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## **I. Preface**

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Under the terms of the "License for Archaeological Excavations", issued on the 22.07.2001 and prolonged on the 18.08.2003, the team of archaeologists, conservators and students of the Warsaw University conducted excavation works in Ptolemais-Tolmeita, beginning on 4 April 2005 and ending on 9 May 2005.

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First of all, we wish to thank Mr. Ali al-Chadouri, General Director of the Department of Antiquities of Libya, for the kind permission to conduct archeological excavations in Ptolemais – Tolmeita. We would also like to thank Mr. Turdjuman for his help in organizing our visa formalities. We are grateful to the Staff of the Antiquities Department in Benghazi, and especially to Mr. Ibrahim at-Tawahni for their considerate supervision and help.

Thanks are also due to Mr. Igor Kaczmarczyk, Counselor of the Polish Embassy in Tripoli and to Mr. Jerzy Chumek, Counselor of the Polish Consulate in Benghazi.

The Polish team was accompanied by Mr. Faraj abd al-Karim and provided with all needed facilities by Mr. Abd as-Salam Bazma – without their 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 and August-October 2004.

Works were carried out in four different spheres: archaeological excavations, conservation works, geophysics investigations of one of the city's insulas and geodetic measurements within the walls of the city.

## **II. Archaeological works**

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The aim of this year's 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 in the villa.

Works were therefore concentrated on documentation and exploration of several remaining baulks: Baulk 4, 5, 7 (removed completely) and Baulk 8, 9 (partially removed) and on the exploration of several rooms located within previously opened trenches.

In effect the central part of the villa planned round the peristyle - richly decorated with frescoes and mosaics - was completely uncovered and documented.

Interesting results concerning the chronology of the villa in the Late Roman phase were reached in result of excavations conducted in trench BC 101, where a construction dating to the end of the IVth c. A.D., built on earlier Mid Roman walls, was found. This construction functioned probably as a workshop for the production of lamps. Even though oil lamps were very abundant in Ptolemais, their local production was not previously confirmed.

Excavation works were also conducted in trench CXCI 94 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 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.

During this year's campaign three sondages: FI11, FI22, FI24 located S of the central part of the villa were also opened to establish the range of the villa in the S part of the insula.

Excavation works were preceded by geophysical prospection allowing for precise location of the sondages.

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.

### **a) Trench BC79**

The exploration of trench BC79 was a continuation of works begun 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 R25, R28 and R29 located S of the line delimited by 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?). 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 BC 89, explored in 2004. This season's works concentrated on the exploration of N corner of R25 in BC79. The mosaic in this part of the room was heavily damaged; part of the mosaic next to wall W66 was repaired in antiquity and was not decorated with a border visible on its other sides. Approximately 1 m. W of wall W66 a marble plate without an inscription was paved into the mosaic.

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. Wall W24 was built in late antiquity on a geometric mosaic M11, similarly decorated to mosaics in R4, R8, R11. The remains of wall W66 (contemporary with M11, W62 and W29 [with small fragments of paintings preserved]) 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, analogous to the pavement found SE of W75 (trench CXCI91). The room is connected with room R25 by a wide doorway (part of W66) 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.

### **b) 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.

### **c) 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, (delimits 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.

The correlation of walls W5, W38, W63, W68 has brought interesting information. The late antique wall W38 was moved ca. 0,5 m. S in relation to Hellenistic W63 (a coin of Kyrene dated to the IIIrd c. B.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 (analogous to basins found in R18, EX10). The described structure was 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. 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. 0,5 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. Three rows of stone blocks (36/05) were uncovered, placed on a destruction layer - fill of R15. A skeleton of a large domestic animal (donkey?) 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)
3. 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 state of preservation of the mosaic in this part of the room is good. One of the blocks in wall W38 - of rectangular shape - is wider than other blocks and appears analogous to a block found in trench BC89 (6 m. distance in SW direction). 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).

In room R25 the following layers were distinguished:

1. destruction layer (3/05)
2. accumulation layer above mosaic (129/05)
3. mosaic M10.

### **d) Trench BC99**

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

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, constructed of several blocks, was probably part of an industrial structure, which reached the W border of the insula.

### **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

#### **e) Trench BC100**

The area was excavated in 2002. This season the entire area of the trench, whose main part formed the central peristyle of the villa, was uncovered. 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.

#### **f) 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).

Room R5, R30, R32, R33 uncovered in 2005 (trench CXCI91 and Baulks 7, 9) belonged to a Late Roman, rectangular building, previously described as blockhouse. 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. Basing on numerous numismatic finds the building is dated to the 2 half of the IV c. A.D. Due to the fact that inside the described structure were found ca. 150 typologically related lamps and 6 molds (several of which match some of the discovered lamps), 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 (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 this room 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
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.

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. 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.

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

### **g) 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 and a cistern were revealed.

The entrance to the cistern was decorated with a stone puteal (119/05). In the fill of the cistern 4 coins were found (3 sestertii from the III c. 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.

### **h) Baulk 5**

This baulk was partially explored in 2004, when part of the baulk running in 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.

### **i) Baulk 6, sondage CXCI93, CXCI94**

This baulk, situated between 2 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. 30,00 m. above sea level a late antique street was uncovered (30/05, 31/05), on which numerous coins from the 1 half of IV c. 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; the pipe was covered by mortar mixed with stones. The pipe was placed app. 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.

**j) Baulks 7, 8, 9**

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

Works on baulk 8 were concentrated in its central and S part. Room R14 with mosaic M6 was uncovered and documented.

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

**k) Trenches FI11, FI22, FI24**

Basing on results from geophysical prospection, 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.

**. Pottery Report**

**IV. Numismatic Report**

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## **V. Conservation works**

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### **a) works on the paintings**

Room R1: This season the paintings on wall W14 were uncovered; 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

R6: paintings on wall W5 were uncovered and treated

R14: paintings on walls W45 and W5 were uncovered and treated

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 earth.

### **b) works on the mosaics**

This season the following mosaics were uncovered: M7, M5, M4, M6, M10 (partly), M11.

The mosaics, which were found in 2002 and protected with plastic foil and earth, 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 earth.

### **c) report on the conservation of a Roman sarcophagus**

*type of object:* attic sarcophagus from the Roman period

*chronology:* II-V c. 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. Last year, in October 2004, another part of the same sarcophagus (the bottom part of the case) was found in the East Wadi of Tolmeita, in the part called Wadi Umran. The fragments were identified as part of one object and a decision was made to reconstruct the fragmented pieces by a Polish conservators team.

*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 form the bottom part of the sarcophagus; the smaller parts form the side walls of the case. The relief decorating the case was covered by a layer of loose soil with small stones (glinokrzemiany z zawartością żelaza III- wartościowego) responsible for its reddish-brown color.

*performed conservation works:*

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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. 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 also strengthened before gluing by glass fiber rods. Smaller fragments were glued with epoxy resin.

## VI. Survey Report

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### Equipment

During the 2005 season the main part of the survey measurements had been done 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 software Leica Survey Office, and transformed into dxf format in Winkalk and finally drawn using Autocad software.

### Method

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. The same local grid was established at the Eastern Necropolis where a new basilica was discovered.

### Results



Works concentrated in the harbor area where the buildings were probably situated within the Byzantine city grid. The Byzantine grid did not overlap with the Hellenistic – Roman grid and was slightly rotated in comparison, which is clearly visible in the area of the harbor.

The following structures were measured:

1. two main constructions (nr 1, 2 ), probably identified as Byzantine forts



2. a structure resembling a cistern, located in the E end of this area (near the beach – nr 3).
3. the Orpheus Villa, the largest of the visible buildings (nr 4); its area was limited by an earlier Byzantine wall later adapted to Italian fortifications (nr 5)
4. several ovens dated to the Byzantine period (nr 8) situated on the big square near the museum (nr 7), visible on the satellite photo
5. the basilica, orientated to the East and located near the quarries by the sea (nr 6)
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 (nr. 5)
7. visible Byzantine insulae limits by the sea

#### 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 below (see CD for details / folder: ptolemais\_gebel\_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 insulae.

Measurements of the W and E necropolis are to be carried out during the future seasons.



01. (photos: g01, g02) - city walls limiting the ancient city from the East.
2. (photos: g03, g04); 06. (photos: g07, g08, g09, g10 )- cisterns joined with the other water supply buildings.

3. (photo: g05) – cistern
4. (photo: g23 ) – theatre
5. (photo: g27) – water supply? building
07. (photos: g17, g11) - small theatre or baths
08. (photos: g06, g24, g26) hippodrome or stadium
09. (photo: g16) water supply bilding?

## VII. Geophysical prospection

by Krzysztof Misiewicz

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### Geophysical survey of the site Ptolemais

Geophysical measurements at Ptolemais carried out in April 2005 were part of a non destructive 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. By magnetic measurements one tried to localize archeological features while electric survey should give data on their plan, possible dimensions, depth and state of preservation and finally - archaeological context.

Data from a surface of half a hectar (Fig. 1) measured in two sectors – one close to the archaeological trenches opened in the years 2000- 2005 and the other – near the possible harbour, outside of the town walls could be the base for planning large scale non-destructive survey of the central part of the town. All measurements have been 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 let us use data obtained by geophysical survey for completing large scale information on the site and for planning future archaeological and preservation activities.

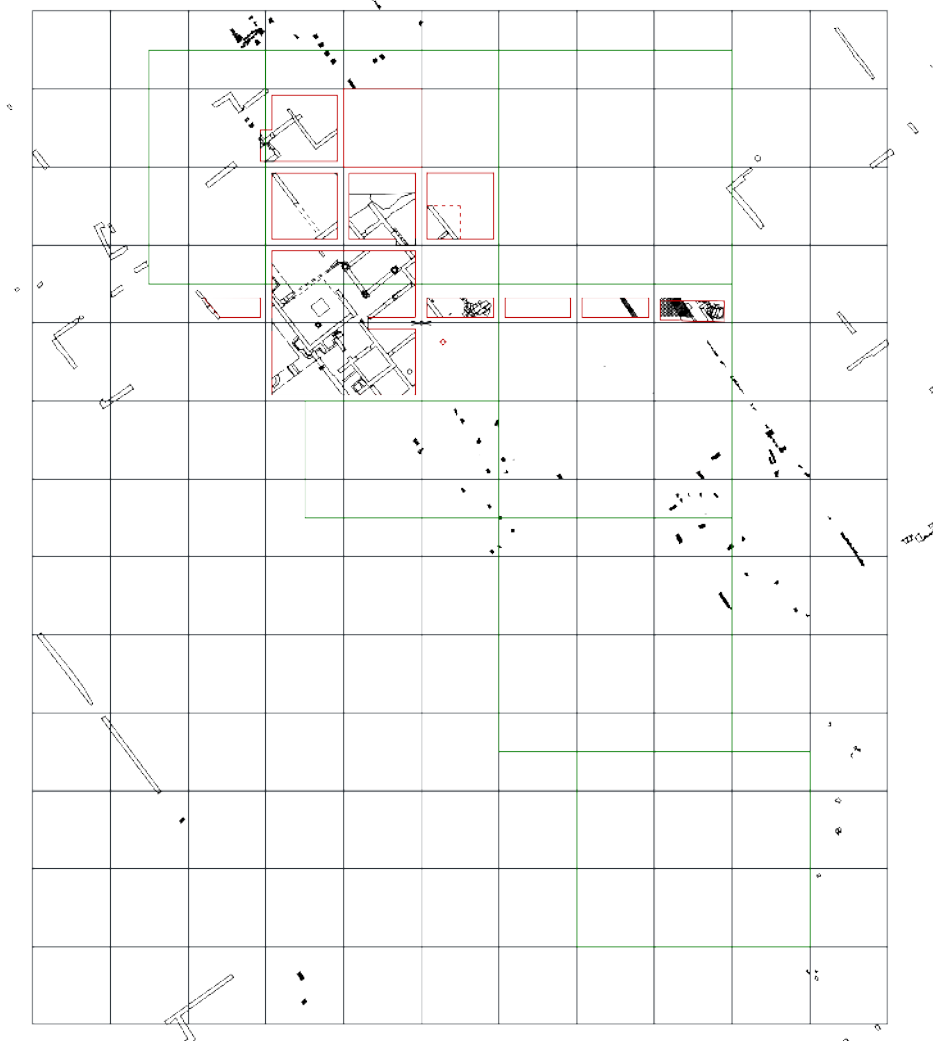


Fig. 1

### Electric survey

Geoelectrical measurements with the use of different dipole-dipole arrangements ( $d = 1$  m  $D = 2, 4$ , and  $5$  m) moved parallel and perpendicular to the profiles allowed to measure apparent resistivity of the layers up to the depth of  $0.75$ ,  $1.5$  and  $2.5$  m. Measurements have been carried out with the use of alternative current instrument ARA 03 adapted to multilevel surveys.  $1$  m and  $0.5$  m grid have been used in the field respectively to the dimensions of possible archaeological features and differences of surface ondulation in different parts of the site. Result of survey was presented on the map (Fig. 2) and slices (Fig.3) presenting distribution of apparent resistivity.

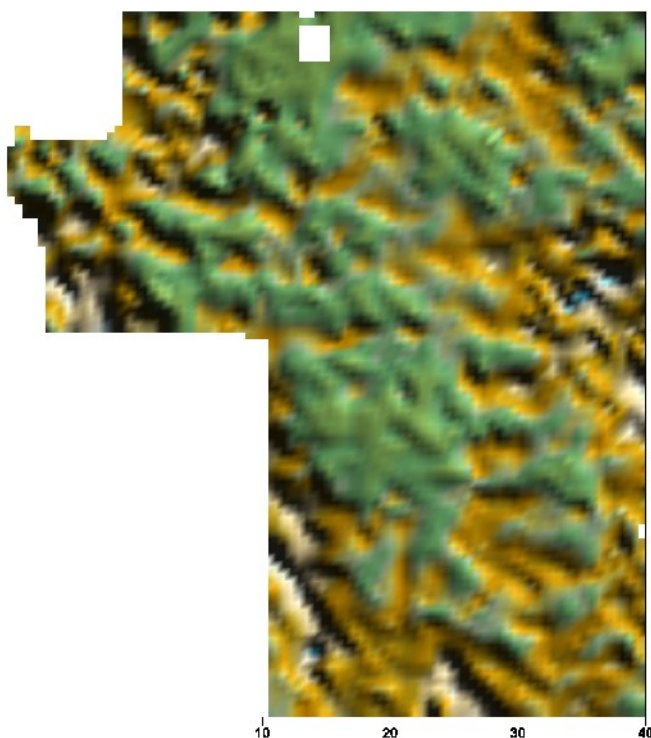


Fig. 2

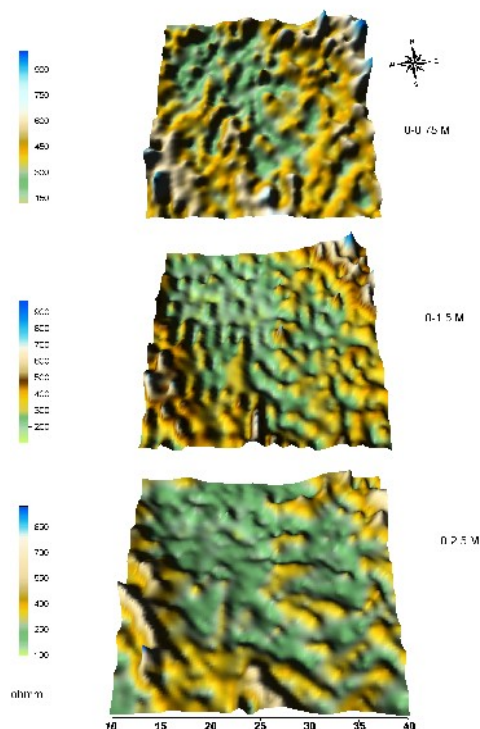


Fig.3

### Magnetic survey

Gradient measurements of intensity of total magnetic Field of the Earth have been 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  $0.5$  grid in the squares  $30 \times 30$  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. 4).

Both magnetic and electric maps were combined and compared with high resolution satellite image (natural colors and near infra-red range), detailed topographical maps, surface models prepared in the years 2003-2004 and plans of excavated and visible on the surface archaeological features.



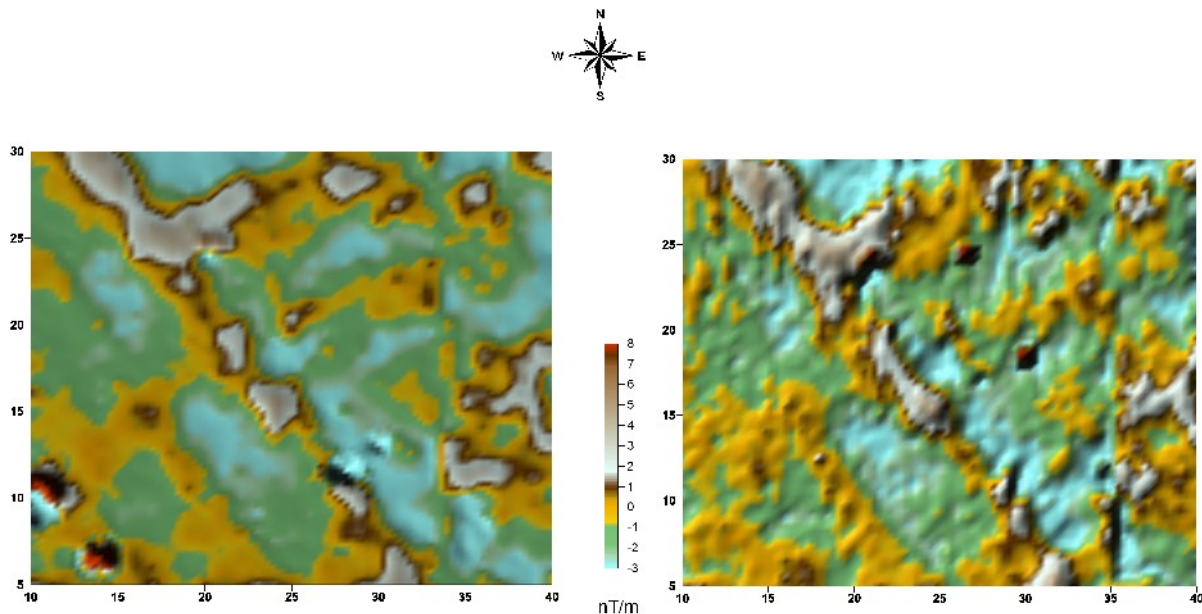


Fig.4

## Results of surveys

Changes in apparent resistivity in the range 100- 1000 ohmm were registered in all surveyed squares in result of electrical measurements. Values in the range 200-300 ohmm correspond to the natural untacked geological layers consisting of sand-clayish earth, yellow and light brown in colour. Values below 200 ohmm appeared in the places where stone constructions were removed, forming in this way pits filled up with earth. Values over 400 ohmm 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. 3 one could have 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 contrast big enough to be registered by electrical measurements. Walls forming the borders of the insulae and all installations connected with canalisation 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. 5) and  $D = 5$  m (Fig. 6). In many cases external and even internal walls of villas produce also clear linear anomalies. However, these kinds of structures are much better visible on maps presenting the results of magnetic survey ( Fig. 7). Here one could reconstruct a plan of many complexes of buildings visible as classical dipole-dipole anomalies with minimal values from the North and maximal from the South of objects causing magnetic anomaly.

Rather clear picture of buried features has been obtained also in the case of surveys outside the town. Walls forming borders of insulae cause linear anomalies connected sometimes with heavy burned structures (ovens?) (see Fig. 8). 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 even reconstruct the plan of this part of the site, which could be different from that known from area within defensive walls



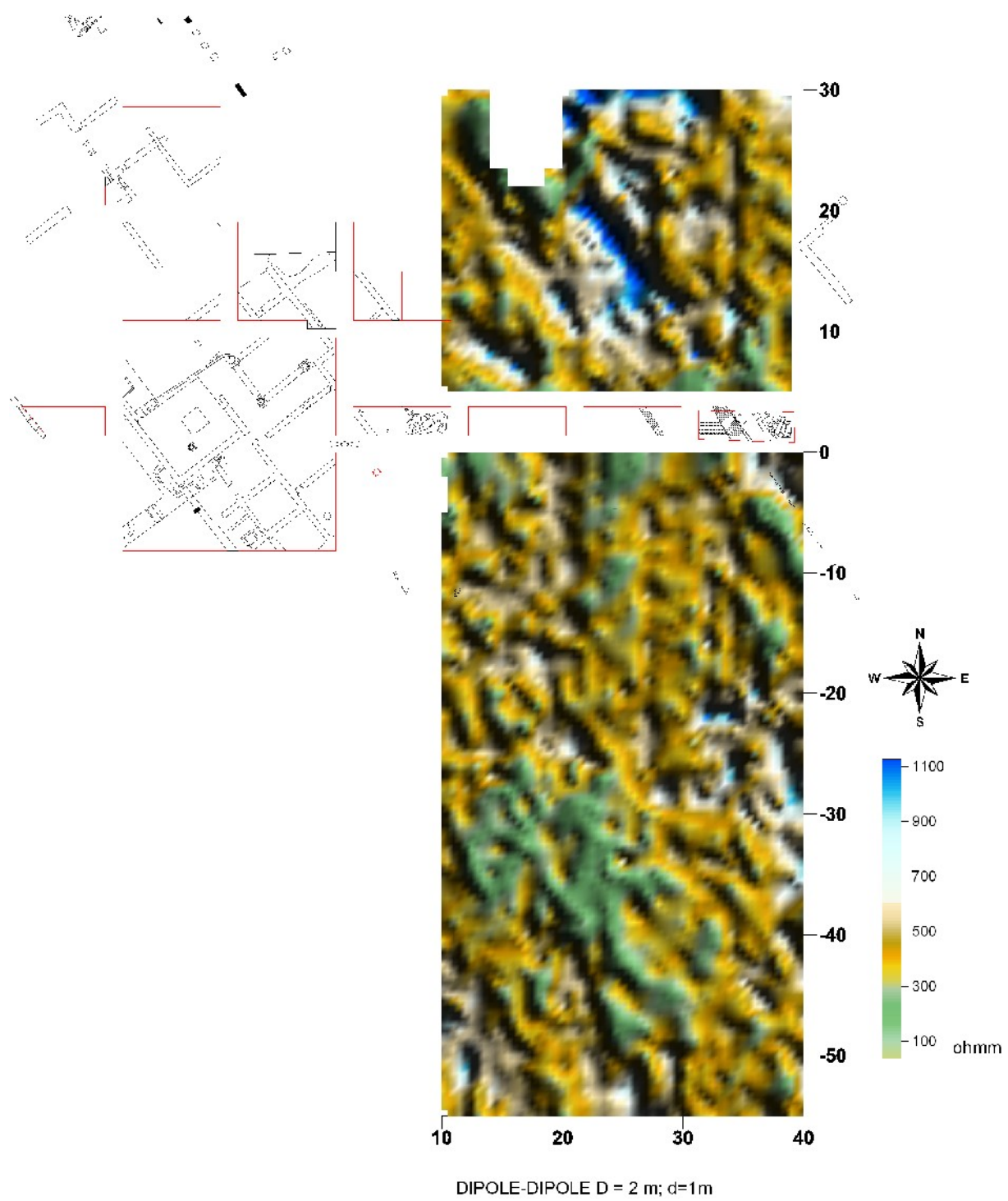


Fig. 5

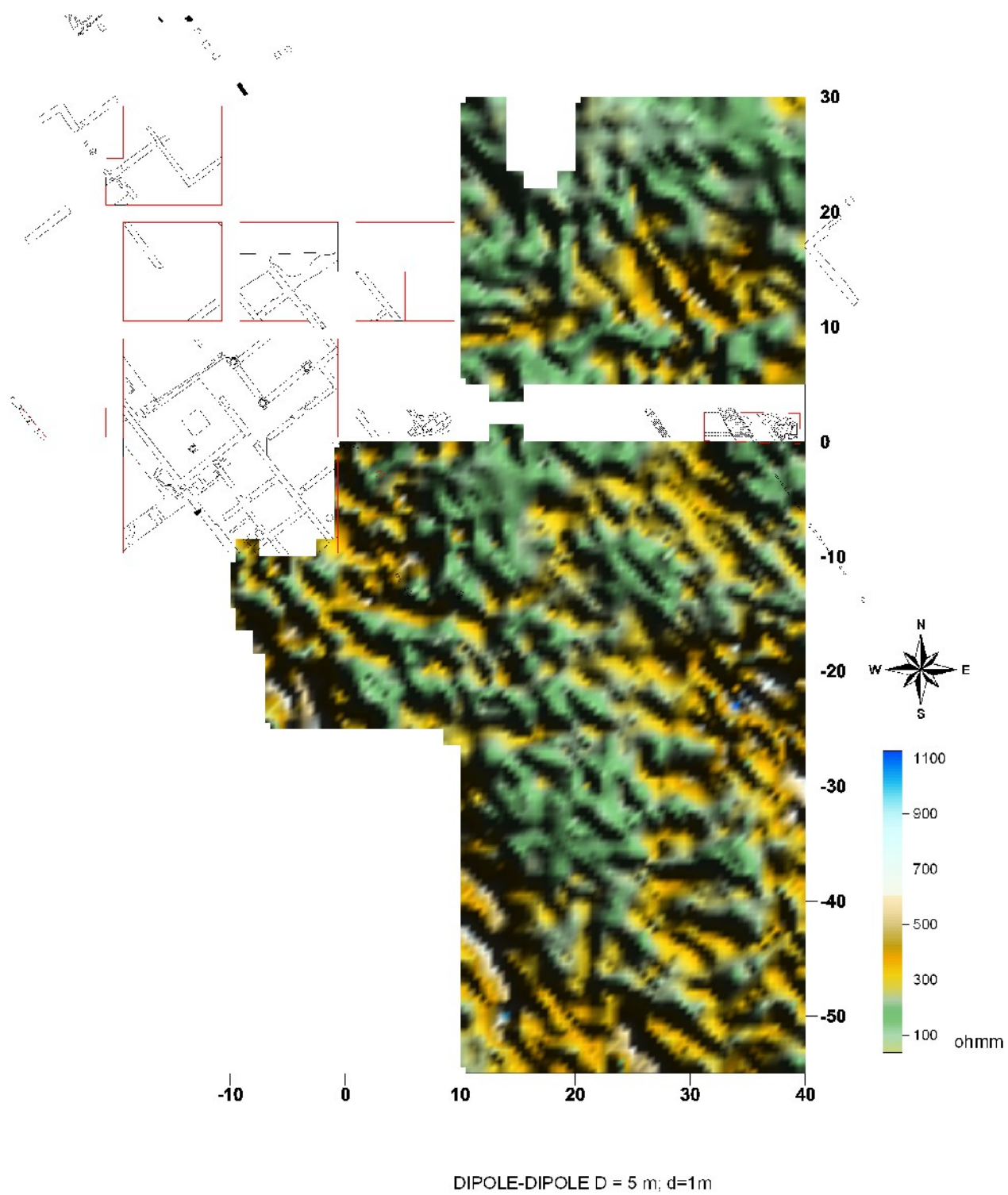


Fig. 6

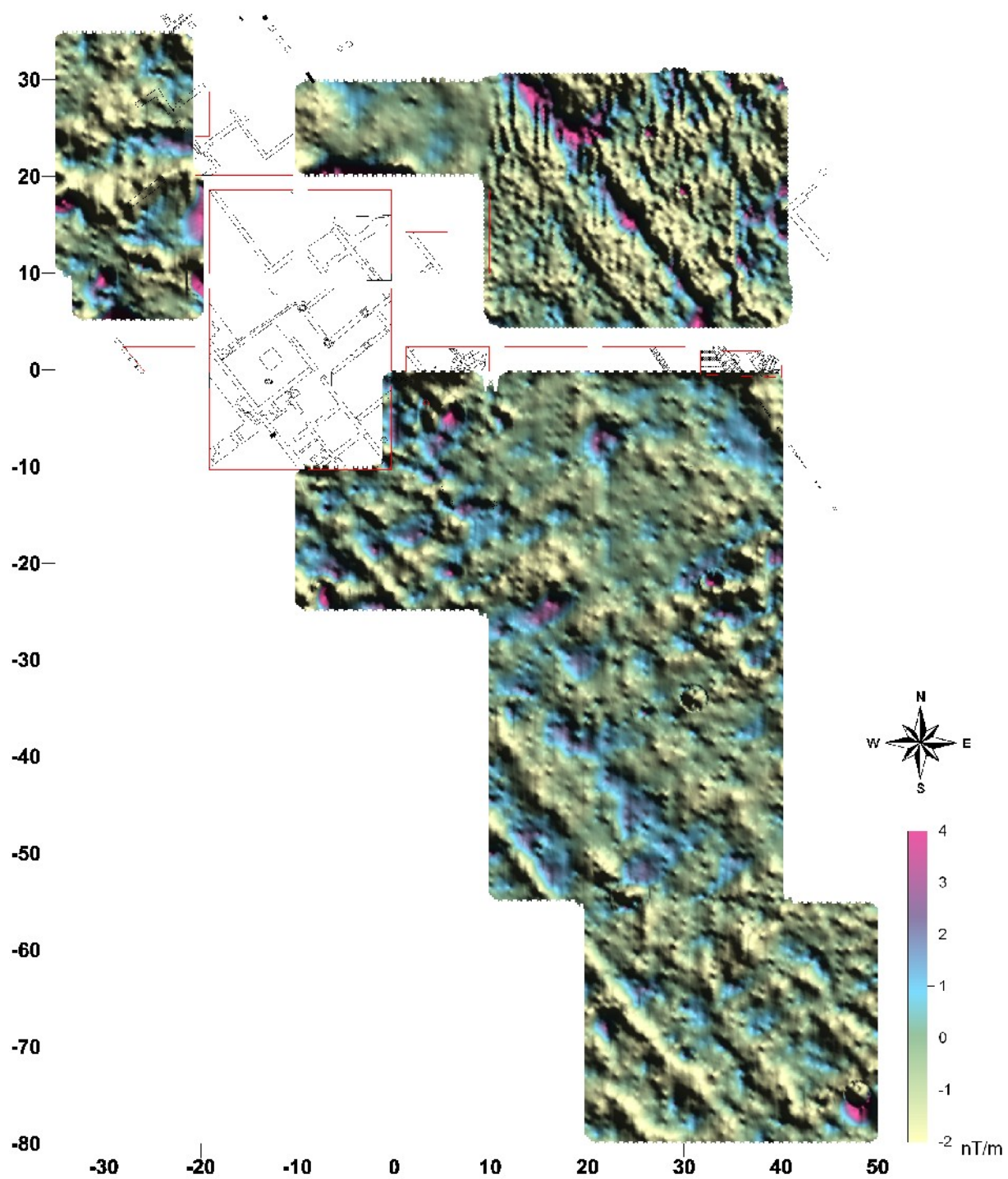


Fig. 7

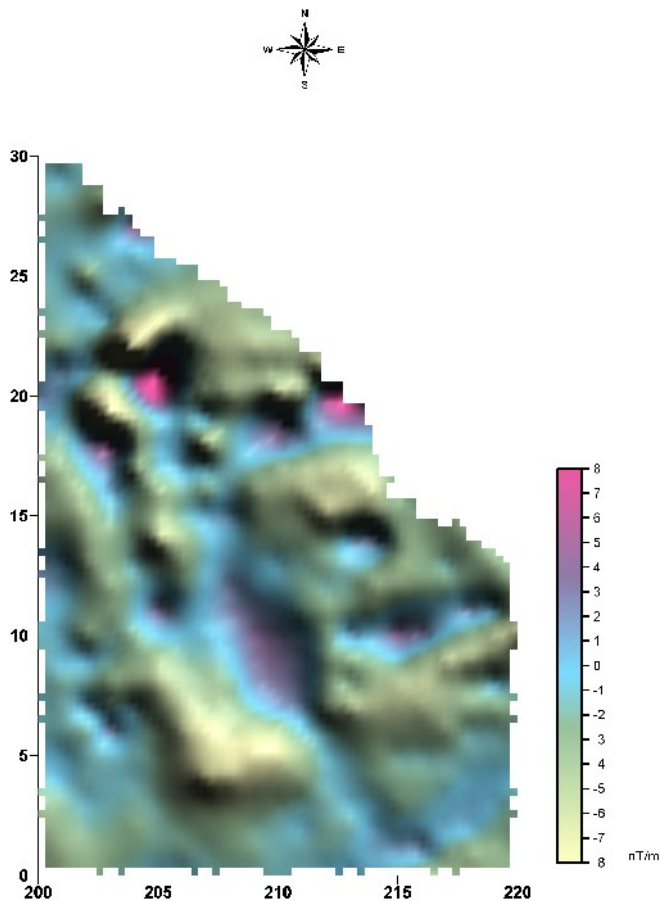


Fig. 8

## Conclusions

It is clear that large surface site of Ptolemais (over 200 ha only in the limits of city walls) could not be examined 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 in version 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 with determining the character of features and depth of their deposition.

## VIII. Program for future seasons

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### *Program for archaeological works*

In the present year we hope to conduct one more campaign in October-November 2005 connected with conservation works on frescoes.

During our next campaign we would also 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.

### *Program for conservation works*

Conservation works on the destroyed Achilles mosaic will be continued. The mosaic had fallen from the first floor of the building and had broke into thousands of pieces. It 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 taking measures in order to obtain an appropriate sum of money 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.

### *Program for topographical works*

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

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, a dissertation on the urban development of Hellenistic, Roman, Byzantine and Islamic Ptolemais – Tolmeita will be prepared.

### *Program for geophysical investigations*

On obtaining necessary financial support, 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.