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## PTOLEMAIS IN LIBYA.

EXCAVATIONS CONDUCTED BY THE MISSION OF THE INSTITUTE OF ARCHAEOLOGY,  
WARSAW UNIVERSITY IN 2004 AND 2005. REPORT ON TWO SEASONS OF EXCAVATIONS\*  
(PL. 81-110)

The present article is a report on two seasons of excavations conducted by archaeologists of the Warsaw University, under the terms of the "License for Archaeological Excavations"<sup>1</sup> issued on 22.07.2001<sup>2</sup>.

The 2004 and 2005 year missions<sup>3</sup> were a continuation of excavations conducted in December 2001<sup>4</sup>, April-May 2002 and October 2003<sup>5</sup>. Works were carried out in four different spheres: 1. archaeological excavations; 2. conservation works; 3. geodetic measurements within the walls of the city; 4. geophysical investigations of one of the city's insulas (only in 2005).

## 1. ARCHAEOLOGICAL WORKS

## 1.1. The campaign of 2004

The aim of the campaign was to uncover the earliest phases of construction of the villa and to confirm assumptions concerning the chronology. Works therefore concentrated on the exploration of three newly opened sondages (sondage BC99/1, sondage EX9/1, sondage EX9/2) and on the exploration of S-W part of trench CXCI81 and S-W part of trench BC79 (Plan 1).

\* Apart from the authors of the present article, the team in 2004-2005 consisted of the following persons: architect U. Urban; archaeologists – D. Frankowska-Delman, M. Rekowska-Ruszkowska, M. Socha; and students – M. Baliszewski, Ł. Celiński, A. Dłuska, D. Iwaniec, M. Kajdy, Z. Kowarska, S. Lenarczyk, P. Niedbał, H. Oleszkiewicz, H. Szydłowska, M. Tarkowski, M. Zawistowska. Without their support, neither the fieldwork nor the preparation of this report would have been quite as successful. The photographs were made by D. Frankowska-Delman and M. Tarkowski. The drawings and plans were prepared by A. Dłuska and U. Urban.

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<sup>2</sup> The license was prolonged twice: on 18.08.2003 and on 19.08.2005.

<sup>3</sup> Works were carried out in the following periods: 16.08. – 15.10.2004 and 4.04 – 9.05.2005. Cf. T. MIKOCCI et al., *Polskie Ptolemais w libijskiej Cyrenajce*, Warszawa 2004;

T. MIKOCCI et al., *Polskie Ptolemais w libijskiej Cyrenajce. Badania w 2005 r.*, Warszawa 2005; T. MIKOCCI, *Polskie wykopaliska w Ptolemais*, *Archeologia Żywa* 2 (32), 2005, p. 36-40; idem, *Polskie wykopaliska w Ptolemais w Libii* [Xenia Posnaniensia series altera, vol. 29], Poznań 2006; W. MAŁKOWSKI et al., *Non-destructive surveys of an ancient city Ptolemais at Cyrenaica (Libya)* [in:] *Proceedings of the 6th International Conference on Archaeological Prospection*, S. Piro ed., Rome 2005, p. 195-196.

<sup>4</sup> Cf. T. MIKOCCI, *Polskie wykopaliska archeologiczne w Libii. Wykopaliska Instytutu Archeologii Uniwersytetu Warszawskiego w Ptolemais (Tolmeita). Sondáže 2001 r.*, *Światowit* 3, 2001 (2002), fasc. A, p. 101-120, pl. 26-53.

<sup>5</sup> Cf. T. MIKOCCI, P. JAWORSKI, M. MUSZYŃSKA with contributions of K. CHMIELEWSKI, M. GŁADKI, W. MAŁKOWSKI, H. MEYZA, *Ptolemais in Libya. The Warsaw University Institute of Archaeology Excavations in 2002 and 2003. Report on Two Seasons of Fieldwork*, *Światowit* 5, 2003, fasc. A, p. 107-118. Cf. also T. MIKOCCI, A. KRZEMIŃSKA, *Skarby Ptolemais*, *Świat Nauki* 10 (134), 2002, p. 58-65, idem, *Villa mit Meerblick*, *Spektrum der Wissenschaft*, Spezial 2/2003, p. 50-57; *Polskie wykopaliska archeologiczne w Libii*, Warszawa 2002, idem, *Mozaiki z pałacu Leukaktiosa*, *Archeologia Żywa* 1 (20), 2002, p. 8-12; T. MIKOCCI, M. GŁADKI, W. MAŁKOWSKI, *Badania urbanistyczne antycznego Ptolemais z zastosowaniem tachimetru elektronicznego* [in:] *FNPP dla archeologii. Podsumowanie programów TRAKT i ARCHEO*, Lublin 2003, p. 64; T. MIKOCCI, *Le campagne di scavo della missione archeologica polacca a Tolemaide (Ptolemais) condotte tra il 2001 e il 2003* [in:] *Cirenaica: studi, scavi e scoperte. Parte I: Nuovi dati da città e territorio. Atti del X Convegno di Archeologia Cirenaica, Chieti 24-26 Novembre 2003*, E. Fabbricotti, O. Menozzi eds [BARIntSer, vol. 1488], Oxford 2006, p. 173-182.



Hellenistic foundations of the villa, placed directly on bedrock, were reached in all above-mentioned areas (**Fig. 1**). The external walls of the villa, built on Hellenistic foundations, were found in sondage EX9/1 (W wall of villa; **Fig. 2**) and in trench CXCI81 (E wall of villa; **Fig. 3**).

Two baulks in the central part of the villa (baulk 2 and baulk 3; also partially baulk 5; see **Plan 1**) were explored and taken down in order to remove the remaining fragments of the Achilles mosaic<sup>6</sup>. Conservation works on the fragmentary Achilles mosaic, as well as on frescos preserved in room 9 (trench BC99 and EX9) were continued.

### 1.1.1. Trench BC79

Works in trench BC79 were previously carried out in spring 2002. During this season's campaign, trench BC79 was enlarged in N-W direction (1.50 m x 4.00 m) in order to establish the relation between walls W24, W29, W42, W46 and W43.

The chronology of the uncovered structures was determined: walls of the earliest phase date to the Hellenistic period (corner of W24 and W42, W29, W46). The foundation of W46 is placed directly on bedrock. Between the stones of the foundation layer, a Ptolemaic coin was found (cn/026/04). Wall W29, perpendicular to W46, also dates to the Hellenistic period and functioned as a support wall. Walls W46 and W29 served as foundation for the Roman walls. Wall W24 served as foundation for the Byzantine walls W42, W24 and probably W31, forming a Byzantine construction of a defensive character (R26; **Fig. 4**). In a later phase of the Byzantine period, walls W43 and W28, forming the defensive wall of the city quarter, were built to prolong W24 (S wall of tower). Walls W22 and W27 were added later to this defensive construction.

**Room 26.** Only the S-W corner of the room was excavated (**Fig. 5**). The upper layer of R26 was covered with stones from destroyed walls W24 and W42. The pottery finds as well as two stone decorative elements: a volute of a Byzantine capital and fragment of a bas-relief with floral decoration date clearly to the Byzantine period.

**Room 20.** 5 layers with 2 clear habitation phases were distinguished: 1. humus and mixed layer (unit 6/04); 2. living floor (unit 10/04, small stones and large amount of pottery fragments); 3. mixed layer (unit 26/04); 4. beaten floor/pavement (unit 57/04) on same level and connected to thresholds in W29 and W46; 5. layer of

soil (unit 58/04; no pottery finds). Below layer 5, on the bedrock, several fragments of Hellenistic fine pottery were found. We suspect that the Roman layers were destroyed in the Byzantine period during the construction of W43, when the earlier layers were removed.

**Room 25.** The area was previously explored in 2002. During this season's works in S profile of BC79 (S of W46) a mosaic pavement was partially uncovered (M10; **Fig. 6**).

### 1.1.2. Trench BC89 (Plan 3)

Works were undertaken in order to establish the relation between the structures found in BC79, BC99 and BC90. After the removal of the upper destruction layer (28.34 m), the trench was divided in two parts and works were continued only in the N part of the trench.

### 1.1.3. Trench CXCI81 (Plan 4)

Works in the trench were previously carried out in spring 2002. During this season's campaign, excavation works in CXCI81 trench were undertaken in order to determine whether the main rooms of the villa were planned symmetrically around the central peristyle. W47 and perpendicular to it W45 and W49 date to the Hellenistic period. W47, situated directly on bedrock, forms the exterior wall of the villa (**Fig. 3**).

On these Hellenistic foundations (W47 in its S part and W45) Byzantine constructions were built up (**Fig. 7**; W48 above S part of W47; the Byzantine wall above W45 does not have a separate number). W45 in its upper level is a continuation of W10 and forms N corner of the Byzantine blockhouse.

**Room 14.** 4 layers were distinguished: 1. humus (unit 8/04); 2. rubble (unit 28/04); 3. mixed layer with many fresco fragments from W45 and W47 (unit 30/04); 4. mosaic pavement.

**Room 21.** 3 layers were distinguished: 1. humus (unit 8/04); 2. rubble (unit 28/04); 3. mixed layer (unit 33/04; N of W49 large amounts of pottery fragments and several lamps, whole and fragmentary, were found). Unit 33 was located directly on bedrock where several Hellenistic fine pottery fragments were found.

**Area with no room number.** S of Room 21, directly above W49. 5 layers were distinguished: 1. humus (unit 8/04); 2. rubble (unit 28/04); 3. mixed layer (unit 33/04); 4. pavement (unit 43/04; 0.04 m thick); 5. layer of soil (unit 42).

<sup>6</sup> The mosaics from Ptolemais were recently published: T. MIKOCKI, *New Mosaics from Ptolemais in Libya*, *ArcheologiaWarsz* 55, 2004, p. 19-30; idem, *An Achilles Mosaic from*

*the Villa with a View at Ptolemais*, *ArcheologiaWarsz* 56, 2005, p. 57-68. These mosaics were also presented during the X Int. Congress AIEMA in Portugal (November 2005).



#### 1.1.4. Trench BC90 (Plan 5)

Works in trench BC90 were previously carried out in Spring 2002. During this season's mission trench BC90 was enlarged in S-E direction (0.75 m x 2.00 m) in order to remove an architectural block partially stuck in S profile of trench.

**Room 14.** Mosaic M6, partially visible in CXCI81, was uncovered (**Fig. 8**). The central medallion was destroyed in antiquity (**Fig. 9**). The mosaic is not symmetrical – the boarder is narrower from W than from the other directions.

#### 1.1.5. Sondage BC99/1 (Plan 6)

The sondage is located E of W1 and N of W40; it runs N parallel to W1 and has 2.50 m of width. E of W1 and parallel to it a wall constructed of one layer of stone blocks was uncovered. It served probably as support of W1. In its S part, a rectangular hole – evidence of a door, was discovered (**Fig. 10**).

N of W40 and parallel to it a drain cover made of stones slabs was uncovered (unit 60/04; **Fig. 11**). The drain continues W of W1 and is visible in sondage EX9/1, probably joining the main city drain.

Construction of drain: 1. stone slabs covering drain; 2. layer of mortar with drilled space for sewage flow; 3. layer of soil, trapezoidal in cross-section, strengthened on sides with stones and placed directly on bedrock.

In N part of sondage, by the W profile of trench BC99, 2 walls of a construction of a basin or latrine (unit 63/04) were uncovered (W55 and perpendicular to it W56; **Fig. 10, 11**). The walls of the basin are made of stones combined with mortar and are placed directly on bedrock; the interior is covered with plaster. The fill of this construction was identical to the fill of the sewage collector in sondage EX9/1.

**Room 23.** 4 main layers were distinguished: 1. destruction layer (unit 44/04); 2. primitive stone pavement (unit 59/04); 3. thin, gray-white, layer probably connected with the construction of the pavement; 4. layer consisting of several thin layers, created probably after the construction of the drain and basin, placed directly on bedrock. These layers are considered to be connected with the construction of the stone pavement.

Basing on the analysis of the stratigraphy and the pottery material, we conclude that the basin, pavement, and drain functioned simultaneously.

#### 1.1.6. Sondage EX9/1

The sondage runs parallel along W1 in trench EX9 and BC99, reaching the W profile of BC99 and has 1.50 m in width. In its S part, S of W2, the sondage was widened to reach the construction of the basin of the latrine. The S end of the sondage is a continuation of the line of the face of W20.

In S part of E profile of the sondages, a Hellenistic wall – continuation of W1, was uncovered (W44; **Fig. 12**). In one of the blocks of W44 connected directly to W1 a hole was cut, functioning as part of drain construction leading from latrine to sewage collector. A construction of a sewage collector along the W face of S part of W1 was uncovered. The construction was cut 2.00 m deep into the bedrock. The hole cut in the bedrock was strengthened from inside by stones and mortar and surrounded by a construction made of soil and stones mixed with mortar. The construction is more narrow in its S part – being a continuation of the drain visible S of W2 – and widens in its N part. The entire construction was covered by 2 big stone slabs (**Fig. 13**), resting on especially cut slots in blocks of W1) and several smaller ones (unit 13/04). The fill of the collector (unit 29/04) – large amounts of pottery, several complete lamps and few coins – was homogenous and covered by a green deposit.

In N part of sondages, the continuation of the drain visible in R23 was uncovered (**Fig. 14**).

The following layers were distinguished in sondage: 1. gray layer of ashes and soil with large amounts of pottery, visible along W1 (unit 5/04); 2. several accumulation layers NW of sewage collector (unit 37/04).

#### 1.1.7. Sondage EX9/2 (Plan 9)

The sondage, 1.50 m in width, is perpendicular to sondage EX9/1 and runs W from W44 to the W profile of EX9. Its S profile is a continuation of W20 and S profile of sondage EX9/1. Its N profile is a continuation of S face of W2. In central part of the sondage a construction of an aqueduct(?), placed directly on bedrock and dating probably to the 3rd/4th cent. A.D., was uncovered (unit 69/04; **Fig. 15**). The aqueduct is covered by stone slabs of identical shape and size. In W profile of sondage a wall (W57, unit 71/04) belonging to an undefined structure (villa?) and forming the limit of the insula, was uncovered. In N-W corner of sondage, next to W57 a construction of a sewage collector (**Fig. 16**), probably identical to the one found in EX9/1, was discovered.

The following layers were distinguished: 1. layer connected with the removal of the upper layer of blocks from W44, visible in E part of S profile (unit 82/04); 2. several accumulation layers visible in S and N profiles of sondage (units 66/04, 70/04).

#### 1.1.8. Sondage EX9/3

The sondage was opened in order to find the continuation of W44 in S direction and to determine the W limit of the villa.

#### 1.1.9. Trench EX9, trench EX10, baulk 2

This area is formed by a group of rooms of industrial character (R7, R8, R10, R11, R22, R18, R24; **Fig. 17**), functioning in 4th cent. A.D. (date determined basing on the analysis of the pottery finds; **Fig. 18**) and destroyed



during the earthquake in 365. We suppose that after 262 A.D. (date of first earthquake) the rooms R10, R11, R22, R18 and R24 were not entirely closed and did not have walls from the side of the street. Two large blocks found in trench EX9 (**Fig. 19**) – functioning probably as pillars – together with a supraporta found nearby, are interpreted as elements of a portico. These architectural elements were probably reused and belonged originally, before the earthquake of 262 A.D., to the doorway between R4 and R8.

**Rooms 7, 10 (Fig. 20).** These rooms are interpreted as area of latrine. The walls of these rooms (W20, W23) were placed on mosaic M1 (**Fig. 21**).

R7 is closed from all 4 sides; the entrance to the room was probably through W41 – lower than the remaining walls (ca 0.20 m high). On upper surface of W41 a hole was cut, serving probably as a drain. A drain is also visible in W23, but it has been cut between 2 blocks (**Fig. 22**). In SE part of room, a stone block serving probably as a stool was found. Several complete Mid-Roman vessels (urinals?) were also found (**Fig. 23**).

R10 is located SW of R7 and has similar dimensions. It is divided in two parts: 1) a basin placed on a stone and mortar construction, 2) a drain leading from behind the basin towards the sewage collector; the terrain lowers in the SW direction.

**Rooms 4, 8, 11.** R11 is interpreted as an entrance hall to 2 dining rooms – R4 and R8. In W corner of R8, a stone block functioning probably as a table was found (**Fig. 24**). It is note worthy that during the 2003 campaign a stool made from 2 stone blocks and 1 Mid-Roman jug was found in R8. In the 2002 season, a Mid-Roman cooking pot was also found in R4.

The 3 rooms analyzed above belonged originally – before 262 A.D. – to the Roman phase of the villa (chronology based on analysis of wall paintings and mosaics dating to the 2nd/3rd cent. A.D.).

**Rooms 22, 18, 24 (Plan 1).** Rooms R22 and R18 are interpreted as area of kitchen, where meals were prepared and cooked. In R22, 3 phases of usage are visible (**Fig. 25**). In the earliest phase the room was divided in 2 parts (remains of a division wall made of mortar and stones are visible in W50, unit 46/04) and occupied by basins. Their presence is confirmed by remains of plaster on walls. The pavement visible in E part of room, analogous to the pavement in R18, belongs to the second phase. During the third phase, the pavement in N part of room was partially destroyed and a primitive kitchen made of stones was built (**Fig. 26**; unit 50/04). Under the stone construction of the kitchen, was an empty space (unit 51/04) in which 3 small Mid-Roman jugs were found (**Fig. 27**). On top of the construction, 2 Mid-Roman cooking pots were also found. Approximately 0.70 m above the pavement, stuck in W15, was a shelf(?), probably made of stone and mortar and covered with plaster.

Room R18 was divided in 2 parts. In N-W part of room, a pavement analogous to the one in R22 was

found. The pavement was partially destroyed and its foundation of small stones is visible in central part of R18. Standing on pavement, in W part of room, a stone block serving as stool was uncovered (**Fig. 25**). Also directly on pavement, next to W15, a Mid-Roman coarse vessel was found. In S-E part of room, 2 basins built on a stone construction were uncovered (**Fig. 25**). A smaller basin (unit 54/04), built next to W15 was separated from the larger one (unit 56/04) in S-W part of room by a small wall. The basins were shallow (ca 0.20 m) and were covered with plaster from the inside.

Only the N part of R24 has been excavated. A primitive drain construction, made of irregular stones, leads from R3 to R24 and continues S along W19.

It seems necessary to note that in addition to the coarse pottery found in the entire area described above (R10, R11, R22, R18, R24 and W of these rooms), more than 20 bone pins of differentes shapes and dimentions were also obtained (**Fig. 28**).

#### 1.1.10. Baulk 3

The main purpose of the removal of baulk 3 was the complete uncovering of R9, partially explored in 2003. In S part of baulk 3 (S-E corner of R9) several large architectural elements were discovered (2 bases together with fragmentarily preserved columns and a capital – fragment of doorway, **Fig. 29, 30**) In S-E part of W3 a figural fresco with depictions of birds (**Fig. 31**) was uncovered; the fresco is preserved to ca 1.60 m of height. Remaining fragments of the Achilles mosaic were also recuperated.

The exploration of the cistern located in R9 – partially explored in 2003 – was finished (unit 16/04; **Fig. 32**). Many fragmentary lamps, several coins, etc. were found. The cistern was more than 2.50 m deep and had no drains leading to other rooms of the villa; its walls were covered with plaster from the inside.

### 1.2. The campaign of 2005

The aim of the 2005 campaign was to complete the exploration of the central part of the villa (mainly rooms located round the peristyle: R1, R14 as well as rooms situated in the N part of the excavated area: R15, R25, R28, R29, R31) in order to gather necessary information for reconstruction of the phases of habitation. Works therefore concentrated on documentation and exploration of several remaining baulks: 4, 5, 7 (removed completely) and baulks 8, 9 (partially removed) and on the exploration of several rooms located within previously opened trenches (**Plan 2, 3**).

In effect the central part of the villa planned round the peristyle – richly decorated with frescos and mosaics – was completely uncovered and documented (**Fig. 33**).

Interesting results concerning the chronology of the villa in the Late Roman phase were reached in result of excavations conducted in trench BC101, where



a construction dating to the end of the 4th cent. A.D., built on earlier Mid-Roman walls, was found (**Fig. 34**). This construction functioned probably as a workshop for the production of lamps (**Fig. 35**). Even though oil lamps were very abundant in Ptolemais, their local production was not previously confirmed.

Excavation works were also conducted in trench CXCI94 in order to confirm the location and stratification of the street bordering the insula from the E. Conclusions concerning the chronology of the street confirmed by the results obtained in 2004 in trench EX 9, when the street limiting the insula from the W was explored. Differences were found in the infrastructure of the two streets and it seems necessary to continue research of the water supply system in Ptolemais.

To establish the range of the villa in the S part of the insula during this year's campaign three sondages: FI11, FI22, FI24 located S of the central part of the villa were also opened (**Plan 2**). Excavation works were preceded by geophysical prospection allowing for precise location of the sondages (**Fig. 36, Plan 4**).

Conservation works concentrated mainly on the treatment and protection of the previously uncovered mosaics: M6, M7, M10 and the newly discovered mosaic M11 and on the protection of the frescoes in room R1, room R14, porticos – room R19, and on walls: W61, W21, W24.

### 1.2.1. Trench BC79

The exploration of trench BC79 was a continuation of works conducted in 2002 and 2004. In 2002, the upper layers of destruction were removed on the entire area of the trench and the outline of walls W22, W24, and W27 became visible. In 2004, the trench was enlarged in the W direction and works concentrated on the exploration of R20. This season the exploration of rooms R25, R28 and R29 located S of the line delimited by walls W22, W24 and W27 was achieved. These rooms were part of a complex dating to the Late Roman period, connected functionally with walls W24, W27 (delimiting the complex from N) and with room R26 (tower?) (**Fig. 4**). We suppose, that due to the defensive character of the construction of the walls the described complex confirms the existence of a large, protected construction in the area (with the so-called blockhouse as its key structure).

**Room 25.** The described room, decorated with a geometric mosaic, was uncovered in 2004 in trench BC79. The main part of the room is located in trench BC89, explored in 2004. This season's works concentrated on the exploration of N corner of room R25 in BC79. The mosaic in this part of the room was heavily damaged (**Fig. 37**); part of the mosaic next to wall W66 was repaired in antiquity and was not decorated with a border visible on its other sides (**Fig. 38**). Approximately 1 m W of wall W66 a marble plate without an inscription was paved into the mosaic (**Fig. 39**).

In room R25, the following layers were distinguished: 1. destruction layer (4/05) above level of W62, identical with stratification unit 26/04 left partially unexplored in 2002; 2. destruction layer (8/05) – fill of R25; 3. accumulation layer above mosaic (33/05); 4. mosaic.

**Room 28.** The room is delimited by walls W24, W27, W29 and W62. Apart from W24, the other walls were raised on earlier constructions (**Fig. 40**). Wall W24 was built in Late Antiquity on a geometric mosaic M11 (**Fig. 41**), decorated similarly to mosaics in R4, R8, R11. The remains of wall W66 (contemporary with M11, W62 and W29), with small fragments of paintings preserved (**Fig. 42**) – were used as foundations for wall W27.

In room R28, the following layers were distinguished: 1. destruction layer (4/05); 2. destruction layer (9/05) – fill of room; 3. accumulation layer above mosaic (34/05); 4. mosaic M11.

**Room 29.** The room is covered with a stone pavement (**Fig. 38**), analogous to the pavement found SE of W75 (trench CXCI91). The room is connected to room R25 by a wide doorway (part of W66; **Fig. 43**) and can be interpreted as a paved courtyard. The foundation of wall W22, perpendicular to W27, was placed on the pavement in R29.

In room R29, the following layers were distinguished: 1. destruction layer (4/05); 2. accumulation layer above pavement (22/05); 3. stone pavement.

### 1.2.2. Trench BC89

Works within trench BC89 were limited to the exploration of destruction layers above room R27 (38/05, 50/05, 51/05), left unexplored in 2004.

### 1.2.3. Trench BC90

Works in trench BC90 were a continuation of excavations conducted in 2002; this season the N part of the trench was explored. The following structures were uncovered: wall W61 (delimiting the villa from NE, similarly to W47 in trench CXCI81), N part of R13, S part of R15 and E corner of R25. Rooms R15 and R25 are situated ca 1.20 m below level of rooms around the peristyle. The cement pavement in R13 is similar to pavements of R12 and R15. Room R25 is decorated by mosaic M10 (**Fig. 44**).

The analysis of the correlation between walls W5, W38, W63, W68 (**Fig. 45**) has brought interesting information. The late antique wall W38 was moved ca 0.5 m S in relation to Hellenistic W63 (a coin of Cyrene dated to the 3rd cent. A.C. was found in the wall). Similarly, W68 was displaced by ca 0.5 m W from W5. The displacement of the walls was used in Late Antiquity to construct a basin in S corner of R15 (**Fig. 46**), analogous to basins found in R18, EX10. The described structure is evidence of many phases of construction from the Hellenistic period to Late Antiquity and requires further analysis.



**Room 13.** The walls of this room were decorated with frescoes, partially preserved in the lower part of wall W61 (Fig. 47). Adjacent to W61 was a row of large stones and architectural blocks, placed on the pavement (21/05).

In room R13, the following layers were distinguished: 1. destruction layer (3/05), ca 0.50 m above the level of the pavement, left partially unexplored in 2002; 2. accumulation layer above pavement (10/05); 3. cement pavement.

**Room 15.** In consequence of an earthquake wall W63, dividing R13 and R15, collapsed and fell into R15 (Fig. 48). Three rows of stone blocks (36/05) were uncovered, placed on a destruction layer – fill of R15. A skeleton of a large domestic animal (Fig. 49) was found near wall W63, next to the basin.

In room R15, the following layers were distinguished: 1. destruction layer (3/05); 2. destruction layer – fill of R15 (11/05), beneath level of collapsed blocks of W63; 3. accumulation layer above pavement (43/05); 4. cement pavement.

**Room 25.** E corner of room R25 – decorated with mosaic M10 – is separated from room R12 (located ca 1 m higher) by wall W38 and from room R15 by wall W68 (preserved only on foundation level). The mosaic in this part of the room is well preserved (Fig. 44). One of the rectangular blocks in wall W38 is wider than others and appears analogous to a block found in trench BC89 (6 m distance in SW direction; Fig. 50). The blocks – due to their dimensions and location – could have served as bases for the richly decorated entrance gate, fragments of which were discovered in 2002-2004 (columns, capitals, architrave; Fig. 51).

In room R25, the following layers were distinguished: 1. destruction layer (3/05); 2. accumulation layer above mosaic (129/05); 3. mosaic M10 (Fig. 52).

#### 1.2.4. Trench BC99

This season excavation works were conducted in N part of the trench. The area of room R31, which is located SW of wall W70, W of foundations of wall W69 (continuation of wall W3) and NW from the negative of the wall W40 (the W part of this area was excavated in 2004 – sondage BC99/1) – was explored (Fig. 53).

The lower part of W70 belonged probably to the Hellenistic phase of the villa. The N part of wall W70 is dated to a later phase (Roman). The upper part of W70 was contemporary to wall W71. The wall W72, parallel to wall W71, was probably part of an industrial structure, which reached the W border of the insula (Fig. 54).

**Room 31.** In room R31, the following layers were distinguished: 1. destruction layer (29/05) – room partially explored in 2002-2004; 2. destruction layer (68/05) – large amounts of Hellenistic material below the level of foundations of W69; 3. bedrock.

#### 1.2.5. Trench BC100

Exploration works of trench BC100 were carried out in 2002. During this year's campaign the entire area of the trench, the main part of which formed the central peristyle of the villa, was uncovered (Fig. 55). The accumulation layer beneath the collapsed columns of the peristyle was removed. The level of the mosaic pavement in all rooms of trench BC100 (R1, R6, R19, R33) was reached and documented.

#### 1.2.6. Trench CXCI91

The area was partially explored in 2001 and 2002 (sondage CXCI91; an occupation level was reached in room R32, in the S corner of R30 and E part of sondage where a paved courtyard was found).

Rooms: R5, R30, R32, R33 uncovered in 2005 (trench CXCI91 and baulks 7, 9) belonged to a Late Roman, rectangular building, previously described as blockhouse (Fig. 56, 57). The building was partially erected on the devastated villa – wall W13 was built on wall W11 (previously delimiting room R1), destroying the paintings in E part of W8 and W14 (Fig. 58). Basing on numerous numismatic finds the building is dated to the 2nd half of the 4th cent. A.D. Due to the fact that inside the described structure ca 150 typologically related lamps and 6 molds (Fig. 35), several of which match some of the discovered lamps were found, the building must be interpreted as an industrial area. Its function as lamp producing workshop is confirmed by the discovery of an oven next to wall W48 (Fig. 59; strat. units: 54/05, 55/05).

**Room 5.** In room R5, the biggest among the excavated rooms, large amounts of Late Roman pottery, coins, lamps and molds were found. This room must have functioned as a workshop for the production of lamps. Several layers rich in archaeological finds have been distinguished. These layers are separated by a thick, burnt layer visible only within the walls of the building and are indicative of a fire. The E corner of the room was excavated as part of baulk 7 and the N corner as part of baulk 9.

In room R5, the following layers were distinguished: 1. humus and upper layer of destruction; 2. destruction layer with large amounts of Late Roman pottery, lamps and coins (16/05); 3. burnt layer visible on entire area of the room; 4. destruction layer with large amounts of pottery and coin finds; 5. destruction – accumulation layer above pavement (94/05); in upper part of this layer, in the center of the room a fireplace (92/05) was found; 6. cement pavement.

**Room 30.** In this room, two levels of occupation can be distinguished, similar to the stratification visible in other rooms of the villa.

In room R30, the following layers were distinguished: 1. humus and the upper destruction layer (1/05); 2. destruction layer (23/05), concurrent to 18/05 in R5;



3. layer of hardened earth (39/05) – fill of room, concurrent to 35/05 in R5; 4. accumulation layer (45/05) above occupation level of hardened earth; 5. beaten floor (62/05); 6. destruction layer above pavement (90/05); 7. fireplace strengthened with stones (117/05), above an older occupation level (**Fig. 60**); 8. occupation level – hardened earth with pavement below fireplace (130/05).

**Room 32.** In this small room, located next to R30 from SW, two levels of occupation were visible. Room R32 was a small workshop, which is confirmed by the presence of a reused column serving to crush grain (**Fig. 61**).

In this room, the following layers were distinguished: 1. destruction – accumulation layer (95/05), partially explored in 2001-2002 – fill of room; 2. occupation level – hardened earth.

**Room 33.** The room is situated in the NW part of the Late Roman structure and has a rectangular shape. In its N part, the E corner of the peristyle mosaic M4 is visible (**Fig. 62**). This area was separated from the rest of the room by foundations of wall W8 (133/05), which formed at an earlier phase, together with wall W5, the SE corner of the peristyle. Both E wall of the room (preserved on a level slightly higher than the pavement in R5) and the W wall belonged to the Mid-Roman phase of the villa and could have functioned as part of construction of stairs leading to the first floor of the building or as a corridor (**Fig. 63**).

In this room, the following layers were distinguished: 1. humus and upper destruction layer (1/05); 2. destruction layer filled with pottery and coins (35/05); 3. accumulation above mosaic M4 (93/05), concurrent to 96/05; 4. layer of accumulation above occupation level in the remaining part of R33; 5. occupation level – hardened earth.

### 1.2.7. Baulk 4

The exploration of this baulk was begun in 2004, when part of the baulk above wall W5 was removed. This season, the remaining area of the baulk was removed, uncovering the N part of the peristyle – the fourth column of the portico (**Fig. 64**) and a cistern were revealed.

The entrance to the cistern was decorated with a stone puteal (**Fig. 65**; 119/05). In the fill of the cistern, 4 coins were found (3 sestertii from the 3rd cent. A.D. and 1 Ptolemaic bronze) and a group of vessels (a dozen almost complete vessels) dated to the Mid-Roman period. The finds from the cistern seem to indicate that the peristyle was destroyed by the earthquake of 262 A.D.

### 1.2.8. Baulk 5

This baulk was partially explored in 2004, when part of the baulk running across N area of R8 was removed. This season, the remaining part in room R1 was explored. Many fragments of mosaic were found (border) in the upper part of the accumulation layer (42/05) above mosaic M7.

### 1.2.9. Baulk 6, sondages CXCI93, CXCI94

This baulk, situated between two sondages excavated in 2001 (CXCI93 and CXCI94), was explored in order to gather information concerning the water supply and drainage system in Ptolemais. The uncovered area revealed – as presupposed – the E border of the insula and a street, analogous to the street found in 2004, limiting the insula from the W (sondage EX9/2). After the removal of destruction layers, the level obtained in sondages CXCI93 and CXCI94 in 2001 was reached. Exploration continued on the entire width of the street, between Byzantine walls W64 and W65. Ca 30 m above sea level a late antique street was uncovered (**Fig. 66**; strat. units: 30/05, 31/05), on which numerous coins from the 1st half of 4th cent. A.D. were found. Similarly to the street limiting the insula from the W, the street from the E was not paved. More than 1 m deeper a clay water pipe placed directly on bedrock was discovered (**Fig. 67**); the pipe was covered by mortar mixed with stones. The pipe was placed approximately in the middle of the street, but its course adjusted slightly to the natural forms of the rock. In a crevice in the rock, a fragmentary Mid-Roman lamp was found. Earlier layers were probably removed in the course of a single city investment (most likely at the same time as the pipe on the other side of the insula was placed). Beneath the level of the street, several layers of hardened earth were visible. Lack of wall foundations placed directly on rock (unlike the situation W of the villa) could be interpreted as sign of diminishing building activity in this part of the city; walls W64 and W65 were built in the Byzantine period.

### 1.2.10. Baulks 7, 8, 9

The exploration of baulk 7 (part of rooms R1, R5 and R33) did not bring new information. The uncovered rooms and walls were documented – drawn and photographed.

Works on baulk 8 concentrated in its central and S part. Room R14 with mosaic M6 was uncovered and documented (**Fig. 68**).

Baulk 9 was explored in its W part (area of rooms R14 and R5).

### 1.2.11. Trenches FI11, FI22, FI24

Basing on results from geophysical prospecting, a decision was made to open new trenches, situated SE of the excavated area of the villa. Only the upper layers of humus and destruction were removed and documented.

## 2. POTTERY REPORT

### 2.1. The campaign of 2004

Excavations in the 2004 season brought, similarly to previous years, large amount of pottery finds.



Characteristic fragments of rims, bases and handles of fine and coarse pottery were drawn and photographed. The pottery finds were identified basing on the material from the excavations at Sidi Khrebish, Benghazi<sup>7</sup>.

Most of the categories of the fine and coarse pottery are represented, dating from the Hellenistic period, through Roman up to Byzantine times. Late Roman and Byzantine pottery was mainly found in trenches BC79, BC89 and in N part of baulk 3. Noteworthy are numerous fragments of Byzantine *unguentaria*<sup>8</sup> (several with stamps) and *mortaria* (several with monogram stamps).

The most interesting and most numerous pottery finds excavated during the 2004 season represent categories of Mid-Roman coarse pottery produced in local workshops (Ptolemais?). These fragments outweigh other categories of pottery in almost every archaeological context and represent the following types (in reference to the report on pottery finds from Sidi Khrebish):

- Mid-Roman cooking wares: D501-522
- Mid-Roman plain wares: D870-886; D900-902; D904-914
- Mid-Roman jugs: D1144-1157.

Hundreds of fragments and several whole vessels of local Mid-Roman coarse pottery were found. Their presence in archaeological deposits usually define dates of contexts to date 365 A.D. – year of the second large earthquake in Cyrenaica.

## 2.2. The campaign of 2005

As in previous years<sup>9</sup>, during the campaign of 2005, large amounts of pottery were found. Characteristic fragments of rims, bases and handles of fine and coarse pottery, were drawn (almost 500 drawings) and photographed. Almost all types of fine and coarse pottery are represented and were identified basing on material from Sidi Khrebish, Benghazi<sup>10</sup>, as well as compiled material from Polish excavations in Ptolemais, seasons 2001-2004. Among vessels classified as Mid-Roman coarse pottery, several previously unknown types were found. It seems probable that they were produced locally in Ptolemais<sup>11</sup>.

The pottery finds represent periods from Hellenistic<sup>12</sup> through Roman up to Byzantine times. Late Roman pottery was found mainly in trench CXCI91, inside a Late Roman building (oil lamp workshop).

The most interesting and most numerous pottery finds excavated during the 2004 season, represent categories of Mid-Roman coarse pottery produced in local workshops (Ptolemais?). Hundreds of fragments and several whole vessels of local Mid-Roman coarse pottery were found (Fig. 69). Noteworthy are numerous fragments of Mid-Roman pottery and nearly 20 almost complete vessels found in an important deposit – fill of the cistern in the peristyle. All these vessels, representing mainly 2 types of local Mid-Roman jugs, indicate that the destruction of the villa was caused by the earthquake of the year 262 A.D. This hypothesis is confirmed by coins found in the same archaeological context (2 Antoninian sesterii and 1 post-Severan sesterius).

## 3. NUMISMATIC REPORT

In the set of coins from Roman Imperial mints, which starts with an *as* of Tiberius and terminates with 5th century small change, the most numerous group is constituted by the coins of the Antonines (Marcus Aurelius and Commodus), the last Sever and the first soldier-emperors (Severus Alexander, Gordian III, Philip I, Trajan Decius, Trebonianus Gallus), and finally, the reign of Constantius II. The innumerable group of 1st cent. A.D. coins included Tiberius and Caligula. Single examples represent the rule of emperors of the 2nd half of the 1st cent. and the 1st half of the 2nd cent. A.D. No coins at all can be attributed to the period between the reigns of Commodus and Severus Alexander. Coins datable to the hundred-year period between the earthquakes in A.D. 262 and 365 are equally rare, similarly as examples from the late 4th and the 5th cent. A.D.<sup>13</sup>

A considerable percentage of the Hellenistic coins belong to a group of coins struck in Cyrenaica. The most numerous are small Ptolemaic bronzes representing the three following types: Ptolemy I/head of Libya,

<sup>7</sup> P.M. KENRICK, *The Fine Pottery* [in:] *Excavations at Sidi Khrebish, Benghazi (Berenice)*, vol. 3 [Libya Antiqua Suppl., vol. 5], Tripoli 1985; J. RILEY, *Coarse Pottery* [in:] *ibidem*, vol. 2, Tripoli 1978.

<sup>8</sup> The *unguentaria* were discussed by Z. Kowarska: Z. KOWARSKA, *Grupa naczyń typu unguentaria późnorzymskie znalezionych na terenie "Willi z widokiem" w Ptolemais* (BA, Institute of Archaeology, Warsaw University, 2006).

<sup>9</sup> Cf. MIKOCCI, JAWORSKI, MUSZYŃSKA et al., *Ptolemais in Libya*, op.cit.

<sup>10</sup> KENRICK, op.cit.

<sup>11</sup> These vessels were treated by S. Lenarczyk: S. LENARCZYK, *Zespół naczyń ceramicznych znalezionych w pomieszczeniach*

*gospodarczych (ar EX10) "Willi z widokiem"* (BA, Institute of Archaeology, Warsaw University 2006).

<sup>12</sup> Hellenistic fine pottery was described by D. Iwaniec: D. IWANIEC, *Ceramika hellenistyczna typu "Black-Glazed" z polskich wykopalisk w Ptolemais, Libia* (BA, Institute of Archaeology, Warsaw University 2006).

<sup>13</sup> P. JAWORSKI, *Ancient coins from the Warsaw University Institute of Archaeology Excavations at Ptolemais, Libya* (2002-2004), *Archeologia Warsz* 56, 2005, p. 77-90; *idem*, *Ancient coins from the Warsaw University excavations at Ptolemais* (2001-2005) [in:] *Cirene e la Cirenaica in età greca e romana. Atti del XI convegno internazionale di studi sull'archeologia cirenaica, Urbino 30 giugno-2 luglio 2006* (in print).



Zeus-Amon/eagle, Zeus-Amon/Isis headdress. Their denomination has not been established yet, but – struck in Cyrene from the middle of the 2nd cent. A.C. – they remained in circulation probably until the end of the 1st cent. A.D. These coins were found in destruction layers and accumulated deposits connected with the earthquakes of the 3rd and 4th cent. A.D. and consist mainly of stone and plaster rubble, mud-brick remains and earth. All above-mentioned materials were used in the construction of the “Villa with a View”. Dislodged by the seismic tremors, these coins had been stuck in the building masonry, and are thus of consequence for dating the erection of specific parts of the residence. One coin<sup>14</sup>, from the 2nd half of the 3rd cent. A.C. was stuck inside a mud brick, between fragments of the Achilles mosaic fallen from the first floor of the villa. Another<sup>15</sup>, from the 2nd half of the 2nd cent. A.C., was found in a wall foundation. Later coins were presumably introduced into the destruction layers inside the building in a similar way. These include two relatively numerous groups of coins of Marcus Aurelius and Commodus, and the period from the last Severan emperor to the middle of the 3rd cent. A.D. In both cases, the coins point to renovation projects of key importance for the villa, connected with changes of the interior decoration. The second refurbishing is confirmed by a *sestertius* of Gordian III<sup>16</sup>, found in a crack of a stucco cornice element crowning the painted wall decoration in the hall with the Dionysus mosaic. Coins of the 2nd quarter of the 3rd cent. A.D. were accompanied in a few cases by contemporary terracotta oil lamps<sup>17</sup>, the contexts apparently recording a severe earthquake in A.D. 262.

Follises struck after the middle of the 4th century, mainly of the FEL TEMP REPARATIO (fallen horseman) and SPES REIPUBLICAE (Virtus), are an important feature for dating archaeological contexts in Cyrenaican buildings, as well as excellent confirmation of a catastrophic earthquake that destroyed much of the eastern part of the North African coast in A.D. 365.

The 2005 campaign brought more numismatic finds than the previous seasons (in 2002–2004 nearly 130 were obtained altogether<sup>18</sup>). Such a large amount of coins was a result of a systematic usage of a metal detector during fieldworks. All coins found this year, except one, are

bronzes; all were found in a defined archaeological context. Almost all coins were successfully cleaned and identified.

A number of phenomena, typical for numismatic finds from Cyrenaica, were observed. Cyrenaican ases struck by Roman officials: Lollius, Pupius Rufus and Palikanus belong to a group of coins struck and halved during reign of Augustus. The 2005 season brought an extraordinary numismatic find (**Fig. 70**). It is a small *quadrans* struck in Ptolemais, representing head of Libya (typical Ptolemaic motive) with letters: ΠΙΤ (short form for Ptolemais in Greek) on obverse and serpent on reverse with name of the Roman official A. Pupius Rufus: ΠΙΟΥΠΙΟΙΟC. This type of coin is preserved in several examples but all of them have Λ (Libya) instead of ΠΙΤ (Ptolemais). This unique coin seems to testify to the existence of a mint in Ptolemais established after 37 A.C. by P. Canidius Crassus and functioning in the Pre-Actian period<sup>19</sup>. Several other coins found in the 2004–2005 seasons, very common for the region of Cyrenaica, represent coins previously attributed to Caesarea in Cappadocia. Characteristic for this group, struck during the reign of Trajan, Hadrian and M. Aurelius, is the pattern: head of Emperor on obverse, head of Zeus-Ammon on reverse. One coin of this group (cn/037/05) is worth mentioning: this is the silver hemidrachm, very rare and beautiful (**Fig. 71**). It is necessary to note that among the numismatic finds obtained during the Polish excavations in Ptolemais, the majority of large, bronze denominations from the Early Roman reign in Cyrenaica were halved. The production of smaller units (in this case semises, less frequently quadranses) obtained by cutting of coins (ases) in halves or quarters, is a well-known phenomenon, especially for the Western part of the Empire. This procedure served to complement the lack of small change on the local market. The group of halved coins from Ptolemais is the most numerous among the known examples from other archaeological sites in Cyrenaica.

Worth to note among the Roman coins discovered in 2005 is a chronologically homogeneous group of bronzes from the end of 4th–beginning of 5th cent. A.D., found in stratas connected with a lamp production workshop, functioning after the earthquake of 365 A.D. in the ruins of the villa.

<sup>14</sup> Ibidem, cat. no. 4.

<sup>15</sup> Ibidem, cat. no. 13.

<sup>16</sup> Ibidem, cat. no. 87.

<sup>17</sup> Most of the terracotta lamps from the Polish excavations were dated in reference to the finds from the British excavations at Sidi Khrebish, Benghazi: D.M. BAILEY, *The Lamps* [in:] *Excavations at Sidi Khrebish, Benghazi (Berenice)*, vol. 3.2 [Libya Antiqua Suppl., vol. 5], Tripoli 1985.

<sup>18</sup> Cf. JAWORSKI, *Ancient coins from the Warsaw University Institute of Archaeology Excavations at Ptolemais, Libya* (2002–2004), op.cit.

<sup>19</sup> More on the subject: P. JAWORSKI, *Rzymskie mennictwo Cyrenajski (I w. p.n.e.–I w. n.e.). Odkrycia misji Instytutu Archeologii UW w Ptolemais*, *Biuletyn Numizmatyczny* 4, 2006, p. 256 sq; idem, *Cyrenaican coinage from the beginning of Roman rule. New evidence from Ptolemais*, in present volume of Światowit.



## 4. CONSERVATION WORKS

### 4.1. Campaign 2004

#### 4.1.1. Works on the paintings

The main conservation works focused on the paintings had explored from the baulks 1 and 3 (corner between walls W2 and W3). In this area, many small broken fragments of paintings (which had fallen down from the walls) were found in the earth. All of them were picked up and put into the boxes.

Two greater fragments of paintings and one fragment of stucco cornice were found (Fig. 72). There laid face down in the earth and were seriously destroyed. On their back surface, one layer of gauze and one layer of cotton textile were attached using poliacetate vinyl in water dispersion (Fig. 73). Then all fragments were lifted and put on the wooden boards (fragment with cornice into the box).

Two lifted fragments of paintings originally were the part of decoration on the wall W2 in the room with Dionysus mosaic. On the greater fragment (approx. dimensions: max. width 90 cm; max. height 50 cm) geometrical decoration is visible and on the smaller one painted bird on the green background (Fig. 74). The fragments are in very bad condition. Two layers of plaster in many places are detached, cracked and broken. Some pieces are loose (the painted plaster is completely detached from the first layer of mortar). The face of painting is dirt, covered with thick layer of clay.

Fragment with bird was put into the box with sand because its surface is deformed. The layer of plasters was preliminary consolidated with injections (Primal AC in water 1:3). The painted surface was cleaned with water (first wet pieces of soft paper were applied for soggy of dirt and clay, then water cleaning was done using paintbrushes and sponges). The surface of painting was disinfected with Preventol R80 (3% in water). The red colors were impregnated with Paraloid B72 (3% in acetone). Some areas have been protected with Japanese paper (applied with 5% polyalcohol vinyl in water). This treatment is preliminary only. Fragments of paintings are preserved now but in the future, their conservation should be continued.

After final excavation of baulks 1 and 3 large fragments of painted decoration on the walls W2 (approx. dimensions: max. width 229 cm; max. height 105 cm) and wall W3 (approx. dimensions: max. width 224 cm; max. height 143 cm) were uncovered (Fig. 31, 75). The paintings are preserved in the corner between two mentioned walls in the room with Dionysus mosaic. On the walls another fragments of geometrical decoration are visible – red, green and yellow squares and rectangles, painted columns with imitation of marble, white lines and simple floral ornaments. Moreover, on the wall W3 the bird on the green background is presented. The paintings were seriously destroyed. The plaster layers in many places were detached from the stone support. There were many empty spaces

between them. Painted surface was deformed and seriously cracked. There were many lacunas of painted plaster; some fragments were completely unstuck from the support and hang on the earth only. The face of paintings was very dirt, covered with thick layer of clay and soil, which were very hard consolidated with paint layer.

The following works were done by the paintings on the walls: 1. all edges of painted plaster were protected with mortar bands (acryl stucco mortar “El Madina wall paste, Libya” with sand 1:1.5); 2. consolidation of unstuck fragments of plasters (injections with 20% Primal AC33 in water); 3. first step of cleaning – wet soft paper pieces applied on the paint surface, then water cleaning with paintbrushes and sponges; 4. disinfection of paintings (3% Preventol in water); 5. impregnation of red colors which were powdered (3% Paraloid B72 in acetone).

After this treatment, the paintings are reinforced and preliminary protected. There are covered with perforated synthetic textile (“Texbond, Italy”) and layer of sand and earth. However in the future the paintings should be take off from the walls and transfer on the new mobile support.

There are found two columns and half-columns with painted decoration on the thin plaster. There are decorated with floral ornament – red floral scroll with leaves and fruits (Fig. 76). Weak edges of plaster were reinforced with mortar bands (acryl stucco mortar with sand 1:2). Paint layer was cleaned with water (sponges and paintbrushes), disinfected (3% Preventol in water) and impregnated (Paraloid B72 in acetone).

#### 4.1.2. Works on the mosaics

The following mosaics are uncovered: in rooms R7 and R11 mosaic M1 (Fig 77, 78); in room R14 mosaic M6 (Fig. 8, 9); in west part of peristyle mosaic M4 (Fig. 79); in room R25 mosaic M10 (Fig. 80). All of them are made in *opus tessellatum* technique and are decorated with geometrical ornaments. Some areas of mosaics are seriously destroyed: smaller and greater lacunas in tesseras layer, weak and degraded mortar support, deformed and dirty surface of mosaics, loosing tesseras.

The following works were done on the mosaics: 1. reinforce of edges of mosaic along the lacunas with new mortar bands (acryl stucco mortar with sand 1:1.5); 2. cleaning of the mosaics surface (water cleaning using sponges and paintbrushes); 3. covering the mosaics with perforated synthetic textile (“Texbond, Italy”) and layers of sand and earth.

### 4.2. Campaign 2005

#### 4.2.1. Works on the paintings

Room R1: During this campaign, the paintings on wall W14 were uncovered (Fig. 81); the remaining paintings on walls W3 and W8 were uncovered in 2002.



All paintings preserved in this room were documented and treated.

R19: paintings on wall W8 were uncovered and treated (**Fig. 82**).

R6: paintings on wall W5 were uncovered and treated (**Fig. 47**).

R14: paintings on walls W45 and W5 were uncovered and treated (**Fig. 83**).

All paintings treated in 2002, uncovered again during this season's works, were in good state of preservation. The followings measures were taken in order to strengthen the paintings: 1. reinforcing of the edges with new mortar (acryl stucco mortar with sand); 2. cleaning of the painted surface with wet brushes and sponges; 3. disinfection of the paintings with 3% Preventol in water; 4. impregnation of some areas (especially red colors) with 2% Paraloid B72 in acetone. After treatment, all paintings were covered with perforated synthetic textile ("Guttafol, Germany") and soil.

#### 4.2.2. Works on the mosaics

This season the following mosaics were uncovered: M7 (**Fig. 82, 84**), M5 (**Fig. 55, 64**), M4 (**Fig. 63, 64, 85**), M6 (**Fig. 68, 86**), M10 (**Fig. 37, 39, 43, 44, 52** partly), M11 (**Fig. 40, 41**).

The mosaics, which were found in 2002 and protected with plastic foil and soil, were in good condition. The edges of the newly discovered fragments of mosaics were strengthened with mortar (acryl stucco mortar with sand 1:1.5). All the mosaics were cleaned with water and covered with perforated synthetic textile ("Guttafol, Germany") and soil.

#### 4.2.3. Report on the conservation of a Roman sarcophagus

*Type of object:* attic sarcophagus from the Roman period.

*Chronology:* 2nd- 5th cent. A.D.

*Workshop:* Attic.

*Material:* white, Greek marble, possibly Pentelic.

*History of find:*

In 2003 several, large fragments of a sarcophagus case and a fragment of the lid were brought to the local museum in Tolmeita (**Fig. 87**). In October 2004, another part of the same sarcophagus (the bottom part of the case) was found in the East Wadi of Tolmeita, called Wadi Umran (**Fig. 88**). The fragments were identified as part of one object and a decision was made to reconstruct the fragmented pieces by a Polish conservators.

*State of object before conservation:*

Approximately 30% of the sarcophagus was missing. The sarcophagus consisted of 37 fragments varying in shape, size and state of preservation. Two largest fragments constitute the bottom part of the sarcophagus; the smaller parts form the sidewalls of the case. The relief decorating the case was covered by a layer of loose soil

with small stones responsible for its reddish-brown color.

*Performed conservation works:*

The fragmentary pieces of the sarcophagus were classified, documented and photographed. First, the layer of soil covering the relief was removed with the use of brushes (natural and synthetic brushes). Attempts were then made to restore the white color of the marble by means of compress of 10% and 20% ammonium hydrocarbonate (NH<sub>4</sub>)HCO<sub>3</sub>. The chemical substance used did not allow for the removal of the reddish-brown color. It was therefore decided to remove the dirt with water, using soft brushes. The remaining bits of soil were removed with the help of a scalpel. Next, the two parts of the bottom of the case were glued together with epoxy resin Epidian 5 with hardener Z-1. This step was preceded by the drilling of three holes (2.5 cm in diameter) in both fragments, allowing for the placement of glass fiber rods (**Fig. 89**). The space between the rods and the holes was filled with putty and sieved sea sand (1:1). The two glued fragments were then tied with a rope. Next, the walls of the case were pieced together and strengthened before gluing by glass fiber rods. Smaller fragments were glued with epoxy resin (**Fig. 90**).

## 5. SURVEY REPORT

### 5.1. Equipment

During archaeological and topographical works carried out in the 2004-2005 campaigns, a Total Station Leica TC 1105 with prism GPR 111 and Total Station TCR 407 Power with prism GPR 1 were used for measuring. For data preparation, the following software was used:

- Leica Survey Office (data transfer)
- Winkalk (calculation of data)
- AutoCad 2004 (final map drawing).

In 2004, a satellite photo prepared in GEOTIFF format made by Digital Globe was acquired (finances granted by the Foundation for Polish Science). For the correlation of the satellite photo with survey plan the following software was used:

- GIS software ArcView 8.3 (for visualization and preparation of geographic models)
- Raster Design 2004 for correlating with survey plan
- GPS Garmin (model: GPS map 60CS) with its own software Map Source for measuring correlation points.

The satellite photo was connected to the existing city plan and calibrated with GPS control points and with certain points on the plan of the city. As result, the satellite photo was transformed into a photographic map of the city (**Fig. 91**). This procedure allowed us to point out: architectural structures, open areas, insulas (as well as layout of main streets) and city limits.



## 5.2. Field works in 2004 (Plan 5)

During this 2004 campaign measurements of the city inside the fenced area were almost completed, with the exception of the SE part.

Borders of insulas were traced. Their layout is clear and can be defined apart from the NW area near the amphitheater.

Topographical data concerning the localization of the public squares (Hellenistic agora, Roman forum, marketplaces) had been gathered; several possible localizations have been proposed.

Several structures with apses and plan referring to basilicas, situated correctly inside insula limits, have been recognized.

The city walls have been measured in distinctive places allowing for the tracing of the shape of the fortifications.

## 5.3. Results (Plan 6)

Works concentrated in the harbor area where the measured buildings not situated within the Hellenistic Roman city grid. This might indicate that we are dealing with a later, Byzantine grid that did not overlap with the Hellenistic-Roman grid and was slightly rotated in comparison.

The following structures were measured:

1. two main constructions, probably identified as Byzantine forts;
2. a structure resembling a cistern, located in the E end of this area;
3. the Orpheus Villa, the largest of the visible buildings; its area was limited by an earlier Byzantine wall later adapted to Italian fortifications;
4. several ovens dated to the Byzantine period situated on the large square;
5. the basilica, orientated to the East and located near the quarries by the sea;
6. the city walls of the Roman period in the NW part of the Italian village, which probably served as foundations for later, Byzantine walls;
7. visible Byzantine insulas limits by the sea.

## 5.4. Future plans

Measurements of the area located N of the *gebel*, between the Greek theater and the fenced area of the ancient city, were begun. A large number of water supply structures and other – unidentified constructions numerous at the satellite photo were distinguished and partially measured. Basing on the analysis of the satellite photo and on the results of measurements, it is clear that this area was saturated with varied types of constructions (temples?, small theaters?, baths?) situated within limits of Roman insulas. Measurements of the W and E necropolis are to be carried out during the future seasons.

## 5.5. Topographical Measurement Method

During the decadent time of the city the main buildings materials for construction of the houses was reused from the earlier architectural structures. The Hellenistic, Roman and Byzantine city grid were investigated connected to all of the measured visible and well situated at the ground blocks of stones. City grid was mainly observed during the historical periods but the few anomalies are also traced.

Topographical measurements were applied to the reference points grid established in connection to the local coordinates system. The orientation of the Total Station was made to the reference survey points localized into the grid and the azimuth was calculated. Our local coordinate system, made during 2002 campaign is localized NS-WE. Orientated instrument is ready for measuring. The internal memory are saving the field data's (horizontal and vertical angles, slope and reduced distances, heights information, others). The coordinates of the points are calculated into Winkalk software after transmission from the Total Station to PC computer.

## 5.6. Results of the topographical survey. Computer visualization

Polish Archaeological Mission excavated borders of the Roman period insulas during the 2004 and 2005 seasons. The city grid becomes more readable when the satellite image was linked to the topographical measurement. The borders of the city area was clearly visible now, and the shapes of the some underground structures belonging to Hellenistic and Roman insulas were now traced based on selectable density of the colors which represented covered architecture structures. The geophysical prospection gives as the more detailed map of an underground structures prepared with better resolution. Many geophysical methods of prospection (e.g. Magnetometer, electroresistivity, GPR – ground penetration radar) gives us wide spectrum of analyze. Geophysical maps merged and compared in one model with topographical measurement gives a lot of information about prospected site.

The creation of numerical model for the ancient city is now rectifiable. The gathered data into one computer system is necessary for future analyze. The collected data are ready for presentation as the selected layers of the model or as an integral analyzed system. We have done the topographical plan of the ancient city Ptolemais including the contour map of the site, so far. This part of our works was made with Total Station Leica model: TC 1105 and TCR 407 with collaboration of GPS Trimble set. The processing data are carried in AutoCad system where the georeference of the satellite image was also established.



All of the collected data are presented in digital shape, and in the same coordinate system, which were established during topographical works.

The value of our integration model increase when the sequential processing data are carried into CAD (Computed Aided Design) systems. Definite questions for the archaeological site are the main activity and purpose for which the numerical model was prepared for. Review of the integrated data helps us understand the urbanization problems and make us confident about archaeological problems in connection to the definite structures. The localization of main public squares like Hellenistic agora or Roman forum are still one of the most imported and interesting questions. Searching the numerical model responds us to trace a few possibilities of its localizations, applied to the following conditions:

- large, rectangular and surrounded with portico vacancy
- localized near the crossroads of the two main streets: *cardo*, *decumani*
- neighborhood of the other monumental structures.

Generation of integral digital model, which will gather remote sensing data joined with shallow depth prospecting it means topographical measurement finally combined with databases in one numerical platform is our main purpose. It will support our archaeological investigations by giving answers about lots of aspects of the site. Digital kind all the data makes the numerical model editable on the every stage. New aspects or data can be added to this project every time we want. This kind of GIS (Geographical Information System) collecting all of the necessary information for archaeological use can be presented in internet as an official results of the research. Numerical shape of the data makes it editable by internet whenever we have the permission for this kind of activity.

KRZYSZTOF MISIEWICZ

## 6. GEOPHYSICAL PROSPECTION<sup>20</sup>

Geophysical measurements in Ptolemais carried out in April 2005 were part of a nondestructive survey of the site. Testing of possibilities of detecting buried structures with different geophysical methods was the main purpose of the survey. Two methods were tested in the

field – electric and magnetic. Magnetic measurements were carried out to indicate archaeological features while electric survey should give data on their plan, possible dimensions, depth and state of preservation and finally – archaeological context.

Data obtained from a surface of 0.5 ha (**Plan 7**) measured in two sectors – one close to the archaeological trenches opened in the years 2000-2005 and the other near the possible harbor, outside of the town walls – could serve as the base for planning large scale non-destructive survey of the central part of the town. All measurements were carried out with the use of the same topographical grid as prepared for excavations. That gave a possibility of direct comparison of registered anomalies with already excavated features and allowed for the use of data obtained by geophysical survey for completing large-scale information on the site and for planning future archaeological and preservation activities.

### 6.1. Electric survey

Geoelectrical measurements with the use of different dipole-dipole arrangements ( $d = 1$  m,  $D = 2$  m, 4 m and 5 m) moved parallel and perpendicular to the profiles allowed to measure apparent resistivity of the layers up to the depth of 0.75 m, 1.5 m and 2.5 m. Measurements were carried out with the use of alternative current instrument ARA 03 adapted to multilevel surveys. 1 m and 0.5 m grids were used in the field respectively to the dimensions of possible archaeological features and differences of surface undulation in different parts of the site. Result of survey was presented on the map (**Fig. 92**) and slices (**Fig. 93**) presenting distribution of apparent resistivity.

### 6.2. Magnetic survey

Gradient measurements of the intensity of total magnetic field of the Earth were completed with the use of PMP8 proton magnetometer (probes situated 0.8-1.3 m and 1.2-1.8 m above the surface) in 0.5 m grid in squares 30 x 30 meters. Additional data for correction of detected anomalies were obtained by observations at base point stations localized separately for each surveyed square. Results of surveys were presented on the maps of the changes of gradient of intensity of magnetic field (**Fig. 94**).

Both magnetic and electric maps were combined and compared with high resolution satellite image (natural colors and near infra-red range), detailed topographical

<sup>20</sup> The effects of the prospection were presented during the 6th Archaeological Prospection Conference in Rome, cf.

MAŁKOWSKI et al., op.cit.



maps, surface models prepared in the years 2003-2004 and plans of excavated and visible on the surface archaeological features.

### 6.3. Results of surveys

Changes in apparent resistivity in the range 100-1000 ohm-m were registered in all surveyed squares in result of electrical measurements. Values in the range 200-300 ohm-m correspond to the natural untacked geological layers consisting of sand-clayish earth, yellow and light brown in color. Values below 200 ohm-m appeared in the places where stone constructions were removed, forming in this way pits filled up with earth. Values over 400 ohm-m were registered in places where stone foundations were preserved on different depths. These constructions cause narrow-linear anomalies in apparent resistivity when a single wall is preserved and large zones of higher values when architectural complexes filled with stones mixed with earth appear. As it is visible in **Fig. 93**, one could obtain different information from different depths. Layers close to the surface contain features from different periods and their natural and in consequence, apparent resistivity is much higher than in the case of features situated on bigger depths. However, in many cases some walls are visible from the surface up to the deepest level of current penetration. It is due to the higher natural resistivity of limestone, which is bigger than that of surrounding earth and produces a contrast big enough to be registered by electrical measurements. Walls forming the borders of the insulas and all installations connected with canalization or drainage systems are the most distinctive structures, as is visible on maps presenting results of survey with dipole-dipole arrangement with  $D = 2$  m (**Fig. 95**) and  $D = 5$  m (**Fig. 96**). In many cases, external and even internal walls of villas produce also clear linear anomalies. However, these kinds of structures are better visible on maps presenting the results of magnetic survey (**Fig. 36**). Here one could reconstruct plans of buildings visible as classical dipole-dipole anomalies with minimal values from the North and maximal from the South of objects causing magnetic anomaly.

A rather clear picture of buried features has been obtained also in the case of surveys outside the town. Walls forming borders of insulas cause linear anomalies connected sometimes with heavy burned structures (ovens?) (**Fig. 97**). Limited tests on chosen surfaces only with the use of magnetic method have been completed. However, by large-scale survey one could not only localize buried features but also even reconstruct the plan of this part of the site.

### 6.4. Conclusions

It is clear that large surface site of Ptolemais (over 200 ha only within the limits of city walls) could not be examine with classical methods (excavations).

Preliminary results of tests of geophysical methods described above show that both magnetic and electric methods could be used for large-scale non-destructive survey of the site. With magnetic inversion of rapid gradient measurements (possible with the use of fluxgate instruments) one could survey the most important, representative part of the town obtaining in result a detailed plan of preserved structures. Electric measurements used at limited scale at carefully chosen areas should help on determining the character of features and the depth of their deposition.

## 7. PROGRAM FOR FUTURE SEASONS

### 7.1. Program for archaeological works

In 2006, we hope to conduct a two-month campaign in August-October connected with archaeological, geodetic, geophysical and conservation works on frescos.

During the campaign, we would like to remove the remaining baulks in order to uncover the entire central part of the villa. Our main goal for the future is to prepare the villa for reconstruction on site (*anastylosis* of the preserved architectural and decorative elements). Such a reconstruction will be possible when all fieldwork and exploration activities are achieved. Preliminary works on the project have already begun (theoretical – 3 dimension reconstruction). We suppose that such a reconstruction, giving the possibility to visit the villa of Lucius Actius – so richly decorated with mosaics and paintings – would be very interesting for tourists as well as archaeologists.

### 7.2. Program for conservation works

Conservation works on the destroyed Achilles mosaic will be continued in the future, depending on the financial possibilities of the Mission. The mosaic, which had fallen from the first floor of the building and had broke into thousands of pieces, requires many months of work, preferably in a highly qualified laboratory. A very large budget for conservation in such a laboratory would be necessary and we are looking for the possibilities to obtain an appropriate sum of money from a scientific institution or from a private sponsor.

We also plan to carry out conservation works on the paintings decorating the walls of the villa in rooms R1 and R9. The best-preserved frescoes will be treated accordingly and removed to the local museum in Ptolemais or to the Museum (under construction) in Benghazi.

### 7.3. Program for topographical works

Field works employing the Total Station set are to be continued in the following season. During the



next campaign, we would like to measure the suburbs of the Antique city, concentrating primarily on the eastern necropolis located outside the city walls.

The results of measurements in the central areas of the city should be supplemented by a number of sondages. On the basis of these investigations and the analysis of the satellite photo already obtained, as well as aerial photos, that will be executed during the 2006 summer campaign, a dissertation on the urban development of Hellenistic, Roman, Byzantine and Islamic Ptolemais (Tolmeita) will be prepared.

#### 7.4. Program for geophysical investigations

On obtaining necessary financial support (needed for the new instruments as well as for works on the site), we plan to continue research with the use of non-invasive methods (magnetic and electrical resistivity prospection), begun already in April 2005. In the first place, our efforts will concentrate on a complex prospection of the area situated between the two main *cardines* of the city where – as we suppose – the main public buildings are located.

TOMASZ MIKOCKI (*IA UW*)

WITH THE COLLABORATION OF K. CHMIELEWSKI (*IA UW*), P. JAWORSKI (*IA UW*),  
W. MAŁKOWSKI (*IA UW*), K. MISIEWICZ (*IAiE PAN*), M. MUSZYŃSKA-MIKOCKA (*IA UW*),  
P. SOB CZYŃSKI (*IA UW*), J. ŻELAZOWSKI (*IA UW*)

#### PTOLEMAIS IN LIBYA.

EXCAVATIONS CONDUCTED BY THE MISSION OF THE INSTITUTE OF ARCHAEOLOGY, WARSAW  
UNIVERSITY IN 2004 AND 2005. REPORT ON TWO SEASONS OF EXCAVATIONS

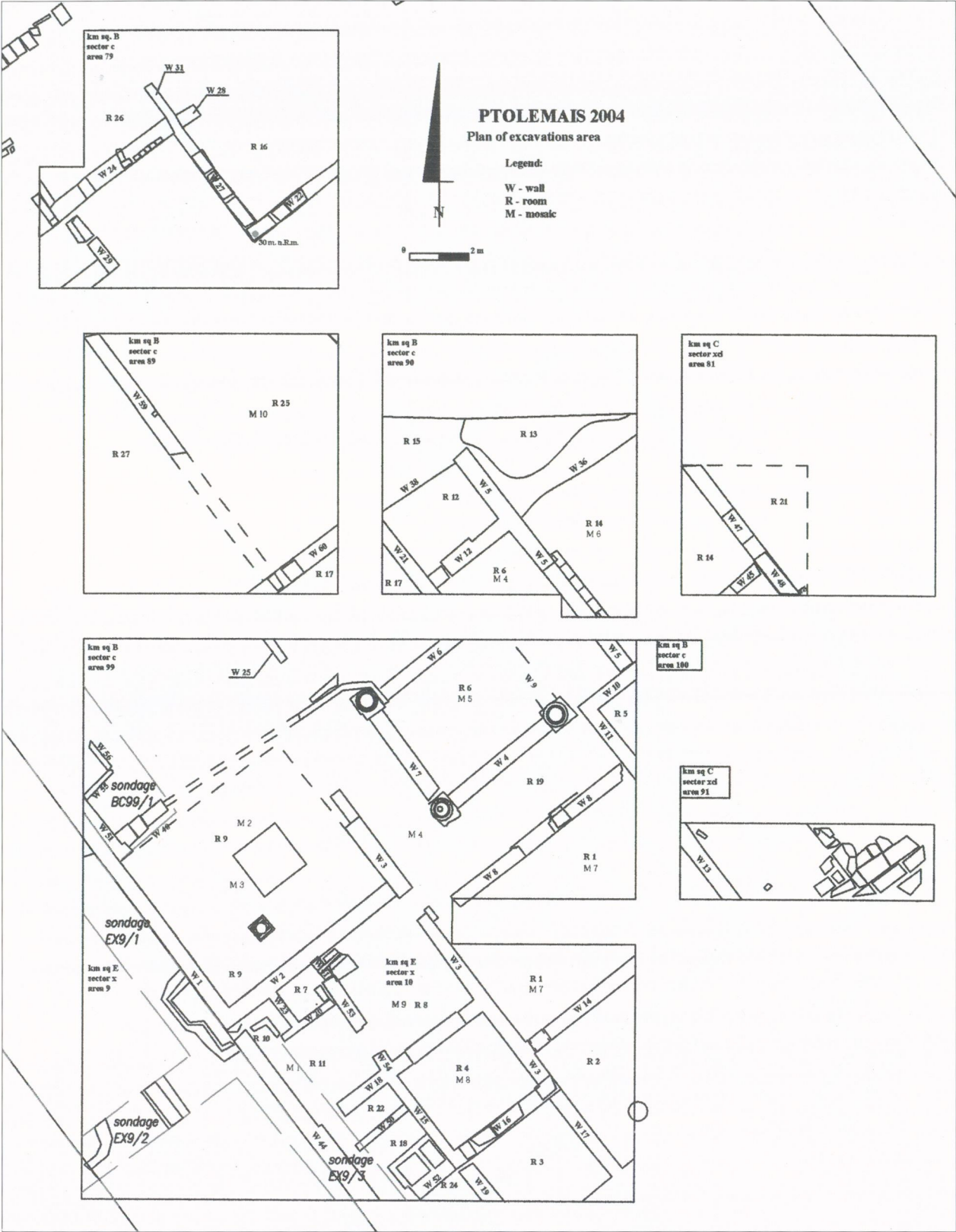
#### SUMMARY

The present article is a report on two seasons of excavations conducted by archaeologists of the Warsaw University, under the terms of the “License for Archaeological Excavations” issued on 22.07.2001.

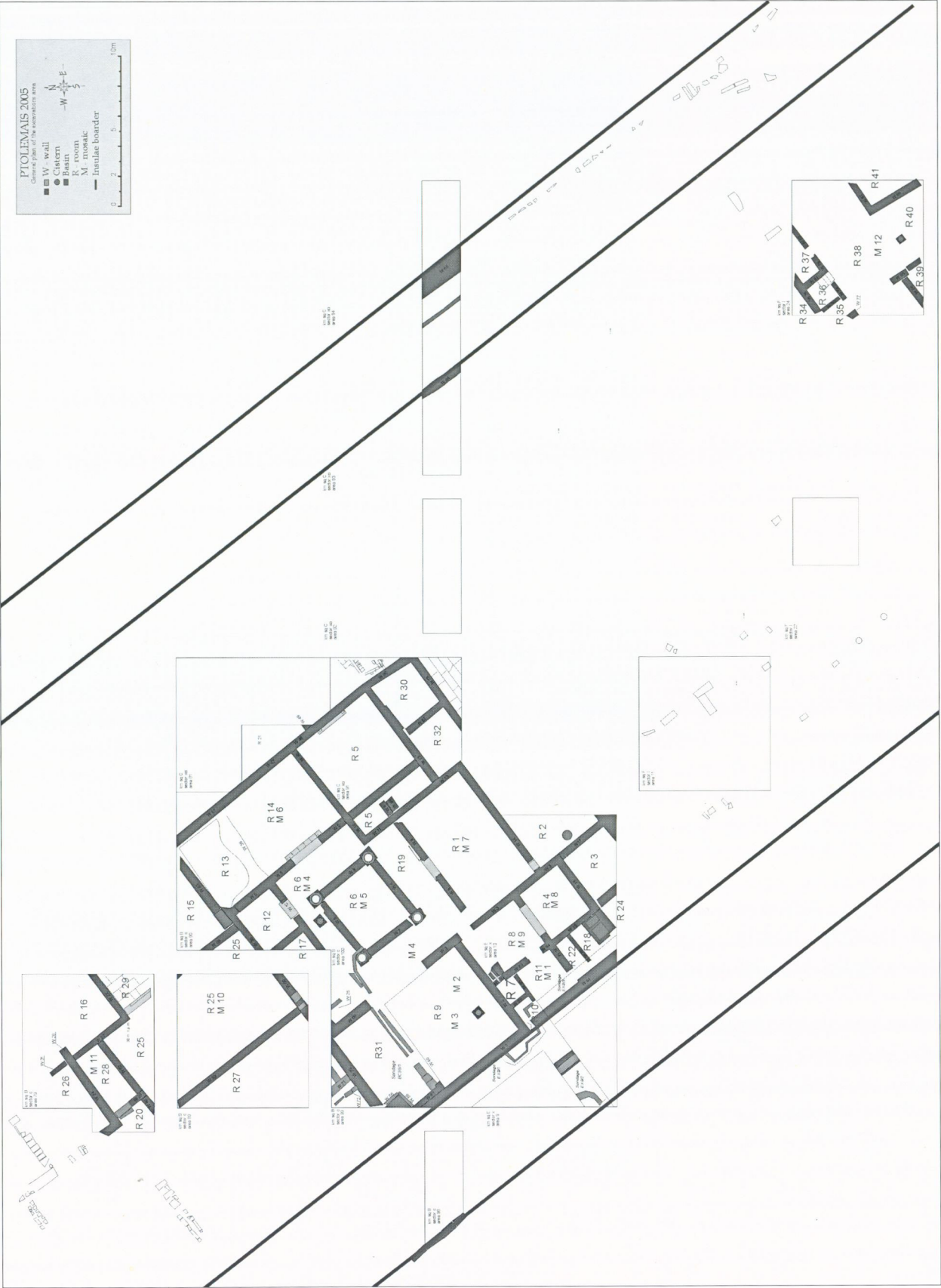
The 2004 and 2005 year missions were a continuation of excavations conducted in December 2001,

April-May 2002 and October 2003. Works were carried out in four different spheres: 1. archaeological excavations; 2. conservation works; 3. geodetic measurements within the walls of the city; 4. geophysical investigations of one of the city’s insulas (only in 2005).









Plan 2



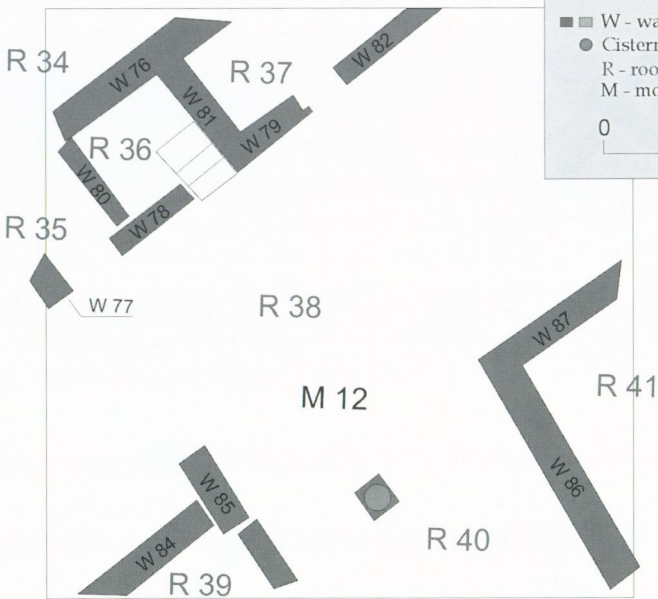




PLATE 84

Plan 4

km sq r  
sector I  
area 24



PTOLEMAIS 2005  
Plan of the excavations area

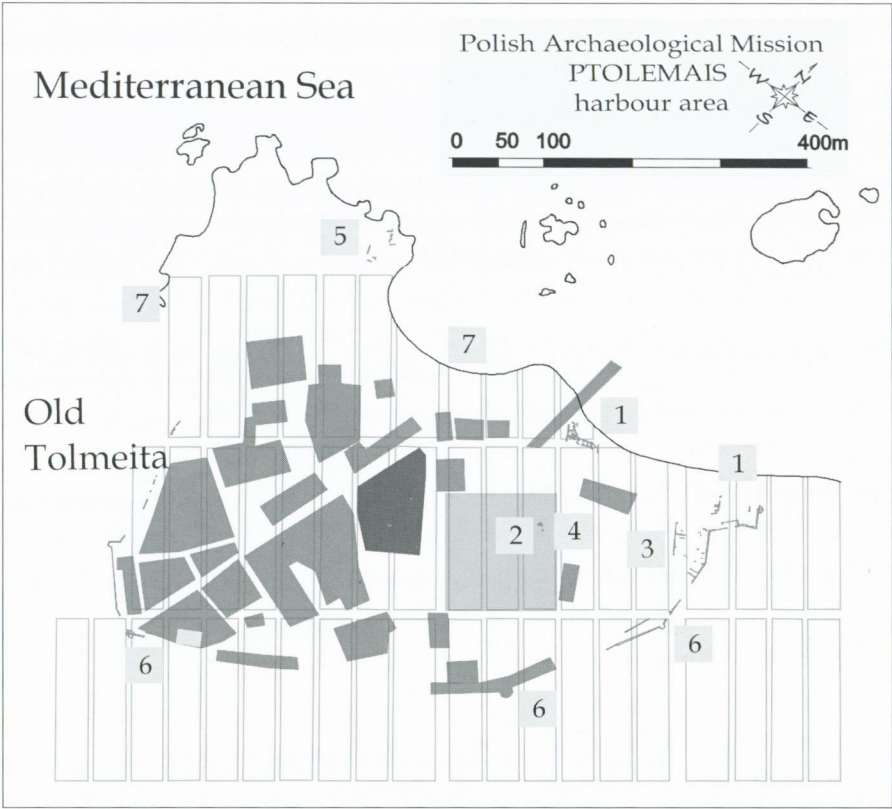
- W - wall
- Cistern
- R - room
- M - mosaic

0 2m

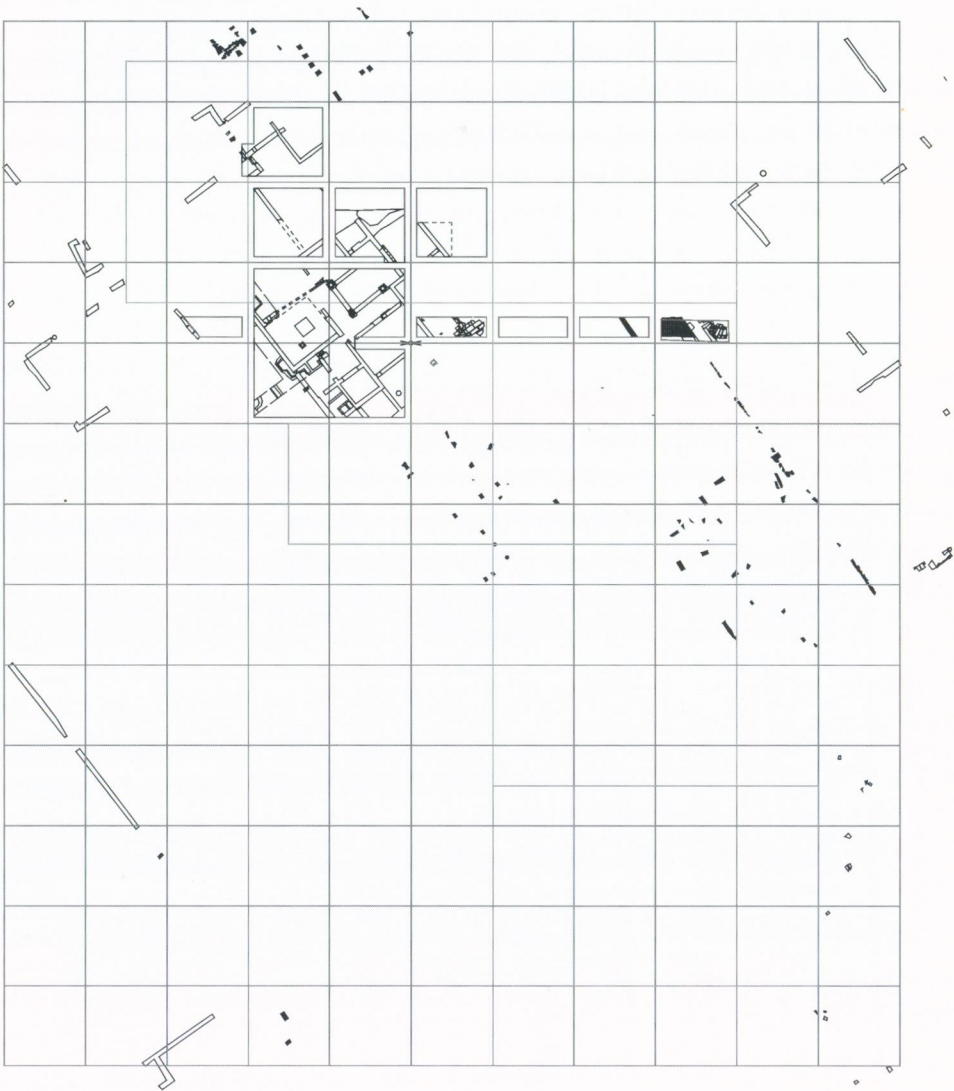
Plan 5







Plan 6



Plan 7



PLATE 86



Fig. 1



Fig. 3



Fig. 4



Fig. 2



Fig. 5





Fig. 6



Fig. 7



Fig. 8



PLATE 88



Fig. 9



Fig. 10



Fig. 12



Fig. 11



Fig. 13





Fig. 14



Fig. 17



Fig. 15



Fig. 16



Fig. 18



PLATE 90



Fig. 19



Fig. 21



Fig. 20



Fig. 22





Fig. 23



Fig. 24



Fig. 25

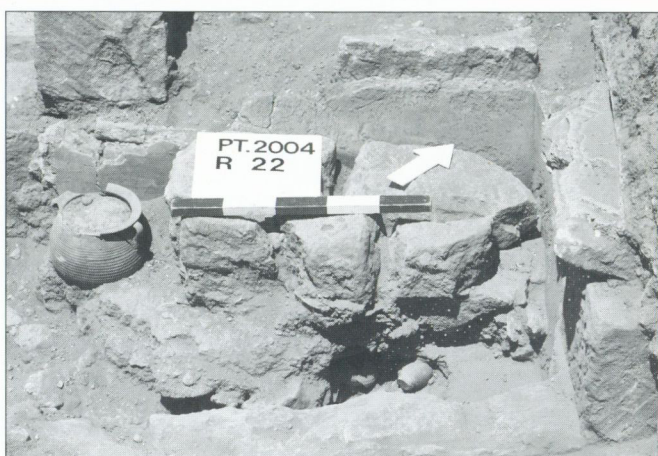


Fig. 26



Fig. 27



Fig. 28



PLATE 92



Fig. 29



Fig. 30



Fig. 31

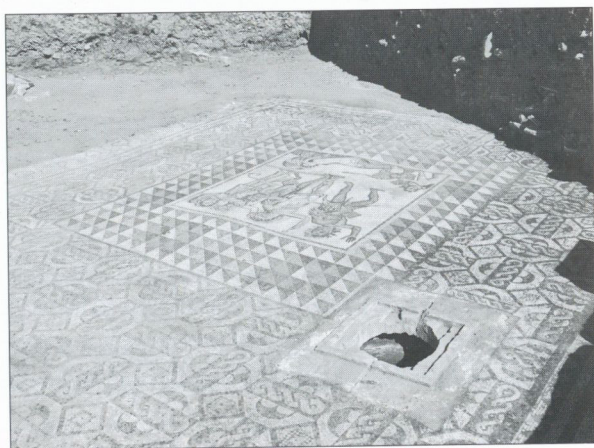


Fig. 32

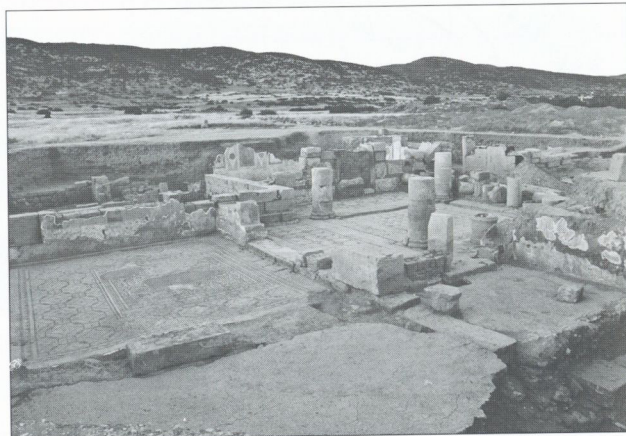


Fig. 33





Fig. 34

Fig. 36

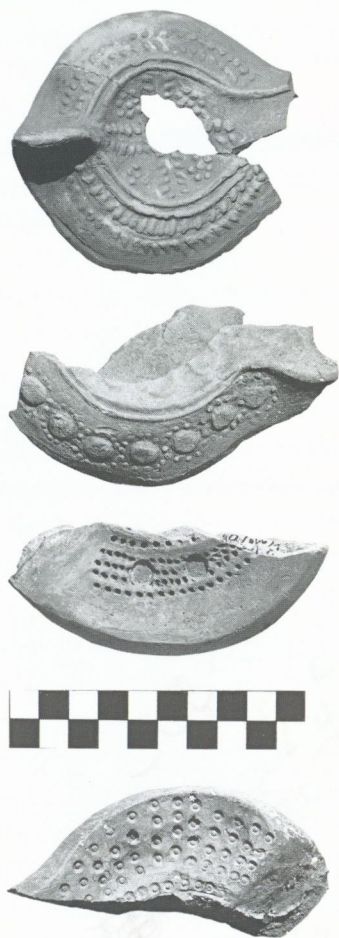
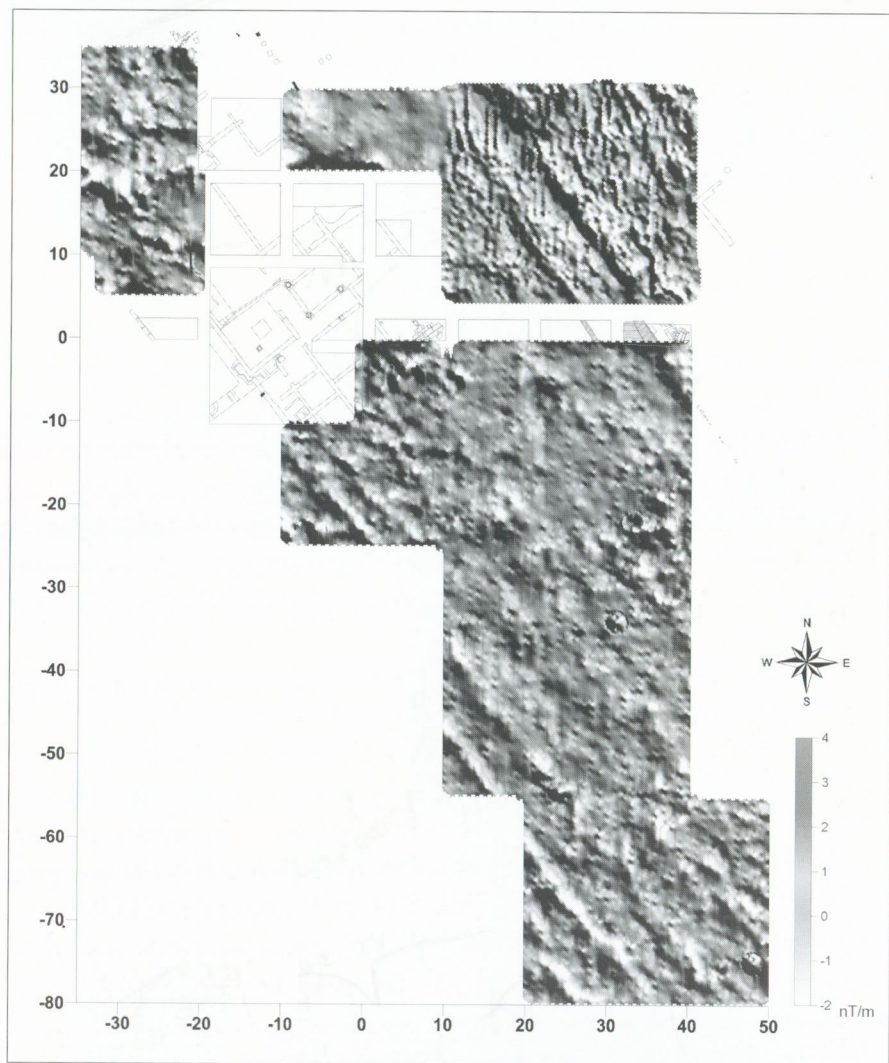


Fig. 35

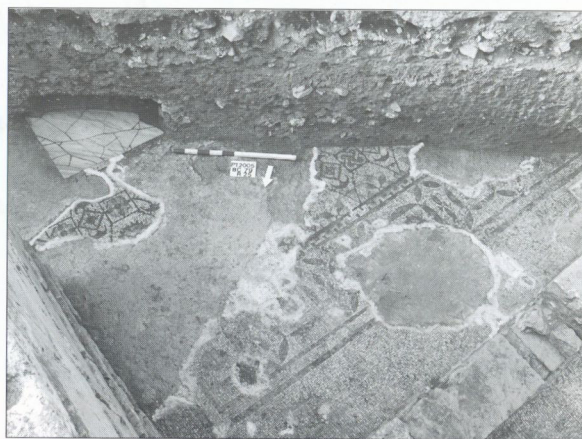


Fig. 37



PLATE 94

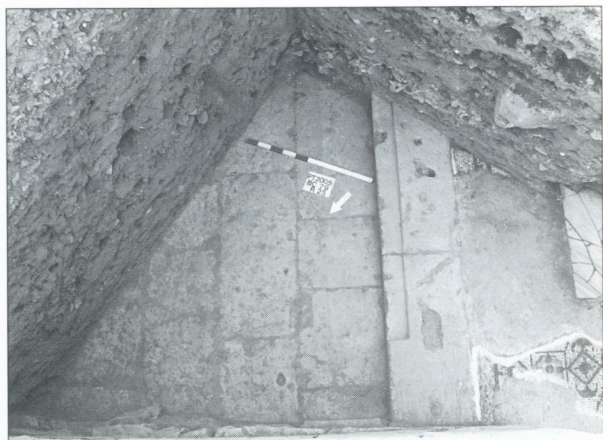


Fig. 38

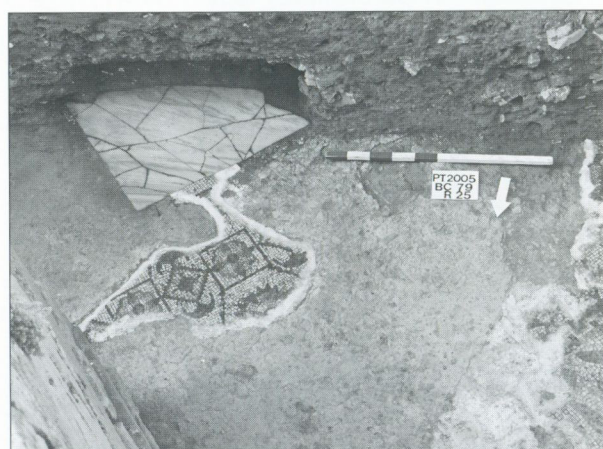


Fig. 39



Fig. 40

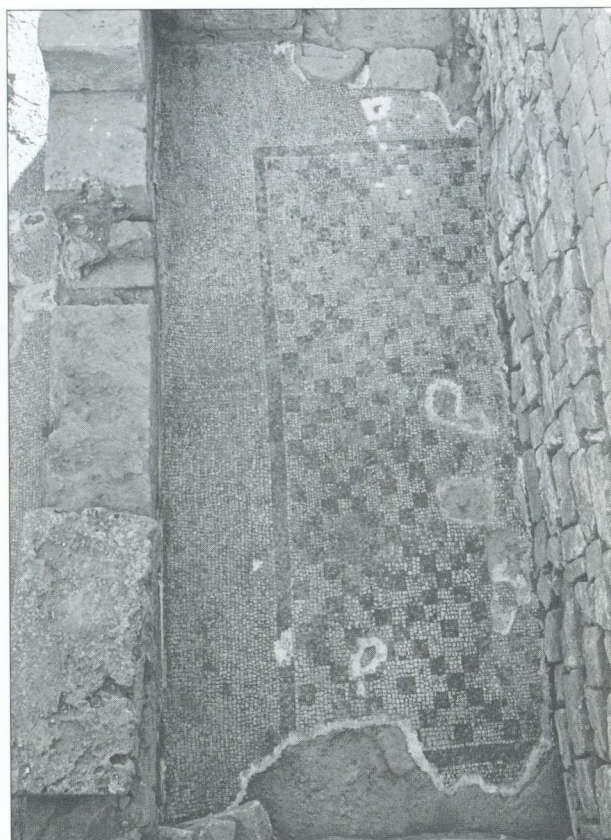


Fig. 41



Fig. 42





Fig. 43

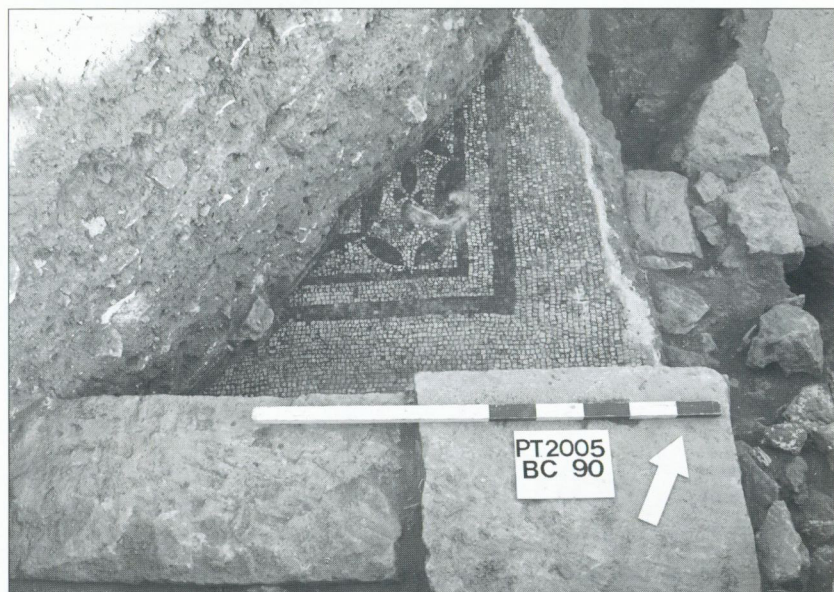


Fig. 44



Fig. 45



PLATE 96



Fig. 46



Fig. 47



Fig. 48



Fig. 49



Fig. 51

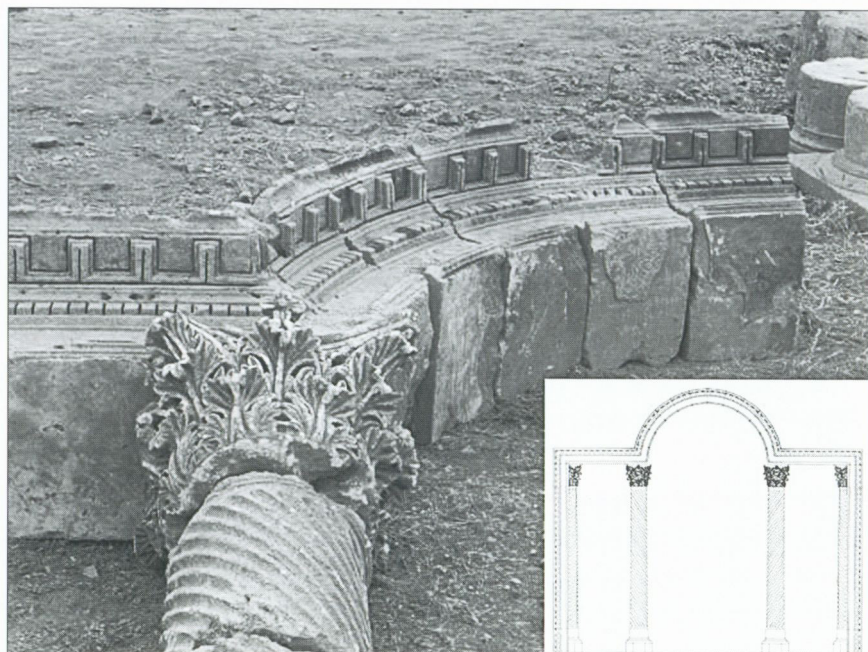


Fig. 50

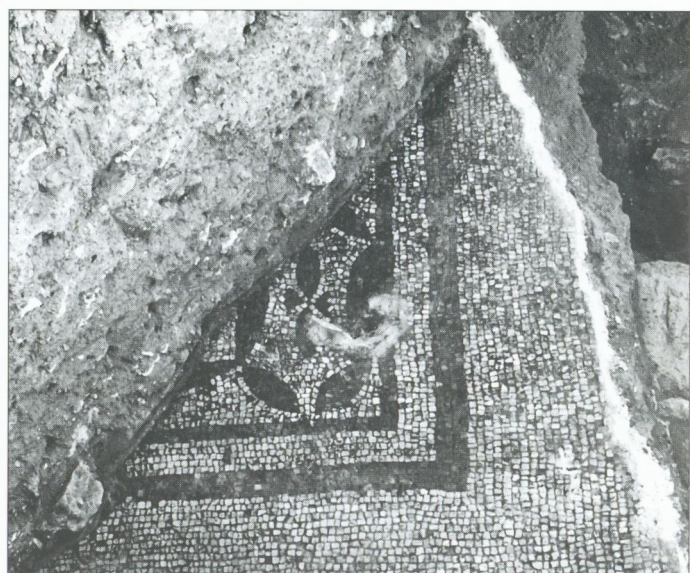


Fig. 52



Fig. 53



PLATE 98



Fig. 54



Fig. 55



Fig. 56

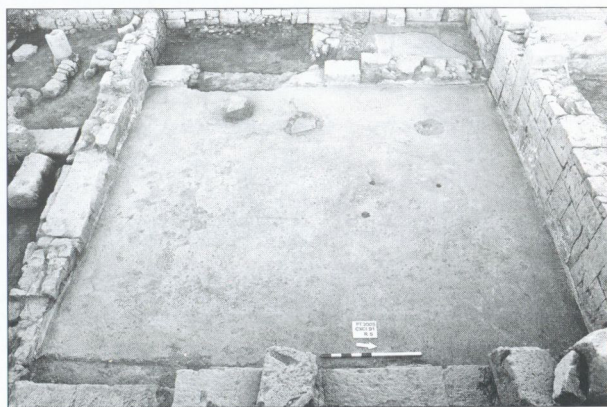


Fig. 57



Fig. 58



Fig. 59



Fig. 60



Fig. 61

Fig. 62

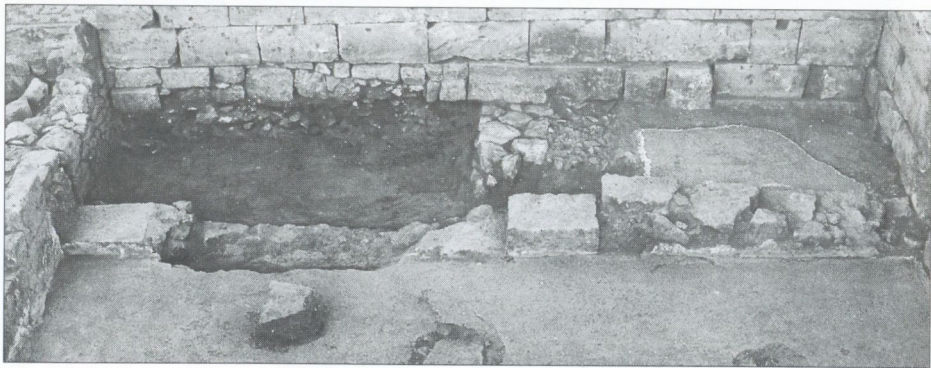




PLATE 100



Fig. 63



Fig. 65



Fig. 64



Fig. 66



Fig. 67



Fig. 68





PLATE 102



Fig. 69



Fig. 70. Skala 1:1



Fig. 71. Skala 1:1



Fig. 72



Fig. 73





Fig. 74



Fig. 75

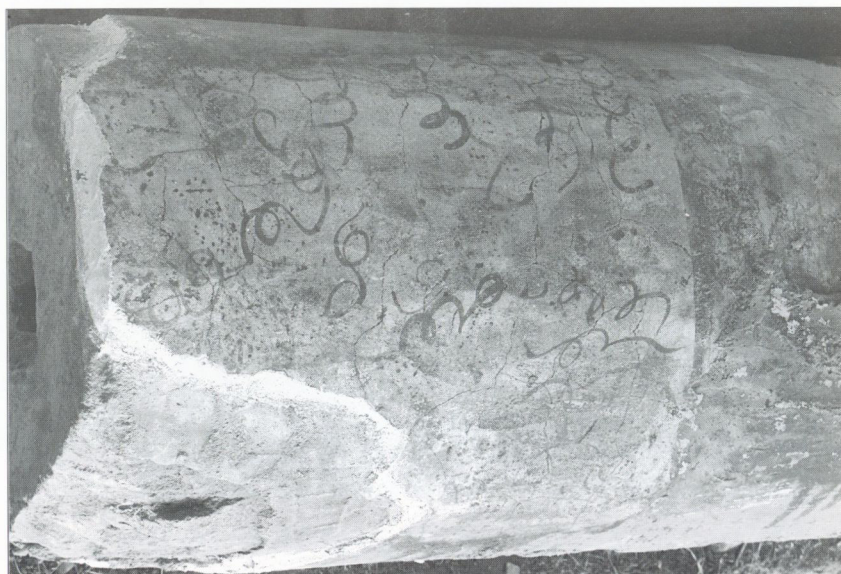


Fig. 76





Fig. 77

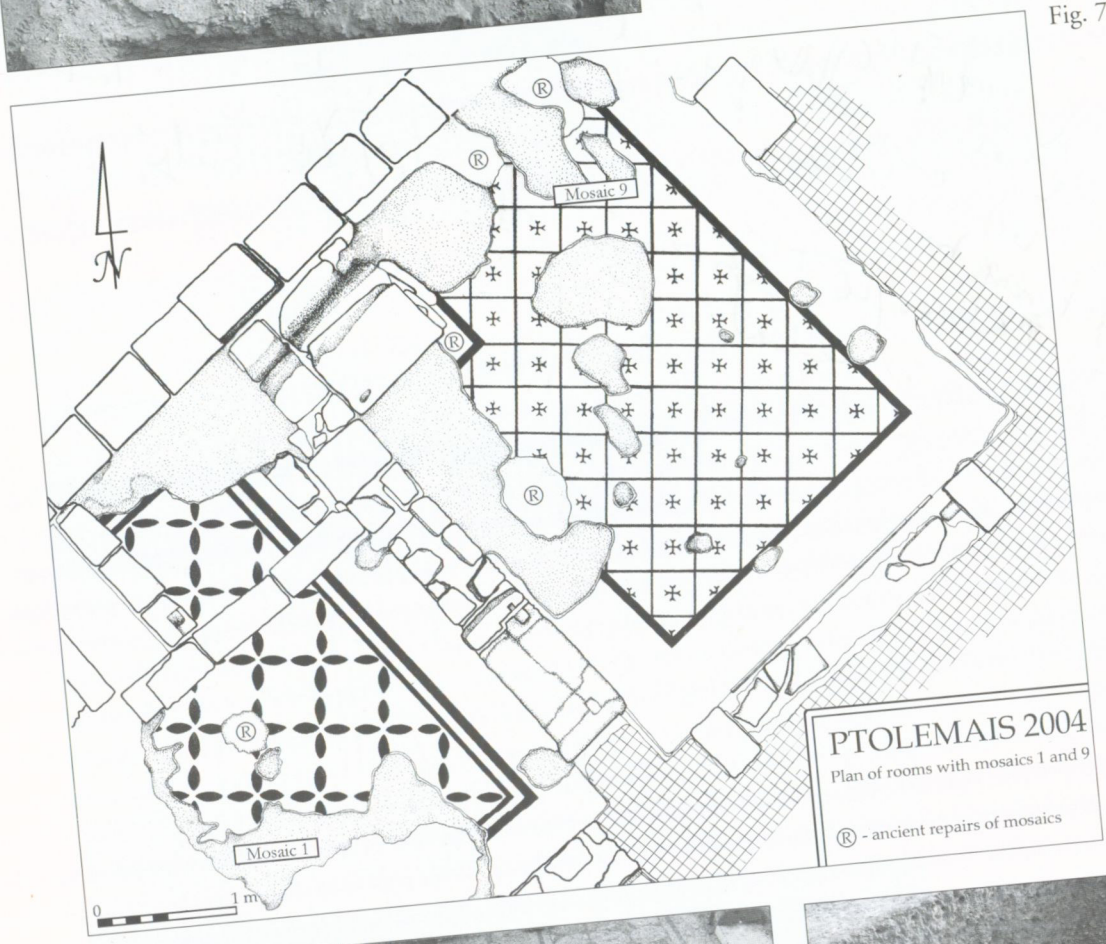


Fig. 78

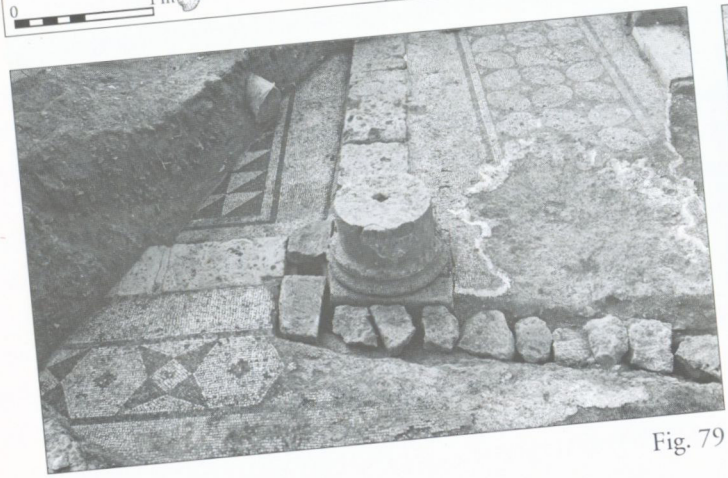


Fig. 79

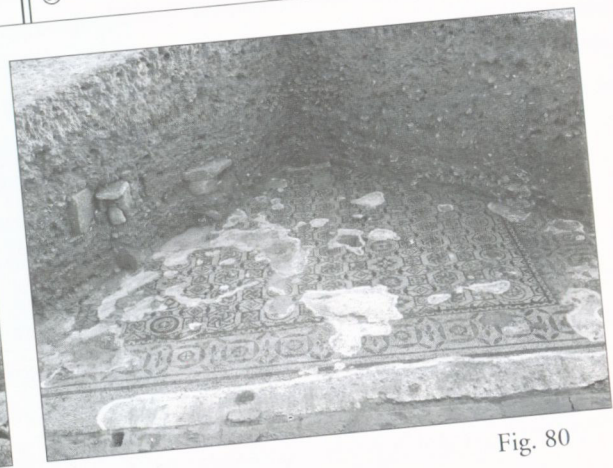


Fig. 80



Fig. 81



Fig. 82



Fig. 83



PLATE 106



Fig. 84

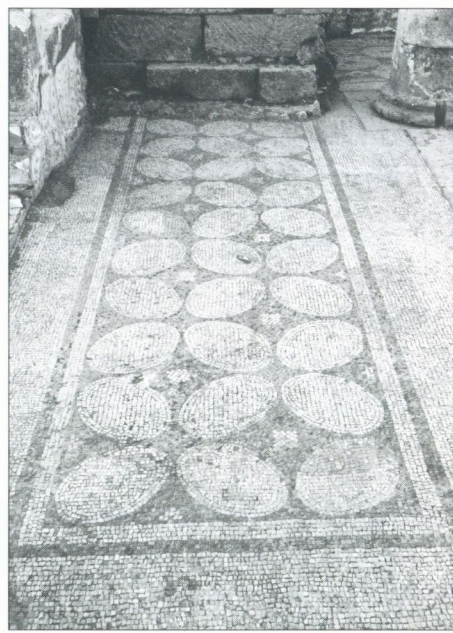


Fig. 85

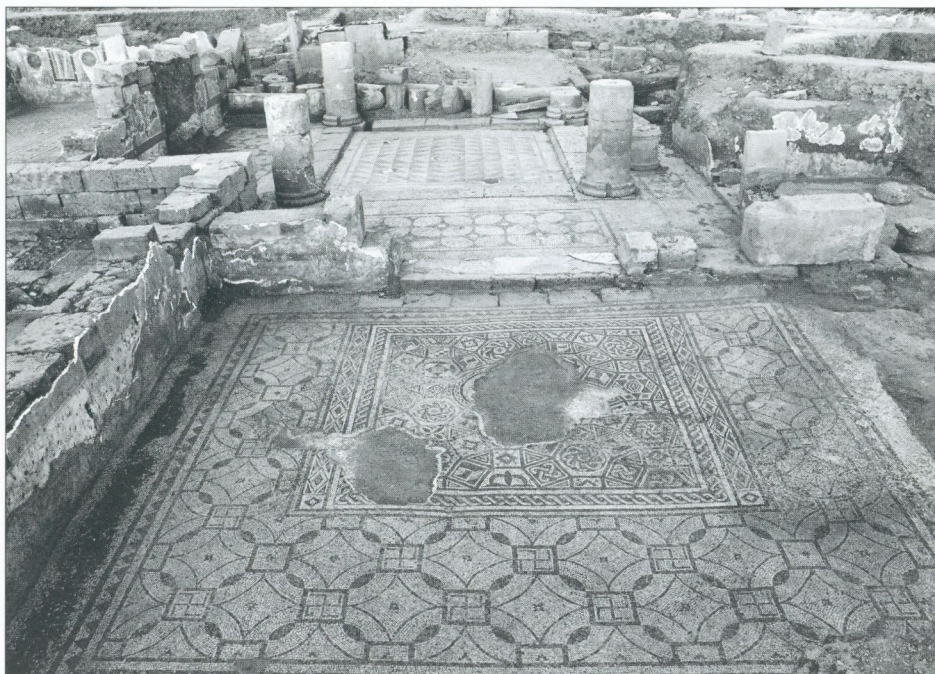


Fig. 86

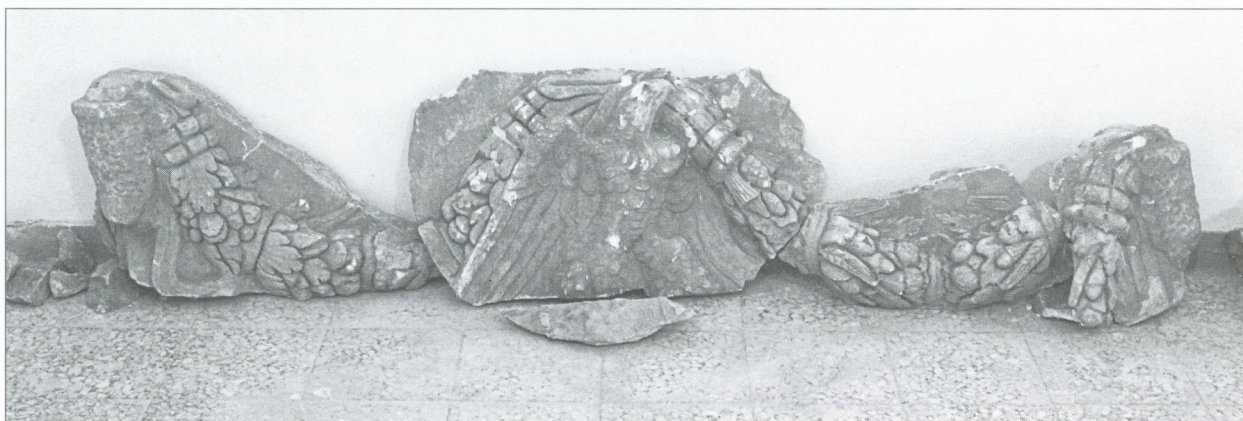


Fig. 87



Fig. 88

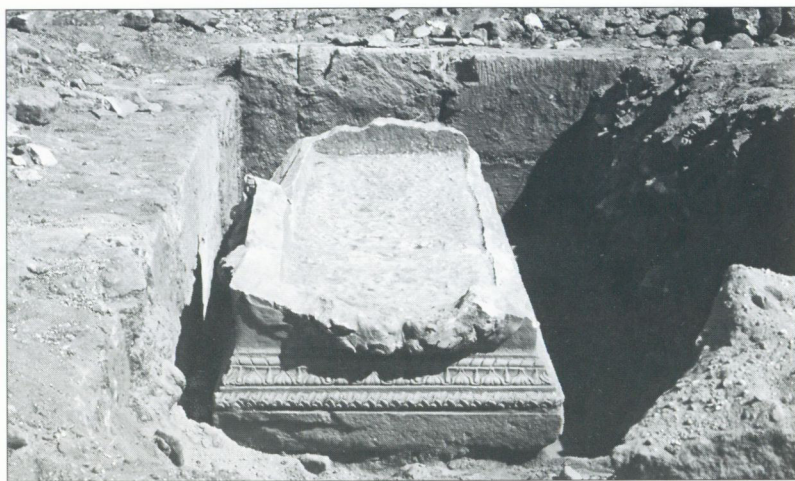


Fig. 89



Fig. 90







Fig. 91



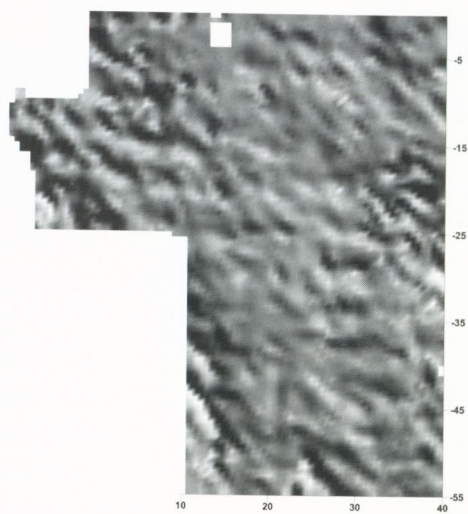
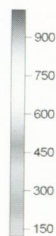
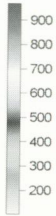


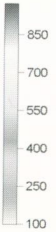
Fig. 92



0-0.75 M



0-1.5 M

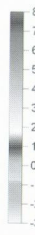
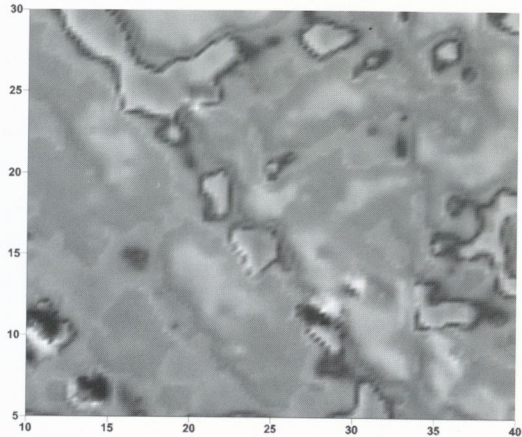


0-2.5 M

ohmm

10 15 20 25 30 35 40

Fig. 93



nT/m

Fig. 94



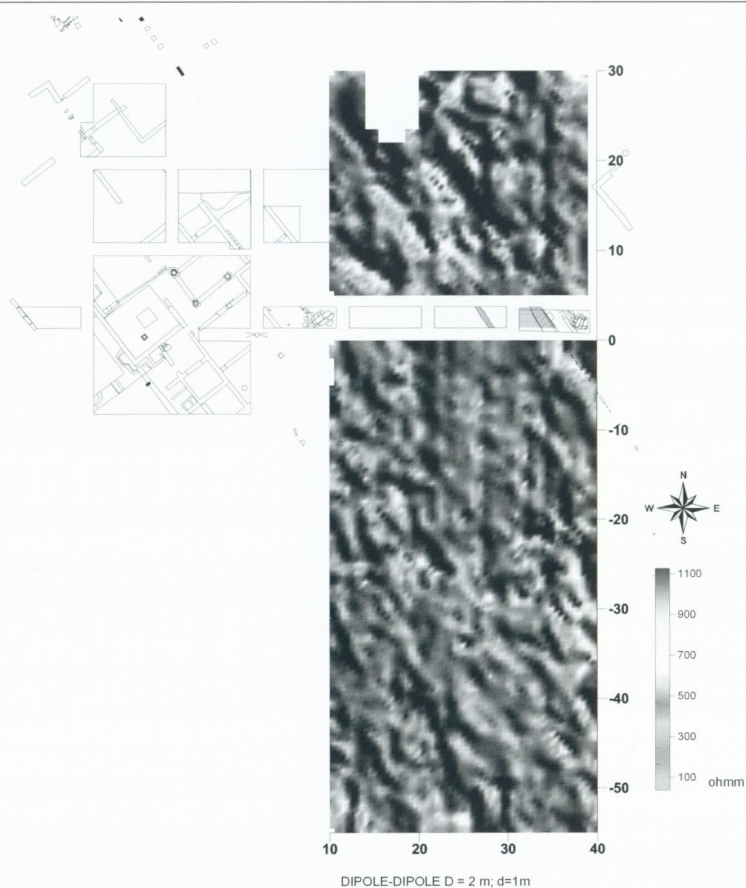


Fig. 95

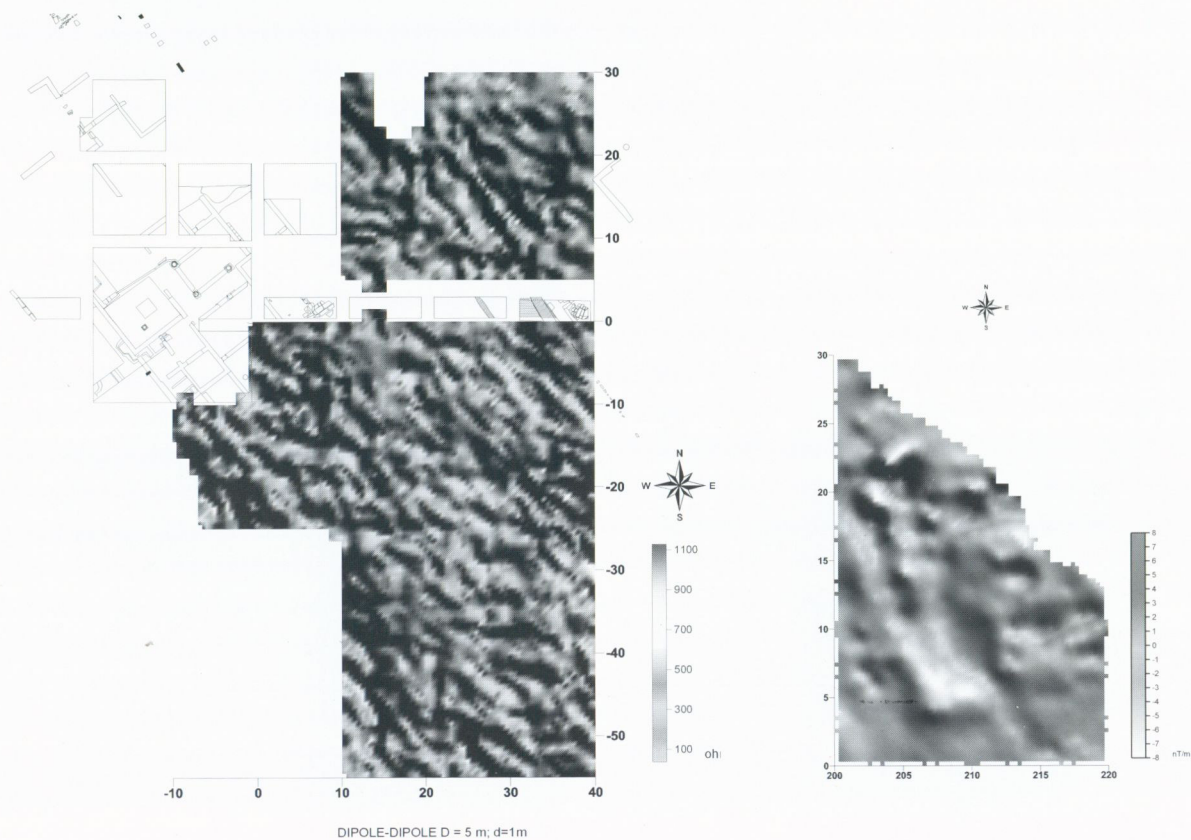


Fig. 96

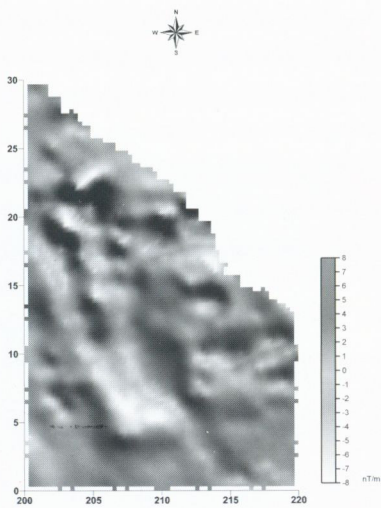


Fig. 97