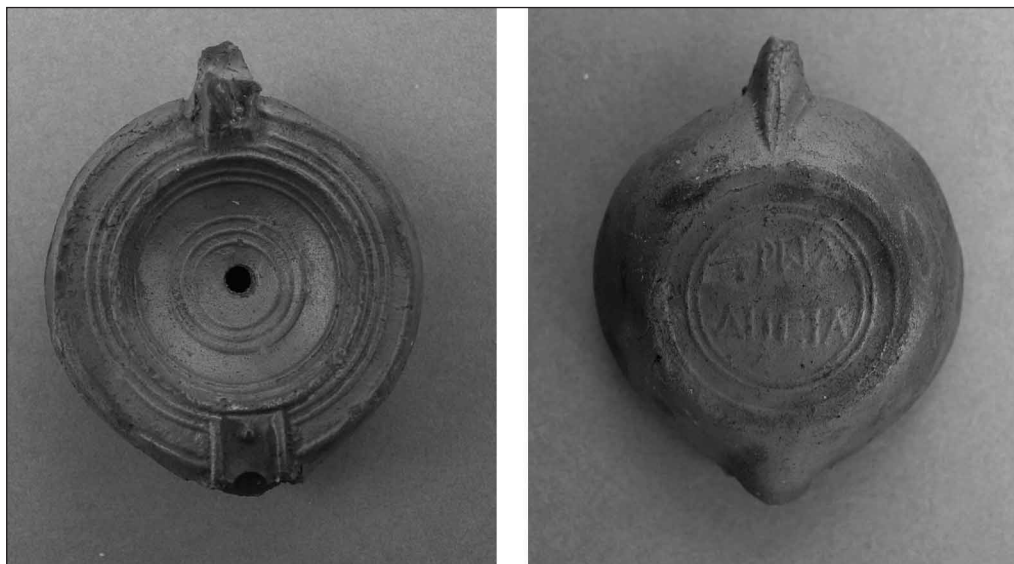


Fig. 11. Early Roman lamp
(Photo G. Majcherek)

doorframe or niche frame, found next to room 5. Most of the preserved walls were built in regular isodomic technique. Their thickness does not exceed 0.40–0.42 m.

The Alexandrian houses of Early Roman date have regular plans that frequently feature standard designing units. A central rectangular courtyard is invariably the key element ordering the layout. No such courtyard has been uncovered so far in house FB. Instead the main room of the house (1: oikos or triclinium) opened onto a large hall (2: approx. 6 x 5 m) with an entrance flanked by two monolithic columns of Aswan granite. The question whether it served as a courtyard remains unclear, and we must wait till the entire house is explored in order to study its functional layout.

MOSLEM CEMETERIES

A remaining section of the medieval graveyard overlying the Portico (Area E) situated close to auditorium G was

explored.⁴ Altogether ten graves belonging to the so-called Middle and Upper Necropolis phase of the cemetery, E140–E150, were cleared and explored. Finds from corresponding layers represented the usual range of artefacts: fragments of Fayyumi-type pottery and the Early Lead Glazed ware predominated. Among the most valuable finds one should list three funerary stelae found *in situ* [cf. below, *Fig. 6* on page 53] and dated on palaeographical grounds to the 9th–10th century AD (Reg. nos 5154–5156).

Excavations were also continued in area H, on a narrow stretch of ground west of the southern wing of the auditoria (G through M), where a group of graves from the Upper Necropolis was mapped and investigated.

Trench G, partly explored in 1987, was now expanded eastwards and yet another portion of the cemetery was identified and cleared of topsoil, to be explored in the coming season (for this fragment of the necropolis, cf. Kiss *et alii* 2000).

CONSERVATION WORK

In keeping with the general program of the Restoration Project approved by the Supreme Council of Antiquities, conservation work was carried out concurrently on various monuments of the site.

LATE ROMAN BATH COMPLEX

One of the most demanding tasks this season, supervised by Dr. Wojciech Kołataj, was the restoration of the eastern elevation of the bath. The facade is preserved over a distance of some 30 m (i.e., approximately half of the original length, the rest having been destroyed during an explosion in the

late 19th century). Where standing, the wall rises to a height of 3.50–4.00 m in places, being articulated with a number of pools, niches, pilasters and door openings (Kołataj 1992: 56–62).

The deterioration of most of the wall facing was substantial with serious loss of mortar from the joints. The most acute problem faced during the restoration operation was a lack of new bricks of proper specification and adequate quality. The use of original bricks retrieved from the excavations effectively alleviated this problem. The entire facing, up to 2.50 m

4 For a detailed description of archaeological research in the Moslem cemetery, see contribution by E. Kulicka, below.

high in places, was restored with re-laid bricks. Deteriorated mortar joints were cleaned and re-pointed, and the brickwork stabilized as a whole. The principle of preserving original wall bonding, as well as minimal intervention, was strictly observed. In some extant areas belonging to the original phase of the building and structured in flat Roman bricks, new bricks cut to appropriate dimensions and matching original ones were used in order to preserve the historical substance [Fig. 12]. As a rule, only lime-sand mortar was used in the bonding.

Conservation included also the restoration of outlets of vaulted hot-air channels heating this part of the building. Special attention was paid to the conser-

vation of the adjacent inner staircase leading up to the second storey. The slightly winding staircase was duly restored including steps and surrounding walls. A marble console was placed on one of the restored pilasters to give some idea of the original decoration.

A rectangular pool projecting from the elevation into the frigidarium (next to the southeastern corner of the building) also underwent thorough structural conservation. Large fragments of walls introduced in the late 1960s were replaced with new ones as required. Some cement patches introduced then as a temporary protective measure were removed and replaced with lime mortar. Green marble (*cippolino*) blocks originally constituting the impressive side



Fig. 12. East façade of the Late Roman Bath after conservation, view from the southeast (Photo G. Majcherek)

- 5 Aureliusz Pisarzewski supervised the restoration of the pool as well as the conservation of the southern bath façade.

walls (*plutei*) of the pool were consolidated and supported with brick-made structures. The semicircular niche shaped within the thickness of the wall and closing the pool from the west was also treated.

Yet another frigidarium pool, of oval shape, was also restored⁵ with original bricks found nearby (Rodziewicz 1979) [Fig. 13]. The same procedure was applied to a nearby manhole which leads to the underground drainage system. Its walls were repaired with bricks and a new head, slightly elevated with regard to the surrounding ground, was built. The manhole was secured with a wooden grate.

The temporary display of all the decorative elements (marble columns, capitals, cornices, revetment tiles, cf. Kołataj

1992: 93–95) found in the frigidarium was also re-arranged. All these elements are now stored near the entrance to the bath complex, allowing for an unimpeded view of the restored façade.

A similar conservation operation was conducted on a 12-m long stretch of the southern elevation. The wall facing here, including much deteriorated and detached brickwork, was thoroughly restored [cf. Fig. 12]. The operation also included the restoration of an almost totally destroyed semicircular pool in the destrictarium. Additional repairs were made on the hypocaust system in both the tepidarium and the destrictarium. Some seriously deteriorated square *pilae* once supporting the hypocaust, initially secured



Fig. 13. Oval frigidarium pool, after conservation, view from the north
(Photo G. Majcherek)

in the 1960s, were now consolidated and protected with additional layers of bricks.

Restoration work was also carried out in the western wing of the underground service area, next to the large pool of the caldarium. A large missing fragment of the side stone wall (3 m long) once supporting the vault was restored. A particularly challenging operation was undertaken in the exit tepidarium, where an overhanging segment of the massive brick wall was in danger of collapse. The wall, which had been secured provisionally with an iron beam was now supported with proper stone foundations and made stable structurally.

The conservation of an extant pavement in the southern passage of the bath proved to be a major operation. The pavement,

made of irregular nummulithic limestone slabs, had survived in several separate sections located mostly next to the channel running along the façade. The flagging has subsided considerably in places, most probably due to seismic activity. Whole sections of flagging were now set in a new mortar bedding and consolidated [Fig. 14]. The edges of the flagging were additionally reinforced with a supporting band of lime-sand mortar. The gaps in the flagging will be filled eventually with gravel.

AREA F

In area F, the operation of restoring a large section of the outer wall of the bath was continued. The wall was originally structured in the pillar technique with piers



Fig. 14. South façade of the bath and adjoining passage, after conservation, view from the east (Photo G. Majcherek)



*Fig. 15. Outer wall of the bath, after conservation, view from the south
(Photo G. Majcherek)*



*Fig. 16. Apse of Hall S, after conservation, view from the west
(Photo G. Majcherek)*

of large masonry blocks at regular intervals, the intervening sections built in *opus caementicium* with limestone facing enclosing a rubble core. The pillars were almost totally gone, while extant screening walls were in very poor condition.

The latter were treated first. The core of the wall was consolidated and the masonry facing restored wherever necessary. In 2006, this huge wall (c. 1.55 m wide) was rebuilt to a height of some 1.60 m above ground level (Majcherek 2009: 38 and Fig. 9). This restoration was completed this season. The rebuilt section of the wall now reaches a height of some 4 m [Fig. 15].

This operation should be seen as prerequisite for the planned display of adjacent remnants of Early Roman houses, located some 3.50 m below the floor level of the baths. The houses can now be seen safely from a platform set up next to the wall and secured with metal railings.

The rebuilding operation entailed also limited restoration of the western wall bordering the nearby apodyterium. A section 3.50 m long of this wall was restored. The extant pavement in the apodyterium was also treated. The edges were protected with newly constructed bedding set in lime–sand mortar.

AREA CW

(LATE ROMAN AUDITORIA)

The previous season had resulted in the discovery of three more auditoria of Late Roman date located to the north of the southern passage leading to the bath. Their walls, constructed mostly in the pillar technique, had suffered damage as a result of medieval burials in this area.

Conservation of the damaged walls was the main objective of this season's work in the area. The entire length of the east wall of Hall T was treated. Gaps, losses, as well as completely dismantled sections of the wall were restored with blocks found during the excavations and believed to originate from the structure. The projecting apse of Hall S, which was uncovered further to the north, was reconstructed from the extant foundations according to established procedures [Fig. 16]. First the foundations were completed and consolidated, after which the apse was restored using original limestone blocks found nearby. The apse wall was restored with only three courses of stone blocks (rising approximately 0.90 m) in order to adapt it visually to the surrounding structures.

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