

Archaeological Survey on the Lower Danube: Results and Perspectives

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More than 40 years of extensive archaeological excavations carried out in the legionary camp of Novae (near Svištov, Bulgaria) and the late Roman fortress of Iatrus at the mouth of the Jantra River (ancient Iatros), about 15 km downstream from Novae, have produced important contributions to the history of the Roman frontier on the lower Danube.¹ In the mid-1990s the Roman-Germanic Commission Frankfurt/M. of the German Archaeological Institute developed an interdisciplinary programme to investigate the links of both fortresses to their surrounding territories. The programme was carried out in collaboration with the Archaeological Institute of the Bulgarian Academy of Sciences in Sofia, the Historical Museum in Ruse, the Archaeological Institute in Bucharest, and other institutions, with the support of the German Research Foundation. The aim of this paper is to give a summary for the periods from the later Iron Age up to the early Middle Ages after the end of the fieldwork, including a short preview on perspectives of further similar research enterprises in the Eastern Balkans and the Black Sea region as well.²

The research area lies on both sides of the Danube in north central Bulgaria and south Romania, about 180 km from the western Black Sea coast (Fig. 1). The pick-up surveys covered an area of about 1,200 km² between Svištov and Ruse along the lower Danube with a length of about 50 km and a width up to about 30 km on the Bulgarian side. On the Romanian side we carried out a short survey along the first terrace and also in the lowlands along the Danube. The borderlines of the area originated more or less by chance; they are restricted in some cases by marked geographical units.

The investigations started with a short explorative survey in the autumn 1997 followed by six seasons of intensive field surveys, limited geophysical prospections, a site specific grid survey, air photography, palynological and soil analyses. During the fieldwork we used the geographical method, i.e. the dividing of daily work according to geographical units (valleys, hilltops, etc.). We decided to undertake the survey in an extensive way for two reasons: 1. We had only a vague notion of what we could expect; 2. We wanted to cover an area which allowed reliable conclusions regarding the settlements systems in different historical periods.

The best season for fieldwalking is from the beginning of March until

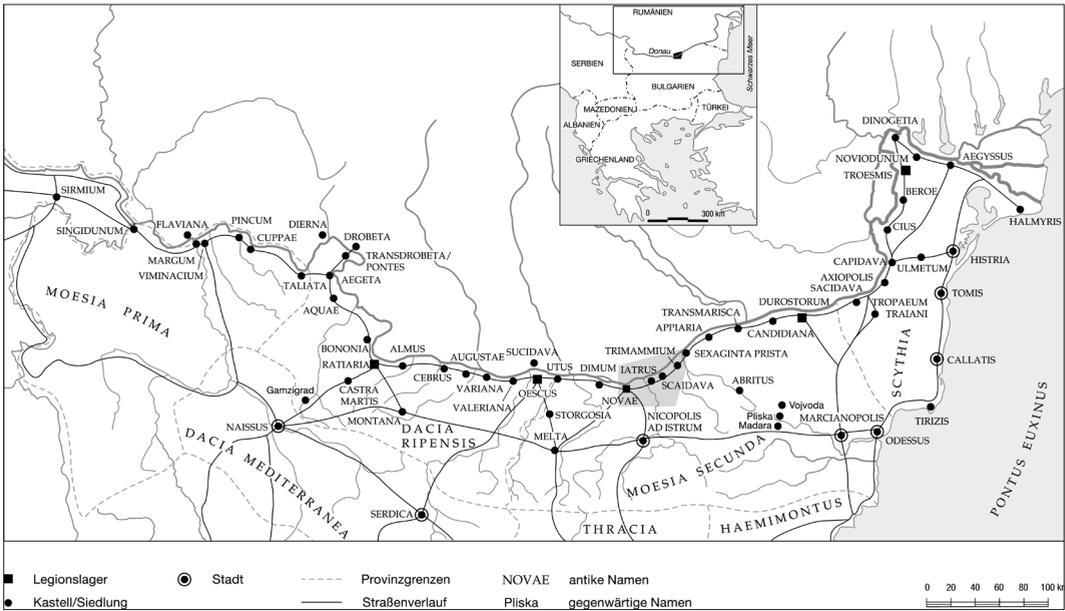


Fig. 1. The position of the research area within the Roman defense line at the lower Danube (K. Ruppel, RGK Frankfurt/M.).

the beginning of April. This is due to the fact that the snow has melted and the earth is broken up by the frost, and there is still no vegetation. After the sprouting of the winter grain and the beginning of drilling, effective work is impossible. The autumn period from mid October until late November can be used for control surveys mainly, but the visibility is limited after the harvest and the new cultivation of soil.

The research area is influenced by continental climate. It is mainly characterised by the wide river valley of the Danube and the Jantra River running from the Balkan range through the hilly north Bulgarian lowlands. In earlier days, the lowlands beside the rivers were marshy, now they are drained by amelioration and dikes. In the late glacial epoch an up to 60 m thick layer of loess soil was deposited over the limestone rocks, which appears very often along the river valleys. This not only provided flints but also the main building material for the later historical periods. These loess hills with precipitous slopes to the north and slightly inclined slopes to the south rise up to an altitude of about 150 m near the Danube and up to 300 m south-east of Bjala.

The soil is very fertile; in the west and north-east of the research area we mostly find calcareous černozems, in the eastern part leached and eroded černozems. The insignificant differences in the soil fertility seemed to have no influence on the behaviour of occupation during the historical periods. The western part includes wide open valleys with slightly inclined hill slopes, and

in the east, one finds deeply incised narrow rocky valleys and up till today partly preserved woodland areas. Probably for this reason the Jantra River functioned as the western border of the Eneolithic culture of Kodžadermen/Karanovo VI/Gulmenița what was proved by our expedition.³ Indeed, most of the territory is woodless nowadays. We hope to settle the vegetation history by the palynological analyses, which are still in process.

The survey on the lower Danube including several methods of prospection is the up to now most extended project in the eastern Balkan and western Black Sea region. In the last decade several research enterprises were undertaken, but on a smaller scale and mainly focused on special scientific problems or selected historical periods.⁴

STATISTICAL SUMMARY OF RESULTS

The primary research conception mainly focused on the historical periods relating to the fortresses (Roman and Medieval periods). The project was among other things inspired by the desire to

- compare the well-known building periods of Iatrus and Novae with the envelopment of the settlement networks in their hinterland and to characterise the interaction between frontier zone and rural country-side;
- compare the results of a site-based survey programme in the region of Nicopolis ad Istrum carried out by a British-Bulgarian team;⁵
- reconstruct the ancient landscape and environment;
- draw conclusions about the society and economical situation in each historical period.

Additionally, during the practical fieldwork it became obvious that there were excellent conditions to investigate the prehistoric periods from the late Palaeolithic onwards as well.⁶

Table 1

	Total number of recorded sites		Tumuli		Settlements, fortifications, necropoleis		Technical sites (roads, bridges, pipelines, etc.)
	Number	%	Number	%	Number	%	
Before 1997	300	45	208	80	92	24	---
1997-2001	364	55	52	20	289	76	23
Total	664	100	260	100	381	100	23

Before we started our survey, only a few but non-systematic surveys and information about finds in the research area were published.⁷ A total of 300 sites were recorded in the Archaeological Maps of Bulgaria and Romania (Table 1). The majority of the sites registered were tumuli (208); to this can now be added further 52. The most important and impressive result is the addition of 289 new sites (76%), which can be related to settlements, fortifications and necropoleis. 23 new sites belong to infrastructural and industrial installations like roads, pipelines, bridges and quarries.

The major part of these up to now registered 381 find spots (settlements, fortifications, necropoleis) were occupied in more than one period (Figs. 2 and 3). If we classify and distinguish these sites according to periods, we get a total number of 1183 (before 1997: 193). The increasing number up to the early Medieval times can probably be explained by the higher concentration of settlements, the growth of population, and better circumstances for surface finds for the more recent periods. On the other hand, with the increasing chronological distance there are a higher number of sites covered by alluvial and eroded material.

It is very difficult to identify individual settlements on the north bank of the Danube and we failed to differentiate between settlement types. Hence the following data mainly focuses on the southern (Bulgarian) part of the research area.

THE ARCHAEOLOGICAL LANDSCAPE FROM THE LATER IRON AGE UP TO THE EARLY MIDDLE AGES

Later Iron Age

(Hallstatt C/D – La Tène; about 600 BC-early 1st century AD)

The drop of the number of settlements in the early Iron Age as compared to the Bronze Age (Fig. 2) can be attributed to the very short duration of the Hallstatt period in our chronological system (i.e. Hallstatt A-B) and probably to the migration of peoples during the transition phase from the Bronze to the Iron Age at the end of the 2nd millennium BC. We distinguished earlier and later Iron Age finds mainly by the grey wheel-made pottery that appears already at the end of the 7th century BC. A reliable dating of the handmade pottery is still not available.

The settlement system of the later Iron Age – especially during the so-called Classical Thracian period – is dominated by central fortifications on hilltops and on high riverbanks (Fig. 4). We identified the most impressive site to the north of the town Bjala on the right bank of the Jantra River (Fig. 5). This site was recorded in the Archaeological map as a late Iron Age settlement and a late Roman fortress⁸ but our survey proved it only as a late Iron Age site. It consists of an almost regular stone wall square with a

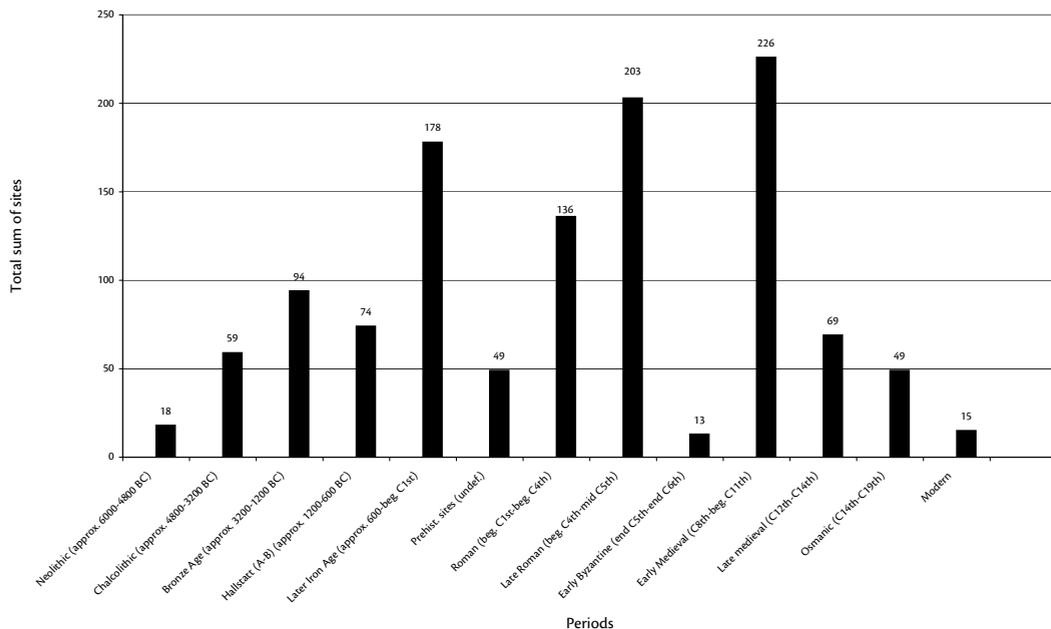


Fig. 2. Sites north and south of the Danube according to periods (settlements, fortifications, necropoleis; without tumuli and "technical" sites; total number = 1183).

side length of about 200 m with corner towers. The fortification has been destroyed by stone robbery. There are large amounts of pottery fragments on the surface, mostly of good quality; among them fragments of Greek amphorae. In our research area similar fortifications probably existed on the hilltop Kaleto in Svištov⁹ which is covered by a Medieval fortress, and near Zimnicea (north of the Danube).¹⁰ Small and up to now unpublished excavations of Kaleto from the early 1990s produced pottery finds similar to those found in Bjala.

The extended tumular necropoleis concentrated in the wider vicinity of the fortifications contain numerous conspicuous tumuli higher than 3 m which can be referred to the upper class of the tribes (Fig. 6). About 5 km east of Bjala near Borovo, in the area of a tumular necropolis, the famous gold treasure of Borovo was found. It is assumed to be a diplomatic gift of the Odrysian king Kotys I to a local ruler.¹¹

To each fortification presumably belonged a limited domain since no settlements existed within a radius of at least 3 km (Fig. 4). Most of the larger settlements with an area of about 10,000 m² are arranged in an approximately regular network with average intervals of 4-5 km (Fig. 4). There is a striking concentration of settlements of this size north and west of the Bjala fortification. Small settlements (less than 5,000 m²) are situated mostly in the hilly landscape north of Bjala and in the valleys south of Svištov, partly without

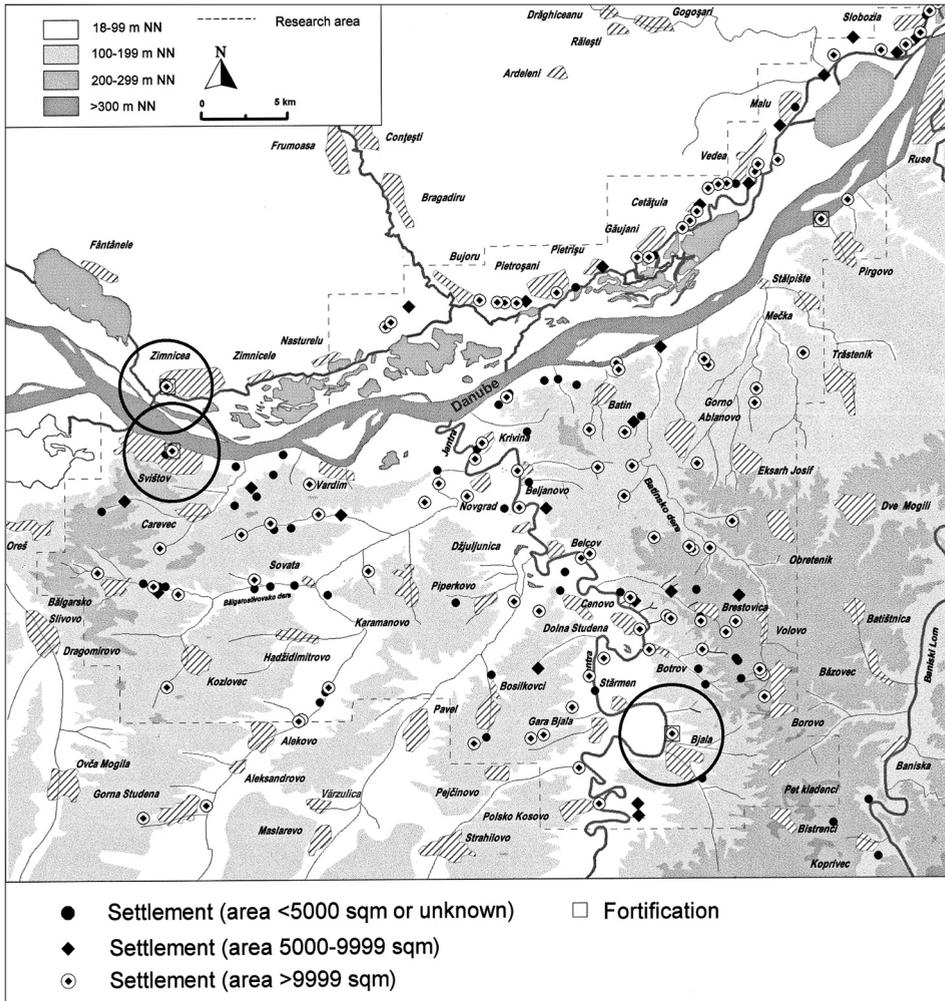


Fig. 4. Sites of the later Iron Age (end 7th BC-beg. 1st century AD).

Chr. Popov who recently examined the few up to now recorded “proto-urban” centres of the early and late Iron Age in Bulgaria suggests a circulation of the small, temporary settlements around these fortifications which probably functioned as cult centres as well.¹⁵

The settlement systems in the Roman (early 1st-early 4th century AD) and late Roman Periods (early 4th-mid 5th century)

The history of the Roman *limes* in this section of the Danube begins with the foundation of the province of Moesia in AD 44 and the dislocation of the *legio VIII Augusta* in Novae (Fig. 7) simultaneously or within a short time after that. The territory of the Moesian province and its border along the Danube became

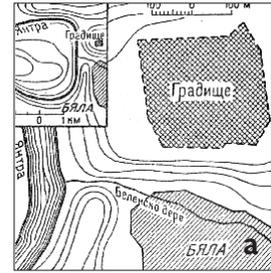


Fig. 5.
Later Iron Age fortification north of Bjala.
Rough drawing (right) of S. Stefanov (1956, 14 fig. 6) and aerial view of the mid-1940s (left) (Courtesy of the Military Cartographic Service of the Bulgarian Army).

extended to the Jantra River. The organisation of the military protection along the Danubian bank east of the Jantra is unknown for the early Roman period. Generally, a dislocation of troops is accepted in this area in the Flavian period as supported by archaeological evidence. Military garrisons were permanently dislocated along the Danube in the eastern part of Moesia after the Dacian wars of Emperor Trajan (102-106).¹⁶

The closed military system of the frontier fortifications had a great influence on the settlement system, especially as an economical factor (Fig. 8). There was a fundamental and persistent need for the supply of the maintaining military installations both from the agricultural hinterland as well as from further afield. The map we devised according to the finds obtained from the survey shows a relatively dense and regular settlement system in the hinterland of the *limes* and reflects very likely the situation in the 3rd century.¹⁷ Sites of larger extent (*vici* or large *villae*) were found mainly along the great river valleys and the wide-open valleys south of Novae. Small places like *villae* are situated in the areas of water sources in small side-valleys. Especially in the area east of the Jantra characterised by deep narrow valleys the sites are spread at greater intervals (average interval about 5-6 km). In any case the water supply or the possibility for access to water is a precondition for settlement.

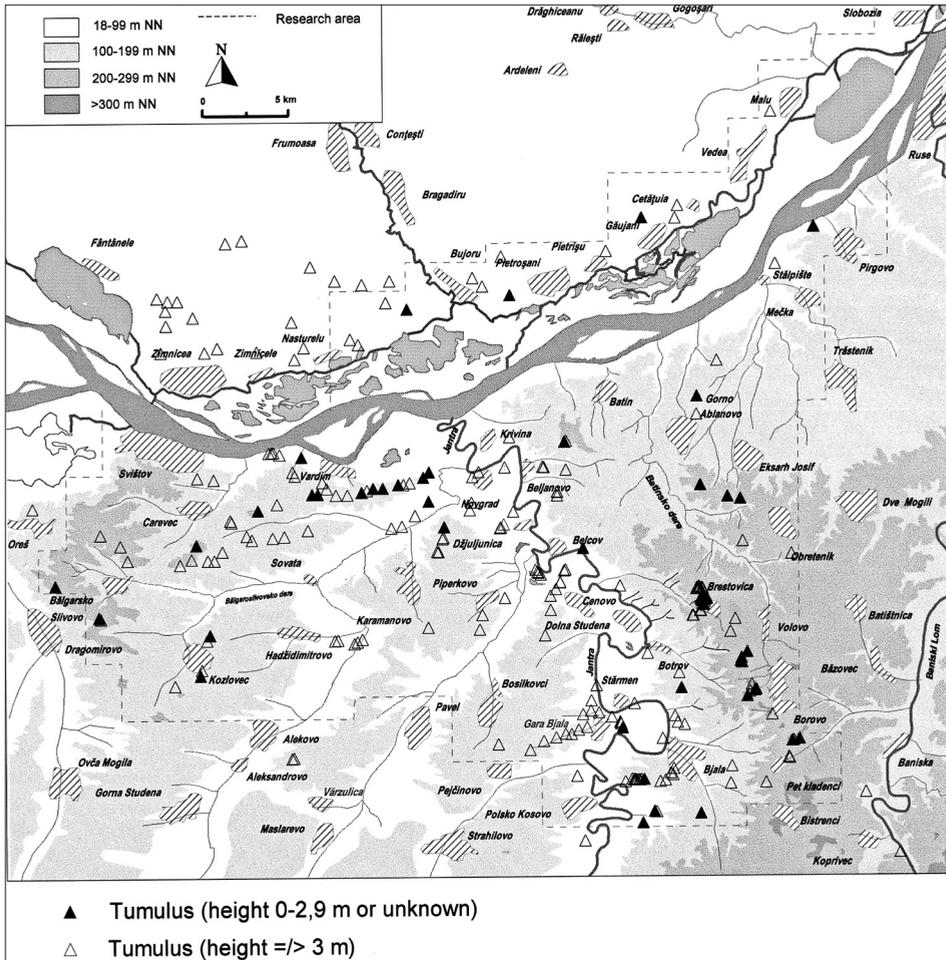


Fig. 6. Tumuli of the later Iron Age (c. 600 BC-beg. 1st century AD).

The consolidation of the Roman frontier after the wars of the 3rd century under the reigns of Diocletian and Constantine I was a supposition for the continuation or the renewal of most settlements at the beginning of the late Roman period. As on the middle of the Danube small garrisons and observation posts were converted into fortresses. The Iatrus fort at the mouth of the Jantra River was erected (Figs. 9 and 10) and the *limes* road improved.¹⁸ The eastern Balkans were of crucial importance in the late Roman period since the new Imperial capital Constantinople was situated not more than 500 km south-east of the Danube. With this background the lower Danube consequently enjoyed Imperial support more than other parts of the later empire. But probably due to the width of the river the defence system on the lower Danube obviously did not reach the level and density of forts and *burgi* in Pannonia.¹⁹



Fig. 7. Aerial view of the legionary camp of Novae. In the foreground the valetudinarium (2nd-3rd century) overlaid by a late Roman villa urbana; in the background the late Roman Christian basilica.

In any case, the settlement network was affected by the war; however, the previous opinion that there was a continuous decline of the settlements in the rural territories during the 3rd century and first half of the 4th century can not be sustained (Fig. 10). In fact, the need to deliver supplies to the reinforced military troops at the border caused a revival of the settlement network. In some of the settlements, we established a reduction in the areas inhabited; but altogether continuity from the Roman to the beginning of the late Roman period can be surmised.

Roman pottery fragments were also found on several sites on the left bank of the Danube in the *Dacia libera*. Bricks and carefully treated stone material characterising Roman settlements south of the Danube is missing. These finds can be related to the trade across the frontier mentioned by ancient authors (Them. *Or.* 10.136b; Amm. Marc. 20.11.8; 21.9-11). Roman soldiers seem to have profited in this trade with the Goths.²⁰

Caused by the Gothic wars in the second half of the 4th century and the Hunic assaults in the first half of the 5th century, the extent and intensity of the settlements declined, and later on all settlements in the remote frontier areas were apparently abandoned. The remaining people settled in or nearby the fortifications; and new fortresses were erected, for example in Svištov (Theodoroupolis?), Polsko Kosovo and Koprivec. This situation corresponds

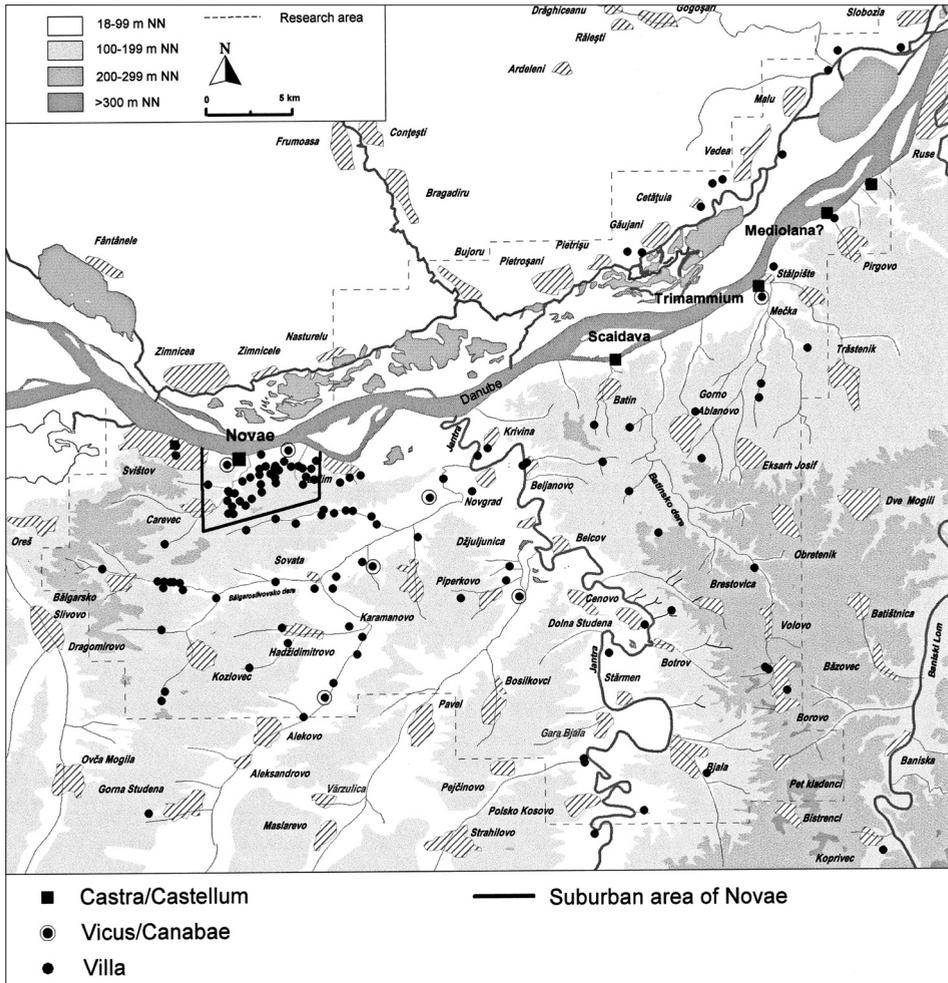


Fig. 8. Roman sites (beg. 1st-beg. 4th century AD).

with the Iatrus fort in the first half of the 5th century when all free areas between existing buildings and in the ruins of *horrea* I and VII were filled with dwelling houses.²¹ A higher density of mountain fortresses can be found in the northern foreland of the Balkan range, a suitable retreat area in a period of anxiety.²²

Iatrus and the other remaining fortresses and settlements were totally abandoned by the Huns in the mid 4th century. By contract the Romans had to give up the *limes* fortifications and a territory with width of three day's journeys south of the Danube.²³

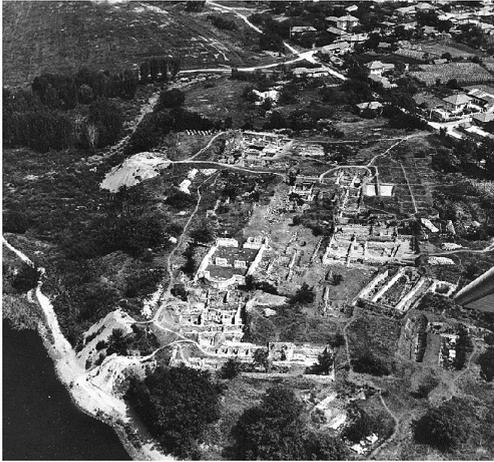


Fig. 9. Aerial view of the Iatrus fortress from south (G. v. Bülow, RGK Frankfurt/M.).

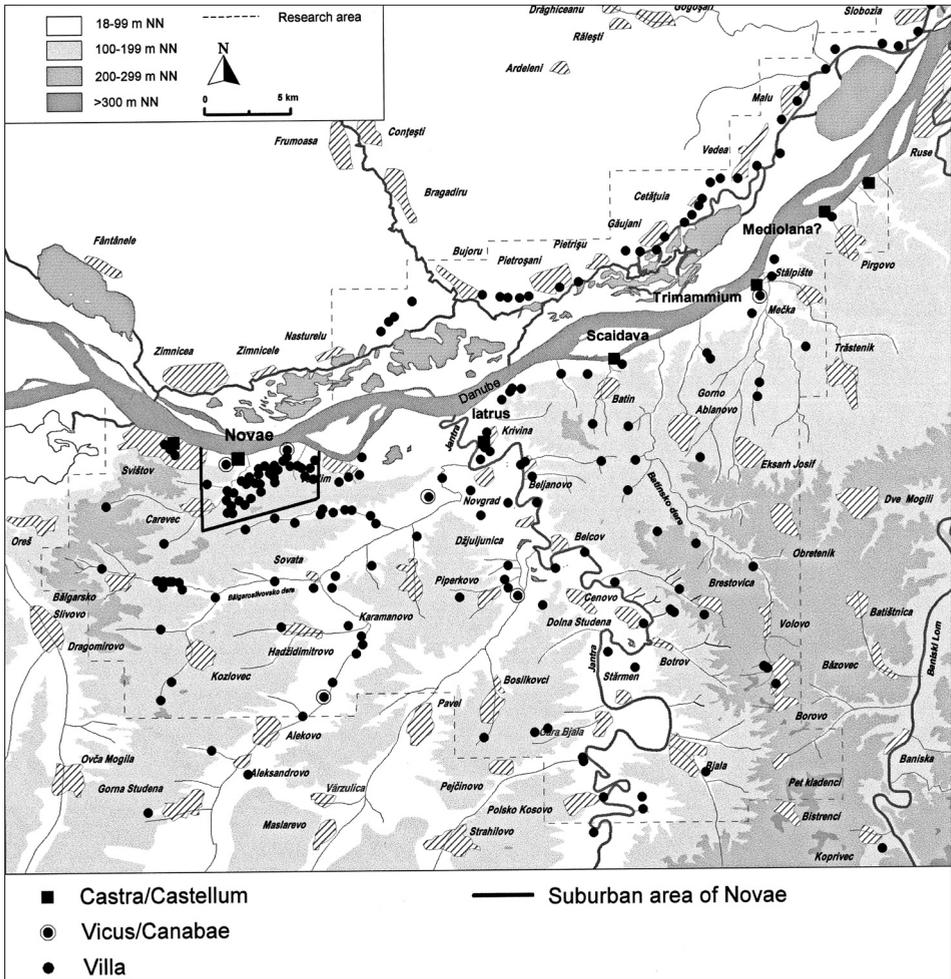


Fig. 10. Late Roman sites (beg. 4th century – mid-5th century).

Land plots in the rural and suburban territories of Novae

In the rural territories south of Novae we found signs of a systematic land partition along the brook valleys (Fig. 11), which is very similar to the hinterland of Speyer (*Germania superior*).²⁴ The average intervals are only 2-3 km. According to our reconstruction of the cadastre plan, 10 of the 38 estates investigated belong to medium-sized properties of about 200-380 ha, 24 to small-sized plots with between 50 and 200 ha, and four with less than 50 ha are very small.²⁵ It can be supposed, that veterans established a part of these rural properties after their *honesta missio*.

The bigger part of sites in the suburban vicinity of Novae had most likely another status (Fig. 12). The *canabae* of the legionary camp at Novae extended approximately 1.5 km along the road to Svištov; the route is roughly identical to the former *limes* road. Only several mounds interrupted the occupied area. Parts of the necropolis were found in the south. There are also some indications that the area covered by the late Roman extension Novae II belonged to the former civilian settlement of the *castrum*. Deduced from the examined pottery, on the whole we can calculate an area of about 70-80 ha for the civilian settlement of the 1st century-early 4th century and an area of about 20-30 ha for the late Roman site.²⁶

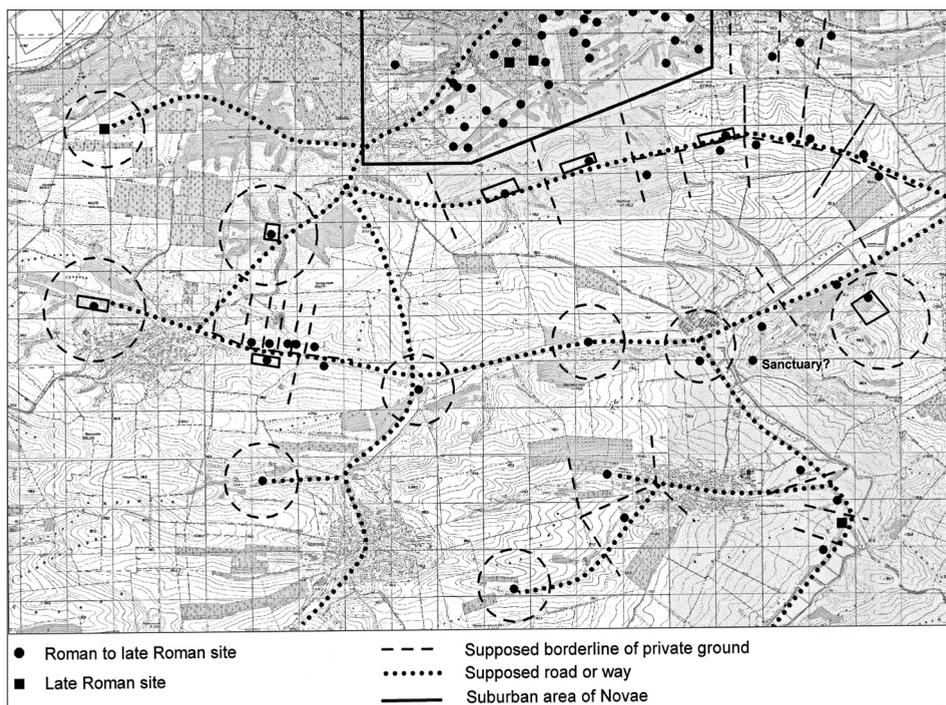


Fig. 11. Rural sites south of Novae (Roman to late Roman period). The distance between two lines of the grid system is 1 km.

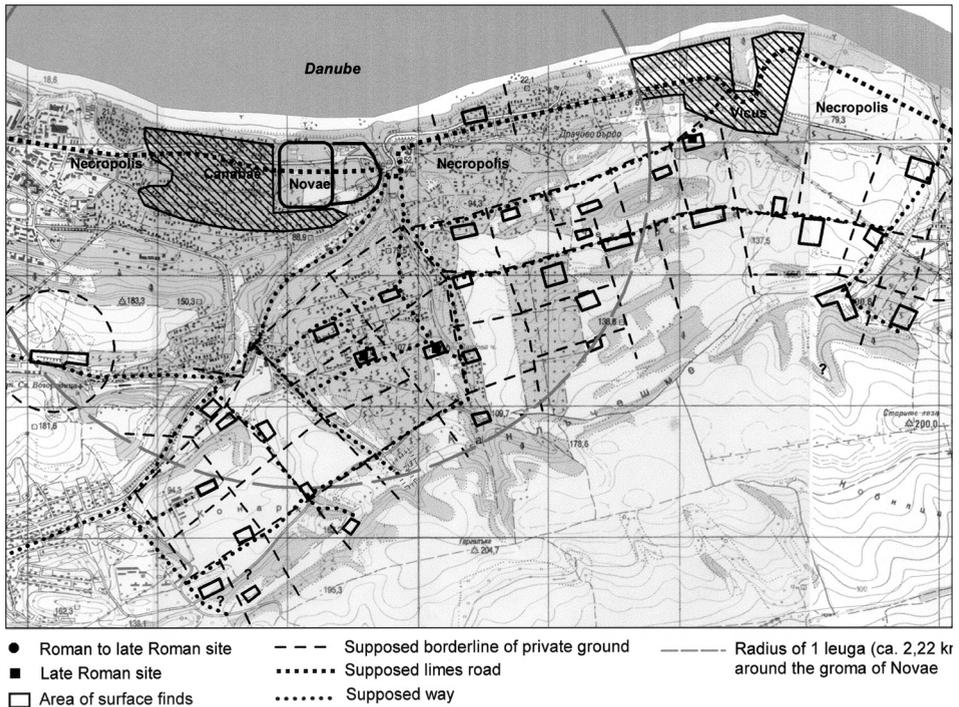


Fig. 12. The suburban area of Novae (Roman to late Roman period). The distance between two lines of the grid system is 1 km.

A total of 32 sites within an average interval of only 300-500 m were registered south and south-east of Novae (total of Roman and late Roman sites; Fig. 12). The size of the land estates is mainly ascertained between 5 and 30 ha; only six plots span between 30 and 50 ha. This indicates small-scale agriculture, and probably there also existed a system of handicraft workshops. Presumably veterans who settled down after their active military service owned these properties and were, thus, available in cases of emergency. The interest in occupying a plot near the military camp caused an enormous settling constraint reflected by the average geographical data (Table 2; Fig. 13). The long distance to fresh water, the average altitude and the predominant position of the sites at the middle slope indicate a suburban settlement structure with an artificial water supply system.

The main part of these *villa* sites lies within a radius of approximately 2.22 km around the *groma* of the camp adequate to the ancient unit of measurement *leuga* (approximately 1.5 Roman miles). According to I. Piso the area within the radius of 1 *leuga* belonged to the *ager publicus* and was controlled by the camp administration. The inhabitants of the *canabae*, which had a similar legal status like the *veterani et cives Romani consistentes*, had no right for ownership of the ground within this radius. Consequently, the extended *vicus* was

Table 2

Geographical factors	Roman Period	Late Roman Period	Villae sub-urb. s-e of Novae	Villae rusticae south of Novae
Number of sites	113	148	35	38
Altitude (in m; average)	90	89	99	80
Distance to waters (in m; average)	234	260	541	173
Altitude above waters (in m; av.)	19	21	37	6
Slope (in %; average)	4	4	3	5
Size of real estates (in ha; average)	---	---	25	159

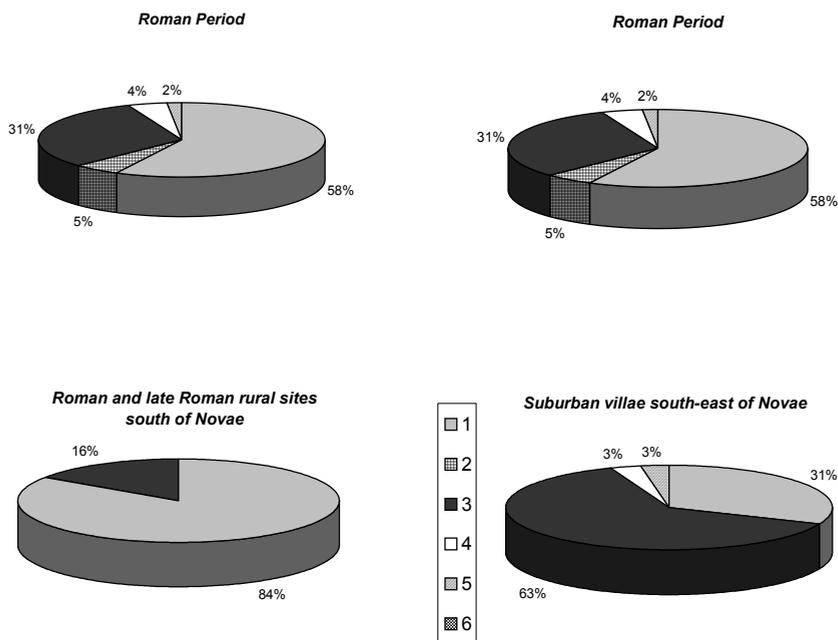


Fig. 13. Position of Roman sites south of the Danube, with a distinction of the rural territory and suburban area south/south-east of Novae: 1 – down slope/valley/lowlands; 2 – terrace; 3 – mid slope; 4 – upper slope/ridge/summit; 5 – high bank; 6 – end of ridge/spur.

situated about 2.5 km east of the legionary camp on the Danubian bank and thus outside the *leuga* radius (Fig. 12). After the bestowal of municipal status to the *canabae* of a legionary camp, this injunction had to be repealed and the legal status of *canabae* and *vicus* equalised.²⁷ The existence of Roman suburban *villae* in the *leuga* radius supports the theory that the *canabae* of Novae received the municipal status under the reign of Septimius Severus.²⁸ However, this can only be verified following finds of new inscription.

Early Byzantine Period (end of 5th century-end of 6th century)

The reconstruction of the *limes* at the Danube took place at the end of the 5th century (Fig. 14). The settling was limited to the fortresses and fortified settlements and their immediate vicinity. It is impossible to state a possible trial for

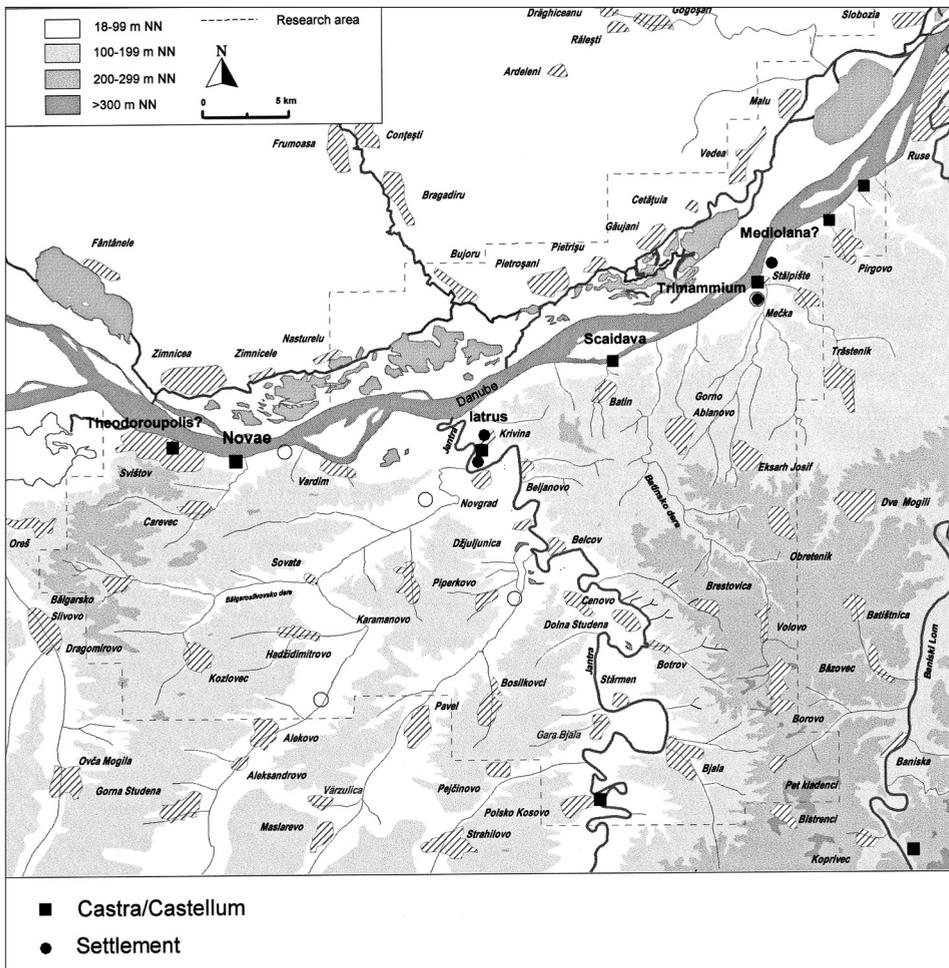


Fig. 14. Early Byzantine sites (end of 5th-century-end of 6th century).

the revival of former settlements by surface finds. In these late times of the Byzantine presence north of the Balkan range, the fortifications aimed at the defence, and offered possibilities for retreat and agriculture.²⁹ The settlement within the Iatrus fortress shows a very simple rural character with dwelling houses built in the half-timber technique; stone fundamentals are very rare. The most solid building under the reign of Iustinianus I was the Christian basilica.³⁰

After an eventful 6th century, the history of the *limes* on the lower Danube the Byzantine presence north of the Balkan range ceased with the catastrophic invasions of the Slavs and Avars at the end of the 6th century and in the beginning of the 7th century.

Early Middle Ages (8th century-early 11th century)

With the immigration of the Slavs and Protobulgarians in the 7th century and 8th century the resettling of the areas deserted 200 years earlier began. The map compiled based on the surface finds dated between 8th century up to the beginning of the 11th century shows with 229 sites the highest density of settlements from all examined historical periods (Fig. 15). The system consists of extended sites, sometimes fortified, as well as small sites resulting in very small quantities of finds. Similar to the later Iron Age this could indicate a half-nomadic way of living. Numerous excavations in Bulgaria of early Medieval sites verify the meagre character of the settlements: The new settlers very often settled in the remains of Roman buildings, and probably used the building material for the construction of pit houses.³¹

CONCLUSIONS

The statistical evaluation of selected geographical parameters of the settlements south of the Danube allows some preliminary conclusions regarding the social and historical conditions during the examined periods.

Only the slightly increased percentages of settlement positions at upper slope/ridge/summit, high bank and end of ridge/spur for later Iron Age and Medieval settlements reflect the priority of natural factors and the special way of living that influenced the choice of a place to settle down (Fig. 16). Additionally, the later Iron Age settlements show a preference of a southern exposition (Fig. 17). The preference of a northern and southern exposition is amongst other things caused by the west-east orientation of most of the ridges and valleys.

Our analyses verified that during the Roman period, apart from natural circumstances, economic factors had a strong impact on settlement activity. The Roman settlement network was obviously affected by the military system of the *limes* and the official control of the land assignment too. Because of the

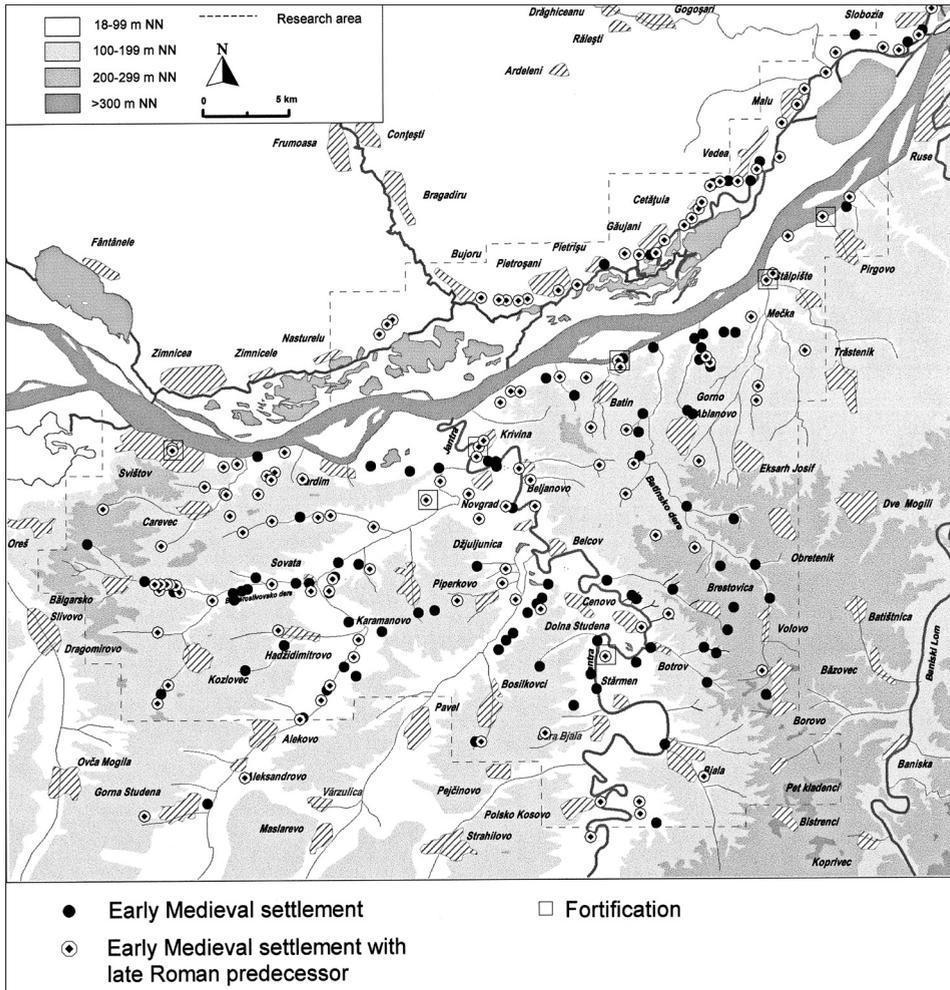


Fig. 15. Early Medieval sites (8th – beg. 11th century).

great local influence of limited settlement agglomerations like the concentration of settlements around the late Iron Age fortifications and – for the Roman periods – the urban agglomeration in the vicinity of the legionary fortress of *Novae*, we suggest that the area examined up till now is still too small to draw statistically valid conclusions for all geographical parameters. Future prospection will extend the research area and thus provide further comparable data for statistical analysis. Furthermore, to prove the results based on surface finds, each survey will have to be followed up by selected excavations. The stratigraphy obtained will, in turn, help to reconstruct the progress of historical periods and the turn from one period into another.

Under the present state of research, the examined area can serve as a reference territory for both the Balkans and the Black Sea region. Our inter-

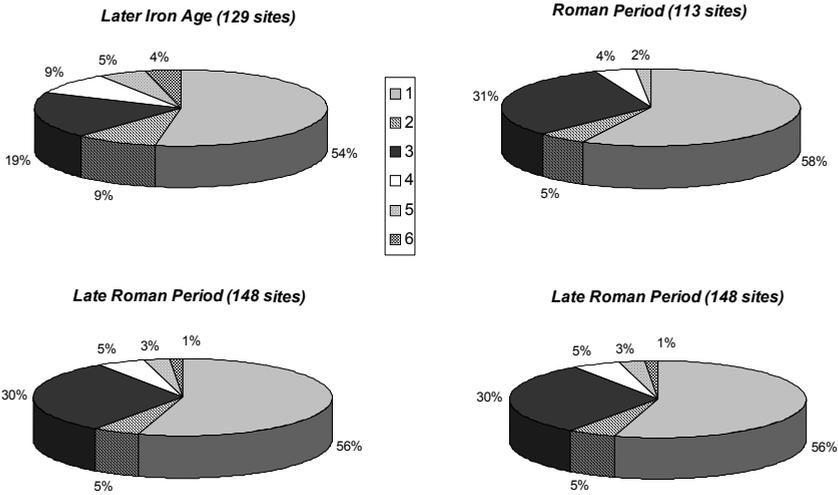


Fig. 16. Position of sites south of the Danube (Roman and late Roman period without limes fortifications and their civilian settlements). 1 – down slope/valley/lowlands; 2 – terrace; 3 – mid slope; 4 – upper slope/ridge/summit; 5 – high bank; 6 – end of ridge/spur.

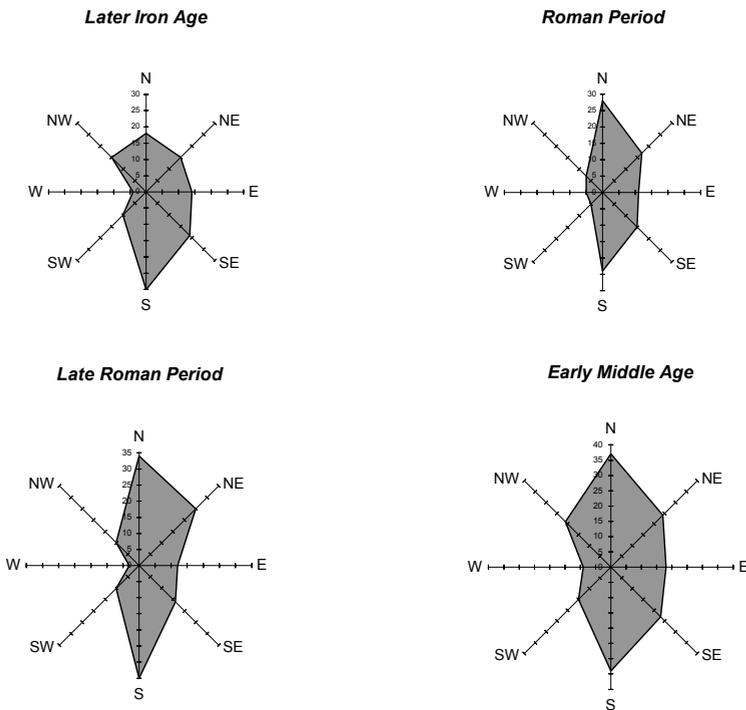


Fig. 17. Exposition of sites south of the Danube (Roman and late Roman period without limes fortifications and their civilian settlements). For the number of sites see Fig. 16 (sites with all-side exposition: later Iron Age – 3; Roman period – 1; late Roman period – 3; early Middle Age – 3)

disciplinary investigations, albeit in a limited area, display very promising opportunities and open perspectives for the historical and archaeological research in that region, considering the fact that 70-80 % of the historical sites are still unknown.

Acknowledgement

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Notes

- 1 Iatrus: Iatrus-Krivina I-V (Iatrus-Krivina VI under work); Bülow 1994. Preliminary reports on the results of the excavations between 1992 and 2000 in Bülow & Milčeva (eds.) 1999, 140-199. – Novae: Summary by Press & Sarnowski 1990; Ivanov, R. 1997, 556-574; 599-601; 1999, 184-189; 267-269; annual reports of the excavations in *Archeologia*.
- 2 For preliminary results, see Conrad & Stančev 1998; 2002. A monograph on the results of the archaeological and environmental analyses is still under work. The responsible authors for the publication of the prehistoric periods are R. Krauß (Berlin; cf. Krauß 2006), of the later Iron Age D. Stančev (Ruse). I wish to thank both authors for the allowance to present some of their unpublished results.
- 3 Cf. Krauß 2003.
- 4 Cf. Lichardus, Fol & Getov et al. 1996 (the prehistoric microregion in the vicinity of Drama, south Bulgaria); Stefanov 1997 (settlement system in the vicinity of the late Iron Age fortification of Sborjanovo near Isparih, NE Bulgaria); Bailey, Tringham, Bass et al. 1998; Domaradski (ed.) 1999; Domaradski (ed.) 2001 (investigations on the settlement system of the late Iron Age in SW Bulgaria); Poulter 1999a; 1999b (the territory of the Roman to early Byzantine city Nicopolis ad Istrum, north Bulgaria).
- 5 Cf. Poulter 1999a; 1999b.
- 6 Cf. Krauß 2006.
- 7 Stefanov, S. 1956; Dremsizova-Nelčinova & Ivanov 1983.
- 8 Stefanov, S. 1956, 13 figs. 6 and 7; Dremsizova-Nelčinova & Ivanov 1983, 31 no. 39.
- 9 Válov 1962; Donevski 1997.
- 10 Cf. Nestor 1950; Alexandrescu 1974; Oppermann 1984, 182. The excavations verified an important, probably fortified settlement.
- 11 Ivanov, D. 1975; Marazov (ed.) 1998, 222-225.
- 12 Danov 1976, 130-131.

- 13 Popov 2002, 156-165 fig. 41 (with bibliography).
- 14 Stefanov 1997.
- 15 Popov 2002, 170-172.
- 16 For the history of the Roman military presence and the fortification system on the lower Danube, see Ivanov 1997; 1999; Zahariade & Gudea 1997. New results obtained from the survey in Conrad & Stančev 2002.
- 17 For that reason a definite theory regarding the transition period from late Iron Age to Roman times is still impossible.
- 18 For the *limes* road cf. Conrad & Stančev 2002, 676 figs. 2-4.
- 19 Cf. Soproni 1978; Ubl 1980.
- 20 Cf. Poulter 1999c, 42-43.
- 21 Cf. Bülow 1995a.
- 22 In this hilly landscape many fortified hilltop settlements were erected, cf. Rašev 1982, 7-16 map 1.
- 23 Cf. Bülow 1995a, 43-49; Martin 1995, 40-41.
- 24 Bernhard 2001, 60-65 fig. 12.
- 25 Similar sizes were recorded in *Germania superior* in the territories between the lower Neckar, Rhine and Danube, cf. Hüssen 1994, 261 (plots between 60 and 120 ha, mostly between 65 and 80 ha).
- 26 Cf. Conrad & Stančev 2002, 674 fig. 5.
- 27 Piso 1991.
- 28 For this discussion, cf. Ivanov, R. 1997, 599-601; 1999, 267-269.
- 29 Cf. Henning 1987, 35-40; 1994, 471-473.
- 30 Cf. v. Bülow 1995b, 64-65.
- 31 Cf. the results of the excavation of the Medieval settlement overlaying the former Iatrus fortress in Wendel 1986.

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