MARINA EL-ALAMEIN
CONSERVATION WORK IN THE 2003 SEASON

Stanisław Medeksza et al.

From March 27 to May 30, 2003, an Egyptian-Polish conservation mission completed its ninth season of conservation work at the site of the Early Graeco-Roman town of Marina el-Alamein.[1)]

In 2003, the mission worked on a number of private houses: H 10a, H 10"E", H 19 in the southern part of the ancient town, and H 1 and the H 21 complex in the northern part. Tombs T 1GH, T 1K, T 6, T 19 from the western end of the southwestern cemetery were also treated (Fig. 1).

1) The mission was directed by Prof. Dr. Stanisław Medeksza, architect. The staff included Dr. Rafał Czerner, architect; Mr. Wiesław Grzegorek, architect and civil engineer; Dr. Grzegorz Majcherek, archaeologist and ceramologist; Ms Grażyna Bąkowska, Mrs. Iwona Zych, archaeologists; Mrs. Irma Fuks-Rembisz, conservator of stone; Mr. Tomasz Pawlak, sculptor, conservator of stone; Ms Małgorzata Ujma, conservator of mural painting. Prof. Dr. Janusz Skoczylas, geologist, also joined the mission. The Egyptian side was represented by Mr. Hamdi Mahdi Saleh, SCA inspector. The assistance of the new Director of the Marina Archaeological Site, Mr. Mahmoud Yassin, and the unfailing and dedicated Mr. Abdel Latif el-Wakil are duly appreciated.

The mission is indebted, as always, to the Supreme Council of Antiquities and to the Secretary General Dr. Zahi Hawass. AKME Zdzisław Wisniewski has again unfailingly provided financial support. Words of thanks to Mrs. Iwona Zych for editing this version of the report.

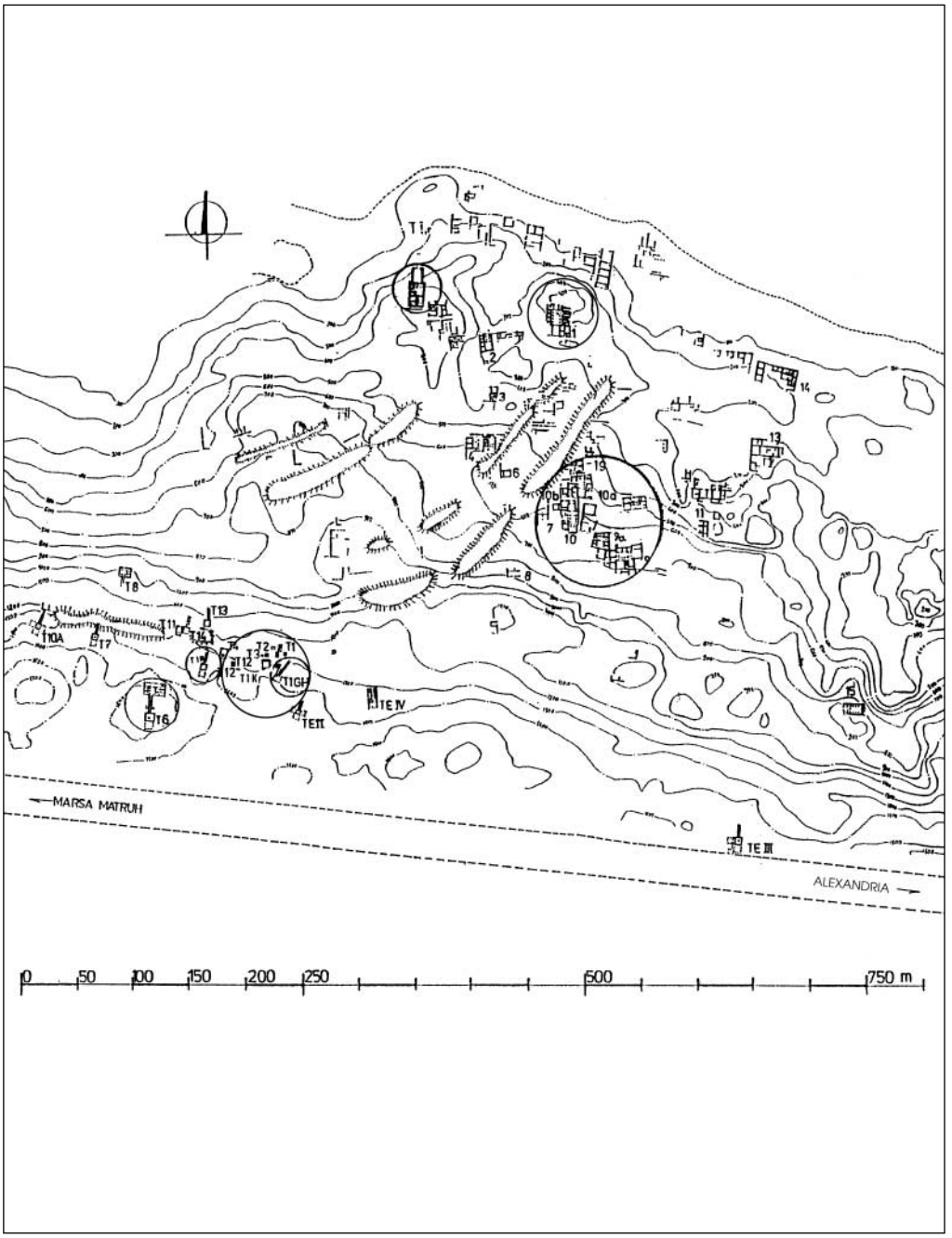

Fig. 1. Site plan. Circled areas indicate structures where conservation work was undertaken in 2003 (Drawing based on updated plan by the Polish Archaeological Mission Marina el-Alamein K. Kamiński, J. & A. Dobrowolski et all.)

ARCHITECTURAL BUILDING AND CONSERVATION WORK

In order for building-conservation work to commence following old Egyptian rescue excavations, the architectural structures in question needed to be cleaned again. Digging down to the foundation levels was also required wherever walls have to be preserved and reconstructed properly.

While in most of the houses the present fieldwork was a continuation of previously undertaken steps,[2] the clearing of House H 1[3] was undertaken only this year, following the decision to include this structure in the future tourist sightseeing circuit. Over the past 13 years (the house had been excavated in 1987-1990), the ruins had suffered from the erosive action of acid rains and strong abrasive winds. Cracking of the walls and subsidence of the pavements had taken place in consequence of a variety of seismic and other geological factors. Clearing started from the central peristyle courtyard including the two cisterns found under the pavement, where it was hoped that elements of the courtyard's architectural decoration, such as column shafts and cornices, would be found. The barrel vaults in both the cisterns turned out to be damaged. The vaults will have to be restored before the building is opened to tourists.

Inside House H 21c, no earthworks were conducted, the main thrust of the clearing concentrating on a N-S street running alongside the eastern wall of the building from the town center to the harbor. One of the future tourist pathways will follow this road.

As always, routine seasonal cleaning of all the buildings restored in the past few years had the added benefit of letting experts review the condition of all the joints and wall tops, as well as the state of preservation of the architectural decoration. This annual review helps to identify weak spots and repair damages incurred over the rest of the year.

Progressive corrosion is prevented by building up walls and restoring missing sections, using lime mortar mixed with a small quantity of white cement (4 parts sand to 2 parts lime and no more than 1 part white cement). This cement reinforcement is essential in view of the exceedingly poor quality of the lime supplied for restoration work at Marina. Unfortunately, original building methods cannot be applied at Marina el-Alamein, this because of the unendurable materials used, such as clay and lime-clay mortars, and clay undercoating under wall plaster.

A conservation issue of some importance is the quality of the mortar used today. Barring the use of a concrete mixer, it is impossible to achieve by traditional methods (using primitive hand shovels) a lime mortar characterized by stable composition, not to mention the unwelcome addition of salty sand. The resultant problematic quality of the mortar is clearly visible in the varied coloring of the joints and tops of walls. Salt efflorescence appears locally on wall faces, as well as wall tops. Also, the excessive use, contrary to our

2) See previous reports published annually in *Polish Archaeology in the Mediterranean*.

3) Cf. W.A. Daszewski, Témoignage de l'urbanisation de la côte méditerranéenne de l'Égypte à l'époque hellénistique et romaine à la lumiere des fouilles de Marina el Alamein, *Bulletin de la Societé Française d'Égyptologie,* 132 (1995), 11-28, esp. 19-21, Fig. 8.

recommendations, of white cement results in occasional surface cracking.

We have also refrained from restoring partly surviving wall plaster for reasons both technical and aesthetic. As the ancient method of plastering using a clay undercoating on the wall face is highly inconvenient to modern conservators, a special method had to be developed. It was applied this year on a section of geometrically ornamented wall plaster in room 3 of House H 10.[4] The first step was a mechanical removing with simple tools, like a brush, trowel and air pump, of the debris and remains of clay undercoating from the edges of the plaster. The voids were then filled with lime mortar enriched with white cement (sand-to-lime-to-cement ratio 6:3:1) and a 1% solution of PRIMAL AC 33 was applied. Wherever replacement of the clay undercoating was impossible, the surfaces were reinforced with PRIMAL AC 33. The next step was to clean the top surfaces of both mural and stone from salt efflorescence using a wire brush and a special bristle brush. A 7% solution of PARALOID B-72 was used to reinforce the surface of the plaster. Following that, FUNCOSIL STEINFESTIGER 300 (Remmers) was used to saturate the wall surfaces, but this did not give full solidification of the binder. The colors initially became clearer, but considerable salt efflorescence appeared later. This had to be removed mechanically with scalpel and brush.

Building conservation activities mostly consisted of building up walls and protecting their structure from rainfall erosion. Walls are usually restored to

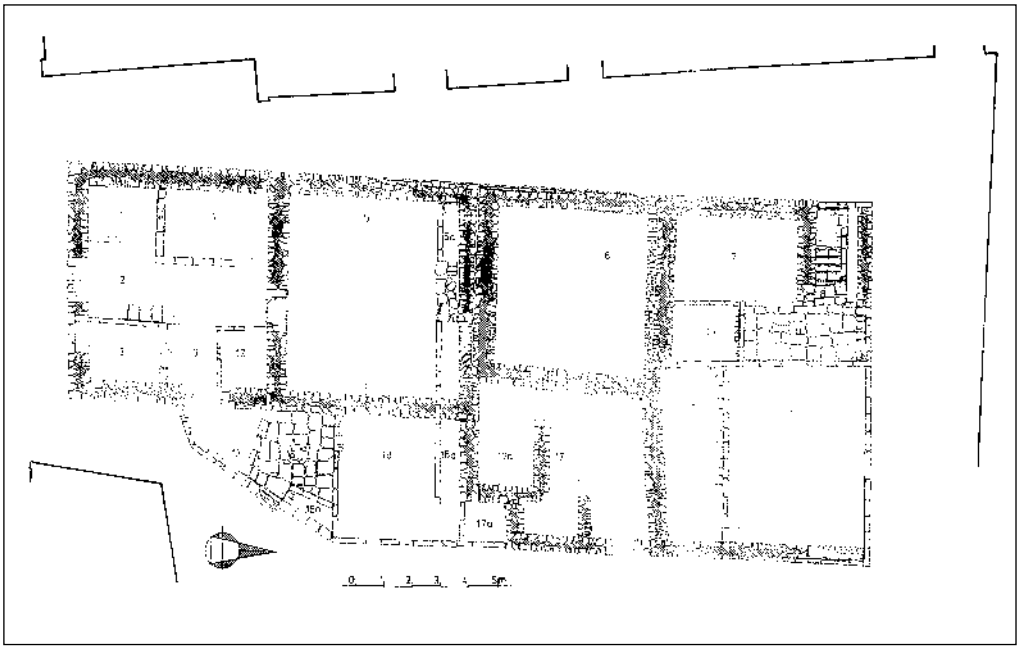

Fig. 2. House H 10"E". Complete plan following the 2003 season (Drawing S. Medeksza)

4) Conservator M. Ujma was responsible for developing the method and its application.

a height of c. 1.00-1.20 m, occasionally 1.40 m, in an effort to clarify the layout of particular houses and trace the surrounding streets. The houses are studied architecturally in the process. For example, this season the investigations of House H 10"E" were completed; the structure now appears to have had eighteen main rooms and five subsidiary ones (*Fig. 2*). It also seems clear now that rather than the four houses previously hypothesized in this insula, there were only two.

A specific conservation problem was posed by the partition walls inside House H 19b. These are walls constructed of limestone chips set in a clay mortar and as such are very difficult for maintenance or restoration. It was decided to point the walls with a lime and white cement mortar (sand-to-lime-to-white cement ratio: 6:3:1), commonly used in conservation in Marina. All the walls were protected with top courses of closely set broken stone bonded in lime mortar with some white cement added, and appropriate sloping for protection against rainwater.

The commemorative memorial to Commodus in room 2 of House H 21c was given a limestone parapet and was covered with stone slabs (*Fig. 3*).[5] The bases of small columns were erected on this parapet; one whole column and a piece of another will be restored in the future. The bases are 0.30 m high; the six surviving parts of column shafts measure 0.29-0.30 m in diameter and are 0.52 m high. A single preserved column capital measures 0.30 m in height.

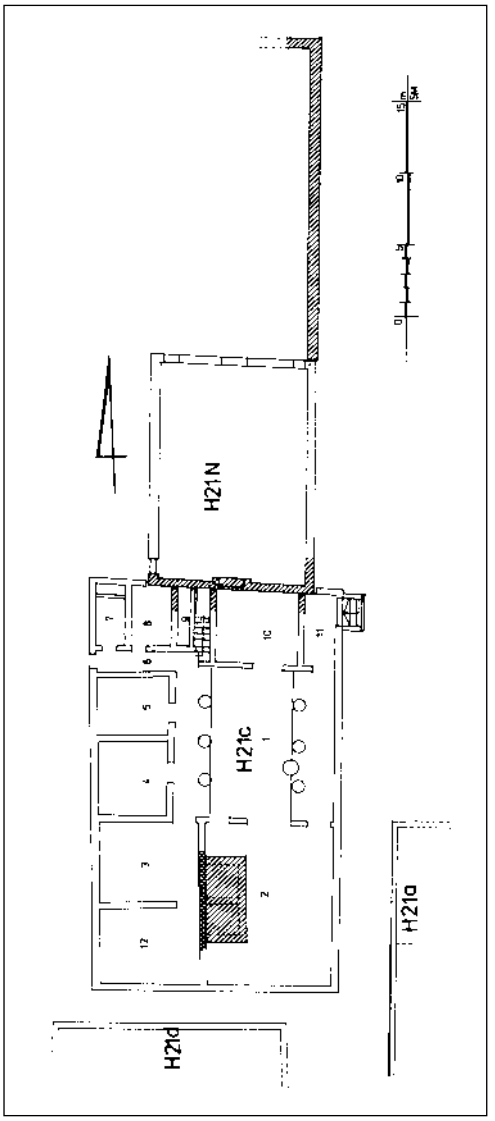

Fig. 3. House H 21c and hall H 21N. Plan showing work completed in 2003 (hatched) Drawing S. Medeksza)

5) A discussion of this memorial with Dr. A. Łajtar's interpretation is given in S. Medeksza, *PAM XII, Reports 2000* (2001), 73-74. This year, a piece from the marble dedication inscription, apparently picked up as a surface find at some earlier date, was noted by I. Zych among the objects from Marina stored at the Graeco-Roman Museum in Alexandria. It is a corner fragment with the beginning of a line of Greek inscription on one side and the squeezed in end of another line on the other. Dr. Łajtar, who kindly shared his knowledge on the subject, was able to read the date of the dedication from this piece: year 23 of Commodus, corresponding to 29 August 182 - 28 August 183. For his comments, cf. *JJP* 33 (2003), 177-179 and previously *JJP* 31 (2001), 61-62.

As reported previously,[6] the niche in the south wall of Hall 21"N" had been reconstructed to the height of the imposts. In 2003, the work was completed based on reconstruction drawings prepared by R. Czerner (*Fig. 4a*).[7] New fillings were inserted, glued and fixed with stainless steel dowels. Areas around the joints were strengthened with ethyl silicate stone strengthener FUNCOSIL STEINFESTIGER OH (Remmers). The adhesive used for both stone and steel was an epoxy resin ARALDITE AW 1360 (CIBA-GEIGY) with powdered limestone added. The missing sections of the ornamental cornice were carved using traditional tools. Small fillings were made on the base of a silicon resin ADHESIL K1 with powdered limestone. The reconstructed impost blocks were then reinserted in place and fixed with mortar. The missing part of the niche tympanum was reconstructed in the same way as the impost blocks. The original elements, which had been impregnated in 2002 with FUNCOSIL STEINFESTIGER 300 (Remmers), were reassembled and the recreated piece fitted into place, thus completing the reconstruction (*Fig. 4b*).

It was also decided not to interfere with the subsidence of the pavement in the hall, as any attempt at a reconstruction would actually entail building the structure up

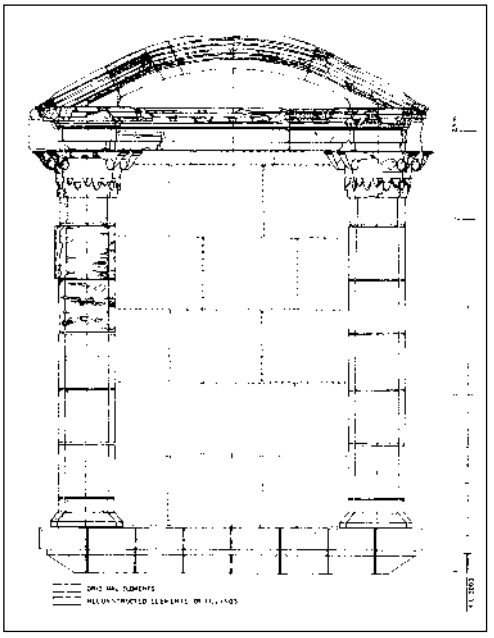

Fig. 4a. Wall niche from hall H 21N. Theoretical reconstruction (Drawing R. Czerner)

Fig. 4b. Wall niche from hall H 21N. View following anastylosis in 2003 (Photo S. Medeksza)

6) Cf. *PAM XIV, Reports 2002* (2003), 89-92, especially Fig. 5b.

7) Conservator I. Fuks-Rembisz worked out the method and carried out the actual reconstruction.

from scratch.[8] The difference in the levels of the pavement at the point of the cracking was underpinned. The walls in the northeastern and northwestern corners of the room were built up to a height of 1.20 m, the west wall up to a meter in height. The original stone blocks were used with only a few new ones, bonded in lime mortar with some white cement added.

In the area of the necropolis, the major task of the season was the raising of the pillar tomb T 1K. After excavations and documentation carried out by the Polish Archaeological Mission in 1994,[9] the surviving elements of this pillar-shaped monument were put back in the position in which they were found and carefully protected for future restoration.[10] Several blocks of similar dimensions were lying in the vicinity and it turned out in consequence that few new blocks had to be prepared for the reconstruction. Sadly enough, one of the missing pieces was the southern jamb of a small niche located in the middle height of the pillar. With some modifications resulting from the need to include the results of recent research, it was possible to raise the pillar to a height of 5.30 m, (*Figs. 5, 6*), leaving the remaining

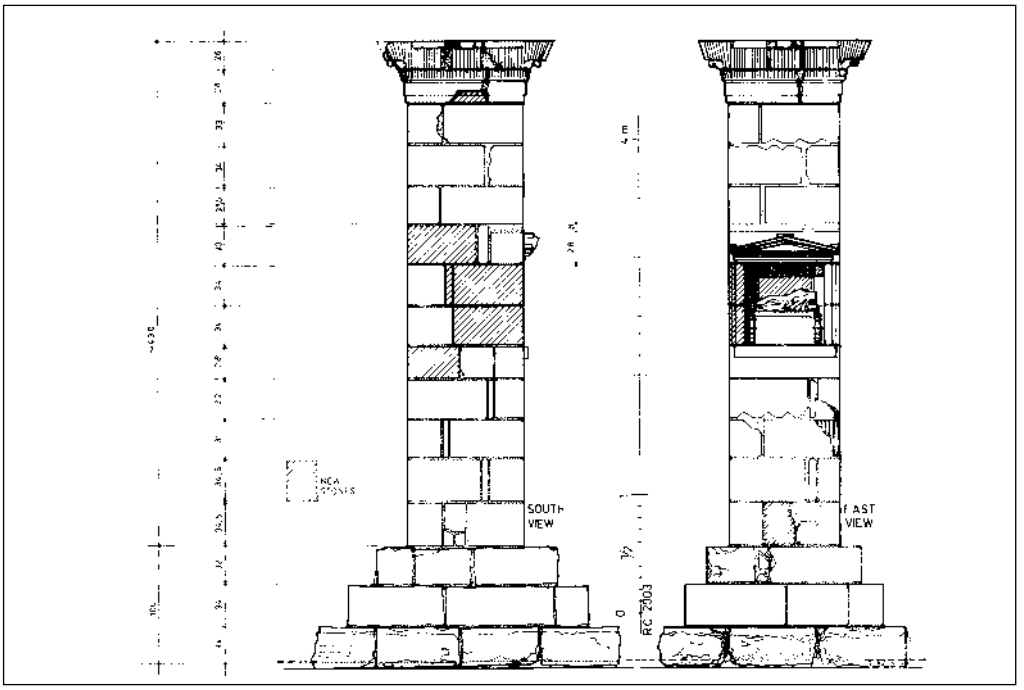

Fig. 5. Tomb T 1K after partial anastylosis in 2003 (Drawing R. Czerner, based in part on J. Dobrowolski, 1994)

8) The situation is well illustrated in Fig. 5a of the previous report, *PAM* XIV, op. cit., 91.

9) The tomb was discovered accidentally in 1993 and excavated thoroughly in 1994, cf. W.A. Daszewski, "Marina el-Alamein 1994", *PAM VI, Reports 1994* (1995), 39 and Fig. 3 (erroneously captioned as 'after restoration'; it was only a theoretical reconstruction).

10) A theoretical reconstruction was prepared at the time by J. Dobrowolski, cf. previous note.

parts of the cornice for the coming season. The carved representation of a man lying on a banquet couch was reintroduced into the reconstructed niche (*Fig. 6*). The stone was first desalinated and impregnated with FUNCOSIL STEINFESTIGER 300 (Remmers).

In the other tombs, necessary building conservation steps were taken, such as protecting and reconstructing the western wall of the dromos in Tomb T 1GH. Seven new stone slabs measuring 0.20 by 0.40 by 0.60 m were inserted and bonded in lime mortar with white cement. In hypogeum T 6, the two *klinai* in the banquet hall of the mausoleum were reconstructed. To differentiate the original parts from restored ones, the new sections were given an easily distinguished modern finishing. The profiles of the architectural decoration of the beds were carefully recreated and a water solution of clay applied to unify the parts chromatically.

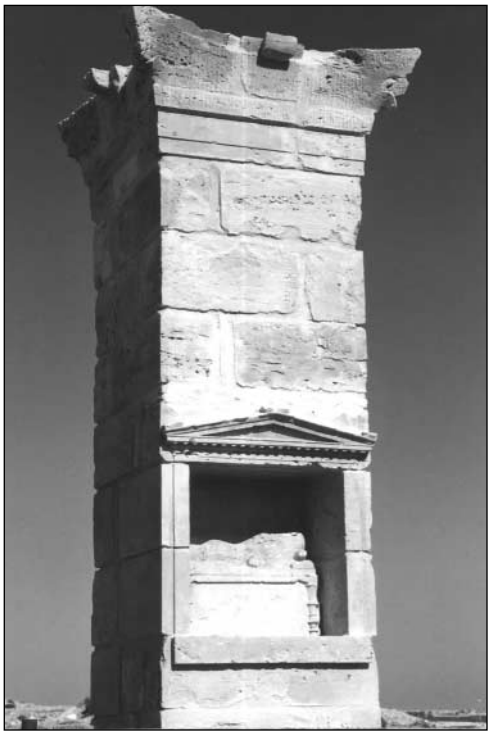

Fig. 6. View of the front of pillar tomb T 1K with reconstructed niche (Photo S. Medeksza)

Fig. 7. Anastylosis of the capital on top of pillar tomb T 1K (Photo S. Medeksza)

ARCHAEOLOGICAL SUPERVISION[11)]

Continuing reconstruction works necessitated the clearing of further rooms and areas in all of the structures discussed in this report. A detailed analysis of the archaeology in particular units will be prepared for the final report. The assemblages recorded in the various houses reflect the occupational history of these buildings, largely following previous findings in this respect. Of particular interest was the room in House H 10"E", which contained a kitchen area with an amphora standing *in situ*; an oil lamp attachment with a relief image of Isis with the child Harpocrates[12)] was found inside this vessel and beside it a virtually intact frying pan (2nd-3rd century AD). The finds included numerous terracotta oil lamps, bronze coins, pottery, glass vessels and fragmentary bronze nails.

Among the more interesting pieces of the season one should mention an ornamented bone needle from House H 1 and a Hellenistic-style terracotta head of Alexander the Great depicted as Heracles (*Fig. 8*),[13)] found in room 17 of House H 10"E", in a layer dated to the 2nd-3rd century AD. Of interest also is a surface find of a 2nd/3rd-century intaglio gem, made of agate (?), depicting a schematic bust of Hermes in profile and a caduceus (?) in the background (*Fig. 9*).[14)]

Fig 8. Terracotta head of Alexander the Great, 1st-3rd century AD (Photo W. Grzegorek)

Fig. 9. Intaglio gem of agate with a representation of Hermes (?), 2nd/3rd century (Photo W. Grzegorek)

11) Remarks contributed by G. Bąkowska

12) G. Bąkowska, "La rappresentazione di Arpocrate sulle gemme magiche", in: ed. M. Nobili, Ad limina II Incontro di studio tra i dottorandi e i giovani studiosi di Roma Istituto svizzero di Roma, Villa Maraini febbraio-aprile 2003 (Alessandria 2004), 297-312, fig. 4.

13) Dr. G. Majcherek kindly dated the pottery assemblage from this layer to the 2nd-3rd century AD. The piece imitates a Late Hellenistic style, cf. M. Bieber, Alexander the Great in Greek and Roman Art (Chicago 1964), 76-79.

14) A. Dimitrova-Milcheva, Antique Engraved Gems and Cameos in the National Archaeological Museum in Sofia (Sofia 1981), 43-44, no. 60.

GEOLOGICAL RESEARCH[15)]

The reconstruction of the paleogeology of the bay and coastline before and after the founding of the city was the focus of this year's geological reconnaissance.[16)] It is of key importance to understanding the original layout of town, cemeteries and harbor.

Analysis of a 1998 hypsometric map revealed the presence of an extensive waterlogged area in the northwestern part of the site surrounded by banks rising c. 0.20 m above sea level. The old reservoir was clearly visible in a 2-meter deep section of one of the pits dug under the projected museum (situated in the presumed ancient harbor area). The bay and the low bank restricted the expansion of the town to the west. In the eastern end it may have limited the development of the harbor area or it could have been made part of the harbor.

Water oozing and humidity observed in the coastal area of the site, even assuming that the ancient sea level was lower by a few dozen centimeters, must have constantly endangered building stability in the area. Water erosion must have dangerously influenced the natural hollow cavities in the rock, causing a variety of depressions, pits and breaks observed today around the site. Whether the genesis of the process was endogenic or exogenic, it is difficult to determine, likely the two factors were combined. On one hand, earthquakes activated natural rock movement in already existing cavities, and on the other, torrential winter rains, water-storage activities and manmade excavation contributed to the present deformation of the ground surface line.

15) Remarks contributed by J. Skoczylas.

16) The reconnaissance also provided input regarding modern limestone exploitation in the area and the recultivation efforts in post-exploitation areas.