

**THE NOVIODUNUM ARCHAEOLOGICAL PROJECT 2000–2004:  
RESULTS AND CONCLUSIONS FROM THE PILOT SEASONS**

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***Rezumat:** Prezentul articol reprezintă rezultatul desfășurării Proiectului Arheologic Noviodunum (NAP) în perioada 2000-2004.*

*Ridicarea topografică efectuată, însă de la începutul proiectului, a îmbunătățit imaginea asupra sitului, reprezentând un important punct de pornire pentru cercetările viitoare.*

*Cercetările geofizice au reliefat intervențiile antropice asupra sitului în sec. XX, dar au furnizat și importante detalii referitoare la fortificațiile din perioadele romană și romano-bizantină.*

*Cercetările de teren efectuate în acest răstimp au arătat schimbările petrecute în cadrul cetății, eșantioanele ceramice și numismatice contribuind la stabilirea unei dinamici a așezării, dovedind contacte cu estul Mării Mediterane și alte zone.*

***Cuvinte cheie:** Isaccea, Noviodunum, epoca romană și romano-bizantină*

***Key words:** NAP, Isaccea, Noviodunum, Roman and Romano-Byzantine Periods*

### **Introduction**

The Noviodunum Archaeological Project was begun in 2000 to investigate this important site which lies on the southern bank of the Danube, on the northern edge of Dobrogea, that region which in Romania is bounded by the Black Sea to the east, Bulgaria to the south, and the Danube to the west and north (Fig. 1)<sup>1</sup>. After initial visits in 1998 and 1999 it was decided that a pilot project should be undertaken with the limited aim of producing a new, detailed and accurate plan of the remains at Noviodunum. The topography of the site, which is now a Romanian National Monument and is largely under rough-grazed scrub, is complicated and it was felt that a modern survey was a prerequisite for any future work. The most recent published plan, which will be discussed in detail below, was that produced by Gh. Ștefan<sup>2</sup> from aerial photographs (Fig. 2). The project was initially set up as a three-way collaboration between the Institute of Archaeology, University College London, the Department of Archaeology, University of Southampton and the Institutul de Arheologie „Vasile Pârvan”, Bucharest and is run in close collaboration with Victor Heinrich Baumann of the Institutul de Cercetări Eco-Muzeale Tulcea. Since the second authors move to Cambridge the Project is now run in collaboration with the Fitzwilliam Museum, Cambridge. The initial field season in 2000 concentrated on this primary aim, but subsequent seasons in 2002-2004 have expanded the range of survey techniques employed to include geophysical survey, auger/environmental survey, and field-walking („pedestrian” or „pick-up” survey)<sup>3</sup>.

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<sup>1</sup> This site should not be confused with a number of other ancient sites of the same name such as modern Nyon in Switzerland.

<sup>2</sup> Ștefan 1973, fig. 6.

<sup>3</sup> The first three seasons were funded by the Institute of Archaeology, UCL and the Department of Archaeology, University of Southampton. The 2004 season was funded by the British Academy, Grant No. SG 38630. The authors would like to thank the funding bodies for their support of this project.

Having completed this preliminary work we have embarked upon a five year programme of excavation and field survey at Noviodunum and in its hinterland funded by the Arts and Humanities Research Council<sup>4</sup>. This article presents the results of the first four seasons work at the site.

This work would not have been possible without the help and cooperation of the staff of the Institutul de Cercetări Eco-Muzeale Tulcea, especially Victor Baumann to whom our thanks are offered and this paper dedicated. We would also like to thank the many other people who have helped us, including the past the present Directors, Gavrilă Simion and Florin Topoleanu, and the indefatigable efforts of Aurel Staniță.

In a short paper such as this an extensive review of the known history of the site and previous archaeological investigations is not appropriate. Baumann has recently published an overview of work at the site<sup>5</sup> as well as interim reports on the current work<sup>6</sup>. The site is mentioned in a variety of ancient sources including the *Notitia Dignitatum* and appears to have been a base for the lower Danube fleet, the *Classis Flavia Moesica* as well as other military units<sup>7</sup>. Although known to antiquarian sources<sup>8</sup>, systematic work at Noviodunum began with a series of rescue excavations on the shore of the Danube where the northern edge of the site was, and is, being eroded by the Danube<sup>9</sup>. Small scale excavations were undertaken on the site by Barnea<sup>10</sup> along with various excavations in the cemeteries around the site<sup>11</sup>.

### The topographic survey

The topographic survey was undertaken using Leica Total stations. The entirety of the fortress and the civilian settlement was surveyed between 2000 and 2003, with additional information included in the following seasons, mainly the results of both the British and Romanian excavation programmes. As can be seen from the plan (Fig. 3) the main fortress consists of an elongated promontory bounded by the Danube on its northern side. The low lying area to the east of this promontory is reclaimed land protected by a levée. Similar reclaimed land lies to the west of the site beyond the survey area. The low lying land to the south-west is now dry farmed land but is likely to have been wet marshy land in the Roman period, if not open water. Access to the fortress would have been across the saddle of higher land to the west of the eastern valley (Fig. 3, E). This saddle is dissected by a number of roughly east-west features interpreted by Ștefan<sup>12</sup> as the outer defences of the civilian settlement.

Point A in Figure 3 is the location of the large rectangular tower currently under excavation by the Romanian team (Fig. 4). The topographic survey shows the tower formed a distinctive bulge in the southern edge of the fortress. Many defensive circuits in late Antiquity,

<sup>4</sup> An interim report on the first season of excavations has been published in the *Annual Reports* series, Lockyear, Popescu, Sly 2006.

<sup>5</sup> Baumann 2004b.

<sup>6</sup> Baumann, Mănuțu-Adameșteanu 2000, Baumann 2001, 2002, 2003, 2004a, 2005, 2006.

<sup>7</sup> Zahariade 1988, 134-137 provides an overview.

<sup>8</sup> Ștefan 1973.

<sup>9</sup> Barnea, Barnea 1984, Barnea, Mitrea 1959, Barnea *et alii* 1957.

<sup>10</sup> Barnea 1977.

<sup>11</sup> Barnea *et alii* 1996, Bujor, Simion 1961; Simion 1984, Simion 1994-1995, Zahariade 1996, 228-229.

<sup>12</sup> Ștefan 1973.

including those in Dobrogea (*e.g.*, at Ulmetum<sup>13</sup>), have one larger tower often on the most vulnerable side. At Noviodunum the tower clearly dominates access to the site across the land bridge from the south. These towers may have been intended to mount concentrations of artillery (Crow, *pers. comm.*). Interim reports on the excavations of the tower are available in the *Annual Reports* series<sup>14</sup>. The long trenches (Fig. 3, F) are the earlier excavations undertaken by Baumann and Mănuclu-Adameşteanu<sup>15</sup>, and those at G are the excavations undertaken by Mănuclu-Adameşteanu in the 1990s<sup>16</sup>. Unfortunately, the location of some of the earlier excavations at Noviodunum are imprecisely known although a number of potential excavation trenches have been plotted. More recent excavations on the southern circuit wall and the corner tower are also shown<sup>17</sup>.

The Ottoman fort at Noviodunum (Fig. 3, B) is one of a network of five in this area of which three survive. The fort makes use of the highest point within the Roman fortress and overlooks the Danube to the north. The Ottoman forts will form the subject of a separate paper<sup>18</sup>.

The site has been subjected to substantial destruction in the 20<sup>th</sup> century. This includes a large number of slit trenches from the two World Wars. The large mound to the south of the site (Fig. 3, D, Fig. 5), presumably a Roman burial *tumulus*, has been substantially cut about and used as a „command and control” point for the 20<sup>th</sup> century defences as it overlooks the fortress and across to the Ukraine being 20-25 m higher than the Ottoman fort on top of the Roman fortress.<sup>19</sup> The large quarry for earth at Fig. 3, C, has cut into the later Byzantine cemetery, and further damage was caused during unlicensed soil removal in 2002 which resulted in emergency excavations on the southern edge of the quarry<sup>20</sup>. East of the trenches at G lies a second quarry for stone. The western end of the large granary near the Danube built in 1950-1951 destroyed a tower on the circuit wall<sup>21</sup> and both the topographic model and the results of the resistivity survey discussed below suggest that some of the eastern end of the fortress was destroyed in order to create the farm.

The resistivity survey (see below) also suggests that areas of the “civilian settlement” were also landscaped for agriculture, and Mănuclu-Adameşteanu has noted the damage to the later Byzantine levels in the excavations at Fig. 3, F<sup>22</sup>. The aerial photographic evidence published by Ştefan clearly shows the site being used for intensive agriculture in the 1950s, a time when the Communist regime enforced a widespread expansion of agriculture even into the most marginal of land. Due to the extremely light nature of the loess subsoil this agriculture caused severe

<sup>13</sup> Covacef 2004-2005, 441. See also the aerial photograph on 444 and the plan (originally published by Pârvan) on 445.

<sup>14</sup> Baumann, Mănuclu-Adameşteanu 2000; Baumann 2001; Baumann 2002; Baumann 2003; Baumann 2004a; Baumann 2005; Baumann 2006.

<sup>15</sup> Baumann, Mănuclu-Adameşteanu 2000, Baumann 2001, 109.

<sup>16</sup> Barnea *et alii* 1996.

<sup>17</sup> Baumann 2003, 156-157; Baumann 2004a, 147; Baumann 2005; Baumann 2006, 184-185.

<sup>18</sup> Sly, Popescu, Lockyear, in preparation.

<sup>19</sup> Note that the heights in Fig. 3 relate to the survey’s primary datum point which was given an arbitrary value of 100 m.

<sup>20</sup> Baumann 2003, 157.

<sup>21</sup> Barnea 1977, 105.

<sup>22</sup> Baumann, Mănuclu-Adameşteanu 2000.

erosion at the site, particularly on the slopes as shown, for example, by the concrete gun emplacement on the eastern edge of the site now standing 2 m clear of the surface.

The depth of deposits was tested by augering at a number of points across the site. The auger holes marked 1 and 2 in Figure 3 revealed extremely deep deposits of colluvium. At point 1 there was 4 m of undifferentiated colluvium from which a small piece of waxed paper, possibly a cartridge wrapper, was retrieved and a small sherd of Roman pottery was obtained at 4.5 m below the surface, the maximum depth of the auger. At point 2 the auger reached waterlogged deposits at 4.5 m below the surface. This indicates that the low lying land to the west of the civilian settlement and south of the fortress has silted-up a great deal in the recent past.

Ştefan's original plan of the site (Fig. 2) identified three lines of defences for the civilian settlement. It is extremely difficult to identify these in the new survey and we would argue that these defences are actually natural erosion features cutting across the site, possibly largely created after the abandonment of the site. The reasons for this interpretation are:

1. As mentioned, it is difficult to discern three lines of defences in the new survey, or any sensible defensive system.

2. The section of ditch, Ştefan's III<sub>1</sub>-III<sub>2</sub> lies immediately to the west of the large natural valley (Fig. 3, E). As can be seen from the plan and from Fig. 6 it makes no sense to cut a defensive ditch at this point when one could simply fortify the lip of the valley and make use of the natural terrain.

3. The defences are immediately overlooked by the higher terrain to the south and are thus at a distinct disadvantage.

4. In only a few places does any trace of a bank appear to be present, and in those cases it is possible that this is actually upcast from 20<sup>th</sup> century slit trenches. Views of the site from the south or south-west (Fig. 7) reinforce this impression.

5. A large valley similar to that between Fig. 3, G and F exists to the west outside the survey area. This valley also appears to cut across a headland (Fig. 8).

6. The scale of erosion and colluviation at the site supports the idea of these features being due to natural processes.

These observations do not preclude the natural features being a feature within the settlement layout, or indeed being reinforced during an emergency, and Mănuclu-Adameşteanu's suggestion that it forms the boundary between the late Byzantine settlement and the cemetery is still a possibility, but we must now discount the idea that these features were deliberately constructed defences.

The last feature in the survey to discuss is the sharp valley to the south of the site cutting north-south through the east-west ridge which overlooks the site. Ştefan's plan does not show this feature but the line running south past the mound appears to be going in that direction and indicates a possible road or track. The possibility of a road in this direction is reinforced by the distribution of burial mounds in the landscape to the south. The sharp valley (Fig. 9) is, however, too narrow to be for a road and its form suggests that this is a relatively modern feature and thus the precise line of the road has yet to be determined.

One last observation concerns the Kurgan Vizir or Movila Mare situated to the south-west of the site outside the survey area. This mound (Fig. 10) is visible from many points in the landscape and forms a distinct landmark. From the site, or from the hinterland, the mound

looks huge but when seen from closer to, as in Fig. 10, it can be seen that although large it is not as enormous as it seems from further away. The mound has been very cleverly placed so that the folds in the landscape hide its base from most viewpoints giving the impression that it is bigger than it actually is.

#### **The field-walking survey**

Following the first season of topographic survey in 2000 it was decided to expand the range of techniques being used on the site. Plentiful surface material suggested that a field-walking survey would complement the results of the topographic survey. In 2002 two areas were walked using a line walking methodology common on UK surveys<sup>23</sup>. Material was collected in 20 m stints at a 5 m separation in two zones, zone 1 was to the east of the fortress and zone 2 to the south of the fortress and west of the “civilian settlement”<sup>24</sup>. The quantity of material collected in a day and half was sufficient to occupy finds processing team for a fortnight. It was also clear that it was very difficult to allow for varying levels of commitment within the collection team and the resultant patterns largely reflected personnel. An alternative strategy was needed. There is an extensive literature outlining a wide variety of methods for use in a variety of landscapes<sup>25</sup>. Due to gaps in our knowledge of the ceramic sequence over the first millennium in this region, we did not wish to follow the route of only recording diagnostic pottery which would inevitably bias the survey towards those periods with substantial quantities of imported vessels. The point sampling methodology used in the Riu Mannu Survey seemed a possible solution<sup>26</sup>. Using this method, a grid of points is laid across the landscape one wishes to survey, and all artefacts that lie within a set radius of each point are recovered. The Riu Mannu survey used a radius of 80 cm which gives a collection surface of 2 sq.m., and a grid of points at 30 m spacing along a 1 km wide, 5 km long transect. Differences between personnel are partially minimised by timing how long collection takes place at each point. Variations in surface visibility can similarly be minimised by allowing collectors to clear vegetation with a trowel. Lastly, should a survey point fall on an unsuitable point such as a heavily trampled track, it is possible to just move the point a little along the line of the transect and record its new location.

Many surveys differentiate between on-site and off-site walking strategies. For example, the Kythera survey used line walking as off site with the relatively small fields as the basic unit of analysis, and then grid-walked individual sites. Within each grid a “vacuum sample” was taken consisting of a randomly placed circle. The collection strategy varied for each level of field walking: counts for lines, diagnostics for grids and 100% collection within vacuum samples. Although a pragmatic way of ensuring wide coverage and detailed finds data, it does create difficulties in statistical analysis as each sampling level is so varied.

A modification of the Riu Mannu method, however, can overcome these difficulties simply by varying the densities of points walked. For example, one could pursue the 30m spacing of points as a method for extensive survey but use a 10 m spacing for detailed mapping of finds on-site. The distinct advantage of this is that the actual samples of material are

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<sup>23</sup> e.g., Fasham *et alii* 1980.

<sup>24</sup> Lockyear 2003, fig. 5.

<sup>25</sup> For a recent review see Mattingly 2000.

<sup>26</sup> I would like to thank Andrew Bevan for bringing my attention to the paper by van de Velde 2001.

identical in both cases, *i.e.*, all the finds within a 2 sq.m. point. This simplifies any statistical processing of the data and allows, for example, the creation of contour plots if desired.

A further development of the Riu Mannu method is to use the point walking technique in combination with adaptive sampling, a relatively new statistical technique.<sup>27</sup> In more traditional sampling methodologies the sampling frame is fixed before undertaking the work. What is discovered during the sampling is not allowed to change the pattern of samples being taken. In adaptive sampling the sampling frame is adjusted according to the results of the samples already taken. This has the advantage that the collection can be adjusted according to what is found, although it does make forward planning more difficult.

It was decided initially to field-walk the southern extramural area of the site with a 10m spacing of points of 2 sq.m. and with a 2 minute collection time. In 2003 two areas were walked beyond the so-called outer defences on the eastern and western extremities of the area, and in 2004 the area between them was walked along with five N-S lines between the fortress and the "outer defences". The aim of this was threefold: to test the spot walking technique, to provide sample data for developing the adaptive sampling routines discussed above and to examine patterning of finds over a large proportion of the site. It was hoped to complete the area between the outer defences and the fortress in 2005 but the warm spring and mild summer led to unusually verdant vegetation and it was not practicable to undertake the work. At Easter 2006 we were able to complete the field-walking in this area as well as undertake some further geophysical survey on the southern slopes of the fortress. A total of 1,267 spot samples were walked.

In 2004 we also walked two transects across fields in the hinterland of Noviodunum using a 30 m spacing. One transect was across a known rural settlement, the other across a field where we hoped would be more-or-less archaeologically sterile. The aim of these transects was to provide further data for developing the adaptive sampling routines and will not be presented here.

The results of the 2002 field-walking are not presented here as they were subsequently shown to be on land which is largely post-Roman colluvium and the patterns were highly influenced by collector bias. The pottery from all the field-walking, which is reported in detail below, was recorded using a set of fairly general categories. It is possible to plot the distributions of all these categories. Figs. 11-13 show the distribution of ceramic building materials (CBM), Roman and early Byzantine pottery (up to *c.* AD 650) and post-Roman, largely late Byzantine pottery.

The distribution of CBM is widespread across most of the site, with the exception of towards the south on the western side (Fig. 11). This area has very thin soil coverage and outcrops of bedrock and is thus unlikely to have any surviving remains. One concentration particularly stands out on the western slopes of the site which could possibly relate to buildings or to perhaps to tombs. A brick built tomb on the opposite slope has been excavated by Topoleanu<sup>28</sup>, and the marble carving described below was found in this area and is also possibly from a funerary monument. Although Roman pottery is common in this western area it is not as concentrated as the CBM.

Roman and early Byzantine pottery is similar in distribution to the CBM although with a less marked density on the western slopes and a high density to the south of Mănuclu-Adameşteanu's trenches (Fig. 12). This concentration may represent discard from the

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<sup>27</sup> Orton 2000.

<sup>28</sup> Zahariade 1996, 228-229.

excavations, but is quite widespread and marked and therefore may be an archaeological pattern. The diagonal concentration across the site slightly to the north of the plotted diagonal pipe trench, also visible in the CBM plot, marks the line of an earlier gas pipe. Its significance is that it shows that Roman remains are extant at depth in this area, but tail off to the SE of the surveyed area. Very few finds were made at the top of the eastern valley, or in the valley itself suggesting that the site does not extend in any concentration in this direction.

In contrast to the Roman pottery and CBM distributions, the late Byzantine pottery is much less widespread (Fig. 13). The southern area is almost devoid of this material which is not surprising given that the graves which have been excavated here<sup>29</sup> had virtually no grave goods and certainly no vessels accompanying them. The concentration of late Byzantine pottery to the west of the northern area may be a real archaeological pattern given the large concentration of this type of pottery from 'zone 2' of the 2002 season which lies immediately to the west, although the verdant vegetation which grew between 2004 and 2006 mentioned above has also reduced visibility during collection despite the use of trowels to offset this. There is no doubt, however, given the collection results and the excavated trenches that the late Byzantine settlement was much smaller than the Roman settlement and largely clustered within the walls or close to them.

This pottery evidence will be reassessed when the results of the analysis of excavated ceramics is completed, and will provide the necessary background to the interpretation of the surface collected assemblages from sites in the hinterland of Noviodunum.

#### *Other finds*

Two other finds of significance were made during the field survey, although neither occurred in a "spot sample". The first was a fragment of a marble inscription (see Figures 14 and 15). The fragment is 125 mm wide, 80 mm high and 40 mm deep. It had a triple band of moulding on its top edge which is also chamfered on the back surface. The one remaining letter, although worn, is well cut with a well defined serif on the upright stroke. The curved stroke is very shallow to the top but originally connected to the serif. The dimensions of the letter make it likely to be a B, P or R, rather than a D. The second is a fragment of a marble relief carving 95 mm wide, 80 mm deep and 110-120 mm high. Only the front and top surfaces are worked, the front being smooth. On the top surface are the remains of a foot of which four toes and the sole of a sandal are preserved (Figure 16). This fragment was found on the western slopes of the "civilian" settlement and may be part of a funerary relief.

### **Geophysical Survey**

*Kris Lockyear*

Resistance survey, using a Geoscan RM15 meter, has been undertaken on five areas around the site (Fig. 17). A twin probe array was used with the mobile probe separation usually set to 1m to allow for greater depth penetration. Readings were taken at 1m intervals in most cases.<sup>30</sup> Each area will be discussed in turn below.

<sup>29</sup> E.g., Lockyear, Popescu, Sly 2007 forthcoming in the *Annual Reports* series, 2007 for the 2006 season.

<sup>30</sup> For a description of the technique see Gaffney, Gator 2003, especially 56-61.

On the whole, the results are rather disappointing compared to some other surveys such as that undertaken by the first author at Apulum. This is to be explained by the nature of the subsoil which is a very light loess, or colluvium derived from that loess. All geophysical techniques measure some property of the deposits and it is hoped that patterning in those properties reflects the archaeological remains. They all rely on a contrast between the archaeological remains and the background. In the case of resistance survey we are using electrical resistance as a surrogate measure for moisture in the expectation that features like walls will have relatively less moisture than the surrounding deposits, and negative features like ditches will have relatively more moisture. All the surveys in 2002-2004 were conducted in the summer due to funding constraints when the hot dry weather had minimised the contrast between features such as walls and the surrounding deposits. Although the 2004 survey (undertaken using a 1m probe separation on a 1 m grid) did reveal some of the line of the fortress walls the results from the Easter 2006 survey, conducted after a particularly wet late winter/early spring, produced much clearer results despite using a 0.5 m mobile probe separation, although the 0.5 m × 1 m grid improved the appearance of the plots.

Magnetometry was attempted on the site in 2004 but gave very poor results due to the overhead power cables at the site and the extensive surface clutter of metalwork<sup>31</sup>. In 2007 we hope to use Ground Penetrating Radar which may deal with the depth of the deposits more successfully than the other techniques used.

### *Area 1*

Area 1 lies to the west and south of the Ottoman fortress within and across the walls of the later Roman fortress (Fig. 18). The survey was undertaken over four seasons which is not ideal, but was unavoidable within the constraints of the project. As a result, the matching of grids across parts of the survey are less good than one would normally hope for as a result of differing conditions from one year to the next. Despite the messiness of the plot, patterning can be seen in the data.

The surveys undertaken in 2002-2004 used a 1 m × 1 m grid and a 1 m mobile probe separation. In 2006 the survey used a 0.5 m × 1 m grid which was interpolated to 0.5 m × 0.5 m. The Easter 2006 survey mainly resurveyed an area which had already been surveyed but as discussed above the ground conditions gave a much better response than previously.

The most significant result is the tracing of two parallel walls along the edges of the fortress. Some traces of both walls had been seen on the surface but it was unclear that the two were parallel to each other. The upper wall having run NW-SE turns to the NE to follow the topography and then turns again to the SE in front of the later Ottoman fort eventually turning south and out of the surveyed area. Presumably it turns SE once again to join with the back of the large tower. This inset in the line of the defences is a result of the need to follow the topography although it does result in a unique looking wall circuit. The breaks in the wall could be the result of robbing or from deliberate entrances. Excavations in 2006 showed that the wall had been robbed in the vicinity of the 2005 trenches marked in Fig. 19 but that the gap in the corner near the Ottoman fortress is, on one side at least, a deliberate break in the wall but whether this represents a hitherto unsuspected gate or the back entrance to a robbed out tower will have to await further excavation.

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<sup>31</sup> For a much more successful result on the lower Danube see Monsees 2004-2005.



The second wall is only clearly seen in the western half of the plot, running parallel to, but down-slope from, the first wall. This wall was noted in previous seasons as in places it is visible on the surface. Unfortunately the wall is not visible where the upper wall turns towards the Ottoman fortress, and excavations revealed that there was a large overburden in that area which would have masked the line of the wall.

It seems most likely that the two walls are of different dates, maybe late Roman and late Byzantine although the possibility that the lower wall, clearly in a weak defensive position, is a *protocheisma* cannot be entirely discounted until some clear dating evidence is available. What is unfortunate is that there are no clear signs of towers on this stretch of the wall unlike the area currently under excavation by Baumann. This is possibly due to extensive robbing, or perhaps this stretch of wall was less vulnerable than elsewhere.

The area behind the wall is marked by a dark positive feature running approximately SW–NE at right angles to the wall. Given the maximum depth of this feature of about 1 m it seems that it is either late Byzantine or later. It runs largely parallel to the western defences of the Ottoman fortress which may suggest it relates to that construction. It is likely that the crop marks seen by Ştefan<sup>32</sup> are of the same origin, and thus it is unlikely that the western wall of the fortress cuts across the plateau in the manner he suggests. There is a slight rise in the topography at this point shown by our survey. One interpretation is that it represents some form of counterscarp for the Ottoman fortress on that side where it is most vulnerable.

### *Area 2*

This area consisted of a strip along the line of the wall between the excavations of the “Big Tower” and the excavations across the corner tower (Fig. 19). This survey was undertaken in 2003 before the excavations were extended and only two trenches had been cut across the corner tower. The line of the wall can clearly be seen to be cut to the east of the surveyed area, destroyed possibly by the construction of the farm, and this has been confirmed by excavation. To the west of the surveyed area the D-shaped interval tower can be seen in the plot and has now been excavated.

### *Area 3*

This survey was in the middle of the compound of the former State farm on the eastern side of the fortress (Fig 20). In places remains of broad Roman walls can be seen on the surface, and Barnea records that the large granary destroyed a tower when it was built in 1950-1951<sup>33</sup>. This area was surveyed in the hopes of identifying an eastern gate to the fortress for which this area seems ideal. Although the survey shows clearly three walls surviving, they do not clearly resolve themselves into a clearly identifiable tower or gate. It is likely that robbing and modern damage – the white ‘hole’ in the survey is the location of a modern concrete tank – has destroyed enough of the upper levels of this building that only excavation or perhaps GPR survey will resolve matters.

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<sup>32</sup> Ştefan 1973.

<sup>33</sup> Barnea 1977, 105.

#### ***Area 4***

This area is on the western slopes of the site in the area of the concentration of CBM (Fig. 21). The odd shape of the area surveyed was due to the initial results suggesting a building upslope from the original grid squares and the need to avoid a shepherd's compound. The results could indicate a large building lying on a 45° degree axis of which fragments of three walls survive shown by the three dark, short linear features. The general trend in the data follows the general alignment of these features suggesting that the site layout is at that orientation in this area. Given the maximum depth of the technique, 1 m, and the known depth of deposits it may be that we are seeing the uppermost parts of walls which are better preserved at greater depths.

#### ***Area 5***

This large area, 180 m x 60 m is very disappointing (Fig 22). The grid was placed here because of the concentration of Roman ceramics in this area. The striped effect is not an artefact of the survey technique, and it seems most likely that what we are seeing here is the terracing of this area for agriculture in the 1950s, and subsequent ploughing, destroying the uppermost levels of the archaeological deposits.

#### **The pottery from the field survey**

*Mihaela Ciaușescu and Robin P. Symonds*

The field-walking survey collected 11,027 fragments of pottery and ceramic building material, 7,010 sherds from the 2002 line-walking survey and 4,017 sherds from the spot walking survey undertaken between 2003 and 2006. The pottery was categorised into Roman to early Byzantine pottery dating from the first century AD to approximately the late sixth century, late Byzantine and post medieval wares dating from the reoccupation of the site in the late 10<sup>th</sup>-11<sup>th</sup> century onwards, and ceramic building materials (CBM). The Roman wares were sub-divided into more precise categories based on fabric. The totals are presented in Tables 1 and 2. The differences between the two field-walking strategies results in a much higher sherd count for line-walking than spot walking and thus the two methods have been kept separate. The surface collection has provided a chance to understand the pottery types that are predominant at the site before engaging in excavation. The finds have not been generally spectacular, most of the pottery being extremely fragmentary and only a small percentage was typologically diagnostic.

Table 1. Pottery recovered from the field-walking surveys, 2002-2006, by sherd count.

Fabrics	Line walking 2002				percentage	Spot samples, 2003-2006	
	Zone 1	Zone 2	Other (non-systematic)	total		total	percentage
<i>Roman and Late Roman</i>							
Reduced wares	10	32	1	43	2.2%	93	4.8%
Oxidized wares	341	492	3	836	42.2%	958	49.6%
Oxidized wares with slip	0	24	1	25	1.3%	42	2.2%
Samian/terra sigillata	10	36	1	47	2.4%	45	2.3%
Fine wares	15	111	2	128	6.5%	199	10.3%
Amphorae	225	643	25	893	45.1%	576	29.8%
Unidentifiable, probably Roman	2	3	3	8	0.4%	19	1.0%
<b>Total, Roman and Late Roman</b>	<b>603</b>	<b>1341</b>	<b>36</b>	<b>1980</b>	<b>100.0%</b>	<b>1932</b>	<b>100.0%</b>
Ceramic Building Material	311	1220	43	1574		1599	
Late Byzantine and post Medieval	970	2473	28	3471		486	
<b>Total, all sherds</b>	<b>1869</b>	<b>5034</b>	<b>107</b>	<b>7010</b>		<b>4017</b>	

Table 2. Pottery totals, by sherd count

Fabric	2002 line-walking		2003-2006 spot walking		Totals	
	Count	%	Count	%	Count	%
Roman and Late Roman	1980	28.2%	1932	48.1%	3912	35.5%
Ceramic Building Material	1574	22.4%	1599	39.8%	3173	28.8%
Late Byzantine and post Medieval	3471	49.5%	486	12.1%	3957	35.9%
<b>Total</b>	<b>7010</b>	<b>100%</b>	<b>4017</b>	<b>100%</b>	<b>11027</b>	<b>100%</b>

### Ceramic Building Materials

The large quantities of ceramic building material collected consisted mainly of *tegulae* and *imbrices* and some brick, but almost no *tubuli*. It is difficult at present to differentiate between Roman and Byzantine CBM wares and this will have to wait until the analysis of the excavated material. Only a small number of the tile fragments recovered were stamped, bearing one of the inscriptions of the Roman fleet which was based at the site in the Roman period (Fig. 23, A).

### The Roman and Early Byzantine Pottery

The Roman pottery was classified into six broad categories: reduced wares, oxidised wares, oxidised wares with white slip, Samian, fine wares and *amphorae*. Coarse oxidized wares and *amphorae* accounted for the majority of sherds (see Table 1 above).

#### Coarse wares

In very broad terms this is a site at which the coarse wares are mainly oxidised and consist largely of flagons, jars, bowls, dishes, mortaria and *tazze* similar to the forms from Telița published by Baumann<sup>34</sup> (Fig. 24, Nos. 1-4). The fabrics seem to be generally light red-yellowish and occasionally white. Further study of these, work currently in progress, will undoubtedly lead to a better understanding of whether the production at Telița was the main supplier of these wares to Noviodunum, or whether there were other suppliers of these types in the region. Many of the types illustrated by Baumann are undoubtedly represented in the field-walked assemblage, but, because Noviodunum is a port site, it seems unlikely that ceramic supplies would have been wholly dominated by Telița, unless the importance of the latter site has been thus far seriously underestimated.

Late Roman grey cooking wares were present in much smaller quantities (4.8%) and rare by contrast with many similar Roman-period sites. At *Nicopolis ad Istrum*, for example, in both the Roman and early Byzantine city (AD 450-600) the dominant fabrics have been local grey wares<sup>35</sup>. Thus, the small percentage of reduced wares appears of considerable importance when assessing the patterns for this site. This remains to be confirmed by excavation.

#### Amphorae

As might be expected at a military site lying alongside a major transport artery like the Danube, *amphorae* are very common at Noviodunum, although it is always difficult to know if their representation in material from field-walking is amplified by the size and visibility of the sherds. The most common *amphora* types are the 4<sup>th</sup> to 6<sup>th</sup> century Late Roman 2 (Fig. 24, No.5)<sup>36</sup> and Zeest 90 (Fig. 24, No. 6)<sup>37</sup> as well as the 3<sup>rd</sup> to 5<sup>th</sup> century Kapitän II<sup>38</sup>. Examples have also been observed of a British Biv *amphora* (Fig. 24, No.7),<sup>39</sup> of a Chalk type 6

<sup>34</sup> Baumann 1996.

<sup>35</sup> Falkner 1999, 105.

<sup>36</sup> This type is also known as Carthage Late Roman 2 or British Bi amphora; cf. Peacock, Williams 1986, Class 43, 182-184; Tomber, Williams 1986, fig. 7; Opaït 2004, 10-12; Opreș 2003 Type III, 59-64.

<sup>37</sup> Zeest 1960. This type is also known as Dressel 24, Peacock, Williams 1986, class 57 or Dyczek 2001, type 25.

<sup>38</sup> This type is also known as a 'Hollow Foot' amphora, Peacock, Williams 1986, Class 47, 193-195.

<sup>39</sup> Peacock, Williams 1986, class 45, 3<sup>rd</sup> to 4<sup>th</sup> century, Opreș 2003, Type IV, 64-65.

*amphora*<sup>40</sup> and of a *Camulodunum* form 184 Rhodian *amphora*<sup>41</sup>. A decorated late Roman *amphora* lid has been also found during the fieldwalking (Fig. 24, No. 8).

There are also some *amphora* fabrics which have not yet been identified or classified, but petrological analysis is hoped to offer useful dating evidence, as well as the range of geographical sources for commodities which arrived at the site. No types from Western Europe have so far been identified, although there are some that are similar to the fabrics of Gaulish flat-bottomed *amphorae*. It is entirely possible, however, indeed relatively likely, that a significant percentage of the *amphora* types present may not have travelled especially far to reach Noviodunum, and could instead come from local or regional production sites whose products may also have been exported elsewhere. So far there seems to be an overwhelming predominance of wine *amphora* types, with little or no evidence of types associated with other commodities such as olive oil or fish sauce, but that picture could change as our investigations become more intensive.

#### *Fine Wares*

The evidence recorded for fine wares suggests both regional and Eastern Empire trade routes. The vast majority of fine wares recovered were eastern late Roman slipped wares described by Hayes as 'Late Roman C' ware, mainly illustrating variations of Hayes form 3 dishes which probably belong to the 5<sup>th</sup> century AD (Fig. 24, Nos. 9-13)<sup>42</sup>. This form seems to be the most common tableware identified during the on-site survey and appears often rouletted on the rim. Further fabric analyses are needed to establish their exact origin. It is not excluded that many came from local sources, possibly even Telița where seems to have been also a production of fine wares, although this form does not particularly appear in the illustrated repertoire of this site<sup>43</sup>.

Within the fine wares, as with the *amphorae*, there is a small amount of evidence of western trade: a small number of western samian fragments from south, central and some possibly East Gaulish sources being recorded. These imports appear significant when trying to assess the trade for the early Roman occupation of the site and should be considered in the context of the military presence and consumption during the first three centuries AD. The two sherds of a La Graufesenque Dr. 35 cup with barbotine decoration (Fig. 23, B) probably arrived in the Flavian period along with a possible rim of a Dr. 37 bowl from the same source, while the only other specifically identifiable form is a Dr. 38 in eastern *sigillata*. There are also six recorded sherds of Central Gaulish *sigillata*, one of which is probably a Dr. form 42, which can serve to extend the distribution maps of Delage<sup>44</sup> about 100 km further to the east: his maps show Central Gaulish *sigillata* penetrating into Dacia and along the Danube, but not as far as Noviodunum.

<sup>40</sup> Peacock, Williams 1986, class 50, 200-201, also probably 3<sup>rd</sup> to 5<sup>th</sup> century.

<sup>41</sup> Hawkes, Hull 1947, pl. 71; Peacock, Williams 1986, Class 9, 102-104.

<sup>42</sup> Hayes 1972, figs. 67-69, 329-338. See Opreș 2003, 150-153 for its occurrence at Capidava.

<sup>43</sup> Baumann 1996, 414, pl. 5.

<sup>44</sup> Delage 1998, figs. 6 and 7.

### The late Byzantine and post medieval pottery

The late Byzantine and post medieval pottery accounts for 35.9% of all the sherds collected from the site but the majority of these were from the 2002 line-walking survey, particularly zone 2, the low lying field to the south of the fortress and west of the spot-walking survey. For the majority of the area walked between 2003-2006, late finds are relatively scarce accounting for only 12.1% of the finds. There is a clustering of these finds to the west of the northern spot-walked area, close to zone 2 although it should be acknowledged that the remainder of the northern area was walked in less than ideal conditions and finds there may be under-represented.

Similar to the Roman pottery, most of the fragments were coarse cooking wares and *amphorae*. No fine or glazed wares were recovered during the field-walking. These have not yet been studied in any depth, partly because of the need to develop the fabric and form reference typology (work currently in progress) that will provide a systematic approach to this material and partly because very few highly diagnostic sherds were recovered.

#### Coarse wares

Late Byzantine coarse wares appear very distinctive from similar Roman cooking wares due to the manufacturing technique and decoration. The majority of sherds have been produced on a slow wheel, although handmade wares are also evident. Soft oxidised sandy fabrics, extremely smoothed with a mottled appearance, account for the majority of coarse wares. Decoration covers large part of the vessel and occurs either as simple incisions, excisions, rouletting, or commonly various combinations of these (Fig. 23, C & D).

A significant aspect of late Byzantine pottery is the extreme lack of diversity of forms compared to the Roman period with the vast majority of fragments being cooking jars. These have either a short rounded rim (Fig. 24, Nos. 16-20), sometimes hooked (Fig. 24, No. 21), or necked lid-seated ones (Fig. 24, Nos. 24-25). These types are common on most 10<sup>th</sup>-11<sup>th</sup> century sites in the region, e.g., Pacuiul lui Soare,<sup>45</sup> Dinogetia<sup>46</sup> or Capidava.<sup>47</sup> It has also been identified at Nicopolis ad Istrum in grey ware 43 and considered “the pottery of the Slav period”<sup>48</sup>. Ceramic buckets in oxidized sandy fabrics with distinctive white shell inclusions also been recovered (Fig. 24, No. 26). These vessels, imitating a metallic prototype, were common in Dobrogea from late 10<sup>th</sup> to late 11<sup>th</sup> centuries, and it has been suggested that they are associated with the *pechenegs*.<sup>49</sup>

The supply of such ware at the site would have come largely from local production sites<sup>50</sup> though the existence of other production should be also considered on a port site such as Isaccea–*Noviodunum*. The nearest known was at Garvăn–*Dinogetia* where ceramic workshops producing similar coarse wares were active from the late 10<sup>th</sup> to 12<sup>th</sup> centuries<sup>51</sup>. Another kiln site been identified at Nufăru<sup>52</sup>. The compositional examination of the fabrics from stratified assemblages will allow identification of main fabric groups and enable comparisons with the production sites in the region.

<sup>45</sup> Harhoiu 1972, 71-78, sandy pottery A, group I, pl. 24.

<sup>46</sup> Ștefan *et alii* 1967, 134-142: group Ia jars.

<sup>47</sup> Florescu *et alii* 1958, pl. 1-4.

<sup>48</sup> Falkner 1999, 262, fig. 9.55 and 9.56.

<sup>49</sup> Diaconu 1956, 430.

<sup>50</sup> Mănușcu-Adameșteanu 1996.

<sup>51</sup> Ștefan *et alii* 1967, 129.

<sup>52</sup> Mănușcu-Adameșteanu 1991.

*Amphorae*

The number of Byzantine *amphorae* fragments appears significantly smaller than those of Roman date which might indicate a smaller scale of commodities reaching the site in the early medieval period. The majority of fragments are bodysherds or handles and do not merit illustration. The type of containers employed at this stage appears limited to the few major types traded through Marmara, the Black Sea or Lower Danube Byzantine territories during 10-13<sup>th</sup>.<sup>53</sup>

One final sherd deserves mention and that is a small fragment of rim in a fine micaceous grey ware with burnished lattice decoration (Fig. 23, E; Fig. 24, No, 27). This sherd is likely to be from the migration period and represents, at present, our sole evidence for the period between the early and late Byzantine phases on the site.

**Conclusion**

The analyses of pottery from field-walking indicates that the Roman occupation of the site is well represented from the 1<sup>st</sup> to 6<sup>th</sup> centuries AD, reaching its height in the later Roman period, probably in the 4<sup>th</sup> and 5<sup>th</sup> centuries. Throughout the period the consumption of pottery included use of high levels of imported fine wares and *amphorae*. Plenty of coarse wares are also present, mainly oxidised wares, which represent in fact the bulk of finds. The ceramic evidence for late Byzantine period suggest a very high use of cooking wares and less evidence of long distance trade compared to the Roman period.

**The Coinage Evidence**

*Adrian Popescu*

The earliest coins found at Noviodunum are Greek<sup>54</sup> dating as far back as the 4<sup>th</sup> century. The bulk of the assemblage, however, runs from the reign of Augustus to the beginning of the 7<sup>th</sup> century AD and then from late 10<sup>th</sup> to the 14<sup>th</sup> century corresponding to the two major phases of occupation of the site.<sup>55</sup> Archaeological excavations have been until recently intermittent and organized on a small scale which means that most of the coins published are surface finds. The number of studies of site finds from the area (Moesia Inferior) is extremely limited, especially for the first three centuries AD and consist of those from Nicopolis ad Istrum<sup>56</sup> and Histria.<sup>57</sup> There are more assemblages available for comparison after the monetary reform of Diocletian including Iatrus<sup>58</sup> and Axiopolis,<sup>59</sup> both fortresses situated on the Danube frontier and Tomis<sup>60</sup> on the coast of the Black Sea.

<sup>53</sup> Bakirtzis 1989, Bjelajac 1989, Günsenin 1989.

<sup>54</sup> Oberländer-Târnoveanu 1978.

<sup>55</sup> Popescu 2003 for the first seven centuries AD and Mănuclu-Adameşteanu 2001 for period 969 to 1204.

<sup>56</sup> Butcher 1995.

<sup>57</sup> Preda, Nubar 1973.

<sup>58</sup> Schönert-Geiss 1979.

<sup>59</sup> Poenaru Bordea, Ocheşeanu, Nicolae 1989.

<sup>60</sup> Poenaru, Ocheşeanu 1993.

The ancient identifiable coins are housed in six public and eleven private collections from Romania and elsewhere. For the presentation of coin loss, the standard method originally developed by Ravetz was used whereby the percentage of coin finds is adjusted by the length of the period<sup>61</sup>. In order to make the comparison between sites possible, the first phase was divided into 28 periods similar to the ones used for the analysis of coins finds from Nicopolis ad Istrum<sup>62</sup>.

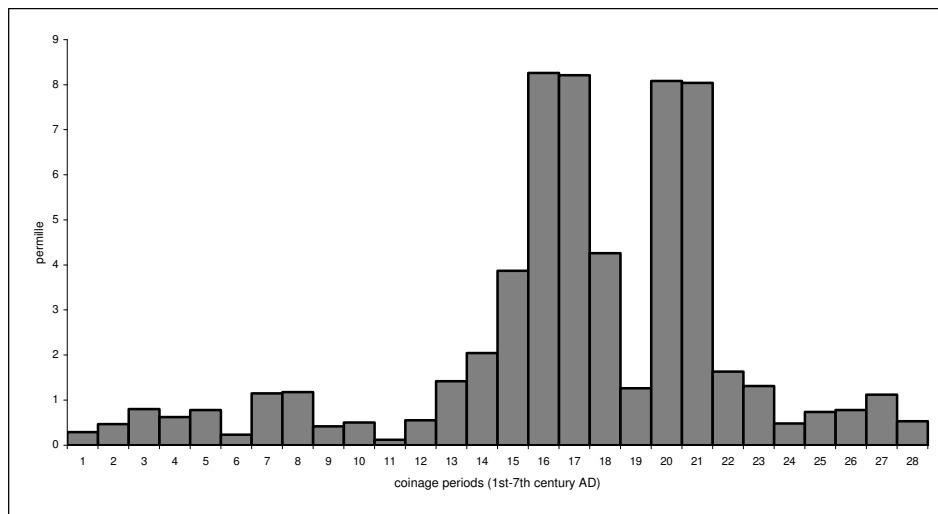
Table 3: Coin loss at Noviodunum, AD 1-613

Period	Dates	Reigns	Adjusted Per mille (‰)
1	1-64	Julio-Claudian	0.29
2	64-96	Flavian	0.47
3	96-117	Nerva and Trajan	0.80
4	117-138	Hadrian	0.62
5	138-161	Antoninus Pius	0.78
6	161-192	Late Antonine	0.23
7	193-217	Septimius Severus and family	1.15
8	217-222	Macrinus and Elagabalus	1.18
9	222-238	Alexander and Maximinus	0.42
10	238-253	The 'Military Anarchy'	0.50
11	253-260	Valerian and Gallienus	0.12
12	260-270	Gallienus, Claudius II and Quintillus	0.55
13	270-294/6	Aurelian to Diocletian's reform	1.42
14	296-317	Diocletian and successors	2.04
15	317-330	Constantinian (I)	3.87
16	330-348	Constantinian (II)	8.26
17	348-364	Constantinian (III)	8.21
18	364-378	Valentinianic	4.26
19	378-383	Gratian	1.26
20	383-395	Theodosian (I)	8.08
21	395-408	Theodosian (II)	8.04
22	408-425	Theodosian (III)	1.63
23	425-450	Theodosian (IV)	1.31
24	450-498	Marcian to Anastasius	0.48
25	498-527	Anastasius and Justin I	0.74
26	527-565	Justinian I	0.78
27	565-602	Justin II to Maurice	1.12
28	602-613	Phocas to Heraclius	0.53

<sup>61</sup> Ravetz 1964.

<sup>62</sup> Butcher 1995, 307.





Graph 1. Annual loss per 1000 coins (1<sup>st</sup>-7<sup>th</sup> century AD)

The 2,393 Roman and early Byzantine coins are of base metal with some exceptions: an *aureus* of Claudius I (the only one from the Moesia Inferior), 58 *denarii* and radiates up to AD 260, seven gold and two silver coins for the period 294-498 and just one *tremissis* from the sixth century.

The pattern of coin loss at Noviodunum has no parallel for the 1<sup>st</sup> century AD as most of the assemblages available for comparison are from sites which were founded in the 2<sup>nd</sup> century AD (Nicopolis ad Istrum) or are Greek cities producing their own coinage (Histria). The oldest Roman coin from the site is an *as* of Augustus but the numismatic evidence suggests that the site was increasingly used from the reign of Tiberius. The number of coins lost increased constantly until the end of the reign of Antoninus Pius after which the supply of coins from the mint of Rome dried up, their place being taken by the products of various provincial mints (Histria, Tomis, Nicopolis ad Istrum, Marcianopolis, Nicaea and other mints from further East, including Alexandria, in total 102 coins from 26 mints). For the first half of the 3<sup>rd</sup> century the pattern is similar to that of Nicopolis ad Istrum and Histria.

An interesting phenomenon noticed first at Noviodunum and later at other sites from the region, is the presence of copper alloy cast coins produced and used most probably in the second and third quarters of the third century at a time when small value coins were needed. For the production of the cast coins, Roman *denarii* and issues of the various civic mints from the area (Histria, Marcianopolis, Odessus) or further afield (Nicaea) were used as prototypes.

Thus far no copies of radiates have been found on the site, probably as a result of the improvement in supply after AD 270. Beginning with the reform of Diocletian the number of coins available to be lost increased dramatically (Graph 1) as on most of the sites from the

province.<sup>63</sup> One of the interesting features of the assemblage is the high number of gold coins lost in the 4<sup>th</sup> and 5<sup>th</sup> century, surpassing in numbers even Tomis, the capital of the late Roman province of Scythia Minor. The high number of silver coins in Romania was noticed and discussed by Duncan.<sup>64</sup> After period 21 the decline in loss was continuous until the reform of Anastasius in AD 498. The pattern of coin loss for the 6<sup>th</sup> century is broadly similar to other sites from the Balkans.<sup>65</sup> The latest early Byzantine coin found so far dates to AD 612/3, the reign of Heraclius, when the regular supply of base metal currency on the Lower Danube ceases.<sup>66</sup>

Some 350 years later with the re-conquest of the area in AD 971 by the Byzantine Empire, coinage, mainly copper *folles*, was once again supplied regularly especially after c. AD 1000. The number of coins lost on site increased until the reign of Roman IV. About 18% of the 11<sup>th</sup> century Byzantine coins found at Noviodunum are cast, and a recent study suggested the workshop producing them was at Noviodunum.<sup>67</sup> The drop in number of coins after the reform of Alexios I in 1092 is to probably explained by the higher value of the new coins — the *aspron trachy* — struck. Despite this, Noviodunum has produced the highest number of these coins for entire 12<sup>th</sup> century in the area.

Period	Dates	Reigns	Adjusted Per mille (‰)
1	969-976	John I	0.30
2	976-1028	Basil II and Constantine VIII	3.45
3	1028-1034	Roman III	11.78
4	1034-1041	Michael IV	19.20
5	1042-1055	Constantine IX	9.20
6	1055-1059	Theodora, Michael VI and Isaac I	0.00
7	1059-1067	Constantine X	12.07
8	1068-1071	Roman IV	24.15
9	1071-1078	Michael VII	6.60
10	1078-1081	Nicephorus III	23.33
11	1081-1092	Alexius I (I)	5.85
12	1092-1118	Alexius I (II)	2.72
13	1118-1143	John II	1.10
14	1143-1180	Manuel I	0.96
15	1180-1183	Alexius II	0.00
16	1183-1185	Andronicus I	0.52
17	1185-1195	Isaac II	0.31
18	1195-1204	Alexius III	0.46

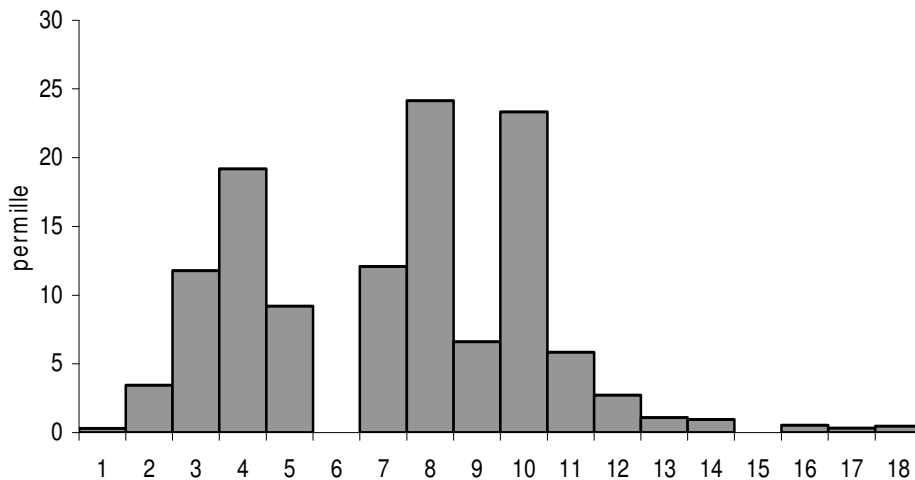
<sup>63</sup> Popescu 1996.

<sup>64</sup> Duncan 1993, 112-113.

<sup>65</sup> Reece 1977, 171-172.

<sup>66</sup> Poenaru, Nicolae, Popescu 1997.

<sup>67</sup> Mănușu-Adameșteanu 2001, 137-147.



Graph 2. Annual loss per 1000 coins (AD 969-1204)

After the fall of Constantinople in 1204 the number of now devalued coins increased dramatically. Thirteenth century coins are by far the commonest finds on the site and as yet there has been no comprehensive study of them. There are coins produced by a variety of issuers – Bulgarian and especially Latin imitations which form the overwhelming majority – including the various Byzantine rulers<sup>68</sup>. For the 14<sup>th</sup> century the image is unclear but the majority of the coins mirror the political changes in the area with the rise of the Golden Horde.

### Conclusions

Our understanding of the topography of the site has been vastly improved as a result of the various surveys undertaken and will form a secure base for future work at the site both by NAP and our Romanian colleagues. The measured survey can now replace that drawn from aerial photographs by Ștefan, and some of his conclusions need to be modified in the light of this. The survey and the geophysical survey reveals the scale of the damage done to this site during the 20<sup>th</sup> century as well as providing further details concerning the enigmatic line of the defences in the late Roman and Byzantine periods. The field-walking survey has shown the changes in the site between the two major periods and provided comparative material for the hinterland survey. The ceramic and coin sequences show the dynamic nature of the settlement during the Roman and late Byzantine period and its widespread contacts with the eastern Mediterranean and further afield. The fate of the site during the intervening period is still unclear although it would appear to have been largely abandoned. Pollen sequences to be taken by NAP will help elucidate the exploitation of the land around Noviodunum over a long time scale.

Although the results of this work are modest, it does amply illustrate how non-destructive survey work such as this is an essential precursor to excavation, and helps provide a clear framework within which excavations can take place and be interpreted.

<sup>68</sup> Oberländer-Târnoveanu 1983.

## Appendix: Catalogue of pottery illustrated

No.	Year	Context	Diam	EVEs	Comments
<i>Roman Wares</i>					
1	NAP03	176	120	0.08	Rim of handled jar in coarse oxidised ware, exterior smoothed grey
2	NAP03	9475 x 10248	260	0.05	Grooved rim of a cooking bowl/dish in coarse oxidized fabric, exterior smoothed
3	NAP06	3651	280	0.08	Rim of a bowl/dish in coarse oxidized ware
4	NAP06	3717	240	0.04	Rim of <i>mortarium</i> in buff coarse fabric
5	NAP02	Z2 B120	130	0.22	Rim of Late Roman 2 amphora (Peacock, Williams 1986, Class 43, 182-184)
6	NAP02	19960n x 10355e	130	0.24	Rim of a Zeest 90 amphora with buff fabric
7	NAP02	Z2 B100	55*	0.40*	Base of amphora, Biv – Peacock, Williams 1986, Class 45, 188-190
8	NAP02	Z2 C120	140	0.20	Amphora lid with coarse buff fabric
9	NAP02	Z2 C40	240	0.10	Dish in 'Late Roman C' ware, Hayes 1972, Form 3, figs. 67-9, 329-338 (close to Type C, no. 5)
10	NAP02	Z2 B140	180	0.05	Dish in 'Late Roman C' ware, Hayes 1972, Form 3, figs. 67-9, 329-338 (close to Type E, no. 14)
11	NAP02	Z2 E100	270	0.08	Dish in 'Late Roman C' ware, Hayes 1972, Form 3, figs. 67-9, 329-338(similar to Type D)
12	NAP03	1975n x 10248e	180	0.05	Dish in 'Late Roman C' ware, Hayes 1972, Form 3, figs. 67-9, 329-338
13	NAP02	Z2 E100	240	0.08	Dish in 'Late Roman C' ware, Hayes 1972, Form 3, figs. 67-9, 329-338 ( similar to Type D)
14	NAP02	Z2 B100	250	0.04	Rim of either a lid or a bowl/dish in fine red fabric and red-brown colour-coating
15	NAP02	Z2 C120	150	0.04	Rim of beaker with red fabric and red-brown colour-coating
<i>Late Byzantine and post medieval wares</i>					
16	NAP03	Z2 K80	180	0.04	Fragment of jar with short rounded rim in coarse oxidized fabric
17	NAP06	3632	170	0.14	Fragment of jar with short rounded rim in coarse oxidized fabric
18	NAP06	3714	190	0.07	Fragment of jar with short rounded rim in coarse oxidized fabric
19	NAP06	3509	160	0.04	Fragment of jar with short everted rim in coarse oxidized fabric
20	NAP06	3740	140	0.05	Fragment of hooked rim jar in coarse oxidized fabric
21	NAP03	Z2 K40	130	0.05	Fragment of hooked rim jar in coarse oxidized fabric
22	NAP06	3703	120	0.25	Fragment of jar with simple everted rim in coarse oxidized fabric
23	NAP03	Z2 F6	160	0.11	Fragment of necked jar in coarse reduced fabric
24	NAP03	Z2 B20	190	0.09	Fragment of necked jar with lid seated rim in coarse oxidized fabric
25	NAP06	3678	220	0.09	Fragment of necked jar with lid seated rim in coarse oxidized fabric
26	NAP03	Z2 K40	NM	NM	Rim of ceramic cauldron in coarse oxidized fabric
<i>Other</i>					
27	NAP02	Z2 B100	140	0.07	Fine micaceous grey ware with burnished lattice decoration

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Fig. 1. The location of Noviodunum.

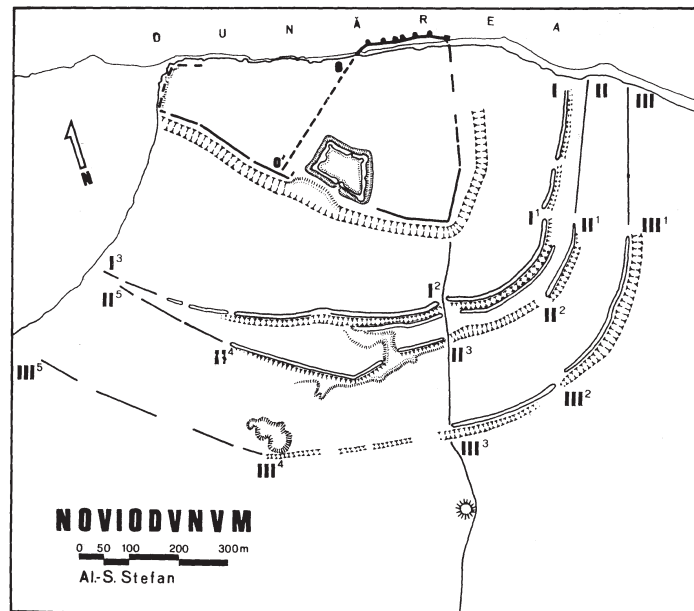


Fig. 2. Plan of Noviodunum published by Ștefan 1973.



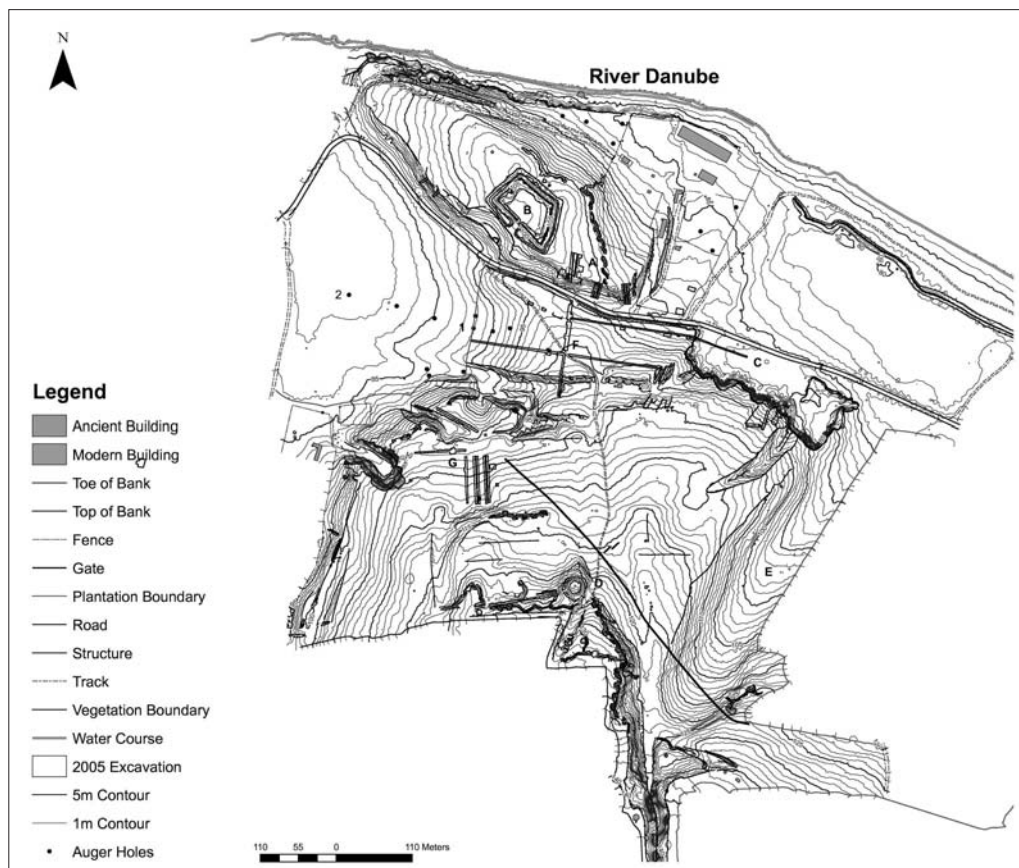


Figure 3. The new survey of the site (© NAP).



Figure 4. The large tower at Noviodunum in 2004.



Figure 5. The large mound on the southern edge of the site.

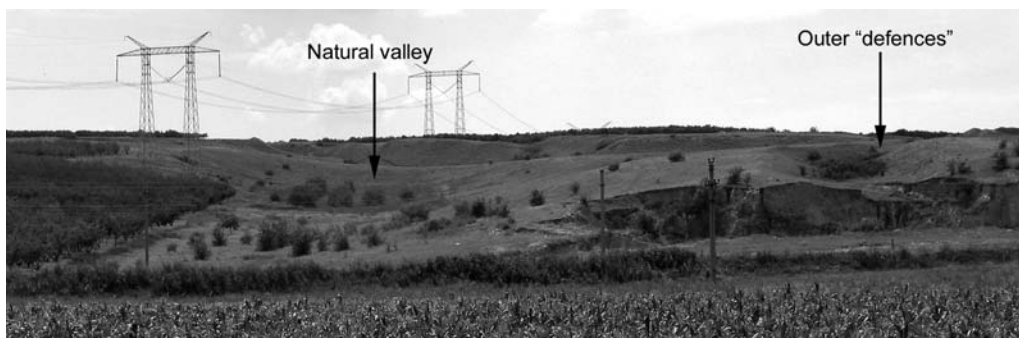


Figure 6. The eastern valley, the quarry (Fig. 3, C) and Ștefan's defensive line III<sup>1</sup> seen from the north.



Figure 7. View of the site from the Kurgan Vizir (Movilă Mare).



Figure 8. The valley to the west of the site seen from the southern edge of the fortress.



Figure 9. The valley at the southern edge of the survey area.



Figure 10. The Kurgan Vizir or Movilă Mare.

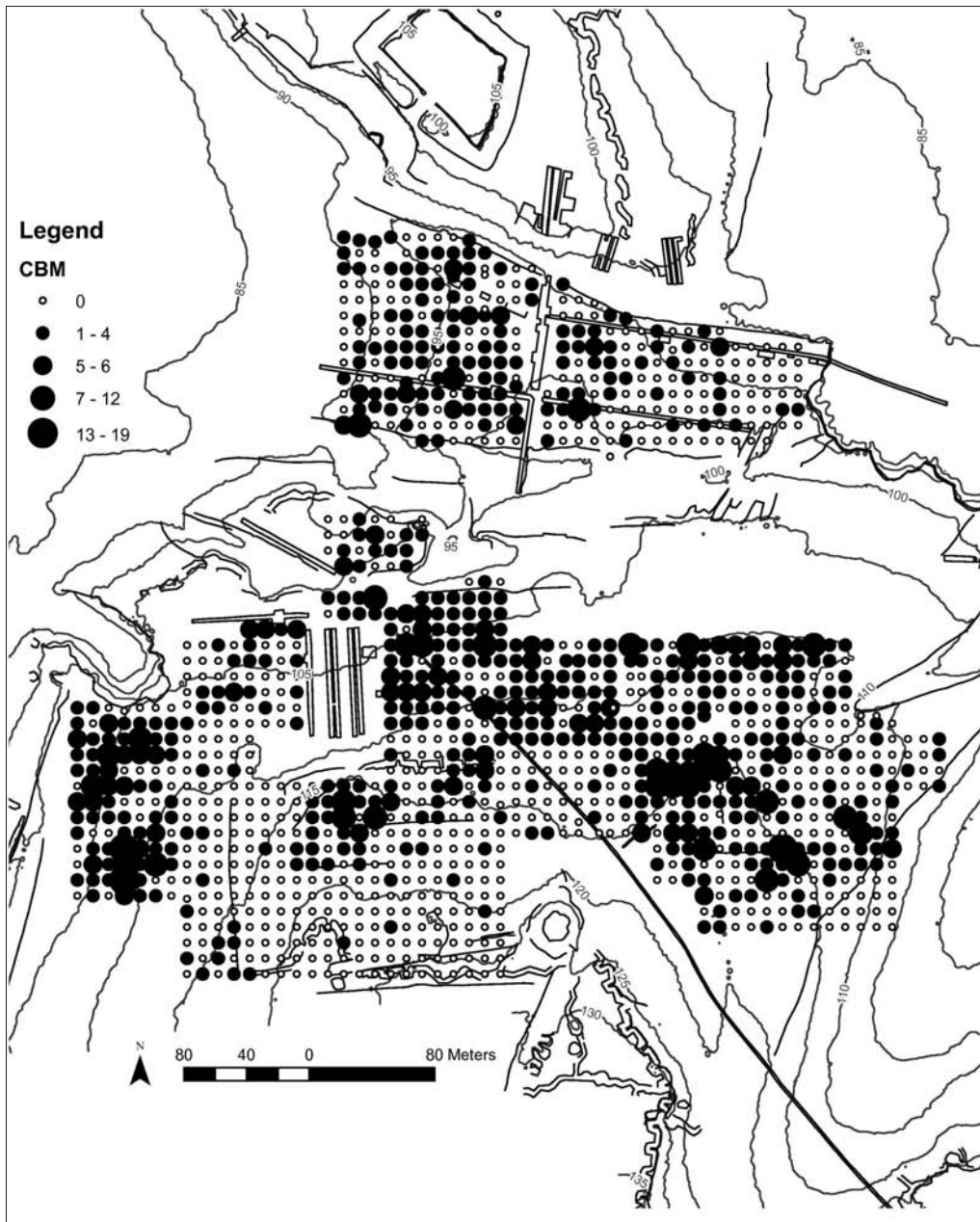


Figure 11. The distribution of Ceramic Building Materials (CBM).

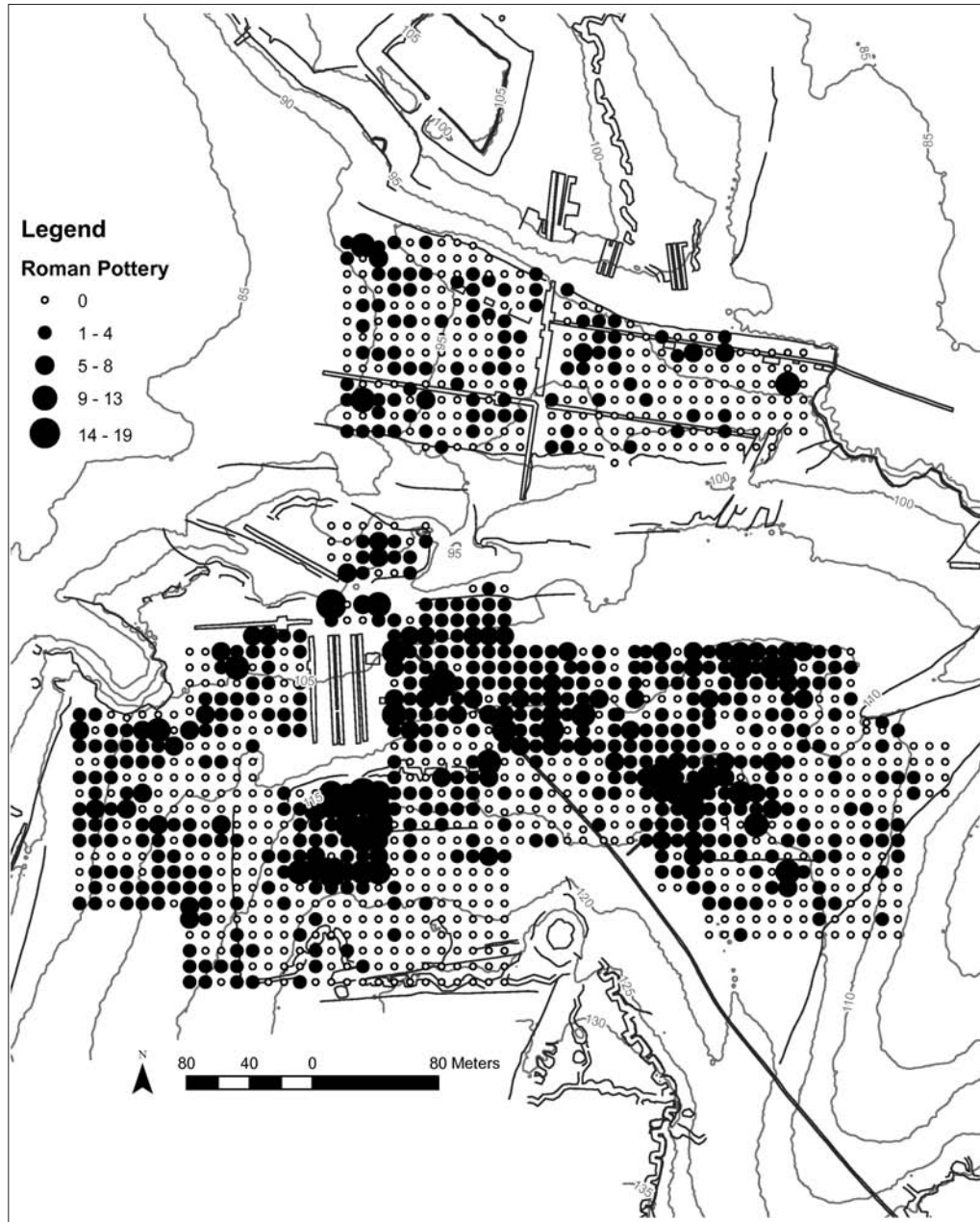


Figure 12. The distribution of Roman and Early Byzantine pottery.

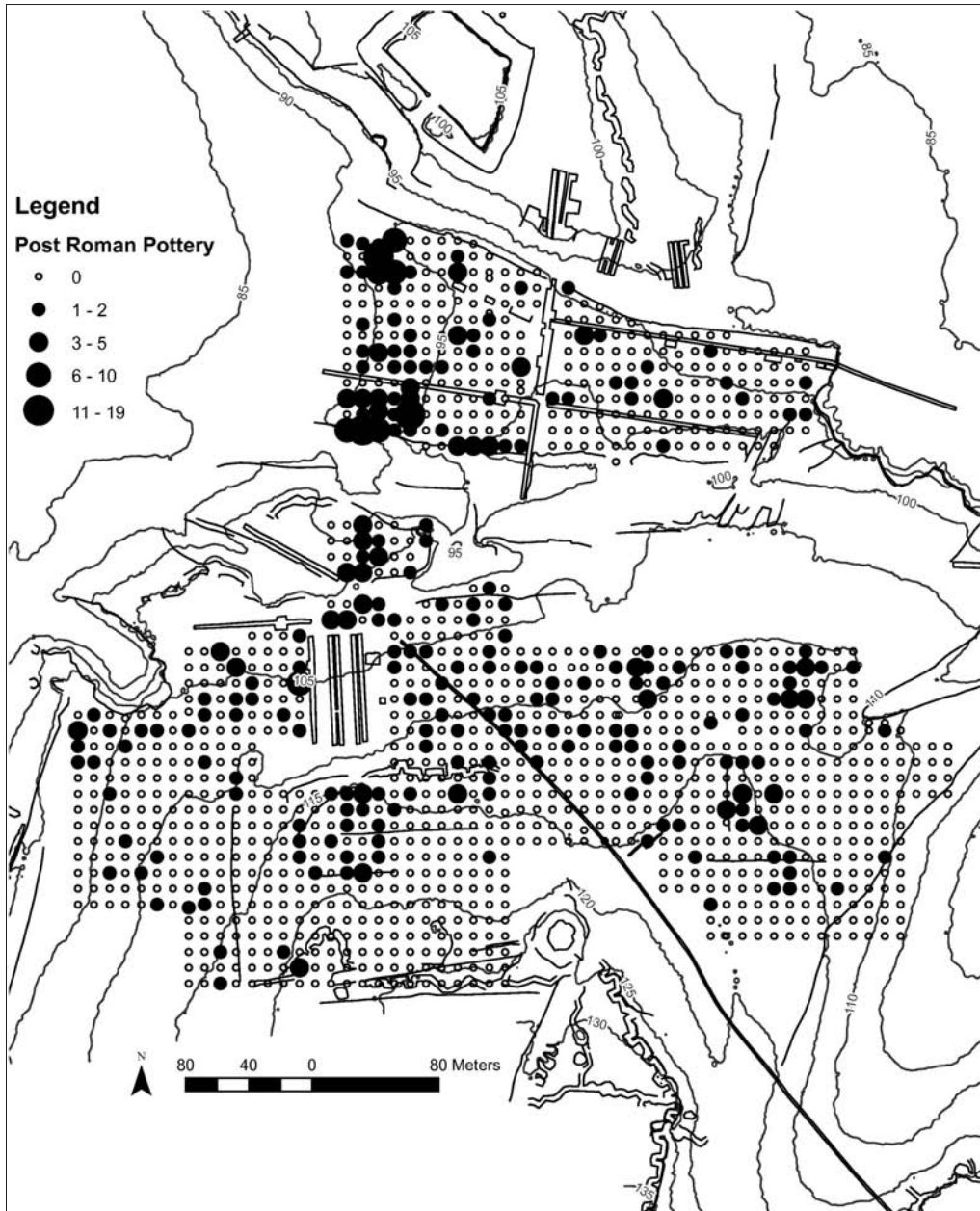


Figure 13. The distribution of Late and post Byzantine pottery.

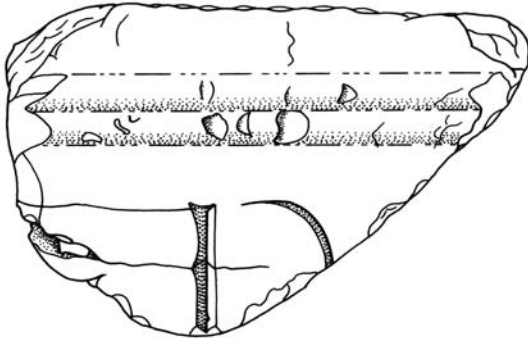


Fig. 14. Drawing of the fragment of an inscription (scale 1: 2).

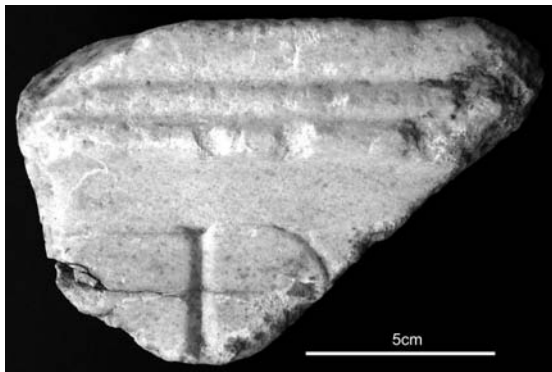


Fig. 15. Photograph of the fragment of an inscription.

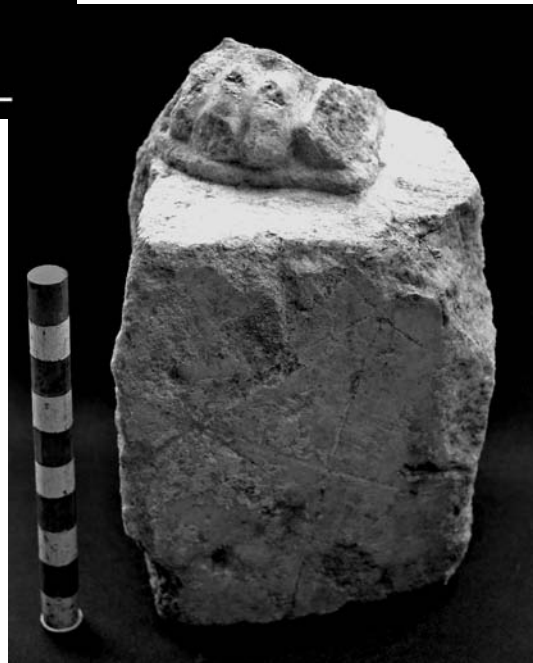


Fig. 16. Fragment of a relief sculpture.



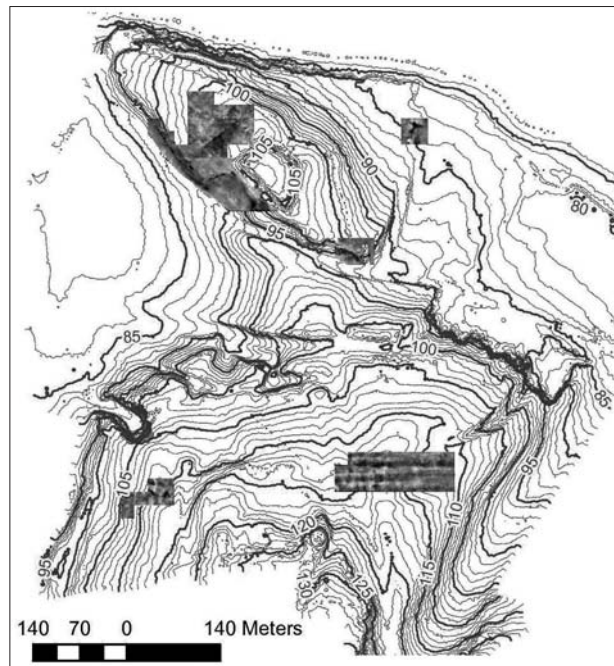


Figure 17. Location of the geophysical surveys.

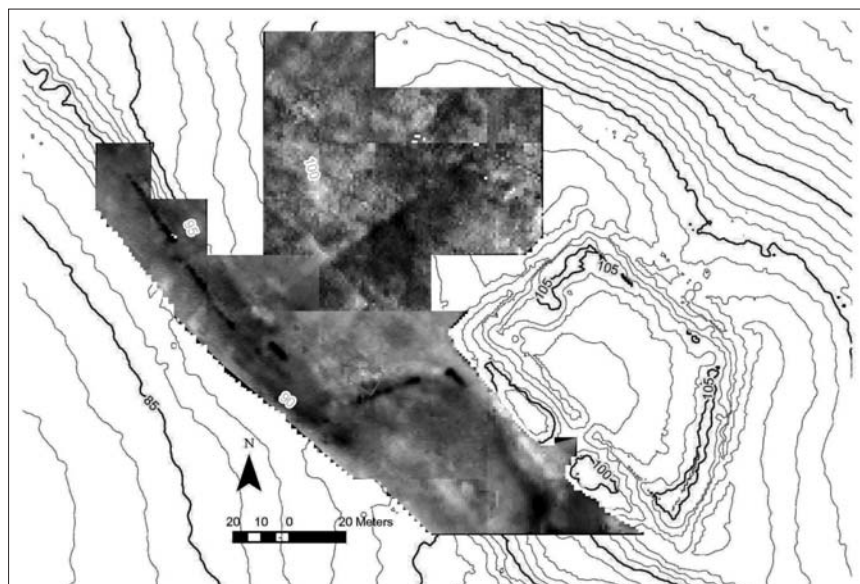


Figure 18. The resistance survey of the top and southern slopes of the fortress.

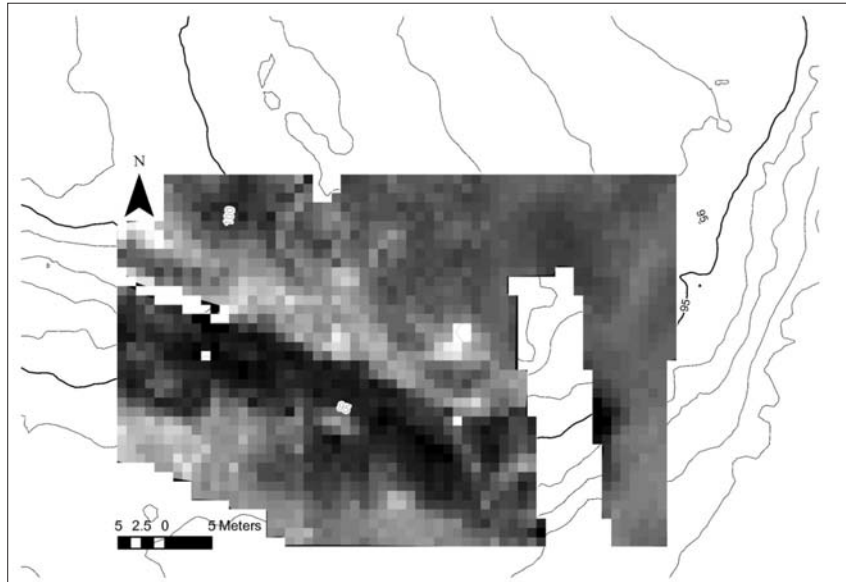


Figure 19. The resistance survey of the SE defences of the fortress.

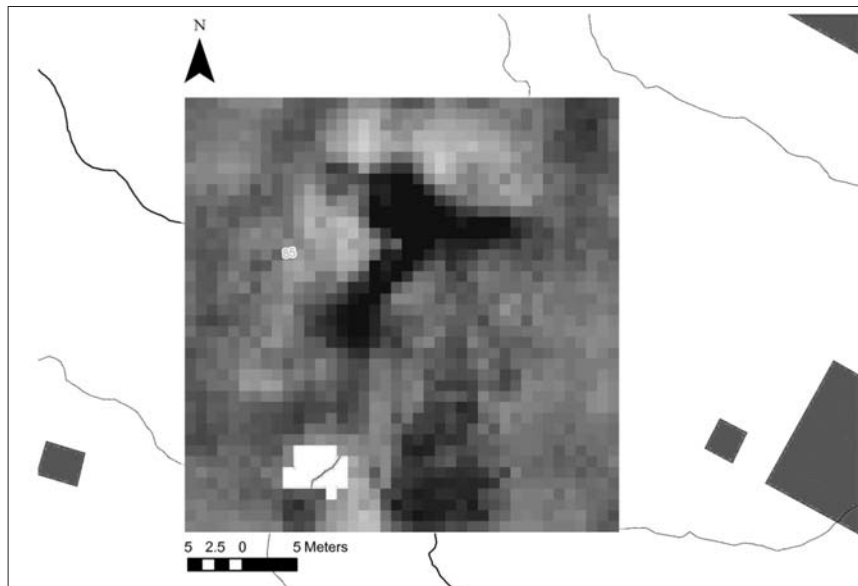


Figure 20. The resistance survey of the eastern defences of the fortress.

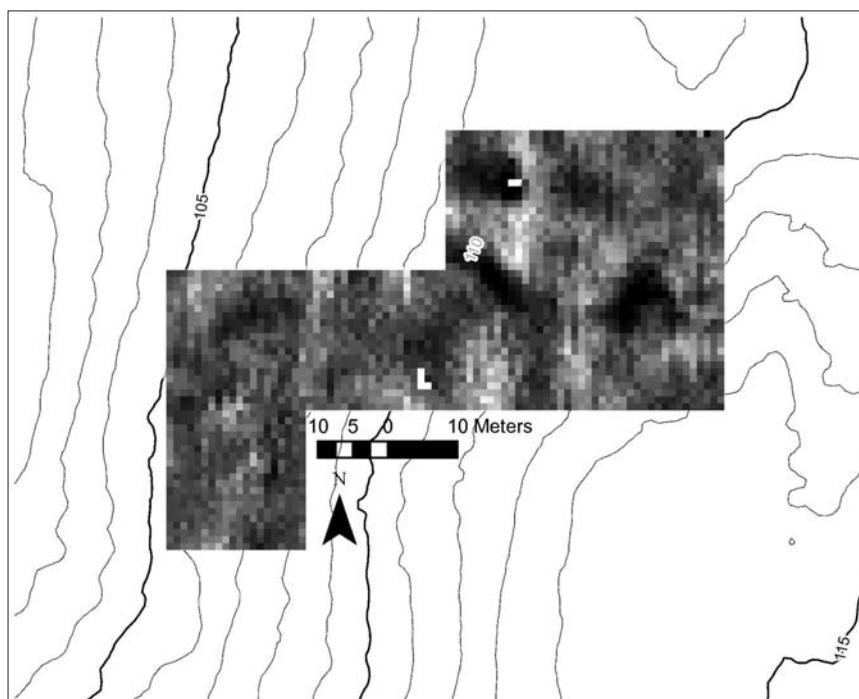


Figure 21. The resistance survey on the western slopes of the civilian settlement.

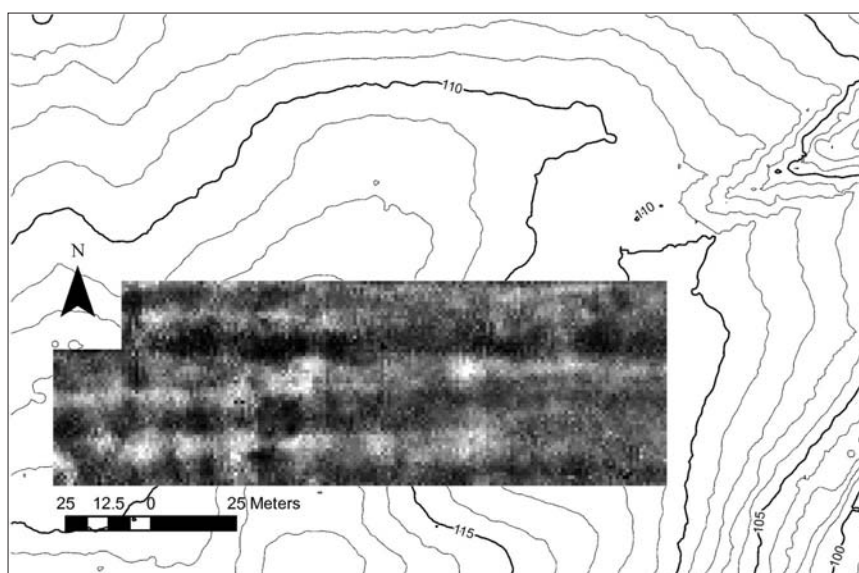


Figure 22. The resistance survey on the SE area of the civilian settlement.

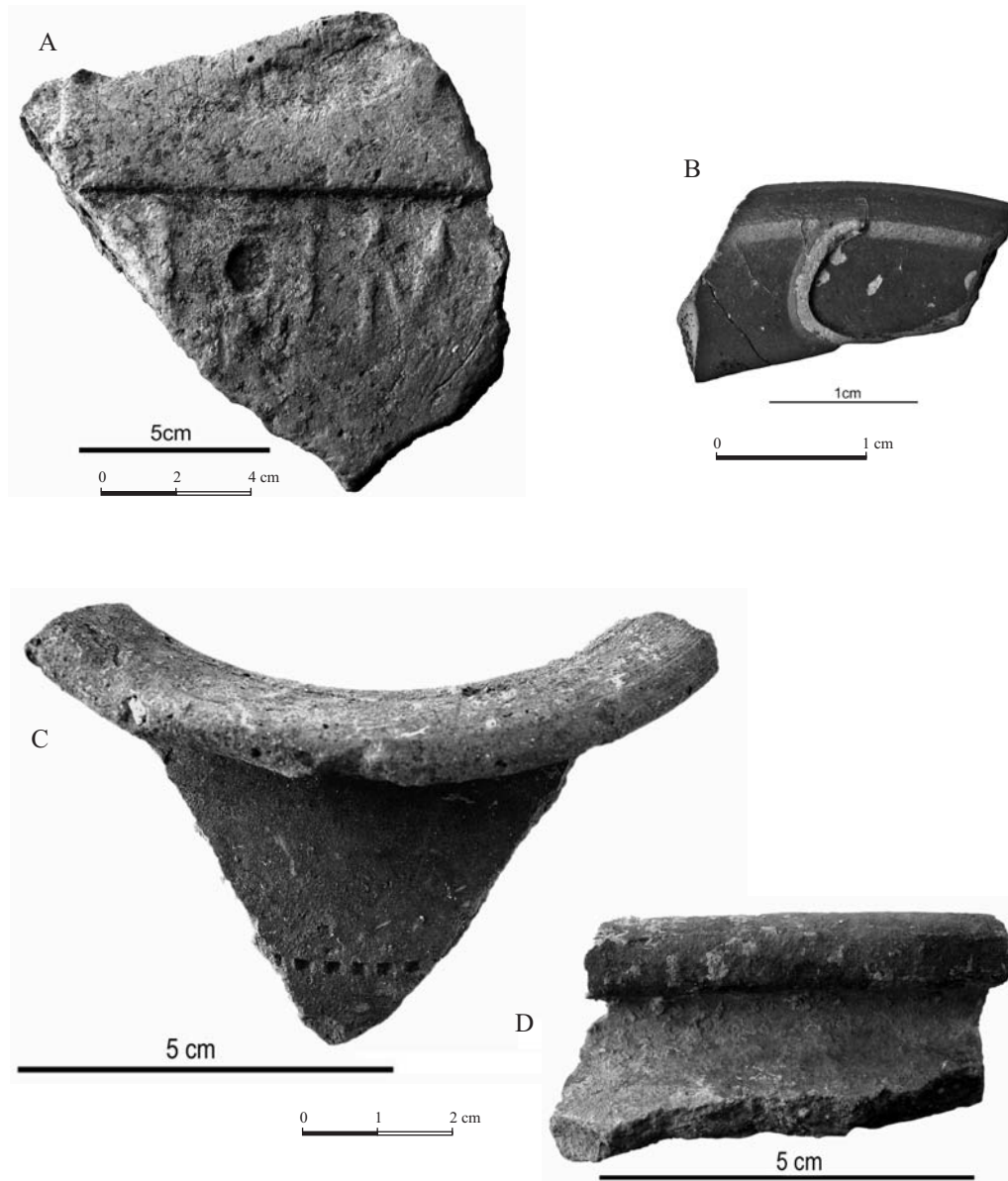


Figure 23. Ceramic finds from the field survey. A- stamped tile; B - Fragment of a La Graufesenque Drg.35 cup with barbotine decoration; C and D - Late Byzantine cooking wares; E: Migration period sherd.

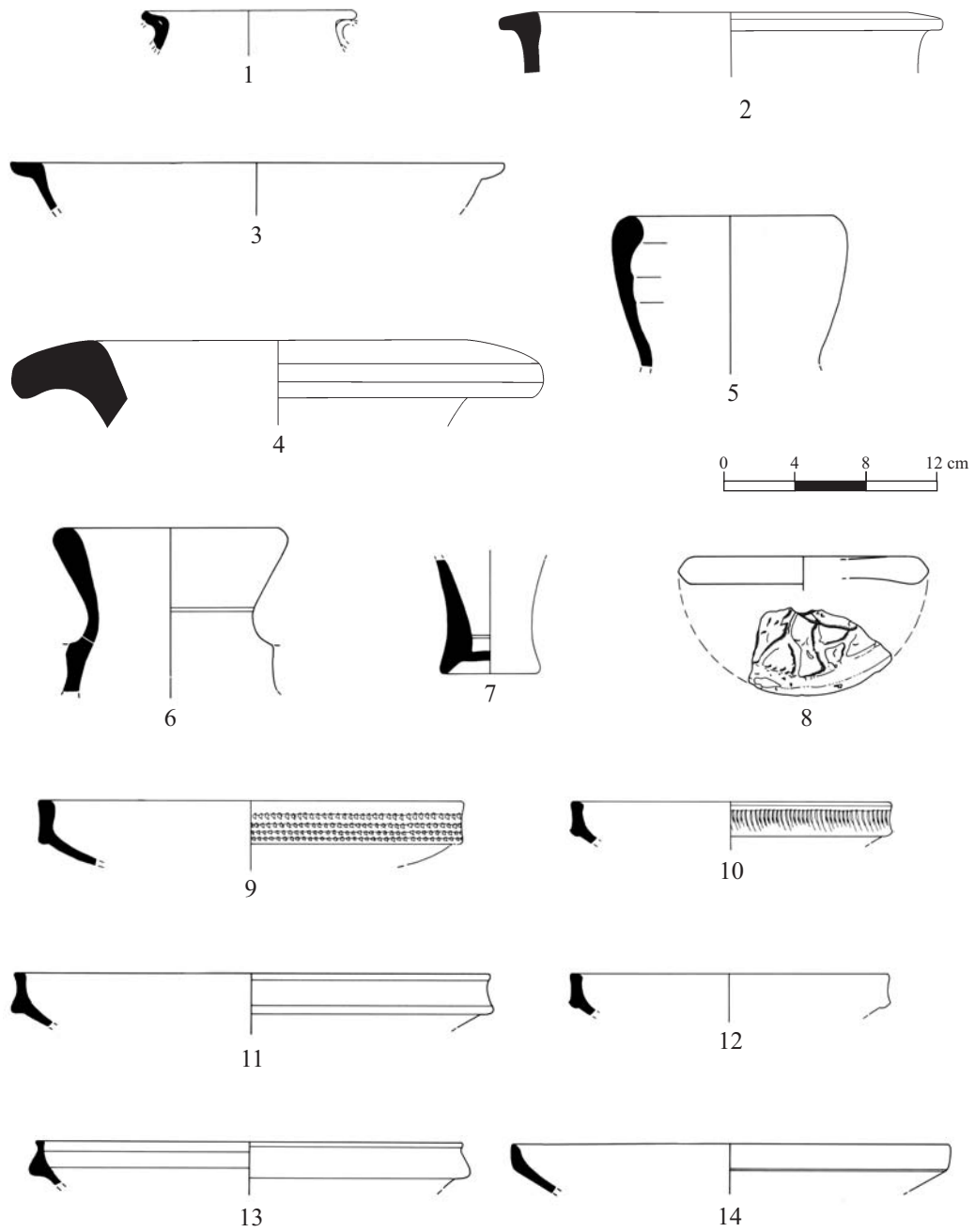


Fig. 24. Ceramic finds from the field survey (first part).

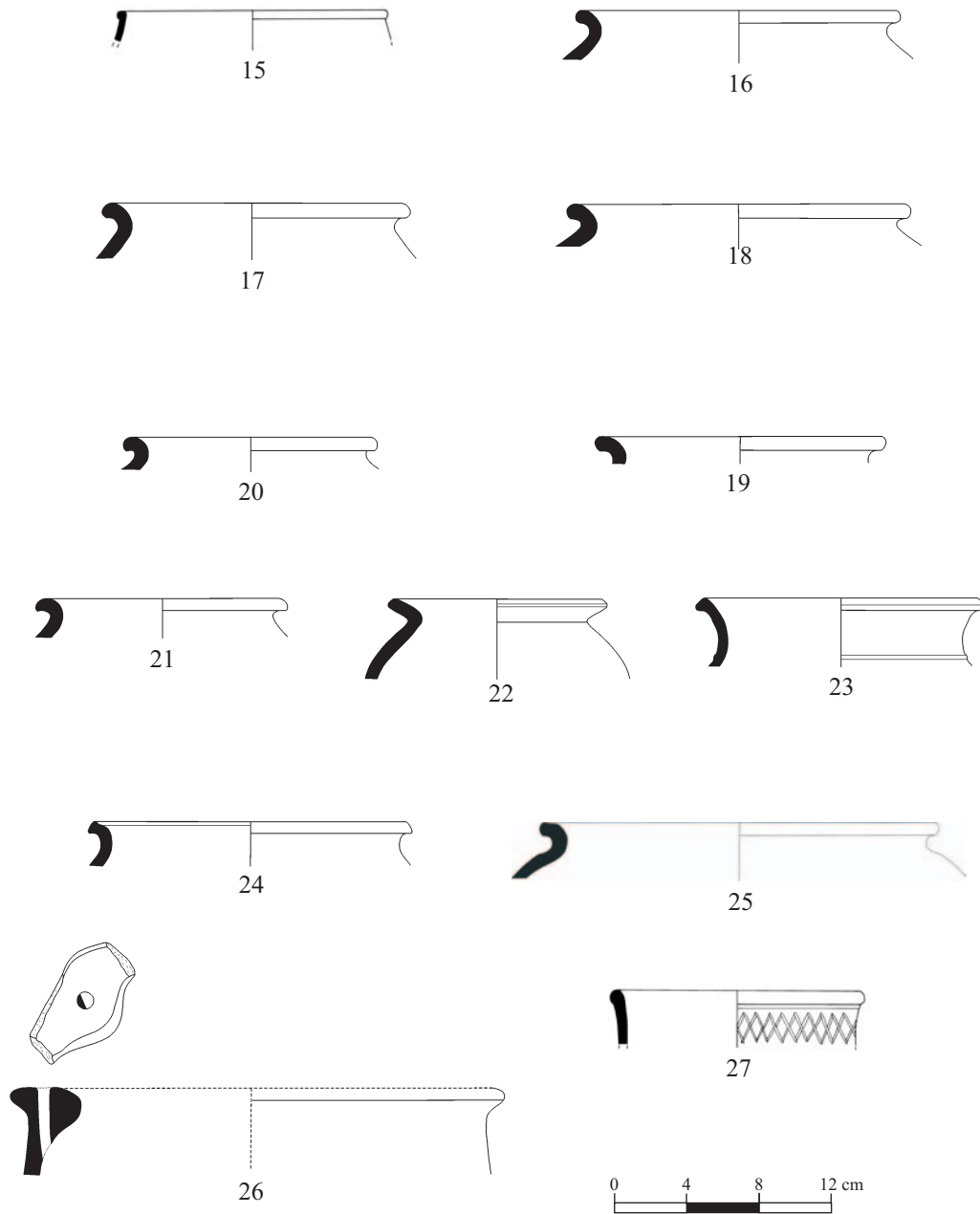


Fig. 24. Ceramic finds from the field survey (second part).