

Preface

Under the terms of the License for Archaeological Excavations, issued on 22.07.2001 and prolonged on 18.08.2003, the team of archaeologists, conservators and students from Warsaw University conducted excavation works in Ptolemais-Tolmeita, beginning on 15 August and ending on 15 October 2006.

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First of all, we wish to thank Mr. Giuma M. Anag, General Director of the Department of Archaeology of Libya, for the kind permission to conduct archeological excavations in Ptolemais-Tolmeita. We would also like to thank all Vice-Directors of the Department and especially Mr. Mustapha Turdjuman for his help in organizing our visa formalities. We are grateful to the Staff of the Antiquities Department in Benghazi, and in the first place to Mr. Ibrahim at-Tawahni for his considerate supervision and help.

We would also like to thank Mr. Józef Osas, Polish Ambassador in Libya, and Mrs. Urszula Osas

for providing us with all needed facilities. We are extremely grateful to Mr. Krzysztof Smyk, Counselor of the Polish Consulate in Benghazi, and Mrs. Dorota Smyk for the help and friendship we have been offered.

The Polish team was accompanied by Mr. Faraj abd al-Karim. Without his help and dedication our excavations in Ptolemais would not have been possible. We would also like to thank the Libyan archeologists and other colleagues for their kind help and hospitality during our stay in Libya.

This year's mission was a continuation of excavations conducted in December 2001, April-May 2002, October 2003, August-October 2004 and April-May 2005.

The work was threefold: archaeological excavations, conservation works and non-invasive survey (geo-physical prospection and aerial photography), carried out concurrently.

Archaeological works

The two-month excavations in 2006 (August-October) centered on completing the exploration of the so-called Villa of the View (Villa of Leukaktios). The goal was to trace the outer walls of the building and this was achieved in four new trenches (C, D, E, F). The entire area excavated between 2001 and 2006 has been referred to as trench A, and the area explored in 2005 as trench B. Removal of the last baulks in trench A (B10, B11, B12) in the course of the present season permitted the earlier trench orientation according to an are grid (N-S, E-W) to be dropped. The new trenches were laid out in correspondence with the street grid of the ancient city. Also contexts which had been left unexplored during the previous seasons, such as R31 and the cistern in R2, were cleared.

Following the 2006 season, the entire villa with its rich décor of frescos and mosaics has been uncovered and documented. Previous observations concerning its plan have been fully confirmed - the "Villa of the View" exemplifies a Hellenistic private house featuring private and official parts arranged around a peristyle on the ground level and at least one room on the upper level.

Excavations have also revealed new buildings in the immediate neighborhood of the structure:

- Late Roman portico adjacent to room R25, and apparently contemporary wall W24+W43 (Trench C);
- tentative church, explored with the nearest surroundings (Trench D);
- Late Roman building with adjacent furnace, the latter recorded in 2005 and interpreted as part of a terracotta lamp workshop (Trench E);
- parts of a villa similar in plan to the Villa of the View (Trench F).

Trench A

a. Baulk 10

The exploration of baulk 10 brought to light new rooms belonging to the Villa of the View (R17) and the Late Roman building situated to the northwest of the villa (R27). Above R17, a layer of small stones was found at the bottom of a secondary pit (strat. unit 3/06).

Superimposed on W70 and W71 was a destruction layer containing Late Roman pottery. A structure built of reused blocks was observed in the southern corner of room R27, c. 0.40 m from W70, setting off a space for an unidentified purpose (W91; strat. unit 19/06). It had no foundations and was built, like many other walls in the Late Roman period, directly on top of the occupational layer filling the original room. A similar case was noted in 2005: an analogous structure (W72) was built next to W71. A deposit of ashes probably from the fireplace was found in the southern corner of R27, level with the bottom of W91.

b. Baulk 11

The main part of the baulk was located above R17 and above the big room R25 with a geometric mosaic (audience hall). The layers identified in the baulk did not differ from the general stratigraphy in the area and comprised:

1. upper destruction layer;
2. destruction layer consisting of stones, architectural blocks, and fragmented bricks from the collapsed walls of the building;
3. accumulation layer above the pavement in particular rooms (*opus signinum* in R17 and mosaic M10 in R25).

c. Baulk 12

Baulk 12 was situated almost entirely in R25 (wall W59 ran under the west end of the baulk and W66 under the east end) and repeated the same layering as that in baulk 11. About 50 cm above the mosaic, several architectural stone blocks were found, presumably one of the drums and a capital of a column from a neighboring portico in R47). A construction oriented NE-SW, made of reused blocks and mortar mixed with small stones, was interpreted as the casing of a water channel. In the northern part of R25, next to wall W66, a marble slab was found immured in the mosaic floor. Between this slab and the threshold leading to Room B29, a fragment of an inscription made of black tesserae came to light; it reads:

d. R31

The previously interrupted exploration of R31 was completed, clearing the accumulation and leveling layer down to bedrock (strat. unit 68/05). R31 is interpreted as a courtyard opening onto the street and giving entry to the Villa of the View through a door in W40. A large amount of fairly homogenous ceramic material (more than 100 pieces of Black-glazed pottery) and coins suggests a date towards the end of the Hellenistic period (2nd-1st century BC).

e. Cistern in R2

The cistern in R2, discovered back in 2002, was explored. The room appears to have been part of the industrial complex in the "Villa of the View". The lowest layer in the well (strat. unit 8/06) yielded huge amounts of Middle Roman coarse pottery, mostly small jugs of types D1145 and D1148 (according to the pottery classification for Sidi Khrebish) probably used for drawing water. A few examples were preserved virtually whole. A miniature headless imperial bust was also found in the cistern fill. There were two filler holes through which water flowed into the cistern: one situated inside the room, next to W17, the other within the thickness of wall W113 bordering R2 on the southeast.

Trench C

a. Room 20

The east side of room R20 was explored in 2004. The entrances to adjacent rooms R28 and R25 were cleared then and a test probe dug down to bedrock, revealing the Hellenistic origins of the foundations of walls W29 and W46.

Continued work in the 2006 season uncovered the following layers:

1. Upper destruction layer (strat. unit. 21/06)
2. Destruction layer (strat. unit. 27/06)
3. Accumulation layer (strat. unit 67/06)

Underlying the accumulation layer was a mortar pavement. In two places, fragments of a mosaic

made of white *tesserae* were preserved on the pavement. On the northwest, the room was delimited by wall W43, on the south by the portico of R47. Next to the easternmost column of the portico, inside R20, an oven (fireplace) inside a *dolium* that was partly cut into the pavement was found. The *dolium* was filled with ashes. Its construction was reinforced with a line of stones on the outside (strat. unit 83/06).

b. Room 27

R27 neighbors with R25 on the southwest. The two rooms were separated by wall W59, founded on the level of the mosaic M10. W59 also seems to have acted as a passage between R25 and R27. No mosaic floor was found in R27 suggesting that it was an open space, perhaps a courtyard or garden, partly bordered by the portico R47. The occupational level of this room was identified with the level on which the secondary structures W91 and W111 had been founded. Arranged just 0.40 m away from respective walls W70 and W109, they must have served as storage compartments of some kind (as in the case of the structure discovered in balk 10). In the northern part of the room, next to W109 and W71 (but under W111), two holes cut in the bedrock were found. Their function is unknown. Perhaps they are remnants of Hellenistic-Roman basins.

c. Room 47

Room 47 was situated between rooms R20 and R27. Its short northeastern side also bordered with R25. On the northwest and southwest, the room had porticoes consisting of four columns each, the bases found *in situ*, standing on a floor of flagstones. The absence of plinths and the roughness of the flagstone floor indicate construction in the Late Roman or Byzantine period.

Trench D

a. Building with apse (rooms: R16, R42, R55 and test pit D/1)

Test pit D/1 (11 m long, 2 m wide, about 0.50 deep) revealed the southwestern wall of the hall with apse, which was oriented according to the Hellenistic street grid and in correspondence with earlier structures. The wall (made up of three sections W121, W123 and W124) as an extension of W31 was of mixed structure, averaging 0.56/0.62 m in width. The spaces between particular sections were 0.85 m wide and large stone blocks found at the ends of these sections (southern end of wall W121, both ends of W123 and southern end of W124) are suggestive of doorframes. The rest of the wall was of small stone blocks (the same as in W24+W43). Only the upper part of these three sections of the southwestern wall of the building with apse was revealed in the course of the season, hence nothing can be said concerning the situation at foundation level. The entrance or doorways could have led to two smaller rooms (R26 and R57) uncovered earlier to the west of the hall with apse.

Turning off at right angles from a corner stone at the northwestern end of W124 were walls W126 to the east (presumed facade of the aula) and W127 to the west (northwestern side of R57). Inside the aula, attached to W124 at about a third of the aula's length was the beginning of a perpendicular wall (anta?)(0.62 m wide).

At the north end of W124 numerous fragments of plain white plaster were found on either side of the wall. A bronze coin of Philip Arab lay next to this wall. Fragments of pottery from the test pit, while innumerable, were all from the same, mainly Roman chronological horizon with one base of a small glazed object (Byzantine?) thrown in.

Wall W122 on the other, northeastern side of the aula, consisted of four apparent pillars (0.62×0.45 m and 0.52×0.43 m). At the present stage of the excavations, the two extreme pairs of pillars are tentatively interpreted as doorways, each 0.85 m wide. The center space was blocked with a wall of small stone blocks. Further to the north, W122 is practically not visible under scattered stone rubble and a test pit dug to a depth of 0.20 m in the location of the presumed northeastern corner revealed nothing.

On the other side of W122, between apse wall W92, edge of the apse W94 and the first pillar, there was an empty space filled with numerous stones and a few pieces of white plaster. The apse was semi-circular in shape, measuring 6.42 m at the head. What could be seen of the apse wall in the trench consisted of eight large stone blocks and another two in the top course (1.35/1.38 m × 0.55/0.60 m). The end blocks at the head of the apse had engaged columns standing against them.

Analysis of the plan, including the four probable entrances to rooms situated on the longer side of the hall with apse, suggests a small single-nave church. The location of this building above the Roman-period remains and finds of coins from the 6th/first half of the 7th century confirm the Byzantine date of this structure. Its function should be clarified following further archaeological testing in the future.

b. Room 15

Room 15 was part of the Late Roman residence bordering the Villa of the View on the northwest. The destruction fill inside the room was mostly of Late Roman date. The pavement proved to be executed in *opus signinum* technique. A construction that appears to have been part of a basin was discovered in the eastern corner of R15.

c. Room 29

Of the same width (E-W) as R15, R29 gave entrance to R15 through a door between walls W119 and W120 on the southeast. Opposite it, on the northwest, there was W22 separating it from R16 beyond it; on the right (northeast), W115 separated it from R53, and on the left (southwest) W66 constituted the doorway to R25. The destruction layer contained Byzantine pottery and coins (e.g. bronze coin of Justin II, dated to the second half of the 6th century AD). A wall painting in Byzantine style, depicting a bearded male figure (unidentified saint ?), was recorded on the wall of the adjacent room R 53 (only partly excavated within the confines of Trench D).

R29 may have been an open courtyard with flagstone pavement, functionally connected with R25 (inscription in mosaic M10 at the entrance to R29). Both constituted part of the Late Roman residence on the north side of the Villa of the View. Wall W22, already belonging to the apse of a probable church, may have constituted the border of the courtyard on this side.

Trench E

a. Late Roman terracotta lamp workshop

The present season was devoted to exploring the eastern part of a complex that had been identified tentatively in 2005 as a lamp producing workshop, operating after the earthquake of AD 365 to believe the evidence of several dozen coins found in the fill. The workshop was located inside a small building lying to the east of the "Villa of the View", composed of three rooms built on a rectangular plan and evidently making use of the standing walls of the Villa wherever possible. The west corner was founded straight on the mosaic of the Villa peristyle. A pottery furnace had been located to the east of the building, partly concealed in the baulk and the fill from inside the house comprised large quantities of Late Roman pottery and oil lamps together with several lamp molds.

Room 45

R 45, together with R46, adjoins the complex described above on the east. It is filled almost entirely by the pottery kiln that had been discovered last year. The entrance to the room was from the northeast, while on the opposite side, wall W108 separated it from the inhabited rooms. This wall is lined up with W73 which is a partition wall inside the house. The firing chamber of the furnace was made of clay and bears evidence of high temperatures, while the outer chamber (preserved fragmentarily) was made of stone (strat. unit 62/06). The furnace stood on a plain mosaic, which belonged to an earlier building.

Room 46

R46 is situated to the northeast of the complex, neighboring with R45 on the southeast. Like R45, it had a floor of tamped earth reaching to the borderline wall W45 beyond which it changed into natural ground surface. This suggests that neither of the spaces was roofed. A cistern was located in R46 (filled with earth). It presumably supplied the water needs of the inhabitants of the house and workshop, but it also appears to have been inherited from an earlier phase of construction. A preliminary look at the fill of the cistern revealed the presence of Late Roman pottery.

Trench F

Trench F was traced to the south of Trench A excavated in 2001-2006. It covers the remains of a complex of rooms around a colonnaded courtyard (peristyle). The plan parallels other Hellenistic houses with peristyle courtyards known from Ptolemais (e.g. Villa of the View) and elsewhere, leading to the conclusion that we are dealing with yet another house of the type. Compared to the Villa of the View, the building from Trench F is much smaller and its decoration more modest. Except for living rooms (R48, R51, R52, R54, R59), the house also comprised areas intended most probably for industrial and domestic purposes (R24, R43, R44, R49, R50 and R56), and constituting a continuation of the workshop complex situated to the southwest of the Villa of the View (explored in 2004).

a. Rooms around the peristyle

Room 51 (peristyle)

The central room of the building was raised on a rectangular plan, oriented according to the existing NW-SE street grid. A pavement of large stone slabs was surrounded by a peristyle of three columns, the bases probably standing *in situ* on the northeastern, southeastern and southwestern corners of the *impluvium* (numerous fragments of columns and other architectural blocks were found in the layer of destruction inside R51). A cistern in the northwestern corner of the *impluvium* presumably precluded the erection of a fourth stone column; indeed, a wooden support may have been placed here to avoid putting too much weight on the void underneath. This makes sense from the structural point of view and testifies to the architectural know-how of the builders. Water flowed into the *impluvium* via two small channels set in the pavement and approaching from the east and south and was removed via another two channels covered with slabs (as in the peristyle of the Villa of the View), one of which led to the western corner of the peristyle, through R43 and into the main sewage drain in the street; fragments were found in Test pit EX9/2 dug in 2004. The other one led in a northerly direction to the lateral filler hole of the cistern in R2.

An architectural block with an inscription coming presumably from a public building and reused in the construction of W104 (between the peristyle and R52) bears a Greek inscription in big majuscules. It gives a personal name (□□□□□) and the date (□□), indicating the first half of the 1st century AD as the time of its carving.

Most of the pottery originating from the destruction layer represents Middle Roman coarse wares. The numismatic material found in R51 dates this room to not later than the middle of the 3rd century AD.

The cistern in the peristyle was supplied through a central filler hole located in the western part of R51 (closed with a fragment of a relief decorated with the image of a horse) and a lateral one in R44. Two chronological layers were distinguished in the cistern fill: a thick and compact layer (strat. unit 94/06) accumulated over a long period of time, containing many complete or almost complete water jugs of Middle Roman date, testifying to the first phase in the occupation of the villa; it is dated by the coin evidence to before the earthquake of AD 262. Numerous fragments of the cistern vaulting sealing this layer is proof of the disaster that occurred. Accumulated above this rubble are two mounds, one under each of the filler holes (strat. unit. 92/06 and strat. unit 93/06). The one under the central hole proved particularly interesting as it contained, among others, several

fragments of marble and limestone sculpture.

The peristyle of the house appears to have been used for some time after the house itself was abandoned in consequence of the damages caused by the earthquake of AD 262. This is suggested not only by the accumulations inside the cistern, but also by other finds indicating an accommodation of the peristyle to the needs of the new inhabitants. These are: a partition wall (strat. unit 131/06) added to W102 and a fireplace located on some ceramic tiles set in place of a removed paving slab near the wall W98 (strat. unit 132/06).

Room 48

This room adjoined the peristyle on the southeast. It had the same width as the peristyle and was situated on its axis. It was probably the most official room of the house. The walls of the room were decorated with artistically accomplished paintings, unfortunately only partly preserved. The pavement was made of stone slabs.

Room 54

The small room R45 was situated northeast of the peristyle. On the other side, it was bordered by R59. Like an analogous room on the northeastern side of the Villa of the View, it could have housed an (unpreserved) wooden staircase leading to the room on the first floor. It also contained a small, cylindrical cistern, very much like the cistern under the room with the Dionysiac Mosaic in the Villa of the View.

Room 59

Archeological works will be continued in the next season, but so far it has been found that a pottery kiln occupies most of the available space. It parallels in construction the furnace in R45, although it is much bigger. Here, too, Late Roman pottery occurred in connection with the furnace.

Room 52

The function of the room is unknown, but it was clearly part of the peristyle house in view of the doorway that connected it with the courtyard R51. Excavations here have to be continued.

b. Complex of workshops along the street

Rooms situated along the street (R7, R8, R11, R18, R19, R22) were explored in 2004 and interpreted as workshops. They were organized in the ruins of the Villa of the View after the cataclysmic tremor of AD 262 and remained in use until the next great tremor of AD 365 which definitely put them out of operation. Field research and chemical analyses of some of the finds have suggested a potential function for the rooms as part of a dyeing workshop. Further exploration of the complex to the south in 2006 uncovered more rooms running along the next in line House of the Peristyle. Numismatic evidence has confirmed the final abandonment of these chambers after the earthquake of AD 262.

Room 24

This room with tamped floor was separated from R22, situated to the northwest of it, by wall W52. Inside it and parallel to the street wall was a thin wall W118 made of small stones, delimiting a shallow basin in the southeastern corner. The fill of this basin yielded a Middle Roman lamp with the image of Roma as Salus feeding a snake on the discus (inv. no. 1/327/06).

Room 43

Next in line to the southeast was Room R43. It is of similar size and also has a tamped earth floor. The channel removing water from the peristyle R51 entered this room under wall W112 (with a vertical drain pipe for rainfall attached to the face of this wall), after which it divided into one branch running west and the other one directed to the southwest. A long hole in the northeastern

wall of the room probably constituted the ending of the channel.

Room 44

Wall W131 partitioned the room into a northwestern compartment with the lateral filler hole of the cistern under the peristyle of the house to the east, and a southwestern one holding a ceramic *pithos* (allegedly an oven) partly sunken in the ground and apparently reinforced with small stones.

Room 49

Two phases of occupation were distinguished in this small room situated southeast of R44. The first was a latrine (fragments still observable in wall W99), the floor being made in *opus signinum*. It was entered from R51 through an entrance in the northeastern wall. In the second phase, the room was probably used as a workshop. A huge kiln on sound foundations was raised on the pavement, the upper parts being made of stones.

Rooms 50 and 56

The last two rooms discovered in this row within the borders of trench F were R50 and R56. Both were entered from R48 located to the northeast. Partly uncovered wall foundations indicate a date for the construction in the Late Hellenistic period (2nd-1st century BC). The dating is confirmed by the material found directly upon bedrock: two Athenian drachmas and numerous fragments of Black-glazed wares.

Wall W130 which partitioned the rooms in the earlier phase has been preserved only as a foundation. Once it was dismantled, the floor inside the joined rooms was made of tamped earth and the walls were plastered and painted (unfortunately, the painting is in very poor condition). This phase is dated by fragments of Middle Roman wares and a hoard of Roman coins (see Numismatic Report below) buried next to W98. The rooms appear not to have been used again after the earthquake of Ad 262.

Pottery report

Excavations by the Polish Archaeological Mission to Ptolemais in 2006 brought the usual spectrum of pottery finds ranging from the Hellenistic to Byzantine times. The following is a preliminary analysis of this assemblage.

• **Hellenistic pottery**

Hellenistic wares constitute a small but meaningful percentage of the wares. They are represented by both fine and coarse pottery, the categories occurring often on the same levels with later wares (e.g. Mid Roman or Late Roman wares). This could probably be explained by intensive seismic activity in the Cyrenaican region. In most cases, examples of Hellenistic pottery from the "Villa of the View" find well-dated parallels in the publication of British excavations at Sidi Khrebish (P.M. Kenrick, *The Fine Pottery*, in: *Excavations at Sidi Khrebish, Benghazi (Berenice)* [Libya Antiqua, suppl. V], vol. 3, Tripoli 1985; J. Riley, *Coarse Pottery*, in: *ibidem*, vol. 2, Tripoli 1978).

"Black-Glazed" is the most common category of Hellenistic fine wares. It comes in both plain and decorated variety ("Gnathia" ware), and can be either imported or apparently produced in local workshops (clay demonstrating evident inclusions). As far as plain "Black-Glazed" ware is concerned, bowls with different types of rims (especially incurved rim - Sidi Khrebish type B37, and everted rim - Sidi Khrebish type B14) and most commonly ring feet are predominant. An absolute majority of the finds can be dated to the second century BC. Among the finds meriting special attention is a sherd from a pyxis (Inv. no. p/049/06) and a sieve (Inv. no. p/214/06) with no parallels in the Sidi Khrebish material.

"Gnathia" ware with painted decoration is fairly common, represented by characteristic kantharoi rims (e.g. Inv. no. p/181/06 - Sidi Khrebish form B98) and moulded pedestal feet (e.g. Inv. no. p/096/06). "Gnathia" is dated to the second half and turn of the third century BC and presumably corresponds to the initial occupation phases of the "Villa of the View".

Hellenistic fine wares from the villa are represented also by a few sherds of so called "Megarian Bowls" (e.g. Inv. no. p/344/06 - decorated with a Ionian kimation).

The commonest among the Hellenistic coarse wares from the "Villa of the View" include:

- Rhodian amphoras (by far the most interesting sherd is an amphora handle with a stamp unknown from Sidi Khrebish - Inv. no. p/212/06);
 - Forms analogous to popular fine-ware (i.e. "Black-Glazed") shapes, such as especially bowls with incurved rims - Hellenistic plain ware 4 (Sidi Khrebish forms D610-D614), very common throughout the Hellenistic period;
 - Globular cooking pots (Hellenistic cooking ware 1 and 2) with globular body, low and thickened, slightly everted rim (usually flattened on top) and horizontal ribbing;
 - Jugs of different types, especially jugs with handles merged with the rim - Hellenistic jug 2 (Sidi Khrebish forms D1098 and D1099); and bag shaped flagons - Hellenistic jug 5 (Sidi Khrebish form 1108), all dated from the third to the first century BC.
- **Mid Roman Pottery**

Huge quantities of Mid Roman material were excavated during the two-month season, once again being the most common ceramic material from the Polish excavations. Diagnostic rims, bases and handles were drawn and photographed. Most of the finds have parallels in the published material from Sidi Khrebish, Benghazi (J. Riley, Coarse Pottery, in : Excavations at Sidi Khrebish, Benghazi (Berenice) [Libya Antiqua, supplement V], vol. 2, Tripoli 1978), as well as in the finds from the Polish excavations in previous seasons (2001 to 2006).

In 2006, explorations of the southern part of the Villa where workshops fronting the main street may have existed in the 3rd and 4th century yielded the greatest percentage of Mid-Roman ceramic material, mostly of everyday use. The range of types was not extensive and repeated for the most part the types already identified in previous years.

While parallels with the Sidi Khrebish material are obvious, there is also apparently a considerable difference between the two sets, which mostly concerns detailed characteristics of the various types. And so:

1. Almost all the vessels excavated by the Polish archaeological mission in Ptolemais present a different height than the same types in Sidi Khrebish (D 1145 and D1148 - Mid Roman jugs; D 875 or D 943 - Plain Wares).
2. Parts of the following vessel types often demonstrate entirely different proportions than examples from the Benghazi area (e.g. more curving body of jug D 1148 - Inv. no.) or a slightly smaller neck (Sidi Khrebish type D 1148). The differences in rim types of Mid Roman Plain Wares should also be mentioned here.
3. Inclusions in the clay of vessels from Ptolemais - characteristic flecks of lime - are not encountered in the fabric of pots found in Sidi Khrebish.

Forms that were most prevalent in the workshops in Ptolemais (following Sidi Khrebish typology):

Mid Roman Amphoras: D222, D224, D228, D281

Mid Roman Cooking Wares: all types - D501-D522

Mid Roman Plain Wares: D874, D875, D877, D879, D889, D901, D902, D943, D981

Mid Roman Jugs: D1145, D1147, D1148, D1151, D1160

• **Late Roman Pottery**

Late Roman and Early Byzantine pottery was found in the surface layers of trenches C, D, E, F (and baulks 12, 11), most of them in the northern part of the excavated area (trench C, D, baulk 11). The pottery should probably be related to the remains of the buildings (W22, W 27, W24, W31, W93) dated to the Early Byzantine period.

Some characteristic types of vessels can be described as Late Roman based on the archeological context and parallels from other Mediterranean sites.

The following types and wares were identified (based on parallels with the published Sidi Khrebish material and John Hayes' study of Late Roman pottery)

- Late Roman Amphorae types 1-8; p/084/06/D364, P384)
- Late Roman Coarse Wares
- Late Roman Jugs (D1190)
- Late Roman Cooking Wares
- Dolia; p/044/06 (D751)
- Late Roman Plain Wares; p/051/06 (D1041)
- African Red Slip Plates; P/373/06; p/376/06 (form 104,105,108)
- Late Roman Unguentaria; p/032/06 (D1030-D1035)

The latter group of short narrow bottles known as Late Roman Unguentaria merits special attention. This type belongs mainly in the 6th and 7th centuries AD (520-600/650) and is characteristic of Early Christian sites. The form was common in the eastern Mediterranean. It is normally slipped on the upper part and has a stamp on the base (monogram or impressed seal stamp). Of the 32 fragments found in 2006, five were stamped ? four with monogram stamps and one with an impressed seal stamp. The last mentioned has a direct parallel at Sidi Khrebish (D 1035) and other similar examples have been found in the eastern Mediterranean, i.e., in Athens, Rodos, Cyprus. The unguentaria excavated in the "Villa of the View" came from the northwestern part of the area, but also from the southern end (trench F) where the material was mixed and dated to different periods. Late Roman Unguentarium could have been produced locally or imported; the issue requires further archeological testing, as well as petrographic analyses of the clay used in their production.

d) The Lamps

This preliminary report concerns the 273 fragments of terracotta lamps found during the excavations in 2006. Types repeat those identified in previous seasons on the basis of the published Sidi Khrebish material (D.M. Bailey, *The Lamps in: Excavations at Sidi Khrebish, Benghazi (Berenice)* [Libya Antiqua, suppl.V] vol. III, Tripoli 1985). As far as dating is concerned, the lamps range from the Hellenistic period to the 7th century AD.

The earliest lamps were found mainly in two trenches, C and F. These are mostly fluked nozzles of wheelmade lamps. Most of the finds are mouldmade and were evidently made in local workshops in the Late Roman period. Numerous Hayes Type II lamps were excavated in trench CXCI91, where a lamp workshop was located and dated by comparison with the set of coins to the first part of the 5th century AD. The latest lamps discovered during the exploration of the street belonged to a type that was very common and widely distributed in Cyrenaica from the middle years of the 6th century until the coming of the Arabs (C.H. Kraeling, *Ptolemais, Chicago* 1962, pl. LXIID, pl. XXXV).

Among the imported fragments there were a few volute lamps from Italy dated to the second part of the 1st century AD (L/195/06, L/235/06, L/240/06), and one fine example of a Cretan Ivy-leaf lamp probably of the 2nd century (L/167/06).

Discus decoration, where it occurs, includes mostly geometric patterns, such as rosettes, rays, crosses. The chrism as a symbol decorating the discus is quite characteristic on the workshop lamps. The few figural scenes that appear mainly on lamps of Mid Roman date include lovers, gladiators,

bacchic mask, busts of women.

The following are some of the more interesting examples:

- L/272/06; discus: bacchic mask; type Loeschcke VIII with impressed ovules on the shoulders, heart-shaped nozzle, grey clay, black slip; Sidi Khrebish: C915-6;
- L/257/06; discus: two lovers, probably Loeschcke VIII; grey clay, brown slip; Sidi Khrebish C1005-6;
- L/310/06 discus: peacock, Broneer Type XXV, grey-brown clay

Numismatic report

Coins from the Polish excavations, season 2006


This season of excavations brought 368 coins for analysis (altogether the register now contains 670 items). Bronzes were the most common find, but a few silver pieces which were not all that popular in Cyrenaica are well worth the mention. Most of the coins are in poor condition, mainly due to the specific geological conditions and considerable salinity as a result of the proximity of the sea. As a matter of fact, the problem is typical of most sites in Cyrenaica.

A vast majority of Hellenistic coins, including the small-denomination Ptolemaic bronzes in circulation in Cyrenaica in the first years of Roman rule in the region, as well as coins issued by the Roman administration in local mints were retrieved from destruction and accumulation layers connected with the great quakes of the 3rd and 4th century AD. These layers consist of what the villa had been built of: mainly stone blocks and wall plaster, earth and fragmentary mud brick. The coins were lost in various parts of the building, sealed by successive quake-related damages. Today, they are of considerable assistance in stratifying the remains and determining precise dates for particular building phases.

The coins in circulation in the Roman period (after AD 96) were primarily bronzes struck in Cyrene in the 3rd and 2nd centuries BC; a few examples of these were found during this campaign. No gold issues had been minted since the reign of Ptolemy I and no silver ones since the revolt of Magas (c. 282-261 BC). Finds of heavily worn silver coins from the early 3rd century BC are proof that they were still in circulation in the 1st century BC. A few interesting silver coins used for a long time were found this year: two are of the Athenian didrachm type: head of Athena in helmet/owl and three are drachms of the Rodhian type: head of Helios r/ *incusum* with rose.

The small currency in circulation that the Romans encountered taking over Cyrenaica included foremost three types of small Ptolemaic bronzes: Ptolemy I/head of Libya, Zeus-Ammon/eagle, Zeus-Ammon/headdress of Isis. The denomination is yet to be determined, but it is obvious that these coins, which were struck in Cyrene at the turn of the 2nd century BC, remained in use long after the arrival of the Romans, presumably until the end of the 1st century AD. In the excavation assemblages from Apollonia, Cyrene, Sidi Khrebish and Ptolemais, they constitute a meaningful share of all the coin finds. This group of coins makes for about 30% of the whole material.

A few examples were noted of coins struck in Cyrene in the 1st century BC by L. Lollius, A. Pupius Rufus, Palikanus and Capito. The fairly rare *semis* of Marcus Aurelius and Cleopatra is worthy of mention

(). A valuable item is a well preserved coin of Drusus with a bust of Tiberius and Germanicus on the reverse. Interestingly, a vast majority of the large bronze denominations from the 1st century BC/1st century AD, originating from the Polish excavations at

Ptolemais, were halved. Obtaining smaller denominations (*semis* in this case and less often *quadrans*) by dividing *ases* into halves or even quarters, and thus meeting the demand for small currency on the internal market, is a phenomenon that is well known to specialists and described, especially in reference to the western parts of the Empire. It is interesting to note that the halved coins from Ptolemais included not only Roman issues (*as* of Tiberius and two *ases* of Caligula), but also and in superior numbers, coins from local Greek mints (Cyrene, but also in the previous years from Syracuse and Knossos). This was made possible by the process of adapting the local weight system to Roman standards, an event which occurred in the 1st century BC. The numismatic finds from Ptolemais constitute the biggest yet collection of identified coins documenting this phenomenon from Cyrenaica. Certain trends can be noted despite the fact that the few dozen finds from Cyrenaica as a whole cannot yet support statistical analysis. The issue of halved coins in Cyrenaican economy requires further study, offering the opportunity to fill in gaps in the knowledge of the economic and political life of Ptolemais and Cyrenaica in the early Imperial period, especially as each new field season of the Polish mission adds to the number of known halved coins.

Numerous finds in Cyrenaica (also a few dozen from Ptolemais) of silver and bronze coins of Trajan, followed by only bronze coins of Hadrian and Marcus Aurelius, the latter mostly with a characteristic image of Zeus-Ammon on the reverse, point to a second important period in the history of local coinage in Roman times. Erroneous assumptions have resulted in these coins being attributed to a mint in distant Cappadocian Caesarea. This season another silver drachm was found (with Trajan and Zeus-Ammon on the reverse) and a few bronzes represented this group. Moreover, almost half of all the coins found this season came from Roman mints, most characteristically of the Late Roman period. Fairly numerous were, as in previous years, coins from the Antonine and Late Severan periods. Nonetheless, the most valuable find of the season was a hoard of the 3rd century AD described in the section below.

b) Hoard of Roman coins

A hoard of Roman coins was found in R50 (trench F), one of the rooms of a complex situated along the street. The rooms were clearly of industrial character and functioned in close connection with the "Villa of the View" (cf. Archeological Report). The hoard was located next to wall W98, on a floor of tamped clay, superimposed on an earlier Hellenistic layer yielding fragments of "Black-glazed" pottery and two Athenian drachmas. The circumstances of the find suggest that originally the coins had been enveloped in some kind of organic material that has not been preserved.

The hoard consists of 566 coins (cn/278/06). Only 15 pieces represent silver *antoniniani*, including one of Caracalla, the emperor whose coins are lacking from the group of *sestertii*. The rest of the coins are bronze *sestertii*. With two exceptions, they come from the mint of Rome. The exceptions are two local bronzes, one of Trajan and the other of Marcus Aurelius, struck in the mint in Cyrene and belonging to a well known type bearing an imperial bust on the obverse and the head of Zeus-Ammon on the reverse. These coins were adapted to Roman weight standards and were circulated in Cyrenaica on an equal footing with coins from the central mint.

The oldest coins from the hoard can be dated to the beginning of the 2nd century AD. They represent the reigns of Trajan (several coins bear also the image of his wife Sabina) and Hadrian. Next in sequence come the coins of emperors of the Antonine dynasty: Antoninus Pius, Marcus Aurelius, Commodus (his coins are the most numerous ones in this group), Lucius Verus, and the wives of the above-mentioned emperors. Among the *sestertii* of the 3rd century AD, one observes a relatively small amount of coins of the early emperors of the Severan dynasty. Septimius Severus is represented by a certain number of coins, while Geta, Caracalla and Heliogabal are missing completely (the only exception is the *antoninianus* mentioned above). One example comes from the reign of Diadumenianus, son of Macrinus. On the other hand, Alexander Severus, last of the dynasty, belongs to the emperors best represented in the hoard. Some dozen examples were struck in the name of his wife Julia Mamaea. Alexander's successor Gordian III, the first of the so-called

soldier-emperors, appears on more than one hundred examples. Other soldier-emperors represented in the hoard include Balbinus (several examples), Maximinus Thrax and his son Maximus (some dozen examples), and Philip Arab with his son Philip II (also several dozen examples).

None of the coins belonging to the hoard was struck after AD 250. The circumstances of depositing of such a big amount of coins in the same place are uncertain. One is tempted to suppose that the hoard represents the accumulated profits of the owner of the workshops which functioned in adjacent rooms. It can be assumed with great probability that the coins were not retrieved by the owner after the earthquake of AD 262. The present hoard is the first archaeological proof coming from the area of Cyrenaica which testifies to this disaster so directly. The hoards known until now, as for example the hoard from Balagrae and the hoard from the agora of Cyrene, were not only much poorer than that from Ptolemais, but also testified to another earthquake affecting Cyrenaica, namely that of AD 365. The newly discovered hoard from Ptolemais give us a unique possibility to study the economy of Cyrenaica during the Middle Roman Empire. In particular, it casts light on the problem of the influx of Roman money to Cyrenaica and the ratio of coins struck in the local mint of Cyrene in circulation in the province.

The coins from the 2nd century AD are worn enough to suggest a long-time in circulation. Sometimes they are preserved so poorly that the images of the emperors can hardly be seen, and can be recognized only on the basis of characteristic portrait traits. Coins of the 3rd century AD are in much better state thanks to being in circulation for shorter periods.

Beside the well preserved examples, there are many that are heavily corroded and/or crusted with mineral deposits, often being found in joined groups of from 2 to 5 pieces. More can be said of the hoard structure once the coins have been cleaned professionally, separated where possible and preserved.

Conservation works

Works on the mosaics

A condition check of all the mosaics this season showed all of them to be in good state with only some minor damage at some of the edges.

The eastern part of mosaic M10 was finally cleared of the overlying earth deposits.

The following works were carried out:

1. reinforcing of mosaic edges along lacunas with an acryl stucco mortar (Libyan product) mixed with sand (1:1.5); white cement was added to the new mortar in a few places where the damage was more extensive;
2. cleaning of mosaic surfaces with water using sponges and paintbrushes;
3. covering the mosaics with perforated synthetic textile (Texbond - Italy), woven plastic mats (Libyan product) and layers of sand and earth.

1. Works on the paintings

All the paintings were uncovered in order to check on their condition. Some parts (especially on wall W9) proved to be destroyed. Apparently both people and animals had had access to the old city area through broken parts of the fence and the main gate. As a result of the unfortunate uncovering of the upper parts of some walls with murals, the painting layer had become detached and had collapsed, and the colors had faded somewhat as well. Some of the pieces of stone architectural decoration lying around the site had been attacked with a hammer, causing visible damage.

Fortunately, the bird painting on wall W3 has not suffered from any of these actions and no changes in its condition were observed.

The following work was completed:

1. reinforcing of the edges with new mortar (where necessary), using the same acryl stucco with sand and a small quantity of white cement;
2. cleaning of the painting surface with wet brushes and sponges;
3. disinfection of the paintings with 3% Preventol in water;
4. covering and protection of the paintings with synthetic textile and earth.

It is recommended that the most valuable fragments be taken down from the walls and stored in proper conditions. A special conservation campaign charged with this task is envisioned in the near future.

1. Works on the painted columns

The six polychrome columns were transported to the museum and exhibited in one of the rooms. The stone (sandstone) columns are covered with two coatings of plaster. The original layer was painted (in fresco technique ?) with floral decoration including red flowers, twisted twigs, brown branches and green leaves. This was later covered with a thin wash of white gypsum or lime (?) and another coating of lime-sand mortar layer painted red and yellow.

The following works were done on the columns:

1. cleaning with wet sponges and brushes;
2. mechanical removing of the layers covering the floral decoration;
3. reinforcing of some edges of the plaster coating with acryl resin in water dispersion (Primal W24 - Germany);
4. disinfection of the painting layer with 3% Preventol in water;
5. impregnation of the paint layer with acryl resin (2% Paraloid B72 in acetone).

1. Works on stone statuary

Fragments of stone statuary found during the excavations include a seated Kybele, a horse relief, a panther's head, male torso (all in limestone) and two heads of Aphrodite in white marble. All the statues were cleaned with soft brush and lancet, then with wet sponges. Water compresses were applied on the marble in order to remove crystallized salts.

Survey report

The goal of this year's campaign was to effect aerial photographs of the entire *intra muros* area, documenting chosen structures, as well as the layout of streets and insulae. The photographs will be correlated with the existing city plan, forming a multi-layer picture of the site combined with satellite photo, contour map and results obtained from the geoelectric survey.

Measurements of the *extra muros* area were continued on a smaller scale, concentrating on structures situated southwest of the Barca Gate (blockhouse? fort?). Complementary measurements were also carried out within the city limits.

A verification of measurements obtained from surface prospection was begun in the 2005 season.

During this year's campaign plans of structures located in app. 30 insulae were verified and corrected where necessary.

A detailed photo documentation of the measured structures was prepared.

Equipment

1. Measurements

During the 2006 season survey measurements were carried out mainly with Leica Total Station TC 1105 set (including Leica circle prism GPR 111 with constant 0 mm). A second Total Station set with Leica TCR 407power was also used occasionally. The points were transmitted into the computer using Leica Survey Office software, and transformed into dxf format in Winkalk, and finally drawn using Autocad software.

Measurements were based on reference points that were situated correctly from the main local grid established with GPS and Total Station during the previous seasons.

2. Aerial photography

Aerial prospection was carried out for the first time in 2006. Photos were made from a kite (flowform type) with a rig carrying a Minolta Dimage A200 digital camera. The camera rig was connected by a line to the photokite and positioned above ground level (from 50 to 250 meters). The camera was stabilized with a pickavet lines extension for perpendicular correction and precision of making photos. A remote radio aperture and transmission set helped to pinpoint the areas in question. The digital form of the photos permitted immediate quality checks, while the remote sensing aperture allowed viewing through the camera lens.

Processing collected data

Several of the best photos proved useful for investigations of the urban plan. Many archaeological structures could be recognized and measured using the Autocad system. The photos as raster images added to the CAD platform as independent data layers were processed into photomaps, just like the satellite image.

The resolution of these photos is sufficient to trace building plans and insulae limits, thus providing new information about the Ptolemais city grid.

Further kite photography is planned, especially in the spring season, when crop marks should help in discovering and analyzing underground structures.

Geophysical prospection

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Geophysical survey of the site of Ptolemais

(15 August - 14 September 2006)

Preliminary report

Resistivity measurements carried out in August and September 2006 at the site of Ptolemais

(Tolmeita) in Libya were a continuation of the geophysical prospection started in 2005. The survey was centered on verifying the reconstruction of the general city plan and the localization of the major elements. The work was part of an overall site survey carried out with the use of non-destructive methods.

Survey method

The chief survey method were Schlumberger geoelectrical depth soundings with traverses set 1 m apart and sampling points at 2 m intervals. Soundings, 1263 in all in six squares, were made at even points on even numbered traverses and at odd points on odd-numbered ones (Fig. 1). Square coordinates and point numbering on the X and Y axes in the case of this method, as well as for the GIS and remote sensing analyses, corresponded to the existing excavation grid. This permitted easy correlation with aerial and satellite photographs showing particular features excavated in the trial pits and trenches.

Electric potential probes (MN) were set 1 m apart and electric current probes AB at 3, 5, 7, 10, 13 and 16 m, allowing changes of apparent resistivity to be read at depths of 0.75, 1.25, 1.75, 2.50, 3.25 and 4.00 m beneath the surface. A different system was first tested in square 1, hoping for easier observation of current changes through subsurface layers to depths of more than 5 m. The array of MN probes 0.30 and 3.00 m apart and AB probes at a distance of 1, 1.40, 3.80, 5, 7, 16 and 20 m turned out to be overly time-consuming compared to the poor quality of the data obtained. Further testing led us to the optimal disposition of probes described at the beginning of this section. Results for square 1 (marked with dashed green lines in Fig. 1) were supplemented with measurements taken in a dipole-dipole array (MN and AB electrodes 1 m apart at a distance of 2 m over an area of 20 by 20 m).

Survey results were presented on color maps and 3-D models of changes in apparent resistivity. Depth slices (Fig. 2) and sets of vertical profiles (Fig. 3) were prepared (separately for each surveyed sector).

The instrument used was an ARA-03 resistivity meter device working by means of 200 V alternative current between 5 and 10 mA. Two frequencies, 128 and 256 kHz, were used parallel to one another depending on input current conditions. Surfer 8 software was used for preparing the maps and 3-D models presented below.

Survey results

Square 1 (km E, sector XXVI, ares 9-10).

Figs 2, 3, 4

Values of apparent resistivity in the range 40-400 ohmm (ohmmeters) were registered in this square. The highest values appeared in places in the subsurface layers (up to 1 m in depth) where solid stone structures could be expected (Fig. 2). One of the high-resistivity anomalies (localized on meters X=16-20; profiles Y=0-4) extends deeper than most, being still readable at a depth of 5 m below the surface. Structures causing anomalies lie mostly in the southern part of the surveyed field (profiles 6-10, Fig. 3); those concentrated in the northern part are deeper (profiles 0-5). High-resistivity anomalies form a square with 90° angle in the northeastern part of the surveyed field (X=6-10; Y=2-6), bordered by a linear low-resistivity anomaly (Fig. 2, illustrating changes in resistivity of layers at 0-2.50 m). The latter could be due to different humidity of the ground in the layers overlying a street pavement. The results of measurements with the dipole-dipole array (Fig. 4) present a similar picture of resistivity changes. Two straight and narrow linear high-resistivity anomalies running obliquely with regard to the measuring grid (meters X= -10- +2; Y =0-12 and X=0- -10; Y =12-19) can be seen here.

Square 2 (km E, sector XVII, ares 94-100; sector XVIII ares 91-93).

Figs 5, 6, 7, 8, 9

The square was divided into three (0-30; 30-60; 60-90) and measurements were taken along 90 m profile lines. Changes of apparent resistivity are presented in the set of four maps (Fig. 5). Values in the range of 40-250 ohmm were registered. The highest values appeared in the eastern part of the surveyed field (X=70-90; Y=4-10). Similar values were registered also in the southwestern part of the field (X=0-20; Y=0-8). The high resistivity layers overlay most of these features in the subsurface part of the prospected area (profiles 2,3 4 in Fig. 6 and 5-8 in Fig. 9). The central part of the surveyed field (X=25-65) demonstrated relatively low resistivity (not exceeding 60 ohmm). No high resistivity structures appeared in layers deeper than 1.75 m (profile, Fig. 8). The only higher values of resistivity to appear were on meters 50-60 (profiles 6-10) in subsurface layers (up to 1.50 m in depth), suggesting the presence of pavement or other solid structures directly under the surface.

**Square 3 (km E, sector XVII, ares 28-38-48)
Figs 10, 11, 12, 13, 14, 15**

The 30 profiles, each 10 m long, in this square were designed as a means of verifying the course of a street identified in satellite photos. Values of resistivity in the range of 40-240 ohmm were registered along all of the profiles. The possible course of the street can be matched with the long low-resistivity structure between meters Y=-135 and Y=-140 (Fig. 10). A higher resistivity anomaly can be observed north of the possible street; its linear character rather excluded any continuation of the street to the north. Disturbances in resistivity noted on the profiles (Figs 11-15) mainly concern the subsurface layers up to a depth of 1.50-1.75 m. Few of the anomalies could be attributed to deeper-lying remains. One such anomaly visible in profiles 15-20 could be caused by the stone curb or edge of the street.

**Square 4 (km B, sector LXXXV, ar. 93-96)
Figs 16, 17**

Prospection in this square centered on identifying the course of the *cardo* in its northern section. Profiles 40 m long were traced along lines from west to east. Data from only five could be analyzed and interpreted, as most of the square is covered by a secondary archaeological dump, presumably from the earlier Italian excavations (corresponding to the large area of uniformly low values of resistivity east of meter 560 in Fig. 16). The homogeneity of this layer is further confirmed by the profiles (Fig. 17). Higher resistivity values were registered only in the western part of surveyed field. No traces of the *cardo* could be detected in these conditions.

**Square 5 (km E, sector XLIX, ares 55-59 and 65-69)
Figs 18, 19**

Two traverses 40 m long and three 20 m long were traced in this square. The conditions for measurements were extremely difficult especially in the western part of the surveyed field which was covered with stones. Practically all of the subsurface layers here demonstrated high resistivity and only the eastern part of the square was less disturbed. Values of apparent resistivity between 40 and 680 ohmm were registered. The border between high and low resistivity zones is clear on meters X=-130 to X= -135 (Fig. 18). The straight line of high resistivity values along line Y= -464 could be the result of false readings taken in the field, or it could reflect architectural remains at a depth from 1.75 to 3.25 m below the surface. The limits of the high resistivity zone in the western part of the surveyed field can be seen on meters X= -135 and -145, especially on maps prepared for the deeper layers, i.e., 0-3.35 and 0-4 m (Fig. 19). Measurements in this square should be repeated and more traverses should be traced.

Square 6 (km E, sector L, ares 31-32 and 41

Figs 20, 21, 22, 23, 24

Twenty profiles were traced in this square: 20 m long in the northern and 10 m long in the southern part of the measured square. The regular, linear character of all the anomalies detected here indicates the presence of architectural remains at different depths. The set of maps for the shallow layers (0-0.75 m and 0-1.25 m, Fig. 21) shows a square formed by linear structures of higher resistivity in the northern part of the prospected area (meters $X=96$ to $X=-84$; $Y=-438$ to $Y=-430$). These anomalies are continued in the deeper layers (Figs 21 and 22). Linear anomalies of low resistivity values are present on all of the maps; they form two parallel lines running obliquely to the measuring grid between meters $X=-100$ to $X=-90$ and $Y=-440$ to $Y=-430$. A street paved with stone slabs could be the source of these disturbances. Another narrow linear anomaly can be observed on a map of measurements of layers 0-3.25 m; it runs north along meter $X=-97$ and turns to the northeast. Remains of ceramic pipes within a stone casing, seen in many places in the neighborhood of a big cistern immediately to the north of the surveyed area suggest the possible cause of this anomaly. This kind of separate local rise in the values of apparent resistivity has been noted in the lower part of all the profiles prepared for the northern part of the prospected area (Figs 23, 24, 25).

Conclusions

Geophysical maps combined with aerial and satellite photography, topographical measurements and GIS data prove an effective and powerful tool in investigating large and extended sites like Ptolemais.

The survey data presented here is of necessity preliminary in nature. Further analysis will undoubtedly help in identifying the ancient town topography, including the water supply and drainage systems. The resistivity method has been tested in the conditions of the site, determining the optimal conditions for searching for archaeological remains and identifying the layers and depths at which these can be found. The next step is to prospect the entire site with the quick and effective magnetic method, which has already provided interesting results in 2005.

Program for future seasons

Program for archaeological works

Our main goal 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 have been completed. Preliminary works on the project have already begun (theoretical 3D reconstruction).

We would also like to broaden our field of research and begin a new project connected with the study of Ptolemais in the Byzantine and early Arab periods. A number of test trenches are planned to trace the layout of chosen apsidal structures.

Program for conservation works

Conservation works on the destroyed Achilles mosaic will be continued. Falling from the first floor, the mosaic had broken into thousands of pieces. Many months of work, preferably in a highly qualified laboratory, are required to restore it. This will be a costly project and we have already applied for the necessary funding, including private sponsorship.

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.

Program for topographical works

Surveying in the coming seasons will be extended to the suburbs of the ancient city, concentrating primarily on the eastern necropolis located outside the city walls. Archaeological testing in the central areas of the city is planned as a form of supplementary verification of the topographical survey results. The *extra muros* area will be photographed from the air, preferably during the early spring when an analysis of crop marks can provide information on the location of underground structures.

Program for geophysical investigations

Continued non-invasive prospection by magnetic and electrical resistivity methods is planned assuming that the necessary funding will be available.

A comprehensive survey of the area situated between the two main cardines of the city is considered a priority for the mission, this being determined by the conviction that the main public buildings were located here.