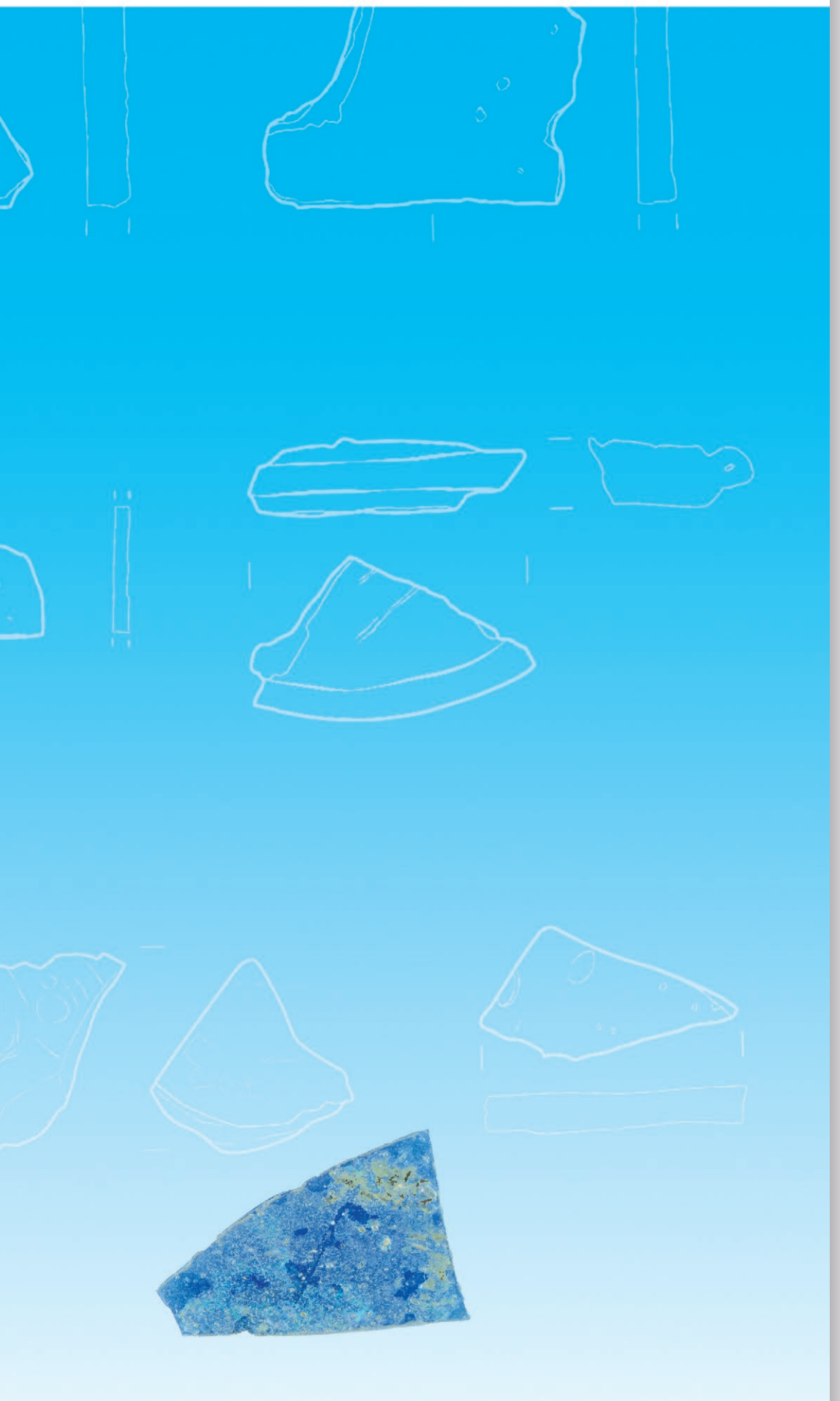
Археолошки институт Београд *Књига LXXI/2021.*

СТАРИНАР

На корицама: Група налаза од плавог стакла (*Ромулиана*)
фото: В. Цикић

Sur la couverture: Du mobilier en verre bleu (*Romuliana*)
Photo: V. Džikić



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THE ECONOMIC AND SOCIAL IMPORTANCE OF SALINE SOILS AND SALTWATERS DURING THE LATE NEOLITHIC OF THE PANNONIAN PLAIN AND THE CENTRAL BALKANS

e-mail: draganarh@gmail.com

Abstract. – The importance of salt in human and animal diets suggests that the local resources of saline soils, watercourses, and marshes with saline water had to be well known to past populations. Based on the analysis of the environs of a large number of Late Neolithic and Early Eneolithic sites, this research assumes the great importance of such resources. This paper examines the spatial relationships between settlements and these resources, in the example of five Late Neolithic settlements from the territories of the Pannonian Plain and the Central Balkans. The goals of the research are to provide an initial step in the reconstruction of potential locations for salt exploitation, and provide a better understanding of each settlement and, subsequently, its role and function in the local Neolithic settlement system. The research considers previously published results of the pedological analysis of the settlement environments and archaeological investigations of the settlements. If certain micro-regions and regions did not provide possibilities for the extraction of salt for both animal and human utilisation, salt, and probably cattle, had to be procured through exchange networks. However, if livestock could not be grazed in areas abundant in salt, then salt would have to be added to the animals' diet. We conclude that Late Neolithic settlements should not be observed in isolation, but rather as parts of wider settlement systems including exchange networks with salt as a major commodity. This represents one of the crucial factors for the understanding of cultural development during the 5th millennium BC.

Key words. – saline soils and saltwaters, Late Neolithic, Pannonian Plain, Central Balkans, subsistence economy, exchange networks

The recognition that humans, domesticated livestock, and wild animals needed to include salt in their diets reaches deep into the past.[1] The importance of salt within human[2] and animal[3] diets suggests that the local resources of saline soils and waters had to be well-known to the past populations.

The addition of table salt to the livestock diet represents the earliest practice of corrections in diets deficient in sodium (Na) and chlorine (Cl). Domestic animals can last for several months deprived of salt without displaying the symptoms of deficiency, but if the lack of salt prolongs, the animals lose their appetite. Subsequent weight loss can eventually lead to death. Animals respond rapidly to the addition of salt and the symptoms of deficiency cease.[4] However, two other aspects of saline soils and waters are particularly important. First, wild animals also require the intake of salt through food or water. Therefore, areas with saline soils and watercourses, and marshes with saline water represent locations that attract game. Second, these areas

[1] Berger 2006; Sandu et al. 2010; Bánffy 2013; Weller 2015.

[2] The sodium requirement for the maintenance of the metabolic processes for an adult human individual is 1.5 g, and it is assumed that prehistoric populations consumed less than 1 g of salt daily, see: Šarčević, Lilić, Vranić 2014.

[3] In modern conditions of breeding high productivity dairy cows in lactation, the recommended daily intake of salt is 30 to 40 g, see: Petrujkić et al. 2003, 231.

[4] Ševković, Pribićević, Rajić 1980, 343–346.

Manuscript received 20th February 2021, accepted 3rd September 2021

Fig. 1. The Lalinac salt marsh near Niš, southern Serbia

Сл. 1. Лалиначка Слатина код Ниша, јужна Србија

provided the possibility for the extraction of salt for human and animal diets, medicine, food preservation, production of hides, and other socio-economic activities during the Late Neolithic.

Ethnoarchaeological studies have pointed to the existence of several methods for the procurement of salt. Salt could have been mined, procured through the collection of halophytic plants and their drying and burning, through heating and evaporation of saline water, from saline mud, or directly collected following efflorescence.[5] The last mentioned method enabled the collection of substantial amounts of salt after a specific process that implies the rise in levels of subterranean waters saturated with sodium and chlorine during the spring, and their sudden decrease during the arid summer months, which results in the retention of salt on the soil surface. Such a phenomenon has been registered in Macedonia (Ovče polje),[6] the Morava region (Lalinac Slatina near Niš)[7] (Fig. 1), and within salt marshes (Slatine) in the Vojvodina region.[8]

Salt marshes represent specific ecosystems characterised by halophytic vegetation (salt-tolerant plants common for areas with saline soils).[9] Salt marsh habitats are considered endangered and fragile ecosystems, with the emphasised fragmentary nature of their occurrence in the territory of Serbia.[10] They are numerous in the region of Vojvodina and the vicinity of present-day Niš, Vranje, and Prokuplje. It is considered that such locations were utilised for game grazing from the Pleistocene and domestic animal grazing in later periods, primarily cattle and sheep, but also horses and pigs.[11] The main problem regarding the role and importance of salt marshes lies in the fact that the development of modern society, economy, trade, and technological advances following the industrial revolution led to the devastation of ecosystems characterised by saline soils and their transformation into cultivated areas.[12]

Archaeological studies in Central and South-eastern Europe have highlighted the importance of areas with saline soils and waters in the economy and society of prehistoric communities.[13] For example, recent research of the fortified tell settlement of Provadia-Solnitsata, near Lake Varna (Eastern Bulgaria), about 45 km from the Black Sea coast, provided us with insights into the salt production technology of boiling brine from salt water springs in thin walled ceramic bowls during the second half of the 6th and 5th millennium BC.[14] Based on the analysis of the environs of a large number of Late Neolithic and Early Eneolithic sites, the research reveals the great importance of salt resources for past populations.[15]

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[5] Тасић 2009, 53–69; Tasić 2012; Weller 2015; Harding 2016.

[6] Antić, Jović, Avdalović 1980.

[7] Ranđelović, Zlatković, Dimitrijević 2007.

[8] Knežević et al. 2008.

[9] Miljković 1972; Zlatković, Ranđelović, Amidžić 2005; Ranđelović, Zlatković, Dimitrijević 2007; Ranđelović, Jušković, Šarac 2007; Knežević et al. 2008.

[10] Miljković 1972; Ranđelović, Zlatković, Dimitrijević 2007.

[11] Šefferová Stanová, Janák, Ripka 2008, 1, 8–10, 12–13.

[12] Šefferová Stanová, Janák, Ripka 2008, 8–9; Knežević et al. 2008.

[13] Тасић 2009; Tasić 2012; Perić 2012; Danu, Gauthier, Weller 2010; Sandu et al. 2010; Nikolov 2011; Bánffy 2013; 2015; Weller 2015; Harding 2016.

[14] Nikolov 2011.

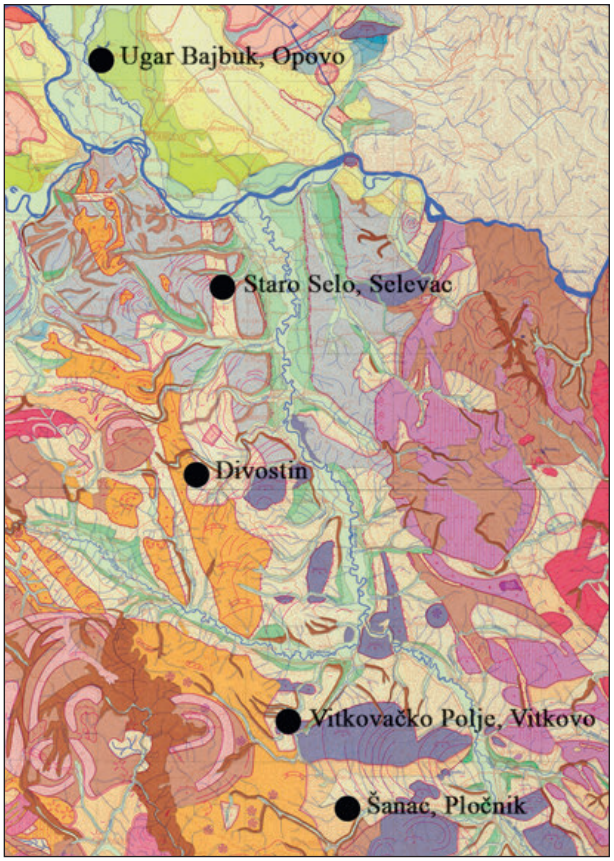

Fig. 2. Map of the sites mentioned in the text. Base map M. Zeremski, Srbija Geomorfološka (morfostrukturna) karta, R 1:500000, GEOKARTA, Beograd 1990

Сл. 2. Карта са локалитетима који се спомињу у тексту. Основна карта М. Зеремски, Србија Геоморфолошка (морфоструктурна) карта, Р 1:500000, ГЕОКАРТА, Београд 1990

This paper examines the spatial relationships between settlements and these resources, in the example of five Late Neolithic settlements, from the territories of the Pannonian Plain and the Central Balkans. The studied sites are located near Opovo, Selevac, Divostin, Vitkovo, and Pločnik (Fig. 2). Areas with saline soils and waters are recorded on the topographic maps of the Military Geographical Institute on a 1:25000 scale. As far as the author is aware, no contemporary research has been conducted on these areas in the vicinity of the aforementioned settlements. The goal of the research is to provide an initial step in the reconstruction of potential locations for salt exploitation and provide a better understanding of each settlement and subsequently its role and function in the local settlement system. The research considers previously published results of the pedological analysis of the settlement environments and archaeological research. Therefore, it is proposed that if certain micro-regions and larger regions did not provide possibilities for the extraction of salt for both animal and human utilisation, salt, and probably cattle, had to be procured through exchange networks. However, since livestock had to be grazed in areas abundant in salt, if such areas were not nearby, salt would have had to be added to the animals diet. It may prove that such salt exchange networks represent one of the crucial factors for the understanding of cultural development during the 5th millennium BC.[16]

POSITION AND ECONOMY OF THE LATE NEOLITHIC SETTLEMENTS

Ugar Bajbuk, Opovo

The site is located approximately 3 km east of the village of Opovo, near present-day Pančevo. It lies on an elevation of a degraded loess terrace (altitude of 78 m) that runs along the former meander of the Tamiš (*Timiș*) River.[17] The site used to represent a small island with an approximate surface area of 5 hectares. The location and pedology of the area surrounding the site near Opovo

[15] Милановић 2017; Bulatović, Milanović 2020, 15–39; Milanović, forthcoming.

[16] Cf. Bánffy 2013

[17] Tringham et al. 1985;1992; cf. Borojević 2006, 8 and Fig. 1.8.

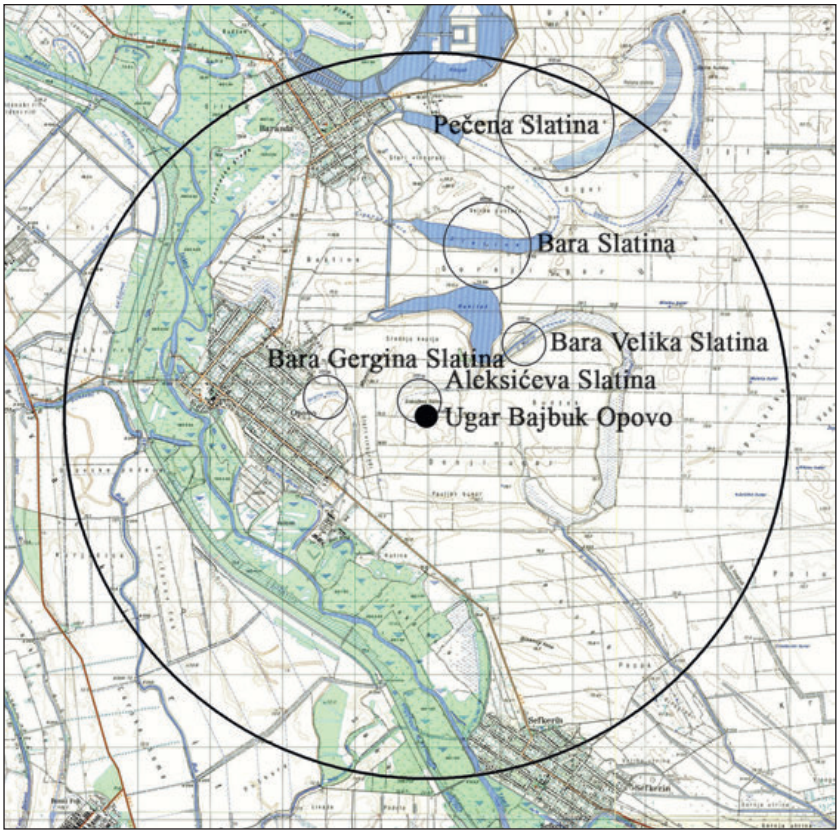

Fig. 3. The Opovo site, on topographic maps of the Military Geographical Institute, R 1:25000, with marked areas that indicate saline soils and waters within a 5 km radius from the settlement

Сл. 3. Локалитет у Опову, на топографској карти Војногеографског института, Р 1:25000, са обележеним површинама које индицирају заслањена земљишта и воде унутар територије око насеља пречника 10 km

indicate the prevalence of grassy steppe with patchy forests, marshy and alluvial vegetation, saline soils, watercourses, and marshes with saline water. It was surrounded by flood plain and marshy terrain, and it lies on chernozem, in the vicinity of several smaller and larger surfaces covered in saline types of soil, *solonetz* and *solontchak* (Aleksićeva Slatina and Pečena Slatina), and several saltwater marshes and watercourses (Gergina Slatina, Velika Slatina and Slatina) (Fig. 3).[18] A surface of 380 m² was excavated in the central and northern portion of the site between 1979 and 1987.[19] A 1.6–2.5 m thick layer yielded three Late Vinča building horizons.[20] The archaeological research by R. Tringham and colleagues has informed us of a settlement that, in many ways, differs from the contemporary Vinča settlements. This primarily refers to the investment of time and labour into the construction of houses (a total of six burnt houses have been recorded),[21] the distinct representation of wild animals (65–70%), and animal remains in general (NISP-number of identified specimens is 13,084), an unusually low representation of cattle (22.6%),[22] scarce remains of cereals,[23] a lower representation of storage vessels compared to other settlements (e.g. Selevac), and the fact that chipped and polished stone tools were not produced at the site, or at least within the excavated area.[24] All of the aforementioned served as a basis for authors to provide a model that presents the settlement as a location for a more temporary or even seasonal occupation, specialised in the exchange, hunting, and procurement of certain raw materials.[25] Therefore, the site near Opovo should probably be considered a settlement that specialised in

[18] Tringham et al. 1992, 354–356; Borojević 2006, Fig. 1.8; cf. Pavlović et al. 2017, 27–29. During the 2019 visit to Opovo, the author was informed by locals that the aforementioned watercourses and swamps were utilised for cattle drinking.

[19] Tringham et al. 1985, Fig. 4; 1992; 354.

[20] Tringham et al. 1985;1992.

[21] The houses are smaller in dimensions compared to other Vinča settlements, almost square and without any inner (horizontal) separation of space, see: Tringham et al. 1992, 381–382.

[22] Rusell 1993; Orton 2012, T. 1 and fusnote 2.

[23] Tringham et al. 1992, 383; Трипковић 2013, 146; but see also: Borojević 2006.

[24] Tringham et al. 1992, 383.

[25] Tringham et al. 1992, 384.The authors offered an alternative model in which the settlement was permanent and newly formed by a population from a large main settlement.

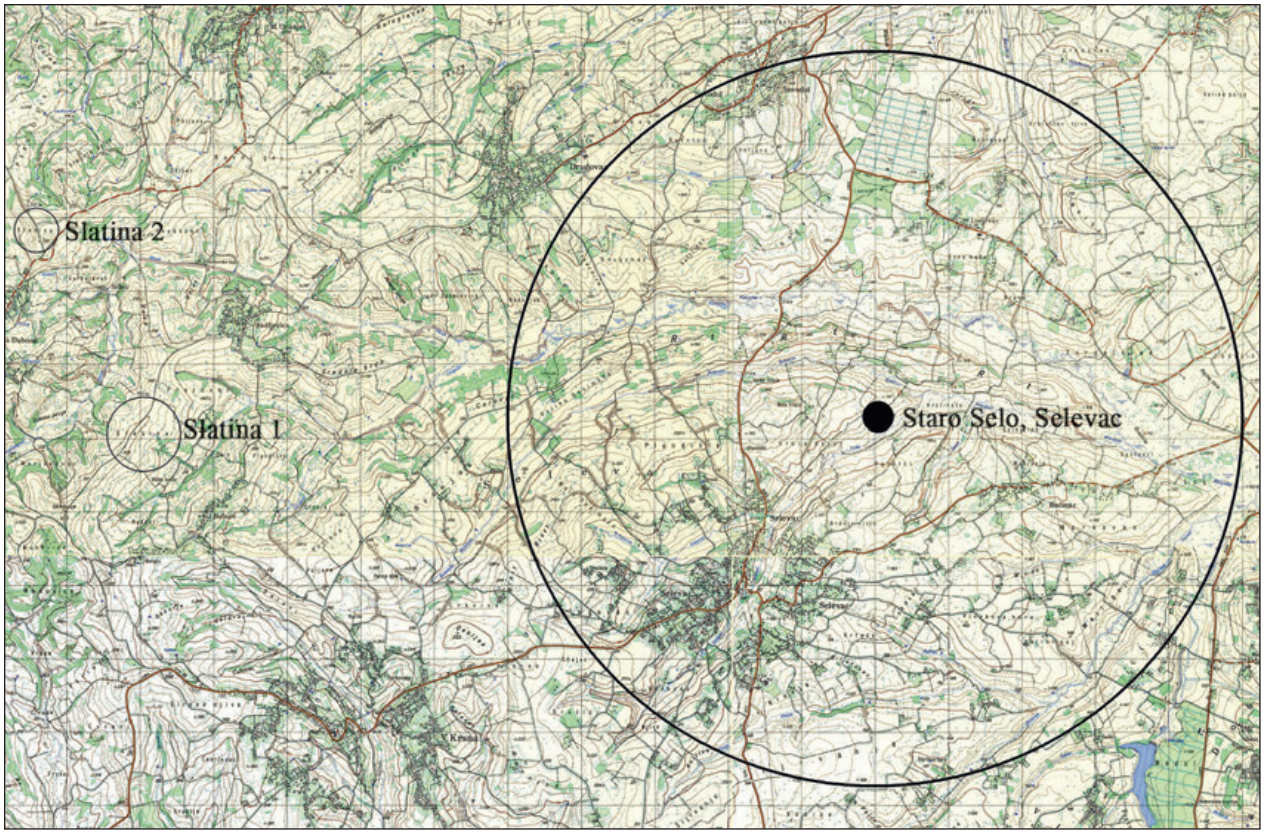

Fig. 4. The Selevac site, on topographic maps of the Military Geographical Institute, R 1:25000, with marked areas that indicate saline soils and waters within a 5 km radius from the settlement

Сл. 4. Локалитет у Селевцу, на топографској карти Војногеографског института, Р 1:25000, са обележеним површинама које индицирају заслањена земљишта и воде унутар територије око насеља пречника 10 km

exchange and hunting, and in which animal husbandry, and possibly salt procurement, played an important role within the activities of the Late Neolithic population.

Staro Selo, Selevac

The site is located approximately 3 km northeast of the village of Selevac, near present-day Smederevska Palanka. It lies on the slopes of Staro Selo Hill (altitude between 130 and 180 m), within the confluence zone of several smaller watercourses into the Konjska River. The site covers an area of approximately 53 ha. It lies on the contact zone between luvisol, eutric cambisol, and the alluvial *pararendzina* (humofluvisol, characterised by loamy alluvial deposits), which are considered fertile and semi-fertile types of soil, suitable for cultivation.[26] Surfaces with saline soils have not been recorded in the immediate vicinity, but are found 9.5 km (Slatina 1) and 11.5 km (Slatina 2) east of the settlement (Fig. 4). Between 1968 and 1970, in 1973, and between 1976 and 1978, a total of 409 m² was excavated at the site.[27] Ten building horizons have been recorded in a 0.6–3 m thick layer, distributed in four stratigraphic-architectural phases within the central and north-western portion of the site.[28] The excavations confirmed the existence of a large and long lasting Neolithic settlement with stratigraphic complexity. It was suggested that, considering the minor excavated area compared to the total size of the site, the highlighted role of Selevac as an exchange centre with wheat as a major commodity remains in the domain of speculation.[29] The pedological conditions, relatively poor representation of animal

[26] Милановић 2017; Milanović 2019; cf. Pavlović et al. 2017, 27–29.

[27] Tringham, Krstić 1990a, T. 3.1.

[28] Tringham, Stevanović 1990, 57–58. Figs. 4.1. and 4.2.

[29] Tringham, Krstić 1990b, 595.

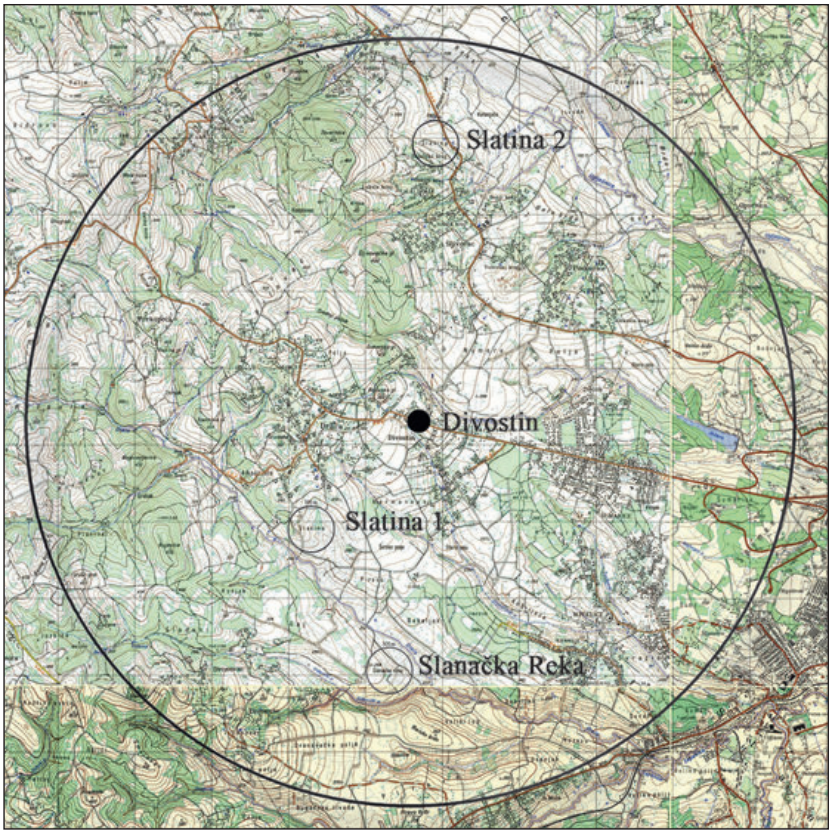

Fig. 5. The Divosin site, on topographic maps of the Military Geographical Institute, R 1:25000, with marked areas that indicate saline soils and waters within a 5 km radius from the settlement

Сл. 5. Локалитет у Дивостину, на топографској карти Војногеографског института, Р 1:25000, са обележеним површинама које индицирају заслањена земљишта и воде унутар територије око насеља пречника 10 km

remains (NISP 7442), as well as low representation of cattle (38% of NISP),[30] storage capacity[31] and the lack of saline soils in the vicinity of the site likewise indicate a distinctly agricultural, rather than pastoral, character of the settlement,[32] which is partially supported by archaeobotanical analysis.[33]

Divostin

A multilayered site in the village of Divostin, northwest of present-day Kragujevac, is located on slopes (altitude between 300 and 315 m), in the proximity of permanent springs and the immediate vicinity of the confluence of the Svetinja into the Divostin Creek. A multilayered site in the village of Divostin, northwest of present-day Kragujevac, covered an area of approximately 15 ha. It lies on vertisol in the vicinity of significant areas covered with eutric cambisol.[34] Areas of saline soils have been recorded in the vicinity, at distances of 1.6 km (Slatina 1), 2.9 km (Slanačka Reka), and 3.3 km (Slatina 2) (Fig. 5). In 1968 and 1969, a total of 2400 m² was excavated at the site and yielded data on two cultural horizons attributed to the Neolithic.[35]

A total of two Late Vinča (Divostin IIa–b) building horizons have been recorded within a 0.4–1.8 m thick layer. A few grindstones, but no handstones, were recorded. Remains of carbonised grains are scarce and the representation of animal remains is significant (Divostin II NISP 10785).[36] The surroundings of the site were dominated by steppe vegetation, forests,[37]and saline soils, all particularly suitable for cattle breeding (62.7% of the NISP were cattle)[38] and the cultivation of fertile forest soil.[39]

Vitkovačko Polje, Vitkovo

The site is located between the villages of Vitkovo, Venčac, and Bobote, east of present-day Aleksandrovac.

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[30] Legge 1990; Orton 2012, T. 1.
[31] Трипковић 2013, 140–141.
[32] Cf. Milanović 2019.
[33] McLaren, Hubbard 1990.
[34] Милановић 2017; Milanović 2019; cf. Pavlović et al. 2017, 27–29.
[35] McPherron 1988; Bogdanović 1988.
[36] McPherron, Christopher 1988; Bökönyi 1988.
[37] Cf. Grüger, Beug 1988.
[38] Bökönyi 1988, T. 17.1; Orton 2012, T. 1.
[39] Милановић 2017; Milanović 2019.

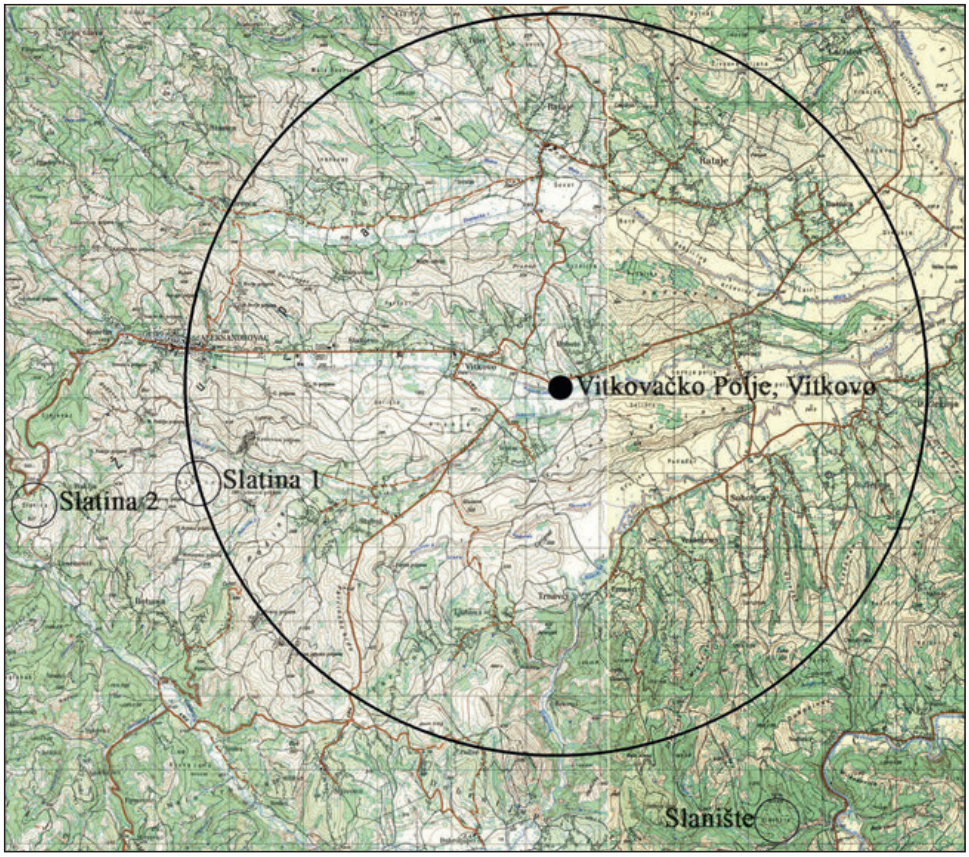

Fig. 6. The Vitkovo site, on topographic maps of the Military Geographical Institute, R 1:25000, with marked areas that indicate saline soils and waters within a 5 km radius from the settlement

Сл. 6. Локалитет у Виткову, на топографској карти Војногеографског института, Р 1:25000, са обележеним површинама које индицирају заслањена земљишта и воде унутар територије око насеља пречника 10 km

It lies in the lowland plain and on the surrounding slopes (altitude between 300 and 320 m), in the confluence area of Kožetin River and Dubovica Creek, which form the Novačka River. The site covers an area of several dozens of hectares. It is located within the contact zone of alluvium and vertisol, with the occurrence of eutric cambisol in the wider area.[40] Areas with saline soils have been recorded in the vicinity, at a distance of 4.7 km (Slatina 1) and at greater distances of 6.3 km (Slanište) and 6.9 km (Slatina 2) (Fig. 6). The rescue archaeological excavations conducted in 1969, 1971, and 2001 recorded a 1 m thick layer with building horizons attributed to the Early and Late Vinča culture.[41] The site location near the alluvium indicates the importance of farming,[42] while the important role of animal husbandry[43] and hunting is particularly indicated by the settling of an area dominated by steppe vegetation with patchy forests and saline soils.

Šanac, Pločnik

The site of Šanac is located in the village of Pločnik, west of present-day Prokuplje. It lies on the slopes of Ravan Hill (altitude between 300 and 330 m), in the confluence zone of Paljevački Creek, the Backa River and the Toplica River. It covers an area of several dozen hectares. The site is located in a contact zone of alluvium, eutric cambisol, rendzina, regosol, and lithosol

[40] Милановић 2017; Milanović 2019.

[41] Tomić, Vukadinov 1969; Бугар 2005; Чађеновић 2007.

[42] Милановић 2017; Milanović 2019.

[43] The representation of sheep and goat in an excavated Late Vinča feature is extremely high (55.4%). However, it has been highlighted that the faunal sample is quite small (NISP 1838), originates solely from one feature from the rescue excavations in 2001 and is not necessarily a reliable representation for the entire settlement, see: Булатовић 2011, 247 and Таб. 2.

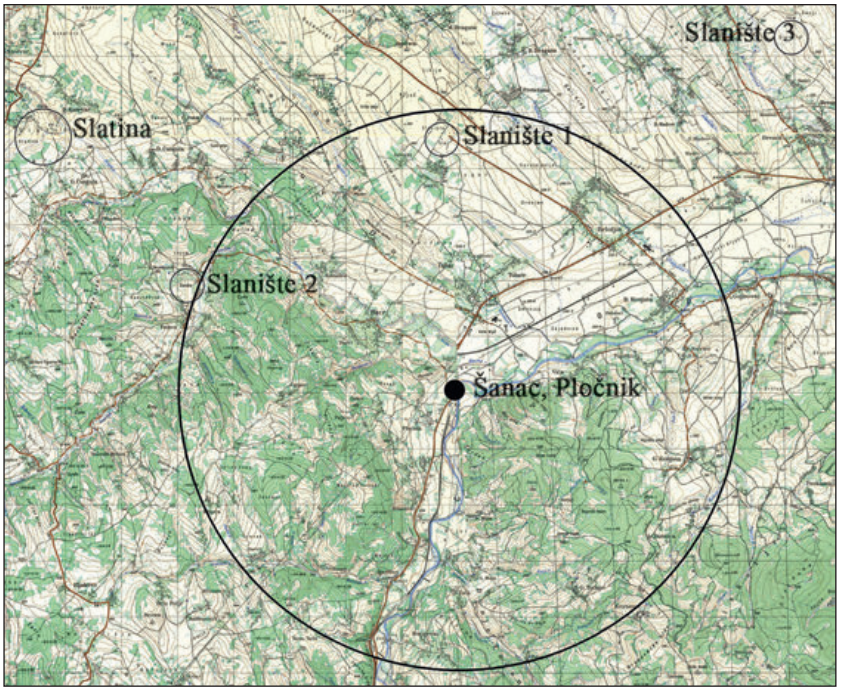

Fig. 7. The Pločnik site, on topographic maps of the Military Geographical Institute, R 1:25000, with marked areas that indicate saline soils and waters within a 5 km radius from the settlement

Сл. 7. Локалитет у Плочнику, на топографској карти Војногеографског института, Р 1:25000, са обележеним површинама које индицирају заслањена земљишта и воде унутар територије око насеља пречника 10 km

on carbonate substrate and vertisol soil type.[44] Several areas with saline soils have been recorded in the immediate vicinity of the site, at a distance of 4.2 km (Slanište 1) and 4.9 km (Slanište 2), as well as at a greater distance of 8.2 km (Slatina) and 8.3 km (Slanište 3) (Fig. 7). In the course of the earlier phase of research, following the discovery of the first hoard of copper artefacts in 1927, approximately 700 m² was excavated, and an additional 1,000 m² were excavated between 1960 and 1978.[45] The excavations continued in 1996 and the latest campaign was conducted in 2012 and 2013.[46] Five building horizons were recorded in a ca. 3.5 m thick layer and the excavations were primarily focused on the north-western portion of the site, where traces of archaeometallurgical activities have been recorded, together with four renowned hoards of copper artefacts.[47] The archaeological excavations have determined the existence of a large and long lasting Late Neolithic settlement with a complex stratigraphy consisting of horizons attributed to the Early and Late Vinča culture. The prevalence of alluvium and forest soils suggests the importance of crops,[48] while the representation of animal remains (NISP 2340 from an area of 45 m²), as well as cattle (61.1% of NISP),[49] numerous areas with saline soils, and steppe vegetation in the surroundings of the site indicate that animal husbandry and hunting, likewise, played an important role in the economy of the site.

Discussion and conclusions

The physical-chemical properties and the past utilisation of areas with saline soils and waters in the Central Balkans are poorly understood. The importance of such natural resources has been emphasised in the territories of the Pannonian Plain and the Carpathian Basin.[50] The fragility of salt marsh ecosystems, their transformation into arable land, and the shift in micro-regional ecosystems due to the melioration of large rivers during the 20th century have all considerably contributed to the disappearance and devastation of salt marshes. This opens the possibility that certain areas with salt sources have not been recorded on the examined topographic maps. Importantly, previous research has indi-

[44] Милановић 2017; Milanović 2019; cf. Pavlović et al. 2017, 27–29.

[45] Grbić 1929; Stalio 1960;1962; Šljivar, Kuzmanović-Cvetković 2009, 56.

[46] Šljivar 1996; Шљивар 1999; Шљивар и Кузмановић-Цветковић 1997; Šljivar, Kuzmanović-Cvetković, Jacanović 2006; Šljivar, Kuzmanović-Cvetković 2009; Марић et al. 2017.

[47] Марић et al. 2017.

[48] Милановић 2017; Milanović 2019.

[49] Bulatović 2018, Tab. 5.5.

[50] Miljković 1972; Šefferová Stanová, Janák, Ripka 2008; Тасић 2009;Tasić 2012; Perić 2012; Sandu et al. 2010; Bánffy 2013; 2015; Weller 2015; Harding 2016.

cated that such areas are connected with heavy soil types (chernozems and vertisols) and steppe vegetation.[51]

This research, which presumes the great importance of these resources for past populations, should be regarded as an attempt to provide a better understanding of each individual Late Neolithic settlement and its role and function within the local settlement system.[52] For certain cases, when settlements were located in the immediate vicinity of areas with saline soils and sources of saltwater, it is likely that cattle breeding and hunting were important. The process of salt procurement could have represented an important activity of the Neolithic populations.

Significant differences regarding the availability of saline soils and waters can be observed in the provided example of five Late Neolithic sites located in different geographical micro-regions. Therefore, certain settlements, like the one in Opovo, seem to have been oriented towards hunting, while cattle breeding and the procurement of an important resource such as salt could have had significant importance in the subsistence economy. Such settlements were particularly important for the exchange networks of the Vinča domain. The inhabitants of other settlements seem to have been primarily focused on cultivating crops, judging by the lack of areas with saline soils in the surroundings and the availability of soils suitable for agriculture. The settlement in Selevac represents such an example (surrounded by three fertile and easily cultivated types of soil), whose inhabitants most likely procured salt and cattle through exchange networks with other settlements. However, their livestock had to be grazed in areas abundant in salt or the salt was added to the animals' diet. A low representation of cattle within faunal samples of the Selevac site may indicate that their breeding may not have been the primary activity of the inhabitants of that settlement. They could have obtained some cattle from more specialised settlements, such as Opovo, which were located where there were saline soils and waters. Based on the availability of local resources, certain settlements held a special place in the settlement system and their roles and functions were tightly connected within the mixed economies of the Neolithic. One such settlement is represented by the site in Pločnik, which stands out due to the representation of two fertile and easily cultivated soil types and the abundance of steppe and saline soils. Other settlements, like the examples from Vitkovo and Divostin, were in the vicinity of solely one soil type suitable for cultivation (alluvium and eutric cambisol, respectively), and the surroundings were abundant in steppe vegetation and saline soils, which indicates that animal husbandry and hunting were of particular importance for its inhabitants.

All this leads to the conclusion that the Late Neolithic settlements should not be observed in isolation, but rather as a part of a wider settlement system, in which the exchange networks with salt as a major commodity had a crucial role. In addition, that could be a good explanation for the expansion of Vinča settlements towards the salt-rich regions, such as the Pannonian Plain in the north, Ovče Polje in the south and the Tuzla Region in the west. Future research should be focused on extensive areas of Late Neolithic settlements, the examination of larger sets of archaeozoological and archaeobotanical samples, as well as areas with saline soils and saltwaters in the vicinity of the Late Neolithic settlements, pollen analyses and analyses of stable isotopes of animal remains, which can be used to study salt exploitation, plant and animal management and Neolithic subsistence economy.

Translated by Ognjen Mladenović

[51] Милановић 2017, 235–250.

[52] Cf. Милановић 2017; Milanović 2019.

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Резиме: ДРАГАН МИЛАНОВИЋ, Археолошки институт, Београд

ЕКОНОМСКИ И ДРУШТВЕНИ ЗНАЧАЈ ЗАСЛАЊЕНИХ ЗЕМЉИШТА И СЛАНИХ ВОДА У КАСНОМ НЕОЛИТУ ПАНОНСКЕ НИЗИЈЕ И ЦЕНТРАЛНОГ БАЛКАНА

Кључне речи. – заслањена земљишта и слане воде, касни неолит, Панонска низија, централни Балкан, одржива економија, мреже размене

Значај соли у исхрани човека и животиња сугерише да су локални ресурси у виду површина заслањених земљишта и слане воде морали бити добро познати прошлим популацијама. Додавање кухињске соли у исхрани стоке представља најстарију праксу кориговања исхране дефицитарне у натријуму (Na) и хлору (Cl). Домаће животиње могу да издрже више месеци без соли, а да не покажу симптоме дефицита. Уколико ускраћивање соли траје дуже, животиња губи апетит и тежину и на крају долази до угинућа. На давање соли животиње врло брзо реагују и симптоми дефицита нестају. Међутим, веома битна су још два њихова аспекта. Први се односи на чињеницу да је и дивљим животињама неопходно уношење соли путем хране или воде. Стога су површине са заслањеним земљиштима и водом привлачиле дивљач, те била идеална за лов. Други аспект се односи на могућности за добијање соли за људску и животињску исхрану, медицинске сврхе, чување хране, производњу коже и друге економско-друштвене функције коју је со могла имати у касном неолиту.

Физичко-хемијски састав и коришћење површина са заслањеним земљиштима и водом у прошлости на простору централног Балкана веома су слабо познати. Знатно више се зна о тим важним природним ресурсима у Панонској низији и Карпатском басену. Фрагилност слатинских екосистема, њихово претварање у ораничне површине и измена микрорегионалних екосистема услед мелиорације великих река у 20. веку знатно је допринела њиховој несталности и девастацији.

У овом истраживању се претпоставља велики значај таквих ресурса за прошле популације на основу анализе околине великог броја локалитета из касног неолита и раног енеолита. У овом раду испитан је просторни однос између положаја насеља и површина са заслањеним земљиштима, водотокова и бара са сланом водом на примеру пет насеља из касног неолита Панонске низије и централног Балкана. У питању су локалитети код Опова, Селевца, Дивостина, Виткова и Плочника. Површине са заслањеним земљиштима и водом у овом раду су евидентиране на топографским картама Војногеографског института у размери 1 : 25000. Савремена истраживања тих локалних ресурса у близини пет насеља, колико је аутору познато, нису вршена. Циљ истраживања је да се учини први корак у реконструкцији могућих места на којима је могла бити експлоатисана со и да се боље разуме свако појединачно насеље из касног неолита и његове улоге и функције у локалном систему насељавања. У обзир су узети и раније публиковани резултати педолошке анализе околине насеља и археолошких истраживања.

На примеру пет налазишта из касног неолита, лоцираних у различитим географским микрорегијама, могу се уочити велике разлике у заступљености заслањених земљишта и слане воде и других локалних ресурса. Одсуство таквих локација у околини каснонеолитских насеља сугерише на значај мрежа размене којима се морала добављати со, а вероватно и говеда. Слабија заступљеност говеда у фаунистичким узорцима са појединих локалитета, која нису имала нарочите погодности за њихов узгој, као што је Селевац, указује да узгој говеда није био примарна активност становницима тог насеља. Она су свакако могла бити добављана из других, више специјализованих насеља, чија је околина обиловала заслањеним земљиштима и сланом водом, као што је Опово, што би објаснило њихову слабу заступљеност у том насељу. Поред тога, стока је морала бити терана у области богате сољу или је со додавана у животињску исхрану. Произилази да каснонеолитска насеља не би требало посматрати изоловано, јер чине део ширег система насеља, у којем су мреже размене са сољу као главним артиклом имале кључну улогу за разумевање културног развоја у 5. миленијуму пре н. е.

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SIZE DOESN'T MATTER: FOENI-SĂLAŞ, A SMALL MULTI-PERIOD SETTLEMENT IN THE ROMANIAN BANAT

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Abstract. – Systematic archaeological excavations at the multicultural site of Foeni-Sălaş in the Romanian Banat conducted during the first half of the 1990s uncovered evidence that the site was inhabited during the Early Neolithic, Copper, Bronze, Early Iron, Late Antique and Medieval Ages. This paper summarises the cultural history of the settlement at the site and describes the relevant deposits and material culture in each period.

Key words. – Early Neolithic, Eneolithic, Bronze Age, Early Iron Age, Romano-Dacian, Medieval

In 1992, as the embargo on the former Yugoslavia was imposed, the joint excavations at Blagotin by Dr. Svetozar Stanković and Haskel Greenfield were interrupted (even though we continued to work as private individuals with the Blagotin team through 1992–95). As a consequence, Greenfield was forced to work outside of the country. He was very fortunate to be able to find an archaeological site across the border in Romania, due to the good graces of Florin Draşovean and Horea Ciugudean, that was comparable in size (small), shape (round), and time period (Early Neolithic) to Blagotin. By moving to Romania, he was able to test the model that he and Stanković developed, based on the results of the Blagotin excavations, that Early Neolithic settlements were spatially organised as a series of pit houses around a larger, more central one. The results of the two excavations have largely been supported and changed the way in which the organisation of settlements in Early Neolithic society are viewed.[1]

As discovered during the excavations at Blagotin, Early Neolithic settlements are best understood when investigated with large horizontal excavations. One has to focus on excavating the areas between pit houses (not only on the pit houses) in order to recover the larger pattern of settlement at the site, even within a single period. Since most stratigraphy at such sites is laterally displaced over time, there tends to be little build-up of superimposed strata. As a result, the site of Foeni-Sălaş was extensively investigated within a spatial framework. It is a relatively small and shallow site with no evidence of lateral displacement of stratigraphy within each period.

The site of Foeni-Sălaş in southwest Romania, almost on the border of Serbia, is best known for its Early Neolithic occupation, which has been reported upon elsewhere.[2] It was originally thought that the occupational sequence at Foeni-Sălaş largely consisted of an Early Neolithic settlement. However, during surface collections and excavations, evidence for various other settlement phases was uncovered, albeit of a more ephemeral nature. These are presented here. In this paper, we present for the first time the entire culture historical sequence at the site. First, the location and environment surrounding the site of Foeni-Sălaş are described. Second,

[1] Greenfield 2000; Greenfield, Jongsma-Greenfield 2014; 2018; Greenfield, Jongsma 2006.

[2] Greenfield, Draşovean 1994; Greenfield, Jongsma 2008; Greenfield, Lawson 2020.

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Fig. 1. Banat region and geographic location of the Foeni Sălaş site

Сл. 1. Области Баната са позицијом локалитета Фоени Салаш

the history of research, and methods and techniques of excavations are presented. Third, each period and the associated deposits (loci and pits) are described. Fourth, some of the more important artefacts are presented and described. Finally, the significance of investigating small sites such as Foeni-Sălaş in the larger region is discussed.

Site location and environment

The archaeological site of Sălaş is located in the Romanian Banat, approximately 2.4 km north of the centre of the modern village of Foeni (hence, the name Foeni-Sălaş) and the Romanian border with Serbia (20°51′32.05″ long. east, 45°31′13.76″ lat. north, and 80 m ASL) (Fig. 1). It is southwest (45 km) of the capital of the county, Timişoara.

The site is located in the Torontal Plain, which is a broad alluvial plain between the Timiş and Bega Rivers. It is situated on the right bank of the Timişat stream, which is a tributary of the Timiş (Fig. 2). Surrounding the site are low lying wetlands and old stream meanders and channels. The Timişat has been straightened and channelled and lies roughly to the east of the site. It used to bend around the southern edge of the site. Mostly sandy, loamy, clay soils heavily affected by the fluctuating water table are superimposed over Pleistocene loess across the plain surrounding the site. The culturally sterile loess underlies all cultural deposits at the site. With the draining of the wetlands in the 19th century, the area was transformed into a region dominated by modern agricultural activities, which ultimately impacted preservation at the site.[3] There is little to none of the indigenous vegetation preserved surrounding the site.

[3] Greenfield, Draşovean 1994, 47.

Fig. 2. Google earth ortogonal photo of the location of Foeni Sălaş site (red arrow)

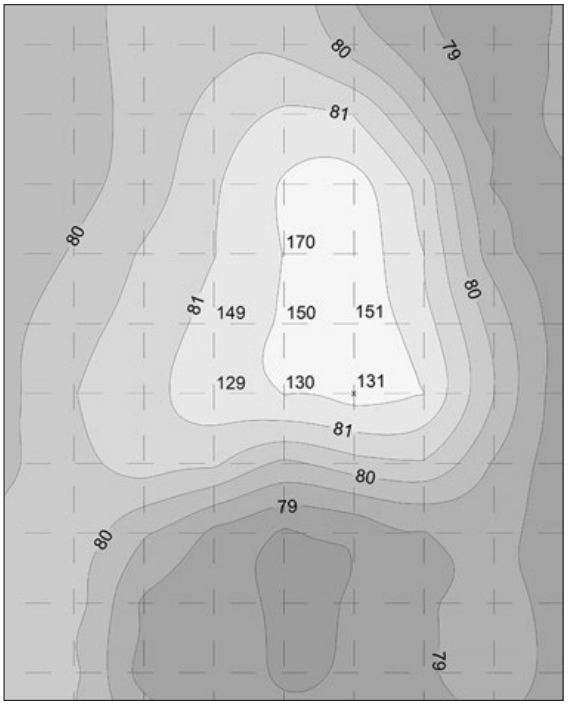
Сл. 2. Google earth ортоїонална фотоїрафија са їозицијом локалитета Фоени Салаш (црвена стрелица)

Modern agriculture has also transformed the site in recent years. Not only was the site continually under cultivation throughout the 20th century,[4] deep ploughing (30–50 cm) by the Romanian State occurred in the 1970s that mixed most of the upper strata at the site, creating a thick plough zone (30 cm). Based on plough marks found to a depth of 50 cm, it is clear that the deep ploughing affected some parts of the site to a great depth.[5] It is also clear that the elevation of the site was higher before the modern era of ploughing sheared off the topmost occupational deposits.

The site can be characterised as a roughly circular, low-lying (tell-like) mound that is visible even in satellite photos (Figs. 2, 3). The accumulation of superimposed strata is a depositional pattern reminiscent of the many larger tell sites in the region.[6] The mound is slightly elevated above the level of the rest of the plain since it is on a low natural hill that rises above the surrounding plain. The mound gently slopes down to the plain to the north and west, while more rapidly into the Timişat stream channel that borders it to the east. At one point in the past, the stream bent around the southern edge of the site. While the site is relatively flat, there is a slight dip between the north-eastern and south-western parts of the site. The occupational area on the rise covers an area c. 2,000 m².

The modern climate of the region can be characterised as warm continental with hot and wet summers and cold and drier winters. The winter is relatively warm (in comparison to points farther north) because the damp warm winds from the Mediterranean offset the cold and dry winds from the east and north.[7]

[4] Greenfield, Draşovean 1994, 46.
[5] Greenfield, Draşovean 1994.
[6] Hofmann *et al*. 2012; Schier, Draşovean 2004.
[7] Pounds 1969.



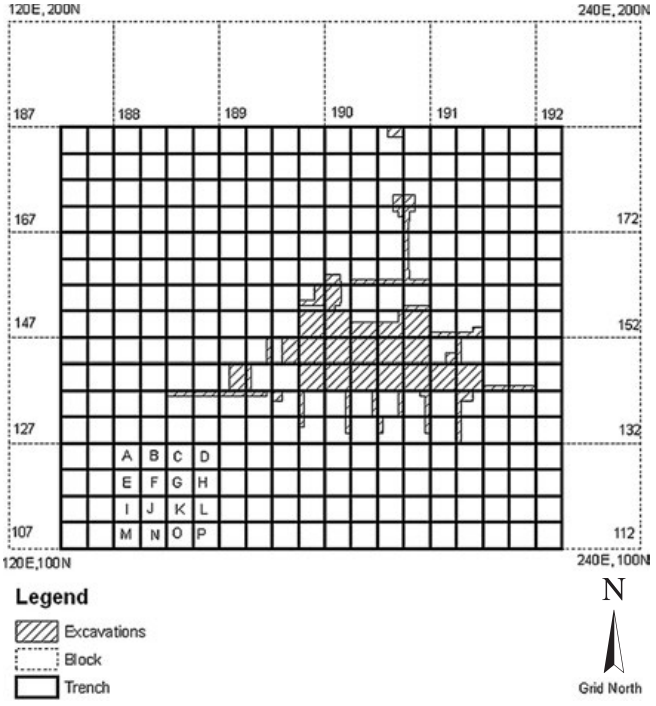


Fig. 3. Topographic map of Foeni Sălaş
Fig. 4. Quadratic grid system employed at Foeni Sălaş

Сл. 3. Топографска мапа локалитета Фоени Салаш
Сл. 4. Квадратна мрежа која се користила приликом истраживања локалитета Фоени Салаш

History and nature of research

Florin Draşovean (Museum of the Banat) was the first to investigate the site when he noticed two concentrations of surface remains: 1) Metal Ages and 2) Early Neolithic Starčevo-Criş.[8] It was on his recommendation that we embarked upon our research at the site. Haskel Greenfield, in collaboration with Florin Draşovean, directed the large-scale spatially-oriented excavation at the site from 1992–1994 to investigate the Starčevo-Criş settlement at the site. A consequence of this excavation was the discovery of many deposits from later periods. This report describes the entire sequence for the first time.

Prior to and during excavation, several techniques were used to discern the extent of settlement in each period. These included surface collection, coring/auguring, and geomagnetic surveys. Each of these allowed a glimpse into the nature and extent of the settlement history in general, but also individual deposits. For example, towards the completion of the excavation, coring identified the location of the final and unexcavated Early Neolithic pit house (Locus 50) at the site (Fig. 17).

The surveys and excavations ultimately allow us to demonstrate that Foeni-Sălaş is a multi-period site with occupations or uses that include Modern (19–20th cent. AD), Medieval (10–11th and 14–15th cent. AD), Late (Daco-) Roman (2–5th cent. AD), Early Iron Age (Hallstatt B and D), Middle Bronze Age (Verbicioara), Eneolithic (Cernavodă III – Baden and Kostolac), and Early Neolithic (Starčevo-Criş) deposits. All deposits, except for the Early Neolithic, were dated with respect to the local culture historical sequence.[9]

For provenance purposes, the site was divided into a nested quadratic block system (Fig. 4). The larger Block (e.g., 150) measured 20x20 m, within which were a series of 5x5 m Trenches (A-P), within which were 1x1 m Quads (1–25), starting at the north-western corner and moving from left to right. Each 1x1 m unit can be identified to an exact spatial coordinate (e.g., excavation unit 150C2 represents Block 150, Trench C, and Quad 2).

[8] Greenfield, Draşovean 1994, 48.
[9] Dumitrescu *et al.* 1983; Luca *et al*. 2011.

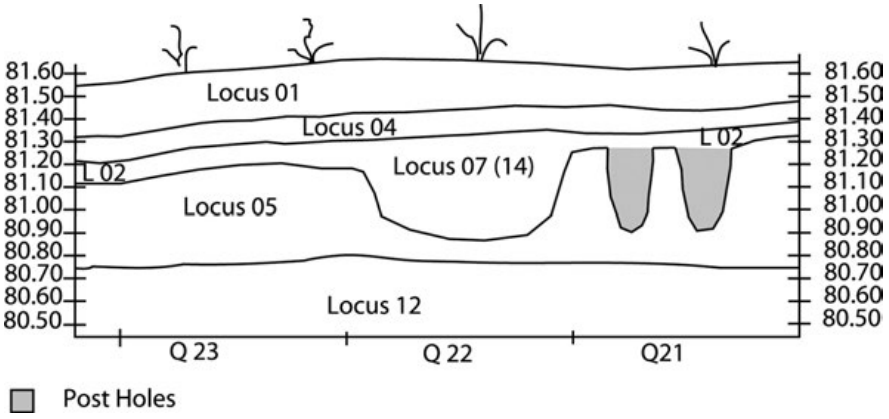


Fig. 5. Stratigraphic section of Loci 0, 1,2,4,5 and 12 in sequence at Foeni Sălaş

Сл. 5. Стратиграфија локуса 0, 1, 2, 4, 5 и 12 на делу локалитета Фоени Салаш

Each quad was excavated down to the sterile Pleistocene loess soil and, at times, deeper. The heavily disturbed plough zone was shovelled as 1x5 m units, as the cultural debris was mixed and the primary context lost. All artefacts were recovered and catalogued. Natural, undisturbed soils were excavated using shovels and trowels when finer work was required. Excavators followed the natural stratigraphy as much as possible, but used arbitrary levels when soil changes could not be discerned or where deposits became too thick. Artefacts were pedastaled *in situ* as much as possible and were collected only after being drawn and photographed (Fig. 25). Soils were dry sieved using a 0.5 cm² mesh (1992), but this was later replaced by a larger 1 cm² mesh (1993–1994) since the soil was very clayey and clogged the smaller mesh. Numerous soil samples were taken for water sieving and flotation, particularly when charcoal and ash deposits were noticed, but also when there were none, to ensure that there was little bias in deposit selection.

The term locus (pl. *loci*) is used here as a depositional unit with sedimentary and/or cultural/behavioural integrity. Each major deposit (e.g., pit, pit house, pansite stratum, etc.) is assigned a unique Locus number (e.g., Locus 1 is the plough zone). These may be subdivided if there are separate phases or episodes discernible in the deposit (Locus 7.1/upper; Locus 7.2/middle, Locus 7.3/basal deposits within Locus 7).

Site taphonomy

Two major sources of disturbance exist at the site, modern ploughing and rodents. All loci had evidence of extensive rodent activity, especially those with high organic content. Rodent disturbances were recorded and potentially intrusive artefacts that had drifted down into earlier deposits were removed from the analysis as much as possible.[10]

The second major disturbance was modern and ancient ploughing. As noted above, this mostly extended to 30 cm below the surface, but occasionally extended to 50 cm. It sheared off the top of the mound. The site continued to be under cultivation during the period of our research. These activities destroyed and/or disturbed much of the post-Neolithic deposits since they were higher up. The deeper Early Neolithic cultural layer was fortunately mostly undisturbed by ploughing.[11] As a consequence of the ploughing, the post-Neolithic deposits are largely preserved as *in situ* hot spot concentrations just beneath the plough zone. Since the storage and/or midden pits and pit houses extend deeper than the plough zone, they are better preserved and discussed here (Figs. 6, 12).

The third major disturbance source is later occupations. Later pits and other features intruded into and destroyed parts of earlier deposits.[12] The EIA is the second most extensive settlement at the site since it completely overlies the earlier settlements. In turn, the Medieval ploughing, fortification, and pits also destroyed anything earlier that lay beneath. Only the Late (Daco-) Roman pit house (Locus 38) at the northern end of the site did not destroy anything since it was beyond the limits of the earlier settlements (Fig. 11).

[10] Greenfield, Draşovean 1994, 56.

[11] Greenfield, Draşovean 1994, 57, 60–63.

[12] Greenfield, Draşovean 1994, 71–72.

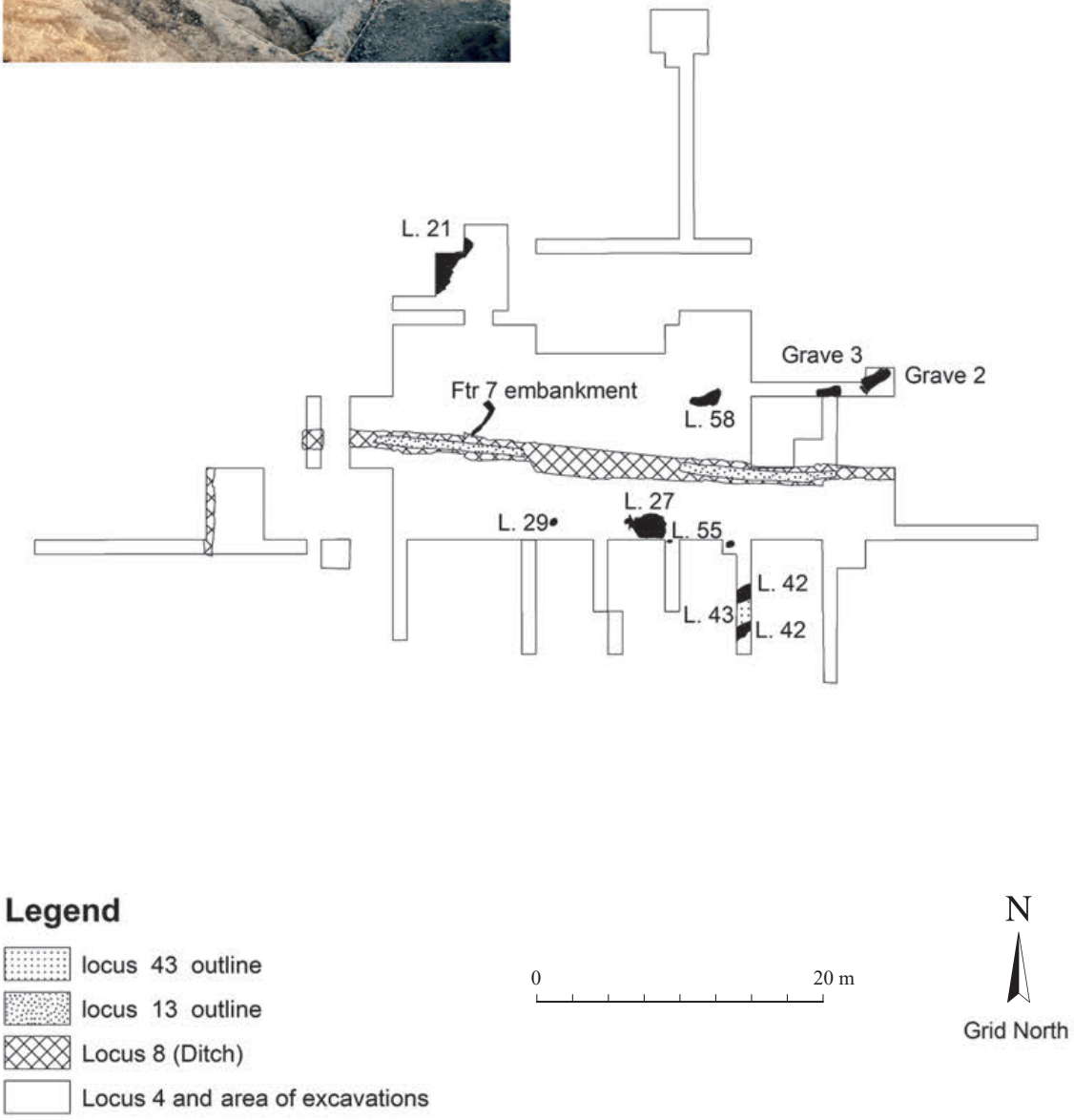


Fig. 6. Location of excavated Medieval features (lower) and photo of Medieval fortification ditch with postholes (Locus 8) and outline of Daco-Roman pit features 4, 5, and 8 in Trench 130A (upper) at Foeni-Sălaş

Сл. 6. Позиције истражених целина из средњег века (доле), фотографија одбрамбеног рова са стубовима (Locus 8) и границе Дачко-римског укопаног објекта 4,5 и 8 у сонди 130А (горе) на локалитету Фоени Салаш

Cultural horizons

There are five pan-site horizons in descending order from the surface: Locus 1 (plough zone), 4 (Medieval plough zone), 2 (Early Neolithic Starčevo-Criş), 5 (post-Pleistocene humus), and 12 (sterile Pleistocene loess).[13] Each are described separately within their relevant temporal contexts (Fig. 5). There are no pan-site horizons from the intervening periods (Eneolithic, Bronze Age, EIA, and Late Roman).

Their deposits and remains are incorporated into or truncated by the Medieval Locus 4, and the artefacts are not in primary contexts, except in pit features that survived below them. The only features to remain intact from the earlier periods are found below the Medieval plough zone.

Cultural deposits by period

All deposits were assigned to a period based on their stratigraphic connections and position, as well as the typo-chronological analysis of associated artefacts. In some cases, the majority of artefacts would suggest that the deposit belonged to an earlier period. We generally used the latest artefact found in the deposit's assemblage as a key to its dating. However, given the presence of rodent activity, some of the later artefacts were removed from the analysis since they clearly did not belong to the layer in which they were found (e.g., EIA material in Early Neolithic deposits). The advantage of a spatially oriented excavation is that strata could be directly and physically traced from trench to trench across the excavation area.

A. Modern era

The modern era is represented by two loci (0 and 1). Locus 0 is the surface of the site and is the phase from which all surface collections were made. Locus 1 is the thick (30cm) pan-site modern plough zone horizon and overlies all earlier deposits The latest material in these deposits is from the 19th and 20th centuries AD, but a mixture of cultural debris from all periods is present in both deposits.[14]

B. Medieval (Fig. 6)

The Medieval occupation extends across the site with a pan-site locus, two houses, and several pits. It was approximately 10–20 cm in thickness. The material culture of some of the deposits suggests a date in the 10–11th century AD for the major Medieval occupation at the site, but there is a hint also of a later Medieval occupation (14/15th century).

Locus 4 was likely created through Medieval ploughing. The characteristic greyish colour of the sediment is likely caused by the mixing of whitish ash and black soot from the burning of crops in fields, which was then ploughed under. It contains a mixture of all the post-Neolithic deposits on the site. All of the deposits from this period are linked to *Locus 4,* as it is the Medieval pan-site locus. In some places, Locus 4 could be subdivided into an upper (Sub-Locus 4.1) and lower locus (Sub-Locus 4.2).[15] Any features within this locus were destroyed and the remains scattered by Medieval ploughing, as occasional plough marks are discernible. All of the features in it were destroyed and the remains are not in the primary context.

Locus 8 is a Medieval fortification ditch that extends across the site in an east-west direction and then turns to the south at a right angle to continue in a north-south direction to the westernmost edge of the site (Fig. 24).[16] There is evidence that the ditch is actually a foundation trench for a wooden stockade, since wooden post holes of regular size have been found systematically spaced inside along its length, as well as large pieces of carbonised timber segments (Fig. 6).[17] It is clear that the ditch was created as part of a large wooden palisade, the posts of which were placed upright in the ditch, which was then filled. Many of the large wooden posts burned down, leaving carbonised remains of their form. The ditch disturbed all earlier deposits beneath it. The ditch is divided into 2–3 phases of fill. The lower two sub-loci are found throughout the spatial extent of the locus. The uppermost sub-locus is largely confined to the area around Trench 131F. *Sub-locus 8.1* is the upper fill (greyish brown); *Sub-locus 8.2* is the basal fill (brown); and *Locus 13* is a thin yellowish brown sediment that was found immediately above Sub-locus 8.1 at the eastern end of the site, but without any associated ceramics. It was not observed anywhere else and may be more modern in origin.

Locus 21 is a semisubterranean structure (house) with straight walls, a 90^{o} corner, and a line of postholes around the perimeter that marked the location of wooden (wattle and daub) walls along the sides. No interior

[13] Greenfield, Draşovean 1994, 62–64.

[14] Greenfield, Jongsma 2008.

[15] Greenfield, Draşovean 1994, 62–63.

[16] Locus 8 was incorrectly assigned to the Early Iron Age in the Greenfield, Draşovean 1994 publication, p. 72.

[17] Greenfield, Draşovean 1994, 64–65.

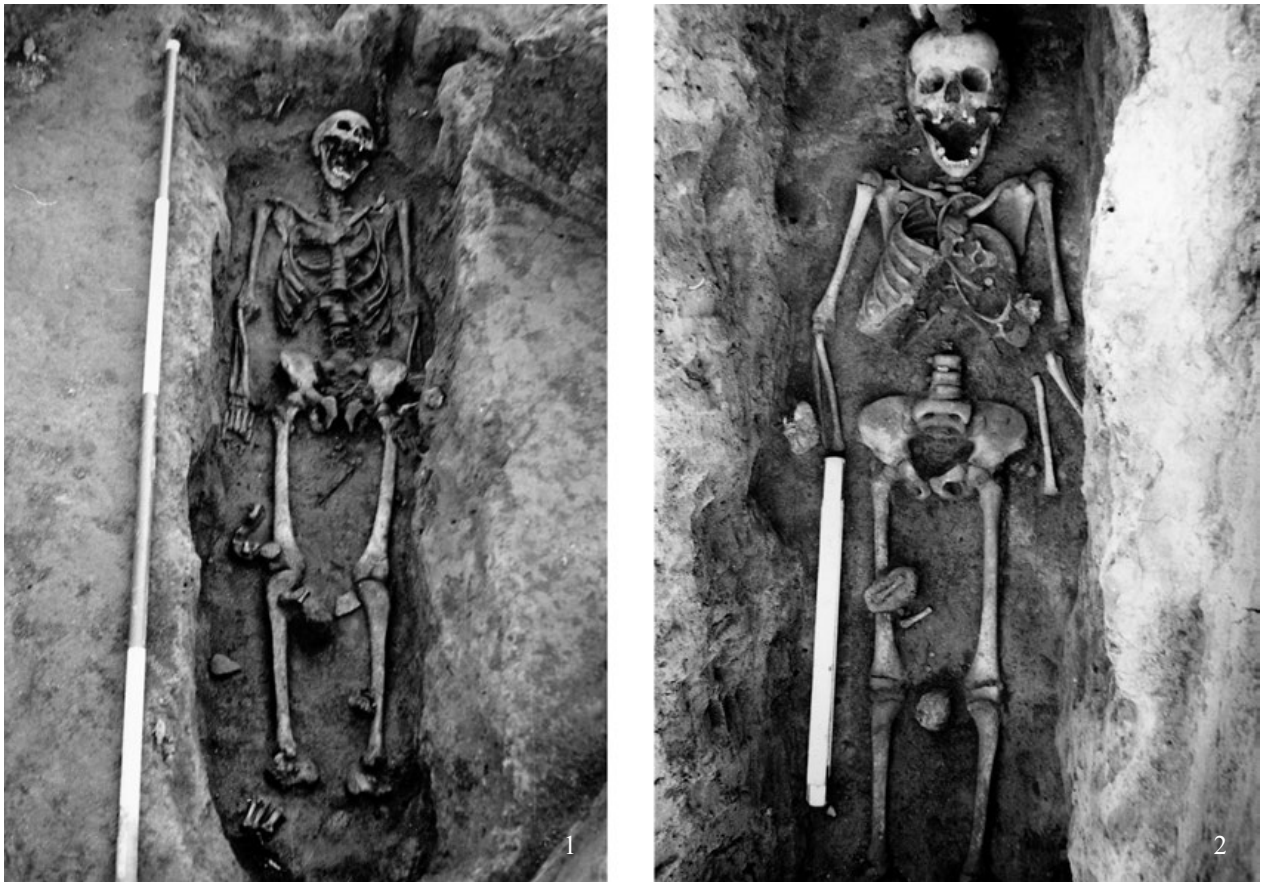


Fig. 7. 1) Grave 2; 2) Grave 3

Сл. 7. 1) гроб 2; 2) гроб 3

division was observed. There are some associated remains (ceramics, bone, shell, etc.). The few Medieval ceramics clearly indicate its period of occupation.

Locus 27 is a late Medieval semisubterranean structure surrounded by post holes and there are two parts: a bowl-like and elliptically-shaped fired (burnt) daub floor and a hearth area. There is a series of possible post holes surrounding the perimeter (but these could be rodent holes). The superstructure is largely destroyed. The few ceramics point to a Late Medieval occupation. There are also animal bones and daub.

Locus 29 is a small storage pit that extends down from Locus 4. There are no associated ceramics. Based on its stratigraphy and differences in shape to earlier pits, it is considered to be Medieval in origin.

Locus 42 is a semisubterranean house complex with associated postholes and a fired clay floor similar to that in Locus 38. Its complete shape was not determinable since only a section was excavated in a transect that cut through the deposit.

Locus 43 is a small pit that cuts through the centre of Locus 42 that may have been initially used for storage, but later filled with rubbish debris.

Locus 55 is a large unfired clay base that may have served to anchor a post for a small pit. It is tentatively assigned to the Medieval period based upon its stratigraphy, architecture, and association with Medieval artefacts. It has been given a separate locus designation from the surrounding Locus 4 based on the digital analysis of daub remains in the lab.[18]

Locus 58 is a small pit dug through Loci 24 and 30. It was also not recognised as a separate locus during excavation. It contains a cluster of Medieval ceramics and a very large round grindstone.

Feature 7 is a rectilinear bedding trench with very few associated remains.

[18] Jongsma 1997.

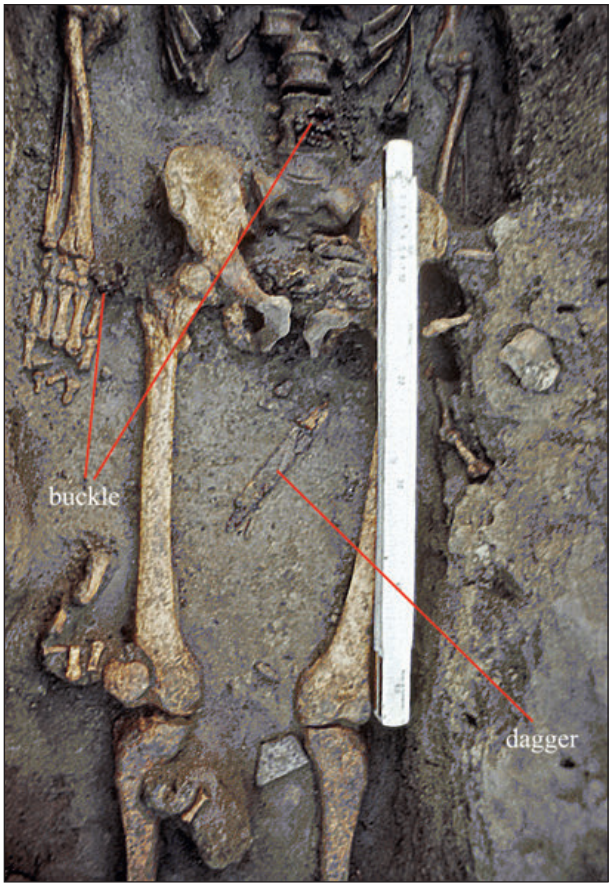


Fig. 8. Detail of grave 2 with metal finds

Сл. 8. Детаљ гроба 2 са прилозима од метала

Two Medieval graves were found on the eastern edge of the site. Grave 2 is very close to the modern surface (Figs. 7/1, 8). Erosion and ploughing brought it close to the surface, since it is on a sloping surface. The grave is dug into the post-Pleistocene sterile soil horizon (Locus 5) and filled with very dark brown sediment. It contained the osteological remains of a fully articulated middle-aged male skeleton, possibly someone with martial roles since weapons were buried with him, lying on his back. The feet were pointed northeast, but some bones were disturbed by rodents. The grave goods include weapons (metal spear and dagger) and metal clothing paraphernalia (a metal fibula, belt buckle, and a strip of metal around the waist that may have been from a belt) (Fig. 8). All of the grave goods are in the Museum of the Banat (Muzeul Banalui, Timişoara) depot and we have yet to observe the results of their conservation. The grave was oriented southwest (head) to northeast (feet) in terms of the site grid, or east (head) and west (feet) for true north. The face was mostly facing straight upwards, but learning slightly in the direction of true east. The area where the feet were located was disturbed by rodents, who dragged part of the foot bones for a small distance into a rodent tunnel. These were, however, recovered as well.

Grave 3 is a burial located very close to Grave 2, on the eastern edge of the site. The skeleton was laid in a manner that was very similar to that of Grave 2 (Fig. 7/2). It was heavily disturbed since some of the elements were not fully articulated. The burial is thought to be that of an adult woman who was possibly pregnant at the time of death, since some infant remains were found within the thorax. The skeleton was oriented with the feet pointing toward grid west and the head toward grid east, or true northwest (head) to southeast (feet). The direction of the face appears to have been oriented toward true east.

C. The Late Roman period (Fig. 9)

The Late Roman (also known as Daco-Roman) occupation is small and mostly limited to the southwestern quarter of the site. These deposits appear to be from a 3–5th century AD occupation. There was no clear Late Roman horizon as it was incorporated into and disturbed by the Medieval plough horizon (Locus 4). A number of Late Roman loci were preserved below Locus 4, which were identified and excavated.

Locus 35 is deep bell-shaped storage pit with a shelf or ledge around the bottom (as if to support some kind of wooden base) that was 15 cm above the bottom, clay-lined floor. Ceramics, a metal knife and a circular object, mammal and fish bones, snail shells, and charcoal were found within.

Locus 38 is a small square-shaped semisubterranean house with a clay floor, with postholes around the perimeter and an oven in the southern end. There was a low density of remains (including ceramics, bone, carbonised wood, and metal – Fig. 12).

Locus 46 is a deep bell-shaped storage pit with very few remains and a concentration of carbonised soil at the bottom.

Feature 4 is a circular bell-shaped storage pit that is cut by Feature 5. It was used secondarily as a midden after the initial function was abandoned. A metal bell and bobbin were recovered from the fill along with Daco-Roman ceramics (Fig. 6).

Feature 5 is a circular bell-shaped storage pit that intrudes into Feature 4. It was used secondarily as a midden after the initial function was abandoned. The top was destroyed by locus 4 (Fig. 6). It contained mostly

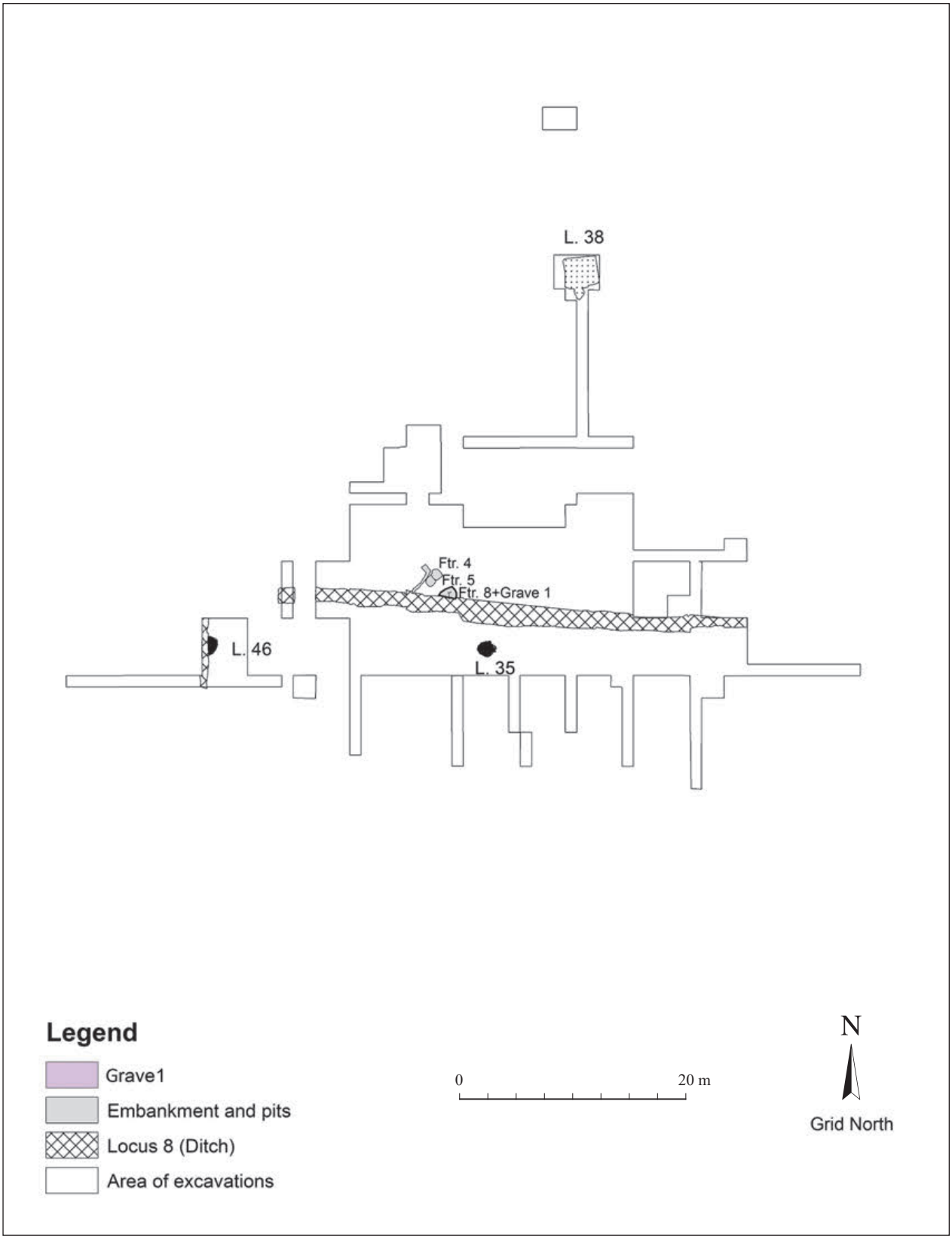


Fig. 9. Daco-Roman loci at Foeni Sălaş

Сл. 9. Локуси са дачко-римским налазима на локалитету Фоени Салаш

Daco-Roman (and a few EIA and Early Neolithic) ceramics, and animal bone.

Feature 8 is a circular bell-shaped storage pit with an infant burial in the fill (Grave 1) (Fig. 10). It was used secondarily as a midden after the initial function was abandoned. It is partially cut by Locus 8 (Fig. 6).

Grave 1 is an infant human burial found in the bottom of a bell-shaped storage pit (Feature 8). The skeletal remains of the infant were found two-thirds of the way down the pit (Fig. 10). The bones of the skeleton were in proper anatomical position. The child was laid on its right side, in an extended position. The face was turned to face downwards. The right arm was extended. The left leg was also extended, but the right leg was bent. The skeleton was oriented toward the northeast, but the skull was face-down. The top of the cranium pointed towards the north. While no grave goods directly accompanied the burial, the usual range of discarded artefacts (pottery, intact grindstone, etc.) were found inside the pit. A large shed red deer (*Cervus elaphus*) antler was carefully placed on the very bottom of the pit, below the level of the juvenile burial. A large grindstone was found above the level of the burial inside the pit. No remains were found directly on the level of the burial. However, this careful placement of objects both above and below the burial suggests a ritual or cultic character for the deposit in general.

Fig. 10. Daco-Roman pit and Grave 1

Сл. 10. Дачко-римска јама са гробом 1

D. Early Iron-Age (Hallstatt) (Fig. 12)

The Early Iron Age occupation is represented by the Hallstatt B culture complex (1000–800 BCE). It extends across the entire southern half of the site. The entire Early Iron Age Horizon was incorporated into, and the top of the Early Iron Age pits was cut off by, Locus 4, the Medieval plough zone. Some of the Early Iron Age pits that intruded into and disturbed the Early Neolithic horizon included some Starčevo-Criş ceramics. The Early Iron Age is the second largest occupation at the site. The following loci were identified from the Early Iron Age.

Locus 11 is a small storage pit. A large ceramic vessel was found in the bottom.

Locus 15 is a small (1 m diameter) circular pit that extends down through the earlier Early Neolithic deposits (Locus 7) and into the Pleistocene loess (Locus 12) (Fig. 2).[19] It was sealed by Locus 4. White lines of ashy clay were found inside the pit. Carbonised animal and plant remains indicate that it was used for heating objects to high temperatures (Fig. 23). It was originally reported as a Vatin culture feature (Greenfield and Drasovean 1994), but reanalysis of the ceramics (below) suggest that it belongs with the Iron Age part of the settlement.

Locus 18 is a large pit, probably used as a semisubterranean house with two rooms, since the floor appears to have been divided into two sections. It is associated with a storage pit (Feature 3).

Locus 22 is a small pit. Its function is ambiguous.

Locus 28 is a small circular storage pit surrounded by postholes. The postholes indicate that it may have been for a small superstructure. There are few ceramics in this locus.

Locus 30 is a large semisubterranean house dug into the centre of a Starčevo-Criş pit house (Locus 24). It is filled with occupational debris (ceramics, bones, grindstones, etc. – Fig. 22).

Locus 31 is a small circular bell-shaped storage pit with mostly carbonised remains. It was probably used for grain storage.

Locus 32 is a small oval storage pit with very few remains associated with it. It is filled with a series of micro-strata of blackened soil, probably indicating the presence of burnt grain.

Locus 33 is a small oval storage pit for a large pithos on the bottom. It is filled with ceramic and other remains. The top was disturbed by ploughing as only the base remains.

[19] Greenfield, Jongsma 2008, fig. 10.

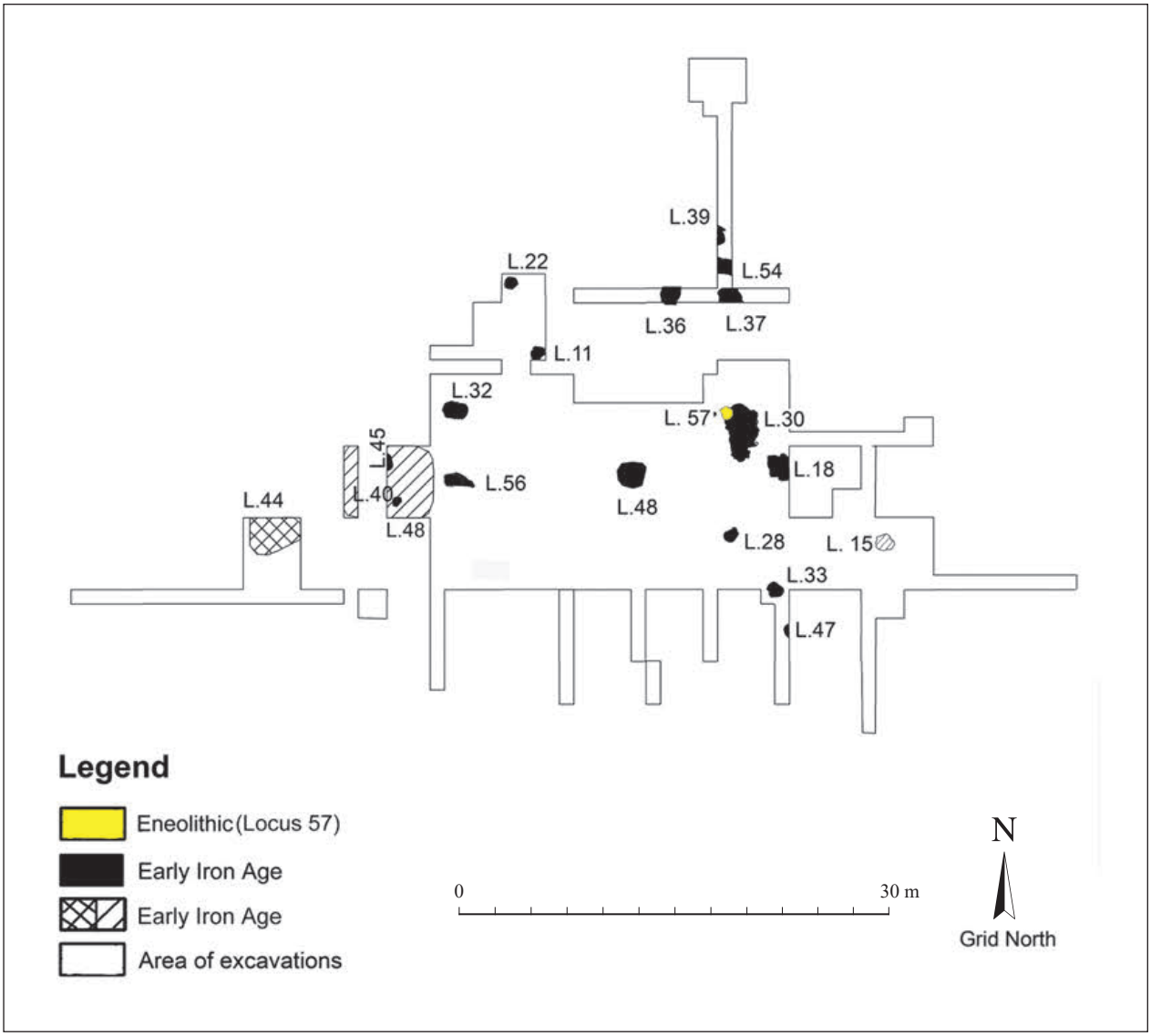


Fig. 11. Position of Eneolithic, Bronze and Iron Age features and loci at Foeni Sălaş

Сл. 11. Позиције објеката из енеолита, бронзаног и старијег гвозденог доба на локалитету Фоени Салаш

Locus 36 is a very small oval and shallow pit with few remains, probably used as a midden.

Locus 37 is a small pit with few remains and was probably used as a midden.

Locus 39 is a small circular pit filled with an assortment of different artefact types including wall daub, animal bones, Hallstatt ceramics, and a small grindstone, which were thrown in haphazardly. It probably had a secondary use as a midden.

Locus 40 is a large semisubterranean house with several associated postholes, an oven, and concentrations of wall and floor daub.[20] This locus is cut by Locus 8, the Medieval fortification ditch. While there are mostly Hallstatt remains in this locus, there are also a number of Starčevo-Criş ceramics as it intruded into the western edge of Locus 23. This locus was divided into 2 sub-loci. *Sub-locus 40.1* is the upper stratum, possibly wall and roof spills, and light grey in colour. *Sub-Locus 40.2* is the lower stratum and floor level. The remains of collapsed (wall?) daub separates the two sub-loci.

[20] Jongsma 1997.

Fig. 12. Daco-Roman pit house (Locus 38)

Сл. 12. Дачко-римска йолуземуница (локус 38)

Locus 44 is a large semisubterranean house. As with Locus 40, there are some intrusive Starčevo-Criş remains because it disturbed an underlying Starčevo-Criş deposit (Locus 41). There are two sub-loci: *Sub-locus 44.1* is the upper and is probably the remains of the fallen roof and wall. *Sub-locus 44.2* is the basal fill. The loci are separated by fallen wall daub.

Locus 45 is a small storage pit that cut into Locus 40. There are few remains and it is likely a slightly later EIA storage pit.

Locus 47 is a small midden filled pit found beneath and pre-dating Locus 40.

Locus 48 is a small midden filled pit that extended down from the base of Locus 40.2. It was likely originally a storage pit associated with the overlying structure.

Locus 54 is a small ellipsoid storage pit that had a secondary use as a midden. It is filled with a concentration of ceramic and animal bone remains.

Locus 56 is a small, but deep, midden filled pit that extends down into the underlying Starčevo-Criş deposit (Locus 23). It is filled with burnt debris (ceramics, animal bone, and charcoal) and is interpreted as a fire pit.

Feature 3 is a small pit (0.5 m wide) containing the base of a very large *pithos* (storage jar). The base was placed in a shallow hole, likely for stability, at the eastern edge of Locus 18 (too small to be illustrated on plan).

E. Middle Bronze-Age (Fig. 11)

The Bronze Age is represented by a small number of finds characteristic of the Early and Middle Bronze Age. Some of the finds lay mixed in with the pre-Classical Metal Age cultural layers on the site. There was no clear Bronze Age horizon.

In previous reports, the ceramics from this horizon were originally identified as from the Vatin culture.[21] However, we now think that it is more appropriate to assign this material to the Verbicioara cultural complex, since the potsherds have characteristic decoration found

[21] Greenfield, Draşovean 1994, 64.

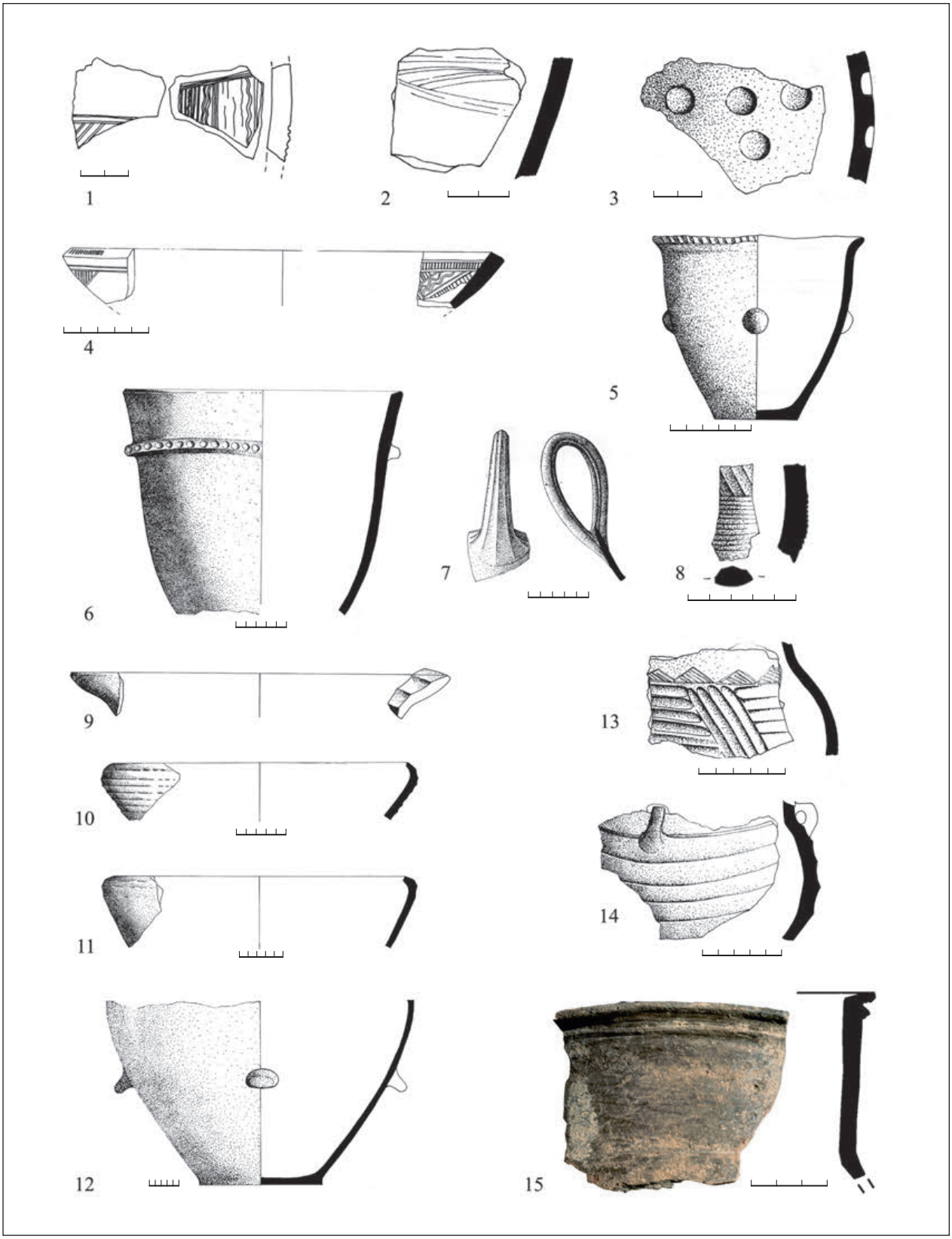


Fig. 13. 1–4) Verbicioara pottery; 5–14) Kalakača pottery; 15) Hallstatt D pottery

Сл. 13. 1–4) Вербичоара керамика; 5–14) Калакача керамика; 15) керамика финалної Халштата

on Bronze Age Verbicioara ceramics. For example, a fragmented conical bowl decorated both on the inner and the outer surface (Fig. 15/1) with motifs that are well known from the Early Bronze Age Makó culture.[22] There are also parts of vessels whose shape suggests that they were lids of urns for incinerated deceased, typical of the Late Bronze Age.[23] These vessels are decorated with incisions and one of the most dominant motifs are hatched triangles (Fig. 15/4). The remaining Bronze Age finds are represented by a typical potsherds decorated with rows of incised lines (Fig. 15/2) and finger imprints (Fig. 15/3).

F. Eneolithic (Fig. 11)

The Eneolithic is represented by a few ceramics of the Cernavodă III–Boleráz complex (Figs. 15, 16). There was no clear Eneolithic horizon. While there were some scattered remains found in Loci 1 and 4, only a single small feature was eventually identified and excavated – *Locus 57*. It is a small Černavodă III–Boleráz pit in the north-western peripheral corner of Locus 30 (Fig. 22), which was identified during post-excavation laboratory analysis of the cluster of distinctive ceramic finds. No sedimentary distinction could be made from the surrounding soil.

G. Early Neolithic (Fig. 17)

The earliest evidence of occupation at the site derives from the Early Neolithic Starčevo-Criş occupation. The largest number of loci were identified from this phase of occupation.

Locus 2 is a Starčevo-Criş cultural horizon outside of structures and pits. It is the first cultural horizon on the site and ranges from 20 cm in thickness, and usually extends c. 40–60 cm below the surface. The Starčevo-Criş occupants of the site changed the colour and texture of Post-Pleistocene Locus 5 horizon to become Locus 2.

Locus 7 was the first pit house complex to be discovered on the site (Fig. 24). The structure appears to enclose a trapezoidal area about 5x4 m and is dug into Locus 5. This locus seems to be a combination of three stratigraphically differentiable sub-loci (7.1/14, 7.2/16 and 7.3/17), each of which is discussed below. Stratigraphically, it is possible to reconstruct the following sequence within locus 7. Locus 17 represents the initial basal occupation. Then the pit was abandoned and filled with locus 16 refuse. Locus 14 probably represents the final silting in of the pit, with washed in cultural residue, after site abandonment.

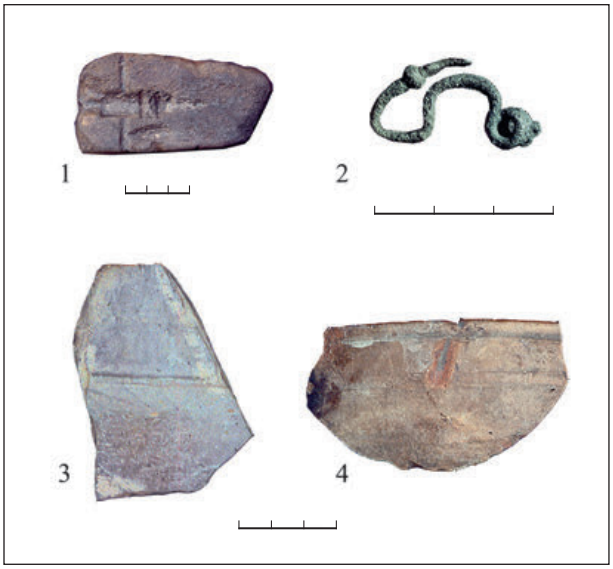


Fig. 14. 1) Stone casting mould; 2) La Téne fibula; 3–4) Daco-Roman pottery

Сл. 14. 1) Камени ливачки калуп; 2) Фибула из Ла Тена; 3–4) Дачко-римска керамика

· **Sub-Locus 7.1** (originally Sub-locus 14) – This is the upper fill of the Locus 7 pit house complex. Stratigraphically it connects to Locus 2 and is sealed by Locus 4. Sub-locus 14 represents the upper fill of the locus 7 pit complex. The nature and density of remains in this level seems to represent the collapse of the superstructure after abandonment and the disposal of new material into the still open depression. It eventually filled up and the top is truncated by Locus 4.

· **Sub-Locus 7.2** (originally Sub-Locus 16) – This is the middle fill of the Locus 7 pit house complex. It is a rubbish fill level. It is found stratigraphically below Locus 14 and above Locus 17. It is a kidney bean-shaped midden deposit, distinguishable by its unique fill – a large quantity of snail shells (almost 10,000), mixed with a smaller percentage of mussel shells, Starčevo-Criş ceramics and mammal and fish bones. This deposit appears to be the phase after abandonment when the depression was colonised by snails going through the aestivation phase.[24] This pattern is seen in almost all of the other pit house

[22] Kalicz 1984, 96, taf. XX.
[23] Kapuran 2019, 15.
[24] Evans 1972.

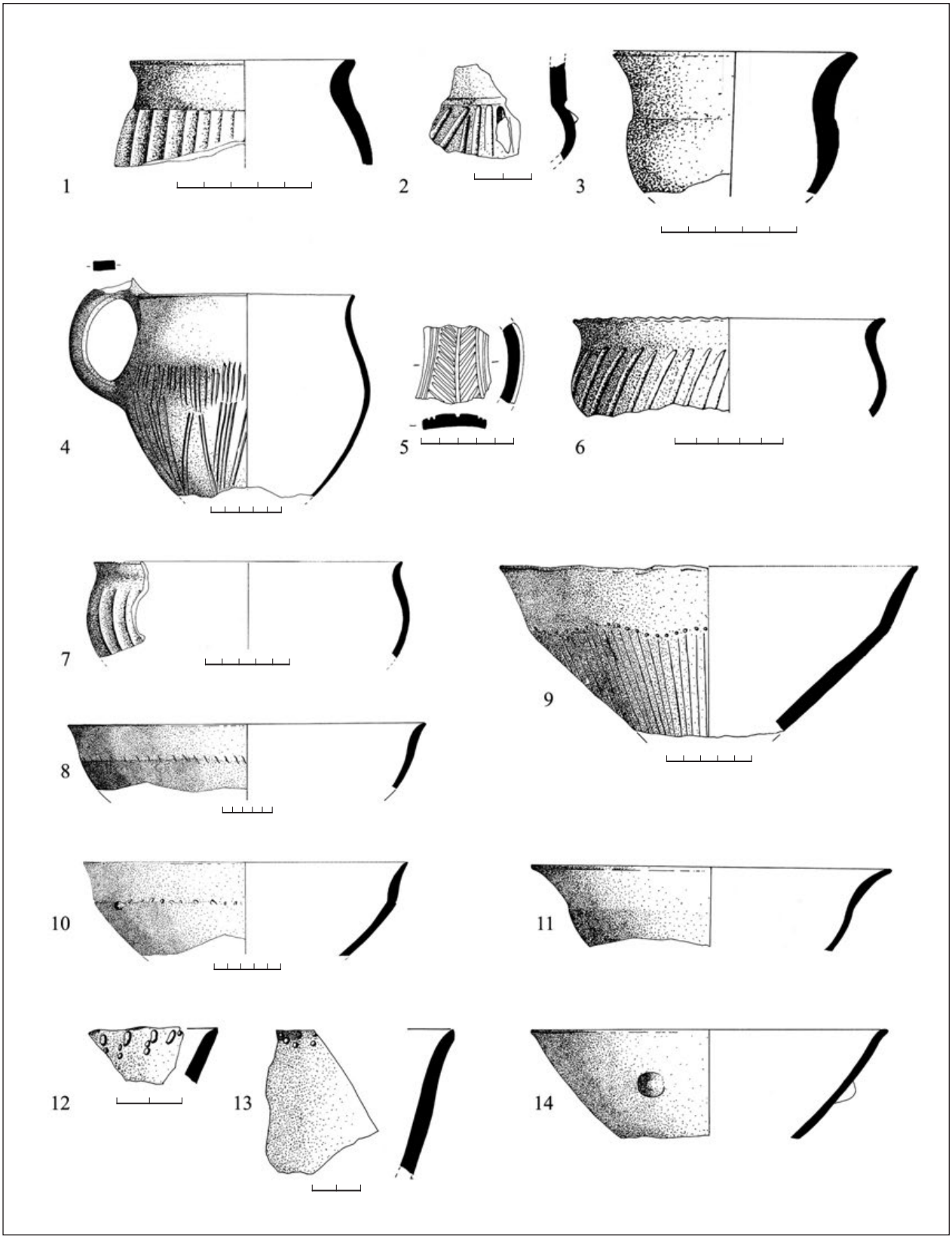


Fig. 15. 1–11) Černavoda III – Boleraz Pottery; 12–14) Kostolac pottery

Сл. 15. 1–11) Чернавода III – Болераз керамика; 12–14) Костолачка керамика

deposits (Loci 10, 23, 24, 50), but to a lesser extent in Locus 41. The shells are almost always unbroken and they are stuffed into every corner of the dwellings and often extend deep into the dirt sides of the structure and into rodent holes. They are concentrated in the middle horizons of the pit houses. All of this suggests that it is unlikely that people ate them and then discarded them within the pit-houses, and then continued to walk on the shells without breaking them. As is well known, snails will aestivate in nutrient rich deposits.[25] Pit houses are an ideal microenvironment for snails to aestivate.

· **Sub-Locus 7.3** (originally Sub locus 17) – This is the basal fill of the pit house feature. It represents the floor and living horizon of the pit house complex. There is a bench cut into the side of the structure on one side, a ramp going down into the pit house from the surface, a hearth, post holes and other features associated with this horizon (Fig. 24).

Locus 10 is the second trapezoidal shaped pit house complex that is dug into Locus 5. It is without any perceptible micro-stratigraphy. This is probably because it was relatively shallow and most of the upper deposits were cut off by Locus 4.

Locus 23 is the largest Starčevo-Criş pit house complex on the site (Fig. 21). It is in the centre of the semicircle of peripheral Early Neolithic pit houses on the site. It is much larger than all the rest. It is a large circular structure, 12 m in diameter, with postholes around its perimeter and within. The internal stratigraphy follows the same tripartite pattern to that already discussed for Locus 7 (Locus 23.1/upper; Locus 23.2/middle; and Locus 23.3/basal). The locus was disturbed near the centre by an EIA pit (called the Locus 23 hearth in the notes – Locus 56) and the Medieval fortification ditch (Locus 8). Within the pit house, a large dome-shaped oven and a large central fire pit were part of the basal horizon (Locus 23.3). It is filled with an abundance of ceramics, loom and other weights, stone tools, faunal remains, and snail shells (Figs. 18, 20, 25). There is a large shelf area toward the northern side of the pit house, where large numbers of vessels were likely kept.

Locus 24 is the third peripheral pit house complex (Fig. 22). It was also trapezoidal in shape, with a hearth or fire pit at the southern end. It was partially mixed and heavily disturbed by an EIA pit house (Locus 30) and an Eneolithic pit (Locus 57). It is also trapezoidal in shape, 7 x 6 m., aligned N-S x E-W.

Locus 25 is a small (c. 1 m diametre) storage pit filled with storage ceramic vessels. It was found in a small depression in the middle of the open area on the southern half of the site. It is stratigraphically connected to Locus 2, but it extends deeper into Locus 5.

Locus 41 is the fourth peripheral pit house complex discovered at the site. It was badly disturbed by EIA pits. It had a very low density of remains within it. A few postholes and a central fire pit were observed. This is the only one of the Starčevo-Criş pit houses not to be filled completely and intensely with debris.

Locus 50 is the remains of the fifth peripheral Starčevo-Criş pit house. It was not excavated because it was found on the last day of the final field season during auguring of the area between Loci 10 and 41, where it was suspected that another structure would be located, based on the distance between each of the peripheral pit houses. Its shape (trapezoidal), depth (2 m), date (Starčevo-Criş), and contents (snail shells, animal bones, and Starčevo-Criş ceramics) were determined through the recovery of artefactual remains and sediments in the auger. It contains snail shells, animal bones, and ceramics. It is, thus, similar in size, shape, and content to the best preserved of all the peripheral pit houses (i.e., Loci 7 and 10).

Locus 51 is the remains of a large circular-shaped feature with postholes around its perimeter located in the middle of the settlement. It contains a small concentration of daub, ceramics and loom weights, but with very few animal bones. It was found within Locus 2 and is, in effect, a surface deposit. Even though a number of possible post holes were associated with it, it was not given a separate locus designation at the time since the data were collected as part of Locus 2. The presence of loom weights and absence of food debris suggests that it may have possibly functioned as a weaving hut. If surface huts are from a later phase of the Early Neolithic, then this structure may be from a slightly later Starčevo-Criş occupation on the site. However, its presence within the single Early Neolithic pan-site horizon argues against this. Also, there is no evidence of reoccupation of the pit houses or of any overlap in the construction of later Early Neolithic pit houses with earlier ones.

Locus 52 is the remains of a possible livestock enclosure. It is in the southern half of the open area south of Locus 23. It includes a perimeter line of post holes on the eastern and northern edges of the extremely compacted light coloured soil surface. It is rectilinear in shape. We interpret it as a possible livestock enclosure

[25] Ellis 1969; Zhadin 1952.

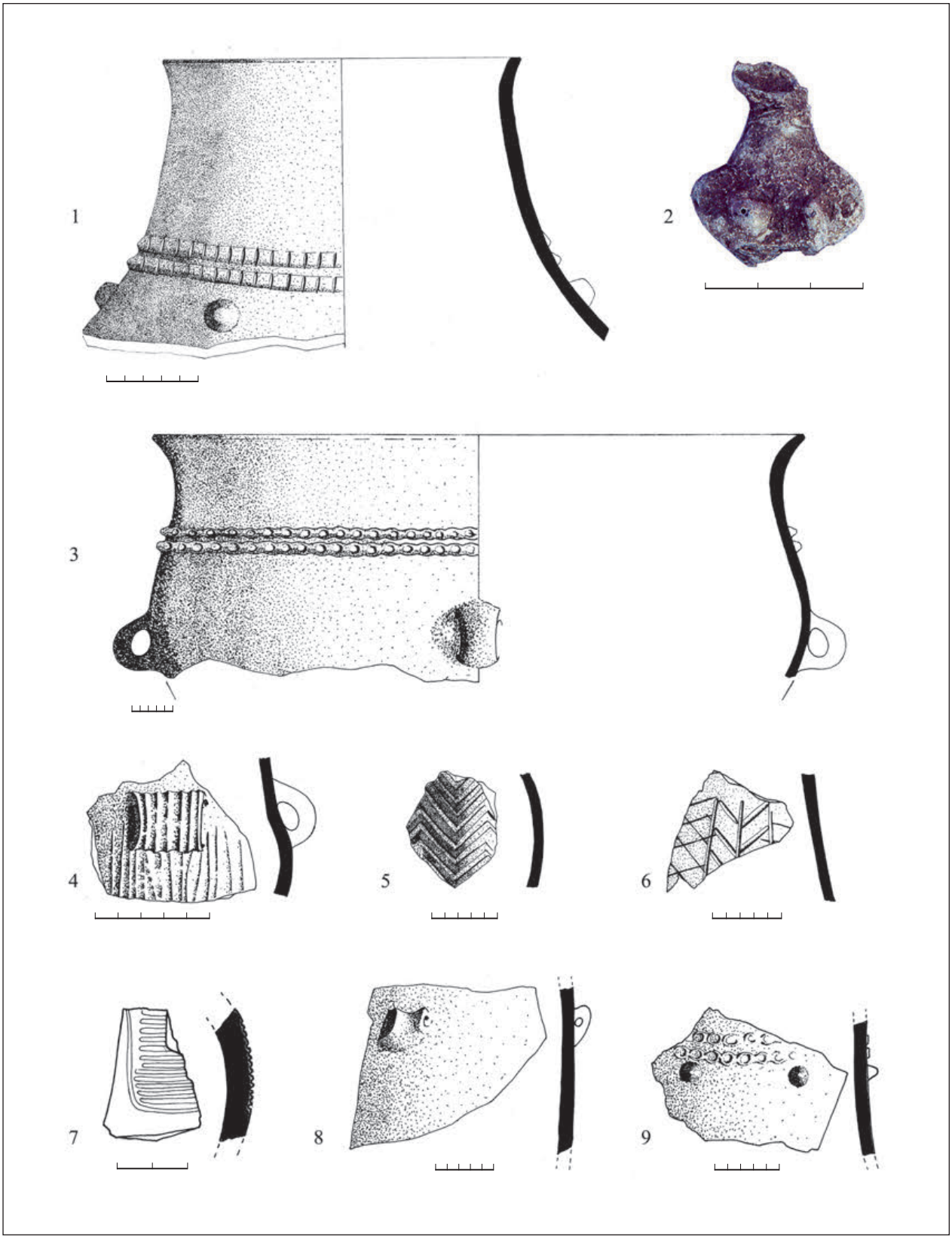


Fig. 16. 1–3, 8) Černavoda III – Boleraz Pottery and figurine; 4–7) Kostolac pottery

Сл. 16. 1–3, 8) Чернавода III – Болераз керамика і figurin; 4–7) Косшолачка керамика

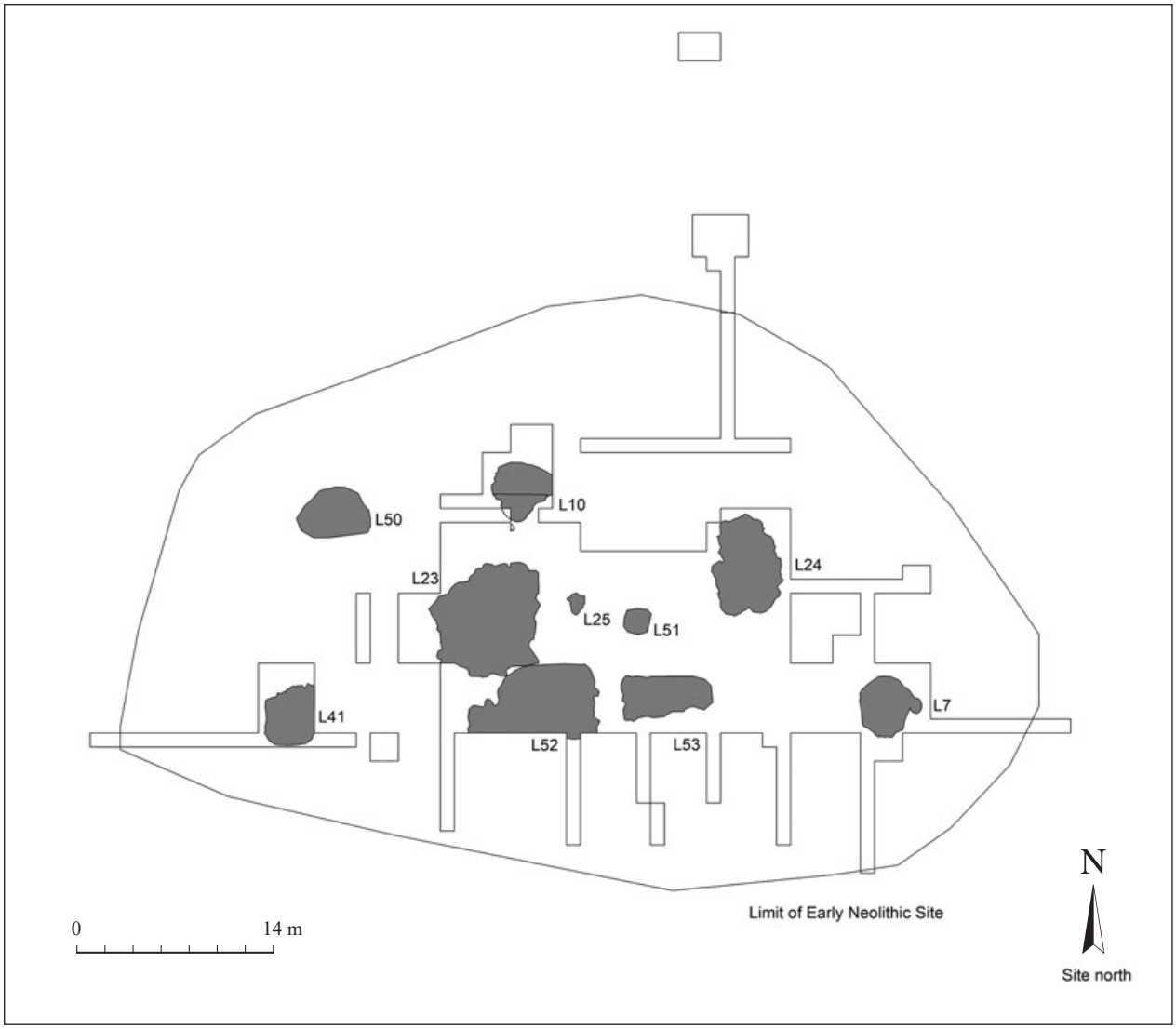


Fig. 17. Early Neolithic loci at Foeni Sălaş

Сл. 17. Локуси из раної неолита на локалитету Фоени Салаш

because of the extreme compaction and very uneven surface (with large up and down pockets, as if cattle were trampling within it) of the sediment within the perimeter of post holes. While it was originally excavated as part of Locus 2, it is now recognised as a separate locus.

Locus 53 is an ellipsoid surface concentration of daub without any associated architectural features or other artefact concentrations, also in the southern half of the settlement. It is thought to represent the remains of a surface or above-ground small wattle and daub structure, possibly for storage, because there is very little evidence of food remains associated with the locus. It was originally excavated as part of Locus 2, but it is now recognised as a distinct locus.

Feature 6 is a small (50 cm wide) circular (possible) storage pit associated with and at the edge of Locus 10 (too small to be illustrated).

H. Post-Pleistocene

Locus 5 is the early post-Pleistocene humus that formed during the Mesolithic. It is found across the site and is always stratigraphically beneath Locus 2. A low frequency of Starčevo-Criş ceramics filtered down into this locus through rodent activity and other natural processes.

I. Pleistocene

Locus 12 is the culturally sterile Pleistocene loess that underlies the post-Pleistocene Locus 5. This stratum is found across the site. There is no evidence of occupation at the site in this period.

Ceramics and other material culture

In this section, the important ceramic finds from the Eneolithic, Bronze and Iron Ages are presented and discussed.

A. Medieval (Fig. 6)

The youngest cultural horizon at the site most likely belongs to the Medieval period. Locus 4 (Medieval pan-site plough zone horizon) and various storage pits contain material that suggest a 10–11th century date. However, there is also evidence of a later Medieval occupation (14–15th cent.) at the site, based on two graves on the eastern periphery of the site (Graves 2 and 3) (Fig. 7). Grave 2 belongs to a middle-aged male. Weapons (metal spear and dagger) and metal clothing paraphernalia (two iron belt buckles and a strip of metal around the waist, probably from a belt) are interred with him (Fig. 8). It is likely that he had a martial role, considering the weapons buried with him. There are clear analogies for the pieces of weaponry, especially the spear, that suggest that the grave dates to the 14–15th century AD.[26]

Grave 3 is very similar to Grave 2, except that it belongs to a woman and foetus/new born infant. It was disturbed, since some osteological elements are not fully articulated (Fig. 7). Few objects were found in the grave that can be assigned to more than a general Medieval date. However, given the stratigraphic position, and similar orientation and location of the two graves, they probably date to the same occupation at the site.

The fortification ditch (Locus 8) appears to date from this period (Figs. 6, 21 and 24). The presence of four bricks (three in Trench 130A and one in 129C at the top of the locus) and late Medieval ceramics (e.g., in Trench 130G, quads 1–5) all point to a Late Medieval date for this locus.

B. Late Roman (Fig. 9)

The Late (Daco-) Roman cultural horizon belongs to the Common Era (AD) and contains archaeological material characteristic of Daco-Roman dominance in the territory of south-eastern Pannonia. The bulk of the pottery is characteristic of classic Late Roman wares that would date to the 3rd–5th centuries (Figs. 14/3, 4).

In this phase of occupation, at the northern end of the site, there is a rectangular semi-subterranean structure (Locus 38; Fig. 12). It is a pit house with a superstructure made of wattle-and-daub and a gabled roof since there are vertically positioned post-holes around the perimeter and supporting the interior as well. A domed oven was erected on one side at the level of the sunken portion of the house. The geomorphology and the types of soil within the Pannonian Plain favours the construction of such semisubterranean structures. They are found also at Bregovi–Atovac in Kuzmin,[27] in Čelarevo,[28] Bečej[29] and the site of Ušće Jakomirskog Potoka in the Iron Gates.[30] Such dwellings are distributed in a wide area across Eastern Europe in regions settled by Slavic populations during the Late Classical and Early Medieval periods.[31]

In the south-western section of the site, a number of Daco-Roman pit features were uncovered. They were originally bell-shaped storage pits, since some were lined with clay (Figs. 6, 9, 10). They contained typical later Classical remains, including broken ceramic vessels, grindstones, and a metal bell. However, they are largely filled with rubbish (bones and carbonised remains). In general, they are thought to date to the Late Classical period.

However, there are hints of an earlier Late Roman presence at the site. In this horizon, a fragment of a red bowl with an emphasised rim was found (Fig. 14/4), that is made according to La Téne period standards.[32] Such a dating is in accord with the presence of the infant burial (Grave 1 in Feature 6) (Fig. 10). Skeletal burials of infant and juvenile humans are especially common within Early Classical or Daco-Roman settlements from the 2nd and 1st centuries BC. This practice continued until the 2nd century AD.[33] The careful placement of the infant burial in Grave 1 with its face down in the storage pit at Foeni-Sălaş with goods above and below it suggests a careful mortuary ritual. It may be argued that the taphonomy of the skeleton suggests that

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[26] Lalović 1982, t. I/2; Peković 2006, 123, и.б. 26838; Vetnić 1983, 141, t. II/116.

[27] Brukner 1995, 144, Пл. 145.

[28] Stanojević 1987, 122–123, t. 127.

[29] Milošević 1997, сл. 72, сл. 210/d.

[30] Stanojević 1986, 238, fig. 237/236.

[31] Šalkovský 2001, karte 6.

[32] Brukner *et al*. 1987, t. 26, 21–29.

[33] Popović, Kapuran 2011; Sîrbu 2003, 145; Sîrbu, Dăvîncă 2014, 295.

the individual was thrown next to one of the pit walls rather than laid in it as in a grave, which is the case at the site of Mokranjske Stene.[34] Within the Dacian culture region, the sacrifice of children is recorded at numerous sites. Sîrbu and Dăvîncă consider this phenomenon to be a "*sacred area of the field-of-pits type*".[35] This suggests that both a slightly earlier and later Dacian occupations existed at the site.

C. Iron Age (Fig. 11)

At least two phases of the pre-Classical Iron (Early and Late) Age are present at the site. The earlier phase, with the most intense occupation, is represented by finds of the Early Iron Age Gornea-Kalakača (Hallstatt B/C, Bosut III) cultural group.[36] Coarse ware vessels and pottery with highly polished surfaces are particularly noticeable. The pottery of the Kalakača group is primarily characterised by fine ware decorated with channels or a combination of channels and incised motifs (Fig. 13/13). In terms of types of vessels, conical bowls with an inverted rim decorated with channels are dominant (Figs. 13/10, 11), followed by rims of pots decorated with channels on the inner surface (Fig. 13/9). Some of the beakers and pots are likewise decorated with channels (Figs. 13/13, 14). The coarse ware pottery is represented by bell-shaped pots decorated with incisions (Figs. 13/5, 6) or modelled and decorated bands (Fig. 13/6).

A fragment of a large ceramic pot is decorated with four tongue-shaped handles on the lower cone and could belong to the final phase of the Early Iron Age (Hallstatt D?) (Fig. 13/12). A second large ceramic vessel fragment of a rim and vertical neck at the lower level could also belong to the final phase of the Early Iron Age. It is similar to the previously described vessel with four tongue-shaped handles (Fig. 13/15).

A portion of a copper or bronze casting mould was found in the Early Iron Age horizon that was most likely used for the production of a cylindrical spear-butt (for balance) with hafting perforation (Fig. 14/1). An almost identical find of a spear-butt was found within Grave 2 of Mound 1 at the Sinjac Polje necropolis, near Bela Palanka.[37]

Forms and the manner of pottery decoration suggest that the genesis of the Kalakača culture is based on pottery in the Late Bronze Age Gava culture complex.[38] Tasić considers that the origin of the Kalakača cultural complex was from a Thraco-Cimmerian influence from the East.[39] Kalakača settlements are found in the territories of Srem, south-western Bačka, central and southern Banat, Iron Gates, and part of the Serbian Danube Region.[40] The finds from Foeni-Sălaş indicate it was most likely part of the Kalakača cultural complex. In Serbia the complex is characterised by the appearance of cross-shaped axes (Ärmchenbeil) made of iron and the emergence of new technologies in the production of iron objects (iron axes within the mass grave at the site of Gomolava and Layer IIa at the site of Bosut-Gradina).[41]

A piece of jewellery recovered at the site suggests that the site was briefly occupied during the Early/Middle La Téne period (4th–3rd century BC). It is an iron fibula with a back-bent foot decorated with a thickening (a pearl) of the Duchcov-Münsingen type (Fig. 14/2). During the 4th century BC, Celtic tribes from Central Europe settled the Carpathian Basin, eastern Transylvania, and the Danube Region.[42] Such fibulae are similar to numerous finds at the Pişkolt and Pećine necropolises that have been dated to the end of the 4th and beginning of the 3rd centuries BC.[43]

D. Middle Bronze Age (Fig. 13)

Several decorated potsherds indicate that the site was also utilised during the Middle Bronze Age or the Verbicioara culture. The Middle Bronze Age is represented by ceramics decorated significantly differently than the Eneolithic. The Bronze Age period is represented by a fragmented conical bowl decorated both on the inner and outer surfaces (Figs. 13/1, 3). This type of ceramic find is characteristic of the Early Bronze Age Makó culture, although similar vessels have been recorded within the Late Bronze Age context as well.[44] It has been suggested that such vessels were utilised as lids for urns containing cremated human remains.[45] The decoration is comprised of incised motifs of straight and wavy lines, as well as the dominant motif of hatched

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[34] Popović, Kapuran 2011.

[35] Sîrbu, Dăvîncă 2014, 295.

[36] Greenfield, Draşovean 1994; cf. Gumă 1983; Gumă 1993; Medović 1988.

[37] Kapuran *et al*. 2015, fig. 7/5.

[38] Medović 1994, 46.

[39] Tasić 1983, 114–115.

[40] Medović 1988, 429.

[41] Medović 1990, 27.

[42] Jovanović 2010, 165.

[43] Jovanović, Kapuran 2018, 17–19; Zirra 1991, 179, fig. 171.

[44] Kalicz 1984, 96, taf. XX.

[45] Kapuran 2019, 15.

inverted triangles (Figs. 13/1, 3) and finger impressions (*impresso*) (Fig. 13/3).

While Gumă considers that the Verbicioara culture from the Middle Bronze Age is undefined in the Banat and that it most likely represents a variant of the Crvenka-Corneşti or Vatin culture,[46] our opinion is different. We think that there is a cultural connection between Phase II of the Verbicioara culture[47] and the Iron Gates Region and its hinterland, especially with the regions of the Negotin and Timok river valleys.[48] For example, an almost identical bowl decorated with incised motifs both on the inner and the outer surface was recorded at the site of Kot I in Metovnica, near Bor,[49] while the finger impressed decoration and decoration with rows of incised lines is quite common for the Timok Valley during the Middle Bronze Age.[50]

E. Eneolithic (Fig. 12)

The Eneolithic horizon at the site of Foeni-Sălaş is mostly represented by ceramics typical of the Cernavodă III–Boleráz complex. However, one has to recognise the difficulty of identifying small numbers of loose ceramic fragments to specific archaeological cultures. Furthermore, when trying to identify the cultural groups of the Middle Eneolithic within the southern parts of the Carpathian Basin, there is the issue of permeation between ceramic forms and ornamental techniques represented in finds of the Cernavodă III-Boleráz, Baden, and Kostolac cultural groups.[51] The problem is made even more difficult to resolve considering that only one sealed context was recognised from the Eneolithic at the site of Foeni-Sălaş and that most of the Eneolithic finds were found mixed in with material from the later stages of prehistory at the site. Some scattered remains of Eneolithic pottery were found in Loci 1 and 4. Only one small Cernavodă III–Boleráz feature was eventually identified and excavated – Locus 57. It is a small pit in the north-western peripheral corner of Locus 30, which was identified during post-excavation laboratory analysis of a cluster of distinctive ceramic finds (Figs. 11, 22). No sedimentary distinction could be made from the surrounding soils.

Based on the stylistic and typological characteristics of the Eneolithic pottery found at Foeni-Sălaş, two different regional cultures characteristic of the second phase of the Eneolithic period in this region are present – the Cernavodă III–Boleráz and Kostolac cultures. We assign the material to these cultures based on the significant similarities in forms and decorations to the aforementioned cultural manifestations. Considering that none of the most characteristic elements of the Baden culture vessels were found in the assemblage (e.g., amphora-shaped pithoi, one-handled cups with an emphasised lower portion of the recipient (onion-shaped) or vessels such as *sosieras* or *askoi*), we consider that the material is from the second phase of the Eneolithic at the site (i.e., the Kostolac culture).

Ceramics of the Cernavodă III–Boleráz culture at the site are represented by globular cups with one handle that can be decorated with vertical or oblique channels and incised lines (Figs. 15/1, 2, 6, 7). Cup handles are commonly rectangular in cross-section and undecorated. One almost completely preserved cup represents a typical example of vessels common for the culture (Fig. 15/4).[52] Save for the cups, finds of storage pots represented by amphora-type pots and S-profiled *pithoi* are also characteristic for the Cernavodă III–Boleráz cultural group (Figs. 16/1, 2). The pithoi are usually decorated with cork-like applications and modelled bands decorated with incisions or *impresso* ornaments (Figs. 16/1, 2, 8). Among other finds common for the Cernavodă III–Boleráz culture are tunnelled handles that can be either undecorated or decorated with grooves (Figs. 16/3, 7). Biconical bowls with thickened (Fig. 15/11) and wide everted rims are uncommon and, unlike the examples typical for the Cernavodă III–Boleráz horizon, do not possess inner surfaces decorated with vertical channels (Fig. 15/11).[53] Biconical bowls with wide everted rims usually possess an emphasised junction of cones on the belly (Fig. 15/8–10). Bearing in mind that the decorated vessels are more suitable for cultural attribution, the number of bowls decorated with imprints on the rim or on the junction of the cones is higher.[54] Such bowls are characterised by the decoration of the lower cone with vertical strips of incised lines (Fig. 15/9).[55]

Only one fragmented anthropomorphic figurine (Fig. 16/2) was recorded within the Eneolithic horizon at the site of Foeni-Sălaş. Judging by the flat cross-section and the representation of extremities and sexual

[46] Gumă 1997, 120–121.
[47] Crăcuinescu 2004, 216–218.
[48] Kapuran 2009.
[49] Kapuran, Jovanović 2013, 4, сл. 3/2.
[50] Kapuran *et al*. 2016, t. 3/5,7; 5/9.
[51] Tasić 1994, 30.
[52] Ecsedy 1978, taf VII/1, taf. XI/2; Tasić 1995, 48, XV/43.
[53] Krstić 1986, 150, fig. 110.
[54] Bulatović, Milanović 2020, fig. 189.
[55] Tasić 1983, сл. 3/6.

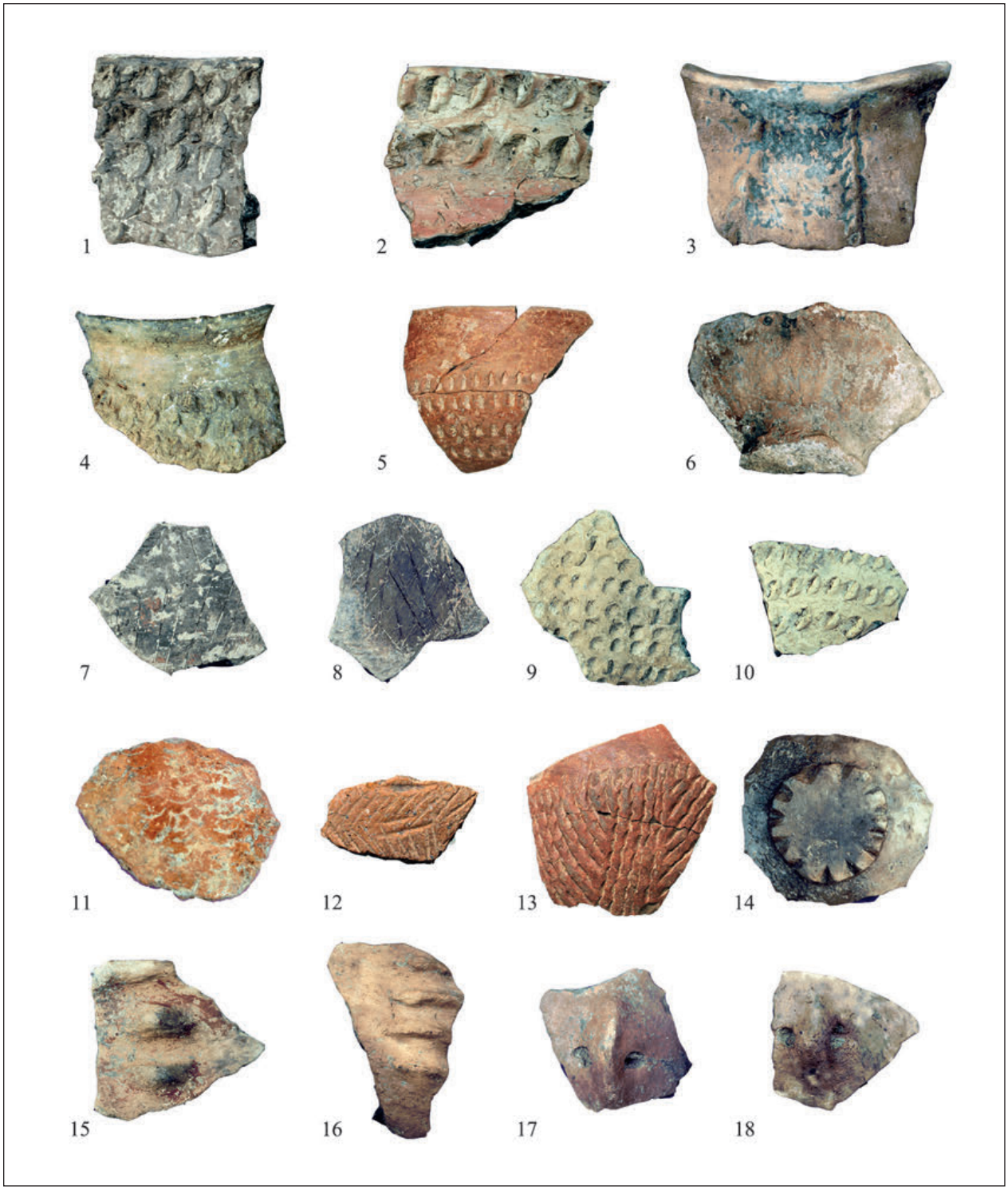

Fig. 18. 1–2) Early Neolithic finger tip impressions; 3) bas-relief of wheat motif; 4, 5, 9, 10, 11) finger tip and nail impressions; 11) shell incision prints; 6) rough decorated surface; 7–8) incised parallel lines; 12–13) herring bone; 14) rosetta style base; 15–16) horizontal lug handles; 17–18) vertical perforated lug handles

Сл. 18. 1–2) Рано неолитска керамика украшена штипањем; 3) мотивом класа; 4, 5, 9, 10, 11) штипањем и утискивањем ноктом; 11) украшавање шкољком; 6) прстима оірубљена површина посуде; 7–8) урезане паралелне линије; 12–13) мотив рибље кости; 14) розета декорација дна посуде; 15–16) хоризонтално моделоване дршке; 17–18) вертикално моделоване и бушене дршке

Fig. 19. 1–2) Early Neolithic white painted ware; 3, 4, 10) finger indentations on rims; 9) horizontal lug handle; 5, 6, 7, 8) undecorated pottery

Сл. 19. 1–2) Рано неолитска бело сликана керамика; 3, 4, 10) штипање прстом по ободу; 9) хоризонтално постављене дршке; 5, 6, 7, 8) недекорисана керамика

characteristics, the figurine can be attributed to the Cernavodă III–Boleráz culture.[56]

A younger phase of the Eneolithic at Foeni-Sălaş is represented by a few ceramics attributable to the Kostolac or Coţofeni culture group. These include vessels decorated with pricks or incisions filled with white incrustation (Figs. 15/12, 13). Some of the ceramic wares are decorated with zig-zag grooving, an incised net-shaped motif, or the so-called pine-twig motif (Figs. 16/5,6), which possess analogies found within the preceding Cernavodă III–Boleráz-Baden culture.[57] Two items of ceramic found at the site are characteristic of the Kostolac culture – a pot sherd fragment decorated with rectangular metopes filled with horizontal rows of incised lines (Fig. 16/7) and a small and sharp S-profiled cup (Fig. 15/3).

F. Starčevo-Criş (Fig. 17)

The Early Neolithic occupation at Foeni-Sălaş is represented by the Starčevo-Criş culture. Stylistically, the site has connections with other Starčevo-Criş sites from the area: such as Timişoara-Fratelia, Cuina Turcului I, Gura Baciului, Ocna-Sibiului, and Lepenski Vir IA.[58]

Ceramics from the Early Neolithic horizon have been typologically dated to the Starčevo-Criş IIA phase based on the presence of white painted wares typical of this phase present in the assemblage (Fig. 19/1–2). Painted ware is typologically associated with the IIA phase.[59] Further, most of the ceramics contain Starčevo-Criş IIA stylistic motifs, although possibly some IIB stylistic motifs are present. The lack of barbotine decoration implies a relatively early date for the ceramic assemblage in the traditional Starčevo-Criş chronological system.[60] Recently, it has been suggested that Foeni-Sălaş should be attributed to the preceding Starčevo-Criş IC (and possibly earlier), since such motifs are also present in earlier phases of the culture.[61]

In recent years, the Starčevo-Criş culture from this region has been dated much earlier. Based on calibrated radiocarbon sequences, it appears to now date from 6100 to 5400 cal. BC,[62] which is much earlier than previous analyses.[63] While later dates were originally published for the site,[64] it is thought now that the Early Neolithic occupation at Foeni-Sălaş dates to the very end of the 8th and beginning of the 7th millennium BP.[65] and different than earlier analyses.

The pottery contained chaff or sand temper, but not mixed together. The archaeometric analyses showed only ceramics tempered with plant matter, and very occasionally not tempered at all.[66] In general, the ceramics are monochrome, red-slipped, globular in shape, with pseudo-barbotine decoration on vessel bodies and fingernail impressions and pinches on the rims (Figs. 19/4, 5, 9–11). There is a limited range of decorations and shapes, which is typical of such Starčevo-Criş settlements.[67]

Wide-mouth globular vessels dominate the assemblage (Fig. 19/3). The most diagnostic shapes are open bowls, wide-mouthed jars, and narrow-necked globular pots. Bowls appear to dominate (Figs. 19/5, 6) followed by open-mouth jars (Figs. 19/3, 4). There are very few plates, which are, in reality, nothing more than shallow bowls. Most of the assemblage is highly fragmented. Only a single complete vessel was recovered. Some of the pottery is very well burnished and very well fired with chaff and sand tempers, but most are simple and undecorated (Fig. 19/6).[68] Bases can be simple globular, flattened, or more fancy, such as the rosetta-shaped (Fig. 19/14).

Most of the Early Neolithic ceramic wares are simple undecorated red-painted monochrome wares (Figs. 18/4–7, 9). Many also have a simple roughened surface as decoration (Fig. 19/6). There is a limited repertoire of decorative motifs, including finger-nail impressions on the body or rim (Fig. 18/3), finger pinching in the shape of wheat (Fig. 22/3), finger pinching on a roughened surface (Fig. 18/10), finger pinching in parallel lines (Fig. 18/1, 2), finger pinching in the shape of wheat and with crossed vertical and horizontal lines (Fig. 18/3), finger-nail impressions (Fig. 18/1, 2), incised parallel lines (Fig. 18/7, 8), punctates (Fig. 18/9),

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[56] Roman 2001, taf. ½.

[57] Uzelac 2002, T. 48/44; T. 25/41,43,44.

[58] Ciută 2005; Lazarovici 1984, 62; Lazarovici, Maxim 1995; Paul 1995; Păunescu 1979; Spataro 2004; 2011a; b; Srejović 1972; Vlassa 1980.

[59] Lazarovici 1977; 1979; 1984; Milojčić 1949; 1950.

[60] Arandjelović-Garašanin 1954; Dimitrijević 1974; Garašanin 1973; 1983; Lazarovici 1984; Spataro 2019c, 45.

[61] Meadows 2019, fig. 1.7; Spataro 2019b, 91, table 93.15, fig. 91.97.

[62] Meadows 2019, 38–40; Spataro 2019b, 91, table 93.15, fig. 91.97.

[63] Biagi, Spataro 2005; Ehrich, Bankoff 1992; Manson 2008; Whittle *et al*. 2002.

[64] Greenfield, Jongsma 2008, 117–118.

[65] Spataro 2004, 42.

[66] Spataro 2019a, 93–98.

[67] Greenfield, Draşovean 1994; Spataro 2019b; c.

[68] Greenfield, Draşovean 1994; Spataro 2004.

Fig. 20. 1–2) Early Neolithic zoomorphic figurines; 3–4) altars; 5–6) amulets; 7) weight; 8–9) bollas

Сл. 20. 1–2) Ранонеолитске зооморфне фигурине; 3–4) жртвеници; 5–6) амулети; 7) тег; 8–9) калеми

herring bone (Figs. 18/12, 13), shell incisions (Fig. 18/11), and plastic ribs with finger impressions and a roughened surface with a spout at the rim (Fig. 19/8).[69]

Most handles on the ceramic wares are in the form of lug handles. They are very functional since they enhance carrying or suspending pots. They are designed to stabilise hanging a pot from a post or for carrying. A piece of rope can be easily strung through a vertical hole (Figs. 18/17. 18) or between two horizontal lugs (Fig. 18/15), or as part of a net between three vertically oriented bumps (Figs. 19/8, 22/16). The chronological differences (if any) between each of these decorative motifs is still to be worked out.

A study of the ceramic fabric from the Early Neolithic ceramics at the site suggests that they were produced from local clay sources[70]. There were various other kinds of Early Neolithic artefacts found in this horizon. Some examples include zoomorphic figurines (20/1, 2), altars (Figs. 20/3, 4), amulets (Figs. 20/5, 6), weights of varying kinds and sizes (Fig. 20/7), and bolla-shaped objects (Fig. 20/8, 9). The function of such objects is still under investigation.

Discussion

In this section, each of the settlement phases at Foeni-Sălaş will be discussed in their larger regional context.

A. Medieval

The entire site was occupied during the Medieval period. Several features were found during this period on the northern half of the site, outside of the stockade, including several houses, both above and below ground (Loci 21, 27, and 42), some kind of bedding trench (Feature 7), a few storage pits (Loci 29, 43, and 58), and a large unfired clay base (Locus 55).

The presence of a stockade and a warrior burial in the southern half of the site suggests that the Medieval period in this region was a time of stress and instability. A large stockade was built across the southern half of the site, as evidenced by the foundation ditch and large postholes within it. While only the northern and western sides of the ditch were excavated, it clearly continued beyond the excavation area. The presence of two burials at the eastern edge of the site, just outside of the stockade, one of which is clearly that of a warrior (Grave 2), considering the elaborate grave goods (metal spear, sword, knife, buckle, belt, and fibula), and the presence of the stockade, suggest that the site was a small fortification during this period.

The evidence from the pit houses, storage pits, burials and the like all suggest that families were present on the site during the Medieval occupation. Whether the stockade was a place to retreat to or live within is not clear, or even if it was for keeping livestock safe from marauders. The presence of families is likely given that the second burial (Grave 3) is thought to be that of an adult woman, who was possibly pregnant at the time of death, since it also includes the remains of an infant. In this period, the site was probably an important bastion against the instability sweeping through the region.

The occupants supported themselves by herding domestic livestock, fishing, and grain cultivation, as evidenced by faunal remains, grindstones and the like.

B. Late (Daco-) Roman

By the time of the Late Roman occupation of the region, the local population had been assimilated, laying the groundwork for the continued use of a Latin-based language (Romanian) into modern times. The site was occupied during the 3–5th centuries AD, and overlapped with the period when the Roman Empire withdrew to the south.

The Dacian occupation at Foeni-Sălaş is small and concentrated into two sections of the site: The southwestern quarter seems to be an area that was used initially for grain storage and subsequently for rubbish disposal, and even a burial. A number of bell-shaped storage pits were found (Loci 35 and 46, Features 4, 5, and 6). After their function as storage pits ended, they were filled with rubbish of various kinds, including ceramics, metal and other objects, mammal and fish bones, snail shells, and charcoal, and even an infant burial (Grave 1). In contrast, the only house found was at the northern end of the site (Locus 38), which was a semi-subterranean wattle-and-daub rectilinear structure with a clay floor and an oven in the southern end.

Give the presence of only a few storage pits, a single structure, and the low density of remains, the site appears to have been occupied at this time by what might have been a single family or household. It would appear that they supported themselves by herding domestic livestock, and cultivated grains in the

[69] While the ceramic analysis of the Early Neolithic assemblage was supposed to be conducted by the Romanian team, unfortunately, it was never conducted. This is a summary description of the wares, based on our observations and previous publications (e.g., Greenfield, Draşovean 1994).

[70] Spataro 2019:46

surrounding fields, given the faunal remains and artefacts (grindstones).

C. Early Iron Age

The Early Iron Age occupation at Foeni-Sălaş is represented by the mature Hallstatt C culture complex (800–600 BCE). The Hallstatt settlement covers most of the southern half of the mound. It covers the same area that is covered by the Early Neolithic settlement. It was heavily disturbed by modern and Medieval ploughing, except for some of the deeper pits and pit houses filled with ceramics, animal bones, and grindstones.

It extends across most of the site, except for the far northern part where there is only Medieval. It is clearly a settlement since there are several semisubterranean houses (Loci 18, 30, 40, and 44) with subdivisions and wattle-and-daub walls and built features (e.g., internal walls, internal posts, and hearths) spread across the site. In addition, there are a number of small circular storage/ rubbish pits (Loci 11, 15, 22, 28, 32, 33, 36, 37, 39, 45, 47, and 48; Feature 3) ellipsoid (Loci 54 and 56), and bell-shaped pits (Locus 31). They were filled with all kinds of artefactual and ecofactual remains afterwards. Agriculture was an important part of the economy, as reflected in the fauna and the presence of grindstones.

Given their widespread distribution across the site with no evidence of one Iron Age pit cutting into another, it is unlikely that they were sequentially occupied. Furthermore, there is no evidence of laterally displaced stratigraphy in this stratum, thereby suggesting that this was a relatively brief occupation by only a few families. We might suggest that this was a small settlement with buildings for four families during this period, who were herding livestock, cultivating grain, and occasionally fishing or shellfish collecting to feed their families.

D. Early and Middle Bronze Age

There is no evidence of permanent settlement at Foeni-Sălaş during this period. The overall dearth of remains from this period suggest that the site had been

Fig. 21. Early Neolithic pit house (Locus 23) and Medieval fortification ditch (Locus 8)

Сл. 21 Ранонеолитска земуница (локус 23) и средњевековни фортификациони ров (локус 8)

Fig. 22. Photograph of Early Iron Age Locus 30 being excavated within the Early Neolithic Locus 24 (outlined in sediment)
Fig. 23. Basal sediment and remains in Middle Bronze Age Locus 15

Сл. 22. Фотографија локуса 30 из старијег гвозденог доба истраживаног унутар рано неолитског локуса 24 (границе се виде у седименту)
Сл. 23. Дно јаме из средњег бронзаног доба са налазима у локусу 15

visited, albeit only briefly, and probably by a very small group or just an individual.

There is no other evidence of other Bronze Age occupation at the site, although there is a large contemporary settlement only 500 m to the north.[71]

E. Eneolithic

The situation at Foeni-Sălaş during the Eneolithic period is similar to that of the Bronze Age. There are very few ceramic remains and these are mostly scattered in Loci 1 and 4. Only a single small pit (Locus 57) from the Cernavodă III–Boleráz culture was found in the north-western corner of Locus 30 (Fig. 22), and it was only identified during post-excavation laboratory analysis of the cluster of distinctive ceramic finds. No other features were found.

The small number of finds and single intact deposit from the Eneolithic found at Foeni-Sălaş that can be attributed to the Cernavodă III–Boleráz (i.e. Kostolac or Coţofeni) cultural horizon suggests that there was no significant occupation at the site. It was probably visited a few times as pastoralists moved across the region during their seasonal rounds. Although it was considered that the Baden and Kostolac cultures represent mutually related manifestations,[72] Nikolić suggests that they are quite different in terms of material culture.[73] Within the Balkan Peninsula, the Kostolac culture encompasses the regions to the west (the courses of the Drava, Sava, Danube, and the Great, and South Morava Rivers), while the Coţofeni culture encompasses the areas farther east (Transylvania, Banat, Oltenia, and parts of Muntenia).[74] At one point during the second half of the 4th millennium BC, the bearers of the Coţofeni culture began settling into the region that extended from Transylvania to the south-eastern parts of the Carpathian Basin and north-eastern Serbia.[75] N. Tasić proposes that the Cernavodă III culture extended across Muntenia and Oltenia to the southern Banat region, probably along the Danube drainage.[76] Furthermore, he considers the territory of north-eastern Serbia as the point of symbiosis between the Kostolac and the Coţofeni cultures.[77] However, as previously noted, the small number of potsherds that could be attributed to

[71] Florin Draşovean, pers. comm. year 1992.
[72] Garašanin 1973, 234.
[73] Nikolić 2000, 80.
[74] Roman 1976, 70.
[75] Boyadziev 1988, 360.
[76] Tasić 1983, 57.
[77] Tasić 1982, 27.

Fig. 24. Basal horizon of Early Neoltihic Locus 7 pithouse (bottom-middle), Middle Bronze Locus 15 pit (middle), and Medieval Locus 8 fortification ditch (top)
Fig. 25. Artefact density in locus 23

Сл. 24. Дно локуса 7 са полуземуницом из раног неолита (на средини слике), локус 15 из средњег бронзаног доба (средина слике) и средњевековни одбрамбени ров локус 8 (на горњем делу слике)
Сл. 25. Распоред артефаката у локусу 23

both cultures recorded at the site of Foeni-Sălaş does not provide sufficient evidence for a precise attribution to either the Kostolac or Coţofeni culture.

The Cernavodă III–Boleráz culture, which Nikola Tasić considers to be the substrate for the later development of the Baden culture,[78] is found across a broad swath of Central and South-eastern Europe. Its disposition in the Vojvodina region extends across the eastern parts of the Serbian Banat region to the Romanian border, which is in direct proximity to the site of Foeni-Sălaş. To a certain degree, the culture exists in the central Bačka and Srem regions.[79] Medović is one of the pioneering researchers of this culture in Serbia, as a result of his research at the settlement site of Brza Vrba near Kovin (1969–1971). This initiated the discovery of several finds attributed to this culture in the depot of the Vršac museum.[80]

Save for the Vojvodina region, finds attributed to the Cernavodă III culture have been recorded in the Iron Gates, in Korbovo,[81] the site of Bubanj-Staro Selo near Niš,[82] and Kosovo (the site of Gladnice near Priština). The new phase of research at Bubanj (2008–2014) resulted in the *in situ* discovery of a completely preserved Cernavodă storage pot in Cultural Horizon IV possessing characteristics of the Cernavodă III–Boleráz-Baden culture,[83] which is almost identical in size and decoration to the example from Foeni-Sălaş (Fig. 16/1). The absolute date for this phase of the eponymous site is c. 3400 BP.[84] Aside from the territory of

78 Tasić 1983, 30.
79 Tasić 1983, 31.
80 Medović 1976, 105 abb. 101; Uzelac 2002, 55.
81 Krstić 1986.
82 Bulatović, Milanović 2020, 168; Milanović 2013.
83 Bulatović, Milanović 2020, fig. 158/151.
84 Vander Linden, Bulatović 2020, 240, fig. 220, tab. 216.

Serbia, this cultural group extended across the Romanian Banat, Lower Danube region in northern Bulgaria, and the Struma Valley.[85]

F. Early Neolithic

The Starčevo-Criş occupation is the most extensive and intense, other than the Early Iron Age at the site. The Starčevo-Criş settlement covers most of the site, with the exception of the northern plateau, where only a Dacian house was found. For the most part, the settlement faces south toward the old stream channel that ran along the southern perimeter of the site. Most features are large pits, which are interpreted as semisubterranean houses, though some appear to be remains of surface structures. Five of these large pit features (Loci 7, 10, 24, 41, and 50) are mid-sized and arranged in a semicircle around the perimeter of the settlement. Each of the pit house features had peripheral and internal post holes and a hearth. One also had a domed oven toward the north-western corner (Locus 23). In the centre of the semi-circle of pit house features, there is a large open space filled with another, even larger, semisubterranean house (Locus 23), a small pit (Locus 25), a large surface feature surrounded by post holes with a low artefact density and packed dirt (Locus 52), and a large surface concentration of bone and ceramics (Locus 51).

There is only a single Early Neolithic pan-site stratum, and it stratigraphically connects to all the Early Neolithic features on the site. The presence of only a single Early Neolithic pan-site horizon and the absence of any evidence of reoccupation of any of the pit houses (such as hearths in the middle or upper horizons) or overlap in the construction of later Early Neolithic pit houses with earlier ones argues against multiple occupations during this period at the site. There is also evidence that the site was not occupied year-round or for any great length of time. The fauna and the absence of significant quantities of charcoaled grains suggest that it may have been a winter occupation at the site. Consequently, it is suggested that the site was a single limited occupation.[86]

Each of the pit houses has a similar stratigraphic sequence: a basal (living) horizon with a lower density of debris, a middle fill with dense debris, and an overlying deposit with lower densities of remains. All of the features are associated with the basal horizon (e.g., postholes, hearths, ovens, etc.). Interestingly, the density of remains in the living horizon tends to be the lowest. After the abandonment of the living horizon, the pits were filled with a middle horizon consisting of refuse and superstructure collapse. The pit then became the focus for rodents and other scavengers. The end of the middle horizon probably represents the collapse of the roof. This was followed by a final silting in of the pit (with washed in cultural residue) which occurred after site abandonment. Similar sequences are seen at Blagotin[87] and much further afield.[88] Thus, the multiple horizons within the pits represent living, abandonment fill, and subsequent architectural collapse rather than reoccupations from a slightly later settlement during the Early Neolithic.

The shapes of the mid-sized pit-houses are relatively constant, enclosing 5 x 4–6 m (20–30 m²) trapezoidal areas. The location of perpendicular postholes in the walls of the pits implies the presence of low walls that would have met low, sloping roofs. The size of each of the smaller pit-houses implies that they were occupied by a nuclear or small extended family.[89] Each structure would have housed no more than a single nuclear family, except for the large central pit house which might have housed two such families. Thus, the settlement is likely to have been occupied by 50 or fewer people.

The Early Neolithic occupation at Foeni-Sălaş has a single, thin pan-site occupation stratum (Locus 2). There is no evidence of later Starčevo-Criş structures cutting into earlier ones. Daub architecture and the construction of durable structures are almost completely absent. Simple semisubterranean huts were constructed and occupied for a short period of time. Floors were not specially constructed or plastered. Floors were simply the bottoms of the pits dug into the post-Pleistocene and Pleistocene sediments. The people of Foeni-Sălaş invested little time or effort in modifying or improving their living areas. The settlement seems to have been abandoned relatively soon (likely a few months only) after the pit houses were constructed. After the pit-dwellings were abandoned, the area between the pit houses was mostly cleaned up and the pit houses were filled up with this debris and that from the collapse of the superstructure. Given there is no evidence of stratigraphic accumulations of multiple occupation levels above the basal level, it is likely that they were not reoccupied nor used as middens by neighbouring structures, since

[85] Alexandrov 1995, 253–254.
[86] Greenfield, Jongsma 2008, 122.
[87] Greenfield, Jongsma-Greenfield 2014.
[88] Hayden 1997.
[89] Naroll 1962; Wiessner 1974.

they all seem to have been abandoned around the same time. There is no evidence of subsequent occupation of the site during this period, since none of the pit houses overlap. This suggests that it was a relatively short-term occupation, probably only of a season or two.

Conclusion

Our research at Foeni-Sălaş demonstrates that it was occupied intermittently and probably only briefly at various times over the past 8,000 years. Occupation began during the Early Neolithic (Starčevo-Criş, c. 6100 BC), it was then abandoned until the Eneolithic (Cernavodă III–Baden and Kostolac, c. 3000 BC), abandoned again until the Middle Bronze Age (Verbicioara, c. 1600 BC), abandoned yet again until the Early Iron Age (Hallstatt C, c. 600 BC), and again abandoned until the Late Roman period (3–5th cent. AD), and again until the Medieval (10–11th and 14–15th cent. AD). It was finally abandoned as a settlement afterwards, and only used for agricultural purposes in the modern era (19–20th cent. AD). It was occupied initially (Early Neolithic) and probably only for a few seasons as an early farming settlement by several families living in pit houses, herding domestic livestock (cattle and sheep, primarily), hunting and fishing, but only a little, and gathering wild plants. In the Eneolithic and Middle Bronze Age, it was likely only briefly visited, given the paucity of material and deposits (one pit in each and some sporadic finds). During the Early Iron Age, it once again became a settlement where several families likely lived in semisubterranean dwellings. Similarly, during the Late Roman period, it was a small settlement where only a few families likely lived, given the number of bell-shaped storage pits and semisubterranean dwellings. During the Medieval period, it appears to have become some kind of fort since a stockade was built on the southern half of the site and much of the site was levelled by ploughing (both of which destroyed much of the earlier settlements). Two burials, of which one was certainly a warrior, are associated with this phase of occupation. In the modern era, it was used for agriculture by the inhabitants of the village of Foeni, but was severely impacted by the modern ploughing regime that extended to a depth of almost 50 cm in places.

The importance of the various occupations at Foeni-Sălaş is that:

1. It teaches us about the spatial and economic organisation of early farming communities (Early Neolithic) – that we should not use a Mediterranean or Near Eastern model. They lived in semisubterranean (pit) houses that were spatially distributed around a larger central one, a pattern unique to the Central Balkans. There is no longer a debate about the existence of pit houses in the literature.[90] Their presence in not only the Early Neolithic[91] but also in later periods extending almost up to modern times is now an accepted fact. This stands in contrast to the debate that continued throughout the 1990s about the nature of the earliest architecture in the region.[92]

2. It teaches us about the economic organisation of early farming communities. In the Central Balkans, an essentially Near Eastern/Mediterranean complex of domestic plants and animals were readapted to a temperate Central European environment.[93] As part of that, the animal and plant spectra changed from a Near Eastern to Central European pattern. This set the stage for the next phase of European colonisation by early farmers, since food producing economies rapidly spread throughout much of the rest of temperate Central, Western and Northern Europe following the conclusion of this process.[94]

3. It teaches us that to reconstruct the internal social and economic organisation of a single settlement, large horizontal excavations are required. Only by documenting the *in situ* distributions of features and artefacts can their spatial relationships begin to be interpreted. Before the work at Foeni-Sălaş, such a programme had never been undertaken at a Starčevo-Criş-Körös culture early agricultural site, where 75% of the site was investigated. It requires the excavation of not only the features filled with artefacts, but also the empty spaces in between, in order to see the exact boundaries within and around the settlement area. The excavations at Blagotin had this important goal originally in mind, but the depth of the stratigraphy (and the cultural embargo) made this impossible.

4. It teaches us that a good place to live in the Early Neolithic continued to be a good place to live in later periods. The slight rise on which the Early Neolithic settlement was constructed provided not only better drainage and viewpoints than in the surrounding plain, but also a close proximity to a running water course (Timişat). The small area at the top of the natural mound

[90] Ehrich 1977.
[91] Bogdanović 1988.
[92] Bailey 1999.
[93] Greenfield 1993; Whittle 1996.
[94] Bogucki 1988; 1996.

restricted the spread of the settlement in all periods, which led to the creation of stratigraphically superimposed deposits (or a small tell-like feature). This is very different to the pattern described for many settlement areas in the plains, where there is a laterally displaced stratigraphy on terraces overlooking water courses.

5. It teaches us that even small insignificant sites can yield important information about the history and nature of settlements in a region, which have far reaching implications. Through the investigation of the single phase of Early Neolithic occupation at Foeni-Sălaş, it has been possible to delineate and finally understand the spatial organisation of an Early Neolithic settlement. The Early Neolithic settlement was spatially organised as a peripheral semi-circle of semisubterranean dwellings around a larger semisubterranean dwelling and other open-air features (e.g., livestock enclosure). This circular pattern around a larger pit house is a pattern that we have long argued was the case with other sites, such as Blagotin and Vinča,[95] but the deep stratigraphic sequence covering half of Blagotin and all of Vinča defeated even the most valiant attempt to excavate it thoroughly enough to confirm this hypothesis. This is a completely different settlement pattern than one sees in the more Mediterranean littoral of South-eastern Europe or in Central Europe, where buildings were rectilinear and above ground, for the most part. Similarly, the presence of a Medieval fortification at Foeni-Salas shows that it was likely an important way-station and redoubt that does not show up in any historical texts. The ephemeral presence of the Eneolithic and Bronze Ages at the site are just as revealing with regard to the absence of permanent occupation at the site.

6. It teaches us that flat sites, as opposed to those with a thick and deep stratigraphy, are just as, if not more, important to investigate, since they allow for large-scale horizontal exposures, where the entire settlement system can be delineated. Most research on intra-settlement organisation in this region has focused on reconstructing culture historical sequences that rely upon the stratigraphic sequences found in tell-like sites. However, flat, open sites, when exposed in large horizontal excavations, allow for the systematic investigation of spatial relationships. The entire settlement can be sampled or exposed in each phase of occupation. Consequently, the spatial distribution of activity areas within sites becomes apparent. Excavation in small or large isolated trenches never allows for stratigraphic relationships or behavioural interpretations to be adequately established. Unfortunately, flat sites are disturbed by later processes, such as ploughing and rodent activity, not to speak of later occupations. Archaeologists must learn to recognise and account for such process if they wish to reconstruct the spatial processes of behaviour within a settlement. Only afterwards, can they begin to generalise and compare the results with the wider region.

In conclusion, Foeni-Sălaş is a small multi-period site located in the Romanian Banat, near the border with Serbia. Despite its small size, it has allowed us to understand the evolution of human settlement in this region, from the first farmers until nearly modern times. Small settlements can provide complementary information regarding the larger, better known settlements that archaeologists often prefer to investigate. However, one should not judge the importance of settlements based on their size. It is not the "size that matters", but the quality of information that can be gleaned to increase our understanding of human adaptations to a region.

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[95] Greenfield 2000; Greenfield, Jongsma-Greenfield 2014; Greenfield, Jongsma 2006.

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Size Doesn't Matter: Foeni-Sălaş, a Small Multi-Period Settlement in the Romanian Banat (21–60)

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ВЕЛИЧИНА НИЈЕ ВАЖНА: ФОЕНИ САЛАШ, МУЛТИКУЛТУРНИ ЛОКАЛИТЕТ У РУМУНСКОМ БАНАТУ

Кључне речи. – рани неолит, енеолит, бронзано доба, старије гвоздено доба, Римско-дачки период, средњи век

Након што су бившој Југославији уведене економске санкције и санкције у научној сарадњи (1992. година), заједнички пројекат Благотин, којим су руководили Проф. Хаскел Гринфилд и Др. Светозар Станковић, морао је званично бити прекинут, мада је незванично сарадња трајала све до 1995. године. Због таквих околности Х. Гринфилд је средства за истраживања усмерио на територију румунског Баната, где је захваљујући Флорину Драшовану (Музеј Баната) и Хореи Ћигудеану пројекат настављен на локалитету који је такође имао ранонеолитски хоризонт, а који је у литератури одраније познат као Фоени Салаш. Овај тел налази се неких 45 км југозападно од Темишвара, непосредно уз границу са Србијом.

Иако веома обећавајући, локалитет је у прошлости највише девастиран земљорадњом и нивелацијом земљишта у периоду након II светског рата. Док су остали културни хоризонти већином претрпели знатна уништења, слој старијег неолита је остао готово неоштећен. Културна стратиграфија осим раног неолита (Старчево–Криш) обухвата и енеолит (Чернавода III – Болераз и костолачка култура), бронзано доба (Вербичоара), старије (Калакача) и млађе гвоздено доба (Латен), римско-дачки хоризонт и средњи век. Ради лакшег сналажења локалитет је подељен системом квадрата на блокове 20 x 20 м, који су пак подељени на мање квадрате, сонде димензија 5 x 5 м (и даље на 1 x 1 м). Истраживане целине документоване су системом локуса и јунита, а земља је приликом ископавања просејевана, док су одређене целине и флотиране.

Треба нагласити да се према очуваности културних хоризоната локалитет слободно може поделити на ранонеолитски хоризонт, који је добро очуван, и постранонеолитске хоризонте, који су откривени у веома лошем стању. Период средњег века представљају два гроба и један угао одбрамбеног рова са стубовима, док је из периода касне антике документовано неколико затворених целина (јаме, од којих је у једној откривен скелет детета) и једна правоугаона полуукопана земуница. Старијем гвозденом добу припада убедљиво највећи број затворених целина у постранонеолитским хоризонтима локалитета. Материјал из млађег гвозденог доба, енеолита и бронзаног доба, осим у ретким затвореним целинама, местимично је налажен и у оквиру осталих културних хоризоната.

– Хоризонту средњег века припадали су локуси 4, 8 (одбрамбени ров), 21, 27, 29, 35, 38, 42, 43, 46, 55, 58, и гробови 2 и 3.

– Римско-дачком хоризонту припадали су локуси 35, 38, 46 и објекти 4, 5, 8 и гроб 1.

– Старијем гвозденом добу припадали су локуси 11, 18, 22, 28, 30, 31, 32, 33, 36, 37, 39, 40, 44, 45, 47, 48, 54, 56 и објекат 3.

– Средњем бронзаном добу припадао је локус 15.

– Енеолитском периоду припадао је локус 57.

– Раном неолиту припадали би локуси 2, 7, 7.1, 7.2, 7.3, 10, 23, 24, 25, 41, 50, 51, 52, 53 и објекат 6.

– Постплеистоценски хоризонт је формиран током мезолита и припадао би му локус 5.

– Плеистоцену припада локус 12.

Судећи према налазима материјалне културе, средњем веку припада мањи број керамичких уломака, за које су румунске колеге на основу прелиминарног увида у материјал сматрале да се могу сврстати у 10–11 век. Гроб у коме је сахрањен мушкарац, према аналогијама наоружања и опреме може да припада периоду 14–15. века, што се вероватно може рећи и за суседни гроб 3, у коме је сахрањена трудна жена. Нажалост, предмети од гвожђа из гробова однети су у Музеј у Темишвару, тако да никада нисмо ни били у могућности да видимо резултате конзервације.

Римско-дачки хоризонт је нешто боље сачуван, односно поред налаза керамике откривена је и једна правоугаона полуукопана земуница са калотастом пећи на једној њеној страни. Током касне антике на територији Панонске низије постоје бројни налази оваквих станишта, током различитих периода. Поменутом хоризонту припадала и једна култна јама на чијем се дну налазио цео јеленски рог а поред керамике и костију била је запуњена и фрагментима жрвњева, док је на средишњем нивоу откривен скелет детета, највероватније жртвованог, судећи по његовој тафономији и контексту налаза. В. Сирбу сматра да је жртвовање деце код Дачана трајало од 2. века пре н. е. до 2 века н. е.

Хоризонт млађег гвозденог доба на локалитету Фоени Салаш представљао је само један налаз, и то гвоздене фибуле типа Душов, која се датује у рани Латен, односно половину 4 века пре н. е. Хоризонт старијег гвозденог доба знатно је више заступљен, и то вероватно у две фазе: старијој, која припада Калакача култури, и млађој фази (Халштат Д). Осим што је налажена у слојевима са измешаним налазима, керамика овог периода претежно је откривена у оквиру мањих укопа, јама. Керамика је претежно добре фактуре, много више украшена канеловањем, а у појединим случајевима и урезаним мотивима, од којих издвајамо низове шрафираних троуглова. Груба керамика је припадала оставинском посуђу. За хоризонт Халштата Д везујемо и налаз калупа за ливење

перфорираног баланса за копље, који је, судећи према блиским аналогијама, највероватније био ливен у бронзи.

Због веома малог броја налаза, није било лако дефинисати хоризонт средњег бронзаног доба на локалитету Фоени Салаш. Њему припада само један укоп као затворена целина, а према начину украшавања керамике овај хоризонт највероватније можемо везати за Вербичоара културу.

Хоризонт енеолита поред дислоцираних налаза керамике у разним деловима локалитета био је највише заступљен у једној од јама (Локус 57). Као и у случају старијег гвозденог доба, налази керамике указују нам на постојање две фазе насељавања током бакарног доба. Старија је припадала култури Чернавода III – Болераз, док млађа фаза показује карактеристике костолачке културе. Најатрактивнији налаз из овог периода представља једна фрагментована антропоморфна фигурина.

Старији неолит на локалитету Фоени Салаш представља керамика са елементима карактеристичним за Старчево–Криш IIA и IIБ фазе, док барботин као декоративни елемент не постоји на керамици. Х. Гринфилд и Т. Јонгсма сматрају да се хоризонт старчевачке културе на овом локалитету односи на сам крај 8. и почетак 7. миленијума пре н. е. Керамика је претежно монохромна, грубе површине, лоптасте форме са ретким елементима псеудобарботина, утискивања или штипања прстима. Ретко су у декорацији посуда заступљене и танке урезане линије. Штипањем је формиран и рељефни мотив класа житарица, а неке од посуда су украшене и утискивањем школком као инструментом. Дршке су пластично моделоване као паралелно постављене траке, или су извучене из масе и перфориране. Осим обода или трбуха чак су и дна посуда била декорисана у неким случајевима. Од објеката из ранонеолитског хоризонта на локалитету, најважније откриће представља овална полуукопана земуница. Према резултатима геофизичке проспекције и археолошких ископавања на Фоени Салашу, организација насеља из овог периода на централном Балкану подразумева једну централну структуру око које се подижу и други стамбени објекти. Према траговима зооархеолошких и палеоботаничких налаза, јасно је да у економији заједница постоји доместификација животиња и биљака, која варира у зависности од географске позиције локалитета, од блискоисточног/медитеранског комплекса до централноевропског комплекса. Између ова два комплекса такође је приметна и разлика у доместификованим врстама животиња, током брзог ширења ранонеолитских фармера кроз Европу. Наша искуства са истраживања локалитета Благотин и Фоени Салаш уче нас да су за најбоље разумевање Старчево–Криш–Кереш локалитета неопходна истраживања у широким ископима да би се ухватила хоризонтална стратиграфија, а таква методологија није упражњавана пре истраживања на Фоени Салашу. Због тога се као исправан начин истраживања намеће методологија по којој се не истражују само стамбени објекти већ и простор око њих како би се утврдиле разлучите зоне унутар и око неолитског насеља. Требало је да и претходно предузета истраживања на Благотину имају овакав карактер, али су дубина културног слоја и културни ембарго међународне заједнице осујетили ова истраживања.

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Original research article

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THE BALKAN-AEGEAN MIGRATIONS REVISITED: CHANGES IN MATERIAL CULTURE AND SETTLEMENT PATTERNS IN THE LATE BRONZE AGE CENTRAL BALKANS IN LIGHT OF NEW DATA[1]

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Abstract. – Alleged "Aegean migrations" have long been seen as underlying major transformations in lifeways and identity in the Balkans in the 12th–11th centuries BC. Revisiting the material culture and settlement changes in the north-south "routeway" of the Velika Morava–Južna Morava–Vardar/Axios river valleys, this paper evaluates developments within local communities. It is argued that mobility played an important role in social change, including an element of inward migration from the north. We argue that rather than an Aegean end point, these river valleys themselves were the destination of migrants. The prosperity this stimulated within those communities led to increased networks of personal mobility that incorporated elements from communities from the wider Carpathians and the north of Greece over the course of two centuries.

Key words. – Late Bronze Age, Velika Morava–Vardar/Axios corridor, Aegean, absolute chronology, channel-decorated pottery of Belegiš II–Gava type, small scale movements, migration

Cultural connections between groups occupying the Balkan Peninsula and Greece intensified at the end of the Bronze Age, particularly around 1200 to 1000 BC. This was a time of substantial, crisis-driven social change in societies in the Mycenaean polities to the south and the Carpathian Basin to the north. In this paper we explore changes that took place in the societies in the river corridor of the Morava–Vardar/Axios, which links these two regions. We argue that the communities living there were transformed by new patterns of mobility and migration and that, in turn, these communities became dominant mediators of cultural change. Rather than being a passive conduit linking major centres of influence to the north and south, in the wake of the collapse of political systems at those centres, communities in these valleys became influential on an increased scale. This is characterised by a greater connectivity and cultural coalescence during the transitional period between the Bronze and Iron Age.

These new connections are visible primarily through ceramics and mortuary practices, and they have sometimes been explained as the product of large-scale population migrations associated with the Mycenaean collapse.[2] As a field, archaeology is increasingly comfortable with revisiting questions of the social impacts of human mobility, though this requires adequate theorisation.[3] As our understanding of migration and mobility has developed in recent years, the challenge is increasingly to explain the material

[1] We wish to dedicate this article to our late colleague and friend Alexandru Szentmiklosi, whose expertise on prehistoric ceramics continues to underpin advances in our knowledge of Bronze Age societies.

[2] Milojčić 1948/49; Desborough 1964; Garašanin 1973; Stefanovich 1973; Catling & Catling 1981; Mitrevski 2003 and others.

[3] Heyd 2017; Kiriatzi and Knappett 2017; Kristiansen et al. 2017.

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patterns arising through shifts in the nature of the movement of people and less to question the movement itself.[4]

Looking to the river corridors connecting Europe and The Aegean, material culture clearly demonstrates that there was intensified interaction after 1200 BC and that mobility of ideas included the movement of people at some level.[5] Scholarly opinions on the extent of mobility vary from denial that it happened to Aegean migration models, which claimed mass migrations from Central Europe via the Balkans caused the fall of the Mycenaean Palatial system, and there are many shades in between these extremes.[6] One of the inspirations behind the Aegean migration model was the obvious changes in material culture and settlement patterns in the Central Balkans, particularly in the Južna Morava Valley at the same time as the collapse of Mycenaean polities in the 12th century BC. This also took account of the Morava and Vardar/Axios valleys as the primary overland conduit linking the Aegean world and continental Europe, first identified by Gordon Childe.[7]

The Morava flows south to north, where it joins the Danube and a short overland journey to the south brings one to the north-south flowing Vardar/Axios river. While the importance of this corridor remains relevant for understanding cultural change, the mass migration model lacks material support and explanatory power. However, as will be argued below, material evidence for mobility and connectivity still requires an explanation, particularly because of similarities between pottery shapes and decoration from the Central Balkans and the lower Vardar/Axios valley.[8] The character of changes have been interpreted differently, but all authors agree on one thing – the connections between these regions increase in scale and visibility in the period of 1200–1000 BC. For this reason, this paper focuses on the chronology and the character of interconnections within these river valleys.

We will address potential consequences of changes in mobility patterns, including migration, for lifeways of populations during the phase termed the "Transitional period" in relative chronology, which bridges the Bronze to Iron Ages.[9] Building on the current state of the art, this paper introduces new data, including absolute dates, which provide insights into the developmental sequences of settlements and pottery. It is demonstrated that beginning in the 12th century BC, the steady increase in influence of ceramic styles, but also metalwork forms, from the Pannonian Plain reveals a fundamental shift in the expression of cultural identity in the Morava Valley. We also tentatively propose that a contextual analysis of the relative abundance of the intrusive Belegiš II–Gava style[10] identifies a differential reception to this material culture in upland and lowland sites.

Ultimately, given the close relationship between pottery shapes and domestic practices, particularly concerning mundane rather than prestige forms, this is indicative of inward migration. The processes underlying these developments contribute to an increase in networking and prosperity across the wider region. Overall, we argue for migration into the Morava preceding an expansion of interaction networks through which both people and ideas spread south over a multi-decadal scale into the Vardar/Axios valley and down to the northern shores of the Aegean.

Material culture and settlement patterns of the Late Bronze Age

The basin of the Južna Morava, as well as the area west of it, was inhabited in the late Bronze Age by people who made and used a characteristic pottery style termed the Brnjica group.[11] The pottery considered characteristic for this group is well-defined, and so we can be confident in the attribution of the finds to this group. Accepting that use of a pottery style was a choice and does not equate to intrinsic identity, that very choice demands that we recognise this use as

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[4] Anthony 1997; Burmeister 2000; Hackenbeck 2008; Dzięgielewski, Gawlik, Przybyła 2010; B. P. C. Molloy 2016a; Francesco Iacono 2019 .

[5] Bulatović 2011; B. P. C. Molloy 2016b; Ruppenstein 2020.

[6] See in: Milojčić 1948/49; Chadwick 1958, 11; Desborough 1964; Vermuele 1974; Catling & Catling 1981; Drews 1988, 207; Bulatović 2011; B. P. C. Molloy 2018 and cited literature.

[7] Childe 1939: 85.

[8] Milojčić 1948/49; Garašanin 1973; Stefanovich 1973; Bouzek 1985; Stojić 1997; Mitrevski 2003; Bulatović 2011; Bulatović 2019; Ruppenstein 2020..

[9] According to R. Vasić the Transitional period covers the time span of Reinecke's Ha A and Ha B phases (1997, 149–151).

[10] This paper does not analyse the Southern Pannonia region, so any discussion about fluted pottery attribution (being part of the Gava complex or Belegiš II group) goes beyond the remit of this paper. We use the term channel-decorated pottery and/or Belegiš II–Gava style. This term has an extended usage in the archaeological literature and would equate with Belegiš IIb or III in rarely used schema (Medović 2001; Tasić, Tasić 2003; Bulatović 2009; Bulatović, Filipović 2017 etc.).

[11] Srejović 1960; Lazić 1996; Stojić 2001; Bulatović, Stankovski 2012, 351–382 and cited bibliography.

participation in a cultural norm.[12] In areas to the south, pottery is sometimes attributed to this group in sites in the lower course of the Južna Morava, where elements of the Brnjica tradition are seen incorporated into the stylistic conventions of another distinct ceramic stylistic tradition, the Paraćin group. This group also has a distinct developmental history stylistically speaking, and the incorporation of Brnjica elements is not universal. Recognising that styles represent cultural choices, this suggests both familiarity with these pottery traditions from the north and a degree of permeability of the communities using Paraćin pottery.

Pottery and absolute chronology

At this point, we would like to introduce some of the typical pottery and metalwork styles which will help us to define both chronological and social interrelations within the Central Balkans and between the people there and their neighbours. This is necessarily descriptive and detailed and is supported by illustrations throughout. The typical pottery inventory for the Brnjica group includes S profiled bowls (Pl. I/5, Pl. III/1, 2, Pl. IV/4, Pl. V/2–4, Pl. VI/11–13), semi-globular or conical cups with one handle that extends above the rim (Pl. II/3, Pl. III/3, 4, Pl. IV/7), globular or pear-shaped beakers with two handles that extend above the rim (Pl. II/5, Pl. IV/6), pear-shaped or ovoid amphorae with everted and thickened rims with a ring-shaped inner edge (the so-called Brnjica rim) (Pl. I/2, 6, 11, Pl. II/8, 9, Pl. III/5, 6, Pl. IV/9, 10, Pl. V/6, Pl. VI/14–16), handles with a knee-shape profile and a fan-shaped top (the so-called slatina type) (Pl. I/8, Pl. VI/20, Pl. VII/19, Pl. IX/9, 10) and a few other shapes occasionally encountered. These are discussed in more detailed literature.[13]

The site of Svinjarička Čuka is so far the oldest known site of the Brnjica group with an absolute date from the Late Bronze Age.[14] We will also consider the site of Hisar, which is an enclosed site on a low hill overlooking the river plain. This site has been systematically excavated and provides the latest absolute dates for this group (Tab. 1/7).[15] At Hisar, changes can be recognised in the typical pottery styles recovered, with some forms being quite atypical for the Brnjica group. It is apparent that the duration of the Brnjica group extends from the beginning of the 15th century BC at the earliest to the beginning of the 13th century (probability 95.4%), or potentially the middle of the 15th century and the middle of the 13th century (probability 68.2%) (Tab. 1)[16].

Alongside pottery considered characteristic of the Brnjica group, there is also pottery of different styles recorded alongside Brnjica sherds at sites in all regions of this group. These present features of other, older, pottery traditions from this same region. Such finds are also found in neighbouring areas, such as sites where Paraćin group pottery dominates. These older forms are primarily characterised by their ornaments in the form of incised spirals or rectilinear motifs, rows of triangular or oblique punctate dots, often filled with white incrustation. They may also have incised lines that form geometric motifs, inscribed or hatched triangles or deltoids, and incised strips filled with double rows of punctate dots. These ornaments, both in technique and motifs, are very close to pottery from the Oltenia lowlands and the region between the Balkan Mountains and the Danube in the Middle and Late Bronze Ages. They have been recorded in several of the pottery groups in the area, and there may be an element of these being defined differently by different authors, variously called Balta Sarata, Verbicioara, Govora, Cherkovna, Zimnichea–Plovdiv, Tei IV.[17]

The shapes of these vessels that appear sporadically in contexts alongside pottery of the Brnjica group are most commonly a globular beaker with two high-set handles, often decorated with motifs of an incised spiral (Fig. 3).[18] This type of beaker also appears in the area of the neighbouring Paraćin group.[19] In that area, it was even more commonly found than in the area of the Brnjica group, so it could be said that it was a favourite "non-local" element in the LBA ceramic groups of the Central Balkans. In a previous study that deals with these beakers, it was stated that they were a popular pottery form across a vast area

[12] Roberts, Van der Linden 2011.

[13] Stojić 2001; Bulatović, Stankovski 2012.

[14] The excavations have lasted from 2018 until today, and are conducted by the Institute for Oriental and European Archaeology, AAS, Vienna and the Institute of Archaeology, Belgrade, within the project "NEOTECH project P32096 (FWF)" (Horejs et al. 2019 and cited literature).

[15] Filipović et al. 2020, Suppl. Dataset.

[16] If we take the oldest date of the appearance of Belegiš II pottery at Hisar as the date of the end of the Brnjica group's existence, although the characteristic Brnjica material still exists but together with BII-G pottery, at least on Hisar.

[17] Guma 1997; Crăciunescu 2004; Hansel 1976; Schuster 2003.

[18] Bulatović, Stankovski 2012, T. V/7, VI/15; Jevtić 1990, T. IV/1, V/2.

[19] Stojić 1997.

from Wallachia in the north, to the Aegean in the south and from the Velika Morava and Južna Morava valleys in the west to today's eastern Bulgaria – an area of almost 150,000 km².[20]

However, they are most numerous on the north-western coast of the Aegean Sea and in the Wallachian lowlands. One of the identified variants is numerous in the Velika Morava Valley, and so it is clear that this region was participating in networks linking Aegean and south Pannonian Plain communities – that is, they were active agents in this process and not passive elements in a communication corridor.

Another connection between these distant areas can be identified in the tradition of using encrustation as a means of decorating vessels. Encrustation had been a dominant mode of pottery decoration in Oltenia and south-eastern Pannonia since the LBA,[21] and from there it may have spread into the Central Balkans (including Svinjaricka Čuka, Pl. I/3, 10, 11),[22] as well as on the northern Aegean coast.[23]

Another type of decoration that occasionally appears on Brnjica pottery but cannot be considered characteristic of this group is channel decoration. These are usually executed in oblique orientations.

No	Site	Context	Lab. Code	BP	cal BC	Published
1	**Svinjarička čuka**	LBA cultural layer	MAMS 34886	**3140±25**	1444–1331 (68.2%) 1494–1309 (95.4)	Horejs et al. 2018
2	**Medijana**	feature 2-dwelling structure	MAMS 27601	**3046±26**	1380–1271 (68.2%) 1400–1220 (95.4%)	Bulatović et al. forthcoming
3	**Medijana**	"in front of the LBA construction"	BC 6	**?**	1280±90 (1370–1190)	Coles, Harding 1979
4	**Svinjište**	dwelling structure, wooden hilt	BETA 433117	**3030±30**	1370–1225 (68.2%) 1390–1210 (95.4%)	Bulatović et al. forthcoming
5	**Svinjište**	dwelling structure, wooden hilt	MAMS 27600	**3015±25**	1369–1215 (68.2%) 1384–1113 (95.4%)	Bulatović et al. forthcoming
6	**Končulj, Gradište**	Trench 1, horizon 2	OxA-38792	**3008±24**	1304–1190 82.6% 1378–1131 95.4%	This study
7	**Hisar, Leskovac**	feature 7, sector 1/2006	Poz-105052	**2965±35**	1255–1137 (68%) 1280–1053 (95.4%)	Filipović et al. 2020
8	**Pelince**	ritual place, zone IV, quadrate Ц22	MAMS 31470	**2939±21**	1207–1115 (68.2%) 1214–1057 (95.4%)	Bulatović et al. 2018
9	**Hisar, Leskovac**	feature 7, sector 1/2006	Poz-98085	**2920±35**	1192–1062 (68%) 1218–1011 (95.4%)	Filipović et al. 2020
10	**Hisar, Leskovac**	feature 15/2002	OxA-38793	**2917±24**	1135–1026 (66.5%) 1208–1026 (95.4%)	This study
11	**Ranutovac, Meanište**	feature 45	OxA-38722	**2902±22**	1131–1011 (85.6%) 1193–1011 (95,4%)	This study
12	**Hisar, Leskovac**	feature 25/2002	OxA-38719	**2883±22**	1127–995 (94.8%) 1187–981 (95.4%)	This study
13	**Ranutovac, Meanište**	feature 3c	OxA-38723	**2846±23**	1059–924 (88.7%) OxCal 4.4.2 1086–925 (95.4%)	This study
14	**Ranutovac, Meanište**	feature 26	OxA-38724	**2824±22**	1021–911 (90.3%) 1047–911 (95.4%) OxCal 4.4.2	This study
15	**Ranutovac, Meanište**	feature 3b	OxA-38725	**2614±22**	818–783 (95.4%) 809–795 (68%)	This study

Tab. 1. Absolute dates for LBA and Transitional period in the Južna Morava Basin

Табела 1. Апсолутни датуми позног бронзаног доба и прелазног периода у долини Јужне Мораве

They are commonly wide and deep motifs or they may be executed in vertical short and shallow channels, mainly on the bellies of both bowls and beakers (Pl. IV/2, 3, 8 , Pl. V/4). From a chronological perspective, it is important that this channel decoration has not yet been found on sites dated to the early phase of the Brnjica group (Br C–C/D), such as Svinjarička Čuka, Medijana and Svinjište.[24] The earliest appearance of channel decoration in the area of the Brnjica group is recorded in Končulj (Pl. IV/2, 3), in a context dated to the 13th century calBC (Tab. 1). At Končulj, the channelled ornaments are reminiscent of those on the pottery of Middle Bronze Age groups in southern Pannonia and Late Bronze Age groups in western Serbia. That said, the vessel shapes on which this occurs in the Južna Morava basin have few if any similarities with the vessels of the LBA in western Serbia.[25] The semi-globular channel-decorated deep bowl from Končulj (Pl. IV/2) has its closest analogies in the Balta Sarata IV group in southern Transylvania, which also dates to the 13th century BC.[26] A bowl very similar to the S-profiled bowl with two handles and short channel decoration elements on the belly from Končulj (Pl. IV/3) was discovered in a LBA grave in Dobrača, Šumadija.[27] These vessels, mostly bowls with bellies decorated with wide, oblique channel decoration, closely reminiscent of the bowls with twisted bellies characteristic of the Brnjica group, are very common in the Wietenberg group in Transylvania.[28] Channel decoration as a decorative device was present in this group from the end of the Early Bronze Age (phase A).[29]

Channel decoration executed in a similar manner to that found on Brnjica vessels was recorded on vessels from the late phase C of the Wietenberg group, which corresponds to the end of the period Br C in Central European chronology.[30] Other analogies with the pottery of the Wietenberg group can be observed in this group, including handles with plastic extensions at the apex, spiral ornaments, incised or hatched triangles, and double rows of opposite triangular punctates.[31] Other features known from the Wietenberg group include series of punctates (prick-marks), as seen on sherds from the sites of Svinjarička Čuka (Pl. I/1–4, 9–12) and Mediana (Pl. II/4, 5, 10, 11, 14), and other sites where Brnjica group pottery is dominant in assemblages.[32]

Oblique channel decoration is also a common motif on pottery at LBA sites in the south-eastern part of the Carpathian Basin, and dates from the end of 16th to the early 13th century calBC.[33]

Regarding the absolute chronology of this atypical pottery of the Brnjica group with oblique channel decoration, it is documented on vessels dated to the 15th Century BC. This appears to correspond to the very beginning of the group, based on stratified finds from Svinjarička Čuka (Pl. I/1–4, 9–12) and Mediana. At this latter site, along with ceramics characteristic of the Brnjica group and some with similarities to the Paraćin group, globular beakers decorated with spirals were also found (Pl. II/5, 11).[34] A house excavated at Mediana is dated between the beginning of the 15th and the last quarter of the 13th century BC (probability 95.4%), and potentially between the first quarter of the 14th and the second quarter of the 13th century BC (probability 68.2%). These dates largely coincide with an older ^{14}C date from Mediana from several decades ago (Tab. 1/2, 3). Similar finds occur in a later context at Končulj, which is dated to the 13th–12th century BC (Tab. 1/6), as well as many sites with Paraćin and Brnjica group ceramics in Pomoravlje. These contexts are not dated, but finds from contexts from dated sites

[20] Bulatović 2011, Map. 1.

[21] Bulatović 2011, 122, notes 11–16.

[22] Jevtić 1990, 98; Stojić 1997; Bulatović, Stankovski 2012, T. IV/33, 40, 41.

[23] Hochstetter 1984, Taf. 13/5, 18/1, 27/8, 35/1; Wardle, Wardle 2007, Pl. 14; Andreou, Psaraki 2007, Fig. 6. Pl. 4.

[24] We are expecting soon a new absolute date from one semi pithouse from the Hisar settlement. The bottom of the object was on virgin soil and definitely represented the earliest settlement horizon on the site, i.e. LBA. In this object, S profiled bowls with wide oblique flutes on the belly were found.

[25] Medović, Hansel 1989; Hansel, Medović 1991, Taf. 25/3; Guma 1997, Pl. XLVII/2, XLIX/4, L/1, 2, LIIa etc; Stojić 1998, sl. 1, 6, 9, 13, 15, 20, 26, etc; Filipović 2008, sl. 47, 52; Ljuština 2012, Pr. 61/4, Pr. 66/4, Pr. 104/5, 7, Pr. 105/3, 6, 8 ; Radojčić 2013, inv. nos. 28, 30, 48.

[26] Guma 1997, 68, Pl. LXXII/2–4.

[27] Stojić 1998, sl. 20.

[28] Boroffka 1994, Taf. 6/3, Taf. 8/7, Taf. 28/1, 2, 4, 5, Taf. 77, Taf. 138/6, Taf. 126/7, Taf. 124/4, etc.

[29] Fantaneanu et al. 2013, 177, Fig. 5/1, 6, 10, 11, Fig. 6/2, 3, 5, 6, 8, 9 etc.

[30] Boroffka 1994, 288, Tab. 14.

[31] Boroffka 1994, Taf. 1/7, 12/2, 26/4, 35/1, 7, 38/16, 22, 23, 60/8, 62/3, 85/9, 92/4–8 etc. Some of these ornaments are older and belong to the earlier phases of the Wietenberg group (249–250).

[32] Bulatović, Stankovski 2012, T. IV/33, 40, 41, T. XV, T. XXIV/1.

[33] Sava 2020, fig. 27.

[34] Bulatović 2008.

indicate they should be dated to approximately the same period – Br C / D–Ha A1.[35]

Metalwork

We will shift our focus now to metalwork finds which complement the picture evident from the analysis of pottery. Styles of metalwork link societies in a large area encompassing the Velika Morava and Južna Morava valleys and the Vardar/Axios valley, southern Transylvania, southeast Pannonia and the area between the Carpathians and the Balkan Mountains. In the core study area of this paper, there are notably few hoards of bronze objects and bronze finds in general are relatively rare. We will focus only on those objects which have good contextual records.

For a socketed axe from Svinjište (Pl. III/9), close comparanda come from the Mali Izvor near Zaječar and the Sečanj III hoard in Vojvodina,[36] the Ovcha Mogila hoard in northern Bulgaria,[37] along with items from other hoards from northern and NW Bulgaria. These axes are characterised by their lack of a side loop.[38] The main problem with contextualising the socketed axe from Svinjište is the conflict between ^{14}C dates and the relative typological chronology. It was recovered in a stratified context which is absolutely dated to the 14th to 13th centuries calBC. However, similar pieces from the region would normally be dated to the 12th to 11th centuries BC. For example, the axes of the Ovcha Mogila hoard are good representatives of the type Vrbitsa A, var. E after Dergachev.[39] The chronology of these in Central-Northern Bulgaria (the main region where this type of axe is found) should not be placed earlier than Ha A2, i.e. 1100 BC at the earliest. Also, the vast majority of Vrbitsa socketed axes do not have side loops, which is, *grosso modo*, the norm form of Western and Central Europe socketed axes. Several pieces similar to the Svinjište axe have been found in Bosnia[40] and Italy,[41] where they are also attributed to the Hallstatt A period. Recently, Gavranović and Kapuran have refined the typology of Central Balkan socketed axes. [42] They attribute the Svinjište axe to their Variant A, which they date to the Ha A2–Ha B1 period. It seems that this variant emerged in the Central Balkan region with elements from the east and west as a "hybrid" form, which, logically speaking, must be younger than the styles it incorporates

A bronze chisel was also recovered from this site (Pl. III/10).[43] Channelled chisels similar to the Svinjiste specimen are distributed in the lower Danube area and Black Sea region, where they would be dated ca. 1400–1300 BC,[44] as would similar forms from the North Caucasus.[45] However, remains of the casting channels represented as "horns" at the rim are characteristics of later (Ha A–Ha B3) socketed axes, also from the lower Danube area and Black Sea region.[46]

A sickle from Končulj has parallels in the Klenje hoard near Golubac, at the entrance to the Đerdap gorge, which R. Vasić dates to Br D, i.e. the 13th century BC.[47] However, all other finds from the Klenje hoard should be dated slightly later to Ha A at the earliest.[48] Specimens similar to the sickle from Končulj were found in Ha A1 hoards from Dipsa and Suseni in Romania. Comparanda also come from Central Europe, but those pieces are dated to Br C1, such as the piece from the Waldshut hoard.[49] While a specimen from the Gemer hoard (Slovakia) is dated to Br D / Ha A1, a similar sickle was dated as late as Ha C from the Ostrovice Primasowskie hoard from Poland.[50] This type of sickle was rare in southern Pannonia, and may be connected with Central Europe. The relatively wide chronological span, as well as rarity of this sickle type, further complicate clear dating. Alongside this stylistic dating, the stratigraphic location of the find from Končulj suggests a Br D–Ha A1 date.[51] Given the simplicity of the form and this wide possible date range, the piece from Končulj may probably be dated to the 13th to 12th centuries BC. Finds of this type of sickle this far south would at least accord with, though not prove, an argument for inward migration from the north. A needle with an eyelet was recovered from a Late Bronze Age structure at Velika Humska Čuka. In the same ar-

35 Stojić 1997, 61.
36 Gavranović, Kapuran 2014.
37 Krauß 2005.
38 Černych 1978, 185 and further.
39 Дергачев 2011, 154.
40 Žeravica 1993, Taf. 37/495.
41 Carancini 1984, Tav. 124/3782–83.
42 Gavranović, Kapuran 2014, 35.
43 Булатовић 2007, 259, T. LXXX/18.
44 Дергачев 2011, 216–222.
45 Dergachev, Bockarev 2006, 537, Pl. 111/7.
46 Дергачев 2011, 246.
47 Vasić 1994, 12–14, Abb. 1, Taf. 1/16.
48 Јацановић 1986.
49 Primas 1986, taf. 5/78.
50 Gedl 1995, taf. 10/154; Furmánek, Novotná 2006, taf. 3/45.
51 Bulatović, Filipović 2017.

chaeological feature, pottery with Verbicioara elements was discovered together with Brnjica pottery.[52]

In addition to these elements originating from the north, metalwork influences from the south and east can be found in the area where Brnjica pottery was used. Particularly in the southern parts of the Južna Morava Valley, influences from the material culture of the communities of the Vardar/Axios valley are attested. Most notably, these include matt painted pottery and local variants of Mycenaean Type Ci swords, which, along with other various finds, have been discussed in detail recently.[53] In the area of the Brnjica pottery group, there are four of these variants of Mycenaean swords – two from Iglarevo,[54] one from Tetovo[55] and one from Guvnište near Aleksinac.[56] To these we should add a marble pommel common to this type of sword, which was found at Gorešnica near Skopje.[57]. If we draw an imaginary diagonal line from the southern Adriatic shores to the Lower Danube region we can find several similar pieces, which are probably dated between the 15th and 13th centuries BC on the basis of similarities with Mycenaean forms.[58]

Finds of bronze daggers and knives also share similarities with Mycenaean types dated to the LH IIIA to B ceramic horizon in southern Greece.[59] Finds from Grave 7 at Klučka near Skopje are also relevant here, particularly due to the prevalence of Brnjica ceramics in the cemetery.[60] These are sections of cut and perforated boar tusks which are said by Mitrevski to be similar in size and design to those used for boar tusk helmets in Greece.[61] Bronze double-axes are also found in the same area as Brnjica pottery, particularly those of the Kravari and Kilindir type.[62] Axes of this form from the wider area of the Južna Morava Valley pieces are known from the vicinity of Niš as well as[63] Staničenje[64] and Babušnica.[65] A casting mould from the area of Babušnica is the only known example of Kilindir-type axes in the Central Balkan area.[66] These axe types are distributed widely, if in low numbers, with pieces coming from near the Adriatic and Black Sea coasts (respectively "Dalmatia'' and Royak) and the southern Pannonian Plain ("Hungary").

Other tools/weapons of relevance which have comparanda in Greece are sheet bronze arrows. These are usually found in Brnjica urns in cremation cemeteries. A casting mould for these arrowheads was found in the area of the Brnjica group.[67] There are also dress ornaments from the same chronological horizon as these metal tools and weapons. These are pins with a conical head and ball on the neck, pins with a conical head and elongated perforated neck, and the so-called spectacle-shaped and Iglarevo-type pins.[68] In a broad sense, these pins are not found north of the distribution of Brnjica group pottery, and some similar examples are known in the Vardar/Axios valley.[69]

Alongside these typological considerations, recent work on tin isotopes is relevant because this provides insights into exchange networks of communities in the Morava Valley.[70] Mason and Powell have studied three objects from our immediate study area.[71] Focusing on ^{124}Sn and ^{120}Sn, there is a common signature for objects analysed which suggests that a common source of tin was used for each. These do not overlap with currently known sources of tin mined in prehistoric Europe.[72] The research of Powell and colleagues shows that the origin of tin with this same isotopic pattern was used to make bronze objects of Late Bronze Age date in Banat, Wallachia, the area between the Balkan Mountains and the Danube, and southeast Serbia. While its ultimate source remains unclear, it is probable that the same source was accessed and exchanged throughout the wider region to the east, west and north of the Morava Valley.[73] Their study does

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[52] Crăciunescu 2004; Булатовић, Станковски 2012, 131–134; Булатовић, Милановић 2014, 170.

[53] Bulatović 2011, 132 with cited references.

[54] Harding 1995, 21, Taf. 4/24–25.

[55] Harding 1995, 21, Taf. 4/23.

[56] Филиповић et al. 2015.

[57] Колиштркова et al. 1995: 39–40, T. I/2.

[58] Jung 2018, 240 and further, Molloy 2016, 2018, Harding 1995, Kilian-Dirlmeier 1993

[59] Паровић-Пешикан 1995: 14, сл. 5/5.

[60] Mitrevski 1994: 120–121, fig. 11.

[61] Mödlinger 2013.

[62] Филиповић 2015, 350 and further; Kleitsas, Jung and Mehoefer 2018

[63] Гарашанин М. 1959: 30, сл. 2.

[64] Antonović 2014: cat. 323.

[65] Antonović 2014: cat. 325.

[66] Паровић-Пешикан 1995: 6, сл. 2/8.

[67] Филиповић 2016, 263–264.

[68] Vasić 2003, 26–27, 65–69.

[69] Vasić 2003, 26–27, 65–69.

[70] Mason et al. 2020

[71] We wish to thank A. H. Mason and W. Powell for the insight into the unpublished results of analyses for the area of south-eastern Serbia.

[72] Mason et al. 2016; Mason et al. 2020.

[73] Powell et al. 2018, 147.

not rule out the Erzgebirge deposit in Central Europe, which was mined in prehistory[74], as a possible source, and they found no data to support the existence of a speculated tin source on the tributaries of the Mures River or the Bujanovac area of south-eastern Serbia.[75] While tin supply links the communities of the Morava to their neighbours, the full extent of the exchange network this reveals remains to be seen.

A final comment can be made with respect to areas to the west of the Juzna Morava Valley. Pottery of the Brnjica group has very little in common with ceramic styles used at this same time in western Serbia.[76] This indicates a dearth of cultural transmission between these two areas. These differences are also seen in mortuary traditions. In western Serbia, tumuli with inhumations, cremations or a combination of both can be found at this time. Interestingly, the Sn isotopic signatures of metal finds from western Serbia indicate that a different source of tin was used there, potentially from the southern slopes of Cer Mountain.[77] This difference may further emphasise the reported low levels of interaction or cultural exchange between groups on the western margin of the valley and those within it. Taking account of the pottery and metalwork together, the evidence indicates that there were clear links already in place connecting societies in the Central Balkans with those in the northern Aegean and the southern Carpathian Basin during the 15th to 13th centuries BC.[78]

Settlement patterns

In the Late Bronze Age (16/15th–13th century BC) in the area of the Brnjica group, especially along the edges of the Južna Morava Valley and its tributaries, there is an increase in the number of hilltop settlements that have been documented (Fig. 1). This constitutes a significantly higher proportion of hilltop settlements relative to plain settlements than in the Middle Bronze Age (approximately 19th–16/15th century BC). [79] In the Middle Bronze Age, the percentage of hilltop settlements in relation to plain settlements was below 10%. By the Late Bronze Age, the percentage of hilltop sites had increased to close to 50%.[80] It is interesting that hilltop settlements were built mostly on the edge of the Južna Morava Valley, beginning at the mouth of the Končulj gorge (Fig. 1/38) not far from the spring of the Binačka Morava and their distribution extended as far north as the site of Gologlava (Fig. 1/1). From this latter site, it was possible to control the area of the confluence of the Južna Morava and West Morava Rivers. Hilltop settlements were also located in positions where the valley narrows, in gorges and at entrances to gorges (Fig. 1/34, 28, 17, 18, etc.). Hilltop settlements were also well-placed to control communications along larger tributaries of the Južna Morava, such as the Krševička River (Fig. 1/42), the entrance to the Banjštica gorge and the gorge itself (Fig. 1/35, 36). A small number of hilltop settlements were built outside the main communication corridor of the Južna Morava and its tributaries (Fig. 1/40, 46–48).

The largest of the hilltop settlements in this region is the site of Hisar in Leskovac. This has an extremely favourable strategic position and was built on a hill at the end of an elongated tongue above the river Veternica, which flows deep into the Leskovac plain (Fig. 1/23). The Late Bronze Age settlement on this site was located at the very top of this dominant elevation and was surrounded by a rampart. The younger phase, dated to Ha A / transitional period, was mostly located on the eastern slope of the site, outside the area that was surrounded by ramparts in the previous period. A section excavated on the southern edge of the plateau revealed important stratified remains. This includes a semi-sunken pithouse with ceramic material characteristic of the Brnjica group. This had been excavated into the natural subsoil. Sealing this feature, and after its abandonment, a substantial layer of debris from a burnt and collapsed fortification palisade was documented. Cut into this burnt layer was a pit with Belegiš II–Gava ceramics.[81] The absolute date of the pithouse is not yet known, but results are expected soon.[82]

Fortified enclosures are also documented at other sites along the fringes of the river valley. The remains of stone ramparts have been documented at Gradište in

[74] Nessel et al. 2019.

[75] Durman 1997, Fig. 2; Powell et al. 2018, 10.

[76] Lately, the term Brezjak group has been used for it, which seems to be the most adequate of all the proposed terms (Filipović 2013; Bulatović et al. 2017; Bulatović et al. 2018).

[77] Mason et al. 2020

[78] Bulatović 2011.

[79] Bulatović 2020.

[80] Булатовић, Станковски 2012, 205–211; Bulatović, Filipović 2017,149–154, also including the sites that were registered in the meantime.

[81] Bulatović, Filipović 2017, Fig. 3.

[82] The date will be published as part of a broader project Death and Burial between the Aegean and the Balkans, led by Stefanos Gimatzidis from the Austrian Archaeological Institute, Vienna.

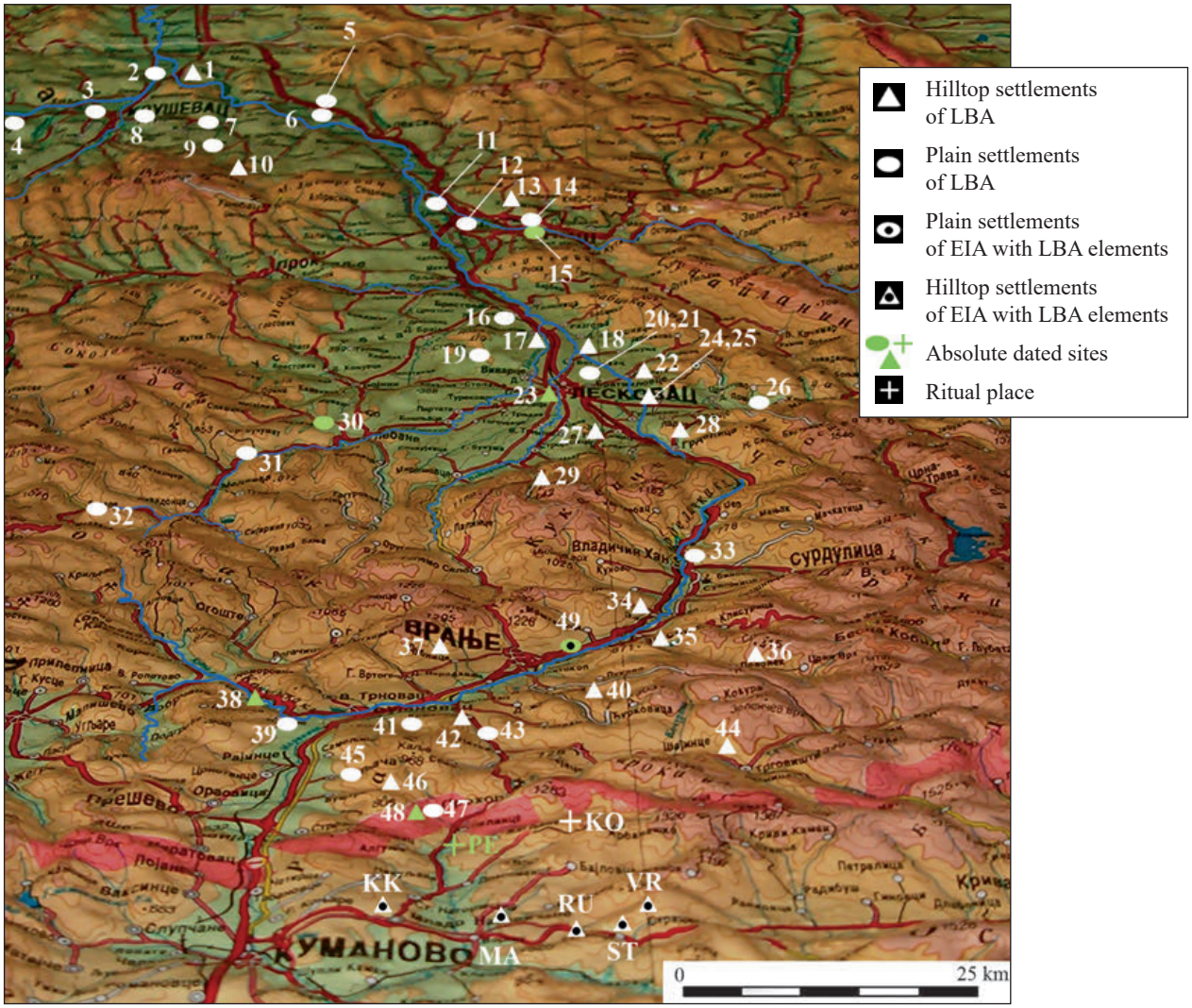

Fig. 1. Sites of the Brnjica group in the Južna Morava Basin

1. Stalać, Gologlava Site; 2. Maskare, Bedem; 3. Čitluk, Konopljara; 4. Globoder, Ivlje; 5. Rutevac, Bara; 6. Rutevac, Školska gradina; 7. Mali Šiljegovac, Crkvena porta; 8. Kruševac, Lazarev grad; 9. Zdravinje, Grabujevac; 10. Boljevac, Čukar; 11. Vrtište, Velika česma (Urvina – Breg); 12. Novo Selo Bubanj; 13. Hum, Velika humska čuka; 14. Donja Vrežina Čardak; 15. Niš, Medijana; 16. Lipovica, Jeričište; 17. Živkovo, Šljivče; 18. Zlokućane, Gradac; 19. Podrimci, Široka ornica; 20. Bobište, Izvorište – Sastanci; 21. Bobište, Putište; 22. Donja Slatina, Dački Rid–Gumnište; 23. Leskovac, Hisar; 24. Guberevac, Kumanluk; 25. Guberevac, Vranja noga; 26. Vlasotince, Vodovod–Luka; 27. Mala Grabovnica, Progon – Čuka; 28. Grdelica, Kale; 29. Zbežište, Skobaljić grad; 30. Štulac, Svinjarička čuka; 31. Rujkovac, Okućnica Baneta Krstića; 32. Tulare, Imanje Stević Radisava; 33. Kržince, Piljakovac; 34. Priboj, Gradište; 35. Vranjska Banja, Crkvište; 36. Prvonek, Gradište; 37. Dubnica, Gradište; 38. Končulj, Gradište; 39. Lučane, Resulja; 40. Surdul, Selište; 41. Ljiljance, Selište; 42. Krševica, Kale; 43. Klinovac, Tri kruške; 44. Prosečnik, Vražji kamen; 45. Biljača, Krivosoje – Đipin Dol; 46. Svinjište, Stublina; 47. Svinjište, Reka; 48. Svinjište, Gradina; 49. Ranutovac, Meanište.

Abbrevations:
PE – Pelince, sites of Dve Mogili and Gradište; KK – Mlado Nagoričano, Kostoperska Karpa; KO – Kokino, Tatikev Kamen; MA – Makreš, Gradište; RU – Rugince, Velja Strana; ST – Stracin, Gradište; VR – Vražogrnci, Blidiž.

Сл. 1. Локалитети брњичке групе у долини Јужне Мораве

1. Сталаћ, Гологлава; 2. Маскаре, Бедем; 3. Читлук, Конопљара; 4. Глободер, Ивље; 5. Рутевац, Бара; 6. Рутевац, Школска градина; 7. Мали Шиљеговац, Црквена порта; 8. Крушевац, Лазарев град; 9. Здравиње, Грабујевац; 10. Бољевац, Чукар; 11. Вртиште, Велика чесма (Урвина – Брег); 12. Ново Село, Бубањ; 13. Хум, Велика хумска чука; 14. Доња Врежина Чардак; 15. Ниш, Медијана; 16. Липовица, Јеричиште; 17. Живково, Шљивче; 18. Злокућане, Градац; 19. Подримци, Широка орница; 20. Бобиште, Извориште–Састанци; 21. Бобиште, Путиште; 22. Доња Слатина, Дачки Рид–Гумниште; 23. Лесковац, Хисар; 24. Губеревац, Куманлук; 25. Губеревац, Врања нога; 26. Власотинце, Водовод–Лука; 27. Мала Грабовница, Проїон – Чука; 28. Грделица, Кале; 29. Збежиште, Скобаљић град; 30. Штулац, Свињаричка чука; 31. Рујковац, Окућница Банета Крстића; 32. Туларе, Имање Стевић Радисава; 33. Кржинце, Пиљаковац; 34. Прибој, Градиште; 35. Врањска Бања, Црквиште; 36. Првонек, Градиште; 37. Дубница, Градиште; 38. Кончуљ, Градиште; 39. Лучане, Ресуља; 40. Сурдул, Селиште; 41. Љиљанце, Селиште; 42. Кршевица, Кале; 43. Клиновац, Три крушке; 44. Просечник, Вражји камен; 45. Биљача, Кривосоје – Ђипин Дол; 46. Свињиште, Стублина; 47. Свињиште, Река; 48. Свињиште, Градина; 49. Рануговац, Меаниште.

Скраћенице:
PE – Пелинце, локалитети Две Моїили и Градиште; KK – Младо Наїоричано, Костоперска Карпа; KO – Кокино, Татићев Камен; MA – Макреш, Градиште; RU – Руїинце, Вељa Страна; ST – Страцин, Градиште; VR – Вражоїрнци, Блидиж.

Priboj at the entrance to the Priboj Gorge.[83] At the site of Gradište in Končulj, the remains of a fortification were recorded that consisted of a ditch with post-holes defining an interior palisade as well as quantities of stone that must have served as part of the defensive structure.[84] A ditch around the multi-layered hilltop settlement in Zlokućani near Leskovac was also detected and this was dated to the Late Bronze Age on the basis of finds of Brnjica pottery.[85] There are clear horizons of burning inside the settlement area at all of these sites with fortifications as well as burning of the fortifications themselves.[86]

Analysis of the distribution and interrelationship between these fortified settlements gives the impression that they formed a well-planned defence system along the Južna Morava corridor. They appear to have been permanently settled and were not only places for temporary refuge to be used in the event of an attack on a community living in the lower flatlands. The mutually supporting structure of settlement distribution is most clearly seen in the intervisibility between sites – from any given site at least one other site can be seen. For example, Hisar, Zlokućane and Živkovo are all intervisible. In turn, this also meant that this string of settlements had visibility over most of the river valleys themselves. According to the material culture, especially pottery, communities at all sites consumed pottery of the Brnjica group almost exclusively.[87] The construction of these sites is approximately contemporary, so the idea of a possible "defensive system of fortifications" in the Južna Morava Valley appears appropriate. To clarify this probable pattern further, more absolute dates from settlements are required.

With the increase in the number of hilltop settlements in the Late Bronze Age, the number of lowland (plain) settlements did not fall. On the contrary, they continued to be built in positions suitable for cultivating land on the terraces of the Južna Morava and these were often built with no hilltop settlements nearby (for example the sites of Rutevac, Vrtište, Bubanj, Lipovica, Podrimci and Bobište). It is interesting that the lowland settlements of Svinjarička Čuka and Medijana have yielded the oldest dates so far for the LBA in the Južna Morava basin, (15th–14th/13th century /Br C–C/D). Settlements without recorded protection (fortified settlements nearby or fortified themselves), such as Medijana and Svinjarička Čuka, appear to be older than the first fortified settlements. This suggests that fortified settlements were built in the final phase of the Late Bronze Age, in the period Br D–Ha A1. It is not possible on the basis of relative ceramic chronology alone to determine this divide, due to the long duration of use and stability of forms in Brnjica type pottery. Nonetheless, the chronological data for the LBA settlement pattern in the Južna Morava Valley so far renders this scenario plausible and testable through further absolute dating of contexts from different types of settlement.

The end of Late Bronze Age and Transitional period (Br D/Ha A1–Ha B)

At the end of the Bronze Age, probably at the end of the 13th century, and certainly by the second half of the 12th century (Tab. 1/7), changes took place in many aspects of life in the Central Balkans, which are most clearly visible in the Južna Morava Valley.

Pottery and absolute chronology

From the 12th century (possibly as early as the late 13th century), a new style of pottery appeared at settlements alongside pottery of the Brnjica group. This new style of pottery derived from the tradition of channel-decorated pottery of the Pannonian Plain, commonly called Belegiš II (or part of the Gava complex in Hungarian literature). The development of this style after ca. 1200 BC is called Belegiš II–Gava, to account for minor, but chronologically relevant, developments in identifying features. Belegiš II–Gava is typified by channel decoration, and it is used on biconical urns, bowls with inverted rims, small juglets, carinated cups and other shapes. While an intimate and direct relationship is clear, the pottery is not a direct facsimile of the shape-ware-decoration schema of vessels in the Pannonian Plain. The deposition of this Belegiš II–Gava alongside Brnjica pottery has been observed at Hisar from at least the second half of the 12th century BC, but its use probably began somewhat earlier (feature 7, Tab. 1/7, 9).

It is probable that the vast majority of Belegiš II–Gava was locally made, on account of minor idiosyncrasies. This might suggest they are not the product of migrant potters, but rather local products designed to

[83] Vukmanović, Popović 1982.

[84] Bulatović, Stankovski 2012, 223; Bulatović, Filipović 2017, 153, fig. 4.

[85] Stalio 1972

[86] Vukmanović, Popović 1982; Bulatović 1999/2000; Bulatović, Filipović 2017.

[87] Srejović 1960; Bulatović 2000; Stojić 2001.

meet a stylistic expectation of consumers.[88] There are very few cases of hybridisation/entanglement with earlier traditions and so while they are local expressions of a style, they present a schism with previous conventions.[89] Arguably, that was due to new aesthetic trends but as pottery shape, more than decoration, defines function, vessels are intrinsically involved in the construction of identity through routine engagement and performance.[90] The new style therefore marks a cultural change manifested through routine actions as part of lifeways as well as signalling difference through appearance. Importing pottery styles from another region when new settlements are being established in new locations could be explained at a purely local level as rejection of old social systems in favour of new ones. However, it appears more likely that migration played a key role. Ruppenstein's "general and rough" principles for archaeological recognition of migration in this same context are salient as they require 1) introduction of a set of cultural novelties, 2) their rapid and widespread appearance, and 3) a clear area of origin where there was older use of the object types (Ruppenstein 2020: 107). In this case, it is clear that cultural conventions from the Pannonian Plain that had been used since ca. 1400 BC were adopted in the Južna Morava area at a time of substantial change in both areas around 1200 BC. As archaeology becomes more comfortable with exploring tangible markers for migration[91], the argument that people moved at increased rates within existing networks at times of social stress is a compelling model in this case for the introduction of Belegiš II–Gava styles. The earliest date for Belegiš II–Gava pottery in the Južna Morava area comes from a sealed context at Hisar. Two grains of millet were selected for absolute dating from a larger quantity of 320 grains from the same pit (feature 7, Tab. 1). These were deposited between the end of the 13th and middle of the 11th century BC with a probability of 95.4%, or the period of the first two thirds of the 12th century BC, with a probability of 68.2% (Tab. 1).

The new, most dominant form of the vessel in the Južna Morava area during this period is a hemispherical or conical bowl, with an inverted faceted or fluted rim (Pl. VI/5, 8, Pl. VII/1–10, Pl. VIII/1, Pl. IX/1–3, Pl. X/1–5). Deeper vessels with a cylindrical neck and rounded belly with horizontal or oblique channel decorations and vertical plastic thickenings (Pl. VI/3, Pl. VII/12, 15, Pl. X/11) are also common. Characteristic amphorae with a long conical neck with an everted rim with fluted decoration often on the neck, belly and rim and with two protrusions or four sets of two parallel tongue-shaped protrusions on the belly are also documented, with one protrusion pointing downwards and the other upwards (Pl. VIII/5, 7).[92] This type of amphora is characteristic of the Belegiš II–Gava and Gava groups and is widespread in southern Pannonia[93] and throughout the Pomoravlje (Južna Morava and Velika Morava basins) region.[94] The earliest examples of the mature form of these amphorae are absolutely dated to the late 15th to 14th centuries BC.[95]

In this period, channels are the most common decorative device. The execution of these channels is narrower than those from the previous period. Also, while oblique examples occur, horizontal channels are also very common, and more rarely, vertical channels are used. As well as the bellies of bowls and amphoras, the rim of bowls (Pl. VII/1, 6, 7, Pl. X/1–5), as well as rims and necks of amphorae (Pl. VIII/7) may also bear channel decoration. In this period, the handles are also often decorated with narrow channels (Pl. VI/2, Pl. X/7, 9), and examples are also found of the so-called slatina type handle, which was present in this area in the previous period.[96]

Somewhat later, from the period of Ha B1, perhaps even slightly earlier (according to the absolute dates we currently have) (Tab. 1/14), other ornaments such as embossed concentric circles appear alongside the channels (Pl. IX/8).[97] In the last phase of the so-called transitional period (Ha B), certainly from the end of the 9th century BC (Tab. 1/15), and probably a little earlier, rows of imprinted rectangular prints made with hand rollers, or oval stitched ornaments also appear (Pl. X/1, 11).[98] This would become the basic feature of pottery in the Early Iron Age in this area.

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[88] Knappett and Kiriatzi 2017; Knappett 2010; Aslaksen 2012.

[89] Fahlander 2007; Hodder 2012; Stockhammer 2012.

[90] Pitts and Versluys 2021; DeMarrais et al. 2004; C. Knappett 2010; Malafouris 2008.

[91] Kristiansen et al. 2017.

[92] Bulatović, Filipović 2017, Fig. 5.

[93] Forenbaher 1994; Vranić 2002.

[94] Bulatović, Filipović 2017.

[95] Sava 2020, Molloy et al. 2020

[96] Bulatović, Jović 2009, T. XXVIII/105, T. XXXIII/16; T. XC/37.

[97] Compare: Bulatović 2009, 66, Pl. III/23, 24

[98] Compare: Bulatović 2009, 66, Pl. I/4, Pl. II/11, 18, Pl. III/19, 28 i dr.

Metalwork

By the end of the 13th and the beginning of the 12th century BC, a large number of bronze finds were periodically being deposited in the Morava–Vardar corridor. Some of the metalwork types originated from western regions of the Balkans and the Pannonian Plain as well as from Central Europe. A few Reutlingen-type swords that had been developed by communities in the Po Valley and Pannonian Plain are known along the Morava–Vardar/Axios communication corridor.[99] The sword was developed by Br D at the latest, and it appeared in the Central Balkans before the end of the 13th century BC, which is clear from bronze hoards in the Pannonian Plain.[100] When we look at the wider area of the interior of the Central Balkans, specimens were found at Tekija near Paraćin,[101] Golemo Selo[102] and Pudarnica[103] near Vranje, an inhumation grave from Donja Brnjica,[104] Lakavica,[105] Delčevo[106] and Mirovo (variant Konjuša).[107] This latter example is dated to Ha A2 and is exclusively connected with the area of the north part of western Serbia and Mačva.[108] Analysis of tin isotopes δ^{124} showed that the swords from Golemo Selo near Vranje and another from Maovo in the southwest Pannonian Plain have similar values (0.21 and 0.28) to each other and the sickle, pin and axe discussed above.[109]

Parallel to the appearance of Reutlingen swords, the so-called flame shaped spearhead was also introduced in Ha A1. This had no predecessors in the MBA Central Balkans, and its distribution is similar to the swords.[110] Examples come from an urn from the cemetery in Gornja Stražava,[111] from the settlement of Velika Humska Čuka[112] and Malič at Lake Ohrid.[113] A piece with a faceted socket comes from Kokino in North Macedonia.[114] This faceted decoration on the socket is commonly found on Avila's Type G / Snodgrass' Type B spearheads distributed in Albania and Epirus (with an outlier in Achaea).[115] Notably, a spearhead from Polymistrias in Greek Macedonia has this faceted socket but a blade typical of the Pannonian tradition, while one from Agrilia in Thessaly is of typically Pannonian form, indicating mobility through the Morava–Vardar routeway.[116] So far there have been no finds of spears with flame-shaped blades with this socket type found south of the specimen from Malič.

In the area where bronze swords of the Central European type and spears with flame-shaped blades appear, bronze axes of the so-called Montenegrin-Albanian type do not appear. Their distribution is more clearly related to the area of Montenegro and southwestern Serbia.[117] Also, arrows made of bronze sheet, common in the previous period on the Morava–Vardar axis, are unknown from the period Ha A1/A2. Some rare examples of this date were found in the Central Balkans far from these major river valleys.[118]

Some types of bronze jewellery, such as pins with a blunt head or with a biconical head with horizontal grooves, appear in the Velika Morava area, but their distribution does not extend as far as the Central European weapons towards the south of the Central Balkans.[119] We may include the pin from the Mali Dol cemetery in Macedonia[120] in the group of pins with a biconical head and horizontal grooves, in which case that specimen is the southernmost find of this type dated between Br D to Ha A2. On the other hand, the largest number of pins of this form is documented in Posavina and in the Danube region. The only significant concentration outside this zone is found in the Velika Morava Valley. A biconical head pin with the neck ornamented with dense zigzag lines from Hisar (Brnjica II a–b)[121] can be closely dated to the Ha A1 period and demonstrates further connections with the Middle Danube region, where the nearest analogies are found (Salaš Noćajski and Kozluk).[122] The pin was found in a layer together with bowls with inverted

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99 Harding 1995.
100 Филиповић 2015, 335–338.
101 Васић 1992, 288, сл. 3.
102 Јовановић 1966, 247–248, сл. 1; Булатовић 2007, 87, кат. 1, Т. VIII/1.
103 Булатовић 2007, 163–164, кат. 1, Т. XLI/1.
104 Srejović 1960, 94–95, sl. 8.
105 Harding 1995, 40, cat.no. 99
106 Митревски 1997, 56, сл. 15/1.
107 Филиповић, Милојевић 2015, 49, кат. 4.
108 Harding 1995, 41.
109 Mason et al. 2020.
110 Филиповић 2015, 327–328.
111 Крстић 1992, 234, Т. IX/4.
112 Ђурић и Гарашанин 1983, 39, кат. 189.
113 Prendi 2008, 387, Abb. 12/15.
114 Станкоски 2009, 3, Т. I.
115 Snodgrass 1964; Avila 1983; B. P. C. Molloy 2016b.
116 Molloy 2016.
117 Филиповић 2015, 354–356.
118 Филиповић 2016.
119 Vasić 2003, 61, 70 and further.
120 Папазовска 2019: 148, Т. XXIII/1в.
121 Stojić 2009, cat. 18.

fluted rims (characteristic of Belegiš II–Gava group) and potsherds ornamented with horizontal channel decoration together with a series of punctate-decorated triangles.

A pin with an unornamented mace-head was found at Hisar,[123] and after R. Vasić this type of pin can be dated to Ha A1/A2.[124] The distribution of mace-head pins includes the Middle Danube region and several pieces were recovered from the Velika Morava Valley.[125] The Hisar pins are the most southern examples of the type. The violin bow fibula from Niška Banja is the only known example from the Central Balkans.[126] This type of fibula is said by Vasić to have originated in northern Italy during the 13th century BC, from where it later spread to the Western Balkans and Pannonia. The relationship of personal ornaments from this area and examples found in Northern Greece and Albania has recently been discussed by Ruppenstein.[127]

Settlement patterns

The analysis of the distribution of Belegiš II–Gava pottery in the Južna Morava area reveals that it is present mainly in settlements in the lowland part of the valley and on the river terraces (Fig. 2). On some sites, Belegiš II–Gava ceramics occur alongside sherds from Brnjica group vessels (including so-called "Brnjica rims), and occasionally so-called "slatina" handles (Lipovica, Ranutovac, etc.).[128] These "slatina" handles are commonly decorated with narrow channels (see examples from Bobište, Bratmilovac and Lipovica).[129] This feature reflects an element of hybridization or entanglement of stylistic features drawn from the local Brnjica and the introduced Belegiš II styles. This mixing of conventions is restricted to handles, however.

Hilltop settlements with Belegiš II–Gava related sherds are extremely rare, and even if such pottery is present (mainly bowls with an inverted rim), it forms only a small proportion of the overall pottery assemblage. This could be an indicator of the character of relations between the population that inhabited hilltop settlements and those that lived at lower elevations. Alternatively, it may point to special functions of these elevated sites in which visually more ornate vessels of Belegiš II–Gava style were not utilised.

Nonetheless, occasional finds of Belegiš II–Gava related pottery in hilltop sites indicate that this style was consistently present throughout this area. We can still identify a very small number of Belegiš II–Gava related sherds at hillforts otherwise dominated by Brnjica pottery, which indicates that those dwelling in the forts had a reserved receptivity toward the new style. It is quite plausible that the Belegiš II–Gava pottery was introduced by migrants into the Južna Morava Valley who mixed well with some elements of society who had been there before them, while others were less receptive. We have argued above that networks were well established between the societies in the Pannonian Plain and Morava Valley area in the Late Bronze Age, and so inward migration may be seen as an expansion of pre-existing networks or a change in their character. Therefore, if we accept the argument of inward migration, we must ask to what extent or for what duration such migrants and their material culture were considered "foreign" or different? There is no doubt their arrival would have been transformative, but we must seek to better understand the extent to which it was disruptive or caused social disjuncture. It is possible that the bias in find context of pottery styles reveals a process of negotiating their inclusion over time into the communities already established there.

It is therefore important to define the rate and spatial extent of the adoption or integration of Belegiš II–Gava pottery. The presence of this pottery in hilltop sites, even as a small proportion of assemblages, allows us to determine that certain hilltop settlements were first settled in the 12th century BC at the earliest, when we correlate this pottery with absolute dates (Tab. 1/1–9). The hilltop settlements at Skobaljić grad in the Vučjanka canyon (Fig. 1/29), Končulj in the lower course of the Južna (Binačka) Morava, and Prvonek, in the canyon of the Banjska river[130] (Fig. 1/38, 35, 36), allow us to consider this chronology. At each of these sites a small number of sherds which have a form of Belegiš II–Gava decoration were found.[131]

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[122] Vasić 2003, 80–81, cat. 530–531. That type of pins was the most numerous in Central Europe (Bohemia, southern Germany, Slovakia and Hungary).

[123] Stojić 2009, cat. 3.

[124] Vasić 2003, 87–88.

[125] Vasić 2003, 87–88.

[126] Vasić 1999, 13, cat. 6.

[127] Ruppenstein 2020: 112–113.

[128] Bulatović, Jović 2009, T. XCI/42. This study: Pl. 7/19, Pl. 9/9, 10.

[129] See note no. 83.

[130] Bulatović, Jović 2009, 319; Bulatović 2007, T.LII/49, 51.

[131] Bulatović 2007, T. LII/49, 51.

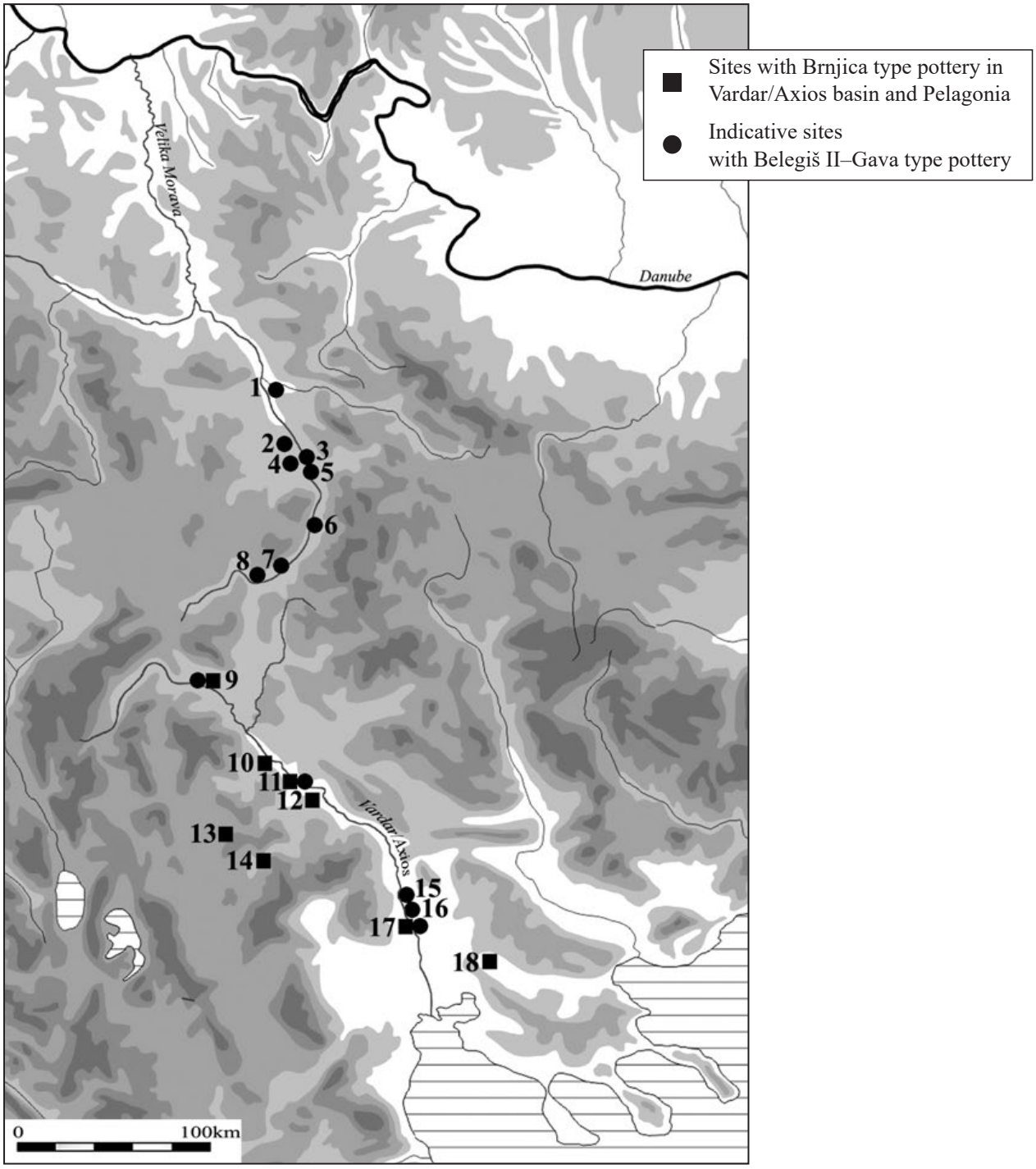

Fig. 2. Sites with Brnjica group type pottery in the Vardar/Axios Basin and Pelagonia and significant sites with Belegiš II–Gava type pottery

1. Novo Selo, site of Bubanj; 2. Lipovica, Jeričište; 3. Bobište, Sastanci and Izvorište; 4. Leskovac, Hisar; 5. Bratmilovce, Donje Polje; 6. Kržince, Piljakovac; 7. Ranutovac, Meanište; 8. Turija, Česma; 9. Skopje, Klučka (Hipodrom–Madžari); 10. Čaška, Manastir; 11. Veles, Stobi; 12. Tremnik, Mali Dol; 13. Prilep, Varoš; 14. Veprčani, Slamite; 15. Vardina; 16. Vardarophtsa; 17. Kastanas; 18. Asiros.

Сл. 2. Локалитети са керамиком брњичке групе у долини Вардара и Пелагонији, и значајни локалитети са керамиком типа Белегиш II–Гава

1. Ново Село, Бубањ; 2. Липовица, Јеричиште; 3. Бобиште, Састанци и Извориште; 4. Лесковац, Хисар; 5. Братмиловце, Доње Поље; 6. Кржинце, Пиљаковац; 7. Ранутовац, Меаниште; 8. Турија, Чесма; 9. Скопље, Клучка (Хиподром–Мађари); 10. Чашка, Манастир; 11. Велес, Стоби; 12. Тремник, Мали Дол; 13. Прилеп, Варош; 14. Вепрчани, Сламите; 15. Вардина; 16. Вардарофца; 17. Кастанас; 18. Асирос.

The hilltop settlements that have securely dated strata are located away from the main communication routes of the Južna Morava, Moravica and Vardar rivers. They lie on the other side of the Preševo saddle (Fig. 1/48). We must ask if these hillforts were also inhabited in the Late Bronze Age, or if they were created as a form of refuge for people resistant to the changing social and political situation stimulated by inward migration into the Južna Morava Valley and environs. With this in mind, Konculj hillfort, which is absolutely dated to the LBA, was clearly set back from the main communication routes, but nonetheless lies at a strategically important position on the route linking the Južna Morava Valley to Kosovo and Metohija. In order to evaluate if there is a cultural and chronological pattern in the changed distribution of settlements in various topographic locations moving into the 12th century BC, further dates from well-stratified excavations are required.

The site of Dve Mogili in Pelince, Pčinja Valley, dated to the 12th century BC, is also relevant to this discussion (Fig. 1/PE). At that site, pottery corresponding to the Brnjica group was found exclusively (Pl. V).[132] The site is approximately contemporary to Hisar (specifically feature 7), where we know that Belegiš II–Gava type pottery was being consumed at a time when it was not being used at Dve Mogili (Pl. VI). It remains possible of course that Belegiš II–Gava type pottery was used in this region at this stage but has not been identified as of yet at this site, which served a ritual as well as settlement function from the early to late Bronze Age. Indeed, the site may have had a special function more generally, and votives were commonly deposited in the form of pottery and other objects. We speculate that "foreign" material could have been seen to disrupt the sanctity of this long-lived place. We can also observe that the site is located outside of the Morava–Vardar route, so perhaps this pottery was simply not present at that time due to its location (Fig. 2).

The assemblage from the settlement on Hisar, unlike other hilltop settlements located outside of the Južna Morava Valley, indicates the simultaneous use of these two different pottery styles. While some crossovers are noted, as observed above for handles, the two traditions continued to be produced alongside each other for an uncertain period of time. Looking to the lowland settlement in Ranutovac (11th–10th century BC) about 40 km south of Hisar, we can observe a significant change, but we remain cognisant of its different topographic position. At Ranutovac, the ceramic assemblage is completely dominated by Belegiš II–Gava type pottery. Sherds corresponding to the previous Brnjica group are only rarely found at this stage, though this does reveal the survival of the tradition in this vicinity (Pl. VII/19, Pl. IX/9, 10). According to absolute dates, this continuity of use of Brnjica pottery consumption at this site continued until the end of the Ha A2 period, or the beginning of Ha B1, i.e. between the second half of the 11th century and the end of the 10th century BC (Tab. 1/14).

According to our current data, we can identify two possible scenarios, accepting there are grey areas in between. The first is that there was emulation and local production of Belegiš II pottery (in the form of Belegiš II–Gava) on the basis of fashion alone; that is, the idea was spread through minimal personal mobility and was primarily a diffusion of an idea. The local production and interpretation of Belegiš II conventions may support that. However, given the duration and continued local manufacture, as well as disruptions in the Pannonian Plain at this same time (discussed below), we prefer a model that involves directional mobility or migration. People who had long used Belegiš II pottery moved into the Morava Valley and inhabited unfortified lowland sites. This settlement was on the fertile and broad valley lowlands, which facilitated ease of communication and extensive arable, as well as pastoral, farming. These flat expanses of the valley broadly reflect the landscape of the Pannonian Plain. In light of this, the rarity of the characteristic Belegiš II–Gava pottery in the hills outside this route may be relevant. One exception is the hilltop settlement on Hisar, which has an extremely favourable position on a broad-surfaced, dominantly located hill in the middle of the Leskovac plain. The transitional period settlement on Hisar was mostly located on the gentle eastern slopes. This had no fortifications, unlike the LBA settlement defined by a ditch and rampart on the plateau of the hill. Unfortunately, we lack absolute dates from the LBA settlement on the highest plateau and so the chronological relationship between these two areas of settlement is unknown, and it remains possible some occupation within the rampart continued after the LBA.

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132 Compare: Bulatović, Stankovski 2012, T. LVIII and cited bibliography.

Economy

There is little data about plant and animal management strategies in the Central Balkans during the Late Bronze and Early Iron Age. Paleobotanical analyses have been completed on samples from two sites thus far – Hisar and Ranutovac, so these results only allow preliminary insights into subsistence strategies and landscape management in the region. Together with the changes in material culture and settlement patterns, one important development can be detected in the archaeobotanical record. This was the marked increase in the cultivation of millet alongside other plant species. It was found at Hisar in feature 7 (12th century calBC), as well as in Ranutovac in feature 3c (late 9th–early 8th century BC).[133] Millet can be cultivated as a springtime crop, which increases temporal diversification in agricultural risk management in a community by providing fresh crops in different seasons, perhaps a reason for its popularity at this time.[134]

According to recently published paleobotanical analysis partnered with absolute dates, it has been confirmed that a major increase in the use of millet occurred in Europe in the middle of the 2nd millennium.[135] This large-scale cultivation pattern began in Ukraine in the 16th century BC (*Vinogradnaya Sad*), spreading into the south Carpathian Basin by the 15th century BC and Central Europe by the 13th–12th century BC.[136] A large quantity of millet was recorded together with Belegiš II–Gava pottery at Hisar in feature 7, suggesting it may have been introduced to this region alongside this pottery.

Valamoti identifies an increased use of millet in Greece from the second half of the 2nd millennium BC.[137] Significant quantities of millet were recovered from the bottom of a pithos in Assiros in northern Greece. The feature is dated to the 14th to early 13th century calBC. [138] At this same time, or perhaps slightly earlier, millet has been recorded at other sites in northern Greece (Archondiko, Kastanas, Toumba Thessaloniki).[139] The dates for millet use in the Pannonian Plain and in Greece thus both predate the earliest known examples in the Morava Valley at Hisar (13th century BC). The dearth of archaeobotanical studies in the Morava Valley limits our understanding of developments there in millet farming. This presents the possibility that it was introduced from either the north or the south, though as Filipović et al. chart it spreading from Ukraine westwards, it is plausible that its use spread from the Carpathian Basin to Greece via the Morava Valley. This model of LBA use in the latter area may be supported by the material culture evidence for intensive interconnections with the Carpathian Basin and Oltenia. Interconnections with the south, in turn, are seen for this same period at Assiros, Kastanas and other sites in northern Greece, where spherical cups decorated with spirals were recorded. This was a popular form of vessel across a vast territory from southern Transylvania to the Aegean coast.[140]

Discussion of the 13th to 11th century
Južna Morava Valley

The analysis of portable finds, settlement patterns and absolute chronology of the Late Bronze Age and the pottery groups from the Bronze to Iron Age transitional period in the Južna Morava Valley reveals that this was a well-connected area and a communication route during the Late Bronze Age. This is recognised through the exchange of ideas, experiences and knowledge of people from south-eastern Pannonia and southern Transylvania through to groups in the northern Aegean world.[141]

People using pottery of the Brnjica group inhabited the Južna Morava Valley, occupying lowland settlements primarily during the first phase of the LBA. By the end of this period, numerous hilltop settlements with fortifications in defensible positions were established. These latter are distributed along the very edge of the north-south running river valley, set in strategic positions from where it was possible to control the routeway. At that time the material culture reveals that this valley was at once an important natural communication route and a node in the social networks connecting the northern Aegean and Carpathian ambits. Given the fortified nature of hilltop settlements at the end of LBA, based on absolute dates so far from

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133 Unpublished. We wish to thank D. Filipović for this data.

134 Filipović et al. 2020.; Marston 2011

135 Filipović et al. 2020.

136 Filipović et al. 2020: 5, Figure 4.

137 Valamoti 2013.

138 Filipović et al. 2020.

139 Valamoti 2013.

140 Bulatović 2011, Map. 1.

141 Булатовић 2011. Similar conclusions had come before from J. Bouzek (1985), and recently N. Palincas (2018). Some authors (Kristiansen, Larsson 2005, 18–19, ref. 8, 62, 158 and further), however, criticised J. Bouzek's approach to this problem, without denying interconnections between the Mediterranean and Europe.

Končulj and Hisar, it is plausible they formed an interlinked defensive feature linking the various communities of this area. Several of these fortified settlements were burned down, but the precise chronology of this remains unknown. In the upper Južna Morava valley, we can tell that hilltop settlements in Končulj had been settled by the 13th century BC. This might suggest that violent destruction of the fortifications in these settlements occurred after that period – that is, post 1200 BC. This may suggest that inward migration was not set within an entirely peaceful context, so that it may have been implicated in local conflicts as settlement and material culture forms were shifting. Aside from hilltop settlements, the few absolute dates available indicate that in the first half of the 12th century BC (Tab. 1/7, 9), the completely different Belegiš II–Gava pottery was introduced into an area previously dominated by Brnjica group traditions.

This new pottery undoubtedly derives from, or even belongs to, the Belegiš II–Gava cultural group, which was characteristic of the Pannonian Plain since at least 1400 BC.[142] During the 12th century BC, this became the dominant ceramic style used throughout the whole of the Morava Valley,[143] and a short time later, throughout the Vardar valley. Pottery with this characteristic channel-decoration, particularly the bowls with inverted rims, has been found in quantities in cemeteries and on settlements dated to the 12th to 11th centuries BC all the way to the level of the northern coast of the Aegean. That said, deeper vessels from the Vardar area with a cylindrical neck with an ornament on the belly in the form of oblique or horizontal grooves "divided" by a vertical plastic device, (Pl. VI/3, Pl. VII/12, Pl. X/11) may find their best parallels in the transitional period from the Velika Morava Valley,[144] rather than the Pannonian Plain. That is, a distinctive local variation of the Belegiš II–Gava tradition can be recognised in the Vardar Valley and it is predominantly this variation that is documented in areas to the south. It seems that this is an original "Morava" element that evolved from Belegiš II–Gava pottery.

On the basis of the above detailed discussions, the question is raised as to whether the appearance of Belegiš II–Gava pottery and the introduction of new types of bronze objects can be related to changes that took place within the Morava Valley itself. Specifically, we refer here to the building of hilltop settlements with fortifications on the one hand and the instances, and possible horizon, of burning we observe at these. Judging by the situation recorded at Hisar, where sealed contexts with pottery of the Belegiš II–Gava type were recorded in association with occasional finds of Brnjica group sherds, we can say that the two different styles coexisted at this site for a period. It will be important to identify if this pattern can be recognised at other hilltop settlements from this period in future fieldwork. In particular, a more systematic comparison of sites within and just beyond the Južna Morava Valley will be revealing. This is because there are strong suggestions in the current datasets that Belegiš II–Gava pottery was less common outside of the main communication corridor and that local Brnjica pottery continued in use into the 12th century BC. The distribution of both Brnjica group and Belegiš II–Gava group pottery from this period (12th–11th century BC) suggests a bias in settlement choices, with the latter being dominant in settlements on the plains and terraces of Južna Morava river, while the former dominates assemblages outside the Južna Morava Valley. This raises the question as to whether we find a bifurcation of society in this area resulting, in part, from inward migration and the manner in which the people, as well as craft traditions, of such groups articulated with established communities.

We emphasise here that we consider bearers of pottery styles as a technical device to enable a comparative study of communities. In this sense, while it may be used to differentiate the people using certain pottery and living in certain settlements, we do not imply ethnic groups or even deeply held cultural or social distinctions. We speak here of choices in how identity was expressed using pottery styles and shapes. For that reason, it is necessary to consider different possibilities for the introduction of Belegiš II–Gava type into the Morava region. Was this a result of population interaction alone, i.e. cultural transmission (short-term movements of low intensity such as trade, marriage, exchange of information and knowledge, etc.)? Or can we imply from this data more intensive population movements involving larger numbers of people and with a greater permanency; i.e., resettlement? Pottery of the Belegiš II–Gava type is associated with the Carpathian Basin and is present south of the Carpathian arc in Oltenia as early as the end of the 13th

[142] Медовић 2001, 220.

[143] Стојић 2005.

[144] Стојић 2005, T. XXXV/9–14, T. XXXVI/14, T. LI/2, T. LX/18, T. LXI/1, сл. 17.

century BC, and certainly by the first half of the 12th century BC.[145] Recent research in Banat shows that the general style began notably earlier on the Pannonian Plain within the Carpathian arc.[146] The earliest examples which may be called Belegiš II style date as early as 1400 BC, though it is during the 14th century that the style matured and came into wider circulation. This style is largely (but not exclusively) defined by characteristic urns, bowls with inverted rims, carinated/s-profile cups and small-footed juglets.[147] The

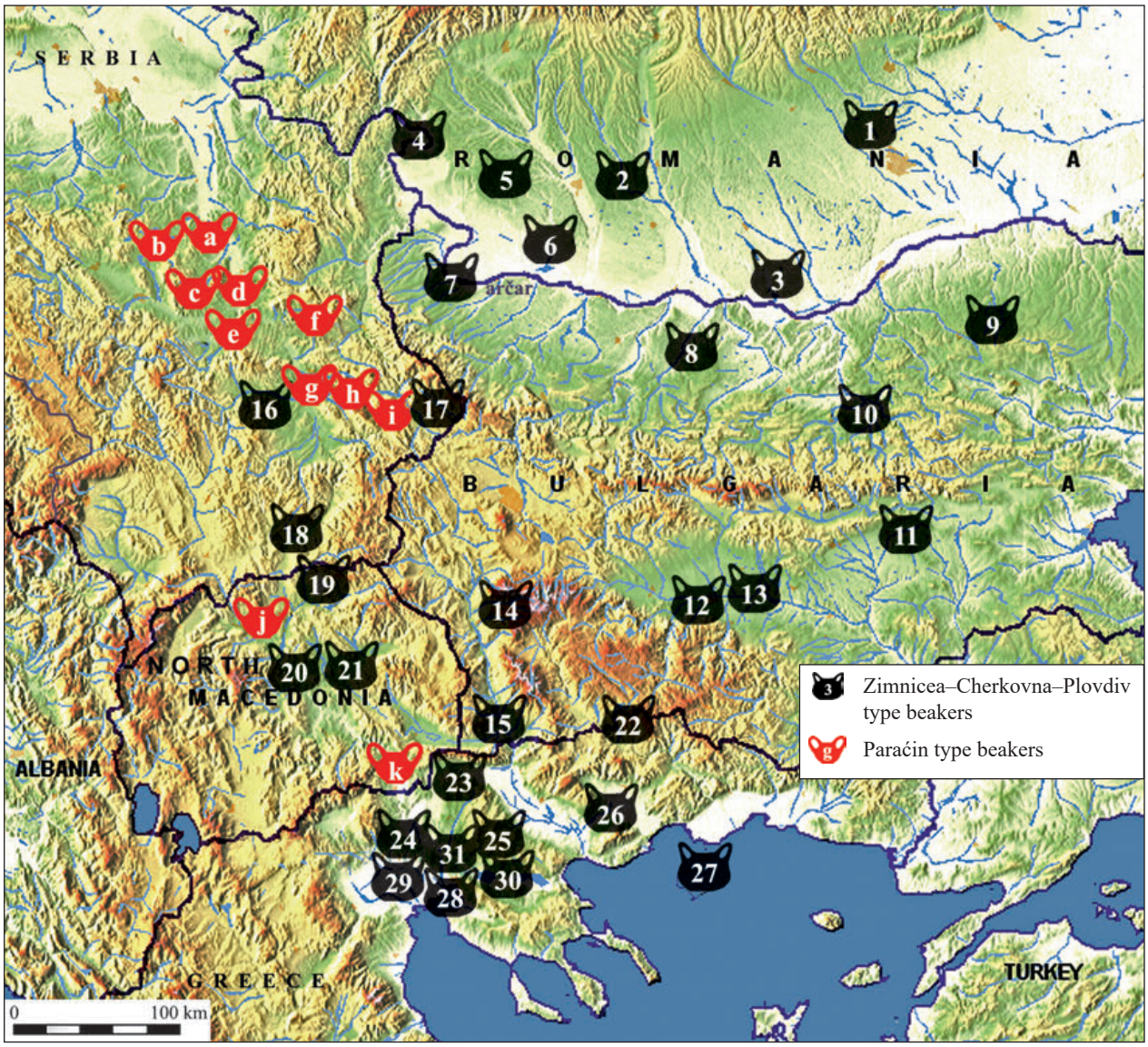

Fig. 3. Sites with globular beakers of the Zimnicea–Cherkovna–Plovdiv and Paraćin types

1. Tei; 2. Govora sat; 3. Zimnicea; 4. Zbradila; 5. Verbicoiara; 6. Barca; 7. Archar; 8. Pleven; 9. Tserkovna; 10. Varbovka; 11. Nova Zagora; 12. Plovdiv; 13. Razkopanica; 14. Kamenska čuka; 15. Marikostinovo; 16. Donja Toponica; 17. Velika Lukanja; 18. Končulj; 19. Kokino; 20. Manastir; 21. Ulanci; 22. Potamoi; 23. Tsautsica; 24. Kastanas; 25. Asiros; 26. Statmos Agista; 27. Kentria; 28. Tumba, Thesalonike; 29. Vardarophtsa; 30. Saratse; 31. Akbunar.

a) Sarina međa; b) Kragujevac; c) Ćuprija; d) Paraćin; e) Obrež; f) Rutevac; g) Vrtište; h) Medijana; i) Velika Lukanja; j) Klučka; k) Vardarski Rid.

Сл. 3. Локалитети са налазима лоптастих пехара типова Параћин и Зимничеа–Черковна–Пловдив

1. Теи; 2. Говора сат; 3. Зимничеа; 4. Збрадила; 5. Вербичоара; 6. Барка; 7. Арчар; 8. Плевен; 9. Черковна; 10. Варбовка; 11. Нова Заора;

12. Пловдив; 13. Разкопаница; 14. Каменска чука; 15. Маркостиново; 16. Доња Топоница; 17. Велика Лукања; 18. Кончуљ; 19. Кокино; 20. Манастир; 21. Уланци; 22. Потамои; 23. Чаушица; 24. Кастанас; 25. Асирос; 26. Сташмос Аиста; 27. Кентриа; 28. Тумба, Солун; 29. Вардарофца; 30. Сараце; 31. Акбунар.

а) Сарина међа; b) Крагујевац; c) Ћуприја; d) Параћин; e) Обреж; f) Рутевац; g) Вртиште; h) Медијана; i) Велика Лукања; j) Клучка; k) Вардарски Рид

material typologically related to the Belegiš II–Gava group has been recorded throughout the Morava and Vardar/Axios valleys and as far as the Aegean coast, demonstrating a long chain of interacting societies. Importantly, this distribution of Belegiš II–Gava style pottery began after the abandonment of most or all mega-fort sites and related cemeteries in the Pannonian Basin.[148]

* * *

We will turn now to a brief overview of material from the Vardar/Axios valley, because this provides us with a context to evaluate the full regional extent of the impact of the introduction of Belegiš II–Gava pottery to this wider area. In the Late Bronze Age, people living in the Vardar/Axios valley used material culture characterised as the Ulanci group. The material culture characteristic of this group has been clearly defined by others.[149] According to D. Mitrevski, the group existed from the end of the 14th to the end of the 12th century BC, after which he argues the people making and using this were replaced by a "North and Central Balkan population". For Mitrevski, the appearance of new pottery and a new type of burial rite, cremation burials placed in urns, is used to support that mass-migration model. The earliest known cremation burials have been recorded at Skopje (Klučka), Veles, Bitolj and Štip and are dated to this period of change in the 12th century BC (Fig. 2).[150]

A clear example illustrating the relationship between the older rite of inhumation and the newly introduced rite of cremation, is the recently investigated cemetery of Mali Dol near Negotin.[151] In this cemetery, inhumation burials of the Ulanci group represent the earliest phases of the late 12th century BC. Then, in the 11th to 10th century, a horizon of cremation burials in urns was deposited (Fig. 4). The urns in question are clearly closely related to the Brnjica group from the Južna Morava region. On the basis of the typology of needles from graves from both phases of the cemetery, the chronology might need to be shifted to slightly earlier dates.[152] We await absolute dates from this cemetery as part of ongoing work, and these phases are based on relative ceramic chronology currently.[153]

It is relevant that a vessel with channel decoration on the belly was deposited in the older phase of the cemetery alongside pottery characteristic of the Ulanci group. The decoration is similar to bowls with a channel-decorated belly from the Brnjica group.[154] This could indicate mutual contacts between the Ulanci and Brnjica groups even before the later phase of the Mali Dol cemetery was established. [155] No pottery of Belegiš II–Gava influence or type has been recorded in this cemetery. Slightly farther to the north, that latter pottery style has been documented in a cremation cemetery with urn burials at Klučka.

The cemetery of Klučka lies on the eastern outskirts of the city of Skopje.[156] At this site, the mortuary rite and most of the material culture correspond to features common to both the Brnjica and Paraćin groups. However, the relationship between the pottery from the graves and the cultural layers at the nearby settlement is not clear with respect to chronology and stratigraphy. The pottery from the settlement was dominated by vessels with characteristics of Belegiš II–Gava style. Channel-decorated pottery was discovered in the cultural layer among the stone constructions of the graves and could therefore stratigraphically belong to the period during which the cemetery was in use. However, it is notable that no graves contain vessels of this type of pottery. Ultimately, it is quite possible that this pottery was deposited very soon after the cemetery ceased being used and was associated with a short-lived settlement using Belegiš II–Gava pottery in this same location. If so, it is interesting that a settlement with occupants utilising a new material culture tradition was built above a very recently used, and presumably still visible, cemetery. Whether from a settlement or mortuary context, this introduction could represent a very visible symbol of a change in the nature or makeup of the community.

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145 Alexandrov et al. 2016, Figs. 5–9.

146 Sava 2020; Molloy et al. 2020.

147 Bulatović 2019. Compare: Sava 2020, Fig. 16/1H, Fig. 17.

148 Sava, Gogâltan, and Krause 2019; Lehmpuhl et al. 2019; Gumnior and Stobbe 2019; B. Molloy et al. 2020.

149 Mitrevski 2003, 46–51.

150 Митревски 1997.

151 Papazovska 2019.

152 Vasić 2003.

153 This is currently being conducted by A. Papazovska and B. Molloy under the remit of the ERC "The Fall of 1200 BC" project.

154 Папазовска 2019, T. I.

155 In Pelagonija, urns of the Brnjica type with a typical Brnjica rim, as well as a deeper bowl with a grooved belly were recorded in a hoard of vessels at the Varoš site in Prilep (Kitanoski 1980; Bulatović 2011, T. II / 10), This could be evidence of direct or indirect contacts of the Pelagonija population and the Central Balkans.

156 Mitrevski 1994.

We must also briefly consider the cemetery in Stobi. At this site, an urn with features resembling the Brnjica style was found along with a bowl with an inverted fluted rim. Unfortunately, the contribution this site may make to any discussion of the stratigraphic-chronological relationship between "Brnjica" pottery and Belegiš II–Gava in the Vardar Valley has been lost because the site was completely destroyed in modern times.[157]

A similar situation to that seen in the Morava Valley with respect to changes in settlement occurs in the lower Vardar Valley. At Vardarski Rid, a large hillfort settlement was built on a dominant hill next to the Vardar river, not far from the present state border of Northern Macedonia and Greece. The hillfort was inhabited by the LBA (settlement Vardarski Rid II – 13th to 11th century BC) by people using pottery of the Ulanci group.[158] Alongside this, some pottery characteristic of the Brnjica group, urns in particular, was used. As for the local architecture, houses were characterised by walls constructed with daub.[159] It is not clear whether there was a hiatus between this and the

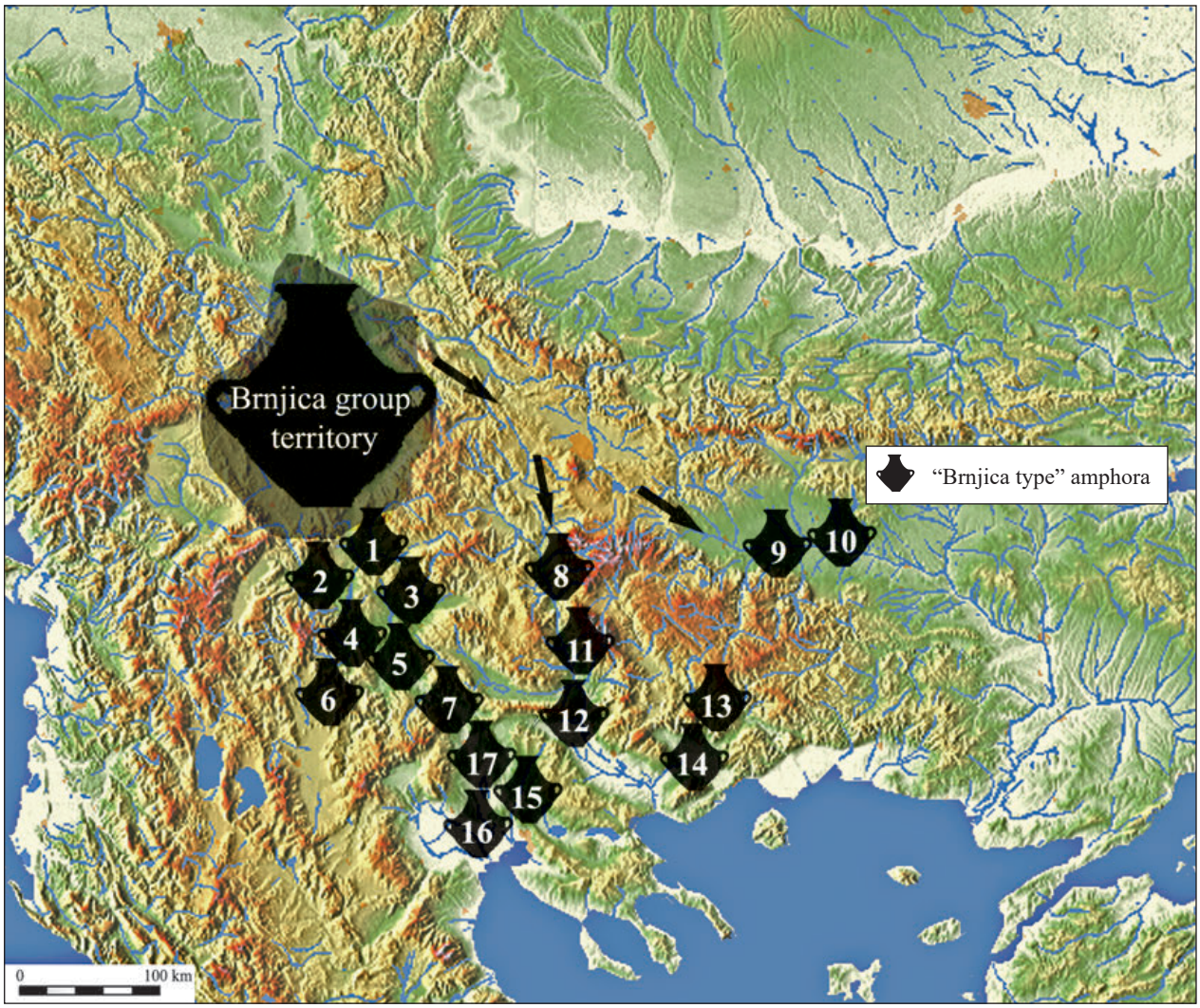

Fig. 4. Sites with Brnjica group type "amphorae"

1. Kokino; 2. Klučka; 3. Štip; 4. Manastir; 5. Stobi; 6. Prilep; 7. Vardarski Rid; 8. Kamenska čuka; 9. Plovdiv; 10. Razkopanica; 11. Sandanski; 12. Faia Petra; 13. Potamoi and Eksohi; 14. Statmos Agista; 15. Asiros; 16. Kastanas; 17. Vardarophtsa.

Сл. 4. Локалитети са „амфорама" брњичке групе

1. Кокино; 2. Клучка; 3. Штип; 4. Манастир; 5. Стоби; 6. Прилеп; 7. Вардарски Рид; 8. Каменска чука; 9. Пловдив; 10. Разкопаница; 11. Сандански; 12. Фаиа Петра; 13. Потамои и Ексохи; 14. Статмос Агиста; 15. Асирос; 16. Кастанас; 17. Вардарофца.

next phase of settlement at this same location (Vardarski Rid III), which has material culture characteristic of the Early Iron Age. This change is visible, in any case, in the completely different pottery that characterises each phase. According to Mitrevski, a possible scenario is that the inhabitants of the LBA settlement, or a component of them, withdrew from Vardarski Rid to the nearby higher and more difficult to access hillfort on Kofilak hill. This was seen as possibly relating to major turbulent events. Pottery used at the site after this horizon is mostly of northern origin,[160] but on the Kofilak hillfort, pottery of LBA forms was found and associated with different architecture that is characteristic of Central Balkan traditions (wattle and daub technique). The settlement from the Early Iron Age, which is dated to the 10th–9th century BC, is characterised by Belegiš II–Gava pottery, though only in small quantities.[161]

Farther south, in the lower course of the Vardar/Axios river, clear changes are also documented in the pottery inventory of settlements. In the oldest phase of the LBA tell settlement of Assiros Toumba (phase 9), among other things, spherical cups decorated with spirals filled with white inlay were recorded. During a later phase at this settlement (phase 6) urn-like vessels of the Brnjica group appeared,[162] as seen at this time in the upper and the middle course of the Vardar/Axios river. Phase 9 of Assiros is dated to the middle of the 14th century calBC, while phase 6 is absolutely dated to the 13th century (95.4% of probability) and possibly to the second quarter of this century.[163] This indicates the existence of clear contacts between groups in the Central Balkans and those in the lower Vardar/Axios valley. Pottery with characteristics of the Belegiš II–Gava group has not been recorded at this site but an amphora with twisted handles was found in Phase 3.[164]

At the settlement of Kastanas, globular beakers decorated with spiral and other geometric motifs, often filled with inlays, were recovered from the 17th layer. In this same layer, the first vessel reminiscent of urns of the Brnjica group was recorded.[165] Ornaments in the form of spirals, ribbons filled with impressions, hatched triangles and similar decoration techniques common to the LBA groups of southern Pannonia, Oltenia and Transylvania, appear in Kastanas as early as the 19th layer, together with local matt-painted pottery, and continue to appear in subsequently deposited layers. This pottery seems to be most numerous in layers 14b–13,[166] which has been dated to the first quarter of the 12th century BC.[167] This is an important horizon, because changes can be recognised in the pottery assemblage. In the 13th layer, wide oblique channels set on the belly of vessels sporadically occur. These are on forms of bowls seen in Brnjica group assemblages. Plastic extensions on handles, which are known in the Brnjica group, and twisted handles characteristic of pottery in the Velika Morava Valley with Belegiš II–Gava influences are both documented at Kastanas and the nearby cemetery of Palio Gynakokastro.[168] These elements become more frequent in layers 12 and 11 at Kastanas. In the 12th layer (last quarter of the 12th century BC) [169] new pottery with elements of the Belegiš II–Gava style appears in the form of bowls with an inverted and faceted rim, bowls with inverted and fluted rims, handles of slatina-type and handles with plastic extensions on their top. In addition to the channel decoration of the Belegiš II–Gava type, the wider oblique channels on the bellies of bowls, characteristic of the Brnjica group, occur alongside matt-painted vessels and more numerically dominant local forms.[170] In the 11th layer (the beginning of the 10th century BC), channel decoration is even more frequently attested. From the 10th layer (middle of the 10th century), only channel decoration of Belegiš II–Gava type is present, and vessels with channel-decorated bellies and vertical plastic ribs appear.[171] These same forms and ornaments were recovered from Hisar feature 7 (Tab. 1/7, 9

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157 Митревски 1997, 313.

158 Mitrevski 2001; Videvski 2005.

159 Mitrevski 2001, 20–21, Pl. I.

160 Mitrevski 2001, 22–23.

161 Mitrevski 2001, Pl. I; Papazovska 2005, T. I/5, T. III/24.

162 Wardle, Wardle 2007.

163 Wardle et al. 2014, fig. 2, Tab. 1. The start of phase 6 would be between 1300–1253, and the end between 1265–1203.

164 Wardle, Wardle 2007, 473. pl. 18.

165 Hochsteter 1984, Taf. 10/1, Taf. 13/5

166 Hochsteter 1984, Taf. 40, 47, 48/1, 7, Taf. 50, 56/7–9, 60/1, 5–9

167 Weninger, Jung 2009.

168 Hochsteter 1984, Taf. 71/2, 3, Taf. 73/10. Savvopoulou, Th, 2001, "Παλιό Γυναικόκαστρο. Το νεκροταφείο των "περιβόλων"" in Stampolidis, N. (ed). Καυσεισ Στην Εποχη Του Χαλκου Και Την Πρωιμη Εποχη Τουσιδηρου. Athens: Archaeological Etaireia, pp: 169–184, 174.

169 Weninger, Jung 2009.

170 Hochsteter 1984, Taf. 76/1, Taf. 78/2,3, 6, Taf. 80/8, Taf. 82/5–7.

171 Hochsteter 1984, Taf. 117/4, 8, 10.

– approximately the 12th century BC) and Ranutovac feature 45 (Tab. 1/11 – last third of the 12th to last quarter of the 11th century BC). This pottery feature, which is common in the Morava Valley, appears relatively late in relation to other channel-decorated features on ceramics of the Belegiš II–Gava type at Kastanas.

According to the analysis of pottery and on the basis of stratigraphic horizons, it seems that the occupants of Kastanas were in contact with groups from the north as early as layers 19/18 (Br C/1450–1325/00 BC). This was contemporary with the early Brnjica group and related groups from Oltenia and southern Transylvania, directly or indirectly. By the 12th century BC, consumption of pottery of the Belegiš II–Gava type began and this was intensified considerably in the 11th and 10th centuries BC.[172] This adoption is also seen at

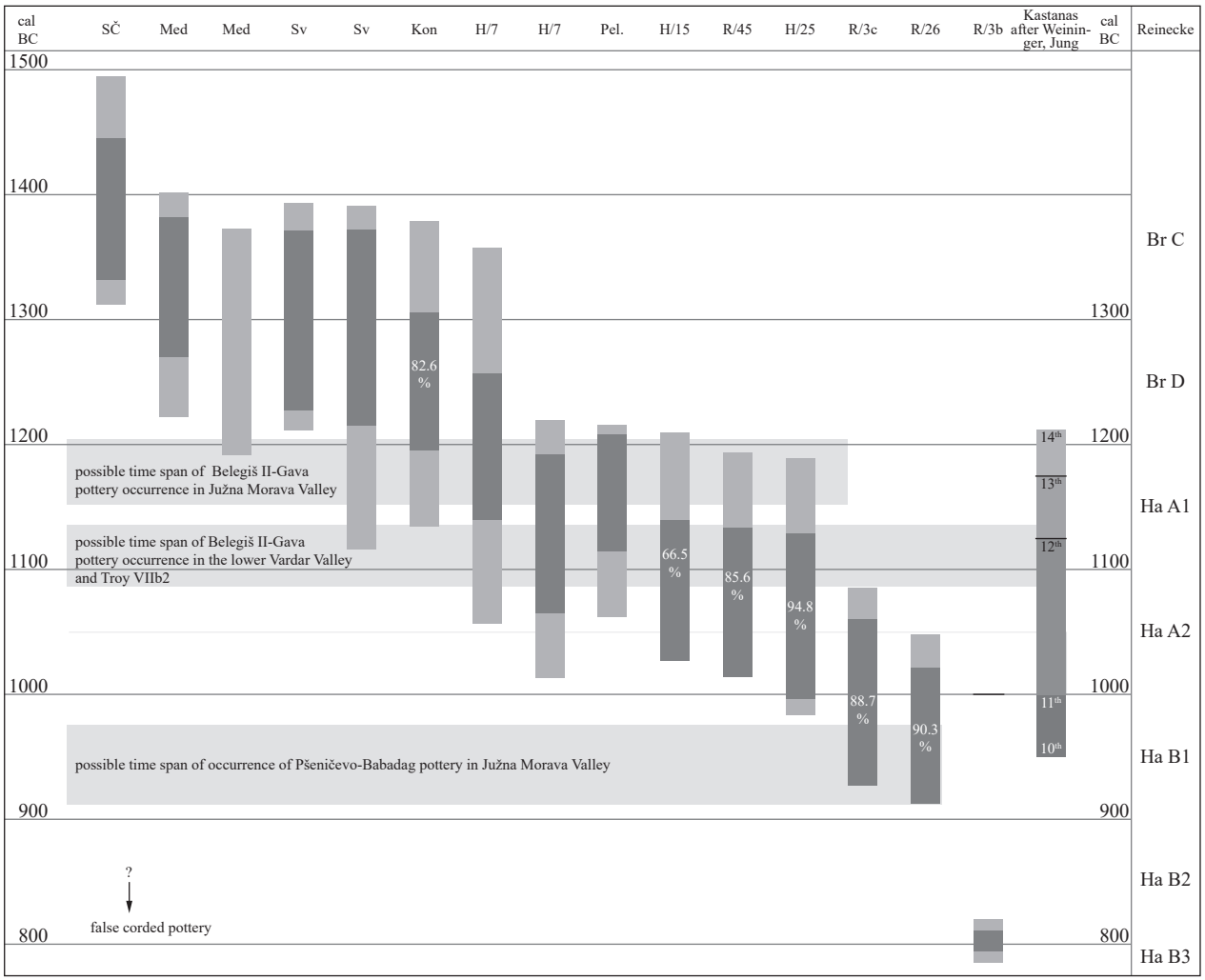

Fig. 5. Chronology of the LBA and Transitional period in the Južna Morava and Vardar/Axios Basins

Abbreviations:
SČ – Svinjarička Čuka; Med – Medijana; Sv – Svinjište; H/7 – Hisar, feature 7; Pel – Pelince; H/15 – Hisar, feature 15; R/45 – Ranutovac, feature 45; H/25 – Hisar, feature 25; R/3c – Ranutovac, feature 3c; R/26 – Ranutovac, feature 26; R/3b – Ranutovac, feature 3b.

Light grey in the date bars represents a time span of 95.4% probability; dark grey in the date bars represents a time span of 68.2% probability or the other value inscribed in the bar.

Сл. 5. Хронолоīија īозноī бронзаноī доба и īрелазноī īериода у долинама Јужне Мораве и Вардара

Скраћенице:
SČ – Свињаричка чука; Med – Медијана; Sv – Свињиште; H/7 – Хисар, објекаī 7; Pel – Пелинце; H/15 – Хисар, објекаī 15; R/45 – Рануīовац, објекаī 45; H/25 – Хисар, објекаī 25; R/3c – Рануīовац, објекаī 3c; R/26 – Рануīовац, објекаī 26; R/3b – Рануīовац, објекаī 3b.

Свеīло сиви сīубићи īредсīављају временски оквир са вероваīноћом од 95.4%, īамно сиви сīубићи īредсīављају временски оквир са вероваīноћом од 68.2%, или друīих вредносīи наīоменуīих у сīубићу.

the nearby cemetery of Palio Gynaikokastro, where bowls with inverted, channel-decorated rims are known.[173]

At Vardarophtsa in the lower Vardar/Axios basin, a vessel of the Brnjica urn type was recorded in the LBA layer, together with globular beakers and other characteristic pottery of the time.[174] Above this stratum, burnt layers derived from at least two phases of settlement were excavated and together were 1.5 m deep. Within these, sherds of what was once called "Lausitz" pottery, now termed Belegiš II–Gava, were recovered.[175]

W.A. Heartley read this as a clear example of an invasion (though not necessarily violent) of Belegiš II–Gava pottery bearers at the end of the Mycenaean era. A similar situation was recorded in Vardina (today Limnotopos, Greece). There, the youngest of three layers of settlement had Belegiš II–Gava pottery found side-by-side with locally made ceramics, including some Mycenaean forms.[176] At the lowermost burnt layer in Vardina, an Orlea-type fibula with a leaf-shaped arch was found. This piece was dated by pottery from the same context to the Submycenaean period, but also to the Mycenaean IIIC Late phase.[177] This corresponds to the first half of the 11th century BC,[178] but potentially as early as the second half of the 12th century BC, according to Wardle et al.[179] A fibula of this type was found in tomb XI at the cemetery at Brod (Saraj) in Pelagonija, North Macedonia, with many finds that, according to Hammond, originate from the north, and can be dated to the 12th century BC.[180] Orlea type fibulae are common in Pannonia, and are dated there to the Ha A1 period, though the justification of this dating remains unclear.[181] It has been argued that they originated in today's southern Germany and Austria during the period Br D–Ha A.[182] It is also salient that a hoard of vessels from Pelagonija (Prilep, Varoš) with several types characteristic of the Brnjica group has been documented, providing further context to the fibula from nearby Saraj.

A final note with respect to the distribution of Pannonian channel-decorated pottery is that the Belegiš II–Gava type also reached the Troy VIIb2 settlement in Anatolia. In this layer there are twisted handles, vessels whose belly is decorated with vertical plastic thickening and channels (the so-called Morava variant of the vessel) and instances of vessels with vertical or oblique narrow channels on their bellies.[183] According to P. Hnila, who follows Wardle et al.'s suggestion, this layer can be dated to 1140–1120 calBC, based on painted Mycenaean and Protogeometric pottery.[184] One must not, however, neglect the conventional date for layer VIIb2, which corresponds to the middle of the 11th century BC, so it is most reasonable to date this layer to the period from the second half of the 12th to the middle of the 11th century.[185] Such vessels have also been documented in Thrace, for example in phases II and III at Gluhite Kamani, which correspond to the second half of the 12th to the 10th–9th century (possibly the first half of the 9th century) (Fig. 5).[186]

Discussion: Of Aegean Migrations, Dorians and new mobility paradigms in archaeology

It is perhaps easy to understand why a model for "Aegean migrations" was developed as an explanation for culture change, and pottery in particular, in the area between the Morava Valley and north Aegean coast around 1200 BC based on the appearance of (broadly) Carpathian pottery styles in northern Greece. It is clear that the areas between were central to any form of personal or cultural mobility. Indeed, the very idea of culturally bounded social or political groups defined almost entirely by the pottery they used moving from point A to B over such distances is rarely, if ever, found in current literature. At the same time, it is aiming for an easy target to contest that detailed studies of the development of "named" pottery groups as

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172 Булатовић 2011.

173 Savvopoulou 2001

174 Heurtley 1939, cat.no. 408.

175 Lausitz pottery or Danube pottery were previous terms for the pottery from the Vardar Valley that appeared in the last quarter of the 2nd millenium. Today, this pottery could be identified as Belegiš II–Gava pottery; handles decorated with narrow grooves, twisted handles, vessels with obliquely, horizontally or vertically grooved belly, etc. (Heurtley 1939, Fig. 87).

176 Hammond 1972, 305–306. It is not clear whether was Mycenaean import or local imitations.

177 Stefanovich 1973, 151.

178 Weninger, Jung 2009.

179 Wardle et al. 2014, 7, Tab. 1.

180 Hammond 1975, 707–708.

181 Vasić 1999, 21.

182 Vasić 1999, 21.

183 Hnila 2012, cat.nos. 446, 671, 676, 685, 710, 712, 715, 811, 812, 813, 929.

184 Hnila 2012, 20; Wardle et al. 2007.

185 Desborough 1964.

186 Nekhrizov, Tzvetkova 2018, Figs. 4/7, 6/6, 12

coherent and often spatially constrained bodies of material are old fashioned or equate to "pots = people". This is particularly the case in our study area because we spatially move through four to five distinct cultural ambits; The Carpathian Basin, Oltenia and the areas immediately south of the Danube, the Morava Valley, the Vardar/Axios valley and northern Greece.

Differences in material culture in each area abound at particular times and at other times they are reduced and imports, adaptations and entanglement of styles are recognised. Why do we consider the migration model to have been an understandable paradigm? Because during a brief window of time, common elements in the pottery styles of these four to five areas emerge. This is not prestige, high-value pottery that may be considered a trade item, but rather mundane and basic domestic pottery, material which was consumed at a household/family unit level. At the same time, we witness changes in settlement patterns with evidence for increased defensibility in some cases and site destructions in others around this same horizon. Contemporaneous to this, we can also document the spread of burial practices in a north-south direction with flat cremation cemeteries using urns reaching the north Aegean.[187] While we do not argue for a mass-migration model, we also cannot consider these particular and deeply embedded changes to be the result of passive diffusion. It is also clear that we cannot identify any form of core-periphery or high to low culture kind of emulation framework that might justify the adoption of the Belegiš II–Gava and Brnjica styles beyond the areas in which they were originally developed. Change occurred at variable paces and intensities at different settlements and cemeteries, indicating the presence of regular networks of interaction that expanded over time towards the south. Migration may well have driven this expansion, but the cultural impact emerged through the continuance of networks established in this way. As a consequence, new ideas/styles became embedded alongside existing ones for a period, either increasing (Morava) or decreasing (Northern Greece) in prevalence and fidelity (with respect to 'original' forms) between 1200 and 1000 BC.

With this in mind, we turn briefly to one of the root causes of the old migration models, that of the Dorian invasion. [188] This myth largely arose from the specific academic climate of the late 19th and early 20th centuries and constituted what O'Brien termed "parables of decline".[189] This invasion model is so completely defunct, we merely state here that it was based on a highly selective and colonialist reading of Classical Greek texts to argue for hordes of invading Barbarians raiding Greece and bringing about the collapse of Bronze Age palatial society there. Here we wish to briefly revisit the original texts, not this invasion model, because apart from this 19th century fantasy Dorian Invasion, some elements of the texts themselves are revealing. We recognise these were written 600–700 years later than the events they purport to discuss and that they were written within the intellectual and political milieu of the Classical period, rife with agendas of the time of the writers. Counting them as vague echoes of the past or folk memories at best, some points of relevance to our paper can be identified.

Herodotus says the following:

"The Pelasgian race has never yet left its home; the Hellenic has wandered often and far. For in the days of king Deucalion it inhabited the land of Phthia, then the country called Histiaean, under Ossa and Olympus, in the time of Dorus son of Hellen; driven from this Histiaean country by the Cadmeans, it settled about Pindus in the territory called Macedonian; from there again it migrated to Dryopia, and at last came from Dryopia into the Peloponnese, where it took the name of Dorian."[190]

In advance of commenting on this, we should clarify two things discussed in more detail elsewhere.[191] Pottery of Pannonian and Balkan influence extends only into the very north of Greece and even though metalwork, being more mobile as personal or trade objects, reaches as far south as Crete, it is most common north of the Gulf of Corinth. Moving south, maritime influences are more in evidence, as seen through the combined presence of objects of Italian inspiration from across the Adriatic as well as objects of Carpathian influence in southern Greece.[192] The point made here is that the maritime connections which archaeology tells us were operating in the heartlands of

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[187] There is a certain probability that the urns with cremations were covered with low mounds.

[188] Milojčić 1948/49; Desborough 1964; Garašanin 1973; Stefanovich 1973; Catling & Catling 1981; Mitrevski 2003 and others.

[189] Maspero 1896; Sandars 1985; O'Brien 2013.

[190] Herodotus 1.56:2–3.

[191] Molloy 2016, 2018

[192] Jung 2009; Jung and Mehofer 2013; F. Iacono 2013; B. P. C. Molloy 2016b.

the Mycenaean world do not receive a mention in Herodotus, nor indeed do those lands themselves. Rather, the focus is on incursions from the north.

However, Herodotus does not speak of mass invasions. Rather, what we read of is increased mobility of groups and a process of ongoing reconfiguration of identities over time as groups fuse and disintegrate and move through the landscape. Given the time-scale and short distances involved, this may better be read as a period of increased mobility triggered by both instability and processes of the emergence, and importantly here the abortive emergence, of socio-cultural identities. There is not a linear path between pre-Classical and Classical cultural/political identities, but a world of "might have beens" alongside the eventual successful identities.

Taking this as a vague echo of the past or even abstractly as a heuristic, this does not conflict with the archaeological narrative as set out in this paper and we feel this viewpoint is a more reasonable and testable model than the Dorian Invasions or Aegean Migrations of old. In such a model, individuals and small groups with myriad identities were involved in new networks and there was experimentation on the one hand, but also perhaps a darker and more violent side as hegemonies were sought to be enforced and small groups pushed themselves into new lands and actively sought to assimilate or transform over time to suit emergent social agendas. Another hypothetical reading might be that the area in which all of this chaotic reordering was taking place was in the northern parts of Greece and the southern Balkans before people in Greece "had constant rest and [were] shifting their seats no longer".[193]

Accepting this combination of Classical history and prehistoric archaeology as tenuous at best, our key point is that if such a reading of the texts is at least closer to the archaeology, then in turn it removes any support whatsoever for large-scale migration narratives. It also leaves the door very much open to the emergence of networks through which people moved with diverse motivations, under changing historical circumstances and at varied scales. None of this was linear or predictable but appears quite chaotic. We cannot begin to estimate how that may translate into archaeological traces. The cultural impact of mobility read in this way can be detected with the settlements and cemeteries throughout the study area, where change is evident but lacks a consistent pattern. Furthermore, taking away the core-periphery undertones of the migration model in which the Morava and Vardar/Axios valleys were passive conduits through which people moved to more "interesting" areas, it is apparent that communities there were actually the drivers of interaction linking areas north and south. This does not preclude the movement of some groups farther to the south, but that would be for different reasons, perhaps periodic, and presumably outside of the network defined through domestic assemblages in this paper.

This was a period of change in which migration played an important role but, in our view, rather than revealing movement towards the previous palatial heartlands, this migration contributed directly to the growing prosperity within the overland corridor linking the Aegean and continental Europe. These were dynamic communities in which ideas from the north and south were adopted and modified and spread further. We believe that part of this dynamic arose from migration into the Morava Valley, which triggered a new cultural vibrancy there. That, in turn, articulated with regions to the south over short and long distances. It seems plausible to us that the data from the north Aegean is consistent with regularised, protracted and intense mobility that had an impact on the domestic sphere. This is visible in ceramic and metalwork forms being consumed over centuries and, importantly, ceramic forms suggest this took place in domestic contexts rather than in venues of prestige-good consumption. That suggests people, more than objects, were mobile.

We can take the case of the adoption of characteristic turban-dishes, bowls with oblique channel-decorated surfaces, from the Pannonian Plain repertoire. Aslaksen considers these to be a key marker for this new cultural dynamism.[194] For bowls of modest aesthetic value, the capacity for their cultural value to have been established through interaction and encounters involving the physical use of objects is important. Aslaksen sees the bowls as transcultural objects serving as modulators between locals and travellers during encounters in northern Greece. This allowed them to engage in commensal activities in a common manner, stimulated initially by migration of small groups, possibly of elite status, from north to south.[195]

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[193] Thucydides 1.12.

[194] Aslaksen 2012.

[195] Aslaksen 2012: 269; see also Eder and Jung 2005 for a similar model for the consumption of Mycenaean pottery in southern Italy.

Looking farther north, new packages of ceramics displacing preceding traditions, as seen with Belegiš II–Gava assemblages of the Juzna-Morava Valley, requires more systematic interactions or, we would argue, a permanent presence of some migrants. This signals that the river valleys connecting the Aegean and Carpathian ambits became important hubs of cross-cultural interaction in their own right following collapse in those two influential but distant regions.

It has commonly been argued that the Mycenaean world represented a pull factor for groups from the north, whether this was incoming mercenaries in service of the palaces or groups on the periphery trading metal or finished objects to an Aegean core.[196] The gravity in such a model is presumed and while often framed in terms of World Systems Analysis, it retains strong, if implicit, tones of the Ex Oriente Lux mindset, the lower social orders of the "barbarian" periphery looking to the "civilised" core. The logic, however, is undermined primarily on the basis of chronology. The vast majority of Italian and Carpathian type objects found in the Aegean are dated after the mid 12th century, that is, decades after the palaces had collapsed.[197]

The draw of the Aegean world was thus, to one extent or other, perhaps not so strong at that point. Looking to the north, two further things are relevant. It is clear that crises in the Po Valley led to depopulation there in the first half of the 12th century BC.[198] This created a push factor for outward movement of people, documented for example in finds from this time in southern Italy.[199] Though our knowledge of the precise chronology of developments in the Pannonian Plain is in development, it is clear that most of the massive enclosed sites which had dominated this region, and where Belegiš II pottery had first developed, were destroyed and/or abandoned between 1300 and 1200 BC.[200] The same can be said for cemeteries in the plain, the available data suggests many were abandoned within that same century. It is not currently possible to define at what point in that century this change took place. However, it can be mooted that, like the situation in the Po Valley, a collapse in settlement systems in the Pannonian Plain provided a possible push factor encouraging outward movement of people who had commonly used Belegiš II pottery. This may be seen, for example, in the appearance of Belegiš II pottery in southern Poland and an increase in settlement in the Transylvanian Plateau in the 12th century, as well as the situation described here for the Morava and Vardar valleys.[201]

Thus, the changes we have discussed occurred after collapse in the Aegean, Po Valley and Pannonian realms. These changes in mobility patterns, short and long distance, were taking place as a consequence of the collapse of the powerful nodes that had dominated networks. In our study area, due to inward migration and necessary new economic and social networks in the wake of reorganisation across the wider region, societies saw a brief boom in prosperity between 1200–1000 BC. During this time, increased mobility drove a form of transculturalism from the Morava to North Aegean, witnessed in objects consumed in domestic and mortuary venues.

Conclusion

In this paper we have revisited a long-standing discussion in Balkan archaeology related to the existence and potential impact of a so-called Aegean migration around 1200 BC. More specifically, we focussed on the internal transformations of communities lying in the Morava and Vardar/Axios valleys and their hinterlands during a period of known social change (1200–1000 BC). Through a detailed overview of both ceramic and metalwork finds, supported by new absolute chronological data, we were able to demonstrate that basic phasing can be defined in the pace and character of change in these two stretches of valley. Though seen as a passive conduit in migration models, we have argued that the evidence rather points to the Morava Valley being a dynamic zone of cultural interaction and change, whose influence spread southward during the centuries identified as the "Transitional Period". Local settlement and mortuary trajectories were disrupted in the late 13th to 12th centuries BC, visible in shifts in site locations, ecological/topographic niches occupied and domestic pottery. Metalwork forms and tin isotope analysis suggest a north-south bias in communication networks, with fewer links to communities to the east and west (even those geographically much closer).

We have proposed a model in which influence from the Pannonian Basin may be read as a gradual

196 Sherratt 2003; Catling 1961; Jung and Mehofer 2013.

197 Bouzek 1985, Harding 1984.

198 Cardarelli 2009.

199 Iacono 2019.

200 Molloy et al. 2020, Lehmphul et al. 2019, Sava et al. 2019.

201 Przybyła 2010; Bóka 2012; Ciugudean 2012; Metzner-Nebelsick 2012; Bălen 2013; Dietrich 2015.

inward migration spanning decades, in part as a consequence of depopulation of settlement networks there. This is seen in the gradual uptake of Belegiš II–Gava pottery and an initial split in settlement conventions between those focussed on the plains of the Morava Valley (embracing Belegiš II–Gava pottery) and others which were focused on defensible hilltop sites (lower levels of initial uptake of Belegiš II–Gava pottery). We stress this is a model that requires further systematic excavation and absolute dating to be tested.

After a period of consolidation, interaction increased with areas to the south that had been part of exchange networks since the time that Brnjica pottery was predominant in the Morava Valley. The increasing visibility of Balkan ceramic forms at sites such as Kastanas (in particular), Palio Gynakokastro, Assiros and Toumba is testament to new types of interaction visible in domestic and mortuary venues. We interpret this as migration within newly expanded and enhanced community interaction networks. That is, this is not an invasion and displacement, but the development of a new social environment accommodating mobility. Importantly, this includes the introduction of cultural ideologies and practices in both domestic and mortuary spheres, indicating that this was people as well as objects moving across boundaries. The suddenness of change in some areas coupled with increased defensibility and/or destruction at sites suggests this was not all an equitable process. We believe social reconfiguration was a key part of these new dynamics and that this could have and did lead to conflict and violence, followed by conciliation and consolidation

It is plausible to us that pressures arising from the outward movement of people from the Pannonian Plain led to a domino effect of small-scale movements and associated tensions and conflicts. This may have extended as far as Troy, where some channel-decorated pottery users settled in the 12th century BC. These same micro-scale pressures and knock-on effects were argued to be part of the process that pushed groups from the Velika Morava and Južna Morava or the Vardar/Axios basin farther south to the North Aegean (seen in pottery) or even beyond, in smaller numbers (seen in the metalwork). There is no material support for mass-dislocations and migrations of entire communities. The evidence points to many short-term and at times short-distance transformations triggering reconfiguration of social-political networks. These micro-histories were central factors shaping shared cultural changes from the Morava to the north Aegean between 1200 and 1000 BC.

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ПРОМЕНЕ У МАТЕРИЈАЛНОЈ КУЛТУРИ И ОБРАСЦИМА НАСЕЉАВАЊА У ПОЗНОМ БРОНЗАНОМ ДОБУ НА ЦЕНТРАЛНОМ БАЛКАНУ У СВЕТЛОСТИ НОВИХ ПОДАТАКА

Кључне речи. – Позно бронзано доба, Моравско–Вардарска комуникација, Егеја, апсолутна хронологија, канелована керамика Белегиш II–Гава, локална померања популација, миграције

Одавно је примећена сличност у материјалној култури позног бронзаног доба и тзв. прелазног периода из бронзаног у гвоздено доба на централном Балкану и у доњој долини Вардара, која се у археолошкој литератури различито тумачила. Када је реч о питањима карактера и порекла ових сличности, нарочито у извесним керамичким формама и орнаментима, аутори су имали различита мишљења, али су се у једном слагали – постојање веза између заједница ова два региона сасвим је извесно.

У раду се анализирају материјална култура (Т. I–VI) и образац насељавања у басену Јужне Мораве у позно бронзано доба (15–13. век пре н. е.) и у прелазном периоду (12–10. век пре н. е.) уз нове податке, као што су апсолутни датуми (Табела 1), анализе изотопа калаја бронзаних предмета, резултати нових ископавања, палеоботаничке анализе и др.

У позно бронзано доба басен Јужне Мораве насељавала је популација која је била носилац тзв. брњичке групе, са препознатљивом керамиком, познатој у литератури, и махом низијским насељима (Сл. 1). Поред керамике карактеристичне за ову групу, у њеном керамичком инвентару регистроване су форме и орнаменти карактеристични за групе које су насељавале јужну Панонију, Олтенију и јужну Трансилванију. Ове стилско-типолошке карактеристике (лоптасти пехари, инрустација, спирално украшавање и др.) евидентиране су у и доњој долини Вардара, а реч је о периоду 15–13. века пре н. е. (Сл. 3). Метални налази са централног Балкана из овог периода указују на везе са југом, западом и истоком, док се тек поједини примерци могу повезати са севернијим областима.

У једном тренутку, током позног бронзаног доба, вероватно од 13. века пре н. е. у долини Јужне Мораве, на самом ободу долине, подижу се бројна градинска насеља, од којих су многа била и утврђена, а неке од ових фортификација су гореле (Кончуљ, Хисар, Прибој) (Сл. 1). Осим обрасца насељавања, промене су уследиле и у материјалној култури, па се у великој мери на локалитетима у долини Јужне Мораве јавља канелована керамика типа Белегиш II–Гава (Т. VI–X; Сл. 2). Појава ове керамика према датуму из једне јаме са канелованом керамиком типа Белегиш II–Гава са Хисара у Лесковцу (Т. VI/1–4), може се определити у крај XIII и прву половину XII века пре н. е. (Табела 1). За овај период може се везати и интензивније коришћење проса, као и појава „централноевропских“ типова бронзаних предмета на централном Балкану, који се у овом случају јављају у ужој зони око комуникације Морава–Вардар. Ту се, на првом месту, мисли на бронзане мачеве са језичастом дршком, пламенаста копља и поједине типове игала и фибула, који своје порекло имају далеко у централној Европи и областима око Алпа. Они се пак у овом периоду не јављају у периферним деловима Балкана, већ је њихово присуство регистровано искључиво на трасама најзначајнијих природних балканских комуникација.

Ове промене на централном Балкану утицале су у извесној мери на материјалну и духовну културу у долини Вардара, где се након XII века пре н. е. појављују керамика у виду тзв. брњичких амфора/урни и других централнобалканских керамичких форми, као и за ову територију потпуно нов обичај сахрањивања – кремација (Сл. 2 и 4). Приближно у истом периоду (нажалост услед недостатка апсолутних датума није детерминисан хронолошки однос ових догађаја) у долини Вардара јавља се и канелована керамика Белегиш II–Гава типа, а судећи по стратиграфији и датумима са Кастанаса, ова керамика се спорадично користи већ од XII века, али је њено присуство најинтензивније у XI и X веку пре н. е. (Сл. 5).

На основу анализе свих промена које су од краја XIII века пре н. е. настале у материјалној и духовној култури, економији, обрасцу насељавања дуж коридора Велика Морава – Јужна Морава – Вардар, као и на основу анализе динамике и карактера тих промена (дистрибуција и типови керамике и металних предмета) и хронологије ових промена, закључено је да је током ових промена долазило и до извесних померања заједница од јужне Панониje, преко централног Балкана до Егеје.

Ово нису биле интензивне миграције, које су према неким ауторима у старијој литератури могле бити један од узрока тзв. Дорске миграције, већ су пре била померања становништва мањих размера са домино ефектом, односно ланчаним реакцијама које су условљавале даља померања у правцу југа.

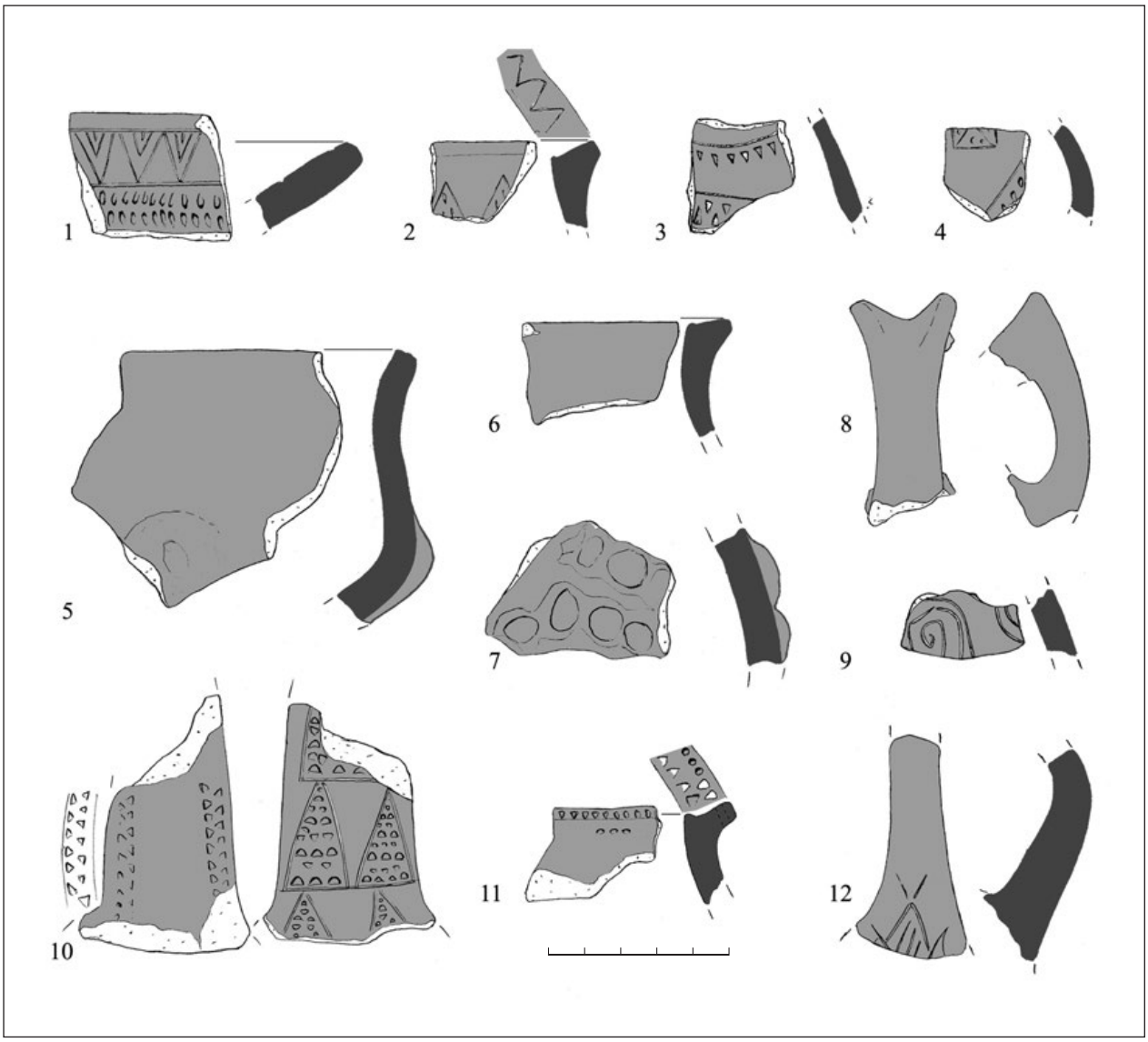

Plate I – Svinjarička Čuka. Pottery from LBA (Brnjica group) layer

Табла I – Свињаричка чука. Керамика из слоја позног бронзаног доба (брњичка група)

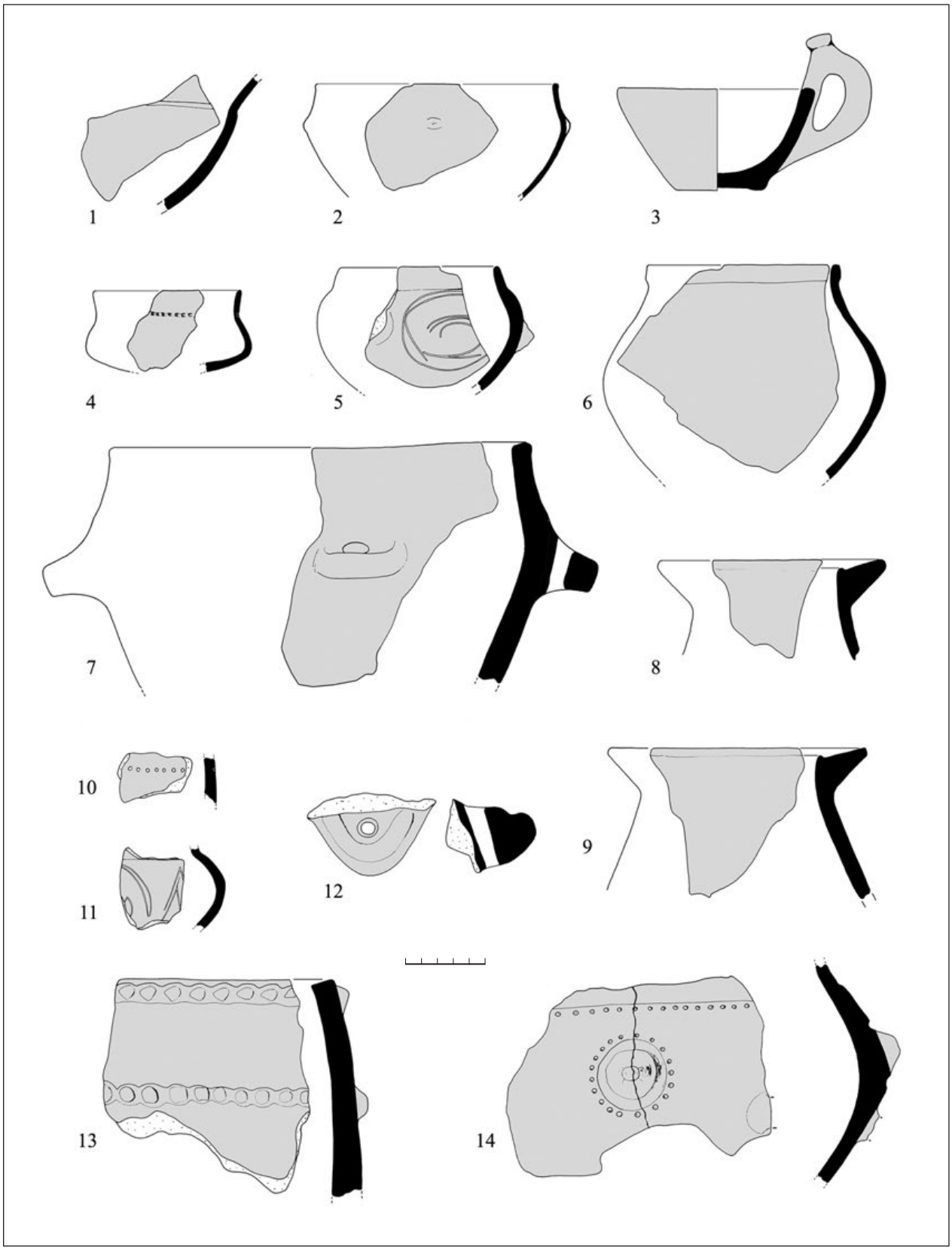

Plate II – Medijana, Pottery from LBA house

Табла II – Медијана. Керамика из куће позног бронзаног доба

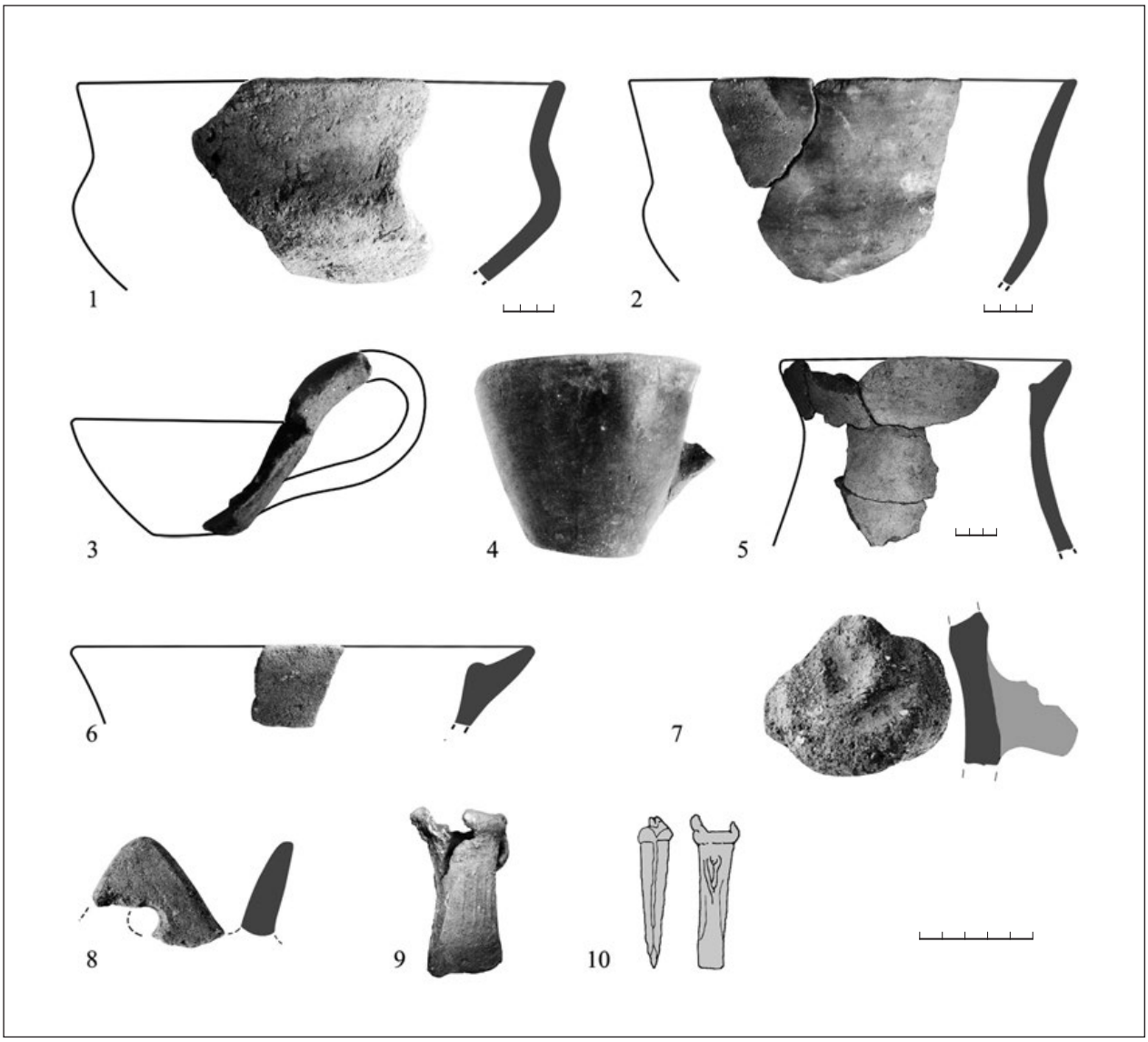

Plate III – Svinjište, Gradina. Pottery and metal objects from house and LBA layer

Табла III – Свињиште, Градина. Керамика и метални предмети из куће и слоја позног бронзаног доба

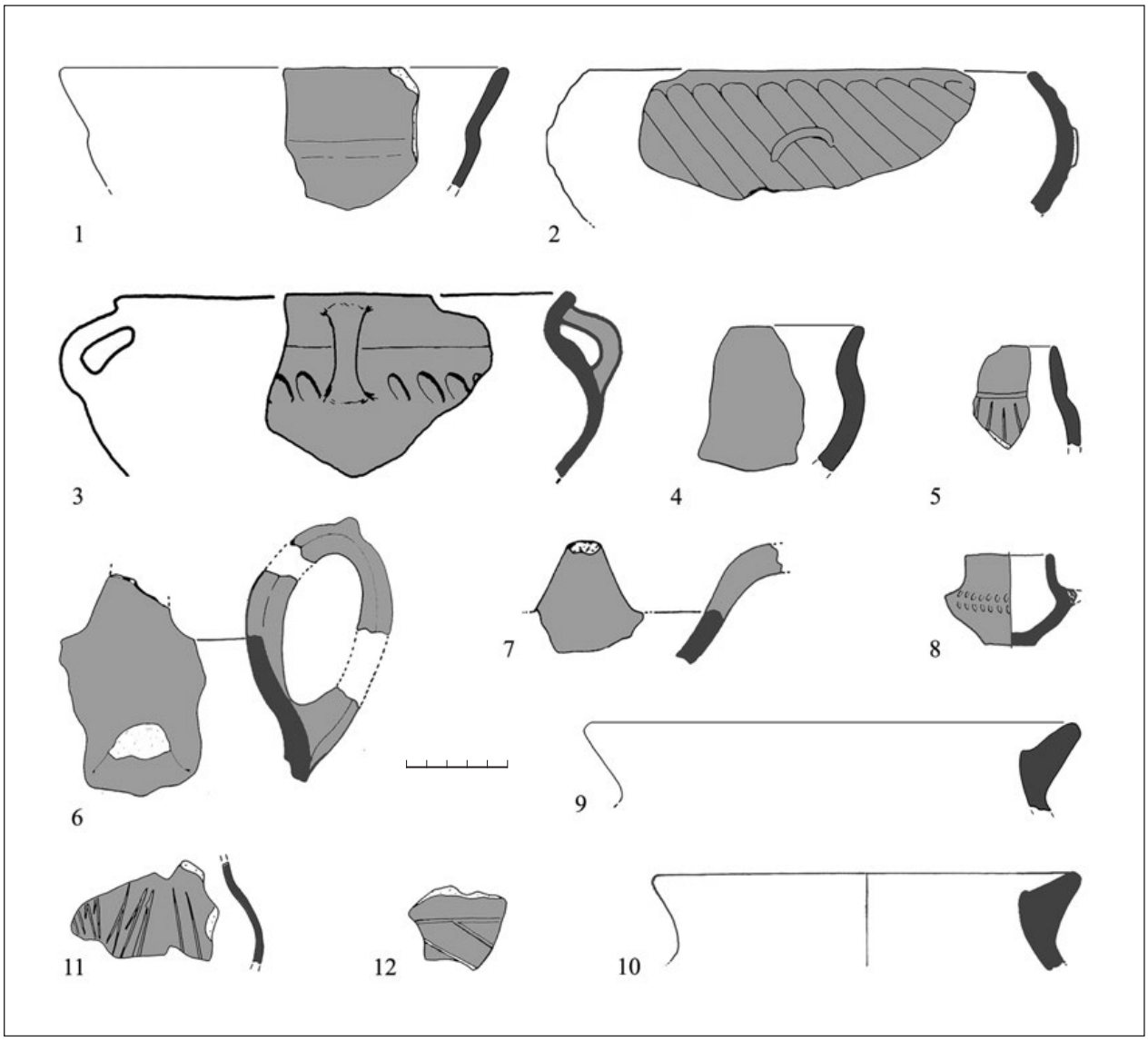

Plate IV – Končulj, Gradište. Pottery from the oldest layer at the site

Табла IV – Кончуљ, Градиште. Керамика из најстаријег слоја локалитета

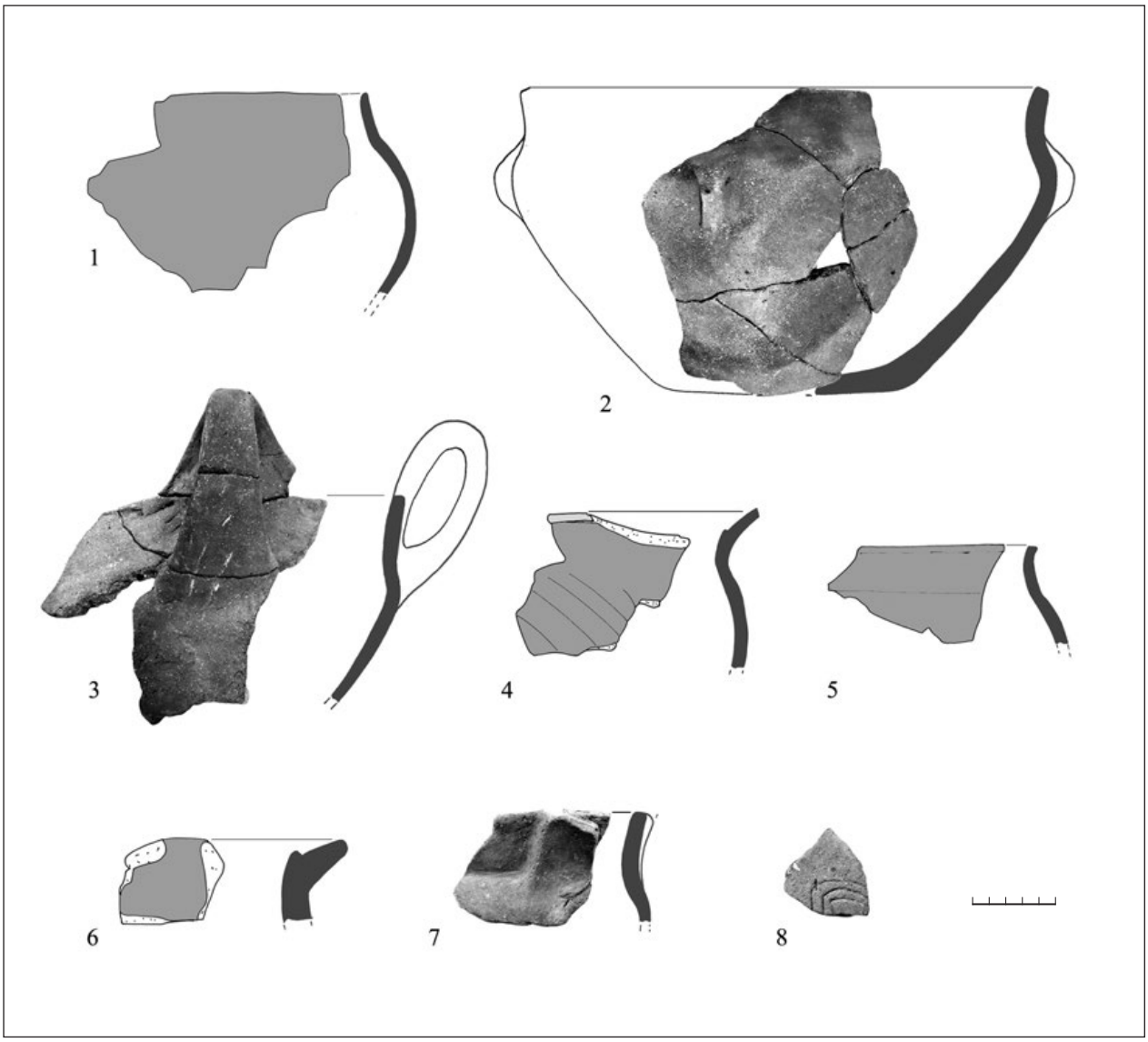

Plate V – Pelince, Dve Mogili. Pottery from LBA ritual pits

Табла V – Пелинце, Две Моīили. Керамика из риīуалних јама īозноī бронзаноī доба

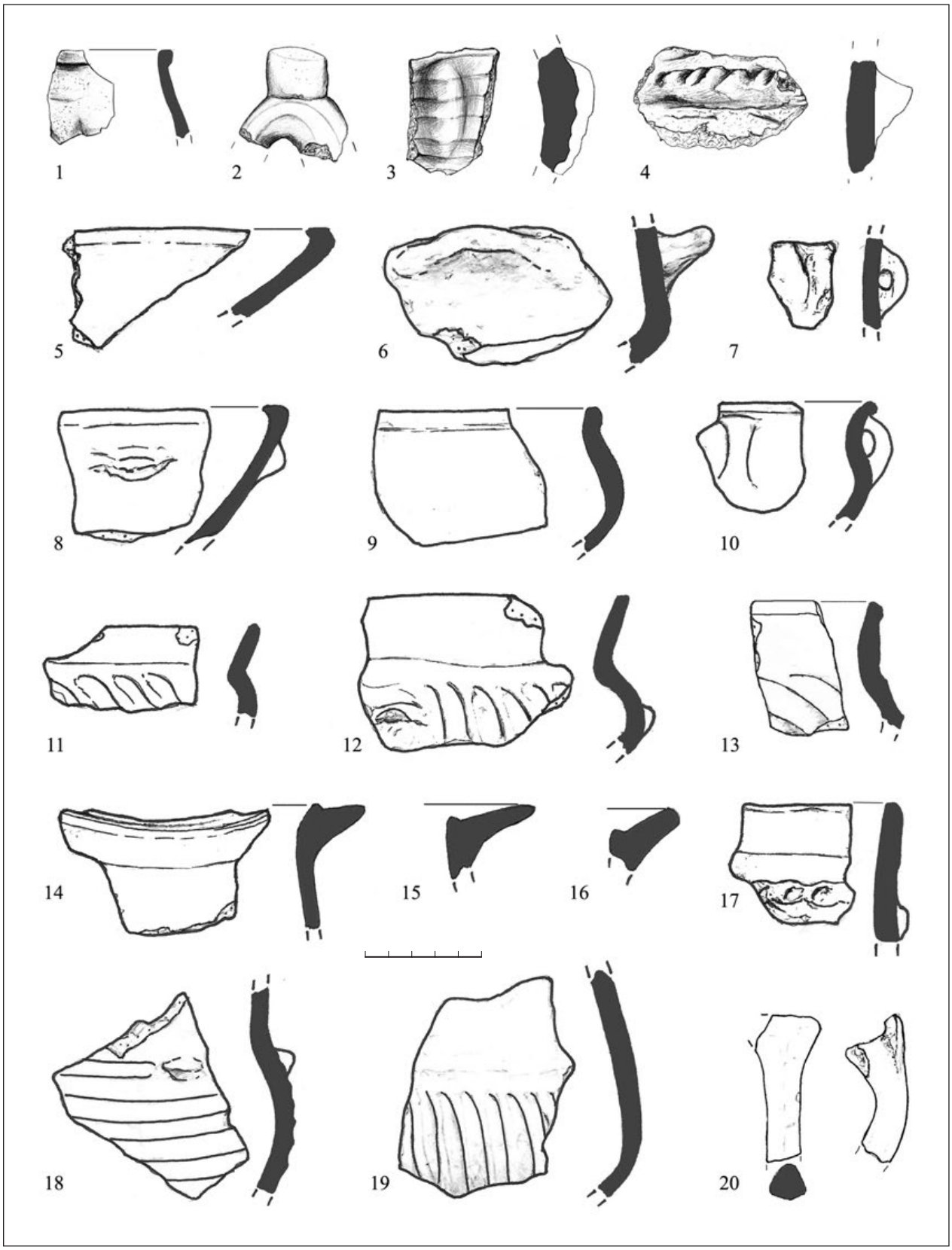

Plate VI – Leskovac, Hisar. 1–4. feature 7/2006; 5–7. feature 15/2002; 8–20. feature 25/2002

Табла VI – Лесковац, Хисар. 1–4. објекат 7/2006; 5–7. објекат 15/2002; 8–20. објекат 25/2002.

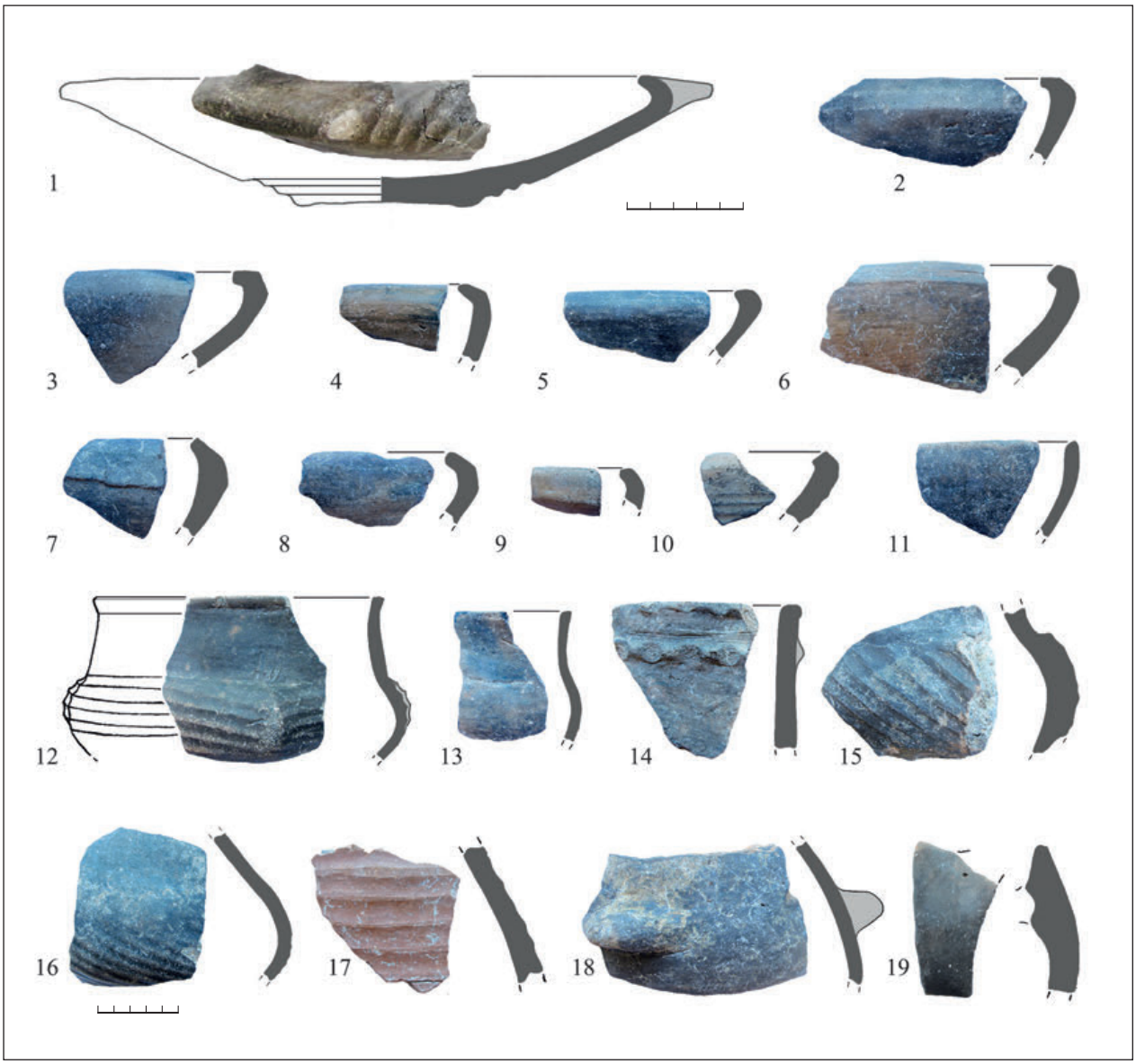

Plate VII – Ranutovac, Meanište, feature 45

Табла VII – Ранутовац, Меаниште. Објекат 45

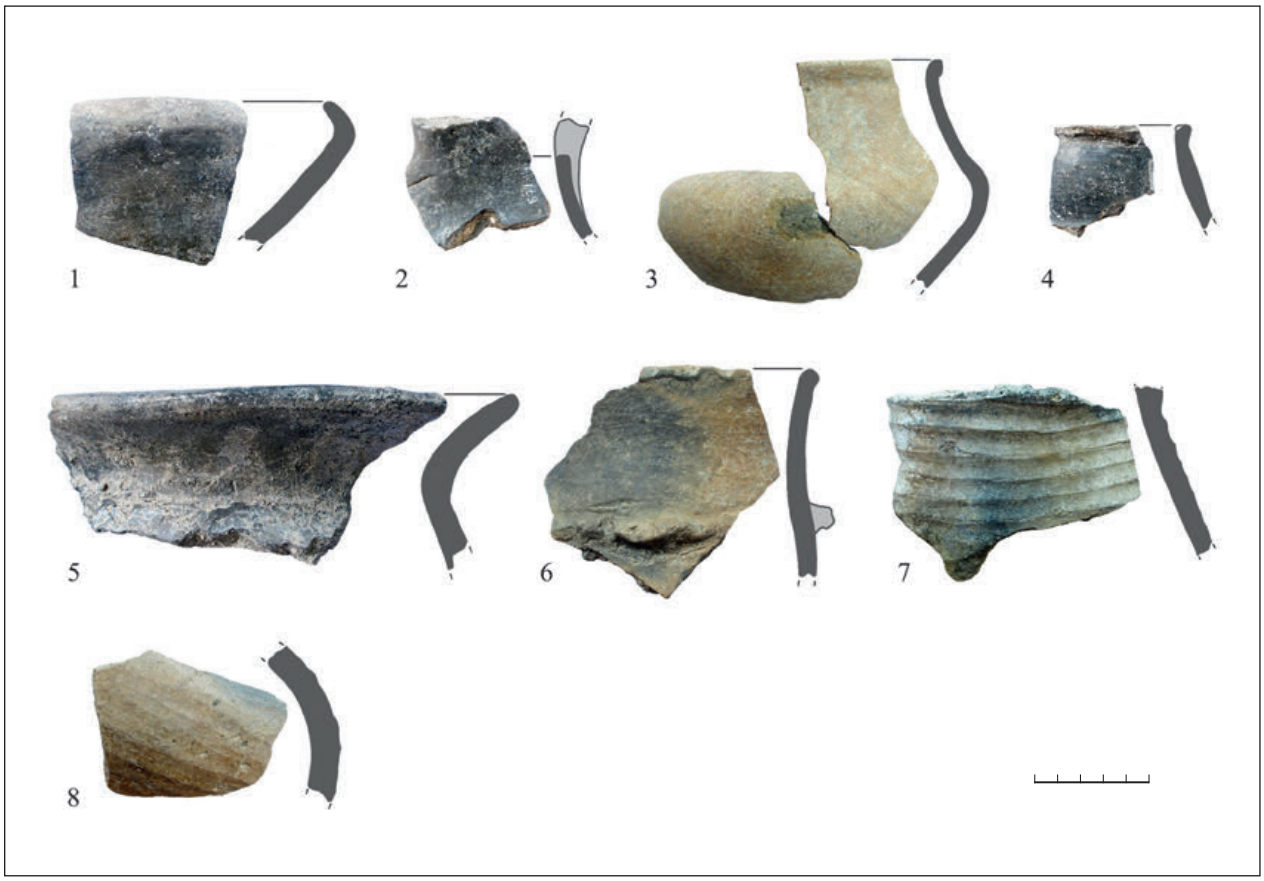

Plate VIII – Ranutovac, Meanište, feature 3c

Табла VIII – Ранутовац, Меаниште. Објекат 3с

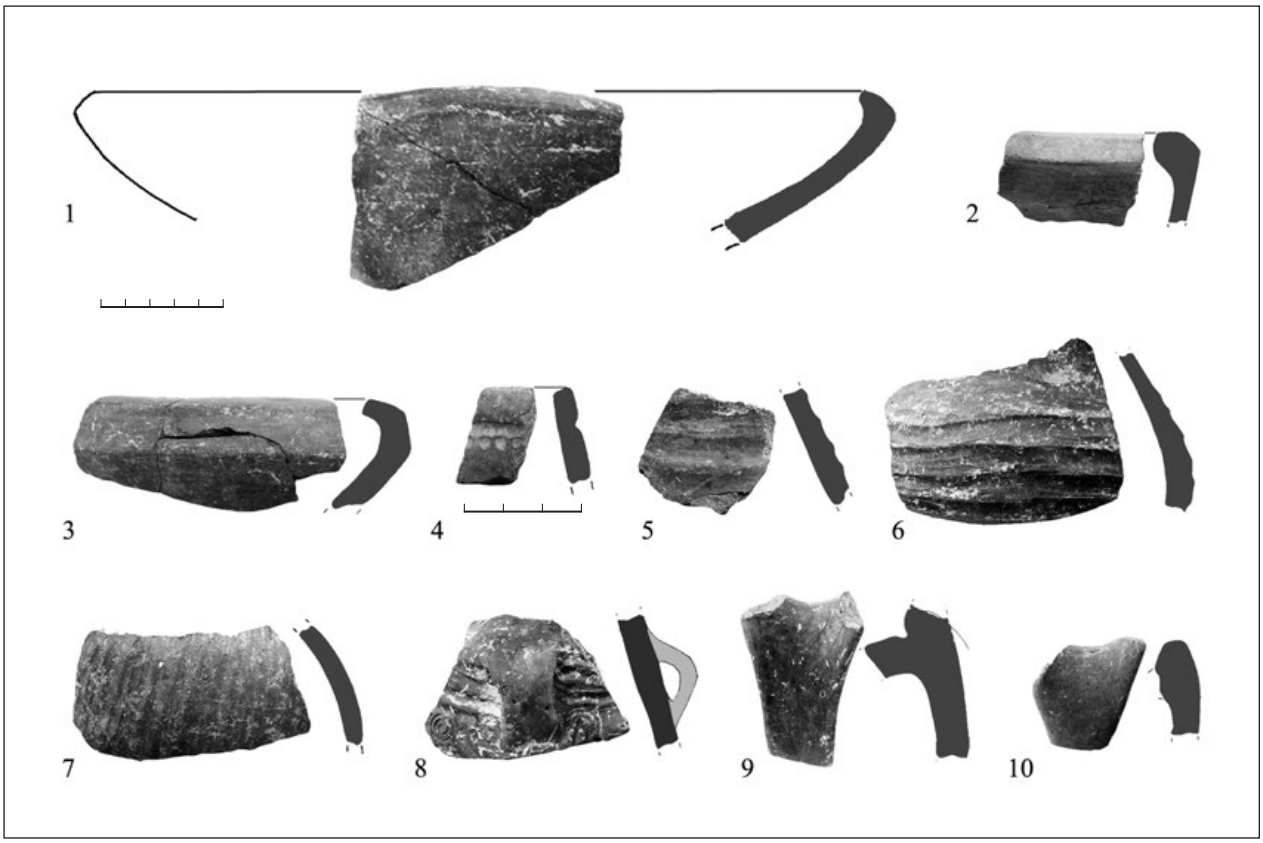

Plate IX – Ranutovac, Meanište, feature 26

Табла IX – Рануūовац, Меаниūūе. Објекаū 26

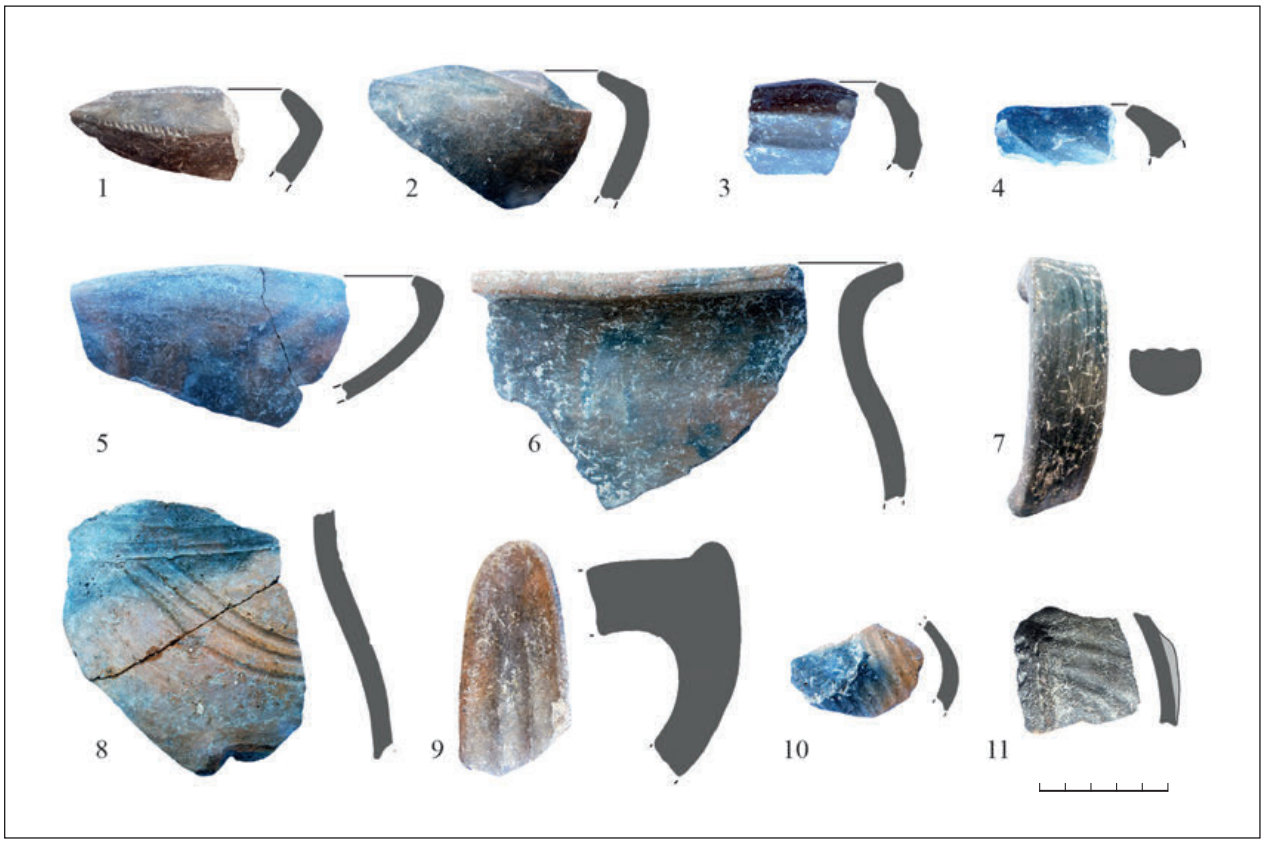

Plate X – Ranutovac, Meanište, feature 3b

Табла X – Рануūовац, Меаниūūе. Објекаū 3b

UDC: 903.25"638.7"(497)
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https://doi.org/10.2298/STA2171107D
Original research article

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IRON BELTS OF THE DALJ TYPE – A STUDY OF REGIONALISATION OF THE MIDDLE LA TÈNE FEMALE COSTUME

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Abstract. – A characteristic element of the Middle La Tène Scordiscan female costume are the various types of iron and bronze belts, which can often be connected with contemporaneous types from the Carpathian Basin. One such form are iron belts of the Dalj type, composed of pairs of twisted rod-shaped segments with loops, connected with rings, which differ in the shape of mostly iron, only rarely bronze buckles. Dalj type belts are numerous in south-eastern Pannonia in cemeteries of the Scordisci, although they have also been documented in female graves in the northern part of the Carpathian Basin, in Transylvania and in cemeteries in Central Europe. Dalj type belts are mostly dated to LT C1, although it seems that their appearance can be dated as early as the end of LT B2. Noticeable differences in the shapes of belt buckles bear witness to the individualisation of the early Middle La Tène female costume used by various communities, that is, its regionalisation.

Key words. – Female costume, iron belts, buckles, Scordisci, graves, Carpathian Basin, Middle La Tène

A characteristic element of the Middle La Tène Scordiscan female costume are various types of iron and bronze belts, which can often be connected with contemporaneous types from the Carpathian Basin, and sometimes also with those documented in Central Europe and the south-eastern Alps.[1] One such type are the iron belts of the Dalj type, which consist of two by two twisted rod-shaped segments with loops at the ends, connected with rings of a round cross-section. Iron or bronze buckles that form part of the belts appear in several shapes, although those with two leaf- or spear-shaped parts and a central thickening are known only from the sites of the Scordisci. At one end, the buckle is bent into a hook ending with a knob, used to fasten the belt, while at the other end the buckle is coiled into an S-shaped loop, sometimes also ending with a knob. With this loop, through which a ring was passed, the buckle was attached to the rest of the belt, composed of a number of segments. The end of the belt was sometimes adorned with pendants of various shapes. However, outside the Scordiscan area the occurrence of differently shaped buckles has been recorded, which will be discussed in more detail below.

The belts of the Dalj type were documented in the cemeteries of the Scordisci in south-eastern Pannonia, but also in female graves in the northern part of the Carpathian Basin, in Transylvania and in some cemeteries in Central Europe. Since belts of the Dalj type have been analysed in detail on several occasions recently,[2] attention this time is focused on the shapes of buckles, which indicate regionalisation of the female costume, and the composition of grave assemblages in which the belts were found. Also, attention is directed to belts which, except the pairs of segments characteristic of

[1] Dizdar 2020. Recently, various forms of Middle La Tène iron and bronze belts from the sites of the Scordisci were presented.

[2] Drnić 2015, 89–94, Fig. 24, Map 6, Pl. 38/1–2; Dizdar 2016, 82–85. Pl. 4–5; Dizdar 2020, 75–93, Map 3, Fig. 32–46.

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the Dalj type belts, are also composed of figure-of-eight segments.

The eponymous belt was published in the analysis of the finds from Dalj that had arrived in the Museum für Vor- und Frühgeschichte, in Berlin, in 1906, which probably originate from destroyed Middle La Tène Scordiscan cremation graves.[3] This belt is also described by J. Reitinger, who singles it out for the first time as a belt of the Dalj type. According to J. Reitinger belts of this type are represented by a small number of finds and on that occasion he also mentions some other finds of these belts with characteristically shaped segments. Based on the position in the inhumation grave 24 at the Manching – Steinbichel cemetery, he suggested that this belt was worn on the chest.[4] Dalj type belts were then described in detail by N. Majnarić-Pandžić, who considers them as one of the most common types of female belts with buckles. For the Scordisci, two variants with two leaf- or spear-shaped parts are characteristic, with bent ends and a thickening in the middle.[5] The belts were also mentioned by J. Todorović, who distinguishes them as belts of type 3, variant A, which are characterised by buckles and pairs of segments, and dates them to the later phase of the Middle La Tène, or the 2nd century BC.[6] Belts of the Dalj type were considered characteristic for the Middle La Tène period,[7] that is, as a type of belt appearing in Middle La Tène graves in the Danubian Basin, but also beyond.[8] These belts have also been documented in graves in the upper Tisza Basin. Interestingly, certain belts from the Bodroghalom cemetery are described as consisting of a combination of twisted rod-shaped and figure-of-eight segments.[9]

J. Bujna offered a detailed history of research on the iron, bronze and bimetal belts, dividing them into numerous groups and types with a number of variants.[10] Regarding the structural and compositional elements, three basic groups were distinguished, in which Dalj type belts were attributed to the group of belts composed of segments connected with rings.[11] Furthermore, he separated belts of the Dalj type into his Gk-G group with two variants, in which one consists of belts with iron segments, while in the other the segments are made of bronze. He dated these belts to LT C1.[12] However, the belt from cremation grave 29 of the Radovesice cemetery, distinguished as a separate variant (Gk-G-b), is in fact the remnant of a belt composed of larger bronze rings connected with bronze chains (group Gk-E2B). The described belt was distinguished in the Radovesice cemetery as type GF10 and dated to LT C1b.[13] Interestingly, J. Bujna, on that occasion, didn't mention the finds of the Dalj type belts from the sites of the Scordisci, just as he didn't analyse the differences in the shapes of the buckles. Dalj type belts were further briefly mentioned in the analysis of belts from the Curtuiuşeni cemetery.[14] Belts of a similar shape were found also west of the Alps, e.g. in a warrior grave in the Nanterre cemetery, which was dated to the beginning of the 3rd century BC. The belt consists of seven pairs of twisted rod-shaped segments connected by rings, with a short buckle, which ends with an eyelet, being connected directly to the first pair of segments.[15]

As we have already mentioned, since 2015 the Dalj type belts have been analysed in detail by I. Drnić and M. Dizdar. In the analysis of the finds from the Kupinovo cemetery, I. Drnić describes belts composed of twisted rod-shaped segments connected by rings. The belts date back to LT C1 and numerous analogies are given from Bavaria to the northern parts of the Carpathian Basin, all the way to the Scordiscan sites, which means that it is a supraregional type found in the female costumes of different communities. There are noticeable differences in the shapes of the buckles, whereby the belts from the Scordiscans sites are characterised by buckles that have two wide leaf-shaped plates and a thickening in the middle.[16] Belts of the Dalj type were then analysed twice by M. Dizdar, who pointed out that it is one of the most numerous forms of the Middle La Tène Scordiscan female costume. In addition to their wide distribution, belts of this type are most often dated

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[3] Jenny 1932, 240.

[4] Reitinger 1966, 203, 231, Fig. 8/3.

[5] Majnarić-Pandžić 1970, 28, 47.

[6] Todorović 1968, 60, Pl. XLIII/1; Todorović 1974, 78.

[7] Guštin 1984, 340, App. 1/56. D. Božič does not mention the belts of the Dalj type in his classification of the Scordiscan material culture (Božič 1981). In the same vein, belts of this type were not found at the largest so far excavated Scordiscan cemetery at Karaburma – Rospi Ćuprija, where only female grave 34 from Karaburma can be securely dated to LT C1 (Todorović 1972, 20, Pl. XIV).

[8] Kull 1992, 158.

[9] Hellebrandt 1999, 193; Rustoiu 2002, 93–94.

[10] Bujna 2011, 2–8.

[11] Bujna 2011, 65–66.

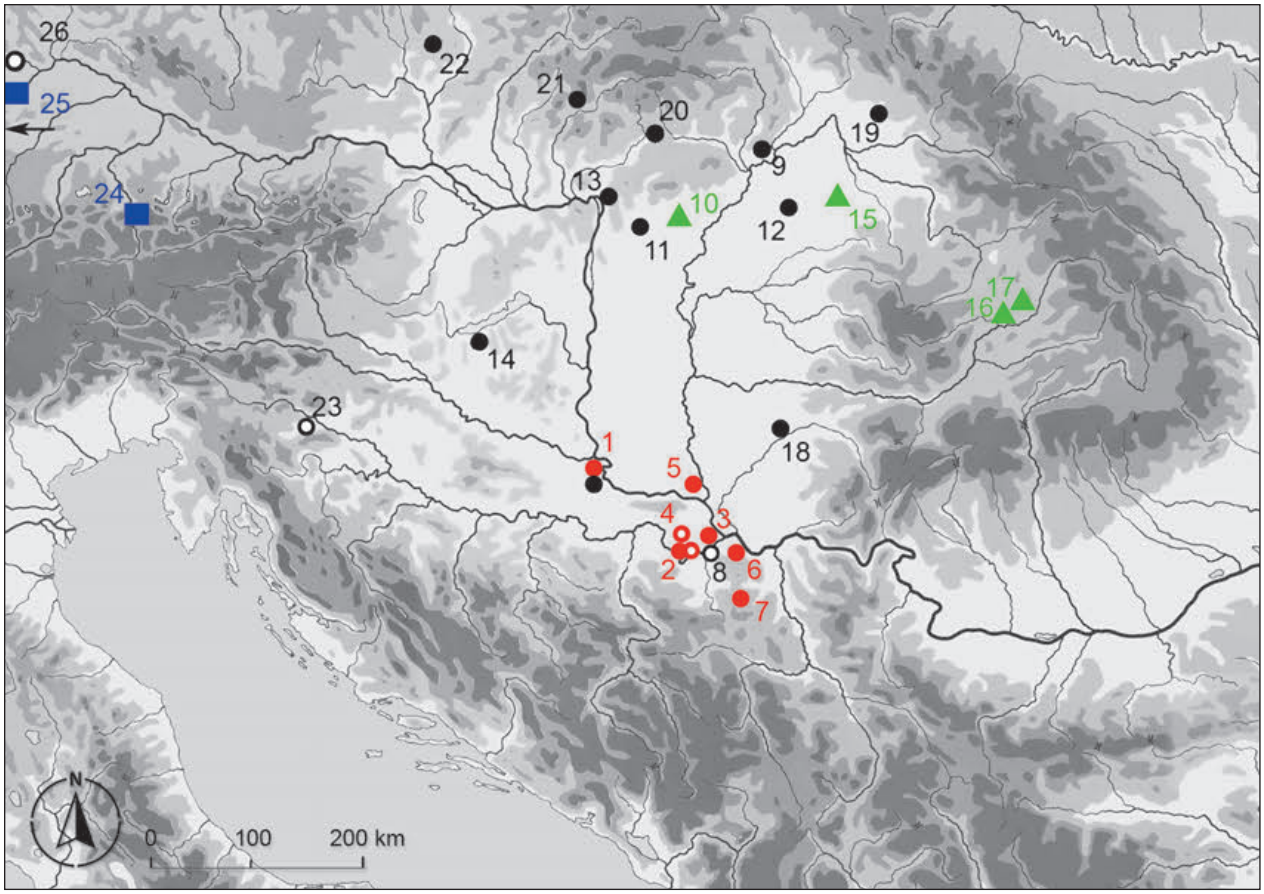
[12] Bujna 2011, 97, 139, Fig. 40.

[13] Waldhauser 1987, 128, Pl. 25/6–7.

[14] Teleagă 2008, 110, note 22.

[15] Rapin 1991, 325; Rapin 1995, 278, Fig. 3A/6; Mathieu 2013, 84, Fig. 2.

[16] Drnić 2015, 89–94, Map 6, Fig. 24, Pl. 38/1–2.



Map 1. Distribution of the Dalj type belts with variants of buckles:

The Feudvar variant (red dot); the Subotište variant (red dot, white in the middle); the Fântânele variant (green triangle); the Manching variant (blue square); the belts with an unpreserved (black dot) or uniquely shaped buckle (black dot, white in the middle):
1 Dalj; 2 Kupinovo; 3 Surčin; 4 Subotište; 5 Feudvar; 6 Ritopek – Dalekovod; 7 Aranđelovac; 8 Boljevci; 9 Bodroghalom; 10 Ludas – Varjú-dűlő; 11 Jászberény – Hajtai-halom; 12 Nádudvar – Töröklaponyag; 13 Vác – Gravel pit; 14 Ordacsehi – Csereföld; 15 Pişcolt; 16 Fântânele – Dâmbu Popii; 17 Orosfaia – Dealul Gropilor; 18 Remetea Mare; 19 Galliš – Lovačka; 20 Drňa; 21 Slatina nad Bebravou; 22 Marfely; 23 Novo Mesto – Kapiteljska njiva; 24 Dürrnberg; 25 Manching; 26 Ladenburg

Мапа 1. Дистрибуција појасева типа Даљ са варијантама појасних копчи:

Варијанта Феудвар (црвени кружић); варијанта Суботиште (црвени кружић, бео у средини); варијанта Fântânele (зелени троугао); варијанта Manching (плави квадрат); појасеви код којих се није сачувала копча (црни кружић) или је копча специфичног облика (црни кружић, бео у средини): 1 Даљ; 2 Купиново; 3 Сурчин; 4 Суботиште; 5 Феудвар; 6 Ритопек - Далековод; 7 Аранђеловац; 8 Бољевци; 9 Bodroghalom; 10 Ludas – Varjú-dűlő; 11 Jászberény – Hajtai-halom; 12 Nádudvar – Töröklaponyag; 13 Vác – шљункара; 14 Ordacsehi – Csereföld; 15 Pişcolt; 16 Fântânele – Dâmbu Popii; 17 Orosfaia – Dealul Gropilor; 18 Remetea Mare; 19 Galliš – Lovačka; 20 Drňa; 21 Slatina nad Bebravou; 22 Marfely; 23 Novo mesto – Kapiteljska njiva; 24 Dürrnberg; 25 Manching; 26 Ladenburg

to LT C1, but their appearance is noticeable as early as the end of LT B2.

It has also been pointed out that the segments characteristic of the Dalj type belts can sometimes be found in the composition together with figure-of-eight segments. Four variants of buckles have been singled out that show the local distributions, two of which are characteristic of the Scordisci (the Feudvar and Subotište variants), i.e. they indicate the regionalisation of the items of the early Middle La Tène female costume (Map 1). Interestingly, when the grave assemblages in which they appear are preserved, Dalj type belts are sometimes found in modestly equipped graves, but they are also recorded in richly equipped graves of women who probably had a prominent status in the community (Tab. 1).[17]

[17] Dizdar 2016, 82–85, Pl. 4–5; Dizdar 2020, 75–93, Map 3, Fig. 32–46.

No.	Site	Grave No.	Ritual	Buckle Variant	No. Pairs Of Segments	Fibula	Bracalet	Anklet	Pottery	Other Finds	Remarks
1	**Dalj**		Cremation?	Feudvar	13						
1	**Dalj**		?	/	1						
2	**Kupinovo**		Cremation?	Feudvar	13						
2	**Kupinovo**		Cremation?	Subotište	14						
3	**Surčin**		Cremation?	Feudvar	6						
4	**Subotište**		Cremation?	Subotište	17						
5	**Feudvar**	1	Cremation	Feudvar	17		Glass		Pot		
6	**Ritopek**		Cremation?	Feudvar	15						
7	**Arandelovac**		Cremation?	Feudvar	5						
7	**Arandelovac**		Cremation?	Feudvar	7						
8	**Boljevci**		Cremation?	Unique	5						
9	**Bodroghalom**	12	Cremation	/	7	3			2 Pots, Jug		With Figure-Of-Eight Segments
9	**Bodroghalom**	17	Cremation	/	1		1		Jug		With Figure-Of-Eight Segments
9	**Bodroghalom**		Cremation?	/	14						
10	**Ludas**	654	Cremation	Fântânele	14	2?	3		2 Pots, Bowl	Scissors, Bronze Chain, Bones	
11	**Jászberény**	7	Cremation	/	3		1				Bronze Segments
12	**Nádudvar**	9	Cremation	/							
12	**Nádudvar**	17	Cremation	/							
13	**Vác**	8	Inhumation	/	4			2		Finger-ring	
14	**Ordacsehi**			/	1						
15	**Pişcolt**	67	Cremation	Fântânele	14	4	1	1	Pot, Bowl, Jug	Bronze Chain, Pig Bones	
16	**Fântânele**	62	Cremation	Fântânele	15	8	2	4	2 Pots, 2 Bowls	Iron Chain Belt, Pig Bones	Double Female Costume
17	**Orosfaia**	8	Cremation	Fântânele	6		2	1	Bowl	Chicken Bones	
18	**Remetea Mare**		/	/							Bronze Belt?
19	**Galliš-Lovačka**	L-56	Complex	/							
20	**Drňa**	2/74	Cremation	/	4	6	2	2	4 Pots, Bowl	Spear-Shaped Buckle, Knife, Pig Bones	
21	**Slatina Nad Bebravou**		/	/	1						
22	**Marfély**	11	Inhumation	/	12		1				
23	**Novo mesto**	103	Cremation	Unique	7				Pot		
24	**Dürrnberg**	216 (inhu-mation 1)	Inhumation	Manching	4	2	3	2	Pot, 2 Bowls	Bronze Chain, Scissors	With Figure-Of-Eight Segments
25	**Manching**	24	Inhumation	Manching	9	5	2	2			
25	**Manching**		/	/	3						
26	**Ladenburg**		/	Unique (zoomorphic)	6						

Table 1. List of sites with finds of Dalj type belts

Табела 1. Списак налазишта на којима су откривени појасеви типа Даљ

Belts of the Dalj type with variants from south-eastern Pannonia

A considerable number of so far known finds of the Dalj type belts come from Late Iron Age south-eastern Pannonian cemeteries. However, their context is unknown, except in the case of cremation grave 1 from Feudvar, which shows that the other belts from this area probably also belonged to female cremation graves dated to LT C1. Belts of the Dalj type always consist of pairs of twisted iron rod-shaped segments with loops at the ends connected by rings, which is why more attention this time is focused on different forms of buckles. In previous analyses, two variants of buckles have been singled out that are characteristic of the Scordisci – the Feudvar and Subotište variants (Map 1).[18] Buckles of the Feudvar variant, which are the most numerous, are characterised by the fact that they mostly consist of two leaf-shaped parts with a thickening in the middle, but parts can also be rhombic or narrowly trapezoidal (Fig. 1). One end is bent into a hook ending mostly with a knob and the other into an S-shaped loop also ending with a knob. In fact, none of the buckles of this variant are exactly the same, i.e. the differences can be recognised in the shapes of the parts, the central thickenings as well as the fact that buckles can be undecorated or decorated. The buckles are almost exclusively made of iron, only the belt buckle from grave 1 from Feudvar is made of bronze (Fig. 1/4).

The Dalj cemetery yielded an eponymous belt that consisted of 13 pairs of segments connected with rings, and an iron buckle with two leaf-shaped parts and a discoidal ribbed thickening in the middle, around which there are transverse grooves. The upper side of the buckle is decorated with inbossed star-shaped motifs. The buckle is 20.6 cm long. One end of the buckle, slightly bent, probably was a hook with a knob, while at the other end the buckle is coiled into a simple loop, used to hold the ring attaching the buckle to the belt (Fig. 1/1).[19] Incidentally, the buckle was erroneously attributed to a group of spear-shaped socketed buckles, which appeared during LT B2-C1 around the Danube Bend and in the upper Tisza Basin, with individual finds in the territory of the Scordisci.[20] Other Middle La Tène finds discovered in association with the belt in Dalj, most likely belonging to another warrior cremation grave,[21] are dated to LT C1 and point to the existence of a Late Iron Age cemetery in the area. The Archaeological Museum in Zagreb keeps another two twisted rod-shaped belt segments connected with rings from Dalj, which also probably come from a destroyed Middle La Tène female grave (inv. no. P-4711).

The belt buckle from grave 1 at Feudvar is the only one made of bronze and the preserved length of the buckle is 14.4 cm (Fig. 1/4). The belt consists of 17 pairs of segments connected with rings and two rod-shaped pendants at the end. The buckle is slightly thickened in the middle and bent at one end into a hook ending with a knob, while the other end is damaged. The grave, which also yielded a small pot and fragments of a melted cobalt-blue glass bracelet, probably can be dated to LT C1.[22] Such a dating would be indicated by discoveries of the Dalj type belts in other known grave contexts, which are most often dated to LT C1. The shape of the pot from grave 1 is not indicative for the dating of the grave, while fragments of the melted cobalt blue glass bracelet do not preclude such dating.[23]

The cemetery in Kupinovo yielded two iron belts of the Dalj type with twisted rod-shaped segments connected with rings (13 and 14 pairs of segments respectively) and two iron buckles, which, unfortunately, cannot be connected to a precisely defined belt, although they were certainly parts of belts. One buckle, which is 16.2 cm long, can be attributed to the Feudvar variant since it consists of two leaf-shaped parts, connected in the middle with a knob. One end is bent into an S-shaped loop with a semiglobular knob at the end, which is decorated with a cross. A small ring was passed through the loop, while the other end was bent into a strap-shaped hook. Punched dots decorate the edges and the middle of the leaf-shaped buckle parts (Fig. 1/2).[24]

An iron belt buckle from the Surčin cemetery can also be attributed to the Feudvar variant, although it differs in its shape. The buckle is composed of two elongated rhombic parts connected with a knob in the middle (Fig. 1/3). The buckle is bent into a hook with a knob at one end, while the other end is coiled into an

[18] Dizdar 2016, 85; Dizdar 2020, 91–92.

[19] Jenny 1932, 240, Fig. 1/3, Fig. 2/1; Filip 1956, Fig. 42/4; Reitinger 1966, 196, 203, Fig. 8/3; Drnić 2015, 93; Dizdar 2016, 83, Pl. 4/2; Dizdar 2020, 78, Fig. 32.

[20] Teleagă 2008, 106–108, Fig. 10/22.

[21] Jenny 1932.

[22] Kull 1992, 154, 158, Pl. 58/11–12; Rustoiu 1996, 112, Fig. 68/1–2; Rustoiu 1997, 153, Fig. 3/1–2; Rustoiu 2002, 94, Fig. 54/1–2; Drnić 2015, 91; Dizdar 2016, 83, Pl. 4/1; Dizdar 2020, 78, Fig. 6/11–12.

[23] Dizdar 2006, 103. The appearance of cobalt blue glass bracelets dates back to the younger part of LT C1.

[24] Majnarić-Pandžić 1970, 28, 82, Pl. X/7; Drnić 2015, 89–90, Pl. 38/2; Dizdar 2016, 83, Pl. 4/3; Dizdar 2020, 78, 80, Fig. 33.

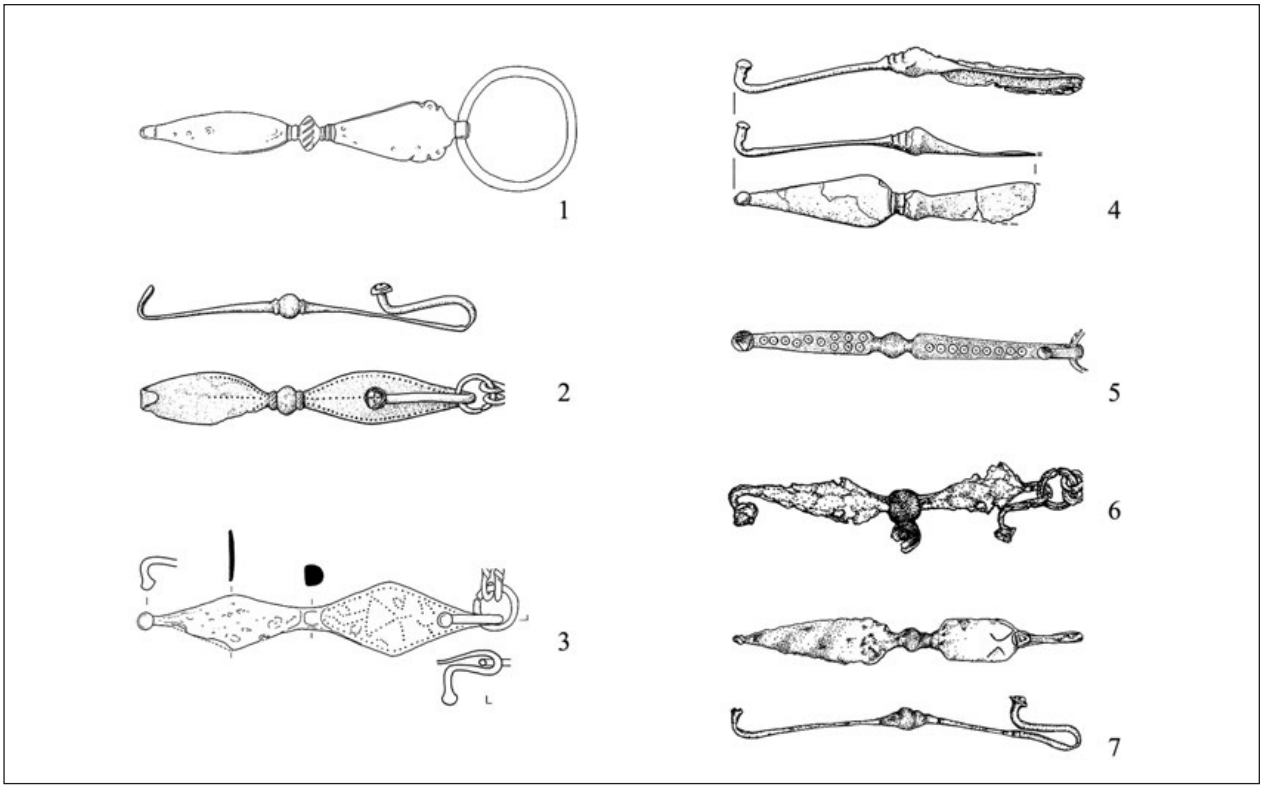


Fig. 1. Belt buckles of the Feudvar variant from:
1) Dalj; 2) Kupinovo; 3) Surčin; 4) Feudvar grave 1; 5) Ritopek; 6–7) Aranđelovac

Сл. 1. Појасне копче варијанте Феудвар, из:
1) Даља; 2) Купинова; 3) Сурчина; 4) гроба 1 из Феудвара; 5) Ритопека; 6–7) Аранђеловца

S-shaped loop that also ends with a knob. The ring passing through the loop connects the buckle with six preserved pairs of segments. The buckle is 16 cm long.[25] An anthropomorphic figure, composed of a series of punched dots, is depicted on one wider half, and there is another decoration made in the same technique along the edge, which is a truly unique occurrence on the buckles of the Dalj type belts. Even though the surface is partly damaged, the depictions of the legs, dress, stylised body, head, and the arms are clearly visible. The motif that bears the closest resemblance to the one from Surčin is found on a fragment of a Late La Tène pot from the multilayer settlement at Gomolava, which probably depicts a female figure. The body and dress are depicted with two triangles, with the legs extending below, and the neck and the extremely stylised circular head are depicted above the triangles. The depiction of one of the arms was also preserved, and the figure holds an indeterminate object in the hand. The stylised human figure is bounded within a metope decoration on the neck of the pot. It was created by polishing, a characteristic decoration technique of the LT D phase.[26]

Two further belts of the Dalj type with buckles of the Feudvar variant come from Aranđelovac or the surrounding area, probably from destroyed cremation graves. The belts differ in the shape of their buckles and the various length of the segments. One belt, with five pairs of preserved shorter segments, had an iron buckle where one half is leaf-shaped, while the other is more trapezoidal and decorated with punched dots. There is an oval thickening between them. At the end of the leaf-

[25] Majnarić-Pandžić 1970, 47, 97, Pl. XLV/3; Todorović 1974, Fig. 120; Drnić 2015, 90–91, Fig. 24/1; Dizdar 2016, 83; Dizdar 2020, 80, Fig. 34.

[26] Jovanović, Jovanović 1988, 145, Pl. XXII/5a-5b; Drnić 2015, 91, Fig. 24/2. Similar depictions were documented on various artefacts. For instance, on ceramic pots and belt buckles, in the eastern part of the Carpathian Basin, but also in the areas east of the Carpathians: Plantos 2003.

shaped part the knob on the hook is missing, while the other half of the buckle ends in an S-shaped loop that ends with a knob decorated with a triangle. The buckle is 15.6 cm long (Fig. 1/7).[27] The other buckle consists of two leaf-shaped parts with a bronze knob in the middle, with a setting for enamel or another material. The buckle was bent into a hook with a knob at one end, while at the other it was coiled into an S-shaped loop, which also ends with a knob and through which passes a ring. The buckle is 14.1 cm long and seven pairs of longer segments have been preserved from this belt (Fig. 1/6).[28] Two pendants with a ring and a semiglobular knob on the lower end also probably belonged to the belt with the longer buckle decorated with punched dots.[29] The presented finds from Aranđelovac were dated to LT C2,[30] although the punctated belt, as they otherwise appear in warrior graves, indicate the dating into LT C1.

An iron belt from the Ritopek – Dalekovod cemetery (Fig. 1/5) differs from the described belts in the shape of the buckle, but this buckle can also be attributed to the Feudvar variant, especially according to the manner in which both ends of the buckle are made. On one side the buckle ends with a hook terminating with a knob decorated with the motif of a triangle, while at the other end the buckle is coiled into an S-shaped loop that likewise ends with a knob. The belt consists of 15 pairs of segments, while the buckle is composed of two narrow trapezoidal parts with a spherical knob between them in the middle. The body of the buckle is decorated with a series of ring-and-dot motifs on both halves. The buckle is 15 cm long.[31]

The buckles of the Subotište variant are also characteristic of the Scordisci, but they appear so far with a smaller number of finds. It is characteristic for these buckles that one or both leaf-shaped parts are perforated, while between them is a central thickening. Interestingly, the way both ends are shaped is the same as on the buckles of the Feudvar variant, which actually represents for the Scordisci a unique way of connecting the buckle to the rest of the belt. The buckle from Subotište consists of two leaf-shaped perforated parts with a thickening in the middle (Fig. 2/1). One end terminates with a hook and a knob, while the other is coiled into an S-shaped loop which also ends with a knob. This part is decorated with transverse incisions in front of the central thickening. A ring attached to the loop connects the buckle with the segments, a total of 17 pairs.[32] The Kupinovo cemetery also yielded a damaged buckle of this variant with one preserved leaf-shaped half, coiled into an S-shaped loop ending with a conical knob. The rectangular thickening in the middle is decorated with an X-motif, while the other leaf-shaped half was probably perforated (Fig. 2/1).[33]

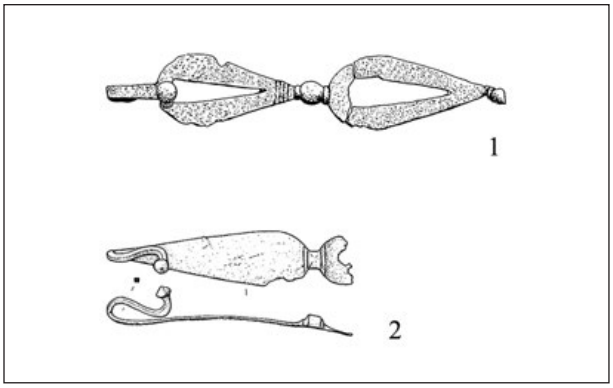


Fig. 2. Belt buckles of the Subotište variant from: 1) Subotište; 2) Kupinovo

Сл. 2. Појасне копче варијанте Суботиште, из: 1) Суботишта; 2) Купинова

Ten kilometres east of Kupinovo lies the village of Boljevci. In the late 19th century, a group of finds from cremation graves dated to the La Tène period was found at the site called Bajer. A local teacher, Lichner, collected the objects and sent them to the National Museum in Zagreb.[34] Among the finds there is one belt of the Dalj type with a buckle of a unique form (Fig. 3). The belt is comprised of five more-or-less damaged pairs of twisted iron rod-shaped segments with loops. The

[27] Vukmanović 1994, 57, Fig. 1a; Drnić 2015, 93; Dizdar 2016, 83; Dizdar 2020, 80, 82, Fig. 36.

[28] Vukmanović 1994, 57, Fig. 1; Drnić 2015, 93; Dizdar 2016, 83; Dizdar 2020, 80, 82, Fig. 36.

[29] Vukmanović 1994, 57, Fig. 1b.

[30] Vukmanović 1994, 60.

[31] Todorović 1967, 156, Pl. V/14; Todorović 1968, 148, Pl. XXXIV/2; Todorović 1971, 159, Pl. LXXIII/1, Pl. XCII/58; Todorović 1974, Pl. VIII, Fig. 57; Skordisci 1992, 123, cat. no. 44, Pl. XII; Drnić 2015, 91; Dizdar 2016, 83, ; Dizdar 2020, 82, Fig. 37.

[32] Todorović 1968, 60, 150, Pl. XLIII/1; Todorović 1974, Fig. 19; Todorović 1975, 217, Fig. 20; Drnić 2015, 91; Dizdar 2016, 83; Dizdar 2020, 80, Fig. 35.

[33] Drnić 2015, 90, Pl. 38/4; Dizdar 2016, 83; Dizdar 2020, 80, Fig. 33.

[34] In local dialect, the term Bajer is used for an artificial pond created in the course of clay extraction, usually used for brick production. The largest part of the La Tène finds from Boljevci was published by N. Majnarić-Pandžić (1970), but not the belt and the buckle.

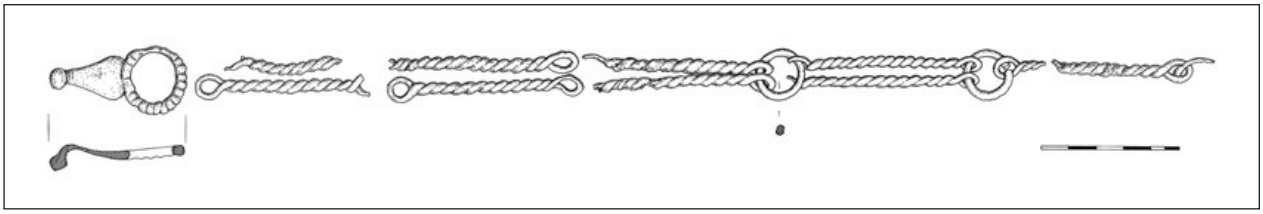


Fig. 3. Belt of the Dalj type from Boljevci (drawing: M. Galić)

Сл. 3. Појас типа Даљ из Бољеваца (цртеж: М. Галић)

small buckle, 4.9 cm long, is composed of a ring decorated with ribs and a pear-shaped plate with a hook ending with a knob at the end. Its shape resembles typical LT C2 ring belt buckles, often found in graves with swords,[35] but also in sanctuaries.[36] This fact, together with the circumstances of the find, raises reasonable doubt that the buckle may not belong to a belt of the Dalj type. Furthermore, among the finds from Boljevci there are a few objects dated to LT C2, including two swords.[37] It is possible that the described buckle belonged to a belt made of organic material and was used for hanging sword scabbards.

Let us also mention an interesting find from inhumation grave 7 from the Pećine cemetery, dated to LT B2, where an adult woman was buried. In the area of the waist of the deceased, an iron segment 6 cm long was found, made of double twisted wire, which at one end does not end in a loop like segments of the Dalj type belts, but both twisted rods pass directly into the eyelet. The segment is considered to belong to the belt, possibly as a symbolic representation of the whole belt, although its shape with two rods differs from the usual segments of the Dalj type. An iron spear-shaped belt buckle was also found in the grave.[38]

Belts of the Dalj type from other regions of the Carpathian Basin and Transylvania

Besides in south-eastern Pannonia, Dalj type iron belts were also found in cemeteries in the northern part of the Carpathian Basin and Transylvania. Although these are mostly finds from closed grave assemblages, the belts often do not have preserved buckles (e.g. belts from cemeteries in the Upper Tisza valley), except for the belts from sites in Transylvania with buckles that were attributed to the Fântânele variant. Buckles of this variant are characterised by the fact that a long and narrow part is bent at one end into a hook ending with a knob, while the other end features a ring by which the buckle is attached to the belt (Fig. 4).[39] Except for the noticeable differences in the way these buckles are shaped in comparison to buckles from the Scordiscan cemeteries, the importance of these finds is that they date the Dalj type belts to LT C1.

Female cremation grave 62 at the Fântânele – Dâmbu Popii cemetery yielded an iron belt composed of 15 pairs of segments, connected with rings. The narrow triangular buckle is bent at one end into a hook ending with a knob, while at the other end it ends with a ring by which the buckle is attached to the belt. The buckle has a narrow thickening close to the ring. The buckle is 10.3 cm long (Fig. 4/1). The belt ends with two pendants suspended from the last pair of segments.[40] The belt, together with several other finds, exhibits no traces of burning, while the rest of the finds from the grave were damaged by the cremation of the deceased woman, so two sets of female costume and jewellery were distinguished within the grave. The numerous finds from the grave point to a burial of a prominent member of the community.[41]

A Dalj type belt with six pairs of segments and a buckle of the Fântânele variant was also found in the contemporaneous female cremation grave 8 from the Orosfaia – Dealul Gropilor cemetery (Fig. 4/2). The

[35] Dizdar 2013, 177–187.

[36] Bataille 2002.

[37] Majnarić-Pandžić 1970, 78, 14–16, Pl. 1–2; Drnić 2015, Fig. 2–3.

[38] Jovanović 2018, 32–33, Pl. 6/6. The massive bronze bracelet with open ends, placed on the left forearm, can be attributed to Bujna's type BR-E4, and dated the grave to LT B2b: Bujna 2005, 46, Fig. 28, 32.

[39] Dizdar 2020, 92.

[40] Rustoiu 1996, 112, Fig. 113/1; Vaida 2006, 301, Fig. 7/1; Rustoiu, Megaw 2011, 220, 226, Fig. 3/3; Rustoiu 2013, 90, Fig. 4B/7; Drnić 2015, 93; Dizdar 2016, 84; Rustoiu 2016, 245, Pl. 11; Dizdar 2020, 85–87, Fig. 28, Fig. 42.

[41] Rustoiu, Megaw 2011, 226; Rustoiu 2013, 90, Fig. 4B; Rustoiu 2016, 245, Pl. 11.

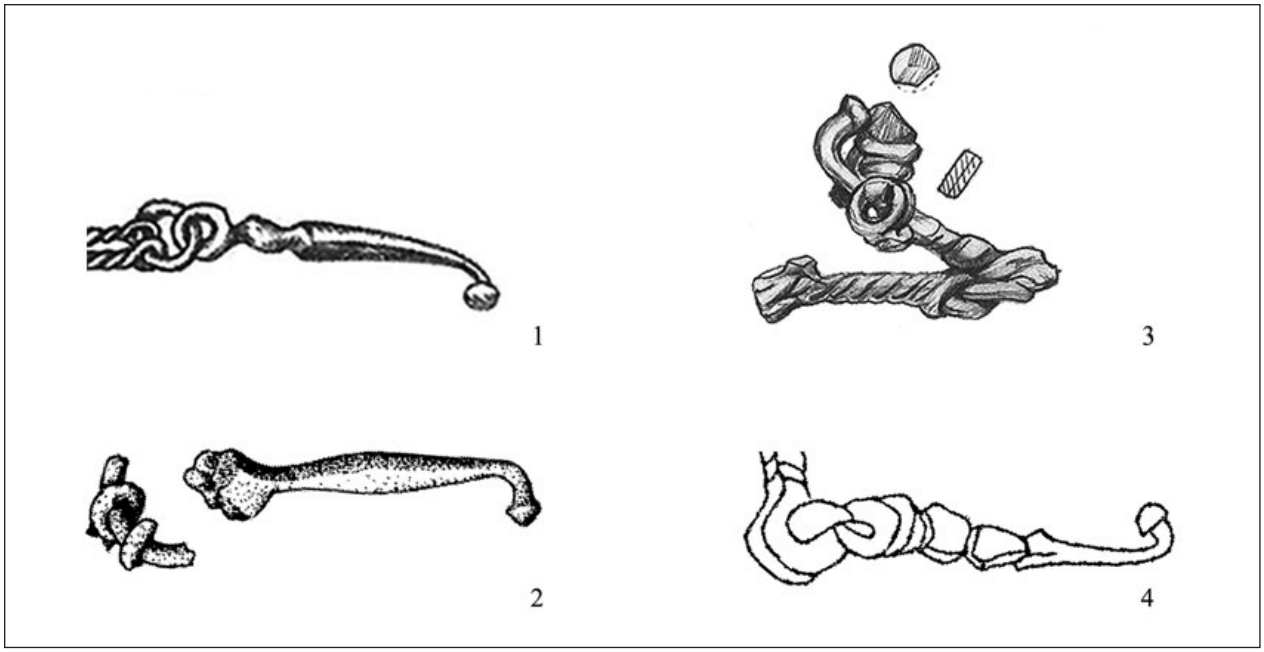


Fig. 4. Belt buckles of the Fântânele variant from: 1) Fântânele – Dâmbu Popii, grave 62; 2) Orosfaia – Dealul Gropilor, grave 8; 3) Ludas – Varjú-dűlő, grave 654; 4) Pişcolt, grave 67

Сл. 4. Појасне копче варијанте Fântânele, из: 1) Fântânele – Dâmbu Popii, гроб 62; 2) Orosfaia – Dealul Gropilor, гроб 8; 3) Ludas – Varjú-dűlő, гроб 654; 4) Pişcolt, гроб 67

buckle is bent at one end into a hook with a conical knob, while the other end terminates with a ring. The two pendants at the end of the belt are suspended from the ring, rather than from the segments, as in the case of the belt from Fântânele.[42] Also, two bracelets were found in the grave, an anklet with four calottes, a bowl and the bones of, probably, a chicken. A Dalj type belt, distinguished as type E6, which was composed of 14 pairs of segments connected with rings, was also found in the richly equipped female cremation grave 67 at the Pişcolt cemetery (Fig. 5). The buckle, which is also attributed to the Fântânele variant, is bent into a hook with a knob at one end, while the other part is segmented with transverse grooves and ends with a ring by which it is attached to the rest of the belt (Fig. 4/4; 5/5). At the end of the belt, a pendant is suspended from a ring inserted into the loop of a segment. The grave also contained bronze fibulae and an anklet with four callotes, dating it to LT C1, that is, the latest phase of the cemetery.[43] From other sites in Romania, a bronze belt (?) of this type is mentioned from the Remetea Mare cemetery in Banat,[44] the segments of which as well as the buckle are probably made of bronze. The Galliš – Lovačka site located in south-western Ukraine, more precisely its complex L-56, yielded narrow twisted iron segments with loops at the ends, which may have belonged to a Dalj type belt. A part of an iron buckle bent into a small hook at one end was also preserved.[45]

Belts of the Dalj type were also found in cemeteries in the Tisza valley. What distinguishes these belts from those from Scordiscan sites is that the segments characteristic of Dalj type belts sometimes appear together with figure-of-eight segments. This is well evidenced by the finds from the Bodroghalom cemetery. Unfortunately, the buckles of these belts were not preserved. For instance, from the Bodroghalom cemetery, probably from a destroyed grave, comes a belt composed of 14 pairs of segments of varied length, connected with rings. The belt may also have included two

[42] Vaida 2000, 138, 143–144, Fig. 9/4; Dizdar 2016, 84, Pl. 5/1; Dizdar 2020, 87, Fig. 43.

[43] Némethi 1992, 70, 107, Fig. 9/5; Némethi 1993, 128; Rustoiu 1996, 112, Fig. 68/3; Rustoiu 1997, 153, Fig. 3/3; Rustoiu 2002, 93, Fig. 54/3; Dizdar 2016, 84; Dizdar 2020, 87.

[44] Rustoiu 1996, 112; Rustoiu 1997, 153; Rustoiu 2002, 94; Dizdar 2020, 87–88.

[45] Kobal 1995–1996, 144–146, Fig. 2/6–8, 8a-b.

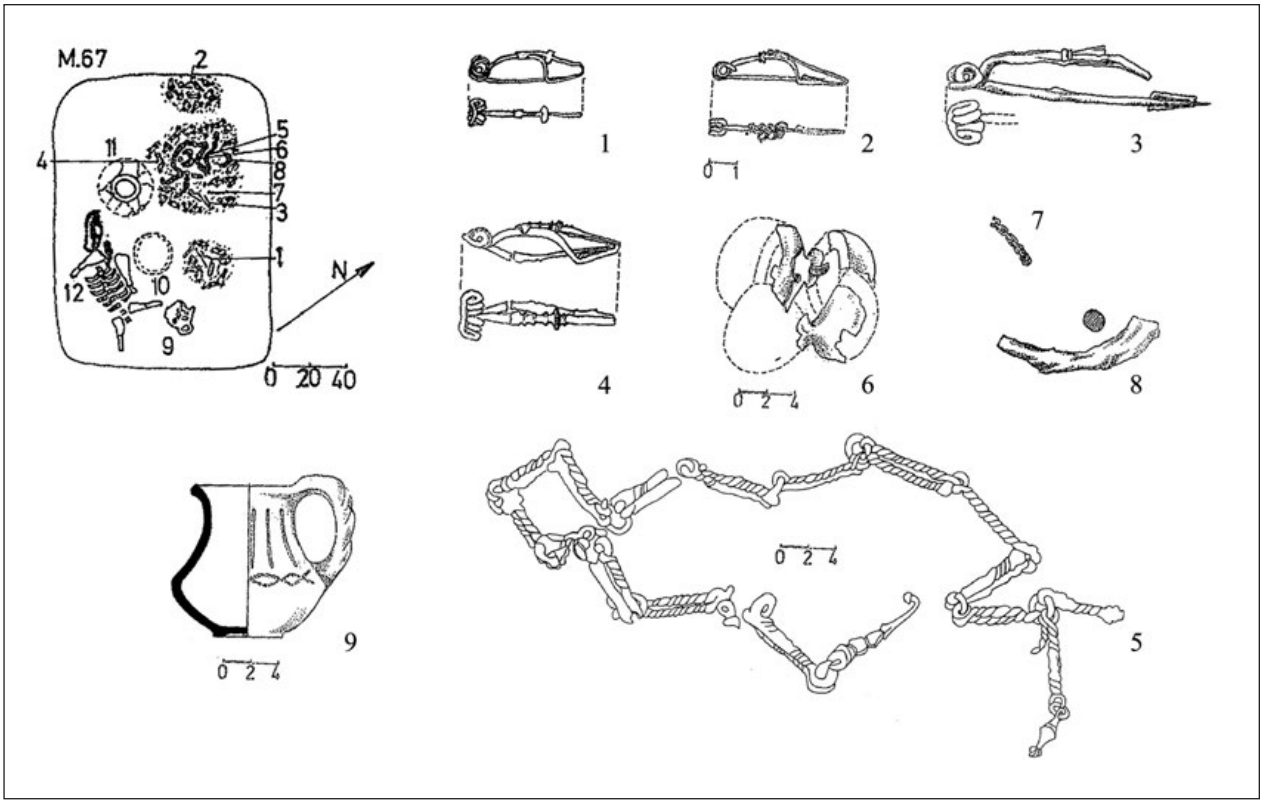


Fig. 5. Pişcolt, grave 67 (after: Németi 1992)

Сл. 5. Pişcolt, гроб 67 (према: Németi 1992)

pendants with rings at the top, with rectangular middle parts and profiled ends.[46] It is quite possible that a bent iron buckle with thickened middle part may also have belonged to the belt.[47] Female cremation grave 12, dated to LT C1, with a pair of bronze fibulae with three figure-of-eight loops on the bow and a spring with six coils and internal chord, also yielded an iron belt partly composed of figure-of-eight segments clasped with a ring in the middle and connected with rings of a relatively small diameter. The rest of the belt was composed of pairs of segments typical of Dalj type belts. At least seven pairs of segments seem to have been preserved, which were connected with rings. The exact arrangement of the segments in the belt cannot be reconstructed with any certainty. In addition, the buckle of this belt is missing.[48] Yet another grave, the partly destroyed cremation grave 17, yielded a belt that was mostly composed of figure-of-eight segments clasped with a ring in the middle, and probably a single preserved pair of twisted rod-shaped segments.[49] A very important find of a Dalj type belt, for its dating, was found in the female cremation grave 654 from the Ludas – Varjú-dűlő cemetery, which is also dated to LT C1 by a bronze fibula with figure-of-eight loops on the foot (Fig. 6). An adult woman was buried in this grave. The belt of the Dalj type was preserved as a series of small parts and it seems that at least 14 pairs of segments were preserved. The buckle was bent at one end into a hook ending with a knob, while at the other end was probably a ring, similar to buckles of the Fântânele variant (Fig. 4/3; 6/5). The belt was attributed to type Rapin A6/A7.[50] A part of a belt, composed of 3 pairs of segments connected with rings, was found in grave 7 of the Jászberény –

[46] Hellebrandt 1999, 185–186, 193–194, Pl. LXV/1a-c, 4; Bujna 2011, 97, Fig. 40/4; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 82, Fig. 38.

[47] Hellebrandt 1999, 193, Pl. LXV/3.

[48] Hellebrandt 1999, 189, 193, Pl. LXIX/1; Bujna 2011, 97; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 82, Fig. 39.

[49] Hellebrandt 1999, 191, 193, Pl. LXX/10–11; Bujna 2011, 97; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 82.

[50] Szabó, Tankó 2012, 15, 111 Fig. 163, Pl. I/5; Dizdar 2020, 83, 85.

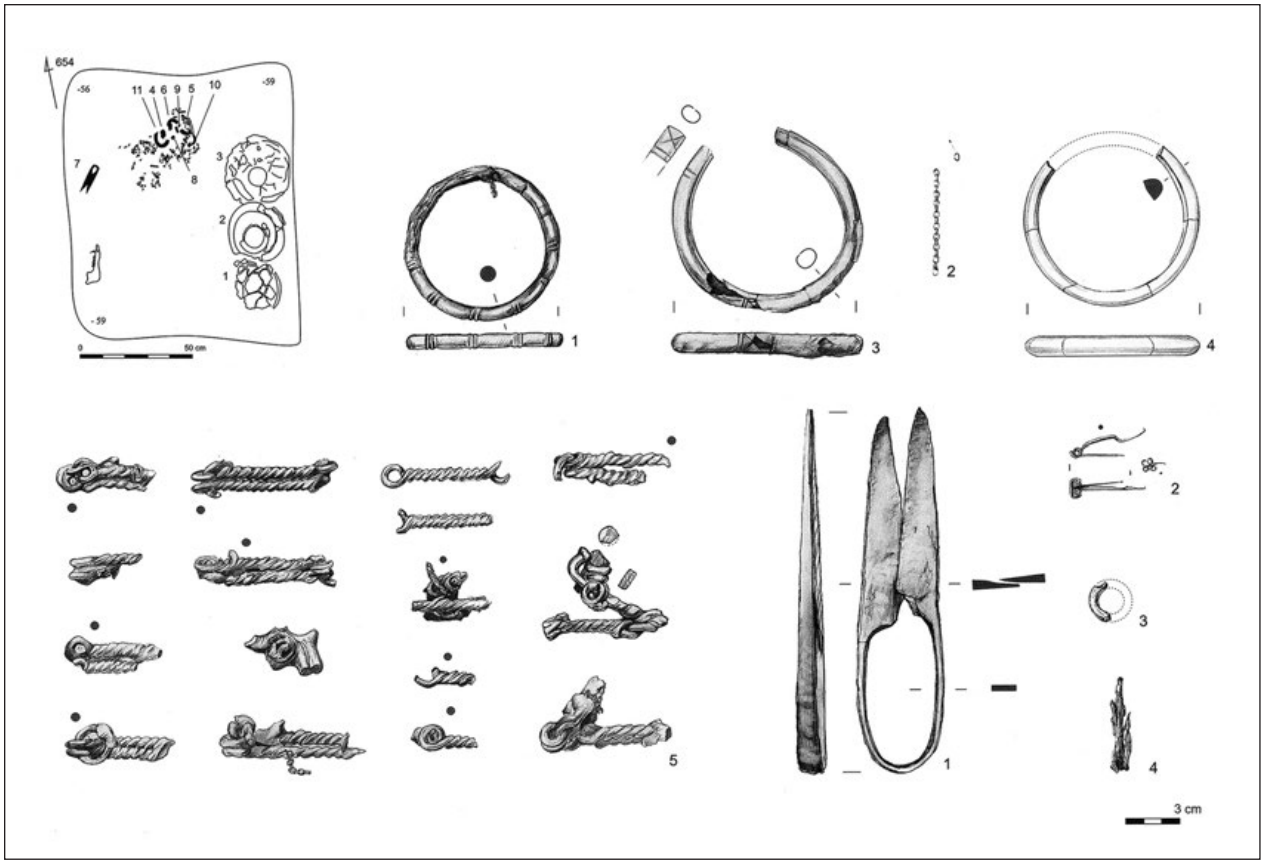


Fig. 6. Ludas – Varjú-dűlő, grave 654 (after: Szabó, Tankó 2012)

Сл. 6. Ludas – Varjú-dűlő, гроб 654 (према: Szabó, Tankó 2012)

Hajtai-halom cemetery, and dated to the 3rd century BC. It is noted that the segments are made of bronze.[51] The damaged female inhumation grave 8 at the Vác – Gravel pit cemetery, located near the Danube, also dated to LT C1, yielded a pair of bronze anklets with three calottes and a bronze finger-ring, in association with at least four pairs of segments characteristic of Dalj type belts.[52] The analysis of the fragmented belt from the Vác cemetery includes a reference to the iron belts from graves 9 and 17 of the Nádudvar – Töröklaponyag cemetery[53]. However, whether these belts belong to the Dalj type is doubtful. In the same vein, a narrow twisted segment with a ring was found at Ordacsehi – Csereföld, a site located south of Lake Balaton, in western Hungary. Even though the segment was attributed to the Cernon-sur-Coole type of iron chain belt,[54] often appearing in warrior graves dated to the LT B2, in view of the length of the segment and the preserved small ring, it is possible that this is, in fact, a part of a Dalj type belt.

Aside from sites in Hungary, segments that are characteristic of Dalj type belts have been documented at two Slovakian sites. Richly equipped female cremation grave 2/74 from the Drňa cemetery yielded at least four pairs of segments, about 7 cm long with rings. These segments probably belong to a Dalj type belt, even though the grave also contained an iron spear-shaped buckle of a type unknown on the Dalj type belts from Scordiscan sites. The grave was dated to late LT B2 or transitional phase LT B2/C1,[55] with a pair of bronze anklets with 4+4 calottes belonging to the BR-F3A

[51] Kovács 2017, 60, cat. no. 131; Dizdar 2020, 85.

[52] Hellebrandt 1999, 59, 87–88, Pl. XXVI/3; Bujna 2011, 97, Fig. 40/3; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 82–83, Fig. 40.

[53] Mesterházy 1966, 45–46; Hellebrandt 1999, 87.

[54] Szöllősi 2013, 30, Fig. 2/5.

[55] Furmánek, Sankot 1985, 281, 284–285, Fig. 10/7–12; Dizdar 2016, 84; Dizdar 2020, 85, Fig. 41.

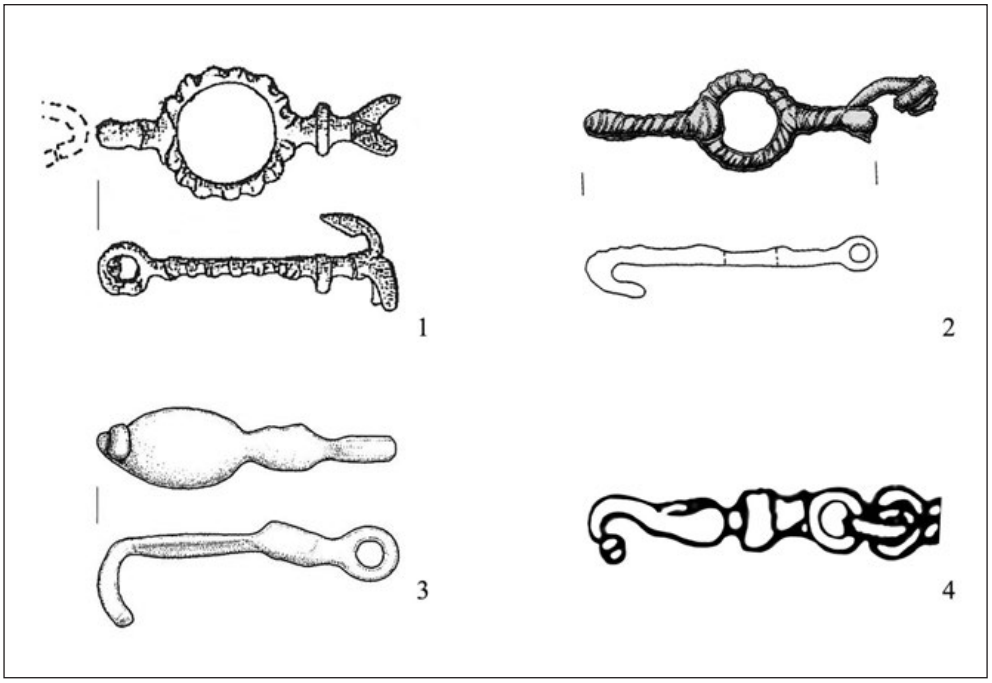


Fig. 7. Belt buckles of the Manching variant and unique forms: 1) Manching – Steinbichel, grave 24; 2) Dürrnberg, grave 216; 3) Novo mesto – Kapiteljska njiva, grave 103; 4) Ladenburg

Сл. 7. Појасне копче варијанте Manching и примерци специфичног облика: 1) Manching – Steinbichel, гроб 24; 2) Dürrnberg, гроб 216; 3) Ново место – Капитељска њива, гроб 103; 4) Ladenburg

variant.[56] Two twisted segments with loops at the ends from the Slatina nad Bebravou site have been attributed to a belt of this type.[57]

Belts of the Dalj type from sites outside the Carpathian Basin

Iron belts of the Dalj type were also documented at sites outside the Carpathian Basin. Spatially, the closest to the finds from sites of the Scordisci is the Dalj type belt that was found in grave 103 at Kapiteljska Njiva, in Novo Mesto. The cremated remains of the deceased were placed in a ceramic pot, on which an iron belt was placed. The belt was composed of at least seven pairs of segments connected with rings. The buckle (Fig. 7/3), 7.1 cm long, is oval in the upper part, with one end bent into a hook, while at the other end it has a small ring that connected it to the rest of the belt. Although the grave did not yield any other find that would help to date it with greater precision,[58] it probably belongs to LT C1.

It is also necessary to mention an iron belt composed of at least 12 pairs of segments connected with rings that was found in female inhumation grave 11 at the Marfely (Bučovice) cemetery, in Moravia. Interestingly, the belt was placed in the fingers of the deceased's left hand. The grave also contained a penannular bronze bracelet.[59]

Iron belts of the Dalj type, with segments shaped in the same way, only with differently shaped buckles, were also found at cemeteries north of the Alps. Namely, the buckles are bronze and have a ribbed ring in the central part, while in the lower part there is a small ring through which they were connected to the rest of the belt. Due to these characteristics, the bronze buckles have been singled out as the Manching variant. A belt with a buckle of this variant was discovered in the richly equipped female inhumation grave 24 from the Manching – Steinbichel cemetery. The belt was laid on the chest of the deceased woman and has at least nine

[56] Bujna 2005, 53–54, Fig. 39.

[57] Pieta 2010, 25, Fig. 4/14–15; Bujna 2011, 97, Fig. 40/1; Dizdar 2020, 85.

[58] Križ 2005, 43, Fig. A on p. 34, Pl. 2/2; Drnić 2015, 93; Dizdar 2016, 84, Fig. 5/2; Dizdar 2020, 88–89, Fig. 44.

[59] Bujna 2011, 97, Pl. 40/2; Čižmářová 2013, 148, Pl. 33/4; Dizdar 2020, 89, Fig. 45.

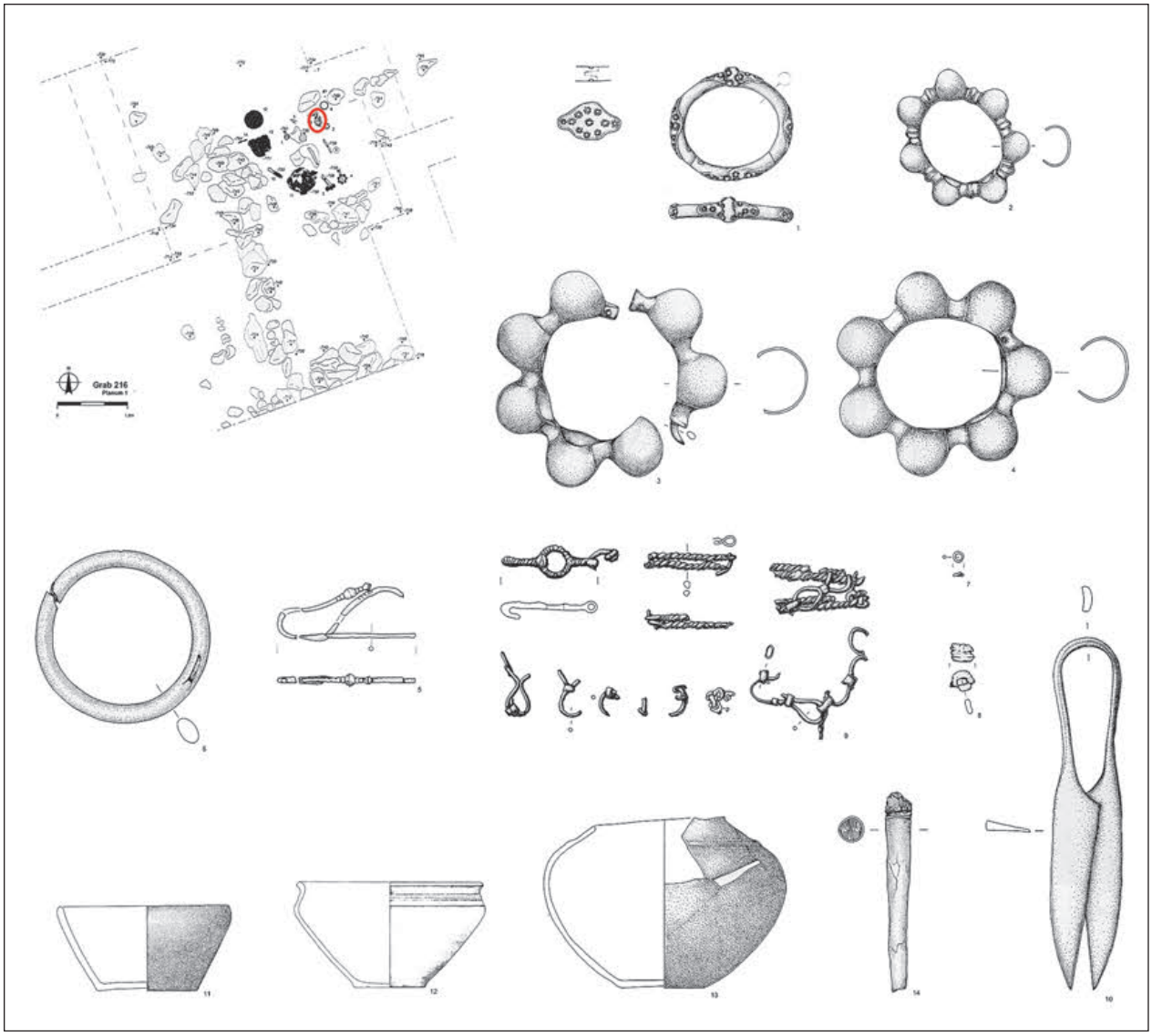


Fig. 8. Dürrnberg, grave 216 (after: Moser, Tiefengraber, Wiltschke-Schrotta 2012)

Сл. 8. Dürrnberg, гроб 216 (према: Moser, Tiefengraber, Wiltschke-Schrotta 2012)

pairs of segments. A bronze zoomorphic buckle, which is 5.8 cm long, has a ribbed ring in the middle, above which there is an annular thickening, while at the top of the buckle there are a bent hook and two protrusions, which may represent stylised ears or horns. The small ring at the end of the buckle connected it to the segments (Fig. 7/1). The belt also has two conical pendants at the end. The grave was dated from the end of LT B2 to the beginning of LT C1.[60] From one of the destroyed graves at the Manching – Hundsrucken cemetery comes a part of an iron belt composed of three pairs of segments connected with rings.[61] The mentioned belts from Manching were dated to horizon 5 of Southern Bavaria, that is, the late LT B2 phase.[62]

Besides Manching, an iron belt with a bronze buckle of the Manching variant was found in grave 216 at Dürrnberg, which contained a female burial and several other deceased with older finds of weaponry (Fig. 8).

[60] Krämer 1985, 81, Pl. 13/1; Bujna 2011, 97, Fig. 40/5; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 89, Fig. 46.

[61] Krämer 1985, 97, Pl. 36/9; Dizdar 2016, 84; Dizdar 2020, 89.

[62] Gebhard 1989, 108, Fig. 40/20.

The belt was worn by the deceased, who was aged 25 to 40. The belt consists of four pairs of twisted segments connected with rings and figure-of-eight segments clasped in the middle. The segments were probably combined in an irregular arrangement. The buckle, which is 6 cm long, has a ribbed ring in the middle part. More precisely, the upper side of the buckle is ribbed, while the lower is smooth. At one end of the buckle there is a loop through which passes a ring that connects it with the segments, while at the other end there is a small hook (Fig. 7/2). The burial was dated to the beginning of LT C.[63] The mentioned belt from Dürrnberg, as well as those from Manching, were comparable to belts from cemeteries in Slovakia and Hungary, as well as with Scordiscan belts. However, there are noticeable differences in the shapes of the buckles.[64]

It is necessary to mention the belt from the Middle La Tène grave from Ladenburg, in the north-western part of Baden-Württemberg. From this belt six pairs of segments were preserved, along with a zoomorphic buckle. In the central part of the buckle there is a rectangular thickening, while at the end is a ring through which the buckle was connected to the rest of the belt. At the end of the belt hang two pendants with a ring at the top, a ring-shaped thickening in the middle and a conical end.[65] The buckle of this belt is completely different from the buckles of the Manching variant and also from all other variants. Its shape is similar to some bronze buckles of the Bohemian type belts, specifically to the Tvršice variant (Fig. 7/4).[66]

Conclusion

Iron belts of the Dalj type, with mostly iron and only rarely bronze buckles, are a recognisable element of early Middle La Tène female costume in the northern and eastern part of the Carpathian Basin, including the territory of the Scordisci.[67] Belts of the Dalj type are composed of pairs of twisted iron rod-shaped segments connected by rings, while bronze segments are only mentioned from the Jászberény cemetery and perhaps from the Remetea Mare cemetery. A significant number of the belts were not fully preserved, however those that were better preserved have mostly 12 to 15 pairs of segments, while belts from Ritopek and Feudvar have 15 and 17 pairs of segments (Tab. 1). An integral part of belts are the buckles, which are also mostly made of iron, i.e. they are rarely bronze (e.g. Feudvar, grave 1; Manching – Steinbichel grave 24; Dürrnberg, grave 216). At the ends of the belt there are sometimes variously shaped pendants. In fact, there are no two identical buckles, but certain common characteristics have been recognised, on the basis of which four variants can be distinguished with regard to the shape of the buckles (Map 1), two of which are characteristic for the Scordisci – the Feudvar and Subotište variants.[68] Buckles of these two variants are also the longest buckles found on Dalj type belts.

Most of the belts found at Scordiscan sites feature an iron buckle composed of two leaf-shaped parts with a thickening in the middle. Only the damaged buckle from Feudvar is made of bronze. One end is bent into a hook and the other is coiled into an S-shaped loop, both ending with knobs – the Feudvar variant (Fig. 1). This is the most common variant at south-eastern Pannonian sites, although certain differences are also recognised among the buckles of this variant – in the shape of the parts, the shape and size of the thickening. Also, they can be undecorated or variously decorated. Perforations on one or both leaf-shaped parts are characteristic of the buckles of the Subotište variant (Fig. 2), which were found on the eponymous belt from Subotište and on one buckle from the Kupinovo cemetery. Interestingly, buckles of the Subotište variant on both sides end like the buckles of the Feudvar variant, so it can be concluded that this method of fastening the belt as well as connecting the buckle with the rest of the belt is unique to the Scordisci. Unfortunately, all belts from the Scordiscan sites, except from grave 1 at Feudvar, probably originate from destroyed graves, where it is not known with which other items of female costumes and jewellery the belts were found.

The third variant – the Fântânele variant (Fig. 4) – represents belt buckles that were discovered in female cremation graves at cemeteries in western Romania (Fântânele – Dâmbu Popii, Orosfaia – Dealul Gropilor and Pişcolt – Fig. 5)), and dated to LT C1. These buckles have a narrow shape with a ring at the end by which they connect with the rest of the belt. A buckle from the grave 654 from the Ludas – Varjú-dűlő cemetery (Fig. 6), also dated to LT C1, can be attributed to this variant.

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[63] Moser, Tiefengraber, Wiltschke-Schrotta 2012, 112, 117–118; Drnić 2015, 93; Dizdar 2016, 84; Dizdar 2020, 91.

[64] Moser, Tiefengraber, Wiltschke-Schrotta 2012, 198.

[65] Déchelette 1914, 1072, Fig. 443; Reitinger 1966, 203.

[66] Dizdar 2020, 299–302, Fig. 173–174.

[67] Drnić 2015, 89–94; Dizdar 2016, 82–89; Dizdar 2020, 75–93.

[68] Dizdar 2016, 85; Dizdar 2020, 91–92.

Dalj type belts were also found in some other female graves at cemeteries in the northern part of the Carpathian Basin but, unfortunately, the buckles were not preserved. Interestingly, the Bodroghalom cemetery yielded belts that, besides pairs of twisted segments, also contain figure-of-eight segments. Such a combination also appears on a belt from grave 216 at Dürrnberg (Fig. 8). Belts with bronze buckles that have a ribbed ring in the central part belong to a fourth variant – the Manching variant (Fig. 7/1–2). The buckles of this variant are the shortest. These belts were dated, by virtue of finds in closed grave contexts, to the late LT B2-early LT C1. The belt from Kapiteljska njiva in Novo mesto, thus far the only find of the Mokronog group in the territory, bears similarities to finds from Manching and Dürrnberg in its buckle end with a small ring. However, the iron buckle has a somewhat different shape (Fig. 7/3). Similarly, the zoomorphic belt buckle from the grave in Ladenburg has a unique shape (Fig. 7/4).

Even though the context is lacking for most finds from the area of the Scordisci, based on the discovery in grave 1 at Feudvar, but also those at Hungarian and Romanian sites, Dalj type belts can be dated to LT C1. Their first appearance, however, was first documented towards the end of LT B2 (Manching – Steinbichel, grave 24 and Drňa, grave 2/74), although they are far more numerous in LT C1.[69] Interestingly, segments of the Dalj type are considered to have been a prototype of some belts dated to LT D, made of silver and bronze and widespread in pre-Roman Dacia and in the area of the Padea-Panaghiurski kolonii group.[70]

Considering that contextual data and all information about associated finds in the graves is missing for almost all the belts from the territory of the Scordisci (Tab. 1), with the exception of the relatively poor grave 1 at Feudvar, nothing more can be concluded about the social position of the Scordiscan women who wore them. At the Vác and Bodroghalom cemeteries, Dalj type belts were found in graves with only a few other objects, but these are also partially destroyed graves for which the entire ensemble of finds is not known. On the other hand, grave 654 at the Ludas – Varjú-dűlő cemetery (Fig. 6) and grave 2/74 at the Drňa cemetery stand out by the number of finds (Tab. 1), pointing to the burials of prominent women in the community. A similar conclusion can be drawn about grave 62 from the Fântânele cemetery, as well as finds from the Manching and Dürrnberg cemeteries (Fig. 8). Anthropological analyses of preserved graves have shown that Dalj type belts were worn by adult women. However, some finds of Dalj type belts, such as in grave 103 from Kapiteljska njiva in Novo mesto or in grave 11 at the Marfely cemetery, show that these belts were not only worn by prominent women with a higher status in the local communities.

Considering the distribution of the Dalj type belts (Map 1), it can be concluded that it is a well-accepted and widely spread form of early Middle La Tène female costume. On the other hand, recognisable differences in the shapes of the buckles bear witness to the regionalisation of the Middle La Tène female costume, as well as its individualisation, which is clearly evidenced by finds of Dalj type belts from the sites of the Scordisci. In this way, the Scordisci, although they shared many common characteristics of material heritage with the Eastern Celts, as evidenced by the recognisable segments of Dalj type belts as well as some other forms of bronze and iron belts, highlighted the peculiarities of their Middle La Tène female costume through which they displayed their recognisable identity.

[69] Rustoiu, Megaw 2011, 226; Drnić 2015, 93; Dizdar 2016, 84–85; Dizdar 2020, 92–93.

[70] Rustoiu 1996, 112–113; Rustoiu 1997, 153–155; Rustoiu 2002, 94; Rustoiu, Megaw 2011, 226.

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Marko DIZDAR, Ivan DRNIĆ
Iron Belts of the Dalj Type – a Study of Regionalisation of the Middle La Tène Female Costume (107–125)

Резиме: МАРКО ДИЗДАР, Институт за археологију, Загреб
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ГВОЗДЕНИ ПОЈАСЕВИ ТИПА ДАЉ – ПРИЛОГ ПОЗНАВАЊУ СРЕДЊОЛАТЕНСКЕ ЖЕНСКЕ НОШЊЕ СКОРДИСКА

Кључне речи. – Женски костим, гвоздени појасеви, копче, Скордисци, гробови, Карпатска котлина, средњолатенски период

Карактеристичан елемент средњолатенске женске ношње Скордиска били су различити типови гвоздени и бронзаних појасева који се обично могу упоредити с истовременим типовима с простора Карпатске котлине. Један од таквих типова су појасеви типа Даљ, састављени од тордираних штапићастих сегмената повезаних обручима, који се међусобно разликују према облицима гвоздених или бронзаних копчи. Два типа копчи карактеристична су за ношњу Скордиска. Већина појасева на наведеном простору има појасну копчу састављену од два листолика дела са задебљањем у средишњем делу. Један крај ових копчи савијен је у кукицу, а други је савијен у петљу (варијанта Феудвар). Забележени су и примерци перфорираних листоликих делова (варијанта Суботиште). Појасеви типа Даљ чести су на простору југоисточне Панонije, иако су у већем броју забележени и у средњолатенским женским гробовима из североисточног дела Карпатске котлине, у Трансилванији те на појединим средњоевропским гробљима. Ови појасеви појављују се у женској ношњи различитих латенских заједница крајем степена ЛТ Б2, а највећи део познатих примерака потиче из степена ЛТ Ц1. Појасеви типа Даљ забележени су подједнако у „сиромашнијим" гробовима, као и у гробовима с бројним елементима ношње и прилозима те је стога тешко изнети коначан суд о статусу покојница у чијој ношњи су се налазили.

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FROM "PORTA FOSSIENSIS" TO FOSSAE EXPLORING THE ROMAN ROAD SYSTEM IN THE GLAC STUDY AREA EAST OF SIRMIUM

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Abstract. – As part of a comprehensive archaeological survey of the area around the site of Glac, near ancient Sirmium, a detailed examination has been undertaken of the location of the *via militaris* from Sirmium to Bassianae in light of previous studies and new field surveys. In locating the road, the questions of the findspot of two Roman milestones, the location of the eastern gate of the city of Sirmium, the nature of road way stations including *mutationes*, and the likely location of the way station at Fossae mentioned in the Bordeaux Itinerary and Ravenna Cosmology have been considered. The implications of the road construction on the patterns of rural settlement and economy in the Glac Study Area are highlighted.

Key words. – Fossae, gate, *mutatio*, Pannonia Secunda, Roman road, Sirmium, *via militaris*

A joint Australian – Serbian archaeological survey project commenced in 2017 in the north-west of Serbia, in the vicinity of Sremska Mitrovica. The survey is part of the Glac Project, a co-operative programme between The University of Sydney and the Institute of Archaeology in Belgrade, under the co-directorship of Professor Richard Miles and Dr Stefan Pop-Lazić.

Associated with the archaeological excavations of the Glac site situated 4 km south-east of Sremska Mitrovica, the Glac Survey is being undertaken as a comprehensive archaeological survey of the area around Glac to position the site and the region within a broader chronological framework, and in the historical and political contexts afforded by documentary evidence. The survey component of the overall Glac Project is undertaken under the leadership of the authors of this paper.

The Survey Project has four components:

1) a regional settlement pattern survey to identify the spatial and temporal settlement patterns during the Roman period;

2) the establishment of the environmental context of the settlement pattern during the Roman period;

3) the establishment of the consequential rural economic base of the region during the Roman period;

4) an examination of the immediate environs of the Glac site to identify outbuildings, cemeteries, water supply, transport routes, and the relationship with the Sava River.

The area that is the subject of the survey has been defined as the Glac Study Area, and encompasses the territory around the Glac site, including a part of the Srem region north and northeast of the Sava River, and a part of the Mačva region south and southwest of the river, covering approximately 700 km². It stretches between the Fruška Gora mountains in the north, and the Jerez River in the south, between the Čalma meridian in the west (excluding the town of Sremska Mitrovica), and the Jarak-Ruma meridian in the east (Fig. 1). In Antiquity, the Study Area was within the Late Roman province of Pannonia Secunda, around the Roman city of Sirmium, and touching the territory of Bassianae, east of Sirmium.[1]

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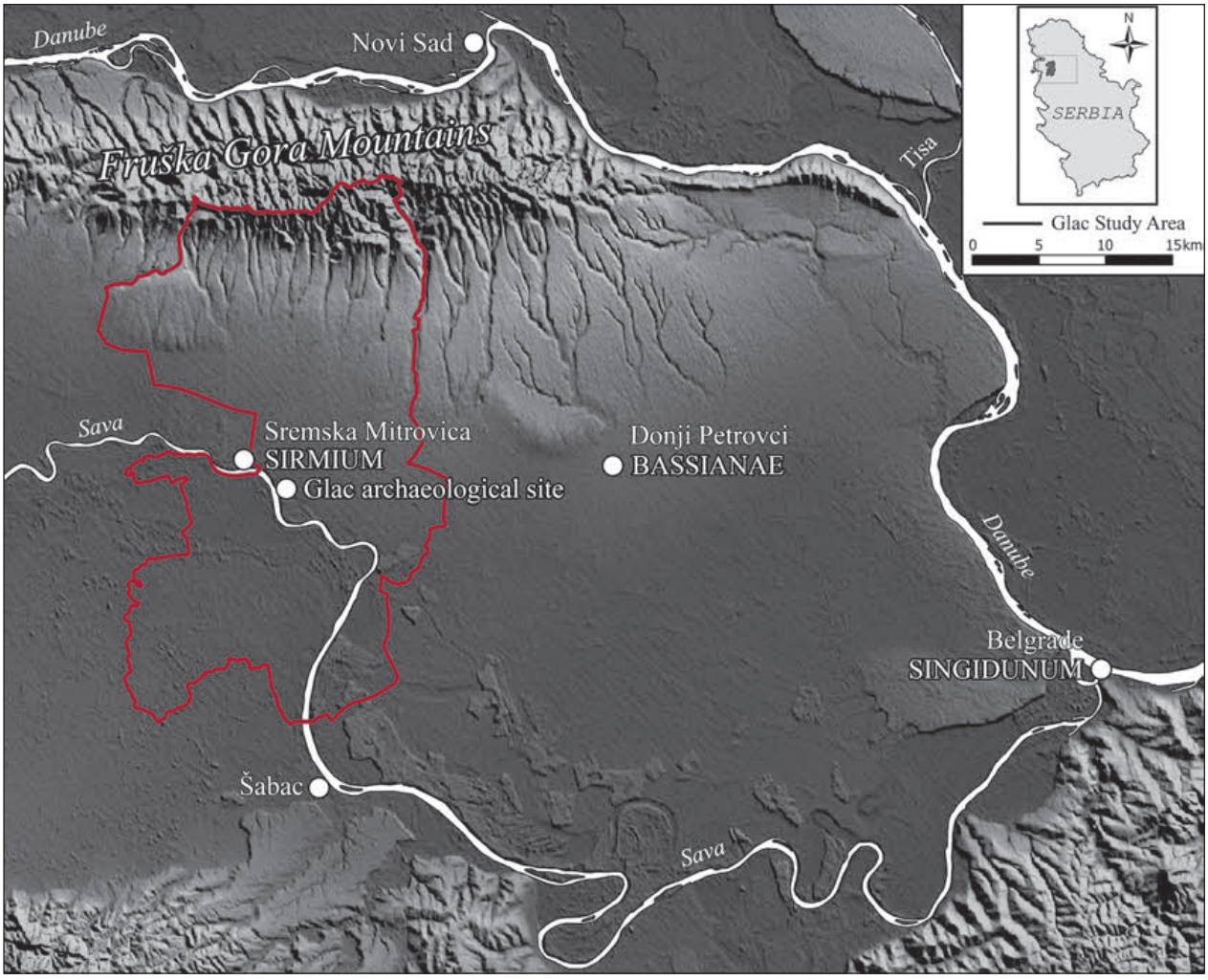

Fig. 1. The Glac Study Area

Сл. 1. Подручје истраживања пројекта Глац

As part of the Glac Survey 2017–2020, an examination has been undertaken of spatial communication routes in the Study Area. This includes mapping of the position and direction of the main Roman road from Sirmium to Bassianae that led further to Singidunum in the south-east. This section of the road was part of an important *via militaris*,[2] which connected Northern Italy to the Balkan provinces and the Middle Danube *limes*.[3] Traces of the road stretch across the central zone of the Glac Study Area, between the eastern periphery of Sremska Mitrovica and the motorway east of Šašinci, that is, between the still unexcavated eastern gate of Sirmium, the so-called “Porta Fossiensis” in the west of the area, and the road station of Fossae in the east, known from literary sources. The locations of the eastern gate of Sirmium and the road station of Fossae, as well as the route of the road in between, have been generally described in historiography and archaeology, with contrasting views throughout the research history.

Therefore, our aim was to map the direction of the road by means of field survey and remote sensing methods (LiDAR, satellite imagery, and aerial photography), taking into account the literary evidence, registered archaeological sites, and the environmental features of the area. Accordingly, the existing evidence on the position of Fossae was reviewed.

[1] Mirković 2017; Mócsy 1974.
[2] Tilburg 2007, 8.
[3] Fodorean 2017b; Gračanin 2010.

The Roman Road System

The Greek historian from the Augustan era, Dionysius of Halicarnassus recognised the significance of roads in the Roman empire when he wrote: "Indeed, in my opinion the three most magnificent works of Rome, in which the greatness of her empire is best seen, are the aqueducts, the paved roads and the construction of the sewers."[4]

The road system was the glue that held the empire together, serving as a vital element of communication, government and military affairs. The Roman road system outside of urban areas was comprised of a hierarchy of three types of road recognised by the Severan era lawyer, Ulpian (Domitius Ulpianus) in parts of his work excerpted in The Digest of Justinian, as follows:[5]

– Type 1. The *viae publicae*, *consulares*, *praetoriae* or *militares*, being the main roads built and maintained at public expense.

– Type 2. The *viae privatae*, *rusticae*, *glareae* or *agrariae*, the private or country roads.

– Type 3. The *viae vicinales*, roads leading to a village or farm.

The Roman road from Sirmium east to Bassianae formed part of the important *via militaris* from Aquileia to Emona, Siscia, Sirmium and Viminacium.[6] This road had great strategic and economic significance as the principal route from Italy to the Danubian *limes* and the Balkans.[7]

As with all *viae publicae*, this road was built by the Roman state and because its primary use was for the public post and the military, such roads were provided with signage in the form of milestones and publicly maintained and managed way stations. The milestones were erected every Roman mile (or 1,000 paces) after 124 BC, when, according to Plutarch, Gaius Gracchus "…measured off every road by miles and planted stone pillars in the ground to mark the distances".[8]

In the Roman province of Pannonia, the principal road was the *via militaris* from Aquileia to Emona, Siscia, Sirmium and Singidunum and then on to Naissus and from there either to Constantinople or Thessalonica. This road was supplement by a road from Emona to Carnuntum and a road following the *limes* from Carnuntum to Singidunum.

Literary Evidence on Fossae

The name of Fossae was noted in two literary sources, with an approximately four-hundred-year long gap between dates of these records. They both placed the station on the road from Sirmium through Bassianae to Singidunum, between Sirmium and Bassianae.

In the Bordeaux or Jerusalem Itinerary [*Itinerarum Burdigalense sive Hierosolimitanum*], written in AD 333, "Mutatio Fossis" was noted as being 9 miles from Sirmium: … "*civitas Sirmium mil VIII fit ab Aquileia Sirmium usque milia [C]CCCXII, mansiones XIIII, mutationes XXXVIIII. Mutatio Fossis mil VIIII civitas Bassianis mil X*"…[9]

In the 8th century source, the Ravenna Cosmography [*Ravenatis anonymi Cosmographia*], the name "*Fossis*" was noted between the names "*Bassianis*" and "*Sirmium*": … "*sed ego secundum praefatum Marcummirum inferius dictas civitates Pannoniae nominavi. In qua patria plurimas fuisse civitates legimus, ex quibus aliquantas designare volumus, id est Confluentes, Taurinum, Idominio, Bassianis, Fossis, Sirmium, Drinum, Saldis*" …[10]

It has been widely known that the name "*Fossis*" originates from the Latin noun *fossa*, meaning a dyke, a ditch, a trench, a canal, a moat, and was noted in the sources in the dative case in the plural (*fossis*).

While the word "*Mutatio*" was noted in singular, meaning a change, an alteration, an interchange, an exchange, that is a road station; basically, a stopping place for travellers, with a stable to merely change horses and/or other animals and to take refreshment.[11]

Hence, both the name of the road change station, and its place indicated in the sources, have led modern researchers to draw general conclusions regarding its whereabouts.

The Location of Fossae in historiography and archaeology

The area where Fossae was located has been the subject of debate in historiography and archaeology since the 19th century. The proposed locations have

[4] Dionysius of Halicarnassus, Roman Antiquities, 3.67.5.

[5] Justinian, The Digests, 43.7.3, 43.8.21 – 24; Watson 1985, Volume 2, 43.7.3, 43.8.21 – 24.

[6] Archest Aquileia – Emona – Sirmium – Viminacium On the ancient Roman trail.

[7] Fodorean 2017a, 342.

[8] Plutarch, Parallel Lives. The Life of Gaius Gracchus, 7.2.

[9] Itinerarium Antonini Avgvsti et Hierosolymitanvm: ex libris manvscriptis 1848, 267 [563.7, 563.8, 563.9, 563.10, 563.11].

[10] Ravennatis Anonymi Cosmographia et Gvidonis Geographica 1860, 214 [IV.19].

[11] Tilburg 2007, 46.

Position of Fossis explicitly suggested	
Jarak hypothesis	**Šašinci hypothesis**
Брукнер, Даутова-Рушевљан 2015	Црнобрња 2015
Brunšmid 1905	Fodorean 2017b
Kukuljević 1873	Ljubić 1887
Ljubić 1883	Lučić 2016a
Mayer 1957	Милошевић 1988
Mirković 2008	Popović 1980
Mocsy 1974	Talbert (ed.) 2000
Вулић 1939	Zanni et al. 2019
Position of Fossis implied by the suggested road direction	
Jarak hypothesis	**Šašinci hypothesis**
Brukner 1981	Брукнер 1995b
Брукнер, Даутова-Рушевљан 2015	Брукнер 1995c
Brunšmid 1905	Црнобрња 2015
Даутова-Рушевљан 1983	Đorđević 2007
Graf 1941 [1936]	Fodorean 2017b
Kiepert 1998 [1894]	Gračanin 2010
Klemenc 1961	Jeremić 2016
Kukuljević 1873	Ljubić 1887
Ljubić 1883	Lučić 2016a
Mayer 1957	Lučić 2016b
Miller 1916	Lučić 2016c
Mirković 2008	Милошевић 1988
Mirković 2017	Mollinary 1914
Mocsy 1974	Popović 1969
Patsch 1910	Popović 1980
Saranović-Svetek 1986	Popović, Vasiljević 1969
Вулић 1939	Talbert (ed.) 2000
	Zanni, De Rosa 2019
	Zanni et al. 2019

Table 1. Hypotheses of the Fossae position throughout the research history

Табела 1. Хипотезе о положају Фоса кроз историјат истраживања

been indicated by suggestions on the route of the Sirmium-Bassianae-Singidunum road that led toward east or south-east of Sremska Mitrovica, by relating to archaeological sites found in the area, by taking into account the distance of potential sites of Fossae from Sirmium, and having regard to the etymology of the station’s name, which suggests the existence of a ditch or ditches (canals) in the proximity of the road station.

In the main, there are two hypotheses on the location of Fossae, placing the road station either at Jarak, next to the Jarčina channel believed to had been dug in the 3rd century AD, or at Šašinci, east or northeast of the village. A survey of the literature written in the last 150 years in which the position of Fossae has been suggested, show almost equal representation of both the Jarak and Šašinci hypotheses throughout the research history, with the Šašinci proposition slightly favoured (Table 1).

In addition, an argument has been recently proposed that Fossae should be interpreted as an outpost positioned next to the Jarčina channel in the neighbourhood of Jarak.[12]

Archaeological evidence of the Roman road east of Sirmium

Archaeological evidence of the Roman road leading from Sirmium eastward has been found at the following locations, starting from the west and going eastward:

1) At Ciglana (the former brick production facility). Archaeological traces of a road, the hard surfaces

[12] Mirković 2017, 47–48.

[13] Jeremić 2016, 102, sl. 67.

[14] Popović 1978.

of crushed stone and brick, were found in 1985 in the south-eastern periphery of Sremska Mitrovica in the area of Ciglana, the former brick production facility, south of the main eastern approach road to the modern town (south of Palanka and Timočke Divizije streets and south-west of the town’s eastern roundabout). This was the area of the eastern necropolis of Sirmium with the road leading through it and further eastward.[13] The area also included an early Roman necropolis dated to the 1st century AD, and an Early Iron Age necropolis identified as a Bosut Culture site.[14]

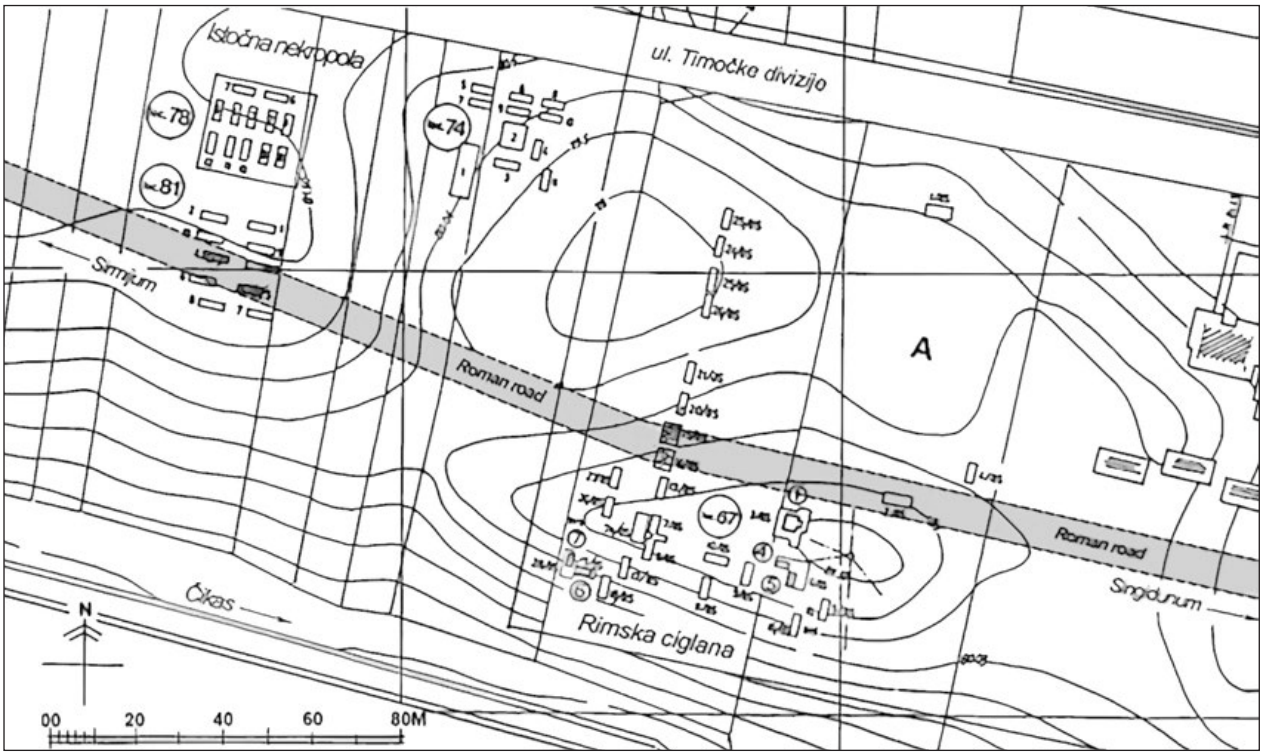

Fig. 2. Drawing of the position and direction of the Roman road at the Ciglana site (Locality 67) according to M. Jeremić (Jeremić 2016, 104, Fig. 67)

Fig. 3. Remains of the Roman road in a trench dug at the Ciglana site (Locality 67) according to M. Jeremić (Jeremić 2016, 104, Fig. 68)

Сл. 2. Цртеж позиције и правца римског пута на Циглани (Локалитет 67) према М. Јеремићу (Jeremić 2016, 104, Sl. 67)

Сл. 3. Остаци римског пута у сонди ископаној на Циглани (Локалитет 67) према М. Јеремићу (Jeremić 2016, 104, Sl. 68)

The road stretched between Timočke Divizije Street in the north and the Čikas canal in the south, with its direction almost parallel to both the street and the canal.[15] The traces were found at several places, at the former brick facility (Ciglana), 130 m west of the brick facility, and then found at four sites further westward in the direction of the Kalvarija hill.[16] The general direction of the road is northwest-southeast, with a slight turn at the Ciglana site.[17] Jeremić concluded the road was a continuation of the *decumanus maximus* of Sirmium and it can be traced with certainty from the Kalvarija hill to Ciglana, and further leading to the east, toward the industrial zone of Sremska Mitrovica.[18] At this point the road was positioned along the lip of the Sava's left bank river terrace, north of the Jalia pond, stretching approximately 800 m from the Kalvarija hill toward the industrial zone.[19] Today, the area is mostly covered with modern development and apartment blocks.

It is worth noting that this area was also described in the 18th century by one of the earliest antiquarians, Count Luigi Ferdinando Marsili (1658–1730), an Italian scholar, naturalist and soldier who served in the army of the Hapsburg Monarchy. Marsili spent two decades in the middle Danube area, as a leader of the Hapsburg Border Commission, collecting information on the natural history and antiquities of the area along the Danube.

Marsili's work "*Danubius Pannonico-Mysicus*" was published twenty years later in Amsterdam and The Hague (1726) in six volumes, of which the first includes an account on the geography and hydrography of the region and the second includes notes and sketches on the history and antiquities of the area. In terms of the archaeological topography of Sirmium, Marsili described and sketched the eastern and north-eastern parts with the remains of Roman ruins. Marsili gave a description of the eastern part of Sirmium, in what appears to be the area around the Čikas channel and the Kalvarija hill: "*(cc) Sunt vestigia murorum, e terra parum adhunc prominentium, sicuti et (d), (e), (f) autem, reductus aliquis super colle positus suisse videtur. Notandum denique, quod elevata via, lapidibus strata hic loci transeat*".[20] Hence, Marsili gave an account of the remains of a stone road which were elevated above the land surface, and stretched north of the walls in a general direction of west-east.

2) At Sremska Mlekara (the dairy plant). Archaeological traces of the Roman road were found in the courtyard of the dairy plant next to a gate, which is situated in the eastern periphery of Sremska Mitrovica, in the town's industrial zone.[21] In a trench dug for an electric cable installation, the sub base of the road was found, including quantities of stone that were dug out from the trench, some of which were up to 10 kg in weight.[22]

3) At Crepovac field. Two milestones were found in November 1886 in the field of Crepovac, east of Sremska Mitrovica.[23] A school teacher from Sremska Mitrovica, Ignjat Jung, reported to the Museum in Zagreb and to Šime Ljubić, who published the discovery. The pieces were first encountered in 1883 when a new channel in the field was dug, but later in 1886 when the channel was further cleaned and the milestones were fully recognised.[24] The milestones are kept in the Museum of Srem. Both have inscriptions preserved, with 3 Roman miles (the distance from Sirmium) inscribed in the bottom line of both.[25] The older one, of the emperors Marcus Aurelius (161–180 AD) and Lucius Verus (161–169 AD), M. Mirković dated to 161 AD, while another date that was initially suggested was 167 AD.[26] The younger one, of the emperors Septimius Severus (193–211 AD) and Caracalla (198–217 AD) was dated to 198 AD.[27]

The archaeological evidence of the Roman road in the Prosek and Crepovac fields east of Sremska Mitrovica also included surface finds of its remains. Between 1969 and 1971, a wider archaeological survey of the Srem region was organised as part of a Yugoslavian-American cooperative program.[28] D. Popović of the Institute for Protection of Cultural Monuments in Sremska Mitrovica and M. Vasiljević of the Museum in Šabac traced the Roman road in the summer of 1969

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15 Jeremić 2016, 102, sl. 67, 68.

16 Jeremić 2016, 102, sl. 67, 68.

17 Jeremić 2016, sl. 21, 67.

18 Jeremić 2016, 102, sl. 21, 66.

19 Savezni Geološki Zavod 1982–1983; Vojnogeografski institut 1979a.

20 Marsili 1726, 46, Tab 19 [Antiquitates Romanae, Fig. VI].

21 Popović 1980, 102.

22 Popović 1980, 102.

23 Ljubić 1887; Милошевић 1988, 117; Mirković 2008, 132–134.

24 Ljubić 1887, 16.

25 Ljubić 1887; Mirković 2008, 132–133.

26 Mirković 2008, 132–133.

27 Mirković 2008, 134.

28 Popović 1980; Popović, Vasiljević 1969.

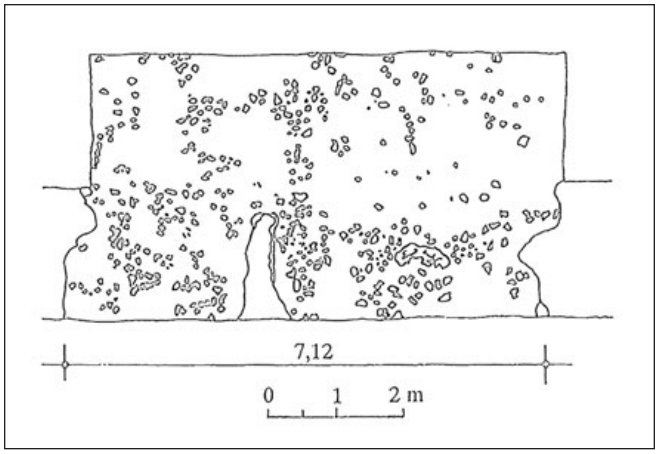

Fig. 4. Drawing of the Roman road substructure found next to the intersection of the motorway with the Ruma-Šabac regional road according to O. Brukner; North Point not indicated in original (Брукнер 1995c, 188, Plan 3)

Сл. 4. Цртеж субструктуре римског пута нађеног поред укрштања аутопута са регионалним путем Рума-Шабац, према О. Брукнер; правац севера није приказан на оригиналном цртежу (Брукнер 1995c, 188, Пл. 3)

from the area of Sirmium towards the east, through Šašinci village and further towards the northeast; the structure of the Roman road was recognised as a strip 10 to 15 m wide, consisting of pebbles, amorphous stone and occasional brick; at several places along the road route through Srem, embankments elevated up to 0.5 m or even a metre height were recognised.[29]

4) At Bare. The area is located 2.4 km west of Šašinci, next to the Mančelov Gat channel on its left (eastern) side.[30] Surface traces of the Roman road were found during a survey in 1967; the traces stretched in a straight west-east line from the Mančelov Gat channel eastward.[31]

A few years before the 1967 survey, the landowner Dušan Vladisavljević ploughed out a fragment of a milestone in the field at the Bare site.[32] The fragment was placed in Šašinci, in the garden of its finder for several years, but it is lost today; a part of the inscription was recorded and includes several letters in 4 lines: *VIVL / LIVL / ONT / NOBI*, with the bottom lines read by D. Popović: "*[- - p]ont[ifex maximus] / [- - -]nobi[lissimus Caesar - -]*".[33]

5) At Šašinci village. Archaeological evidence of the Roman road was found at several locations in the village as follows:

a) In the western periphery of Šašinci, in the place called Ledine, limited traces of the road were found in an archaeological trench; most of the road stone was previously quarried and taken away from the place.[34]

b) Surface finds of the road, stone of different sizes, was found scattered in gardens in the village, in Savska Street, at house numbers 33 and 48; larger amounts of building stone were found in Savska Street house number 33, in the garden of Dragomir Orlović.[35]

c) In addition to the traces of the road, a fragment of a milestone was also found in Šašinci by O. Brukner, which was placed in the house of P. Radojičić.[36] The inscription was read as: "*D[omino] n[ostro] / nob[ilisimo]*",[37] or as "*D[omini] n[ostri duo]*".[38]

6) In the Kudoš Area. Roman road remains were surveyed and excavated east of Šašinci village, in the Kudoš area. These activities were conducted as part of rescue archaeological research between 1979 and 1989, during the construction of the Belgrade-Zagreb motorway.[39] Remains of the Sirmium-Singidunum road were surveyed south of the motorway, near the Kudoš channel and next to the intersection of the motorway and the Ruma-Šabac regional road.[40] The surface traces included scattered stone and brick, a strip 1.5 km long and 15 m wide.[41] In addition to the surveyed surface finds, a sondage was dug at the Ruma motorway intersection; it was concluded that the Roman road was originally 7 m wide, it had a structure made of crushed stone with smaller pieces of stone and brick on the top layer ("*strata*"); the edges

[29] Popović 1980; Popović, Vasiljević 1969.
[30] Popović 1967b, 4; 1967c; 1967–1984.
[31] Popović 1967b, 4; 1967c, 179; 1967–1984; 1980, 102.
[32] Popović 1967b, 4, Sketch 4; 1980, 102.
[33] Popović 1967b, 4, Sketch 4.
[34] Popović 1980, 103; Popović, Vasiljević 1969, 261–262.
[35] Popović 1980, 103.
[36] Dušanić 1990, 646.
[37] Dušanić 1990, 646.
[38] Mirković 2008, 138.
[39] Брукнер 1995c.
[40] Брукнер 1995c, 187.
[41] Брукнер 1995c, 188, сл. 1.

and canals on both sides of the original Roman road structure had been destroyed.[42]

Further, a milestone was also found at the Kudoš site, near a complex which was described as a "*villa rustica*".[43] Several letters of the inscription were preserved; M. Dušanić read: "*Aug[ustus] Caes[ar]*".[44]

As part of the rescue research campaign in the 1980s, the Roman road remains were archaeologically traced further north of the motorway at the Žirovac site, east of the Ruma motorway intersection; the Roman road cuts across the motorway near a motel southeast of the intersection, and leads further to the north-east towards Dobrinci and Donji Petrovci, that is to the site of ancient Bassianae.[45]

Environmental features of the Roman road area[46]

The identified archaeological traces of the Roman road stretch between the eastern periphery of Sremska Mitrovica in the west and the motorway east of Šašinci village, bisecting the central zone of the Glac Study Area for a distance of 14 km.

From the west to the east the road traversed the following larger fields:[47]

1) Prosek, east of Sremska Mitrovica, between the Ruma road and the Jarak road, north of the industrial zone, and west of the Glac or Crepovački channel that cuts from north-west to south;

2) Crepovac, the area east and northeast of Sremska Mitrovica, stretching on both sides of the Ruma road, with the toponym noted at varying positions in different maps; the area north of Prosek is called Crepovac (on the opposite side of the Ruma road); but until recently the entire north-eastern area of Prosek was equally called Crepovac;

3) Šljivice, south of the Ruma road and north-east of Prosek;

4) Šašinačke Međe, north of the Jarak road and southeast of Prosek;

Fig. 5. Topographic map of the surveyed area (Vojnogeografski institut 1979a; Vojnogeografski institut 1979b)

Сл. 5. Топографска карта рекогносцираног подручја (Vojnogeografski institut 1979a; Vojnogeografski institut 1979b)

5) Livade, east of the Glac or Crepovački channel and west and north-west of the Mančelov Gat channel;

6) Bare, between the Mančelov Gat channel in the west and Šašinci village in the east;

7) Čelepovac, south-west of Šašinci village and north of the Jarak road;

8) Kudoš, the area between Šašinci in the west and the Kudoš channel in the east;

9) Kudoš-Livade, the eastern periphery of the Kudoš area, around the Kudoš channel and south of the motorway;

10) Žirovac, east of the Kudoš on both sides of the motorway.

The surveyed area is located within a lowland, where the terrain is flat and open, without barriers except for several streams and manmade channels that cut through the area, mostly from north to south. With the exception of the industrial zone in the eastern periphery of Sremska Mitrovica, and the village of Šašinci, the modern landscape is one of cultivated agricultural fields intersected with channels and farm tracks. In terms of the soils, chernozem predominates the area.

The elevation of the terrain varies between 82.6 m and 95 m ASL, gradually rising to the north and north-east.[48] The highest elevation of the terrain is visible in the Kudoš area north-east of Šašinci, with the elevation rising from south to north by 3 m on average within the Kudoš area, increasing in height over a short distance by nearly 1 km to reach 95 m ASL in the northern periphery at Dreispitz Pusta.[49] This particular area is a boundary between two different land system units.[50]

In terms of geomorphology, the surveyed area stretches within the Sava's left bank river terrace, and touches the Fan Srem land system unit in the north and north-east.[51]

The river terrace has a thin layer of loess and, due to its partly calcareous composition, mild solutional processes may occur, forming shallow suffosional depressions similar to pseudo-karstic dolines or sinkholes on loess.[52]

The groundwater in the river terrace is shallow and the zone is naturally swampy.[53] Hence, to overcome the difficulties of the terrain, drainage channels of between 2 m and 10 m deep have been dug, mostly in the last two centuries.[54] However, this activity began with the Roman emperor Probus (276–282 AD) who initiated reclamation of land from the numerous swamps east of Sirmium, as noted in the written sources and visible in the landscape modifications, most notably by the monumental Jarčina channel that cuts through the eastern periphery of the Study Area from northeast to southwest, and enters the Sava in the eastern periphery of the village of Jarak:[55]

"When he [Probus] had come to Sirmium, desiring to enrich and enlarge his native place, he set many thousand[s of] soldiers together to draining a certain marsh, planning a great canal with outlets flowing into the Save, and thus draining a region for the use of the people of Sirmium".

The toponymy of the area, especially hydronyms illustrate the need of people in the past to drain the river terrace. These are: "Jezero", "Manđeloška Bara", "Bare", etc. recorded on 19th century maps between Sremska Mitrovica and Šašinci.[56]

The largest manmade channels that cut through the area from north to south are:

1) Čikas channel which flows through the eastern periphery of Sremska Mitrovica and enters the Sava River between the Jalia pond in the west and the industrial zone in the east, it collects surface waters and streams further in the north;

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[42] Брукнер 1995c, 188, пл. 3.

[43] Брукнер 1995c, 187.

[44] Брукнер 1995c, 187.

[45] Брукнер 1982b; Брукнер 1995a, 100; Брукнер 1995c, 187.

[46] A land system study for the Glac Project was specially commissioned from the Geographical Institute „Jovan Cvijić" of the Serbian Academy of Sciences and Arts in 2018, with a team co-ordinated by Dr Jelena Ćalić (Ćalić et al. 2018–2020).

[47] Географско одељење Главног Генералштаба 1894; Републичка геодетска управа Социјалистичке републике Србије 1971–1975; Savezni Geološki Zavod 1982–1983; Kantonai felmérés III. 1872–1884; Vojnogeografski institut 1979a; Vojnogeografski institut 1979b.

[48] Vojnogeografski institut 1979a; Vojnogeografski institut 1979b.

[49] Vojnogeografski institut 1979b.

[50] Savezni Geološki Zavod 1982–1983.

[51] Ćalić et al. 2018–2020; Savezni Geološki Zavod 1982–1983.

[52] Ćalić et al. 2018–2020.

[53] Ćalić et al. 2018–2020.

[54] Ćalić et al. 2018–2020; Географско одељење Главног Генералштаба 1894; Kantonai felmérés III. 1872–1884; Vojnogeografski institut 1979a; Vojnogeografski institut 1979b.

[55] Historia Augusta 1932, 379–381 [The Life of Probus 21.1–4].

[56] Ćalić et al. 2018–2020; Географско одељење Главног Генералштаба 1894; Third Cantonal Survey 1872–1884.

Fig. 6. Aerial imagery of the Prosek–Crepovac and Bare areas

Сл. 6. Ваздушни снимак подручја Просек–Цреповаџ и Баре

2) a channel that flows from the Čikas canal through the Prosek field and enters the Sava at the industrial zone east of the town;

3) Crepovački or Glac channel which flows through Crepovac, Šljivice, Prosek, Šašinačke Međe, and enters the Sava at the Glac site;

4) Mančelov Gat which cuts through Livade, between Šašinačke Međe and Čelepovac, and enters the Sava through the Leget area, near the regional waste depot.[57]

The largest natural watercourse in the surveyed area is the Kudoš stream that flows east of Šašinci, from the Fruška Gora mountains in the north, and enters into the Sava River in the western periphery of the village of Jarak; its full length is 19 km; it flows naturally in the upper part while it has been regulated in the lower part.[58]

A significant tributary of the Kudoš is the Jelence River which also flows from the mountain in the north and enters the Kudoš south-west of Ruma.[59] However, in the past the Jelence River flowed parallel and next to the Kudoš on its left (eastern) side from a latitude south of Ruma further southwards, and entered the larger stream southeast of Šašinci; this described hydrography of the Kudoš area was recorded in 19th century maps.[60] At a few places the two streams were only 50 m apart and several watermills existed on their banks in the 19th century.[61] It is noted that the

[57] Vojnogeografski institut 1979a.

[58] Vojnogeografski institut 1979b.

[59] Vojnogeografski institut 1979b.

[60] Географско одељење Главног Генералштаба 1894; Kantonai felmérés III. 1872 – 1884.

[61] Географско одељење Главног Генералштаба 1894; Ljubić 1887; Kantonai felmérés III. 1872 – 1884.

Fig. 7. Aerial imagery of the Kudoš area

Сл. 7. Ваздушни снимак подручја Кудош

Jelence River collects the waters of Staro Hopovo, a thermo-mineral-spring in the valley of the Lipov Potok in the north; the spring’s hypothermal temperature (18.5°C) hydro-carbonated-sulphated waters have been used by local people who believe its usage has curative effects.[62] Today the area east of Šašinci, called Kudoš and Kudoš Livade, is intersected with several manmade channels dug and/or modified as part of the regulation of the Kudoš and Jelence streams.[63]

Remote Sensing in the Glac Study Area

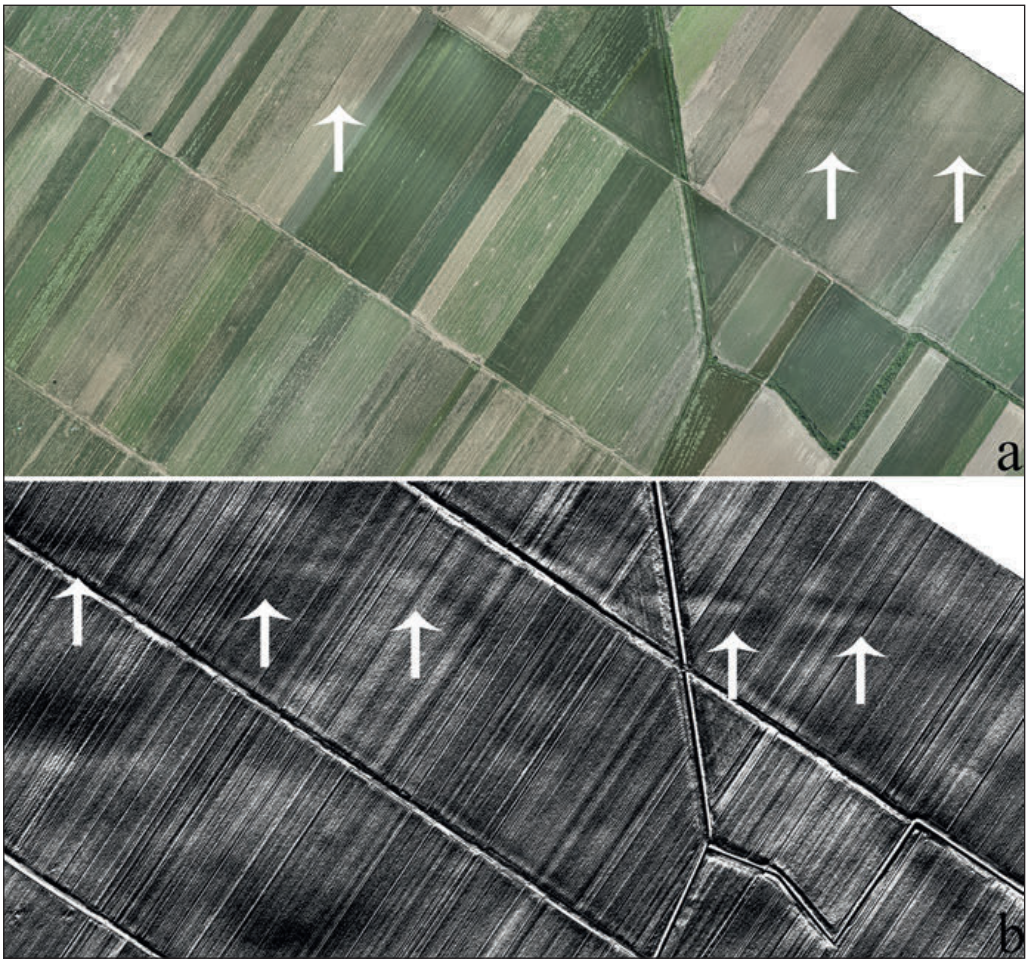
As part of the Glac Survey, remote sensing methods were specially commissioned in 2018 and again in 2020. These included the application of LiDAR and digital aerial photography and photogrammetry in several parts of the Glac Study Area, notably in its central zone between the Prosek field in the west and the Kudoš area in the east.

Parallel to these methods, the survey team also used existing publicly available satellite imagery plus the Google Earth computer programme.

The application of these methods resulted in the identification of numerous features in the Study Area that are of archaeological interest, including a distinct linear feature that almost continuously stretches in the west-east direction between Prosek and Kudoš. Different parts of the linear feature were identified in Hillshade, Digital Terrain Models (DTM) rendered from the LiDAR scans of the area, in airborne imagery, and in the historic satellite imagery drawn from the “time lapse” function in the Google Earth computer programme.

[62] Ćalić et al. 2018–2020.

[63] Vojnogeografski institut 1979b.


a
b

By comparing the positions of the above outlined archaeological traces of the Roman road east of Sremska Mitrovica with the position of the identified linear feature, and the topographical maps of the area, it was concluded that the linear feature displays the precise position and direction of the Roman road that has been georeferenced in the QGIS geographic information system software (GIS), applied and further developed for the Glac Project and the survey.

The Figures 6–10 illustrate the linear feature displayed by means of the above outlined remote sensing methods.

Field Walking Surveys across the Glac Study Area

The areas of Prosek and Crepovac were surveyed by the authors of this paper on 13th and 14th March 2019, with a preliminary field reconnaissance.

The survey method involved walking 1 m apart for the entire length of the feature, indicated by lighter soil and mortar, stone and other finds present. The team also surveyed areas north and south of the linear feature; these were named “Prosek Field Centre”, “Prosek Field Southeast Area” and “Prosek North”. In addition, the method included interviews with local

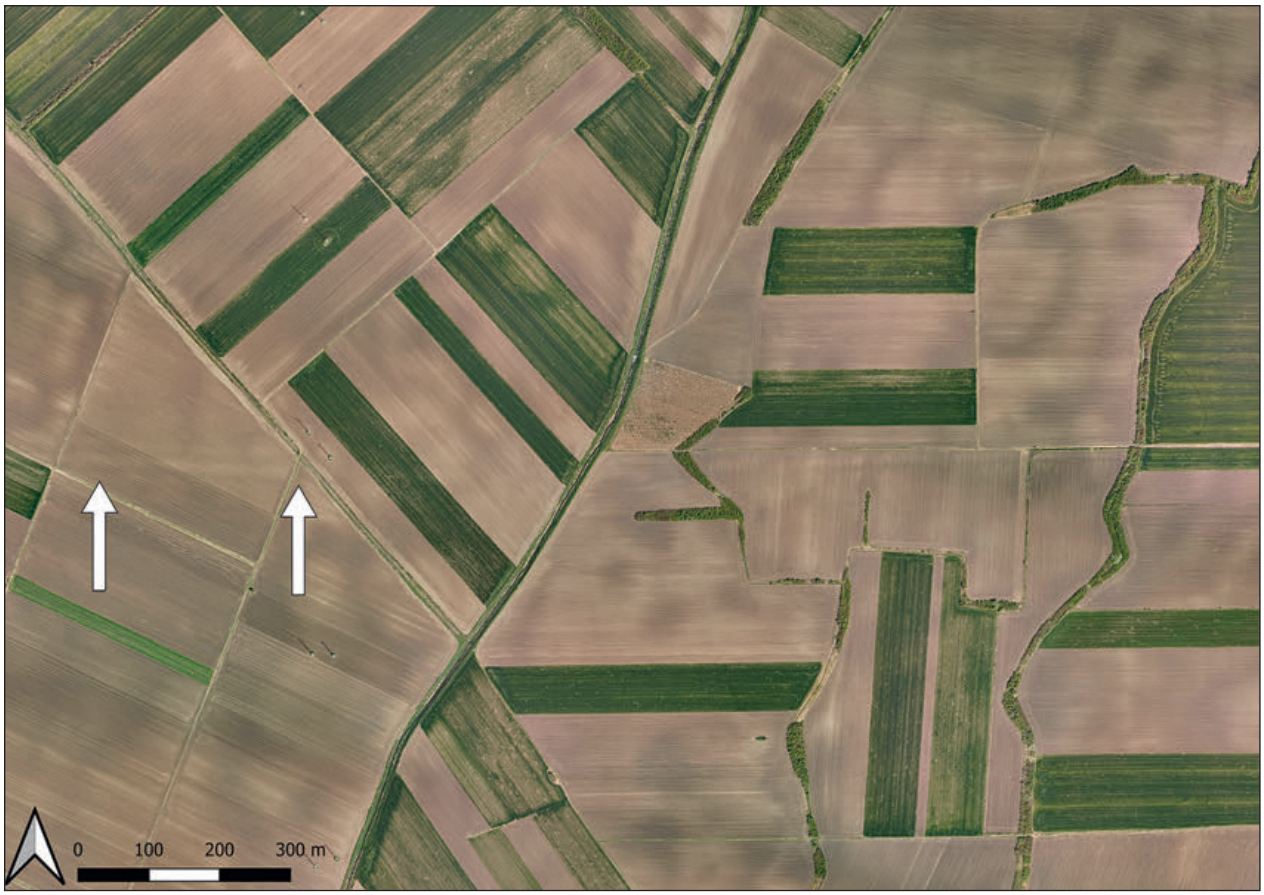


Fig. 8. Orthophoto of the Roman road remains and Glac channel intersection at Prosek–Crepovac
Fig. 9. Prosek–Crepovac, detail; a) Orthophoto of the Roman road from 2018;
b) LiDAR-derived digital elevation model from 2018, local relief model visualisation
Fig. 10. Aerial imagery of the Kudoš channel and former Jelence river channel

Сл. 8. Ортофото снимак укрштања остатака римског пута и Глацовог канала на потесу Просек–Цреповац
Сл. 9. Просек–Цреповац, детаљ; а) ортофото снимак римског пута из 2018;
b) лидар дигитални елевациони модел терена из 2018, визуелизација – local relief model
Сл. 10. Ваздушни снимак канала Кудош и некадашњег канала реке Јеленце

people, in the milk factory, in the Prosek field, and in the village of Šašinci.

The team traversed approximately 1.2 km along the linear feature in its western parts. Excellent surface visibility of remains of the Roman road were noted; these included a consistent band of rocks, and occasional bricks, between 10 m and 15 m wide, and in line with the feature previously identified by the remote sensing methods.

This band is presumably the remains of the *rudus*, being a rubble of broken stones and lime, and the *statumen*, or foundation, being stones of a size to fit in a hand, forming the road base of the Roman road from Sirmium to Bassianae. This was the only physical evidence of the road encountered in this area.

The Crepovački or Glac drainage channel was examined but its side profiles were overgrown with vegetation and gave no indication of the road crossing.

A local farmer and landowner Mr. Radoslav Radović was interviewed in a field next to the channel. He advised that his field east of the Glac drainage channel had numerous stones and bricks.

The field walking survey across this field confirmed the highest concentration of the road remains was from the Glac or Crepovački channel eastwards. Geographical position coordinates were taken at the intersection of the road remains and the channel. (Map references of the intersection are: 959 815;[64] GPS manual device: 7395955.8N and 4981292.3E; WGS 84: 445806.47N and 194032.20E; in parcels nos.: 8686, 9093/3 (channel), and 8666/1 and 8663/3.)

The finds included moderate amounts of stone, brick and mortar, and occasional pottery fragments. The cultural material was collected. The chronological and cultural attribution of pottery and other finds indicate that these locations show cultural material of Classical Antiquity and the Early Modern period.

Thereafter, the village of Šašinci was visited. The resident of no. 46 Save Zdelara Street, Mr. Stevan Opačić, was interviewed. He advised that Save Zdelara

Fig. 11. Roman road surface remains east of the Glac channel at Prosek–Crepovac

Сл. 11. Површински остаци римског пута источно од Глацовог канала на потесу Просек–Цреповац

Street was previously named Savska Street, but the numbering was not changed. Mr. Opačić advised he was aware the Roman road ran through the village but he was not aware of its location.

In December 2020 the area of Kudoš, east of Šašinci was field walked. Limited surface traces of the Roman road were followed along the eastern end of the linear feature identified by the remote sensing methods. These included occasional stone and brick, and larger fragments of reddish hydraulic mortar in several places. The traces were followed at a distance of 1.6 km, between the central zone of the Kudoš area (WGS 84: 44°57′37.33″N 19°45′40.30″E), to a point where the road remains crossed the Kudoš channel (WGS 84: 44°57′34.12″N 19°46′54.19″E). At this intersection several larger stone pieces were noted in the side profiles of the Kudoš channel.

The Milestones from Crepovac

One of the clues for defining the Sirmium-Fossae road direction in favour of the Šašinci hypothesis was the discovery of the two milestones in the Crepovac field east of Sremska Mitrovica in 1883–1886. One milestone was dedicated to Marcus Aurelius and is dated to 161 AD[65] and the second to Septimius Severus and is dated to 198 AD.[66] Since these would have been set up next to the main Roman road in the past, and the finding of two milestones in the same location indicates they were found *in situ*, the position of these finds is of crucial importance. The location influenced not only early researchers in the 19th century[67], but equally resonates in more recent works.[68] Hence, defining the exact location where the milestones were found in 1883–1886 proved to be necessary.

The discovery was described by Ignjat Jung, a school teacher in Sremska Mitrovica and an enthusiastic amateur archaeologist who extensively recorded Roman and antique sites in ancient Sirmium and the surrounding areas.[69] His letter to the Archaeological Museum in Zagreb (no. 33, of 25th November 1886), included comments on the finding, a transcription of the inscriptions as they were interpreted back in that time, and a map.[70] Ignjat Jung previously, on 8th November 1886, relayed the discovery of the milestones to the historian and archaeologist Šime Ljubić who, in 1887, published the inscriptions with a description of the circumstances of the discovery.[71] The inscriptions were published again by Josip Brunšmid in 1889.[72]

Ignjat Jung wrote on the 8th November 1886 that the milestones were first encountered in 1883 but not removed when a new channel in the Crepovac field was dug, east of Sremska Mitrovica, but he noted that on 5th November 1886, when this channel was being further cleaned, the milestones were again recognised and this time removed.[73] The milestones have the inscriptions, with 3 Roman miles (the distance from Sirmium) inscribed in the bottom lines[74]; with the older dated to 161 AD (or 167 AD) and the younger to 198 AD.[75] Jung noted that this new canal was a "side canal" that was dug from an existing channel which flows into the Sava River from the north and divides the field of Meteriza in the west from the field of Crepovac in the east; what Jung found very strange is that the milestones were discovered on the left (northern) side of the Sremska Mitrovica-Ruma road.[76] According to a map drawn by Jung in November 1886, the milestones were found north of the Ruma road, between the Ruma road and the railway.[77]

Considering this position of the milestones, Jung concluded that the station "*Fossis*" was in Šašinci.[78] This was then accepted by Šime Ljubić, and "*Fossis*" was identified with the Kudoš area east of Šašinci, near the Kudoš channel, close to where the Kovačić (or Kovačević) watermill was situated.[79]

However, it should be noted that Ignjat Jung was not personally present at the location when the milestones were found and removed on 5th November 1886. As implied in the reports, Jung was informed about the discovery when the milestones were already

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64 Vojnogeografski institut 1979a.

65 Mirković 2017, 232, [Inscription No. 266].

66 Mirković 2017, 233–234, [Inscription No. 268].

67 Brunšmid 1889; Jung 1890; Ljubić 1887.

68 Црнобрња 2015; Милошевић 1988; Mirković 2008; Popović 1980.

69 Miladinović-Radmilović, Radmilović 2015.

70 Miladinović-Radmilović, Radmilović 2015, 38–41, 96, 170.

71 Ljubić 1887; Miladinović-Radmilović, Radmilović 2015, 264–270.

72 Brunšmid 1889, 35–37; Miladinović-Radmilović, Radmilović 2015, 276–278.

73 Ljubić 1887, 16.

74 Ljubić 1887.

75 Mirković 2008, 132–133.

76 Ljubić 1887, 16–17; Miladinović-Radmilović, Radmilović 2015, 41.

77 Miladinović-Radmilović, Radmilović 2015, 96

78 Miladinović-Radmilović, Radmilović 2015, 96, 170

79 Ljubić 1887, 18; Miladinović-Radmilović, Radmilović 2015, 269; Kantonai felmérés III. 1872–1884.

displayed in the town, by a senator in Sremska Mitrovica, Mr. J. Pavlović, and by a land surveyor from the town, Mr. Popović, whose workers actually found and dug out the milestones.[80]

This was likely one of the reasons why, in 1889–1890, Jung reconsidered his view on the road direction from Sirmium to Fossae in a letter sent to the museum in Zagreb.[81] In 1889 he surveyed the road remains in the direction of Šašinci, and noted that the road was going in a straight direction from the Roman necropolis east of Sirmium, through the fields of "Meterice" [Meteriza] and "Šljivice", it crossed "Zabrana" (probably a channel) and led through "Šašinačko Polje" to the "Klisina" fort.[82] Jung described Klisina as a Roman fort of circular outline 50 m in diameter, with a 20 m wide trench around it, and wrote that remains of the road were next to the fort; according to Jung, the entire site was 100 m in diameter and looked like a small hill, which Jung also named "Vijenac".[83]

However, in the same report published in 1890, Jung noted that the milestones found in 1886 were not found next to the Roman road he had described (that is, the road to Klisina fort, which he considered to be the main road to Fossae that led further to Bassianae); as Jung wrote, the milestones must had been placed next to another Roman road that led from Sirmium eastward and which turned to the north-east towards Klisina ("Vijenac") where it was connected to yet another road that led towards Fruška Gora and further north to ancient Aquincum.[84] Hence, Jung suggested two roads going from Sirmium towards the east and/or north-east (the main one that led to "Klisina" and "Fossis", and another one with the milestones next to it that led to the east and then turned to "Klisina" to the north-east); and these were connected to another one coming from the north.

Jung justified such an interpretation with a find of a milestone at Laćarak that was also set up in a field 3 Roman miles from Sirmium but on the western side of the town.[85] According to Jung, these roads must had been connected in the past. In this way, Jung indirectly suggested there was a detour around Sirmium on its northern side.

The idea of the detour has also been considered in more recent works. Prior to the detailed surveys, D. Popović and P. Milošević also considered that the main Roman road could have led next to the Klisina fort.[86] M. Mirković suggested that the milestones were positioned on a crossroad 3 Roman miles from Sirmium where the Sirmium–Fossae–Bassianae road intersects with a northern detour, with this conclusion based on the initially indicated position of the find spot of the milestones, as well as the position of the Laćarak milestone.[87] Additionally, this interesting hypothesis was recently repeated by A. Crnobrnja.[88]

Nevertheless, in the same 1890 report, Jung concluded that the second road from Sirmium leading towards the east with the milestones set next to it, was probably a side road, not the main one, and therefore not mentioned in the ancient sources; the road that led next to the Klisina fort was the main one that went to Fossae and further led to Bassianae.[89]

In spite of such a concession, nearly 15 years after his survey, Jung again changed his opinion. This was shown in a letter to the museum in Zagreb (no. 267) about the Roman road between Sirmium and Bonnonia in the south-north direction, written in the winter of 1904 and with a map sketched next to the text.[90]

On the bottom right of the map Jung sketched three Roman roads east of Sirmium, all of which begin in the same area of the eastern necropolis of Sirmium, east of the Čikas channel; the main road leads from the channel in the west to a point of intersection of the three roads east of the channel.[91] One road proceeded towards the north-east and was marked as leading to "Vijenac", that is to the Klisina fort; another road was marked by Jung proceeding towards the south-east leading to "Gensis" as Jung wrote (known from *Tabula Peutingeriana*);[92] along the Sava River and through Jarak village; between these two roads, there was a third road proceeding towards the east leading to Šašinci and, as Jung marked on the map, it led to

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[80] Ljubić 1887, 16–17; Miladinović-Radmilović, Radmilović 2015, 41.

[81] Ljubić 1890.

[82] Ljubić 1890, 26.

[83] Ljubić 1890, 26–27.

[84] Ljubić 1890, 27.

[85] Ljubić 1890, 27; Miladinović-Radmilović, Radmilović 2015, 99, 175.

[86] Popović 1967a; Popović 1967b.

[87] Mirković 2008, 128.

[88] Црнобрња 2015, 168–170.

[89] Ljubić 1890, 27.

[90] Miladinović-Radmilović, Radmilović 2015, 58; Милошевић 1988, 122, сл. 6.

[91] Miladinović-Radmilović, Radmilović 2015, 58; Милошевић 1988, 122, сл. 6.

[92] Omnes Viae 2011.

"*Fossis*".[93] The northern detour around Sirmium, implied by Jung in 1890, was not sketched on his map in 1904, although both the map and the letter referred to a road coming from the north (from Bononia), which was also sketched.

Jung's map from 1904 shows that the main road that led from Sirmium to Fossae proceeded in a west-east direction from the eastern periphery of Sremska Mitrovica (from the eastern necropolis of Sirmium) towards Šašinci, across the Prosek and Crepovac fields. Furthermore, this is the road which was marked 15 years before as the "side road" where the milestones were found.[94] In this way Jung indirectly, over an extended period, acknowledged his misinterpretation of the two milestones' discovery location, which could had been expected, since he was not present at the discovery location on 5th November 1886.

The varying conclusions of Ignjat Jung have been mostly overlooked in recent literature on the topic, and his initial standpoint had been predominantly reflected in the interpretations until major surveys and excavations of the Roman road in the 1970s and 1980s.

However, Jung's initial misinterpretation of the milestones' discovery location in 1886, when he described the milestones as being found on the left or northern side of the Sremska Mitrovica-Ruma road, was partially corrected by Petar Milošević, who placed the milestones' findspot on the right or the southern side of the Ruma road.[95]

The changed position of the milestones in the map was not explained by Milošević, but it is likely that the author understood Jung's misinterpretation since Jung was not present at the location when the milestones were found but was informed by others, and even Jung found it very strange that the milestones were found on the left side of the road and not on the right side. Milošević is likely to have had in mind more recent surveys and excavations that positioned the road further south.[96] Still, Milošević placed the milestones next to the Ruma road,[97] and such interpretation must had been influenced by the existence of the so-called "side canal" in that place, described by Jung and visible in 19th century maps.[98] This channel was connected to the one that flows into the Sava and divides the fields of Meteriza in the west and Crepovac in the east, as initially described by Jung. However, the milestones were not marked by Milošević in a position where the main Roman road goes, which is the direction that P. Milošević, D. Popović and M. Vasiljević had identified by a method of field survey; the milestones were shown as having been found further north, close to the Ruma road where the "side canal" existed in the past. Such a positioning of the milestones by Milošević has been accepted by some other authors[99], but the direction of the main Roman road has been shown by those same authors as stretching in a west-east direction further south[100], just as D. Popović, P. Milošević, and M. Vasiljević defined after their extensive research.[101]

The widely acknowledged conclusion that the milestones were set up on the main Roman road, Sirmium-Fossae-Bassianae, along with the fact that the road stretches from west towards east through the Prosek and Crepovac fields in a straight line from the dairy plant eastwards (which was based on the results of surveys and excavations), and bearing in mind the misinterpretation of the discovery location of the milestones by Jung, all lead to a conclusion that the milestones were actually found on the Roman road route east of the dairy plant, not north-east of the factory, no matter on which side of the Ruma road these were supposedly discovered.

An Austro-Hungarian map of the area, produced from 1872 to 1884[102] discloses the position of the so-called "side canal" mentioned by Jung, which was parallel to the Ruma road on its southern (right) side, and was connected to the main channel that flows into the Sava from north to south and divides the fields of Meteriza in the west and Crepovac in the east. This "side canal" already existed when the milestones were found, as the map shows.[103]

The channel in which the milestones were found was dug between 1883 and 1886; it was finished in November 1886, when it was finally cleaned and the

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[93] Miladinović-Radmilović, Radmilović 2015, 58; Милошевић 1988, 122, сл. 6.

[94] Ljubić 1890, 27.

[95] Милошевић 1988, сл. 2.

[96] Милошевић 1988, 117–120, сл. 2, сл. 3.

[97] Милошевић 1988, сл. 2.

[98] Географско одељење Главног Генералштаба 1894; Kantonai felmérés III. 1872 – 1884.

[99] Црнобрња 2015, 167; Mirković 2008, 128, 132–134.

[100] Црнобрња 2015, 246, карта 1, карта 2; Mirković 2008, 127.

[101] Милошевић 1988; Popović 1980; Popović, Vasiljević 1969.

[102] Kantonai felmérés III. 1872–1884.

[103] Kantonai felmérés III. 1872–1884.

Fig. 12. Map of the area east of Sremska Mitrovica – Third Cantonal Survey 1872–1884 (Kantonai felmérés III. 1872–1884)

Сл. 12. Карта подручја источно од Сремске Митровице – Трећи кантонални премер 1872–1884 (Kantonai felmérés III. 1872–1884)

milestones taken out.[104] This occurred after the map showing the “side canal” was published, and the actual channel with the milestones is not shown on the map[105] as it did not exist at the date of the map’s preparation.

The fact that the channel dug between 1883–1886 is also not shown in the Serbian military map from 1894 is not considered to be significant as this map lacks several details in this particular area, such as several canals and field boundaries, when compared to the older Austro-Hungarian map.[106]

The channel dug in 1883–1886 exists today. It was the one stretching from the north-western periphery of the Crepovac field towards the south-east and south; it cuts underneath the Ruma road and cuts across a line of the so-called “side canal” which does not exist anymore; then the channel continues through the eastern periphery of Prosek and the western periphery of the Šašinačke Međe field and continues to the Glac archaeological site on its western side; south of Glac it flows into the Sava alluvial plain.[107] This channel has been known as the Glac canal or Crepovački channel. Prior to its construction through Crepovac in 1883–1886, the Glac canal stretched only 800 m from the Sava alluvial plain northwards.

One should bear in mind that the area of Prosek and Crepovac was rather swampy due to the geomorpho-

[104] Ljubić 1887, 16–17; Miladinović-Radmilović, Radmilović 2015, 41.

[105] Kantonai felmérés III. 1872–1884.

[106] Географско одељење Главног Генералштаба 1894; Kantonai felmérés III. 1872–1884.

[107] Vojnogeografski institut 1979b.

logical conditions[108], and most likely it was within a body of water for a long time well before the 19th century. In the old maps the area was described as "Jezero" which means "a lake"[109]. The area was completely drained in the 19th century when the Glac Creek channel was dug through. The terrain has been additionally flattening as result of constantly ploughing with machinery for the last six or seven decades.

The Glac or Crepovački channel cuts through the established Roman road route. The milestones must had been found at the intersection of the Roman road route and that channel.

The finding of the two milestones recording the same distance from Sirmium (3 Roman miles) suggests the milestones were found *in situ* and that they had not been moved there.

As mentioned above, the Glac Survey team surveyed the location of this intersection in March 2019. Clear remains of the road were found and the location was positioned on the map and GPS coordinates noted.

"Porta Fossiensis" –
the missing gate of Sirmium

Following the field walk survey in 2019, the position of the intersection of the Roman road and the Glac channel was measured from Sremska Mitrovica along the direction line of the Roman road established by D. Popović, P. Milošević, and M. Vasiljević, identified by the remote sensing methods, and confirmed in the field during the Glac Survey campaign.

The Roman units of linear measurement are as follows:[110] 1 Roman mile (*mille*) = 1,000 paces; 1 pace (*passus*) = 5 Roman feet (*pedes*). The Roman foot was based on a measure called the *pes monetalis*, named thus as it was housed in the Temple of Juno Moneta on the Capitoline Hill in Rome. Replications of the *pes monetalis* for use by surveyors in the field resulted in discrepancies creeping in for its practical application. The length of the *pes monetalis* was 0.295 metres,[111] and hence a Roman mile is 1,475 m, but its actual measurement can vary for the reasons noted by Aylward. As a result, different measurement for a Roman mile are given by authors, such as 1,481.5 m[112] or 1,480 m,[113]; strictly the 3 miles inscribed on the milestones equals 4,425 m, but this could vary.

If measured from the Glac channel and the Roman road intersection, the distance of 3 Roman miles ends up in the eastern side of Sremska Mitrovica, at the intersection of Kuzminska (Krajiška) and Arsenija Čarnojevića (Palanka) Streets, at the former "Kamenita Ćuprija" (the so-called Jordan) on the Čikas channel, northwest of the Kalvarija hill, at the location of the present day service station.

Ignjat Jung considered this exact location is where the so-called "Porta Fossiensis" or "Porta Orient", the Eastern Gate of Sirmium was situated.[114]

Jung made sketches of the Roman structures at the site, suggesting the existence of the city's Eastern Gate.[115] In his letter of 19th July 1896 to the museum in Zagreb, published by Josip Brunšmid in 1897, Jung noted that Mr. Mijo Zec from no. 82 Kuzminska (Krajiška) Street (old no. 703) had remains of a massive Roman tower in his garden, which a few years before had been quarried and destroyed.[116]

In spite of the information provided by the eyewitness Jung, the existence of the tower has been questioned. The site next to the "Kamenita Ćuprija" has been known as "Locality No. 9" throughout a period of extensive archaeological research of Sirmium, which started after the Second World War.[117]

"Locality No. 9" was researched in 1959 with an area of 900 m² excavated; several rectangular and square rooms that were mutually connected were excavated and generally dated to the Roman period, but were not precisely interpreted; after it had been excavated the site was buried.[118] Petar Milošević concluded that the remains could have had a fortification character; on the other hand, this could had been a beneficiary station next to the Eastern Gate; the material was predominantly dated between the 2nd and the 4th century AD.[119]

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[108] Ćalić et al. 2018–2020.

[109] Географско одељење Главног Генералштаба 1894; Kantonai felmérés III. 1872–1884.

[110] Hornblower, Spawforth 1999, 943.

[111] Macdonald 1982, 83, n. 21 and 140, n. 70; and for a discussion on the variability of the distance of the Roman foot see: Aylward 1999, 186–190.

[112] Tilburg 2007, 181.

[113] Richardson 2004.

[114] Brunšmid 1897, 157–158; Miladinović-Radmilović, Radmilović 2015, 89–93, 106–107, 129, 169, 172–173.

[115] Miladinović-Radmilović, Radmilović 2015, 89, 129, 169, 172.

[116] Brunšmid 1897, 157; Miladinović-Radmilović, Radmilović 2015, 106, 172.

[117] Brukner 1959; Jeremić 2016; Милошевић 1994; Поповић 2003.

[118] Brukner 1959.

[119] Милошевић 1994, 16.

About 200 m to the south-east of the site, on the opposite (left) side of the Čikas channel rises "Locality no. 12", the Kalvarija hill, which is an artificial tell researched in 1950, 1961, and 1963, where a 120 m² area was excavated.[120] Remains of prehistoric settlements and a necropolis were found (Neolithic and Bronze Age settlements, a Hallstatt phase Iron Age necropolis, and a La Tène settlement-oppidum), but also remains of a massive Roman fortification wall.[121]

The city's plans made by Vladislav Popović suggest that the Eastern Rampart of Sirmium between the 3rd and 6th century reached the southern part of the present day Kuzminska Street, south-west of "Locality no. 9".[122] V. Popović interpreted "Locality no. 9" as a "large building of a probable military character, which was by the latest field data situated outside the city itself; its position suggests that it had to be placed in front of the Eastern Gate or next to the Eastern Gate of the city".[123]

In addition, Nataša Miladinović-Radmilović located numerous burials within the city walls from the 4th and 5th centuries AD; this tends to discount the objection to the location of the Eastern Gate at the intersection of the present day Arsenija Čarnojevića or Palanka Street and Kuzminska Street based upon the presence of burials on the inner side of the city walls.[124] Objection is taken to this as the location of the Eastern Gate as excavations identified late Roman burials that would be inside the walls, contradicting general Roman practice that burials were located outside of the city walls. However, necropoleis from different periods are known both inside and outside the city walls.[125] Miroslav Jeremić concluded that the 1959 excavations did not prove the existence of the Eastern Gate at the site that Jung suggested in 1896.[126]

Both Miroslava Mirković[127] and Miroslav Jeremić[128] provided a plan of Roman Sirmium with the Eastern Gate at the intersection of the present day Stari Šor and Svetog Dimitrija Streets. Vladislav Popović, however, suggested the Eastern Gate should be close to the intersection of Arsenija Čarnojevića (Palanka) and Kuzminska Streets.[129] The same may be concluded from the work of Petar Milošević, who interpreted the remains at "Locality no. 9" to have had a fortification character.[130]

In addition, the authors locate the *groma* at the intersection of Stari Šor and Kralja Petra Streets, while the *forum* was situated south of the *groma*.[131]

This brings us to the question of measurement points; that is, from what point the road distances were measured in the past?

There are 3 possibilities:

a) The Eastern Gate of the city through which the road left the city;

b) The *Groma* or intersection of the *Cardo Maximus* and the *Decumanus Maximus*;

c) The Forum of the city.

Regarding where the point from which milestones record the distance, Raymond Chevallier writes:[132]

"The stones display the distance between the spot at which they were set up (which is never mentioned) and the point of departure or arrival as it may be, the latter being possibly the centre of the town (in Rome, the 'golden milestone'), the forum or, most often a gate."

In relation to distances on milestones from Rome itself, William Smith noted:[133]

"It is also uncertain whether the miles began to be reckoned from the pillar itself (i.e. the *Milliarum Aureum*) or from the city gates."

More recently, van Tilburg concluded that distances outside of Rome were measured from the *pomerium* (a zone that stretches along the ramparts) of the Servian Wall.[134]

Thus, there was no set rule as to where milestones measured distances from, but generally this was from the city gate or point of entry.

Going back to the Crepovac milestones, by measuring 3 Roman miles from the place of the finding in 1883–1886, the position of the Eastern Gate turns out to be at "Locality no. 9", where even today one can see there is a noticeable rise in the topography at the site.

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120 Popović 1963, 63–64; Василић 1952, 168.

121 Милошевић 1994, 17–18; Popović 1978b, 2; Popović 1963, 63–64; Василић 1952, 168.

122 Popović 1977, 115–119, 122; Поповић 2003, 44–45, 76, 137, 141, 145, 151, 153, 155, пл. 4, 5, 6.

123 Поповић 2003, 78.

124 Miladinović-Radmilović 2011, Map 4.

125 Popović 1977; Поповић 2003.

126 Jeremić 2016, 67, sl. 42.

127 Mirković 2008, 87.

128 Jeremić 2016, 36, sl. 20.

129 Поповић 2003, 78.

130 Милошевић 1994, 17–18.

131 Jeremić 2016; Milošević 1994; Mirković 2008; Popović 1977; Поповић 2003.

132 Chevallier 1976, 41.

133 Smith 1843, 637.

134 Tilburg 2007, 20.

Additional evidence in favour of the existence of the Eastern Gate at the site is the milestone found at the Bare site west of Šašinci.[135] If measured along the established line of the Roman road, the site is distanced from "Locality no. 9" at exactly 5 Roman miles.

Taking all this into account, the most likely conclusion is that the Eastern Gate should be located at the intersection of Arsenija Čarnojevića (Palanka) and Kuzminska Streets, where Ignjat Jung initially positioned the "Porta Fossiensis".

Outline of the Roman road from "Porta Fossiensis" to Fossae

Archaeological excavations of the traces of the road structure, field surveys, and remote sensing, enable mapping of the position and direction of the Roman road east of Sirmium.

However, data is been missing for particular areas such as the industrial zone in the eastern periphery of Sremska Mitrovica and Šašinci, covered with modern development. The route can be divided into sections as follows.

(a) The Eastern Periphery of Sremska Mitrovica and the Industrial Zone Section.

The road leads from the point of exit from Sirmium, the "Porta Fossiensis" at the corner of Arsenija Čarnojevića (Palanka) and Kuzminska Streets, proceeds southeast through the Palanka area, that is from Kalvarija – Ciglana between the streets of Timočke Divizije and the Čikas canal, with a slight turn eastward at Ciglana, and then in a southeast-east direction to the industrial zone. In this first part, the road follows a lip of the Sava's left bank river terrace. Its direction is north-west to south-east with a slight turn to southeast-east at Ciglana.

In the Industrial Zone the road direction is less clear. The road remains were found northeast of Ciglana, in the dairy factory courtyard, close to the gate of the factory complex. Traces of Roman buildings and burials in the Industrial Zone are stretched along the lip of the Sava river terrace further southeast, between the Čikas canal and the Jarak road, as was noted and sketched by Ignjat Jung in 1904.[136] The Eastern Industrial Zone could be an area where two roads split, one proceeds south-east along the lip of the river terrace and another northeast and further through the Prosek field. The first one could be the road that led through Jarak, which Jung sketched in 1904, and the second is the main one that leads to Fossae[137]. Judging by the positions of the excavated road remains at Ciglana and at the gate of the dairy factory, its direction in the industrial zone should be from south-west to north-east.

In this section, segments of the road were archaeologically identified at the sites (from north-west to south-east): nos. 12 (Kalvarija), 57, 76, 77, 79, 81, 67 (Ciglana), and further to the southeast.[138] Remains of the main road to Fossae were archaeologically identified in the courtyard of the dairy plant, close to its gate.[139]

(WGS 84 reference: "Porta Fossiensis" 44°58′16.52″N 19°37′9.39″E, Kalvarija 44°58′14.55″N 19°37′16.09″E, "Locality no. 81" 44°58′8.14″N 19°37′41.61″E, Ciglana 44°58′6.78″N 19°37′47.87″E, the dairy plant courtyard at the gate 44°58′10.95″N 19°38′36.22″E.)

(b) The Prosek-Crepovac Section.

Remains of the road stretch toward the east, from the courtyard of the dairy plant at the gate, situated at the intersection of the modern Ruma and Jarak roads. The road traces traverse through the Prosek field, and they are cut by a larger channel that flows from north to south and enters the Sava at the industrial zone, and are also cut by the Glac or Crepovački channel where the two milestones were found; 700 m further east there is a turn at a low angle, from a west-east direction the road turns towards the southeast/east. Hence, in this section the direction of the road is from west to east.

(WGS 84 reference: next to the dairy plant gate 44°58′11.67″N 19°38′38.41″E; intersection of the road remains and Crepovački or Glac channel where 2 milestones were found 445806.47N 194032.20E; Prosek-Crepovac turn at the eastern periphery of the section 44°58′5.09″N 19°41′3.99″E.)

(c) The Bare-Šašinci Section.

From the turn at the eastern periphery of the Prosek-Crepovac section, the road remains continue in a southeast/east direction. The traces are cut by the Mančelov Gat channel at Bare, where the road surface finds were noted by D. Popović and a milestone was ploughed out by the landowner. The road traces lead to

[135] Popović 1967b, 4, skica 4; Popović 1980, 102.

[136] Miladinović-Radmilović, Radmilović 2015, 82–83, 155–156.

[137] Miladinović-Radmilović, Radmilović 2015, 58; Милошевић 1988, 122, сл. 6.

[138] Jeremić 2016, 102, 104, sl. 67.

[139] Popović 1980, 102.

Fig. 13. Position and directions of the Roman road from Prosek to Kudoš

Сл. 13. Позиција и правци пружања римског пута од Просека до Кудоша

Šašinci, where at Ledine they were identified archaeologically, and then proceed across the southern part of the village through the gardens in the former Savska Street nos. 33 and 48, where the road was surveyed by D. Popović. The line of the road exits at the eastern side of the village where it again changes direction and turns straight to the east. Hence, the direction of the Bare-Šašinci section is northwest/west to southeast/east.

(WGS 84 reference: Bare road and milestone area 44°57′56.68″N 19°42′25.76″E, Savska Street nos. 33 and 48 are at 44°57′43.23″N 19°44′22.13″E; the turn at east edge of the village of Šašinci 44°57′39.54″N 19°44′49.53″E.)

(d) The Kudoš Section.

After the turn at the eastern edge of Šašinci where the road changes direction at a low angle towards the east, the traces are cut by a channel going from north to south and the road remains are stretched across the Kudoš area, east of the village. The road was surveyed by D. Popović, and again in 1980s during the motorway rescue research. Limited surface remains of the road were also identified in December 2020. The traces are cut by the Kudoš channel at a point 900 m south of the motorway. The road line traverses the area called Kudoš Livade 200 m further to the east where it is cut by a channel that remained and which was modified after the regulation of the Jelence River that used to flow parallel to the Kudoš River. The road remains stretch across Kudoš Livade further east to the motorway, where they were also surveyed by D. Popović and were archaeologically excavated at a sondage close to the motorway during the rescue archaeological work. To sum up, the direction of the road in the Kudoš area is from west to east.

(WGS 84 reference: intersection of the road with the Kudoš channel 44°57′34.46″N 19°46′54.71″E; at the intersection with the former Jelence River channel 44°57′34.30″N 19°47′3.75″E.)

Fig. 14. Kudoš Livade area, at the intersection of the line of the Roman road with the Kudoš channel, looking north-east

Сл. 14. Потес Кудош–Ливаде, место укрштања линије римског пута са каналом Кудош, поглед ка североистоку

In summary, the Roman road remains generally stretch from the eastern periphery of Sremska Mitrovica and the Industrial Zone to the Kudoš area east of Šašinci, that is the Kudoš Livade field with some small changes in direction at low angles, at no less than 5 points along its route.

The length of the road, from the position of the "Porta Fossiensis" to the former Jelence River channel, measures approximately 13,250 m.

Way Stations

Way stations were located along the route of main roads between towns and cities. Textual sources such as the Theodosian Code identify a number of types of way stations, but by the time of the Theodosian Code the distinction between the various types is not clear cut, undoubtedly reflecting the need for way stations to adapt the range of services provided to local circumstances and needs.[140] The types of way stations were as follows:[141]

a) *Mansio*, being a stopping place for an overnight stay with more extensive roadside services and often surrounded by lesser buildings.

b) *Mutatio*, being a relay station.

c) *Statio*, being a sentry point or guard post.

Additionally, for non-official travellers, a system of private inns (*cauponae*) developed near the *mansiones*, with often dubious reputations, leading more particular travellers to use *tabernae* or hostels.

Chevallier noted: "Archaeology is unfortunately not very informative about arrangements at relays, for the basic problem in excavation has been to identify the purpose of each building exposed and its date (*praetorium* or travellers' hostel, baths – water supply was a vital factor – stables, sheds, barns for fodder, grooms' quarters, forges)".[142]

Some details of the role of *mutationes* can be discerned from the extensive provision in Book 8 Title 5 of the Theodosian Code dealing with the law relating to the public post (*cursus publicus*),[143] suggesting that

[140] Chevallier 1976, 185.
[141] Chevallier 1976, 185–186.
[142] Chevallier 1976, 187.
[143] Pharr 1952, 194–205.

this was an area of significant misconduct and impropriety and hence in need of regulation. These provisions indicate the following functions were undertaken at *mutationes*:

a) Mule driving, wagoner, wheelwright, carpenter (*carpentarius*) and veterinary services.[144]

b) Checking of post warrants for authorisation to use the public post.[145]

c) Mule driving and stables.[146]

d) Provision and changing of horses.[147]

e) Provision of a suitable supervisor.[148]

It appears that the role of the *mutationes* was one of a service, maintenance and repair function for animals, carts and carriages and equipment, plus an administrative function of control and authorisation for the use of the road and the facilities of the public post. Their role does not appear to have extended to the provision of accommodation and perhaps food for travellers. Thus, some or all of the following functions are likely to have occurred at a *mutatio*:

a) Administrative.

b) Veterinarian and grooming services.

c) Repair workshop including carpentry, wheelwright and forge services.

d) Stables for horses, mules etc.

e) Provision of fodder for animals.

f) Water supply.

g) Sleeping and domestic quarters for staff.

h) Parking areas for carts and animals.

The Theodosian Code contains extensive regulation of the weights of vehicles and the loads of animals using the public roads, presumably to prevent damage to the roads, to protect the livestock, and to not overload the repair works at *mutationes* and *mansiones*.[149] Book 8 Title 6 of the Theodosian Code, dealing with the law relating to the Post Warrants for travel with Subsistence and Lodging Places (*De tractoriis et stativis*)[150], relates to *mansiones* providing for entitlements for subsistence and lodging. The Theodosian Code also regulated the distribution of animals to stations[151] and the provision of measures at stations for tax collection.[152]

Chevallier notes that the names of relay stations were taken from distance marks, a prominent landmark or a town name.[153] The name of "*Mutatio Fossis*" recorded in the Bordeaux itinerary was taken from the most prominent landmark in the otherwise flat plain between Sirmium and Bassianae, namely the presence of more than one ditch or channel near the *mutatio*. This indicates the presence of drainage channels such as the Kudoš stream and the former course of the Jelence River near modern Šašinci, in addition to the Jarčina channel in the neighbourhood of Jarak presumed to have been constructed by Probus, indicating extensive land reclamation in the area that existed to drain wetlands. Also, for the presence of some ditches or channels at "*Mutatio Fossis*" to be noticeable, it implies the absence of such drainage ditches to the west towards Sirmium, giving a clue to the rural landscape through which the road passed from Sirmium to "*Mutatio Fossis*".

The Archaeology of *Mutationes*

In 1967 von Hagen noted:

"*Mutationes* were stations in which horses, oxen or mules were changed. Here there were grooms and veterinarians (*equarii medici*) to care for the animals. There were cartwrights and postilions, and wheelwrights were posted nearby, for the wear and tear on springless vehicles must have been considerable. The halting-places appeared every twelve to eighteen miles along the entire length of the Roman road system, which means that there were over 4,000 such buildings that had to be serviced throughout the Roman world. Yet, despite this, not one has been identified on the European continent; one has been found in Egypt and the author's expedition found a *mansio* in the in the interior of Tunisia stationed between two milestones."[154]

The way station in Egypt referred to by von Hagen is named Dĕr el-'Atrash, on the road from Quena (ancient Kaine) on the River Nile in Upper Egypt leading to the porphyry mines at Mons Porphyrites and then to Myos Hormous, a port on the Red Sea.[155] In Hellenistic and Roman Arabia and Egypt, these way stations were called *hydreuma* (plural *hydreumata*) and were enclosed and often fortified "watering stations"

144 Theodosian Code 8.5.31.
145 Theodosian Code 8.5.8.
146 Theodosian Code 8.5.34 and 8.5.58.
147 Theodosian Code 8.3.34.
148 Theodosian Code 8.5.65.
149 Theodosian Code 8.5.8, 17, 28, 30, 47, 48.
150 Pharr 1952, 205.
151 Theodosian Code 11.1.9.
152 Theodosian Code 12.6.21.
153 Chevallier 1976, 186.
154 von Hagen 1967, 58.
155 Murray 1925.

along a caravan route.[156] There is no specific attribution of this site as a *mutatio*. It appears that von Hagen was referring to way stations in general and not specifically to *mutationes*.

Murray wrote: "The stations along the roads, although varying considerably in details, conform to a general type – a rectangular caravanserai with substantial rubble walls and flanking towers at the angles and at either side of the gateway, which was often of dressed stone…. Small rooms for the garrison and the travellers crowded the interior, but in the centre there was usually a well and an open space for animals. Stations on the roads to the porphyry and granite quarries were provided, however with separate enclosures for the animals."[157]

Another *hydreuma* was described by Couyat at Abou-Fennan on the route from Edfu (ancient Apollinopolis) to the Red Sea at Berenice.[158] This *hydreuma* comprised a fortified 50 m² enclosure containing a large open space in which was a well or cistern. Small rooms adjoined the interior of three of the walls.[159] Both of the way stations at Dĕr el-'Atrash and Abou-Fennan, while differing in details, conformed with the same general design. Interestingly, Couyat referred to the Abou-Fennan way station as a *mansio* or caravanserai and not a *mutatio*. The more recent survey of the Berenice road by Sidebotham and Zitterkopf identified a series of fortified and unfortified *hyreumata* at Samut, Abou Midrik and Seyhrig adopting plans with similar layouts to those seen at Dĕr el-'Atrash and Abou-Fennan.[160]

However, the Egyptian evidence raises a note of caution as the routes in the Eastern Desert date from Ptolemaic times and a number of the sites show evidence of earlier Ptolemaic use, suggesting that Roman era way stations may have re-used already existing structures from the Ptolemaic period.[161] Hence, further corroboration is required before the architectural elements of *hydreumata* from Egypt are presumed to apply to *mutationes* in Pannonia.

More recent excavations at a number of sites in the Balkans have identified sites which are likely to be potential way stations. One of the difficulties is identifying the type of way station, unless there is epigraphic evidence on the site, but none so far have been discovered. The best identification of the type of way station is in the Bordeaux Itinerary, which specifies which locations are *civitas*, *mansio*, or *mutatio*, although this is not included in either the Peutinger Table, the Antonine Itinerary, or the Ravenna Cosmology.[162] Where a site is not identified as a *mutatio* in the Bordeaux itinerary, even though it may appear to be a *mutatio*, the absence of confirmation leaves a level of doubt.

Bíró, in 2007, undertook a rescue excavation near Gönyü in the north-western part of Roman Pannonia, now modern Hungary, on the right bank of the Danube, 20 metres north of the *limes* road between two Roman auxiliary camps. The excavations revealed a drainage ditch surrounding an area of 40 m² within which was a square building. The building underwent three phases of construction, with initially a timber structure succeeded in the early 2nd century AD by a new building of stone foundations and brick, 17 x 21 m. The building was symmetrical with four main rooms at the front and a large courtyard at the rear, likely only partially covered. At the front, two rooms projected out from the building and in one of these an oven was discovered. In a later building phase, small rooms were inserted on two sides of the courtyard. At the front of the building facing the *limes* road there was a gravel surface and a small road connecting to the *limes* road. Three wells had been dug outside of the drainage ditch. The building was unfortified, but brick stamps bore legionary stamps made some time after 117/118 AD, indicating military control.[163] The author noted the similarity of the plan of the structure with other likely road stations near Sárvár, St Margarethen and Katafa.[164] Moreover, these structures are similar to the *hydreumata* from the Egyptian desert, albeit without fortifications.

Bíró concluded: "Although most of these structures are interpreted as road stations or horse stations, all of them show signs of [a] military presence… These stations formed part of the official postal system, the cursus publicus, so primarily they were used by the official administration…., but some of them could also [have] played the role of beneficiary stations. … The Latin term for such a building is also

[156] Pliny the Elder, Natural History, XVII.45.
[157] Murray 1925, 140.
[158] Couyat 1910.
[159] Couyat 1910, 529, 532
[160] Sidebotham and Zitterkopf 1995.
[161] Sidebotham and Zitterkopf, 1995; Paprocki 2019; Redon 2018.
[162] Fodorean 2017b, 101.
[163] Bíró 2017, 180–183.
[164] Bíró 2017, 184.

problematic, as it is rarely possible to identify a station with a name from an itinerary or from an inscription…, and also the translations of these categories may vary over time and space. From the known terms *statio*, *mutatio* or *praetorium* could perhaps be applied to this site…"[165]

In examining way stations in the provinces of Moesia and Thrace in modern day Bulgaria, Madzharov noted that three *mutationes* have been explored at *Mutatio* Scretisk, Troyanski Pass, and at the village of Chavdar.[166] Plans are included for the first two and, despite their incomplete nature, they are not inconsistent with the Gönyü way station examined by Bíró.[167] Lazar has investigated the road station of Romula at Ribnica near Jesenice, a site noted in both the Peutinger Table and the Antonine Itinerary on the road between Emona and Siscia in modern Slovenia. The site appears to be a complex establishment with a defensive building and a settlement and has been interpreted by Lazar as a customs station.[168] Groh and Sedlmayer, in examining the Amber road to Carnuntum, noted a number of way stations (Ad Arrabonem, Kleinmutschen, Nemescó, Valkenburg, Hüttlingen, Huheld and Rüsselsheim) with plans showing structures even smaller and more basic than the way station at Gönyü.[169]

Lemcke concluded:

"The layout of roadside stations seems to have been rather uniform: the main building of a *mutatio* was characterized by its rectangular shape and wide gate (generally 3–4 m), providing ample space for carts to enter. On the inside, arranged around the edges of a large courtyard with room for carts and further animals, there were stables as well as rooms for various purposes. Separate buildings in the close vicinity were used to house travellers during their short stays.".[170]

This review of the archaeological layout of way stations and potential *mutationes* provides a benchmark against which future investigations of the location of "*Mutatio Fossis*" can be considered in confirming its location.

Location of Fossae

Given that the distance of Fossae from Sirmium was 9 Roman miles, which equals 13,333 m, or 13,320 m, or 13,275 m, depending if a Roman mile is measured as a distance of 1,481.5 m[171] or 1,480 m[172] or 1,475 m,[173] the Fossae road station should be situated at the eastern periphery of the Kudoš area, next to the motorway.

As mentioned above, this area has generally been mentioned as a potential location of Fossae in recent works, with varying understandings of the exact route of the road (see above). The original idea came from Ignjat Jung and, under the influence of Jung's arguments, from Šime Ljubić, who suggested the area around the Kovačić (or Kovačević) watermill that was situated on the Jelence River in the late 19th century.[174]

To refine more specifically the potential location of Fossae, one needs to consider the archaeological topography of Roman sites in the Kudoš area that are situated relatively close to the road route.

The sites are distributed north-east of Šašinci across the north-eastern side of the Kudoš area; mostly north of the Roman road and at the far eastern end of this section of the road.

Looking at the area from west to east, the following sites have been considered as potential locations for Fossae: Kudoš-Autoput, Kudoš-Imanje Spasojevića [Kudoš-Spasojević Farm] also known as Kudoš-Šašinci, Kudoš – "U Blizini Kuće" [Kudoš – "In Proximity of a House"], Dreispitz Pusta, and Kudoš-Livade.

(1) Kudoš-Autoput. The site is situated 700 m east of the northern part of Šašinci (the eastern end of Grobljanska Street), and 100 m south of the motorway (WGS 84 reference: 44°58′14.86″N 19°45′30.44″E). The Kudoš-Autoput site is 1.1 km north of the Roman road route.

The site is 50 by 100 m in dimensions and finds include brick and tiles (*tegulae* and *imbrices*), pottery in large quantities, and human bones. It has been described as a Roman necropolis.[175]

(2) Kudoš-Imanje Spasojevića [Kudoš-Spasojević Farm], also known as Kudoš-Šašinci. The site is situated 700 m north-east of the northern part of Šašinci (the eastern end of Grobljanska Street), and 100 m south of

165 Bíró 2017, 184.
166 Madzharov 2017, 49–51.
167 Madzharov 2017, 50.
168 Lazar 2020, 400.
169 Groh and Sedlmayer 2019, 198–209.
170 Lemcke 2013, 41.
171 Tilburg 2007, 18.
172 Richardson 2004.
173 Aylward 1999, 186 – 190; Macdonald 1982, 83, 140.
174 Kantonai felmérés III. 1872–1884; Ljubić 1887.
175 Popović 1967b, 3.

the motorway[176] (WGS 84 reference: 44°58′14.51″N 19°45′36.34″E.). Spasojević Farm or Kudoš-Šašinci is 1.2 km north of the Roman road route.

The site was investigated between 1979 and 1986.[177] It is 150 m by 150 m in dimensions, and includes remains of a prehistoric settlement, and a Roman settlement with a small fortification or watchtower (*specula*), a basilica, several industrial buildings (pottery and metal working shops), a living area with a large central building, and a hoard of coins found in the 1920s, etc. The complex was described as an early Roman *vicus* and a *villa rustica* in its later phase.[178] In terms of stratigraphy, limited traces of a *vicus* were found, dated to the Flavian period.[179] The villa complex was dated to the 3rd and the 4th century AD.[180]

Following the 1983 and 1984 survey, in trench no. 17, the remains of a Roman watchtower (*specula*), and a waste pit with pottery in the foundation of the tower were excavated.[181] The watch tower had a square base, 4.5 m by 4.5 m; approximately 70 m northeast of the watchtower, a basilica was excavated consisting of three naves with an apse in its northern side and two porticos on both sides.[182] The basilica of 24 m by 19 m in dimensions was rebuilt with a second phase in the 4th century, and turned into a granary.[183] Brukner concluded that in the first phase (3rd century AD) the basilica was a meeting place with commercial and social significance; while it could have had a sacral purpose with the spread of Christianity in the later phase.[184]

(3) Kudoš – "U Blizini Kuće" [Kudoš – "In Proximity of a House"]. The site is situated 1.5 km east of Šašinci (the southeast of the eastern end of Partizanska Street), and 1.5 km south of the motorway next to a dirt road heading southeast from Šašinci[185] (WGS 84 reference: 44°57′24.56″N 19°45′55.71″E.) The location is 400 m south of the Roman road route. The site includes remains of a prehistoric and a Bronze Age settlement.[186]

(4) Dreispitz Pusta. The site is situated 2 km northeast of Šašinci (the eastern end of Grobljanska Street), 200 m north of the motorway and 1.1 km west of the Kudoš channel[187] (WGS 84 reference: 44°58′19.73″N 19°46′34.72″E.) Dreispitz Pusta is 1.3 km north of the Roman road route.

At end of the 19th century, at Dreispitz Pusta a bronze Roman fibula and a bronze door key were found, reported by J. Brunšmid.[188]

The site was surveyed initially in the 1960s, and by B. Lučić in 2017, when a quantity of pottery was collected, including pieces dated in the Late Iron Age, the Roman era, and the Early Modern Era.[189] A recent study of the site suggested that it was close to the main Roman road that led through Srem, in the area where Fossae should be situated.[190] Built structures were identified on the basis of a multispectral analysis of satellite images of the site. These were dated to a later phase of occupation of the site and, in all probability, are not Roman.[191]

(5) Kudoš-Livade. The site is situated 4 km east of Šašinci (the eastern end of Partizanska Street), and 500 to 600 m south of the motorway, that is south of the intersection of the Ruma-Šabac regional road and the motorway, and stretches on both the west and east sides of the Ruma-Šabac regional road[192] (WGS 84 reference: 44°57′32.07″N 19°48′12.53″E.) Kudoš-Livade is intersected by the Roman road route that goes through the site.[193]

The site includes a find of the Roman road which was excavated south of the Ruma motorway intersection, and two complexes that were surveyed west and east of the Ruma-Šabac road, described as *villae rusticae*.[194] The traces of the Roman road were discovered between the two complexes recognised by quantities of building debris on the surface, such as fragments of brick and tiles, lime mortar pieces, etc.[195] The finds

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176 Брукнер 1995b; Брукнер, Даутова-Рушевљан 2015, 57; Popović 1967–1984.

177 Брукнер 1995b, 138.

178 Брукнер 1982a; Брукнер 1995b, 138–140, сл. 1, сл. 2, пл. 2; Брукнер, Даутова-Рушевљан 2015, 57–61, 148, 150, Popović 1984, 1; Popović 1995, 220.

179 Брукнер 1982a, 95; Брукнер1995b, 139, T. VIII-XIV.

180 Брукнер 1995b, 140; Брукнер, Даутова-Рушевљан 2015, 57–61.

181 Popović 1984, 1.

182 Брукнер 1995b, 139, пл. 2.

183 Брукнер 1995b, 139, пл. 2.

184 Брукнер 1995b.

185 Popović 1967–1984.

186 Popović 1967a; Popović 1967b, 3; Popović 1967c, 178–179.

187 Kantonai felmérés III. 1872–1884; Zanni et al. 2019.

188 Brunšmid 1900, 198.

189 Zanni et al. 2019, Fig. 12.

190 Zanni et al. 2019, Fig. 1, 3.

191 Zanni et al. 2019.

192 Брукнер 1995b, 138, карта 1.

193 Брукнер 1995b, 138, карта 1.

194 Брукнер 1995b, 138,

195 Брукнер 1995b, 138, пл. 1, карта 1; Брукнер 1995c, 187–189.

also included quantities of quality pottery, *fibulae*, a decorative pin, a hand ring, keys, knives, and other tools, and coinage dated to the 3rd century AD.[196] Finds of coinage include one piece from the 1st or 2nd century AD, one piece of Septimius Severus (193–211 AD), and a piece of Aurelian (270–275 AD).[197]

East of this site, further along the Roman road, remains of another site at Žirovac were found, with prehistoric settlements (Eneolithic phase and La Tène phase dated to the 1st century AD), and an Early Roman settlement.[198] Along the road at Žirovac, two bronze coins were found, dated to the end of the 4th or beginning of the 5th century AD.[199]

Considering the archaeological topography of the Kudoš area, it is possible to identify a complex of a small settlement with additional structures on its outskirts. Archaeological excavations confirmed the existence of an Early Roman *vicus* at the Kudoš-Šašinci site, which in its later phase included a complex described as a *villa rustica* with workshops, a basilica that was later modified into a granary, and a watchtower nearby, with a necropolis in its immediate proximity at the Kudoš–Autoput site. East of the settlement there is a complex described as two *villae rusticae,* on the basis of the field survey, with a Roman road stretching between these two parts of the Kudoš-Livade site.

According to the established chronology and finds at the sites, both Kudoš-Šašinci and Kudoš-Livade coexisted. However, it is Kudoš-Livade that it is situated on the Roman road exactly 9 miles from Sirmium, and includes two parts separated by the road. It occupies a slightly elevated terrain; here, the road crosses from the Lowlands Land System to the Loess Cover Land System, that is from the left bank of the Sava river terrace landform to the Fan Srem landform, above the reach of floodwaters, which presented a constant threat to the *vicus*/*villa* complex found westward at Kudoš-Šašinci. In addition, Kudoš Livade was intersected with two channels in the past cutting the terrain from north to south just west of the site, the Kudoš and Jelence rivers (ditches – *fossae*). Additionally, other than Kudoš Livade, all of the other potential locations for Fossae are located at distances greater than 1 km from the Roman road, making it unlikely they could have served the purposes of a way station on the road.

The position of the sites and their spatial relationship to each other and the Roman road, the distance of Kudoš-Livade from Sirmium and the topography in the past (with the existence of channels) imply the position of Fossae is likely to be at the Kudoš Livade site, on the Roman road 9 miles from Sirmium, on the "ditches" and in the proximity of a *vicus*; the site includes two complexes with the road in between – a *mutatio* and perhaps a lodging place.

Concluding Thoughts

The examination of the Roman road system east of Sirmium in the Glac Study Area is of importance in understanding the nature of settlement and the rural economy during the Roman period. The Sirmium to Bassianae road is the most significant item of built infrastructure in the area and, together with the Sava River, comprised one of the two major transportation corridors through the Glac Study Area. Both of these transport corridors were strategically vital for the movement of people, goods and the military from not only a local, but a regional and empire wide perspective. The efficient transport of goods, people and troops was fundamental to the functioning of the regional and local economy.

Roman milestones usually record the name of the person who either built the road in question or undertook major repairs[200], with the majority of main roads being pioneered by military operations,[201] although some may have simply had an honorific character, particularly after the 4th century AD.[202] The discovery of two milestones bearing inscriptions for Marcus Aurelius and Septimius Severus indicates that during the reigns of those emperors, significant work was undertaken on the road between Sirmium and Fossae. It is likely that such works were associated with the Marcomannic wars, when Marcus Aurelius was stationed in the region, and with the subsequent peace instituted by Commodus. Significant infrastructure improvements are consistent with Kulikowksi's view of an economic boom and cultural blossoming in the Danubian provinces in the wake of the Marcomannic Wars and the subsequent peace, with increased urbanisation and wealthy farms and villas the consequence of two decades of wartime investment in the region's infrastructure.[203]

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196 Брукнер 1995b, 138, T. VII.
197 Поповић 1995, 219.
198 Брукнер 1982b; Брукнер 1995a, 100.
199 Поповић 1995, 219.
200 Chevallier 1976, 41.
201 Chevallier 1976, 85.
202 Petrović 2019, 260–261; Kolb 2019, 12.

Major road works on the Sirmium to Bassianae road would be consistent with this increased public investment and wealth in Pannonia at this time and would be reflected in the two milestones found dedicated to Marcus Aurelius and Septimius Severus.

This expansion of road construction works in the reigns of Marcus Aurelius and Septimius Severus is mirrored in Moesia Inferior, where Panaite noted:

"The moments of maximum intensity in terms of constructive work are represented by emperors Marcus Aurelius and Septimius Severus. A large number of milestones dated to their reigns (26) indicated real repair programmes designed to ensure the proper functioning of roads."[204]

The name given to the way station of Fossae suggests the presence of some noticeable drainage ditches or channels at "*Mutatio Fossis*" and implies the absence of such drainage ditches to the west towards Sirmium, hinting that the rural landscape through which the road passed from Sirmium to *Mutatio Fossis* was largely swampy.

The examination of the Roman road system east of Sirmium in the Glac Study Area has also clarified the likely location of the eastern gate of the city of Sirmium, the "Porta Fossiensis", and hence the urban topography of that Roman city.

A major road such as that from Sirmium to Bassianae can also have proven to be a major vector and stimulus in driving both the magnitude and direction of settlement patterns and economic activity, rather than a more passive role of being inserted into a pre-existing rural settlement pattern and local economy with the consequence of only marginal changes based upon improved accessibility. In an examination of the Roman road and city network in the northern part of Pannonia outside of the Glac Study Area and the territory of Sirmium, Burghardt emphasised the role of the road system in providing the impulse for the settlement pattern.

He wrote:

"The cities were strung out along the major roads. Thus, an accurate description of the urban pattern in Pannonia would be not of a cellular pattern, but rather one of urban corridors, which were on the peripheries of the province. … All of the major cities were aligned along the transport arteries and participated in a through-flow rather than a system of interconnections and ranked centres. …. The areas behind, away from the routes, were unable to share in this flow and hence to sustain urban development."[205]

While Burghardt was examining the pattern of urban settlements, a similar phenomenon may also have been present in the pattern of rural settlements as well, providing a hypothesis that could be tested in the on-going work of the Glac survey for the areas around Sirmium. The clarification of the route of the main Roman road from Sirmium to Bassianae and the potential site of Fossae are not simply questions of identification of their location, but they are of importance in understanding the nature of settlement, the environment, and the rural economy in the Glac Study Area during the Roman period.

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[203] Kulikowski 2016, 53–54 ; 60–61.

[204] Panaite 2015, 599.

[205] Burghardt 1979, 20.

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From “Porta Fossiensis” to Fossae. Exploring the Roman Road System in the Glac Study Area East of Sirmium (127–161)

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ОД „ПОРТЕ ФОСИЕНСИС” ДО ФОСА. ИСПИТИВАЊЕ РИМСКОГ ПУТНОГ СИСТЕМА У ОКВИРУ ИСТРАЖИВАЧКОГ ПОДРУЧЈА ПРОЈЕКТА ГЛАЦ ИСТОЧНО ОД СИРМИЈУМА

Кључне речи. – Фосе, капија, мутацио, Панонија секунда, римски пут, Сирмијум, виа милитарис

У оквиру „Пројекта Глац”, који се од 2017. године одвија кроз сарадњу Археолошког института из Београда и Универзитета у Сиднеју, спроводе се археолошко ископавање локалитета на Глацовом салашу 4 км југоисточно од Сремске Митровице и археолошка рекогносцирања ширег подручја око локалитета.

Пројекат рекогносцирања има за циљ: 1) препознавање просторних и временских образаца насељавања током античке прошлости на ширем подручју око локалитета Глацов салаш; 2) интерпретацију услова животне средине овог подручја у далекој прошлости; 3) утврђивање основе на којој је почивала локална рурална економија током времена римске доминације; 4) идентификацију античких структура у непосредној околини Глацовог салаша као што су насеобине, некрополе, путне комуникације.

С тим у вези дефинисано је истраживачко подручје око локалитета Глацов салаш на деловима територија Срема и Мачве укупне површине 700 км².

Као један од истраживачких циљева дефинисано је и прецизно мапирање главне античке комуникације између Сирмијума и Басијане, односно оног дела римског пута који пролази кроз средину истраживаног подручја „Пројекта Глац”, између источне периферије Сремске Митровице и канала Кудош код Шашинаца.

Поред археолошких рекогносцирања, спроведено је фотографско и фотограметријско снимање из ваздуха као и снимање лидар уређајем у централном делу подручја истраживања, између Сремске Митровице на западу, Шашинаца и Јарка на истоку и југоистоку.

Ако се имају у виду сва ранија археолошка и историографска истраживања ове путне комуникације од краја 19. века на овамо, у раду су приказани нови резултати теренских рекогносцирања и примене метода даљинске детекције.

Резултати истраживања упућују на тачну локацију проналаска два миљоказа 1886. године чије позиција до сада није била са сигурношћу дефинисана. Утврђено је да су се миљокази налазили на потесу Просек–Цреповац, на укрштању трасе античке комуникације и Глацовог или Цреповачког канала, око 800 м јужније него што се раније сматрало.

С обзиром на то да су миљокази били смештени 3 римске миље од Сирмијума, утврђивање њихове позиције омогућава сигурнију убикацију источне капије Сирмијума на углу улица Арсенија Чарнојевића и Кузминске (тзв. Локалитет бр. 9), односно на место „Порте Фосиенсис”, што је иницијално предложио Игњат Јунг крајем 19. века, а током дугачког историјата истраживања античког града је каткад занемаривано и оспоравано.

Приликом истраживања је прецизно мапирана траса главне античке комуникације између Сирмијума и путне станице Фосе, која је позната из извора као удаљена 9 римских миља од Сирмијума према истоку (Јерусалимски итинерер из 4. века и Космографија анонимног аутора из Равене из 8. века). Пут је водио од источне капије, тзв. Порте Фосиенсис, преко индустријске зоне у источном делу Сремске Митровице, потеса Просек–Цреповац, Баре, јужне периферије Шашинаца, те потеса Кудош до канала Кудош и некадашњег канала реке Јеленце југозападно од укрштања аутопута Београд–Загреб и регионалног пута Рума–Шабац.

На основу анализе позиције и праваца пружања античке комуникације, мерења дистанци од места источне капије Сирмијума, и анализе археолошке топографије подручја Кудош, као и повлачења одређених аналогија у смислу археологије античких путних станица познатих на ширем простору од Панонске низије до северне Африке, закључено је да се путна станица Фосе по свој прилици налази на локалитету Кудош–Ливаде, између канала Кудош и Јеленце те регионалног пута Рума–Шабац.

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THE CULT OF GODDESS FORTUNA IN THE ROMAN CENTRAL BALKANS

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Abstract. – The cult of the goddess Fortuna has been attested on the territory of Roman provinces in the Central Balkans with numerous votive monuments, sculptures, votive reliefs, statuettes and on glyptics. The goddess was particularly popular among the army, but also venerated by administrative personnel, merchants, freedmen, slaves and women. The epithets of the goddess imply that she was honoured by her devotees as in other Roman provinces – mainly as the goddess of good luck and chance, but also as the protectress of transport, business, routes and perhaps in bathing facilities. Fortuna was usually worshipped alone, but her pairing with the Egyptian goddess Isis as the syncretistic deity Isis-Fortuna and her relationship with Genii, are confirmed in different Central Balkans localities. The goddess Fortuna's sanctuaries can be presumed in the vicinity of Ulpiana, Niš, near Kumanovo and probably in Viminacium, while her cult lasted from the 2nd to the last decades of the 3rd century.

Key words. – Fortuna, Central Balkans, Roman army, temples

The cults of different Roman, Greek and Oriental deities in the territory of Roman provinces of the Central Balkans have attracted the attention of scholars in the past, yet the cult of one of the most prominent goddesses in Roman religion, literature and art, the goddess Fortuna, without any reason remained marginalised. The paradox is even greater considering that the goddess's cult has been widely attested epigraphically and archaeologically in almost all parts of the territory, except those in the west, thus confirming her importance and popularity among different social groups in the mentioned territory until the end of Antiquity.

The cult of the goddess Fortuna was one of the most popular cults in the Roman Empire, particularly in the period of the height of its power, primarily because of the goddess's symbolism and wide inferences – in the earliest period she was venerated as the goddess of agriculture and fertility,[1] but also associated with military victory, as is implied with her earliest presentations from a mirror and a cista from Praenesta.[2] The goddess was also connected with the oracles (*Fortuna Primigenia*)[3] and was regarded as a protectress of individuals, magistrates, foreigners, freedmen,

[1] Champeaux 1982, 80–140. In Hellenistic period, goddess Fortuna was equalled with Greek goddess Tyche and borrowing different attributes characteristic for different deities, she soon became a very popular goddess, primarily among the Roman plebs. The oldest evidence about the goddess Fortuna are known from Latium and Campania and are all in Latin language, which suggests that she was associated with the diffusion of the Latin language in the opinion of D. Miano, Miano 2018, 73, 157.

[2] The earliest testimony of Fortuna's cult in Italy is presented by an engraved mirror found at Colombella, the main necropolis of Praeneste – on the mirror, Iacchus' triumph is presented and the goddess is shown embracing Minerva. The mirror probably dates from the first half of the 4th century BC. Another object on which Fortuna is presented is a cista discovered in Praenesta, dated around 300 BC, with Fortuna holding a thyrsus, Ibid, 18–21.

[3] D. A. Arya suggests that the cult of goddess Fortuna Primigenia probably originates from the 4th–3rd century BC in Praeneste, when the cult of Tyche became known to the Greek West, Arya 2002, 62; Miano 2018, 38–40.

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slaves and different professional associations (*collegia*) of butchers, blacksmiths, workers, singers, flute players, etc.[4] The earliest appearance of the goddess's cult at Praeneste marked the city as her most important cult centre, attested with more epigraphic evidence about the deity from Praeneste than from any other city in Roman Empire, including Rome.[5] In Rome, the goddess's cult was strongly connected to King Servius Tullius, with him honouring the goddess and founding several temples dedicated to her in the middle of the 6th century BC.[6] Fortuna shared her festival day, 11th June, with Mater Matuta and, during the ceremonial procession in the honour of Fortuna, her devotees carried her statue along the river to the ceremonial bath and back to her temple. The close connection between Fortuna and the plebs in Rome (who founded all temples of Fortuna Publica in the Republican period) was formed during the Republican period and continued in the Imperial times.[7] Due to different aspects and dimensions under which the goddess was venerated, she became an important deity for communities in various contexts (urban, military, domestic, etc.). Many different epithets of the goddess[8] refer to the multiple dimensions she had for different social groups, implying her benevolent but also capricious nature (Fortuna Bona, Fortuna Mala, Fortuna Dubia, Fortuna Stabilis, Fortuna Obsequens, etc.)[9] – Fortuna Muliebris was clearly a protectress of women, fertility, children, etc.,[10] Fortuna Virgilis (Virgo) was associated with young girls, the rites of passage to their adulthood (their sexual maturity), Fortuna Virilis was related to women's sexuality, Fortuna Barbata supervised young male adults and men, Fortuna Equestris protected the equites and the cavalry as a military unit, etc.[11] In later periods, the goddess was venerated as the protectress of transportation, trade, commerce, sea-routes and as the deity of good luck and chance. The canonized image of the goddess Fortuna presented a mature woman standing or seated, with a veil, diadem, mural crown, polos or stefane (like a tiara) on her head and holding a cornucopia, rudder, globe, patera, etc. in her hands.[12] The attribute of a cornucopia became a regular attribute in Fortuna's iconography from the 2nd century BC,[13] although it was already a standard symbol of different Greek (for example, Tyche) and Italian deities, but also of Isis, the Egyptian goddess.[14] The first representations of Fortuna with a rudder, a symbol of commerce and shipping, date from the 1st century BC, [15] while the first images of the goddess with a ball, sphere or globe (symbolising the goddess's fickle mood and power over the world and its fate) are known from the period of Vespasian's reign.[16] The association of the Egyptian goddess Isis with Fortuna happened began in the 2nd century BC, through Alexandrian traders who travelled to Puteoli, Praeneste, Pompeii and thus introduced the cult of Isis in Rome, but also through the Roman presence in the Greek East.[17] Although the dedications to Isis-Tyche exist (but are rare and of a later date),[18] the Romans did not acknowledge the term "Isis-Fortuna", which is a modern creation and there is no known dedication to "Isis-Fortuna".[19] The syncretism between the two goddesses did not take place before the late 1st century BC and, judging by the finds, it is characteristic only for the Imperial period.[20] Particularly popular in Pompeii, the syncretistic deity Isis-Fortuna, was respected not only because of the protection over a person or a family, but also because both goddesses were associated with the sea, trade and commerce, which made Isis-Fortuna the protectress of business and successful business ventures. The close connection with the goddess Nemesis, probably established in the Hellenistic era, but certainly proven during the Imperial period, is evident not only in mu-

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4 Miano 2018, 36.

5 Ibid, 14; The main cult centres of Fortuna in Italy were Praeneste, Rome and Antium, Arya 2002, 40.

6 Miano 2018, 77–86.

7 Ibid, 199–200.

8 For the epithets of the goddess Fortuna see Kajanto 1981, 1983, 1988.

9 Arya 2002, 59.

10 However, the goddess Fortuna Muliebris was not only connected to women, because the dedications from men to the goddess also exist, Miano 2018, 126.

11 Ibid, 128–131, 198.

12 Arya 2002, 68 etc.

13 Rausa 1997, 126, num. 3; Champeaux 1982, 43; Lichocka 1997, 32–34.

14 The cornucopia, a symbol of plenty, fertility, abundance, food, etc., was quite an appropriate attribute for both Tyche and Fortuna because of their similar symbolism, Arya 2002, 73.

15 On the reverse of late Republican coins of Publius Sepullius Macer (from 44 BC), where Fortuna is presented holding a rudder and cornucopia (later also on the coins of Marcus Antoninus from 41 BC and of Tiberius Sempronius Gracchus from 40 BC), Lichocka 1997, 147–149.

16 Ibid, Fig. 177; Rausa 1997, 131, num. 3b.

17 Arya 2002, 242.

18 Kajanto 1981, 502

19 Arya 2002, 54, ft. 148.

20 Ibid, 247.

tual attributes like the wheel, but also in the same roles, like the role of city goddess.[21]

In the Roman provinces of the Central Balkans, the cult of the goddess Fortuna has been attested with seven epigraphic monuments and an impressive number of sculptures, statues, relief presentations, bronze statuettes and gems with the image of the goddess. All epigraphic monuments are dedicated to the goddess Fortuna alone, without or with an epithet of which some usually accompany the deity's name in other parts of the Roman Empire, while other epithets are confirmed only in the epigraphic monuments dedicated to Fortuna from Roman Central Balkan localities, which will be discussed later.

The first votive monument dedicated to the goddess Fortuna and the only one discovered in the northern parts of the territory was found in Colonia Ratiaria (Archar).[22] The monument is dedicated to Fortuna without an epithet and the dedicator is Gaius Luccius Capito, who was a soldier of the legion VII Claudia. His gentile name, Luccius, is very frequent in Italy and other provinces like Spain, Gallia Narbonensis, Dalmatia, etc., while his cognomen Capito is more seldom attested, mostly again in Italy.[23] In the territory of the Central Balkans, the cognomen Capito is confirmed only once more, on a rectangular plate found in the locality of Drmno, Viminacium.[24] Unfortunately, the reason for Gaius Luccius Capito to make a dedication to the goddess Fortuna is not stated in his dedication, but it can be presumed that it was general thanks for the luck in the life of a soldier, to the goddess who protected him in the battlefield and from all other dangers that Gaius Luccius Capito was exposed to during his army service.

The second votive monument dedicated to Dea Fortuna was discovered in 1899, in the Niš fortress.[25] Since the text of the now lost monument was quite damaged by atmospheric conditions, its restoration can point to either one dedicant Elius (Aelius) Flavius Restutus or three dedicators by the names of Elius, Flavius and Restutus. However, what can be said with certainty is that the monument was erected for the health of the emperors Elagabalus and Alexander Severus in 221, judging by the names of the consuls Gratus and Seleucus.[26] As Fortuna's epithet, *Dea* began to be very frequently used in Germania and Britannia in the late 2nd century,[27] while the closest geographic analogy can be found in a votive monument from Sirmium, also dedicated to Dea Fortuna.[28] The name Restutus (deriving from Restitutus) is known primarily in the western Empire and in provinces of Noricum, Pannonia and Dalmatia.[29] The monument is possibly erected by the order[30] of the priest Aurelius Dexter, whose name Dexter is also attested on monuments from Singidunum, Čair (Kostolac) and Aračinovo (east of Scupi). Aurelius Dexter was probably the priest of Fortuna in her sanctuary located in Naissus (Niš).[31] Due to the names of the consuls, the votive altar from Niš can be precisely dated to 221.

The third votive monument dedicated to Fortuna Domina was found in the village of Čiflak, near Orahovac (Ulpiana).[32] It was erected by Aurelius Cassinus,

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[21] In Carnuntum, and perhaps Ephesos, Fortuna of the city was worshiped at the amphitheatre together with Nemesis, Hornum 1993, 20, 25–26, 41.

[22] The votive monument dedicated to the goddess Fortuna was discovered in Archar (Ratiaria). The text of the inscription reads: *C (aius) Luccius / Capito / mil (es) leg (ionis) / VII Cl (audiae) opt (io) / Fortun / ae v (otum) s (olvit) l (ibens) m (erito), AE* 2010, 1392.

[23] The gentile name Luccius; Luccius is most frequently attested in Italy, Spain, Gallia Narbonensis, Dalmatia, Gallia Belgica, Pannonia, Moesia Inferior, Gallia Lugdunensis and Roman Britain, Bošković-Robert 2016, 49, ft. 317. As for the cognomen Capito, it is attested in Italy, Spain, Britain etc., Dean 1916, 77, 150.

[24] On a rectangular limestone plaque found in Drmno, Viminacium, a libertus Publius Aelius Capito is mentioned, *IMS* II, 140–141, num. 127.

[25] The votive monument dedicated to Dea Fortuna (dim. 0,84x0,45x0,42m) was discovered in 1899, beside the entrance of the Niš fortress. The text of the inscription reads: *Deae Fortunae / pro s(alute) dd(ominorum) nn(ostrorum) / [Aug(usti) e]t [Caes(aris)] / A(e)lius Flavius / Restutus / s(ua) p(ecunia) / [Gr]ato et Sel<e=A>uco co(n)s(ulibus) / [A]urel(ius) Dexter / sacerdos p(oni?) i(ussit?) m(erito?), IMS* IV, 69, num. 4.

[26] The votive monument dedicated to Dea Fortuna can be precisely dated due to the names of the consuls Gaius Vettius Gratus Sabinianus and Marcus Flavius Vitellius Seleucus, Samuel 1972, 272.

[27] Kajanto 1988, 558.

[28] The dedication to Dea Fortuna on the votive monument from Sirmium was made by a certain Marcus Aurelius, Mirković 1971, 61, num. 3.

[29] *IMS* IV, 69, num. 4; Migotti 2017, 104.

[30] If the part of the inscription is reconstructed as *p(oni?) i(ussit) m(erito?),* then the monument would have been erected on the order of the priest Aurelius Dexter.

[31] The name Dexter is also confirmed on the monuments found: in the fortress of Kalemegdan in Singidunum, *AE* 2001, 1727, Viminacium *IMS* II, 92, num. 53 and Skoplje *IMS* VI, 97, num. 72. The cognomen Dexter is attested in Italy, Spain, Belgium, Dalmatia, Pannonia, Dacia, Noricum, Roman Britain and Moesia Inferior, Bošković-Robert 2006, num. 7, ft. 62.

[32] The votive monument dedicated to Fortuna Domina was discovered in Gračanica (Ulpiana). His dedicant is Aurelius Cassinus, a decurion. The text of the inscription reads: *Fortunae Do/minae / Aur(elius) Cas(sinus) / dec(urio) p(osuit), IlJug* II, num. 532.

Fig. 1. Votive altar from Orahovac, near Ulpiana (after: https://edh-www.adw.uni-heidelberg.de/edh/inschrift/HD033750)

Сл. 1. Вотивни жртвеник из Ораховца, близу Улпијане (према: https://edh-www.adw.uni-heidelberg.de/edh/inschrift/HD033750)

a decurion who was probably stationed in the area of Ulpiana, perhaps guarding some of the mines of the territory (Fig. 1). The name Cassinus is very rare and, as far as we know, it appears only on a monument (or monuments) from Rome.[33] The rarity of this particular monument can also be seen in Fortuna's epithet *Domina*, which is confirmed only on one more monument, discovered in the locality El Mesaurat in Egypt.[34] The probable period when the monument to Fortuna Domina was erected is from the second half of the 2nd century to the 4th century.

The next votive monument with a dedication to the goddess Fortuna was also found in the area of Ulpiana, at the entrance of the Gračanica monastery (Fig. 2).[35] The monument, unfortunately lost, was a limestone slab, an architrave with the inscription field in the form of a *tabula ansata*. The goddess Fortuna Aeterna, who is here the personal protectress of the family Furii, received the dedication from two procurators, Pontius Uranius and Furius Alcimus, of *vir clarissimus* Gaius Furius Octavianus Amphilochius, who belonged to the senatorial order (ordo senatorius), but also to one of the most important and richest families in Ulpiana, gens Furii.[36] Furius Octavianus, who was a consul in 220 and, two years later, a legatus of Moesia Superior,

[33] *CIL* VI, 3412, *ICUR* – IX, 23861. The name Cassinus perhaps appears on one other monument from Aquileia, but the inscription is fragmented and does not allow the certain reconstruction of the name Cassi[---], *CIL* V, 8314.

[34] The text of the votive monument from the locality of El Mesaurat (dated from the 3rd to the 5th century) reads: *Bona Fortuna Dominae / Reginae in multos an/nos feliciter venit / (a)b urbe mense Apr(ili) / die XV [et v]idit Acu/tus, CIL* III, 83.

[35] The monument was discovered in the area of Ulpiana, Lipljan. The text of the inscription is reconstructed: *Amphi / lochii // Fortunae aeter [n] ae domus Furianae / proc (uratores) C (ai) Furi Octaviani c (larissimi) v (iri) Furius A [l] cimus [et] Pon / tius Uranius pecunia Octavianin [a] faciendum curaverunt, CIL* III, 8169.

[36] Душанић 2006, 91–92.

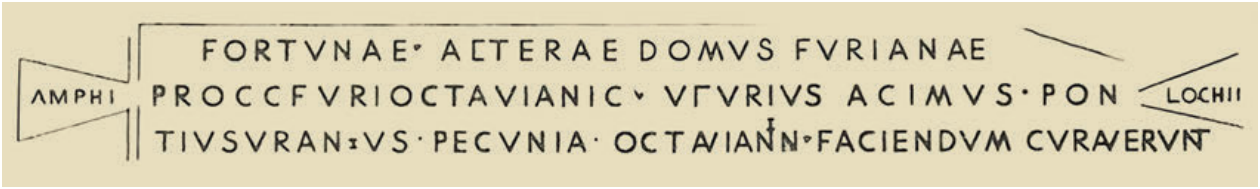

Fig. 2. Drawing of the dedication to Fortuna Aeterna, from Gračanica (after: Premerstein, Vulić 1903, 28, num. 35)

Сл. 2. Цртеж дедикације Фортуни Етерни, из Грачанице (према: Premerstein, Vulić 1903, 28, num. 35)

had his domains with slaves in the southern parts of the Central Balkan territory – in Vlahčani, Usje, Blace, Prizren and, of course, Ulpiana.[37] While the epithet Aeterna is so-far known only from the altar from Ulpiana, the fact that she is the protectress of the gens Furii has analogies in the dedications from other Roman provinces where Fortuna is the protectress of gens Flavia[38] or Plotiana,[39] the protectress of persons like in the monuments where Fortuna Crassiana, Fortuna Torquatiana and Fortuna Zmaragdiana is mentioned,[40] the tutelary divinity of cities like Fortuna Ephesia, but possibly also the personal protectress of a Roman king, which is implied by the dedication to Fortuna Tulliana.[41] This individualisation is found not only with the name of the goddess Fortuna, but also in the case of the gods Jupiter, Hercules and Silvanus, who were called *domesticus* and had family eponyms.[42] Two procurators from the Ulpiana monument, Pontius Uranius and Furius Alcimus were liberti of the family Furii and were obviously not only making a dedication to the goddess Fortuna Aeterna, but were also dedicating a temple to her, since the inscription was placed on an architrave. As has already been mentioned, the family of Furii had large domains with slaves and liberti in different areas, among them also Ulpiana, and owed their wealth to the fertile land and rich mines in the vicinity of this urban centre.[43] The monument is dated to the first decades of the 3rd century, between 200 and 220.

Another monument dedicated to the goddess Fortuna was found in the southern part of the Central Balkans, in the locality of Lopate, west of Kumanovo (statio Lamud---?).[44] Unfortunately also lost, the monument was dedicated to Fortuna Salutaris by an unknown dedicant. The epithet *Salutaris* is not seldom attributed to the goddess – dedications to Fortuna Salutaris are known from different Roman provinces.[45] N. Vulić thought that Fanum Magnum, which is mentioned in the inscription, did not mean "a great shrine", but was actually a toponym, while B. Dragojević-Josifovska considered the monument to perhaps have been originally situated in the presumed sanctuary of the god Mithras, *mithraeum,* located in Lopate.[46]

Besides presenting the only monument in the territory of the Roman Central Balkans where the goddess Fortuna bears the epithet *Salutaris,* nothing more precise can be said about the reason for the dedication or the profession and social status of the dedicator, so the monument can be broadly dated from the 2nd to the 4th century.

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[37] *CIL* VI, num. 10, 28; *CIL* III 8238, 8240, 8169.

[38] *CIL* VI, 187.

[39] *CIL* VI, 39860.

[40] For Fortuna Crassiana, *CIL* VI, 186; For Fortuna Torquatiana *CIL* VI, 204; For Fortuna Zmaragdiana *CIL* VI, 39862. I. Cajanto presumes that while Crassus and Torquatus are common cognomina rarely born by slaves, while Zmaragdus is a Greek name which was frequent among slaves, Cajanto 1983, 14.

[41] Fortuna is also known to be the protectress of towns, like on the monuments dedicated to Fortuna Antias/Antiatina, Arelatensis, Ephesia, Folianensis, Karn(untiensis), Nemausensis, Viruniensis, Taurianensis, etc., Ibid.

[42] Carter 1900, 65.

[43] Parović Pešikan 1990, 612; Душанић 2006, 91–92.

[44] The votive monument dedicated to Fortuna Salutaris (height 18 cm, width 25 cm) was found in the locality of Lopate, Kumanovo. The text of the inscription reads: *[Fortunae? Salu?] tari / [---] F(ano?) Ma(gno?) v(otum) s(olvit), IMS* VI, 168, num. 217.

[45] Dedications to Fortuna Salutaris are known from: Dacia (Ampulum), *AE* 1902, 143; Germania Inferior (Bad Godesberg), *CIL* XIII, 7994; Germania Superior (Mainz), *CIL* XIII, 6678; Pannonia Inferior (Paks/Lussonium), *CIL* III, 3315; Pannonia Superior (Komarom/Brigetio), *RIU*-02, 392; Rome, *CIL* VI, 184, 201, 202.

[46] Вулић 1934, 44, num. 28; A stone plate (dim. 125 x 61 x 35 cm) was found in the locality of Lopate, bearing the inscription …E O S A N I …, which was reconstructed by M. J. Vermaseren as *[D]eo san(cto) Mithrae* or *[D]eo san(cto) [invicto Mithrae], CIMRM* II, 341, num. 2206; Zotović 1973, 33, num. 43; *IMS* VI, 168.

Figs. 3. Votive relief of Fortuna, from Kostolac (after: Вулић 1931, 240, num. 639)
Fig. 4. Votive relief of Fortuna with the inscription Genius, from Viminacium (after: http://lupa.at/29755?query=892058914)

Сл. 3. Воτивни рељеф Форτуне из Косτолца (їрема: Вулић 1931, 240, пит. 639)
Сл. 4. Воτивни рељеф Форτуне са наτїисом Genius, из Виминацијума (їрема: http://lupa.at/29755?query=892058914)

The last votive altar dedicated to Fortuna Sacrum was discovered in the locality of Barovo, south-west of Skoplje (Scupi).[47] The monument is lost and known only from a drawing made by A. Evans, from which we find out that the dedication to Fortuna Sacrum was made by a woman whose name was perhaps Betuv(i)a Resp(e)c[ta].[48] The epithet Sacrum is known beside the goddess's name on monuments from other Roman provinces, like Aemilia/Regio VIII, Afria proconsularis, Britannia, Dacia, Dalmatia, Etruria/Regio VII, Germania Inferior, Germania Superior, Hispania Citerior, Latium and Campania/Regio I, Noricum, etc. [49] The name Betuvia is completely unknown in the Roman provinces of the Central Balkans, but the name Respecta is known from another monument from the vicinity of Skoplje, discovered in the locality of Zlokućani, and a monument found in Ravna (Timacum Minus)[50] and also from other provinces like Africa proconsularis, Mauretania Caesariensis, Dacia, Noricum, Moesia Inferior, Numidia, Pannonia Inferior, Pannonia Superior and Rome.[51] The votive altar from

[47] The text of the monument found in Barovo reads: *Fortunae / sacrum / BETVVA / Resp<e=F>c[ta], IMS* VI, 51, num. 4

[48] Ibid.

[49] Aemilia/Regio VIII: *AE* 1964, 214; Africa Proconsularis: *CIL* VIII, 1310, 14909, 15494, 16522, 23857, 25412, *AE* 2003, 2006; Britannia: *CIL* VII, 199, 433, 982; Dacia: *CIL* III, 1006, 1007, 1008, 1009, 1014, *AE* 1944, 47, *AE* 2003, 1492, *AE* 1933, 245, *AE* 1903, 67; Dalmatia: *CIL* III, 1939, 13186, 13258, 14630, 14666, *IlJug* 3, 1871, *AE* 1998, 1023; Etruria/Regio VII: *AE* 1974, 329, *CIL* XI, 3731, *AE* 2013, 502; Germania Inferior: *CIL* XIII, 8181, 8609, *AE* 1998, 968, 970; Germania Superior: *CIL* XIII, 6472, 6502, 6522, 6597, 6598, 7365, 6676, 11753, *AE* 1956, 86; Hispania citerior: *CIL* II, 5664, 2763, *AE* 1976, 329; Latium and Campania/Regio I: *CIL* X, 5384; Noricum: *CIL* III, 11729, 4778, 5117.

[50] The funerary monument discovered in Zlokućani, Skoplje was erected for Aurelius Mestrianus, a veteran of the legion IV Flavia, by his wife Aelia Respecta, *IMS* VI, 38. The funerary monument found in Ravna (Timacum Minus) was erected for the husband Flavius Valens, soldier of the cohort II Aurelia Dardanorum, by his wife Rustia Respecta, *IMS* III/2, 98, num. 51.

[51] *CIL* VIII, 27899, *CIL* VIII, 9065–9066, *CIL* III, 1468, 5497, 6156, *AE* 1977, 749, *CIL* VIII, 2903, 3371, 4070, *CIL* III, 3432, 3314, 4224, 4083, 10924, *CIL* VI, 36253.

Barovo is dated to the period between the 1st and the 4th century.

Two votive reliefs with presentations of the goddess Fortuna are known from Kostolac, Viminacium, but unfortunately both reliefs were discovered in a fragmented state. The first monument represents a relief presentation on a white marble plate, whose left part is missing (Fig. 3).[52] A female standing figure is shown *en face*, standing within a temple, with long wavy hair and wearing a kalathos on her head. In her left hand she holds a cornucopia carved in detail, while in her right outstretched hand the goddess holds a patera over a lit altar. Her long chiton is richly folded and falls loosely over her body. The attribute of phiale/patera is a survival from the iconography of the goddess Tyche, whose images with a cornucopia and patera are known from as early as the 4th century BC, as on the Attic amphora from Cyrenaica, dated to 392–391 BC or coins from Argos, dated to 350–328 BC.[53] However, the representations of Fortuna with a patera are not so frequent, although from the 1st century they are known on imperial coins (like those of Domitian, Commodus, Pescennius Niger, etc.),[54]reliefs like the "adventus" relief of Marcus Aurelius belonging to one of the emperor's arches[55] and marble statues, like the statue of the goddess from Cos, dated to the second half of the 1st century BC.[56]

An identical representation of the goddess Tyche/Fortuna inside a hexastyle temple, holding a patera over a lit altar, is known from a Corinth coin of Antoninus Pius where, on the obverse a laureate head of the emperor is presented, while on the reverse the goddess is shown.[57] Regarding the iconographic and stylistic analogies, this type of votive relief with the goddess Fortuna are known mostly from Germania Superior and Britannia,[58] but the closest analogy would be a relief fragment from Zadar, Dalmatia,[59] after which would follow a relief fragment from the temple of Isis in Savaria, Pannonia Superior[60] and a votive relief from Carnuntum, Pannonia Superior, on which Fortuna is presented with a polos.[61] Since on some of the votive reliefs of this iconographical type, the remains of paint were attested, perhaps the votive relief from Kostolac was also painted.[62] Judging by the details of Fortuna's face (eyes, lips, hair), dress and attributes, it is obvious that the votive relief from Kostolac, Viminacium was made by a skilful artisan, probably in the 2nd or the early 3rd century.

The second votive relief was also found in Kostolac, Viminacium (Fig. 4).[63] It represents a fragmented marble relief whose upper left part is preserved. On the edge of the relief there is an inscription *Genio [- - -]*, while under it a standing female figure with wavy hair gathered under a katalathos is presented. Her chiton is richly folded and tied under her chest. Her face is modelled in detail – her eyes are oval, she has a small nose and her lips are full. The goddess's hair is carefully arranged, as her kalathos and dress are presented skilfully. On the goddess's right side

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52 The white marble plate (dim. 0.39 x 0.24 x 0.07 m) was found in the area of Kostolac, probably placed, upon its discovery, in the National museum in Belgrade, but it is now lost, Вулић 1931, 240, num. 639.

53 Also, on a tetradrachm from Athens, minted around 140–139 BC, Villard 1997, 119, num.19, 23, 24.

54 Ibid: num. 25; Lichocka 1997, 267, V C 1.

55 The "adventus" relief from Marcus Aurelius' arch (eleven reliefs from the emperor's arch are preserved – eight on the arch of Constantine the Great and three now placed in the Museo dei Conservatori) shows, in the centre, the goddess Fortuna with a staff in her left hand and a patera in her right hand, Arya 2002, 329–330.

56 Villard 1997, num. 26.

57 Pausanias mentions a temple of Tyche in Corinth, with a cult statue of the goddess, and several temples on the west end of the Forum have been suggested to be the sanctuary of Tyche, but they are small tetrastyle temples and not the large hexastyle building like the one presented on the reverse of Antoninus Pius' coin, Walbank 2010, 170–171, Fig. 6.9.

58 Votive reliefs from Germania Superior's localities Mömlingen, http://lupa.at/6888?query=1403268428; Frankfurt-Heddernheim (Nida), http://lupa.at/7108?query=1403268428; Saalburg/Bad Homburg, http://lupa.at/7285?query=1403268428; Bad Wimpfen (Vicus alisinensium), http://lupa.at/7444?query=1403268428; Walheim, http://lupa.at/7677?query=1403268428; Votive reliefs from Newcastle upon Tyne and Chester, Lichocka Fig. 413, 412.

59 The relief fragment is of unknown provenience, but from the area of Zadar, and damaged on the top. The standing figure of Fortuna is presented, with a cornucopia in her left hand and a patera in her right hand, placed above the altar, http://lupa.at/24296?query=1403268428.

60 A fragment of a relief presenting a standing Fortuna dressed in a long chiton with a himation, holding a cornucopia in her left hand and a patera in her right hand, http://lupa.at/8009?query=1403268428;

61 The votive relief with a representation of the goddess Fortuna, was found in 1901 in the area of the legion camp in Carnuntum. The goddess is presented inside a temple, standing, dressed in a long chiton with a himation over it, wearing a polos on her head, with a cornucopia in her left hand, http://lupa.at/8912?query=1403268428;

62 http://lupa.at/8912?query=1403268428.

63 The votive relief (dim. 0.22 x 0.18 x 5.5) was found in Kostolac, Viminacium and now is in the National Museum of Požarevac (inv. num. 2487), *IMS* II, 64, num. 8.

probably the image of a genius was presented and she possibly held her usual attribute of a cornucopia in her hand. Dedications to Fortuna and Genius were not seldom and in the imperial period were often found in harbours, but also in many other Roman localities, like Sankt Veit an der Glan (Virunum) in Noricum, Corinth, Utrera (Baetica), Maryport (Alauna) in Britannia, Alba Iulia (Apulum), Zlatna (Ampelum), Trilj (Tilurium) in Dalmatia, Lessenich, Remagen and Voorburg in Germania Inferior, Mainz (Mogontiacum) in Germania Superior, Rome, sites in Pannoniae, Numidia, etc.[64] Presentations of Fortuna with a genius are also frequent and are known mostly from reliefs, like the one from the altar discovered in Bad Deutsch and the relief from Autun.[65] The genius was considered to be a spiritual companion and protector of an individual or a family, thus frequently depicted in the *lararium* in private homes, usually with Fortuna's rudder.[66] Stylistically, the votive relief with the inscription *Genio [- - -]* bears strong similarities to the previous votive relief and the fact that both objects were found in Viminacium implies the possibility that they were produced in the same workshop. The votive relief from Kostolac can be dated as the previous monument, to the 2nd or the early 3rd century.

As for the stone sculptures and statues of the goddess Fortuna, the situation is somewhat difficult because except for the marble head from Ravna (Timacum Minus) and Kostol and a marble sculpture from Viminacium, which obviously present the goddess, other statues are difficult to identify due to their fragmented state. Still, we will mention all the existing finds that could be identified as possible presentations of the goddess Fortuna.

The female head of a marble statue was discovered in 1935, in the area of so-called "Roman temple" in Ravna (Fig. 5).[67] At first sight, the head leaves quite a striking impression, depicting a mature woman with an austere look on her face. Her wavy hair is gathered under a kalathos, unfortunately damaged. On the back of her neck is a low bun tied with a ribbon. The traits of her face are also carefully modelled – almond-shaped eyes with emphasised pupils, lips without a smile and an almost double chin. However, the visible coldness and austerity in the facial expression make the goddess look static. Iconographic analogies, in the context of the hair and the polos on the goddess's head, can be found in a marble statue from London (British Museum) and in a bronze statuette from Volubilis.[68] The certain rigidity in the expression of the goddess's face implies the last decades of the 3rd century as the period of its modelling.

The second marble head of what is presumably the goddess Fortuna was discovered in the locality of Kostol (Pontes).[69] It represents a mature woman with wavy hair gathered under a kalathos. Unfortunately, the head is damaged in the central part of the face, therefore we can only observe a somewhat schematic low forehead, oval eyes and small lips. Iconographically, the head of the goddess from Kostol much resembles the Fortune's head from Ravna and thus implies the second half of the 3rd century as the possible period of its modelling in some of the local workshops.

A skilfully modelled female marble statue was found during archaeological excavations from 2014 in Viminacium, in the area between the amphitheatre and city quarters (Fig. 6).[70] The statue's head was broken in the area of its neck and there is damage on the top of the head and on the statue's right arm. The female statue is placed on a semi-circular base, in a contrapposto position, with her weight on her left leg. The goddess is dressed in a long chiton belted above her waist, with a himation over her left shoulder. On her head, with wavy hair, parted in the middle and falling on her shoulders, she probably had a kalathos, which is missing now. The deity's face is elongated and the facial traits are carefully and skilfully modelled – deep eyes, long nose (unfortunately also damaged) and full, small lips. In her left hand, the goddess was holding a cornucopia, while the attribute from her right hand is missing, possibly a rudder, because on

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64 *AEA* 2004, 1; *AE* 2000, 1344; *CIL* II, 1280; *CIL* VII, 370; *CIL* III, 1008, 1018; *AE* 1971, 383; *IlJug* II, 734; *CIL* XIII, 8001, 7792, 1337; *CIL* XIII, 6728, 6747.

65 Rausa 1997, 133, 126a, b.

66 Arya 2002, 281, 284.

67 The marble head of a goddess (height 8.5 cm) was found in the locality of Ravna and is now in the National museum in Niš, inv. num. 37/P, Вулић 1941–1948, 92, num. 199; Срејовић, Цермановић-Кузмановић 1987, 102, num. 42; Tomović 1993, 89, num. 82, Fig. 46, 3; Петровић, Јовановић 1997, 61, бр. 5; Дрча 2004, 147, num. 62; Ilijić 2020, 19–20, Fig. 9.

68 Rausa 1997, 128, num. 33 and 136–137, num. 180f.

69 The marble female head (height 11 cm) was found in the locality of Kostol (Pontes), now in the National Museum in Belgrade, Tomović 1993, 90, num. 85, Fig. 31.2.

70 The marble female statue (height 80.3 cm, width 35.7 cm) was found in 2014, during archaeological excavations in Viminacium, in the vicinity of the amphitheatre, Богдановић, Рогић, Вуковић-Богдановић 2018, 237, num. 7.

Fig. 5. Marble head of Fortuna, from Ravna (Timacum Minus) (photo documentation of National Museum in Niš)
Fig. 7. Marble head of Fortuna, from Prahovo (Aquae) (photo: Gordan Janjić)

Сл. 5. Мермерна глава Фортуне, из Равне (Тимакум Минус) (фото-документација Народни музеј у Нишу)
Сл. 7. Мермерна глава Фортуне, из Прахова (Акве) (фото: Гордан Јањић)

the statue's right side, the remains of a larger object are visible. The back of the statue is summarily treated, therefore it can be presumed that the statue was placed with its back to the wall. The statue of Fortuna from Viminacium copies Late Hellenistic statues (of the type Braccio Nuovo and the similar type of Claudia Iusta statues of the goddess Fortuna),[71] particularly in the context of the arrangement of the goddess's hair and dress – the drapery is harmoniously arranged and the himation is richly folded, wrapped over her left arm or her left shoulder. In that context, the Viminacium statue bears close similarities with the marble statue of Fortuna from the Chiaramonti Museum in Vatican, but also with a female torso from Side.[72] Iconographically, the statue from Viminacium bears close similarities in the treatment of hair and dress with the marble statue of Fortuna with Pontos from Constanta and a marble statue now in the Museum of Fine Arts, in Boston.[73] Stylistically, although the details of the Viminacium statue are well (facial traits, hair, the folded chiton and himation) and very realistically modelled (the modelling of the thin chiton which follows the body curves that can be observed on the statue's right thigh and leg), a certain linearity is present in the mentioned details. Therefore, the end of the 2nd or the first half of the 3rd century would be the proposed period of the statue's modelling.

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[71] Rausa 1997, 127–128.

[72] The marble Fortuna statue from Galleria dei Candelabri in the Chiaramonti Museum in Vatican is a close analogy to the Viminacium statue and represents the deity with an elongated face, without any headdress on her hair and with no attributes in her hands (the attributes are missing, but presumably she was shown with a cornucopia and a rudder or a globe). The goddess is shown in a long chiton belted under her chest, with a richly folded himation over her left arm, Ibid, 128, num. 30. The female torso from Side Museum (inv. num. 126) presents the goddess dressed in a folded chiton, with the remains of a globe and a rudder, Lichocka 1997, 163, num. 333.

[73] The marble statue of the goddess Fortuna (height 1.55 m) found in Constanta (Tomis), now in the Museum in Constanta (inv. num. 2001), bears an inscription on the base of the statue, dedicated to ΑΓΑΘΗ ΤΥΧΗ, by two dedicants, Agripas and Asklys. The statue is dated to the Severan period, 150–200, http://lupa.at/21341?query=826346860, Lichocka 1997, 39, Fig. 366a–d. The marble statue of Fortuna now in the Museum of Fine Arts, in Boston (height 0.95 m) is dated to around the beginning of the 3rd century, Ibid, 166, Fig. 342a–b.

The following finds could represent the goddess Fortuna, but due to the lack of any attribute or detail that would confirm their identification as such, it is somewhat dubious if they really represent the deity in question or some other goddess.

A marble female head found in the locality of Prahovo (Aquae) is slightly damaged in the area of the nose and chin (Fig. 7).[74] The elongated head of a mature woman is slightly bent on the right side, with wavy hair parted in the middle and gathered at the top of her head in a bun, with a few locks falling down her neck. The facial traits are not particularly skilfully modelled – a wide nose and tight lips correspond to the summarily arranged wavy hair, which imply a local artisan, probably from the 3rd century.

Another marble female statue which could represent the goddess Fortuna was discovered in the locality of Kostolac, Viminacium, as a chance find (Fig. 8).[75] The fragmented statue, preserved only from the neck to approximately the knees (without head, hands and legs), shows a standing female figure dressed in a long chiton, tied under the breasts and topped with a mantle over her left shoulder. The back of the statue is only summarily treated, as it probably stood with her back against the wall. The dress is richly folded, yet quite rigidly, implying a local origin of the statue's artisan. Iconographically, the statue from Viminacium corresponds to known statuettes of the goddess Fortuna/Tyche, presented with a cornucopia in the left hand and a patera in the right hand. Stylistically, although

Fig. 6. Marble statue of Fortuna, from Viminacium (after: Боїдановић, Роїић, Вуковић-Боїдановић 2018, 237, пит. 7)
Fig. 8. Marble torso of Fortuna, from Kostolac, Viminacium (photo documentation of National Museum Požarevac)

Сл. 6. Мермерна сшашуа Форшуне, из Виминацијума (ūрема: Боїдановић, Роїић, Вуковић-Боїдановић 2018, 237, пит. 7)
Сл. 8. Мермерни шорзо Форшуне, из Косшолца, Виминацијум (фошо-докумен шација из Народноī музеја Пожаревац)

the chiton and himation of the statue are richly folded, they are simplified and are not following the curves of the goddess's body in a natural way. There is a noticeable similarity between the fragmented statue from Viminacium and the Fortuna/Tyche marble statue from Cluj-Napoca, dated to the first half of the 3rd century.[76] However, if we compare the fragmented statue from Viminacium with a marble sculpture of Fortuna also found in Viminacium, a certain schematisation and rigidity in the fragmented statue's modelling suggests a later period of its carving, probably the second half of the 3rd century.[77]

Bronze statuettes of the goddess Fortuna or the iconographic type of Isis-Fortuna are known from different localities of the Roman provinces of the Central Balkans, with some of the finds being produced with a firm knowledge of the goddess's iconography. The first bronze statuette of the goddess Fortuna was discovered in the village of Bogdanica in the area of Asenovgrad.[78] The deity is standing in a contrapposto position, with her weight on her left leg, dressed in a long richly folded chiton, belted under the breasts. Her wavy hair is divided in the middle and gathered in a bun on the back of her neck. There is a half-crescent diadem in her hair. She is dressed in a long chiton, with a himation over her back. Unfortunately, both attributes are missing from her hands – she probably held a cornucopia in her left hand and a rudder, on which she placed her right hand. The treatment of the statuette implies a solid, yet not highly skilful provincial work, from the 2nd or the 3rd century.

The second bronze statuette of the goddess Fortuna was found in Stobi, in 1937, during archaeological excavations (Fig. 9).[79] The goddess is represented standing, in contrapposto position with her weight on her left leg. Her head is slightly tilted to the right, dressed in a long chiton with short sleeves and a himation over it. She wears a round diadem on her head, while her hair is parted in the middle and partly gathered under the diadem. The goddess is holding a large cornucopia in her left hand, while her right hand is placed on a wheel (*rota Fortunae*). The attribute of a wheel, a symbol of the cycle of life but also of the goddess's capricious nature, appears in Fortuna's iconography in the period of Trajan's reign, perhaps even in the Augustan period, due to the cult of Fortuna Redux.[80] Iconographically and stylistically, the bronze statuette from Stobi is similar to the bronze statuette from Bonn, particularly considering the analogous way of dress and cornucopia modelling.[81] Although the details of the figure – the facial traits, dress and the attributes are modelled with precision and carefully, it is a provincial work produced in the 2nd or the 3rd century.

The bronze statuette of the goddess of, unfortunately, unknown provenience presents a very skilfully modelled statuette where Fortuna is presented standing, in a contrapposto pose, with weight on her left leg (Fig. 10).[82] She wears a long chiton with short sleeves and a himation over it. Her wavy hair is parted in the middle and tied in a bun on the back of her head, on which the goddess wears a diadem. The attributes from both hands, presumably a rudder and cornucopia, are missing. Iconographically and by the stylistic characteristics, the bronze statuette of Fortuna of unknown provenience is analogous to the bronze statues of the goddess from London (British Museum) and

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[74] The marble female head (height 9 cm) was found in the locality of Prahovo (Aquae), and is now situated in the Museum of Krajina, Negotin, inv. num. 127, Ibid, 89, num. 83, Fig. 19.4; Јањић 2016, 65, cat. 4, Fig. 4. I would like to express my sincere thanks to my dear colleague Gordan Janjić for the photograph of the marble head from Prahovo.

[75] The marble statuette (height 23.9 cm) was found in the locality of Kostolac, and is now in the National Museum Požarevac, inv. num. 02_2504, Tomović 1993, 90, num. 86. I would like to sincerely thank my dear colleague Teodora Branković, for the photograph of the marble statue from Kostolac, Viminacium.

[76] The marble statue of Fortuna/Tyche (height 0.45 m, width 0.35 m, depth 0.1 m) discovered in Cluj-Napoca, now in the Museum in Cluj (inv. num. 1354) represents a female figure standing on a base, dressed in a long chiton and himation. The attributes are missing, Diaconescu 2012, 70–71, num. 38, Fig. 38.

[77] Срејовић, Цермановић-Кузмановић 1987, 88, num. 35.

[78] The bronze figurine of the goddess Fortuna (height 5.8 cm) was discovered in the locality of Bogdanica in the area of Asenovgrad, now in the National Museum of Sofia, inv. num. IB 3456, Ognenova-Marinova 1975, 160, num. 183; Ružić 2006, 182, cat. 231, Fig. 231.

[79] The bronze statuette of Fortuna (height 8.5cm), was found in the locality of Stobi, now it is placed in the National Museum in Belgrade, inv. num. 2777/III, Величковић 1972, 58, num. 86, Fig. 86.

[80] Arya 2002, 88; The cult of Fortuna Redux was acknowledged with the consecration of an altar in Fortuna Redux's honour, as a gesture of gratitude towards the deity who brought Augustus safely from Syria, Miano 2018, 159.

[81] Rausa 1997, 129, num. 44d.

[82] The bronze statuette of unknown provenience (height 15.4 cm), now situated in the City Museum of Belgrade, inv. num. AA/1658, Античка бронза Сингидунума 1997, 38, num. 23, Fig. 23. My deep gratitude goes to our dear colleague Milorad Ignjatović for the photograph of the bronze statuette of unknown provenience.

Figs. 9. Bronze statuette of Fortuna, from Stobi (after: Величковић 1972, 58, num. 86, fig. 86)
Fig. 10. Bronze statuette of Fortuna of unknown provenience
(photo documentation of City Museum Belgrade, courtesy of Milorad Ignjatović)
Fig. 11. Bronze statuette of Isis–Fortuna, from Guberevac (photo documentation of National Museum in Belgrade)

Сл. 9. Бронзана статуета Фортуне из Стобија (према: Величковић 1972, 58, пит. 86, fig. 86)
Сл. 10. Бронзана статуета Фортуне непознате провенијенције
(фото документација Музеја града Београда, захваљујући Милораду Игњатовићу)
Сл. 11. Бронзана статуета Изиде–Фортуне, из Губеревца (фото-документација Народни музеј Београд)

Vienna.[83] Nevertheless, the skill with which her facial traits, hair and richly folded dress are modelled implies a possible import, produced in the 2nd century.

The bronze statuette discovered in Guberevac represents a type of Isis–Fortuna, because of Isis' headdress (cow horns are presented on the rim of a modius and there are a solar disc and feathers above the horns) on the goddess's head (Fig. 11).[84] The deity is presented standing, in contrapposto, with her weight on the left leg. The goddess's head is slightly turned to the right and her hair is divided in the middle and collected in a bun on the back of her head. She is dressed in a long chiton with short sleeves, with a himation over her left shoulder. Isis–Fortuna holds a cornucopia in her left hand, while with her right hand she holds a rudder. Iconographically, the statuette belongs to the well known Isis–Fortuna type, which appeared quite late in Roman art, due to the late syncretism of the two goddesses (as was already mentioned, not before the late 1st century BC). The bronze statuette of Isis–Fortuna represents a unique find in the Central Balkan territory and shares close iconographic and stylistic similarities with a bronze statuette from Savur-

[83] The bronze statuette of Fortuna from Kunsthistorisches Museum in Vienna represents the goddess dressed in a long chiton with a himation, wearing a diadem on her wavy hair. In her left hand, the deity holds a cornucopia, while the attribute from her right hand (probably a rudder) is missing, Lichocka 1997, 128, Fig. 432. The bronze statuette of Fortuna from the British Museum in London is very similar to the previous statuette, except that besides the diadem, the goddess is also wearing a modius on her head, Ibid 121, Fig. 455.

[84] The bronze figurine of Isis-Fortuna was discovered in Guberevac, now it is in the National Museum in Belgrade, inv. num. 2778/III, Величковић 1972, 62–63, cat. 92, Fig. 92; Античка бронза Сингидунума 1997, 40, cat. 31, Fig. 31.

dija,[85] a bronze figurine from Trieste[86] and with a bronze statuette found in the area of Lika, now kept in the Archaeological Museum in Zagreb.[87] Stylistic characteristics of the statuette from Guberevac (not skilfully modelled face traits, hair and summarily done attributes) imply a coarse provincial work from the 3rd century.

The last bronze statuette which could perhaps present the goddess Fortuna was found in the southern parts of the Central Balkans, in the vicinity of Prilep.[88] The deity is presented standing in a long chiton with a himation. It seems that besides a veil on her head, the statuette also has a modius (?). A cornucopia is presented in her left hand, while the attribute from her right hand is missing. This type of bronze statuettes of Fortuna represent the so-called Great Mother type of the goddess's statuettes, which are mostly known in terracotta.[89] The fragmented statuette of the deity presents a coarse, unskilful product of the 3rd century, which, in the opinion of M. Veličković, could have served as an ornament for a hairpin.[90]

Besides votive reliefs, sculptures and statuettes, the image of the goddess Fortuna is known from nine gems. The image of the goddess on glyptic art has been transferred from her presentations on coinage, particularly being popular during the 2nd and the 3rd century across the whole Roman Empire, some provinces like Dalmatia in particular.[91] On so-far known gems from the Roman Central Balkans, the goddess is presented alone or with the goddess Victoria (on four gems, Fig. 12a) and on two gems Isis–Fortuna is in the company of Hermes–Thoth (Fig. 12b). On the gems where Fortuna is shown with Victoria and Hermes–Thoth, both deities, Victoria and Hermes, are presented crowning the goddess with a wreath.[92]

On almost all nine gems the canonized image of the goddess is shown – she is presented standing, dressed in a long chiton with a himation, holding a cornucopia in her left hand and placing her right hand on a rudder.[93] The majority of gems are of local production, which can be observed in the summary presentations of the goddess and her attributes. The differences are only visible in the details and elaborateness of the image – on the gem of unknown provenience, Fortuna is presented placing her left hand on a rudder in the form of a shut umbrella, as in Nerva's coins with the legend Fortuna Augusti,[94] While on three gems (two of unknown provenience and one found in Kostolac, Viminacium), the goddess's figure is summarily presented.[95] This iconographic type of Fortuna presentation on gems has numerous analogies all over the Roman empire, but in the context of the stylistic characteristic the Central Balkans' Fortuna gems are similar to gems from the province of Germania, Spain etc.[96] The four gems (one gem from Ritopek, one gem from Veliko Gradište and two gems of unknown provenience)[97] with the presentation of Victoria crowning Fortuna with a wreath, have their analogies in finds from Gottingen, Braunschweg, Monaco and Bruxelles,[98] but also Brunswick, Berlin, Hanover, etc.[99]

As for the two gems (both gems are of unknown provenience)[100] with the composition of Hermes–Thot crowning Isis–Fortuna with a wreath, the closest iconographical and stylistic analogies can be found in gems from Copenhagen, Bucarest, Braunschweg, Monaco, Narbona, Vienna,[101] Hannover, etc.[102]

Two gems with the representation of the goddess Fortuna distinguish from the other examples – the gem inlaid in a silver ring found in Novi Beograd (New Belgrade) made of multilayer agate and the gem of

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[85] The bronze statuette from Savudrija was found at a Roman villa on the coast in the locality of Savudrija, Girardi Jurkić 2012, 146, Fig. 19.

[86] Лисичар 1961, 131, Fig. 8.

[87] Rausa 1997, 137, num. 180n.

[88] The bronze statuette of the goddess (height 3.8 cm) was found in some locality in the vicinity of Prilep. Its lower part is missing, and is now situated in the National Museum in Belgrade, inv. num. 2779/III, Величковић 1972, 58–59, num. 87, Fig. 87; Константин Велики и милански едикт 313. године 2013, 306, cat. 62.

[89] The "Great Mother" type of Fortuna terracotta statuettes is known mostly by the finds from Rome, Rausa 1997, 126, num. 1b, d.

[90] Величковић 1972, 59.

[91] Нововић-Кузмановић 2005, 94; Nardelli 2008, 237.

[92] The group composition of the goddess Victoria who is giving a wreath to Fortuna is shown on the gems Ibid, 404–405, cat. 271–274, T. XXIII, Ibid, 96; on two gems, Hermes–Thoth is presenting a wreath to Isis–Fortuna, 417–418, cat. 315–316, T. XXVII, Ibid.

[93] Ibid, 406–408, cat. 275–283, T. XXIV.

[94] The oval gem of unknown provenience is made of orange carnelian (13.2 x 10.2 x 3.2 mm), now held in the National Museum in Belgrade, inv. num. 1865/II, Ibid, 406, cat. 275, T. XXIV.

[95] Ibid, cat. 276–278, T. XXIV.

[96] Like gems from Hannover and Seville, Rausa 1997, 136, num. 177a, 168d; gems from Berlin, Lichocka 1997, Fig. 542–543.

[97] Нововић-Кузмановић 2005, cat. 271–274, T. XXIII.

[98] Rausa 1997, 134, num. 143–147.

[99] Lichocka 1997, num. 532, 533, 537.

[100] Нововић-Кузмановић 2005, 417–418, cat. 315–316, T. XXVII.

[101] Rausa 1997, 134, num. 132–134.

[102] Lichocka 1997, num. 536.

Fig. 12. Gems with a presentation of:
a) Victoria crowning Fortuna; b) of Hermes–Thoth crowning Fortuna; c) Fortuna and a child
(photo documentation: Institute of Archaeology, Belgrade)

Сл. 12. Геме са представама:
а) Викторије која крунише Фортуну; b) Хермес–Тота који крунише Фортуну; c) Фортуне и детета
(фото-документација Археолошки институт Београд)

unknown provenience, made of obsidian. The gem from the Novi Beograd locality presents a stylised but very skilfully modelled image of the goddess Fortuna, where significant attention has been paid to the details of the deity's figure, shown with a cornucopia in her right hand and placing her left hand on a rudder.[103] There is a strong resemblance to the stylistic characteristics of the gem from Oxford.[104] The gem from Novi Beograd is dated to the 3rd century. The gem of unknown provenience shows the goddess holding a cornucopia in her right hand, while with her left stretched hand she is touching the hand of a child who kneels beside her (Fig. 12c)[105] This iconographic type of goddess Fortuna presents her as the protectress of children and their fate, which is related to the same function the deity had in Praeneste. An almost identical presentation is found in a gemstone from Munich, dated to the period of the 2nd–3rd century.[106] The gem of unknown provenience is most probably an import from Italy, not only because of the symbolic role of the goddess, but also because of the skilful modelling of the composition, in the same period as its analogy from Munich, in the 2nd or the 3rd century.

Considering the popularity of gems with the image of Fortuna in the Central Balkan Roman provinces, it can be presumed that her popularity was due to her protection and guidance of individuals during their lives, but also after their deaths, securing them salvation and happiness.

The epigraphic and archaeological material from the Roman Central Balkans attest to the significant popularity of Fortuna's cult in the mentioned territory – she was honoured under different epithets (salutaris, aeterna or sacra) mostly by frequent ones, but also by

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[103] The gem in a silver ring (width 2.9cm) was found in Novi Beograd, and is now situated in the National Museum in Belgrade, inv. num. 882/II, Поповић 1992, cat. 90; Нововић-Кузмановић 2005, cat. 282, T. XXIV.

[104] Rausa 1997, 129, num. 51i.

[105] The gem of unknown provenience, bought from H. Lederer from Belgrade, now in the National Museum in Belgrade, inv. num. 340/III, Нововић-Кузмановић 2005, cat. 283, T. XXIV.

[106] Rausa 1997, 118, num. 8.

[107] Kajanto 1988, 566.

[108] The votive monument dedicated to Dea Fortuna was found at the entrance of Niš fortress, where, near by, public thermae were discovered in later archaeological excavations. A votive monument, possibly from Aesculapius' shrine, was also found in the area of Niš fortress, dedicated by the first known physician in Niš, Claudius Magnus, Gavrilović Vitas 2020, 69–70. The cult of Fortuna Balnearis was popular in the baths in the frontier provinces and the goddess was probably considered the guardian of bathing facilities and thermal sources, Kajanto 1988, 573–574; Champeaux 1987, 215, ft. 80, 81.

[109] Ammianus Marcellinus, *Res Gestae*, XXI. 5.3, 13; XXVI. 2.9. In his Panegyric on the Sixth Consulship of the Emperor Honorius (A. D. 404), Claudian implies that the cult and the temple of Fortuna Redux in Rome were still significant for the population and the city at the beginning of the 5th century (in 404), Claudian, *Panegyric,* XXVIII. 1.

a very rare epithet Domina from a votive altar found in Čiflak, near Ulpiana, which is attested only on one more votive monument, discovered in El Mesaurat in Egypt. Her dedicants were procurators, decurion, soldiers, but also a woman who was probably a Romanised inhabitant from the vicinity of Skoplje (Scupi). That the goddess Fortuna was venerated by soldiers not only in epigraphic, but also archaeological monuments, could be implied by the finds of marble statues of the deity, found in Roman fortresses in Ravna (Timacum Minus), Kostol (Pontes) and Prahovo (Aquae). Soldiers (from ordinary soldiers to *legati* and veterans) represent the most numerous of the goddess's devotees in other Roman provinces as well (particularly in the frontier provinces), like in Germania Superior, Britannia and Pannonia, which is quite logical since the goddess symbolised protection and luck.

The official goddess, *Fortuna populi Romani*, was protectress of Romans, especially in war,[107] therefore it was quite natural for soldiers to turn to and pray to *Fortuna imperatrix mundi,* as the goddess who would make them safe during their travels and combats and who would bring them luck and success in their campaigns and wars. The marble statues of the goddess discovered in Viminacium could present the deity's cult statues that were placed in her temple or the temple of some deity that had similar competences as Fortuna (the goddess Nemesis, for example). Currently known bronze statuettes of the goddess present typical provincial works from the 2nd or the 3rd century, with the exception of the statuette from Guberevac, which is a unique find of the iconographic type of Isis–Fortuna, where Fortuna is presented with an Isis headdress on her head, while holding a cornucopia and a rudder. As for the gemstones with the image of goddess Fortuna, besides her usual presentation as a standing mature woman holding a cornucopia and a rudder in her hands, two more types of iconographic presentations are known – of Victoria crowning Fortuna with a wreath and of Hermes–Thoth crowning Fortuna in the same way. An exquisite example is presented on a gem of unknown provenience, where Fortuna is shown placing her hand on a child's head, thus confirming the dimension of the goddess as the protectress of children and youth. As for the temples and presumed sanctuaries of Fortuna in the territory of Central Balkan Roman provinces, the inscription on an architrave found at the entrance of the Gračanica monastery near Ulpiana confirms that there was a temple of the goddess there. Another sanctuary of Fortuna can be presumed in Niš (Naissus), based on the presence of her priest Aurelius Dexter in 221, which could, perhaps, have been connected with the cult of *Fortuna Balnearis*, the protectress of baths and thermal springs.[108] A third temple of the goddess could be assumed in the locality of Lopate, west of Kumanovo, where, besides a votive monument dedicated to Fortuna Salutaris, the remains of some sacred antique objects were also discovered. Although, to date, the cult of the goddess Fortuna has not been epigraphically attested in Viminacium, the finds of two votive reliefs and two marble statues of the goddess indicate the possibility of the existence of a sanctuary or a shrine in the capital of Moesia Superior, where Fortuna was venerated.

The latest monuments of the goddess's cult from the Roman Central Balkans are dated to the last decades of the 3rd century, when the budding Christianity was overpowering paganism, not only in this particular territory, but over the entire Roman Empire. However, the cult of the goddess who ensured the emperor's wellbeing, safety and rule, and who also gave her protection and luck to individuals and families, still influenced the lives of Roman emperors and citizens in the period of Late Antiquity, as her temples, like the temple of Fortuna Redux in Rome, still existed in the early 5th century.[109]

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ANRW	*Aufstieg und Niedergang der Römischen Welt,* edd. H. Temporini & W. Haase, Berlin 1972–
CIL	*Corpus Inscriptionum Latinarum,* Th. Momsen, ed., Berolini: apud G. Reimerum, (Berlin 1863–)
CIMRM	*Corpus Inscriptionum et Monumentorum Religionis Mithriacae,* I, II, M. J. Vermaseren, Hague 1956, 1960
ICUR	*Inscriptiones Christianae Urbis Romae septimo saeculo antiquiores,* ed. G. B. Rossi, Roma 1857–
ILJug	*Inscriptiones Latinae quae in Iugoslavia inter annos MCMLX et MCMLXX repertae et editae sunt,* I–III, Ljubljana 1963–1982
IMS	*Inscriptions de la Mésie Superieure,* I–VI, Belgrade 1976–1995
LIMC	*Lexicon Iconographicum Mythologiae Classicae,* LIMC I–VII, Zürich-Münich, 1981–1997; VIII, Zürich-Düsseldorf, 1997
ССКА	*Сūоменик Срūске Краљевске Академије,* Београд 1872–1947

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Nadežda GAVRILOVIĆ VITAS
The Cult of Goddess Fortuna in the Roman Central Balkans (163–180)

Резиме: НАДЕЖДА ГАВРИЛОВИЋ ВИТАС, Археолошки институт, Београд

КУЛТ БОГИЊЕ ФОРТУНЕ У РИМСКИМ ПРОВИНЦИЈАМА ЦЕНТРАЛНОГ БАЛКАНА

Кључне речи. – богиња Фортуна, римске провинције централног Балкана, римска војска, светилишта

Култ богиње Фортуне у римским провинцијама централног Балкана потврђен је бројним вотивним споменицима, вотивним рељефима, скулптурама, бронзаним статуетама и представама богиње на гемама. На основу убикације локалитета на којима је култ Фортуне потврђен, може се констатовати да највећи број споменика потиче из источних и јужних делова централног Балкана, за разлику од западног дела, у коме није констатован ниједан споменик божанства. На вотивним споменицима, дедикације богињи Фортуни се чине самостално или са Генијем, са епитетима под којима је богиња позната и у другим римским провинцијама (Dea, Salutaris, Sacrum), изузев епитета *Domina* на вотивном споменику са локалитета Чифлак, близу Улпијане и *Aeterna* на вотивном споменику из Грачанице. На једном од два вотивна рељефа из Костолца, посвета је упућена Генију, који је вероватно био представљен заједно са Фортуном на оштећеном делу рељефа, у функцији заштитника одређене особе, породице и/или дома особе/особа у питању.

Налази мермерних скулптура и бронзаних статуета богиње Фортуне указују да је божанство представљано по увреженом иконографском канону – као зрела жена која стоји, обучена у дуг хитон са химатионом преко левог рамена, некада са калатосом, полосом, дијадемом или велом на глави, држећи рог изобиља у левој руци и десном руком ослоњена на кормило. Одређене скулптуре и статуете, као мермерна скулптура Фортуне из Виминацијума и бронзана статуета богиње непознате провенијенције, представљају изузетно вешто и зналачки моделоване примере провинцијске уметности из 3. века н. е. Бронзана статуета богиње из Губеревца представља синкретистички тип Изиде–Фортуне, препознатљив по карактеристичној Изидиној круни на глави божанства, који је познат и са две геме непознате провенијенције, са представом Хермеса–Тота који крунише Изиду–Фортуну венцем. До сада познати налази гема указују на развијену локалну производњу глиптике, изузев геме непознате провенијенције на којој је богиња Фортуна приказана са дететом, што је у вези са димензијом Фортуне као заштитнице деце и дечје судбине (Fortuna Praenestina), и која се може сматрати италским импортом услед симболике представе, али и изузетно прецизне и зналачке обраде саме композиције.

Епиграфски и археолошки налази у вези са култом богиње Фортуне указују на постојање храмова божанства у или у околини Улпијане, у Нишу, у околини Куманова, вероватно и у Виминацијуму. Храмове богиње Фортуне треба свакако очекивати и на другим локалитетима централног Балкана, услед њене улоге заштитнице појединаца, али и породица и градова, богиње која доноси срећу у ратним, али и мирнодопским условима, у трговини, на копненим, речним и морским путовањима, термама и бањама, једном речју у различитим животним околностима обичног човека, али и императора, његове породице и римске државе.

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ROMAN AGRICULTURAL TOOLS IN THE AGER OF VIMINACIUM

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Abstract. – The several decades long rescue excavations of the ancient city of *Viminacium* have brought to light a large number of finds with very varied functions. In this paper, we will focus our attention on the remains of agricultural tools. They can be grouped according to their application: tools for clearing plants and preparing the soil for cultivation, tools used for tillage, implements for shredding and preparation for planting, as well as those used for mowing, harvesting, soil cleaning, and haymaking. The finds of agricultural tools that we present in this paper, although small in number, represent the most reliable indicators of agricultural activities in the period from the 2nd to the beginning of the 4th century, when *Viminacium* went through its period of greatest prosperity.

Key words. – Roman agricultural tools, Roman farming, *villae rusticae*, ager of *Viminacium*

The northern parts of the Roman province of *Moesia Superior* belong to a wider geographical area, the Middle and Lower Danube Valley. After the conquest of this territory in the process of Roman expansion in the 1st century AD and the establishment of Roman administration in the newly-created provinces, organised urbanisation emerged, alongside autochthonous rural settlements, which continued to exist for some time. The Roman reign brought new organisational methods in economy and, thus, in agricultural production, as one of the most important economic activities, more or less successfully including the local population, which depended on the Romanisation level of the newly established Roman provinces. Due to insufficient historical data, we can only assume the role of the autochthonous element, not completely define it. The structure of agricultural properties is also insufficiently known, since the data provided by previous archaeological excavations refers to other parts of the Empire, where the agricultural organisation had to differ from that in the Balkan provinces due to different climatic and other natural conditions and different levels of economic development.[1] Therefore, the reconstruction of agriculture in all its aspects represents one of the main factors for understanding the course of Roman influence in the provinces formed in the Balkans areas.

Roman government brought changes in the manner of working the land and cultivating the soil in conquered regions. Technological development and the improvement of tools used in agricultural production certainly resulted in an increase in yields on those agricultural estates where such innovations had been applied. It is difficult, however, to clarify in what manner this affected economic relationships between existing sections of the population. Even though parts of the public land (*ager publicus*) could have been given to members of the autochthonous population as well, this, however, was probably a rare occurrence, because the

[1] Lewit 2004, 91–166; Busanam, Forin 2020, 17–29; Tortosa 2020, 31–43.

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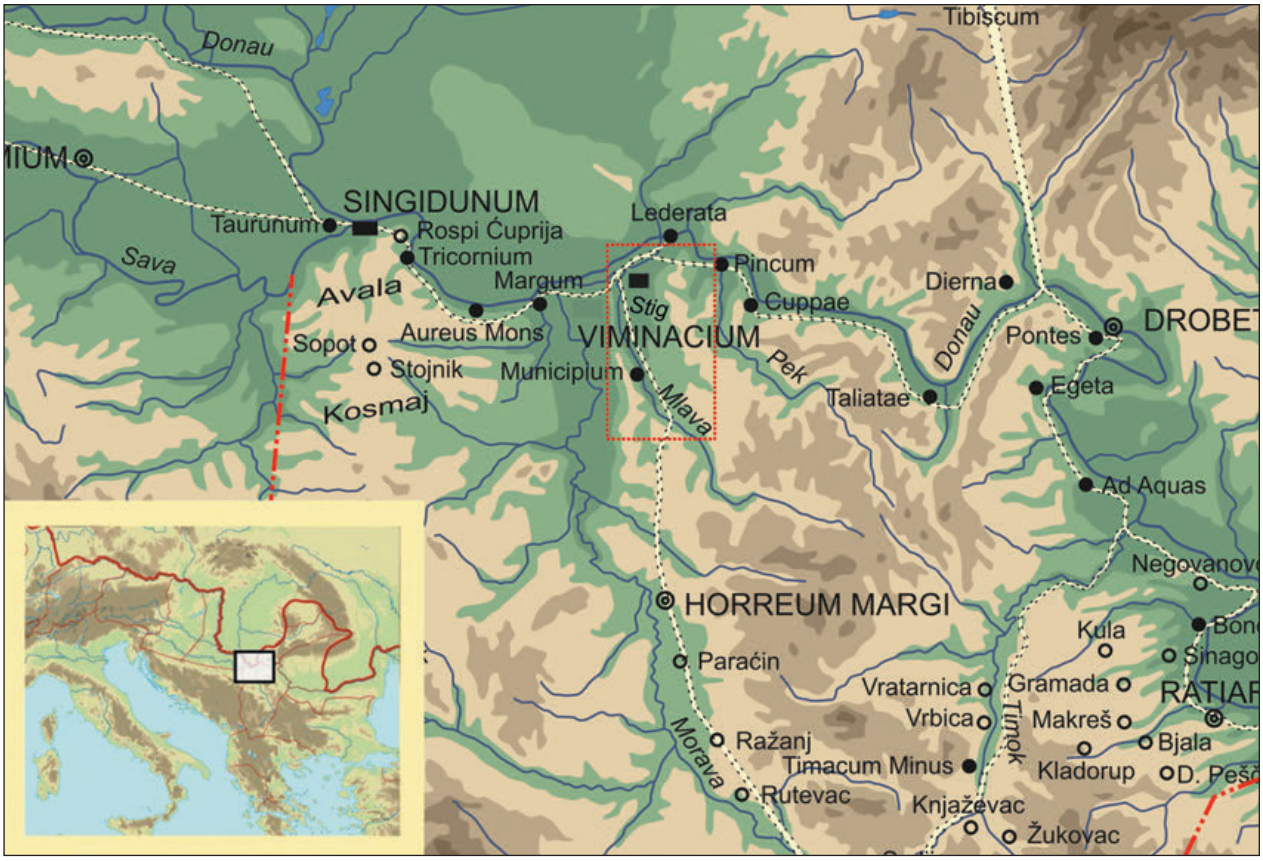

Map 1. The position of Viminacium on the map of Roman provinces with the area of Stig plain (modify after: Mirković 2007, 8, Abb. 1)

Карта 1. Положај Виминацијума са издвојеном регијом равнице Стиг (измењено према: Mirković 2007, 8, Abb. 1)

largest portion of public land was given to landowners from Italy or earlier Romanised provinces in the west, or to Roman veterans. Colonists would get land within the ager of the colonies, and veterans usually received territories that were within the jurisdiction of legionary camps (*prata legionis*),[2] and which were located at a distance from a given camp.[3] According to M. Mirković, in the 2nd–3rd century, veterans represented the middle class of landowners and it was probable that a considerable part of the territory at the limes belonged to them, even before the formation of the border militia – *milites limitanei*.[4] On the basis of data provided by written sources, epigraphic and archaeological material, it is assumed that imperial domains comprehended large areas in the wider territory of the Balkans.[5] There are indications that would suggest the existence of imperial properties in the vicinity of *Viminacium*: an imperial procurer mentioned in an inscription from *Viminacium*, dedicated to *Septimius Severus,* confirms this assumption.[6]

The least known factor in the system of Roman agriculture is the immediate workforce, and within it, the position of the autochthonous population. Tenant farmers were probably cultivating the land of the municipal aristocracy. Their existence during the period when the Romans came to these areas, but also later, certainly influenced the changes in the Roman production system,

[2] Mócsy 1972, 133–168; Zaninović 1985, 63–79; Mason 1988, 163–189; Bohec 2000, 219.

[3] On the settlement of Roman veterans in the territory of the province of *Moesia Superior cf.* Ферјанчић 2002, 154–165.

[4] Mirković 1968, 138.

[5] Mirković 1996, 58–61.

[6] Mirković 1968, 138, note 12.

but they also slowed down the spread of slave-ownership. Afterwards, with the progress of Romanisation, their numbers diminished, first and foremost because of their ever increasing participation in military service. It can be assumed that, in time, slave labour began to be used for agricultural activities. This is supported by epigraphic data from the 3rd century, where it is stated that when land was assigned to soldiers, they would also receive, at the same time, slaves and cattle.[7]

When the city gained the status of a *municipium* (117 AD), its territory covered a larger part of the plain in the lower course of the Mlava River, on the Stig plain, while, after acquiring the status of a colony (239 AD), *Viminacium* expanded to cover the entire Stig plain and Veliko Gradište (*Pincum*).[8] The Stig plane was a very important agrarian area in the Antique period, just as it is today. It was the largest plain in the province of *Moesia Superior*, with its northern border along the Danube, to the west the Mlava River, and in the east and south-east it borders the Homolje ranges (Map 1). The fertile valley at the confluence of the river Mlava into the Danube provided conditions for intensive settling activity in this area even during prehistory, as well as later, during Antiquity. The valley of the Danube was often flooded, thus turning the flood plain into fertile ploughable land.

Archaeological excavations have established the existence of a communication that led from the northern gate of the legionary camp, along the valley of the former Klepečka river, to Lederata. In the immediate vicinity of this communication, five *villae rusticae* were explored at the Rit sites and two at the Nad Klepečkom site.[9] Such a large number of villas in the suburban parts of *Viminacium* indicates the dense population of this area in the period of Roman administration, which can be brought into connection with the fertile land suitable for farming, especially the cultivation of cereals. Good communications with other city centres, first and foremost *Singidunum* on one side and the Morava river valley on the other, as well as the fortification system along the Danube limes, enabled the continuous transit of merchandise and safe markets.

The several decades long rescue excavations of the antique city of *Viminacium* brought to light a large number of finds of very varied functions. Since archaeological excavations are conditioned by works on the surface mine "Drmno", the discoveries of city necropoles and other urban structures have provided the most visible results so far.[10] The formation of agricultural estates outside the city is linked to economic prosperity during the 2nd and the first half of the 3rd century, when most of the inhabitants of the wider city territory lived and worked on them. Relative political security in this period enabled, among other things, the development of farming, which was one of the basic activities in the area of the fertile plain of Stig in the province of *Moesia Superior*. The marginalisation of topics regarding rural settlements (*vici*, *villae rusticae*), economics of agricultural estates, agricultural production, economic aspects of life etc. has been partially lessened in the last few years through discoveries of villas on several sites in the wider area of the city territory of *Viminacium* (Fig. 1).[11] These discoveries in the immediate urban surroundings are indicative of the importance that agriculture had for the inhabitants of *Viminacium* and its surroundings, but they still do not provide answers to questions related to the scope and structure of the ager of the city.

In order to obtain more reliable data on the development of Roman agriculture in the ager of *Viminacium*, it is necessary to have an insight into a whole series of research, starting with research of the climate, relief, soil, archaeobotanical and archaeozoological analyses. However, this time we will focus our attention on the agricultural tools that are a clear indicator of agricultural activities in the wider urban area of *Viminacium*. They were found in various locations, often near buildings within an agricultural estate.

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[7] Mirković 1968, 138, note 14.

[8] Popović 1968, 30.

[9] Jovičić, Redžić 2014, 54–59; Redžić *et al*. 2014, 67–69; Danković, Petaković 2014, 60–63; Redžić *et al.* 2017a, 77-86; Korać *et al*. 2018, 62–63; Milovanović *et al*. 2019, 97–108; Milovanović *et al.* 2021, 101–114.

[10] There are numerous papers dealing with the research activities at *Viminacium*. On this occasion, we would like to point out only some of the titles that provided new discoveries on this significant site: Љ. Зотовић, Јужне некрополе Виминација и погребни обреди, *Viminacivm* 1/1986, Пожаревац 1986, 41–60; Љ. Зотовић, Ч. Јордовић, *Viminacium* I: *некропола Више гробаља,* Београд 1991; M. Korać, S. Golubović, *Viminacium: Više Grobalja* 2, Beograd 2009; M. Korać, *Slikarstvo grobnica u Viminacijumu*, Požarevac 2000; M. Korać, *Oil-lamps from Viminacium* (*Moesia Superior*), Beograd 2018.

[11] Archaeological excavations on the wider territory of the city brought to life a significant number of agricultural estates, *villae rusticae*, which represented both residential, but also economic buildings that were the centres of agricultural and craft production, *cf.* Korać *et al*., Research of Viminacium and its suburban zones, in: *Vivere Militare Est From Populus to Emperors – Living on the Frontier*, S. Golubović, N. Mrđić (eds.), Belgrade 2018, 62–63.

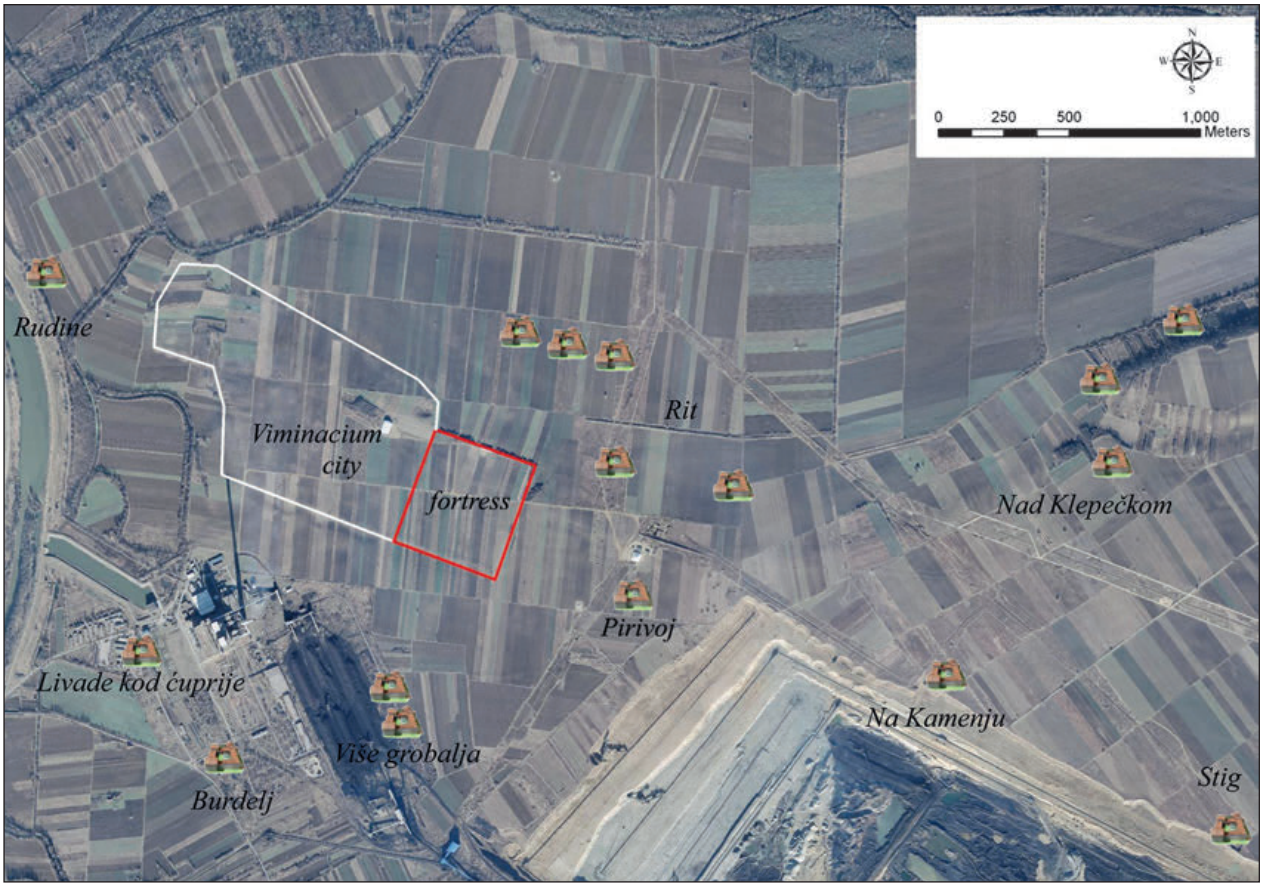

Fig. 1. Villae rusticae at Viminacium and its surroundings (Doc. of the Institute of Archaeology, Belgrade, Project Viminacium)

Сл. 1. Villae rusticae у Виминацијуму и његовој околини (Док. Археолошког института у Београду, Viminacium пројекат)

AGRICULTURAL TOOLS

Agricultural tools from *Viminacium* can be grouped according to their application: tools for clearing plants and preparing the soil for cultivation (pickaxe, mattock), tools used for tillage, implements for shredding and preparation for planting (spade, drag hoe), as well as those used for mowing, harvesting, soil cleaning, and haymaking (pruning hook, sickle).

Pickaxe

One example of tools intended for clearing vegetation and preparing the soil for cultivation has been identified in the wider territory of *Viminacium* (No. 1). Strictly speaking, these tools were not used for tilling the soil but rather to prepare the terrain for further cultivation, so we can classify them as tools used for farming. According to their type, they are pickaxes, mentioned in sources as *dolabra*.[12] They are combined tools, consisting of an axe on one side and a pick on the other. As a multi-purpose tool, depending on its shape, size and weight, it was used in agriculture, silviculture, mines and quarries, and it was a part of the standard equipment of a Roman soldier, being used, among other things, for building wooden-earthen fortifications. As an agricultural tool, the pickaxe was used for clearing and preparing the soil for further cultivation, to remove roots and stumps and cut dry branches, as well as to hill up vineyards. Depending on their function, these tools had several shapes. Finds of pickaxes are numerous along the Iron Gates section of the Roman limes and deeper in the hinterland. Examples similar to

[12] White 1967, 61–65.

finds from *Viminacium* originate from Boljetin (*Smorna*), Kraku lu Jordan, Rudna Glava, Grocka, Salakovac near Požarevac,[13] a hoard of tools from Poljane near Požarevac,[14] a hoard of tools from Melnica near Petrovac na Mlavi,[15] from Caričin Grad,[16] and from Gornji Streoc in Kosovo.[17]

Finds similar to our example are numerous in the neighbouring areas, in Bosnia and Herzegovina, in the remains of a Roman villas in Stup near Sarajevo, Mogorjelo near Čapljina,[18] in Slovenia,[19] in Bulgaria, in a hoard of tools from the Early Byzantine fortification in the village of Žeglica,[20] and in a hoard of iron items from Elenovo.[21]

Mattock

Two specimens were discovered in the territory of *Viminacium* that we can identify as a mattock (No. 2, 3). It was used, in most cases, for removing bushes and roots in gardens, but also for crushing earth. In mountainous areas, heavy mattocks were used instead of ploughing utensils. Terminological dilemmas regarding a precise term for this type of tools have not yet been resolved. The general term used in written sources for tools belonging to mattocks and hoes is *sarculum*.[22] However, as their functions are partly intertwined, it is not possible to distinguish exactly the tools *sarculum*, *ligo* and *marra* on the basis of data from ancient sources. There are numerous variations in terms of the weight, shape and length of the cutting edge, which are indicative of the composition of the soil and the need to adjust the tools and use them in the best manner possible in agricultural activities. In the territory of the Central Balkans, especially in the section along the Danube limes, findings of mattocks are common, which indicates a multi-purpose use of this tool in earthworks. We found corresponding analogies for these tools from the site of Ušće near Obrenovac,[23] and Gornji Streoc in Kosovo.[24] Similar specimens in Serbia come from: Sremska Mitrovica, Kostol (*Pontes*), Karataš (*Diana*), Veliki Gradac, Golubac, Dražaj near Grocka, Paraćin, Caričin Grad,[25] and Gradina na Jelici.[26]

A considerable number of typologically different examples, conditioned by differences in the quality and structure of the soil, come from Roman sites in Bosnia and Herzegovina: a Roman villa in Mogorjelo, in Stup near Sarajevo, Japra – Majdanište, Krnjeuša, Prisoja, Stoc, Hrvaćani near Banja Luka, and Dračeva Strana.[27] They have also been found on sites in Bulgaria: Sadovec (Sadovsko Kale), Krivina (*Iatrus*), Svištov (*Novae*), and Razgrad (*Abritus*).[28]

Spade

Agricultural tools also encompass spades, used for many purposes. One specimen was discovered in the territory of *Viminacium* (No. 4). Several types of this tool are mentioned in written sources: *pala, bipalium*, *vanga, fossorium, ferrea,* or *scudicia*.[29] They were used in gardening, for drainage works, for cutting out and for turning the earth. The quality and composition of the soil conditioned the shape of the cutting edge, so the Mediterranean type differed significantly from the Middle-European ones. The type most commonly found on our territory was the Middle-European one, whose cutting edge usually had a rectangular or trapezoidal shape, while the Mediterranean type was lighter, with a triangular cutting edge.

The finds of spades in the territory of today's Serbia have not been very numerous, which would suggest that wooden shovels, reinforced by iron, were also in parallel use in this region. We encountered corresponding analogies for this object from the Brović hoard near Obrenovac, which are chronologically determined into the period from the 3rd up to the 4th century.[30]

A very close analogy to the example from *Viminacium* comes from Bosnia and Herzegovina, from the site of Grude near Ljubuški.[31] Similar examples have been found in Hungary,[32] Bulgaria: Razgrad (*Abritus*),[33] a hoard in Elenovo, and in Thrace.[34]

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13 Popović 1988, 59–61.
14 Шпехар, Јацановић 2015, 293, Т. I/2–3.
15 Живковић, Арсенијевић 2007, 217, кат. 1–2, Т. I/1–2.
16 Stamenković 2013, 84, sl. 71.
17 Ivanišević, Špehar 2006, 145, fig. 6/4.
18 Busuladžić 2014, 66, T. 47/ P. 23.
19 Pflaum 2007, 302, Pl. 3/23.
20 Љубенова 1981, 164, обр. 104/2.
21 Kayumov, Minchev 2013, 331, fig. 5.
22 White 1967, 36–37.
23 Popović 1988, 37, T. I/5.
24 Ivanišević, Špehar 2006, 143, fig. 6/2.
25 Popović 1988, 36–38.
26 Milinković 2002, 104, Abb. 28/9, 12.
27 Busuladžić 2014, 61–63, T. 37–42/ P. 19–20.
28 Динчев Чолаков 2010, 70, фиг. 77/1, 87/1–2.
29 White 1967, 17.
30 Popović 1988, 34. T. I/2.
31 Busuladžić 2014, 60, T. 35.
32 Thomas 1964, 151, Abb. 79, 2a, 2b.
33 Динчев Чолаков 2010, 39, фиг. 27/4.
34 Kayumov, Minchev 2013, 333, fig. 7.

Drag hoe

The term *rastrum* comprehends tools with several prongs. Tools with two prongs are known by the term *bidens*, while drag hoes belong to tools with four or six prongs – *rastrum*.[35] Drag hoes were used for clearing the terrain and gathering hay, and in mountainous, difficult to access terrains they also had the function of a plough. One example has been found at Viminacium (No. 5). In the territory of the Central Balkans, the finds of a metal four-prong drag hoe (*quadridens*) are very rare. This justifies the assumption that wooden tools – pitchforks (*rastelli*) were used for clearing the terrain and gathering hay.

Finds of drag hoes from the Roman period have not been registered on the territory of *Moesia Superior,* except of this specimen from Viminacium. When it comes to the wider area of the Balkan Peninsula, in Bosnia and Herzegovina, finds of Roman drag hoes have been discovered on the sites in Halapić near Glamoč and on the site of a Roman villa in Žabljak near Doboj, which were very broadly dated into the period from the 1st up to the 6th century.[36] A somewhat older find of a four-prong drag hoe (*rastrum quadridens*) was discovered at the site of Unec near Rakek in Slovenia, and it was dated to the end of the La Tène period.[37]

Pruning hook

Pruning hooks are widely used farming tools and similar to sickles and scythes. They belong to the group of tools under the general term of *falces*. Depending on their specific purpose, Roman writers distinguished twelve types.[38] Hooks were used for cutting and pruning in general, within different activities: for clearing out weeds, different vegetation, cutting thorns or pruning grapevines, for picking different types of fruit and grape clusters.

Examples of pruning hooks from *Viminacium* (No. 6–12) have a semi-circular bent cutting edge, with a triangular cross-section, bent almost at a right angle in the upper part. The lower part of the cutting edge turns into an insertion tang with a rectangular cross-section. In some examples, the insertion tang has a flat end, and in others, it is bent in the shape of a loop.

We found corresponding analogies for the pruning hooks from *Viminacium* in the territory of Serbia in: Saldum,[39] Poljane near Požarevac (hoard of tools)[40] and the early Byzantine fortification Gradina na Jelici.[41]

Apart from direct parallels, similar specimens were discovered on sites along the Iron Gates limes, but also in the hinterland and deeper in the interior of the Central Balkans: *Singidunum*, Čezava – *Novae*, Boljetin – *Smorna*, Ravna – *Campsa,* Karataš – *Diana*, Kraku lu Jordan, Hajdučka Vodenica, Gamzigrad – *Romuliana*, *Mediana*,[42] and Caričin Grad.[43]

Pruning hooks of various types have been registered in all parts of the Empire, from Rome, Great Britain in the west, up to the Near East.[44] It was because of the wide application of this tool in different fieldwork that it was in mass use. In countries neighbouring ours, pruning hooks similar to our examples have also been identified in large numbers in Bosnia and Herzegovina – in villas in Višići, Dračeva Strana, Proboj, Lisičići, Stup, Grude, Ljubuški, Krehin Gradac, Tasovčići and Mogorjelo,[45] in Hungary,[46] in Romania,[47] in Bulgaria, on numerous sites, from Roman cities of *Ratiaria*, *Augusta*, fortification of *Castra Martis*, Late Antique villa in Pernik, etc.[48]

Sickle

The repertoire of agricultural tools is completed at *Viminacium* with sickles (*falx messoria*) (No. 13–14). They were widely used in farming for harvesting activities. Sickles have an arched cutting edge, with a short handle, located along the axis of the cutting edge. The curve of the cutting edge varies, from a shallow arch to a semi-ellipse. The sickles originating from *Viminacium* indicate that the inhabitants were collecting grain from the harvest fields in the vicinity of the city.

Two iron sickles with differently shaped blades were found in the surroundings of *Viminacium*. This tool is frequently encountered on archaeological sites in the territory of the provinces of the Central Balkans from the entire Roman period. Sickles similar to our specimens have been found from the building complex at Ušće near Obrenovac, in the hoard of Brović near

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35 White 1967, 52–53.
36 Busuladžić 2014, 80, P. 32, sl. 96, 97.
37 Gabrovec 1955, sl. 4.
38 White 1967, 73–74.
39 Jeremić 2009, 168, fig. 81, cat. 500.
40 Шпехар, Јацановић 2015, 293, T. I/4.
41 Milinković 2002, 123–124, Abb. 37/1; 38/1.
42 Popović 1988, 77–78.
43 Stamenković 2013, 84, sl. 71.
44 More about pruning hooks *cf*. Popović 1988, 76–77.
45 Busuladžić 2014, 78, T. 65–71, P. 30.
46 Thomas 1964, 70–72.
47 Protase 1980, 60, fig. 12.
48 Динчев Чолаков 2010, 41–51, фиг. 46.

Fig. 2. Map of the site Nad Klepečkom with the location of excavated villas, rural settlement, and necropolis (Doc. of the Institute of Archaeology, Belgrade, Project Viminacium)

Сл. 2. Карта локалитета Над Клепечком са локацијама истражених вила, сеоског насеља и некрополе (Док. Археолошког института у Београду, Viminacium пројекат)

Obrenovac, and at the sites along the Danube limes: Čezava – *Novae*, Boljetin – *Smorna*, Kostol – *Pontes*, Caričin Grad,[49] and Saldum.[50]

Analogies for our examples of sickles are numerous in neighbouring regions: in Bosnia and Herzegovina, on Roman agricultural estates, most prominently *villae rusticae* in Novi Šeher, Ljusina, Stup, Tutnjevac, Proboj, Mogorjelo;[51] in Hungary,[52] on numerous sites in Bulgaria, of which a certain number originate from villas, from Razgrad (*Abritus*), Krivina (*Iatrus*), etc.[53]

ARCHAEOLOGICAL CONTEXT OF AGRICULTURAL TOOL FINDS

The agricultural tools presented in the paper come from different sites from the *ager* of *Viminacium*.

The largest number of finds registered so far comes from the site of Nad Klepečkom (No. 1–3, 5–7, 13), which is located to the east of the legionary camp and the city. Even though it had been known from before in archaeological literature,[54] more recent archaeological research of the site, which began in 2004, brought new discoveries, which indicate the scope and importance of Roman farming in this area.[55] Being located on the route planned for the exploitation of the surface

[49] Popović 1988, 83–84, type A/a.

[50] Jeremić 2009, 168, cat. 498.

[51] Busuladžić 2014, 74, T. 57–60, P. 27–28.

[52] Thomas 1964, 138, 151.

[53] Динчев Чолаков 2010, 52–53, фиг. 58–60.

[54] Mirković 1986, 31, note 25.

[55] Archaeologists from the Institute of Archaeology in Belgrade, under the leadership of the head of the Viminacium project, Dr Miomir Korać, participated in these excavations.

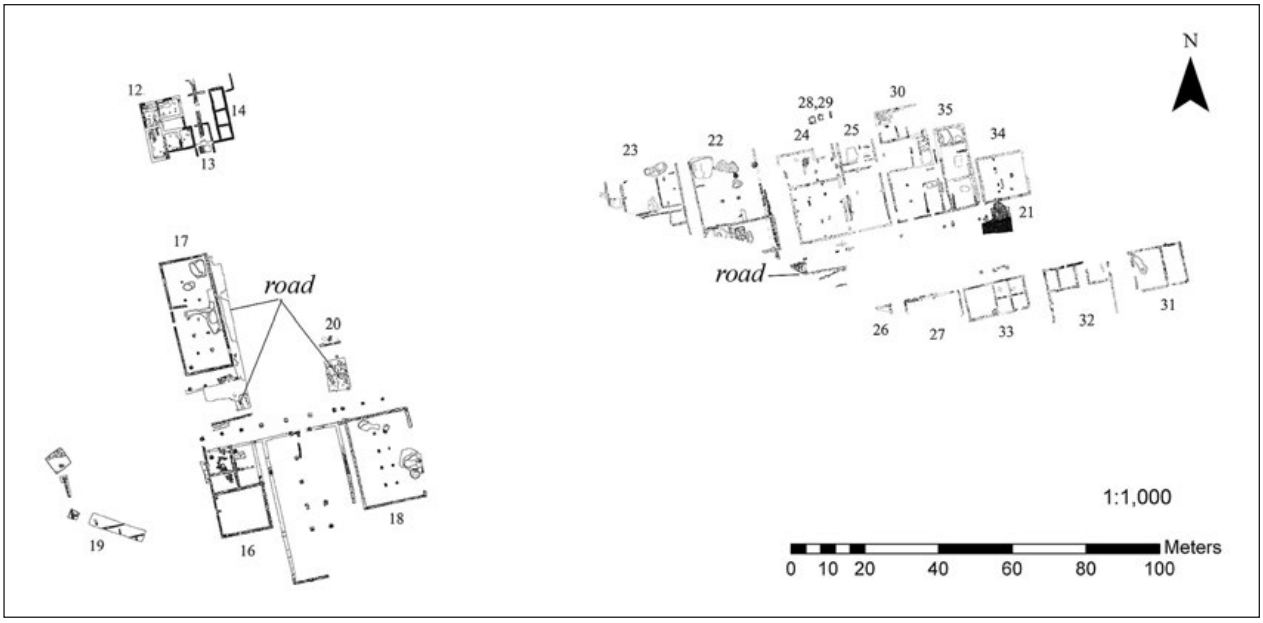

Fig. 3. Plan of the rural settlement from the site Nad Klepečkom (after: Mrđić, Jovičić 2012, 53, Sl. 2)

Сл. 3. План сеоског насеља на локалитету Над Клепечком (према: Mrđić, Jovičić 2012, 53, Sl. 2)

mine "Drmno", rescue excavations were performed in the period from 2008 to 2013.[56] On this occasion, remains of two necropoles with cremated and inhumed deceased individuals were researched, as well as a rural-type settlement and two separate *villae rusticae* (Fig. 2, 3). One of the villas, with impressive dimensions, represents the largest complex of this type researched so far at *Viminacium* (average dimensions of villas researched so far were ca 500 m², while this complex was over 2,500 m²). It was a villa that was most probably the centre of a larger agricultural estate. According to the researchers, the rooms to the east and south of the central courtyard were rooms for the accommodation of the owner of the villa and his family, while the rooms to the west of the courtyard were intended for economic activities (Fig. 4, 5).[57] On the basis of a preliminary analysis of mobile finds, the villa can be dated to the period of the 2nd century.[58] The necropolis and another, smaller villa, discovered somewhat earlier, also belong to this period.[59] All the *villae rusticae* registered so far at *Viminacium* were mostly dated to the period of the 3rd and the 4th century,[60] thus, the villas discovered to the east of the city, at the site of Nad Klepečkom, represent the oldest buildings of this type registered in the area of the province of *Moesia Superior* and provide precious data for the future research of this topic.

Two finds of agricultural tools came from the site of Rit (No. 8, 9). The site of Rit is located to the north and north-east of the urban centre of the city and the legionary camp of *Viminacium* (Fig. 6). Rescue archaeological excavations at the site of Rit began in 2004, they were resumed in 2012 and continue today.[61] On the basis of archaeological results obtained so far, the existence of two Antique roads was established in the vicinity of buildings with a residential character.

Four villas have been researched so far, of which three were located along the road from the northern gate of the legionary camp that, after about 400 m, went to north, and then turned towards the east, while one villa was located along the road which lead from the northern gate of the legionary camp to the east. Along this second road, a workshop complex with the remains of a workshop for dyeing and processing fabrics – *fullonica*

[56] Mrđić, Jovičić 2012, 50–53; Jovičić, Redžić 2014, 54–59; Redžić *et al*. 2014, 66–69; Milovanović *et al.* 2021, 101–114.

[57] Jovičić, Redžić 2014, 55.

[58] Jovičić, Redžić 2014, 59.

[59] Redžić, *et al.* 2014, 67–69.

[60] Jovičić, Redžić 2012.

[61] Mikić *et al*. 2006, 21–26; Redžić *et al*. 2014, 66–69; Redžić, *et al*. 2017a, 77–86; Milovanović *et al*. 2017, 71–76; Milovanović *et al*. 2021, 101–114.

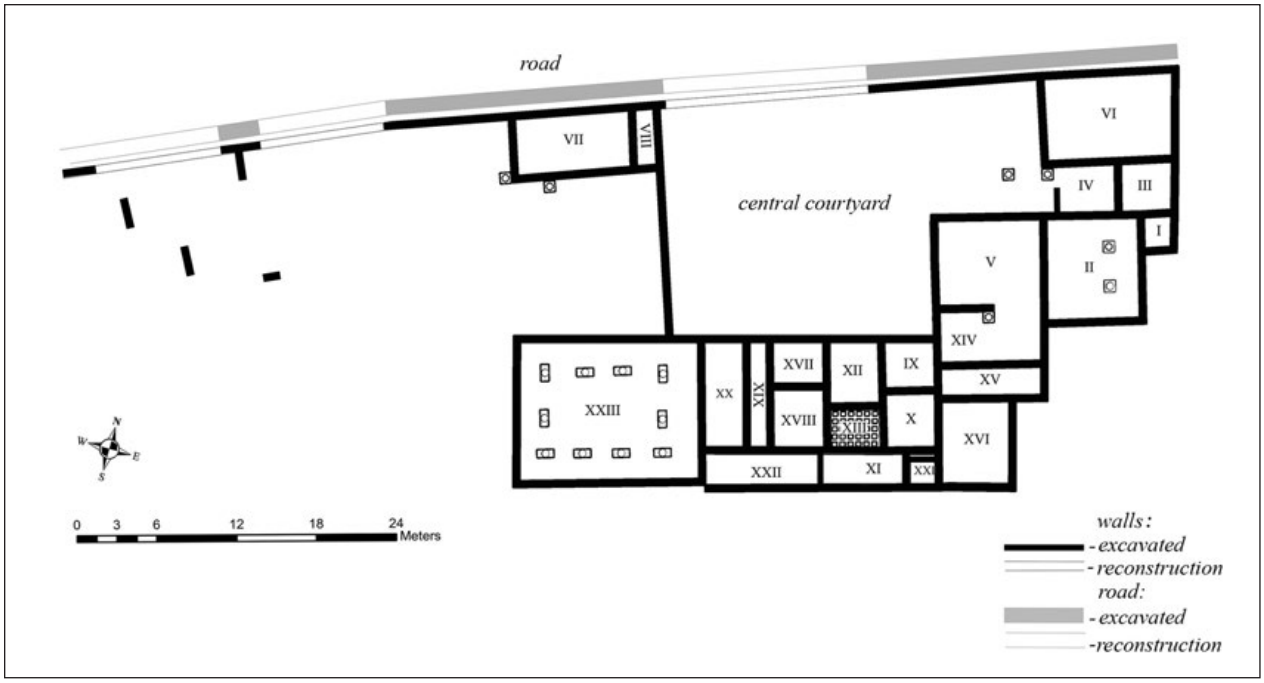

Fig. 4. Plan of the villa rustica No. 2 from the site Nad Klepečkom (after: Jovičić, Redžić 2014, 55, Sl. 2)
Fig. 5. Remains of the Roman villa during excavation, site Nad Klepečkom (after: Jovičić, Redžić 2014, 54, Sl. 3).

Сл. 4. План руститне виле бр. 2, на локалитету Над Клепечком (према: Jovičić, Redžić 2014, 55, Sl. 2)
Сл. 5. Снимак остатака римске виле током ископавања, локалитет Над Клепечком (према: Jovičić, Redžić 2014, 54, Sl. 3)

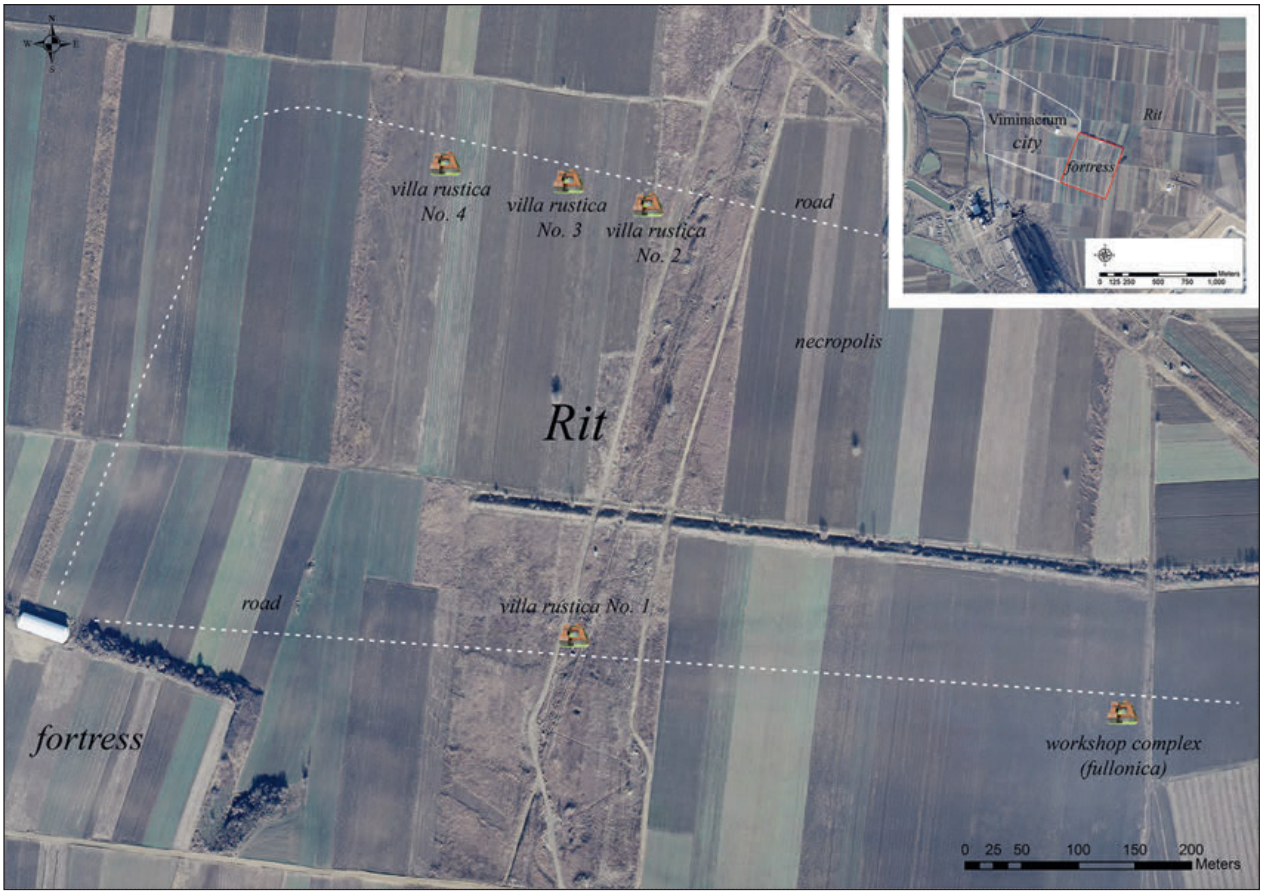

Fig. 6. Map of the site Rit with the location of excavated villas and necropolis (Doc. of the Institute of Archaeology, Belgrade, Project Viminacium)

Сл. 6. Карта локалитета Рит са локацијама истражених вила и некрополе (Док. Археолошког института у Београду, Viminacium пројекат)

was discovered (Fig. 7).[62] On the basis of mobile finds and coins discovered inside the villas, and the dating of the necropolis that was formed accordingly (coins of Caracalla, Severus Alexander, Philip the Arab, Saloninus, Gallienus, Claudius Gothicus, Aurelianus and Probus), it was established that the villas at the site of Rit were inhabited during the 3rd century.[63] Archaeological excavations conducted so far indicate that life at the site of Rit ended during the last decades of the 3rd century, which was most probably the consequence of the failure of the drainage system. This area became very prone to flooding, turning into wetland filled with marshes, as confirmed by the modern toponym for this place.[64]

Several finds of agricultural tools came from the territory of the southern necropolis (No. 4, 10–12, 14). During the several decades long rescue excavations, the area of the southern necropolis was subdivided into several sites, which were termed "necropoles" in the older literature,[65] according to local toponyms: Više Grobalja, Pećine, Kod Grobalja, Burdelj, Velika Kapija, Carine and Kod Bresta (Fig. 8).[66]

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[62] Redžić, *et al*. 2017a, 80–83.

[63] Redžić, *et al*. 2017a, 78–84.

[64] Danković, Petaković 2013, 63. In Serbian, *Rit* is one of the terms for a swamp.

[65] On the necropoles of *Viminacium*, *cf.* Љ. Зотовић, Ч. Јордовић, *Viminacium* I: *некропола Више гробаља,* Београд 1991; M. Korać, S. Golubović, *Viminacium: Više Grobalja* 2, Beograd 2009; M. Korać, *Slikarstvo grobnica u Viminacijumu*, Požarevac 2000.

[66] Since the previously used term of "necropoles" for each of the areas of the southern necropolis could cause confusion, it was decided that all the aforementioned sites belong to the southern necropolis of *Viminacium* (according to the oral communication of one of the researchers, Dr Snežana Golubović).

Fig. 7. Workshop complex at the site Rit. Orthogonal projection of a 3D model (after: Redžić et al. 2017a, 80, Sl. 3)

Сл. 7. Радионички комплекс на локалитету Рит. Ортогонална пројекција 3D модела (према: Redžić et al. 2017a, 80, Sl. 3)

The necropolis at the site of Pećine, which is located to the south-west of the civilian settlement, is relatively well-known in scientific literature, and archaeological research on it has lasted, with some long and short breaks, for over a century. The first steps in the research of this necropolis were taken by Mihajlo Valtrović at the end of the 19th century, when he registered the existence of a necropolis in this area.[67] In 1970s, within the preparations for the building of the thermal power plant "Kostolac B", intensive rescue excavations began on the site, lasting all the way until 1990. During the mentioned period, ca 7,000 graves were researched at the site of Pećine, dated to the period from the 1st to the 4th century,[68] but also one necropolis dated to the second half of the 4th century and the beginning of the 3rd century BC, the La Tène period,[69] one Early Medieval (9th century), and one Late Medieval (12th to 14th century).[70] Aside from the units of a funereal character, workshop activities were also registered on the site, confirmed by the discovery of eleven brick and fourteen pottery kilns.[71]

In the period from 2015 to 2019, new research activities of the necropolis at the site of Pećine were performed and, on this occasion, a part of the necropolis was discovered that had been unknown until then, which can be determined, according to the finds, as Late Antique.[72]

CONCLUSION

The favourable geographical micro-region in the extremely mild and fertile valley of Stig, in which *Viminacium* was located, represented a suitable location for agricultural production. Judging by the scope of the city ager, it is clear that the inhabitants of rural areas beyond

[67] Korać, Mikić 2014, 12.
[68] Golubović 2004, 10–11, 14.
[69] Jovanović 2018, 204.
[70] Спасић 1990, 157–175.
[71] Јордовић 1994, 95–105.
[72] Jovičić *et al.* 2017, 56–61; Redžić *et al.* 2018, 79–90.

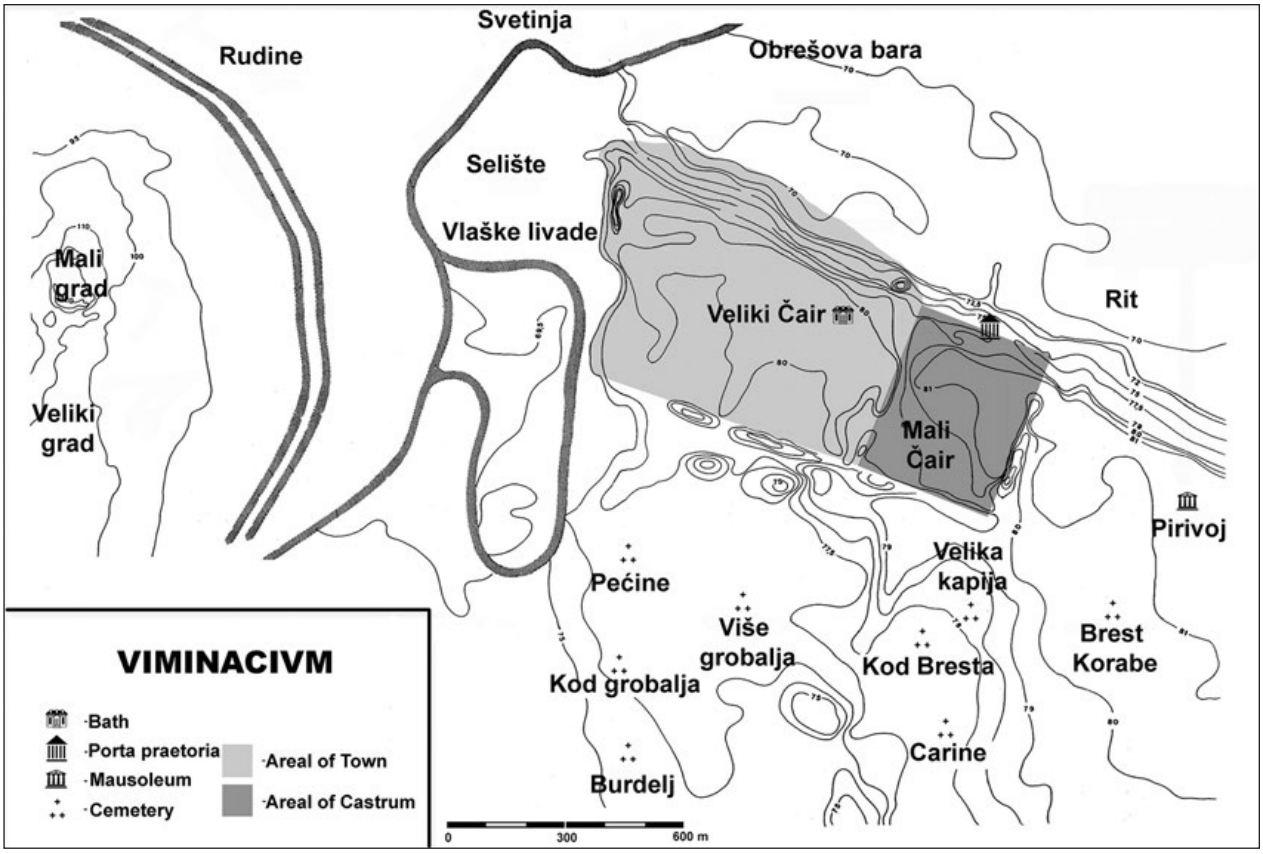

Fig. 8. Plan of Southern Necropolis at Viminacium
(Doc. of the Institute of Archaeology, Belgrade, Project Viminacium)

Сл. 8. План јужне некрополе у Виминацијуму
(Док. Археолошког института у Београду, Viminacium пројекат)

the city borders represented the majority of the population of *Viminacium*. The city, however, having the role of the main marketplace, depended on its rural area. Finds of agricultural tools that we present in this paper, although small in number, are the most reliable indicators of agricultural activities in the period from the 2nd to the 4th century, when *Viminacium* went through its period of greatest prosperity.

Even though we are still far from having a complete overview of the actual scope and structure of the *ager* of *Viminacium*, more recent research of the wider city territory does shed new light on agricultural activities and the importance of the rural economy in supplying provisions for the city population during the Roman period. Aside from the development and improvement of tools intended for the cultivation of cereals, more information on the development of farming activities in the wider city territory of *Viminacium* is also provided by the results of archaeobotanical analyses performed within archaeological research in the last few years.[73]

The first analyses have shown that the area around *Viminacium* was very suitable for plant economy. Even though the main goal of these archaeobotanical analyses was to show which type of timber had been used for the construction of the amphitheatre, the analysis provided data on the presence of cereals and weeds as well. The results showed the presence of five cereals (loose six-row barley, rye, bread wheat, oats and broomcorn millet) and one cultivated pulse crop, lentil. Three fruit species were identified: woodland strawberries (*Fragaria vesca*), hazel (*Corylus avellana*) and common fig (*Ficus carica*). The list of weeds includes 25 plant names.[74] All of these plants, with the exception

[73] Medović 2014, 95–99.
[74] Medović 2014, 97, T.1.

of millet, can be seen even today in the ploughland of the valley of Stig. This ancient crop was suppressed, over just a few centuries, by maize and, thus, virtually vanished from ploughlands. These types of analyses have a special importance, for they can show if there had been any changes in the regional vegetation, which, in turn, could point to a continuity or discontinuity in the settling and usage of a given area.

Unfortunately, we cannot provide, for the time being, a precise answer to the question regarding how the mentioned cereals were cultivated in *Viminacium*. In the wider territory of *Viminacium,* there were no ploughing implements found, ploughs, or any transitional more complex forms of ploughing devices that have been found were in the fortifications along the Iron Gates section of the Roman limes, in Mačva or Srem.[75] We can only assume, bearing in mind the similar pedological and climatic conditions in these regions, that similar forms of ploughing devices and similar methods of their application in agriculture were used in the territory of *Viminacium* as well.

As we have mentioned before, the fertile valley of Stig, where *Viminacium* is located, represents an ideal place for farming and creating agricultural estates of the *villae rusticae* type. One of the two villas at the site of Nad Klepečkom, which is located to the east of the urban core of the city and the *castrum*, represents the largest complex of this type discovered so far, not only in *Viminacium*, but also in the wider territory of the Central Balkans. It was built on a slope of the hill of Nosak and indicates, with its impressive dimensions, that it was the centre of a larger agricultural estate (the surface of the complex is over 2500 m²). In addition to villas, a rural settlement consisting of a large number of buildings was found at the same site. The character of the settlement was certainly of a mixed type, but it could be divided, generally speaking, into at least two units. The first is the one closer to the city, where buildings of large dimensions dominate. Those were most probably warehouses, with some of them having been used perhaps as workshops as well. The other unit in the east could have had a residential function.

Aside from the *villa rustica* at the site Nad Klepečkom, agricultural tools registered in the wider territory of *Viminacium* come from another villa, from the site of Rit, which is located to the north-east of the urban core of the city, which represented not only a residential, but also a production and crafts centre, as was also witnessed by the discovery of a workshop for dyeing and processing – *fullonica*.

Most of the *villae rusticae* registered so far from the area of Roman provinces in the territory of the Central Balkans have been dated into the Late Antique period,[76] hence, the villas built at the site of Nad Klepečkom, which are chronologically determined into the 2nd century on the basis of finds, represent the oldest buildings of this type. The appearance of such large complexes of villas at *Viminacium* indicate that with the establishment of Roman government in conquered areas, especially those in the area of the Roman limes at the Danube, a rapid Romanisation of those conquered territories took place. The settling of Roman veterans occurred in the wider territory of Roman cities and military fortifications, but colonists from Italy and merchants from the East also came to be settled here. According to epigraphic data, the largest number of veterans from the Upper Moesian legions *IV Flavia* and *VII Claudia* remained in settlements near the encampments of *Singidunum* and *Viminacium*.[77] The oldest veteran monuments from the territory of *Viminacium*, which belong to legion *VII Claudia*, come from the first half of the 2nd century.[78] Aside from this, in the epigraphic documentation preserved so far we encounter higher ranks of the urban population which comprehended, in the first period, settled Roman citizens, who were later joined by Romanised members of the local population as well.[79] This oldest category of colonists obtained large properties, where spacious villas dominated, as residential-economic complexes. We assume that the owner of the large villa built on the slope of the hill of Nosak, at the site of Nad Klepečkom, could have been one such settler from higher social ranks, considering the size of the object, but also the fact that the walls of the villa were decorated with fresco paintings, and the rooms heated with a system of floor and wall heating.[80] A similar situation can be seen in the neighbouring territories of the Balkan Peninsula as well, first and foremost in Bulgaria, where a considerable number of finds of agricultural tools (pickaxes, mattocks, spades, pruning hooks, sickles, etc.) was found in villas from the areas of Roman cities and fortifications on the Lower Danube Limes: *Ratiaria, Abritus*, *Novae*, *Iatrus,* and *Castra Martis.*[81]

[75] Поповић 1986, 73–86.
[76] Васић 1985, 124–141.
[77] Ферјанчић 2002, 154–165.
[78] Ферјанчић 2002, 161, кат. 357–359.
[79] Мирковић 1981, 81–83.
[80] Jovičić, Redžić 2014, 55–59, sl. 4.
[81] Динчев Чолаков 2010.

In Romania, in the region of Transylvania, which was a part of the Roman province of Dacia, agricultural tools were found in a number of villas explored so far, including ploughshares, sickles and other specifically agricultural artefacts such as millstones (Hobiţa-Hobeni hill, Aiudul de Sus, Deva 1, Hobiţa-Delineşti hill 2, and Cinciş). Chronologically, the mentioned sites belong to the 2nd and 3rd century, which covers the range of Roman rule in that region.[82]

When it comes to Bosnia and Herzegovina, most finds also come from agricultural estates – *villae rusticae*, some of which represented large production-craft centres. Roman villas on the sites of Višići, Panik, Tutnjevac, Brodac, Proboj, Strupnić, Mogorjelo, Tišina, Ljusina, and Založje were areas of agricultural activities, the cultivation of cereals, grapevines, olives, etc.[83] They were also the areas in which new agro-technical measures were introduced by the Roman government. The large number of agricultural tools, shovels, spades, mattocks, hoes, two-pronged hoes, pickaxes, hatchets, ploughs, coulters, sickles, scythes, and hooks, show that agricultural production had a significant role in the period of the Roman domination in the territory of today's Bosnia and Herzegovina.

Aside from most of the finds presented in the catalogue, which originate from Roman agricultural estates, three agricultural tools were also registered at *Viminacium* (two hooks and a sickle), which come from the area of the southern necropolis at the site of Pećine. One hook and the sickle come from a waste pit, while the other hook was found in the area of the necropolis outside of a grave space. Their find locations provide possibilities of different interpretations. One of the possible assumptions could be their use keep the graves in order, i.e. to take care of the vegetation there, since Roman cemeteries were well managed and taking care of the dead was common in the Roman Empire, bearing in mind the great importance of the cult of the dead that existed in Rome.[84] Rescue excavations at *Viminacium* performed in the past few years have contributed in a significant manner to gaining new knowledge on the suburban zones of the Antique *Viminacium* and life in this area. We believe that veterans, colonists and merchants from the East, whose inflow to *Viminacium* began from the 2nd century, settled in the periphery of the city, as shown by numerous villas discovered in the last few years. Results obtained are certainly not final, but they do enable a more precise overview of the wider territory of *Viminacium*, providing precious information for studying this topic in the future.

CATALOGUE

1. *Viminacium*, Nad Klepečkom site (Pl. I/1)

Roman *villa rustica*
Documentation Centre Viminacium (C 1667)
object 42, room VII
trench 83, depth 0.70 m
length 15.7 cm
iron, forging
dating 2nd century

The pickaxe was discovered within a large agricultural property at the site of Nad Klepečkom, in room VII, to the west of the central courtyard.[85] (Fig. 4) It is trapezoidal in shape and arched, while the axe has a slightly arched cutting edge. The head is composed of two uneven length spikes, arranged in opposite directions. The insertion hole for the handle is circular. The example from *Viminacium* belongs to type A/a, according to the typology by I. Popović.[86]

A large number of mobile finds was discovered in the object, on the basis of which the pickaxe was dated: oil-lamps with volutes and an angled nozzle, with volutes and a rounded nozzle, as well as a certain number of oil-lamps with short, rounded nozzles, dated to the 1st–2nd century.[87] Aside from these, the chronologically sensitive material found also included fibulae with a button-shaped knob and with a hinge, similar to the *aucissa* fibulas, dated to the 2nd century.[88] Bronze coins of Hadrian also date this item into the 2nd century.

Unpublished.

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[82] Oltean, Hanson 2007, 122–123.

[83] Busuladžić 2014, 137–144.

[84] On Roman funerary customs and the cult of the dead *cf.* J. Bodel, Dealing with the dead in ancient Rome, in: *Death and disease in the ancient city*, (eds.) V. M. Hope, E. Marshall, London – New York 2000, 128–151; *Idem*., The Life and Death of Ancient Roman Cemeteries: Living with the Dead in Imperial Rome, *Reconstruction and the Historic City: Rome and Abroad – an interdisciplinary approach*, (eds.) Ch.Häuber, F.X. Schütz, G. M. Winder, München 2014, 177–195. We would like to take this occasion to thank Dr Gordana Jeremić, senior research associate at the Institute of Archaeology, for the useful information regarding the maintenance of necropoles and the cult of the dead in the Roman Empire.

[85] Jovičić, Redžić 2014, 58, sl. 2.

[86] Popović 1988, 59.

[87] Korać 2018, 19–85; 121–153; 185–295.

[88] Redžić 2007, 13–14.

2. *Viminacium*, Nad Klepečkom site (Pl. I/2; V/1)
Roman *villa rustica*
Documentation Centre Viminacium (C 1673)
object 42, room V
trench 84, depth 0.90 m
length 19.7 cm
iron, forging
dating 2nd century

The mattock has a narrow cutting edge, widened at the end, with an elongated eyelet for inserting the handle. The mattock was found in room V, to the east of the central courtyard (Fig. 4).[89] This room was connected to room XIV, in which the previously mentioned hoard of 44 lamps, dated to the period of the 2nd century, was found.[90]

Unpublished.

3. *Viminacium*, Nad Klepečkom site (Pl. I/3; V/2)
Roman rural settlement
Documentation Centre Viminacium (C 1141)
object 30
trench 54, depth 0.80 m
length 23.5 cm
iron, forging
dating 2nd century

The iron mattock has a flared fan-shaped cutting edge and a circular hole for the handle. The example from *Viminacium* belongs to type B/b, according to the typology by I. Popović.[91] It was found in a layer in object 30 (Fig. 3), which was most probably a part of the residential complex at the site of Nad Klepečkom.[92] Coins by Augustus and Antoninus Pius, an oil-lamp with volutes and a rounded nozzle, and an oil-lamp with a short, rounded nozzle were also found in the same building, dating this item to the period of the 1st–2nd century.[93]

Unpublished.

4. *Viminacium*, Burdelj site (Pl. II/1; V/3)
Objects 1 and 2
Documentation Centre Viminacium (C 27)
trench 5, depth 0.60 m
length 32 cm
iron, forging
dating 4th century

The spade was found in a layer under the roof debris, in the area between the Late Antique buildings, determined as Objects 1 and 2 in the archaeological documentation. The spade had a trapezoidal cutting edge, with an implement, profiled in the shape of the letter "U". According to the typology by I. Popović, it belongs to type A/b.[94]

Coins of Constantine II Caesar, Constantius Gallus and Constantius II were found in the same level, which could chronologically determine this finding to the middle of the 4th century.[95]

Unpublished.

5. *Viminacium*, Nad Klepečkom site (Pl. II/2; V/4)
Roman rural settlement
Documentation Centre Viminacium (C 884)
object 22, room I
control trench 22, trap hole, 2.20 m
length 37 cm
iron, forging
dating 3rd century

An iron drag hoe with four partially preserved prongs and a circular hole in the middle for inserting the handle. The drag hoe was found inside object 22 within the settlement at the site of Nad Klepečkom (Fig. 3), which could have represented a craft building.[96] It was in a regularly dug trap hole with sealed edges, which was dug into the floor of the building. It was discovered in the same object as a hoard of iron tools (pickaxe, file, meat chopper, and axe?). According to finds of fibulas from the layer,[97] as well as the coins of Florian, this item was dated to the period from the middle up to the second half of the 3rd century.

Unpublished.

6. *Viminacium*, Nad Klepečkom site (Pl. III/2; V/5)
Roman rural settlement
Documentation Centre Viminacium (C 735)
object 18
trench 49, dug-out 2, depth 1.30 m
length 15.6 cm

[89] Jovičić, Redžić 2014, 58, sl. 2.
[90] Korać 2018, 19–85; 121–153; 185–295.
[91] Popović 1988, 37.
[92] Mrđić, Jovičić 2012, 53, sl. 2.
[93] Korać 2018, 121–153; 185–295.
[94] Popović 1988, 34, T. I/2.
[95] Documentation of the Institute of Archaeology in Belgrade.
[96] Mrđić, Jovičić 2012, 51.
[97] Redžić 2007, 29–31.

iron, forging
dating 2nd–3rd century

The pruning hook consists of a wide cutting edge, arched at the end, with a tang for insertion into a wooden handle. The tang is bent into the shape of a loop. The tool was found in a pit, in front of two bread ovens, which was filled in with cultural material at a later point. These ovens with the pit damaged a wall of object 18, possibly a *horeum* (Fig. 3).[98]

Fragments of ceramic material registered in object 18 are dated to the period from the middle of the 2nd up to the middle of the 3rd century.[99] The most recent coins discovered were those of Elagabalus, with Artemis of Ephesus on the reverse.

Unpublished.

7. *Viminacium*, Nad Klepečkom site
Roman rural settlement
Documentation Centre Viminacium (C 721)
object 18
trench 49, dug-out 2, depth 0.95 m
length 13.5 cm
iron, forging
dating 2nd–3rd century

A fragment of an iron pruning hook. The find was discovered in the same object as the previous pruning hook. On the basis of an analysis of ceramic material, as well as the find of coins discovered within object 18, it is dated to the period from the middle of the 2nd up to the middle of the 3rd century.[100] As this specimen is rather damaged, it was impossible to distinguish its type precisely.

8. *Viminacium*, Rit site (Pl. IV/3; V/6)
Roman *villa rustica* – workshop complex
Documentation Centre Viminacium (C 1273)
ditch in front of object 5
trench 26 m, depth 0.70 m
length 26.7 cm
iron, forging
dating 3rd century

A pruning hook with a semi-circular cutting edge and a triangular cross-section, bent almost at a right angle in the upper part. The lower part of the cutting edge turns into an insertion tang. The tip of the cutting edge is partially damaged. The pruning hook was found in the debris with which a ditch was filled, located in front of economic buildings 4 and 5 (Fig. 7). In the cultural layer of these objects, a large number of fragments of ceramic vessels and other archaeological material was discovered.[101] Numerous examples of bronze coins were found in the same level (Gordian III, Gallienus, Claudius II Gothicus, Aurelian and Probus), which date the pruning hook to the second half of the 3rd century.

Unpublished.

9. *Viminacium*, Rit site
Roman *villa rustica* – workshop complex
Documentation Centre Viminacium (C 1314)
object 5
trench 26, depth 0.55 m
length 15.1 cm
iron, forging
dating 3rd century

Fragmented pruning hook discovered in the southern annex of object 5 within the *villa* complex at the site of Rit (Fig. 7). Among the numerous pieces of archaeological material found in this layer, there were also four fragmented querns.[102] Bronze coins discovered within object 5 (Gordian III, Gallienus, Claudius II Gothicus, Aurelian and Probus) chronologically determine this tool to the second half of the 3rd century, the same as the previous example.

10. *Viminacium*, Kod Bresta site (Pl. III/1)
area of the necropolis
National Museum, Požarevac (C 90)
depth 1 m
length 16.8 cm
iron, forging
dating 3rd century

A pruning hook with an arched cutting edge and a tang, ending in the shape of a loop. Partially fragmented. It was found in a layer with a ceramic oil-lamp with volutes and an angled nozzle, dated to the period from the 1st up to the beginning of the 3rd century at *Viminacium*.[103]

Unpublished.

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98 Mrđić, Jovičić 2012.
99 Raičković Savić, Mitić 2021, 243.
100 Raičković Savić, Mitić 2021, 243.
101 Redžić *et al.* 2017a, 82.
102 Jovičić 2019, Br. 26, 27, 61, 178.
103 Korać 2018, 30; For more details about the excavation at Kod Bresta site see: Redžić *et al.* 2017b.
104 Jovičić, Redžić 2014, 58, sl. 2.
105 Korać 2018, 19–85; 121–153; 185–295.
106 Redžić 2007, 13, T. I/1.
107 Korać 2018, 439.

11. *Viminacium*, Pećine site (Pl. III/3)
area of the necropolis
National Museum, Požarevac (C 12500)
quadrant XXIV,
surface layer in the area of the necropolis, depth 0.30 m
length 15.3 cm
dating 2nd–4th century

This example of a pruning hook had an arched cutting edge, partially damaged. The tang, used for insertion into a handle, has a rectangular cross-section. In the wider area of this part of the necropolis, graves were found of cremated deceased individuals from the 2nd century, and inhumed deceased individuals buried in constructions made of bricks from the 3rd–4th century. It is difficult to provide a more precise dating for the find; it was discovered at a small depth, and there was no material registered nearby that would provide a chronological determination for the tool.

Unpublished.

12. *Viminacium*, Pećine site (Pl. IV/2)
area of the necropolis
Documentation Centre Viminacium (C 12782)
quadrant XVIII
waste pit, depth 1.0 m
length 11.5 cm
iron, forging
dating 2nd–4th century (?)

A fragmented pruning hook with a cutting edge in the shape of a semi-ellipse, and part of the implement preserved, used for insertion into a wooden handle. It is hard to provide a more precise dating for the tool. The field documentation does mention fragments of amphorae in the dug-out and bowls, without any detailed description. In the wider area, there were graves discovered of cremated individuals from the 2nd and inhumed deceased individuals buried in constructions made of bricks from the 3rd–4th century. What is typical for this tool is the fact that it has smaller dimensions compared to other similar tools, hence, the question remains as to whether was used in agriculture.

Unpublished.

13. *Viminacium*, Nad Klepečkom site (Pl. IV/4)
Roman *villa rustica*
Documentation Centre Viminacium (C 1768)
object 42, room XX
trench 84, depth 1.40 m
length 28 cm
iron, mintage
dating 2nd century

A sickle with an arched cutting edge, and a rectangular cross-section, for insertion into a wooden handle. The cutting edge turns into a tang at an obtuse angle.

The sickle was found in room XX of object 42 of the *villa rustica* (Fig. 4).[104] Alongside this tool, archaeological material was found that enables more precise dating, such as coins of Hadrian and a large number of oil-lamps with volutes and an angled nozzle, with volutes and a rounded nozzle, and oil-lamps with a short, rounded nozzle, which are dated into the 1st–2nd century.[105]

Unpublished.

14. *Viminacium*, Pećine site (Pl. IV/1)
area of the necropolis
Documentation Centre Viminacium (C 3574)
waste pit
trench 234, depth 1.70 m
length 30 cm
dating 1st–2nd century

A fragmented sickle with a semi-circular cutting edge, with only a small part of the tool preserved, used for insertion into a wooden handle. Coins of Vespasian were found in the pit, as well as an *aucissa* fibula,[106] and a type of oil-lamp with the stamp of *Strobili*, which are dated, at *Viminacium*, to the period from Nero up to Hadrian.[107]

Unpublished.

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Olivera ILIĆ, Mladen JOVIČIĆ
Roman Agricultural Tools in the Ager of Viminacium (181–206)

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РИМСКО ПОЉОПРИВРЕДНО ОРУЂЕ У АГЕРУ ВИМИНАЦИЈУМА

Кључне речи. – римско пољопривредно оруђе, *villae rusticae*, агер Виминацијума

Северни делови римске провинције Горње Мезије у којој је био смештен Виминацијум, главни град провинције, припадали су широј географској области средњег и доњег Подунавља. Повољни географски и климатски услови плодне равнице Стиг, која се налази у источној Србији, у доњем току реке Млаве, представљали су идеално место за пољопривредне активности забележене још од праисторијског периода па све до средњег века. У периоду римске доминације, овакве природне погодности утицале су на формирање знатног броја пољопривредних имања типа *villae rusticae*, о чему сведоче открића у субурбаној зони Виминацијума последњих година. Једна од две виле на локалитету Над Клепечком, који лежи источно од урбаног језгра града и легијског логора, представља до сада највећи комплекс овог типа не само у Виминацијуму већ и на широј територији централног Балкана. Поред ове две виле, регистровано је и рурално насеље са великим бројем објеката. Карактер насеља био је мешовит и на основу прелиминарних резултата истраживања могао би се поделити у најмање две целине. У делу ближе градском језгру доминирају објекти већих димензија, који су највероватније представљали складишта, од којих су поједина могла служити и као радионице. Друга целина источно могла је имати стамбену функцију. Највећи број пољопривредних алатки до сада откривених на широј територији Виминацијума потиче управо са овог локалитета.

Поред пољопривредног оруђа које потиче са локалитета Над Клепечком, налази оруђа регистровани су и на локалитету Рит, који се простире североисточно од урбаног дела града. На овом локалитету до сада су регистроване четири рустичне виле. Поред стамбеног комплекса, откривени су и делови занатског центра, о чему сведочи и откриће радионице за бојење и обраду тканина – *fullonica*.

Пољопривредно оруђе евидентирано на широј територији Виминацијума можемо груписати према њиховој примени у пољопривредним радовима на: алатке за крчење и припрему земљишта за култивацију (секира-крамп, будак, мотика), алатке за копање земље и припрему за садњу (ашов, грабуље), алатке које су коришћене за кошење, жетву, сечење и поткресивање биљака (косир, срп).

Потврду о развијеној пољопривредној активности у агеру Виминацијума пружају и резултати археоботаничких анализа. Различите житарице које су биле узгајане у римском периоду (јечам, раж, пшеница, зоб, просо) потврђују претпоставку о интензивној пољопривредној активности у периоду од 2. до почетка 4. века, када је забележен период највећег економског просперитета римског града.

Заштитна ископавања на Виминацијуму последњих година умногоме су допринела новим сазнањима о субурбаним зонама града и живота на овом простору. Већина до сада евидентираних вила са простора римских провинција на територији централног Балкана датована је у касноантички период, тако да виле подигнуте на локалитету Над Клепечком, које се на основу покретних налаза хронолошки опредељују у 2. век, представљају најстарије објекте овог типа. Резултати до којих су истраживачи дошли свакако нису коначни, али омогућавају прецизније сагледавање агера Виминацијума, пружајући драгоцене податке за изучавање ове теме у будућности.

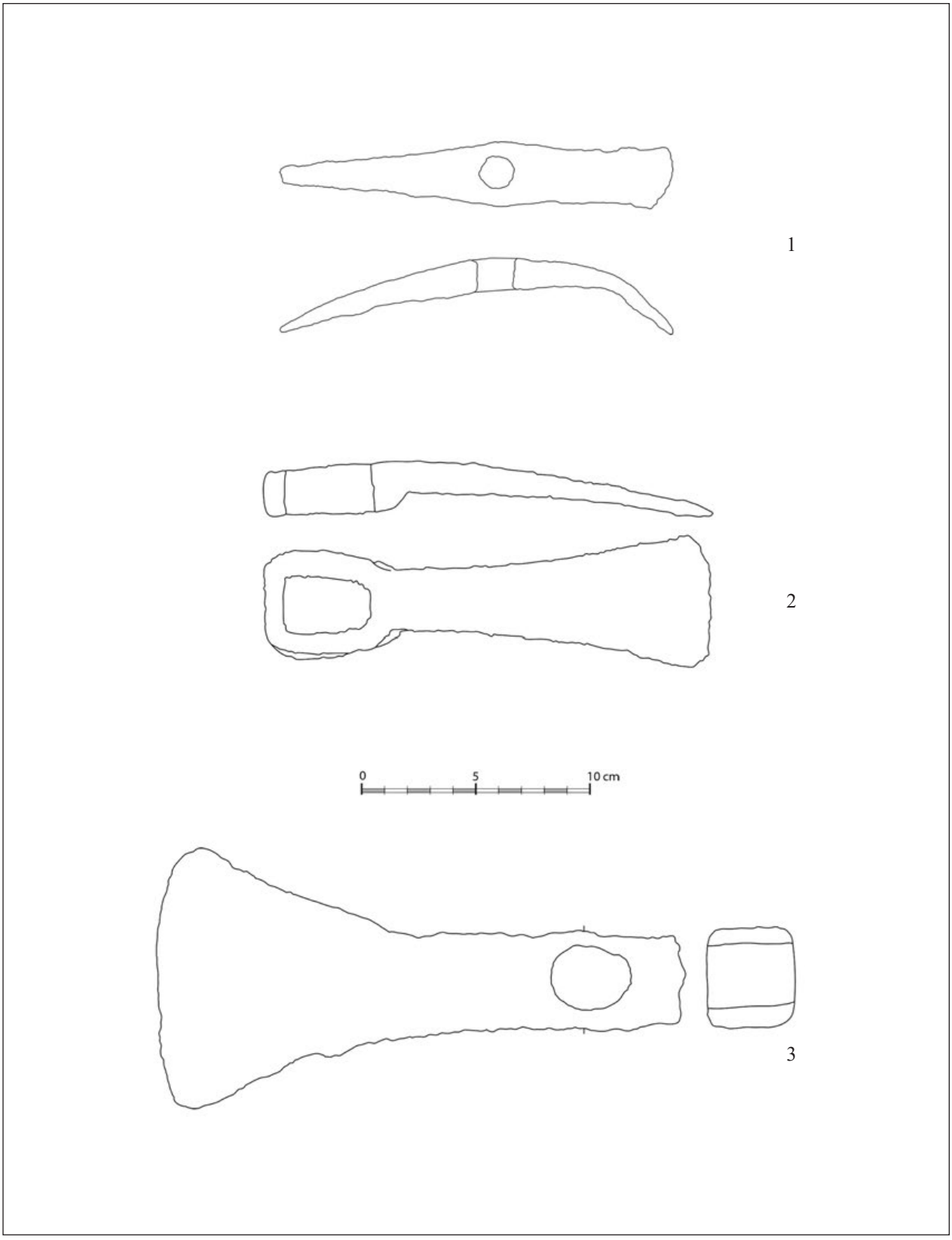

Plate I – Agricultural tools, site: Nad Klepečkom (1–3)

Табла I – Пољопривредно оруђе, локалитет: Над Клепечком (1–3)

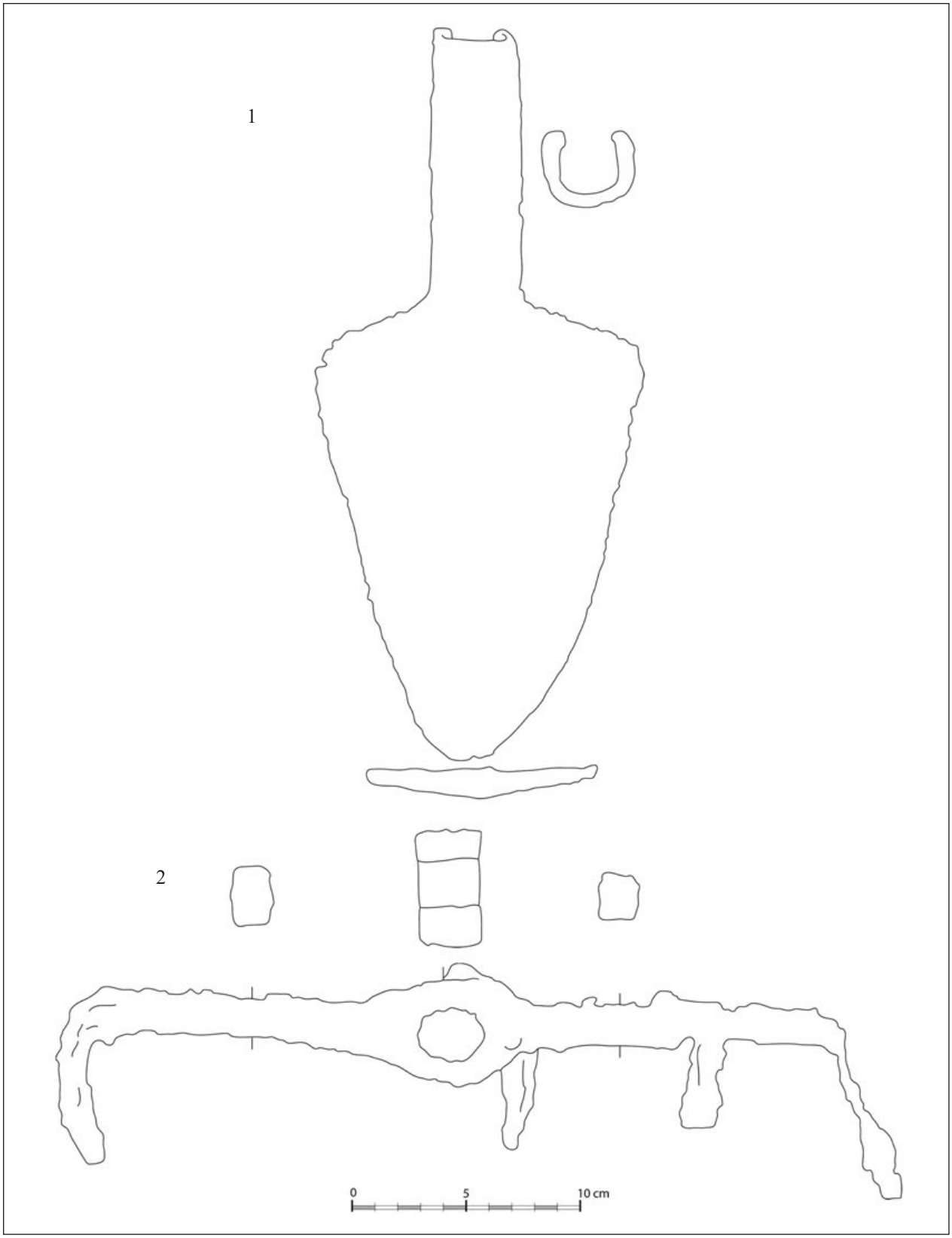

Plate II – Agricultural tools, sites: Burdelj (1), Nad Klepečkom (2)

Табла II – Пољопривредно оруђе, локалитети: Бурдељ (1), Над Клепечком (2)

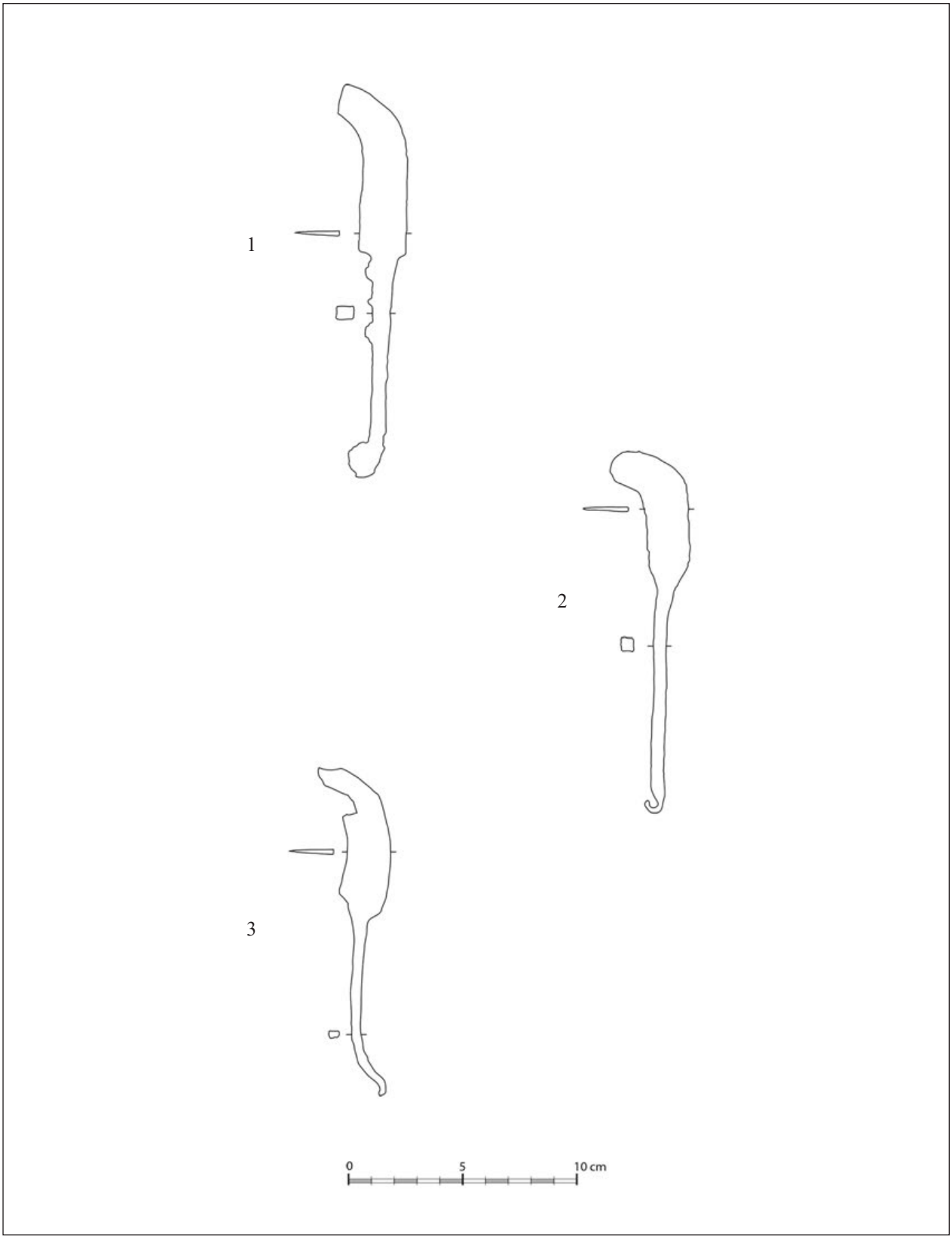

Plate III – Agricultural tools, sites: Kod Bresta (1), Nad Klepečkom (2), Pećine (3)

Табла III – Пољопривредно оруђе, локалитети: Код Бреста (1), Над Клепечком (2), Пећине (3)

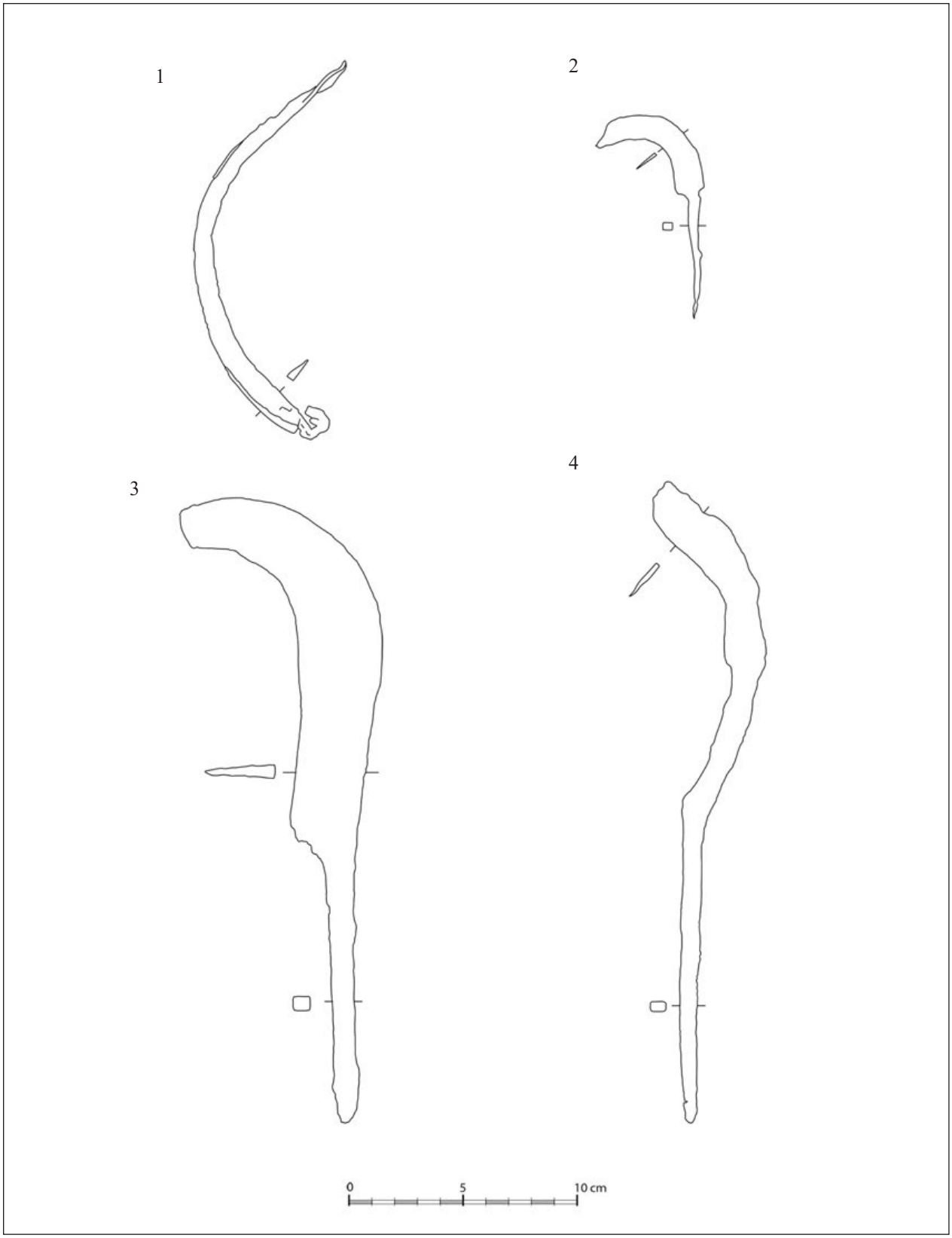

Plate IV – Agricultural tools, sites: Pećine (1– 2), Rit (3), Nad Klepečkom (4)

Табла IV – Пољопривредно оруђе, локалитети: Пећине (1–2), Рит (3), Над Клепечком (4)

Plate V – Agricultural tools, sites: Nad Klepečkom (1–2), Burdelj (3), Nad Klepečkom (4–5), Rit (6)

Табла V – Пољопривредно оруђе, локалитети: Над Клепечком (1–2), Бурдељ (3), Над Клепечком (4–5), Рит (6)

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THE BLUES OF *ROMULIANA*

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Abstract. – The paper presents a set of glass fragments excavated at several different locations within and outside the late Roman fortified imperial residence *Felix Romuliana* (Gamzigrad, Serbia). This small group of eighteen fragments and mosaic glass *tesserae* are distinguished by their cobalt blue colour. The majority of the finds are mosaic *tesserae* (six pcs) and sheets of glass (five pcs), which could be related to architectural decoration (*sectilia* panels). Others are pieces left behind from secondary glass working (four pcs). There are also two fragments tentatively identified as window pane pieces, and only one find is a vessel sherd. The materials are dated to the 4th century. Significantly, some of the production debris and the two "window pane" fragments were found inside the destruction of a glass furnace. The analyses of the chemical glass composition of the finds confirmed that the blue colourant in all samples is cobalt, and antimony is also present at notable levels (except for one sample), likely to produce opacification of the glass. Regarding the origin of the raw glass, the data on almost all pieces suggests a Syro-Palestinian provenance, and a single sample could be related to Egyptian primary glass production. Importantly, the concentrations of the oxides added to the base glasses in order to modify the colour are positively correlated in certain samples, hinting at the makeup of the cobalt bearing ingredient and at a likely existence of particular production practices of the late Roman period.

Key words. – late Roman period, Central Balkans, cobalt blue glass, secondary glass production, *sectilia* glass sheets, glass *tesserae*, production debris, chemical glass composition, EPMA

The late Roman fortified imperial residence *Felix Romuliana* is situated in present-day Eastern Serbia, near the village of Gamzigrad. Famous for its monumental architecture, imposing mosaic floors, marble sculptures, etc.,[1] this luxurious complex was built by Emperor Galerius at the beginning of the 4th century, in the Roman province of *Dacia Ripensis* (Fig. 1). It functioned as an imperial domain during the short reign of Galerius (AD 293–311). After his death, according to the archaeological evidence, *Romuliana* continued its existence as a fortified settlement, from the end of the 4th to the end of the 6th / beginning of the 7th century.[2] The archaeological investigations at Gamzigrad have been carried out both inside the fortified complex and in the area outside the ramparts. Research has yielded impressive archaeological findings, singling out the fragmented archivolt with the inscription FELIX ROMULIANA and the monumental sculptural head of Emperor Galerius made of porphyry, which were essential for the identification of the site as *Romulianum* or *Romuliana* in Roman written sources.[3]

The glass finds excavated at the site have, so far, not received sufficient research attention. There are few publications within which groups of glass finds or individual

[1] Срејовић 1983, 66–94; Живић 2010, 107–140.

[2] Čanak-Medić, Stojković-Pavelka 56, 64; Petković 2011, 168.

[3] Срејовић 1985, 53–61; Srejović, Vasić 1994, 124; Popović 2011, 9; Bergmann 2020, 306–308.

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Fig. 1. Location of Romuliana in the province of Dacia Ripensis

Сл. 1. Положај Ромулијане у Приобалној Дакији

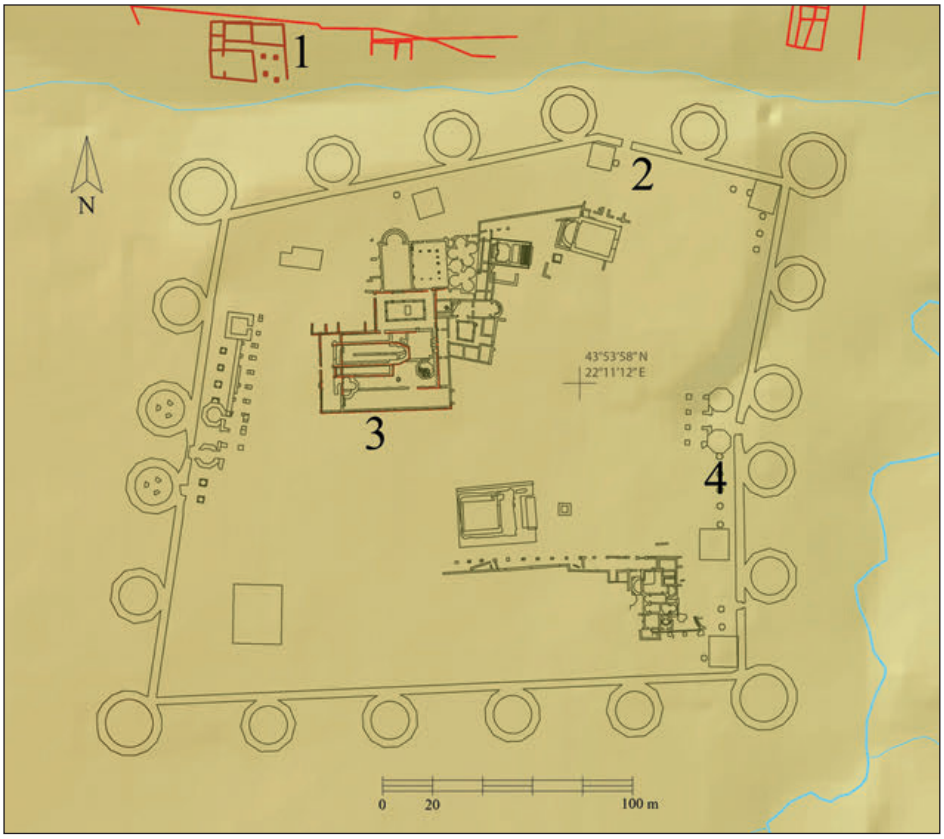

Fig. 2. Layout of Romuliana with indicated findspots of the glass finds (documentation of the Institute of Archaeology, Belgrade)

Сл. 2. План Ромулијане са назначеним местима са којих потичу стаклени налази (документација Археолошког института, Београд)

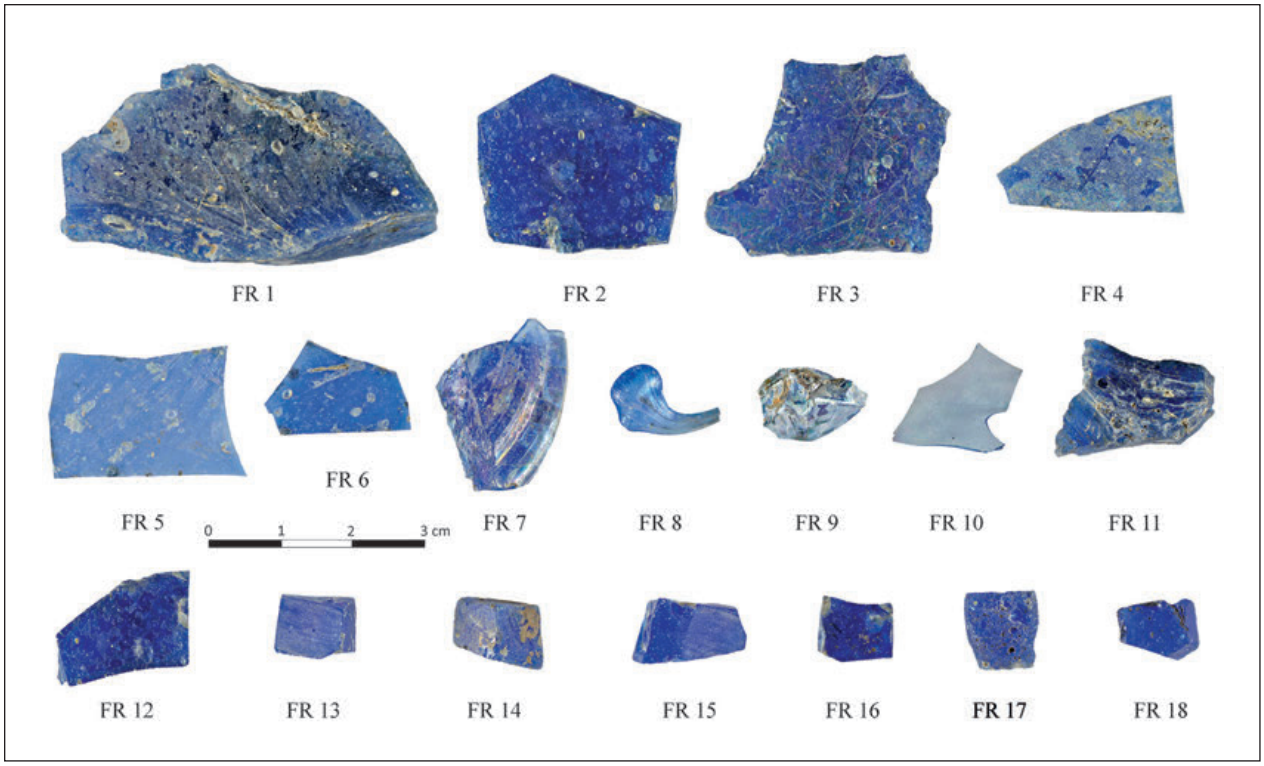

Fig. 3. The group of blue glass finds (photo V. Džikić)

Сл. 3. Група налаза од плавог стакла (фото В. Џикић)

fragments were presented in terms of their morphotypology.[4] However, this category of archaeological material from *Romuliana* remains a subject to be studied in more detail.

This paper aims to present a small group of eighteen fragments and mosaic glass *tesserae* distinguished by their cobalt blue colour (Fig. 3). Among the selected items, there are mosaic *tesserae*, *sectilia* sheets, secondary glass working waste, "window pane" fragments,[5] and a vessel sherd. For the first time, glass *sectilia* sheets have been recognised in the archaeological material from *Romuliana*. The glass production waste presents a clear indication that blue glass was locally worked there. This is confirmed, as well, by the discovery of a glass furnace, excavated in the area north of the fortified complex, in the "*villa*" *extra muros*.[6] Eight glass pieces, out of the total of 18 studied, were found in the remains of the glass furnace and in its immediate vicinity. The analysed set of blue glass pieces was selected in order to incorporate a range of categories of glass finds (i.e., architectural decorative pieces, production debris, a vessel), enabling in this way juxtapositions of the chemical make-up of different groups of finds.

The assemblage

The analysed glass fragments and mosaic *tesserae* were excavated at four different locations within and outside the fortified residence (Fig. 2, with locations numerically indicated): in the "*villa*" *extra muros* – a complex situated north of the fortified palace (1), in the area of the portico inside the northern rampart wall (2), in the area of Palace D1 (3), and in Tower 1, i.e. the southern tower of the eastern gate of the earlier fortification (4).

Among the eighteen pieces, the majority are mosaic *tesserae* (FR 13–18; Figs 3–5) and sheets of glass probably related to architectural decoration (*sectilia*

[4] Јанковић 1983, 102–103, 116, 119; Ružić 1994; Petković 2011, 193, Fig. 165; Antonaras 2013, 14, Fig. 14.

[5] The identification of the fragments as pieces of window panes is tentative since there is no evidence about the use of strongly coloured window panes in the late Roman period. At the same time, the fact that these pieces are flat and thin does not allow their recognition with certainty as vessel fragments or *sectilia* sheets, but such identifications should not be ruled out.

[6] von Bülow 2020, 251–254.

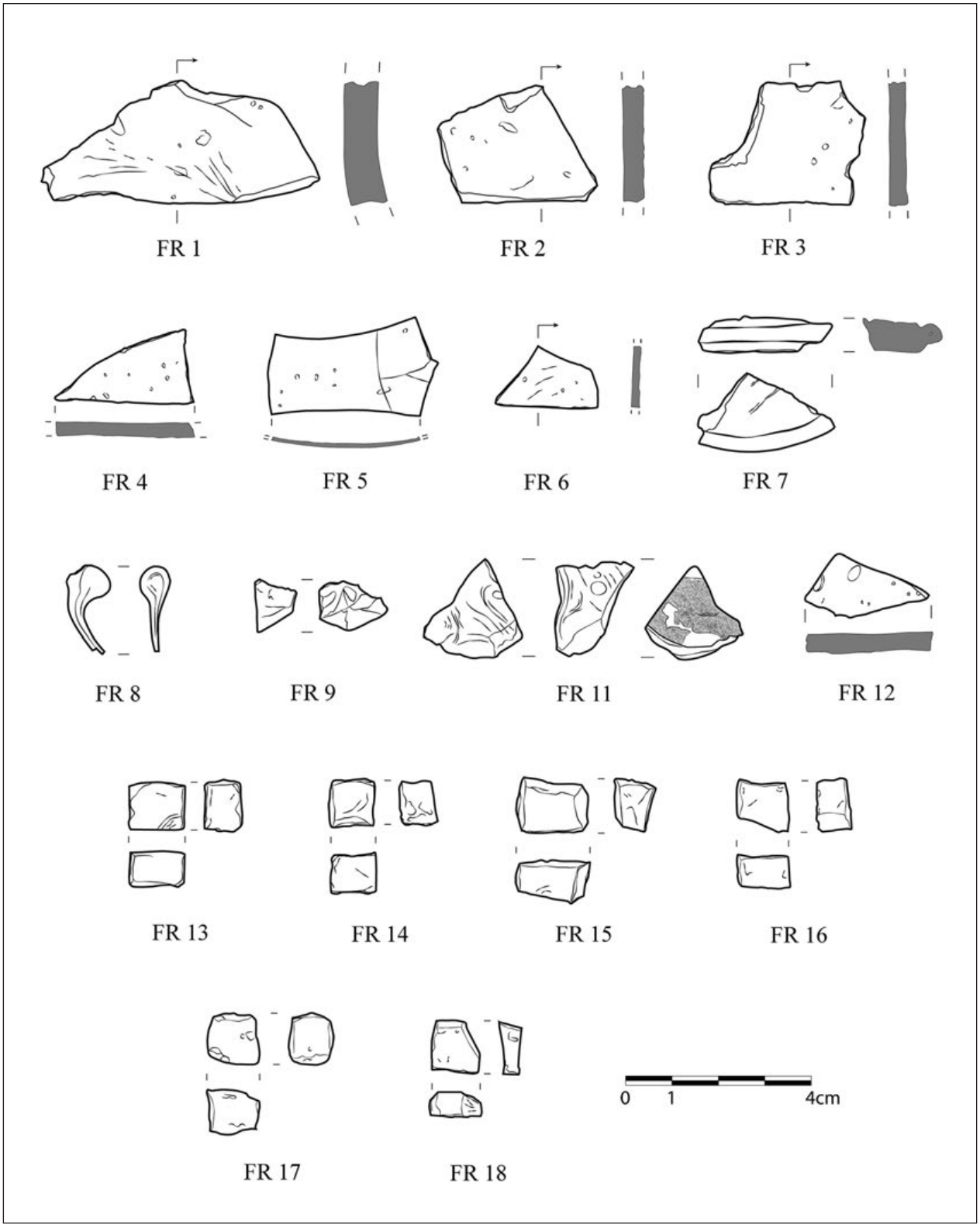

Fig. 4. The drawings of the blue glass finds; the undiagnostic sherd FR 10 is not included (authors A. Cholakova, M. Tomić)

Сл. 4. Цртежи налаза од плавог стакла; неодређени уломак посуде ФР 10 није исцртан (аутори А. Чолакова, М. Томић)

No.	Object	Location	Unit	Year	C-number
1.	*sectilia* sheet	Palace D1		1961	non-inventoried material – bag no. 1
2.	*sectilia* sheet	Palace D1		1961	non-inventoried material – bag no. 1
3.	*sectilia* sheet	Palace D1		1961	non-inventoried material – bag no. 1
4.	*sectilia* sheet	Tower 1	SW section; excavation layer XII	2009	C-210
5.	window pane	"*Villa*" *extra muros*	S 10/01, Room 1 (from glass furnace)	2010	C-1019
6.	window pane	"*Villa*" *extra muros*	S 10/01, Room 1 (from glass furnace)	2010	C-1019
7.	production waste	"*Villa*" *extra muros*	S 10/01, Room 1 (from glass furnace)	2010	C-1019
8.	production waste	"*Villa*" *extra muros*	S 10/01, Room 1 (from glass furnace)	2010	C-1019
9.	production waste	"*Villa*" *extra muros*	S 10/01, Room 1 (from glass furnace)	2010	C-1019
10.	vessel	Tower 1		2009	C-259
11.	production waste	"*Villa*" *extra muros*	S 10/6	2010	non-inventoried material – bag no. 133
12.	*sectilia* sheet	The area of the portico of the northern rampart wall		2010	non-inventoried material – bag no. 155
13.	*tessera*	The area of the portico of the northern rampart wall		2010	non-inventoried material – bag no. 155
14.	*tessera*	The area of the portico of the northern rampart wall		2010	non-inventoried material – bag no. 155
15.	*tessera*	*"Villa" extra muros*	S 10/05, Room 1	2010	C-1237
16.	*tessera*	*"Villa" extra muros*	S 10/05, Room 1	2010	C-1237
17.	*tessera*	*"Villa" extra muros*	S 10/01, outside the complex, north of Room 1	2010	C-1096
18.	*tessera*	*"Villa" extra muros*	Outside the complex, north of Room 1	2010	C-1054

Table 1. List of the analysed samples

Табела 1. Сйисак анализираних узорака

sheets) (FR 1–4 and FR 12; Figs 3, 4, and 6). Some of the finds are fragments left behind from secondary glass working (FR 7–9 and FR 11; Figs 3, 4, and 7). There are also two pieces that could be identified, with caution, as window panes (FR 5 and 6; Figs 3, 4, and 7) and one is a vessel sherd (FR 10; Figs 3, 4, and 7). Some fragments are fully transparent, such as the fragments of "window panes" and the vessel sherd, while others seem opaque, but a closer look shows that they are rather translucent. They only differ in their thickness. Round and oval bubbles are visible in most of the fragments (FR 2–6 and FR 11; Figs 6 and 7). On some of them, tool marks are also visible.

Six mosaic *tesserae* are included in the set. Two of them were found in the area of the portico inside the northern rampart wall (FR 13 and FR 14), in the destruction layer dated to the late 4th century and the others were excavated inside and outside Room 1 in the "*villa*" *extra muros* (FR 15–18, see Table 1). They belong to the 4th century. Coins from this archaeological context mostly come from the first half of the 4th century. One coin belongs to the time of Diocletian (AD 292) and another to the reign of the emperor Valens (AD 367–375).[7] The glass furnace was situated in the north-eastern corner of Room 1.[8]

[7] von Bülow 2020, 278, 281–284.

[8] von Bülow 2020, 277, Abb. 48.

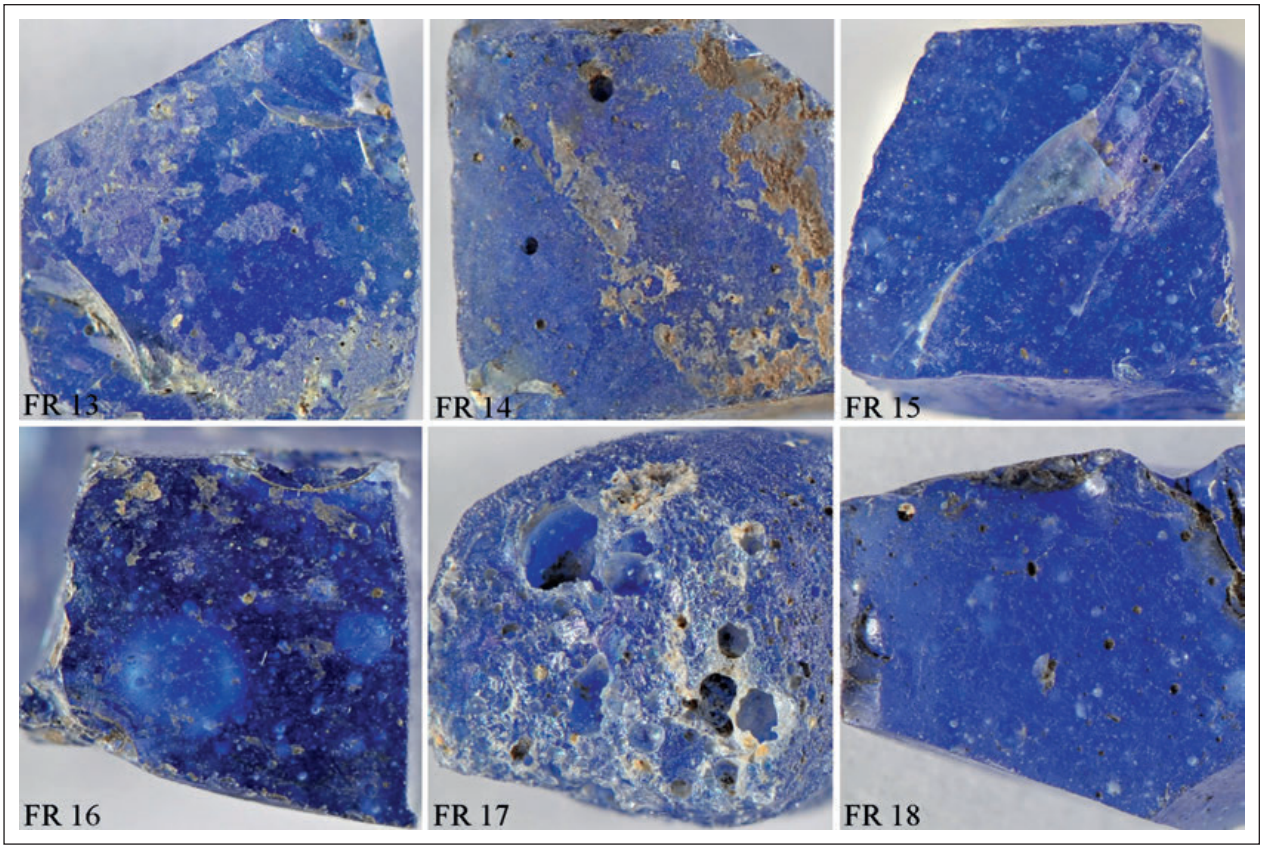

Fig. 5. Mosaic tesserae (photo V. Džikić)

Сл. 5. Коцкице мозаика (фото В. Џикић)

Tesserae have visible cuts and tool marks on the surface. Traces of a secondary exposure to heat are evident on one piece (Fig. 5, FR 17). None of these finds was found in the context of a (preserved) mosaic floor. Four pieces were found inside Room 1 and northeast of it, outside the room. As they were discovered in the immediate proximity of the glass furnace, we may assume, with caution, their connection to secondary glass production, since *tesserae* could be used as a glass colouring material (see below).

Felix Romuliana was famous for its imposing mosaic decoration. Surfaces of the floors and walls were covered with marble cladding and mosaic *tesserae*. Geometrical, floral and figural mosaic floors are known from Palace 1, from the cross-shaped building in the south-western corner of the fortification (the so-called Romula's *triclinium*) and from the *thermae* in the south-eastern corner of the fortified complex. The most famous are the panel with Dionysus in Hall 7 of Palace 1 and the scene with *venatores* and a lion from Hall 4 in the same palace. Besides floors, walls and vaults of some buildings were also decorated with mosaics.[9]

Considering glass *tesserae*, individual finds with gold foil are also preserved. To the north of the fortified complex, in the north-eastern corner of "Gamzigrad-Nordfläche", in the so-called basilica, several finds of different coloured glass *tesserae* may indicate some depot of these finds, their storage, or even some secondary working glass activity. These pieces were found with coins issued during the reigns of Aurelian (AD 270–275), Florian (AD 275/276), Probus (AD 276–280/82) and Carinus (AD 283–285).[10]

[9] Срејовић 1983, 66–77; Живић 2010, 128–140; Jeremić 2020, 353, 355–358.

[10] Jeremić 2020, 353, 355–358; von Bülow 2020, 96–98.

[11] Сладић, Живић 2010, 210.

[12] Fig. 6, FR 2 (c), FR 3 (c), FR 4 (c) and FR 12 (c) were taken using ViTiny Pro10-3 Portable UV/IR/White Light Digital Microscope.

There are five sheets of glass (*sectilia* pieces). They were found inside the fortified complex – Palace D1 (FR 1–3), Tower 1, (FR 4) and in the area of the portico inside the northern rampart wall (FR 12). According to the stratigraphy in Tower 1,[11] FR 4 was found in a destruction layer dated to the second half of the 4th century; the other fragments probably belong to the early 4th century. The pieces are irregular in form and have traces of mortar on one side (Fig. 6). Also, bubbles are visible in their structure (Fig. 6: FR 1–4 and FR 12). Four fragments are about 0.4 cm thick, and one is 0.8 to 1 cm (Fig. 6: FR 1). Tool marks are visible on FR 1. The longer side of this piece is slightly curved. This fragment is visually slightly different from the other

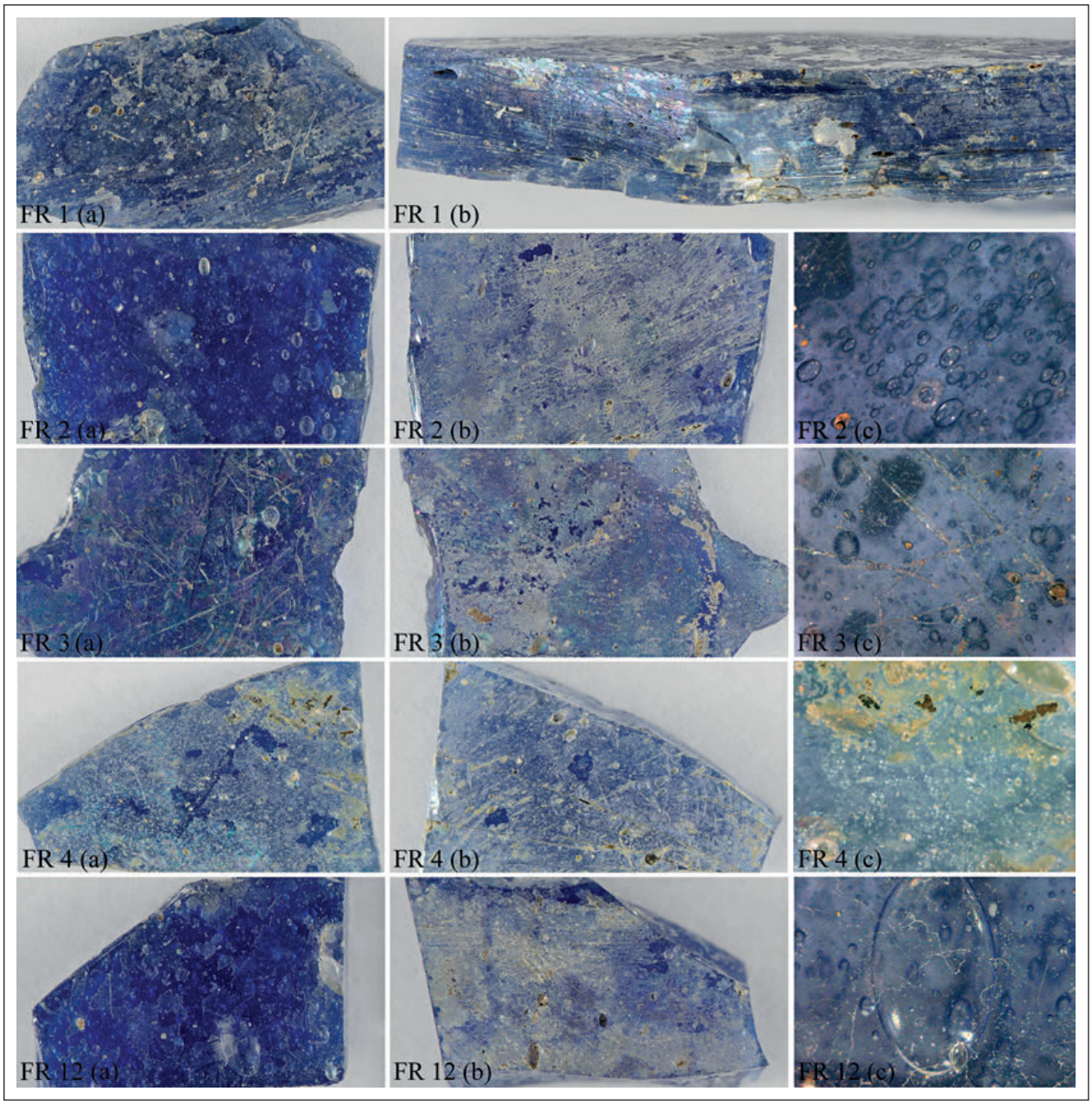

Fig. 6. Sectilia sheets (Fig. 6, FR 1 (a–b), FR 2 (a-b), FR 3 (a–b), FR 4 (a–b) and FR 12 (a–b): photo V. Džikić; Fig. 6, FR 2 (c), FR 3 (c), FR 4 (c) and FR 12 (c): photo M. Živković, S. Jovanović)[12]

Сл. 6. Фрагменти sectilia *декорације (Сл. 6, ФР 1 (а–б), ФР 2 (а–б), ФР 3 (а–б), ФР 4 (а–б) и ФР 12 (а–б): фото В. Џикић; Сл. 6, ФР 2 (ц), ФР 3 (ц), ФР 4 (ц) и ФР 12 (ц): фото М. Живковић, С. Јовановић)*

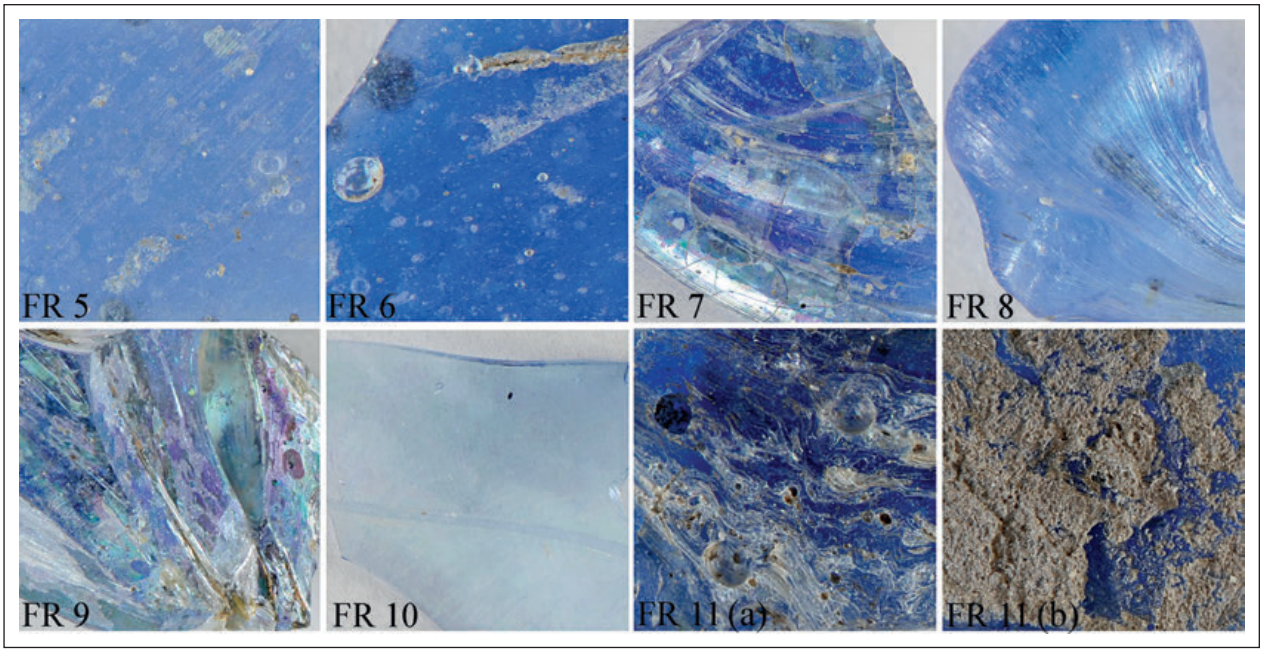

Fig. 7. Glass working waste, „window panes" and a vessel sherd (photo V. Džikić)

Сл. 7. Стаклени отпад, „прозорска окна" и фрагменти посуде (фото В. Џикић)

sectilia pieces but its chemical composition is quite similar to the composition of the others (see below). Hypothetically, it may be supposed that this piece is a reject left behind from the cutting of *sectilia* sheets.

In general, *sectilia* panels are ill-suited for floors and, thus, ideally belong to the wall revetment category.[13] They were used to decorate aristocratic or imperial residences, which were particularly luxurious.[14] Some were made exclusively of stone; others combined stone and glass, and some *sectilia* panels were entirely made of glass.[15] Sheets of glass served as a more affordable imitation of stone. Several economic and technical reasons are mentioned for this, such as the hardness of stone as a material and, thus, the difficulty of working with it, and the tendency to imitate rare types of stone. A significant feature of glass – its variation from opaque to translucent and transparent – makes it very usable for a wide range of colours and luminosity. Glass could also have been chosen to provide the colours that are almost totally absent in marble *sectilia*, such as turquoise and blue hues.[16] "The imitation should be understood as a visual play in which various materials are exploited to make unexpected effects and to show off the diligence of the artists. Their technical proficiency and virtuosity was a display of luxury and a sign of the commissioner's prosperity."[17]

Opus sectile panels, sometimes with figures, are known from a number of late Roman contexts.[18] The finest wall decorations stand in Junius Bassus' basilica in Rome (ca. AD 331), where glass was used extensively. Pieces of stone and glass there were combined in almost equal amounts. The figures in the narrative scenes are presented in light, medium and dark blue, red, orange and lemon yellow glass and gold foil.[19] Other famous

[13] Kiilerich, Torp 2018, 649.

[14] Santagostino Barbone et al. 2008, 452.

[15] Kiilerich 2014, 186. There are two ways in which glass *sectilia* panels were made. The one first implies the surface preparation, which was with raised edges and of the appropriate panel size. The earthen ware supports were laid on it and were covered with hot softened resinous substance. It served as a matrix for the glass. At the end, the pieces of glass were pressed into the matrix, which through cooling became a solid adhesive. Oppositely, the second way involved arranging glass first. Then the glass pieces had been covered with the softened adhesive, into which the artisan pressed the earthenware supports – Brill, Whitehouse 1988, 34.

[16] Kiilerich 2014, 180, 185; Kiilerich, Torp 2018, 649.

[17] Kiilerich 2014, 181, 183.

[18] It should be noted that they are also known from the earlier Roman period, for example glass *sectilia* from Gorga collection, from the imperial *villa* of Lucius Verus (AD 161–169) in Rome – Verità et al. 2013, 21–34; Bandiera et al. 2019, 2597–2611.

[19] Kiilerich 2014, 169, 179; Kiilerich, Torp 2018, 647, 649.

fragmented remains are known from Ostia, from the edifice outside Porta Marina (ca. AD 390),[20] where, in addition to the pieces of stone, a small amount of glass sheets was included for some details, such as lions' eyes, collars, belts, floral scrolls of friezes and pilasters, and the abacus of the pilaster capitals. Pieces of glass there also served for framing.[21] Furthermore, an important 4th century decoration is the glass revetment from Kenchreai (ca. AD 370), the eastern port of ancient Corinth, Greece, where panels consist only of glass.[22] Submerged remains of more than one hundred fragmentary *opus sectile* panels in glass were found, still in their shipping crates. These *sectilia* had been abandoned before they were unpacked.[23] Noteworthy are also remains from a late antique *villa* at Faragola (Ascoli Satriano), Italy.[24] The *villa* has a large dining room with a *stibadium*. It was paved with reused breccia slabs, and with three glass and stone *opus sectile* panels. It is important to point out that the *sectilia* panels were subsequently reused in a new context, for the floor decoration. This was not common, as glass *sectilia* panels are not suitable for floors.[25] Another famous example of late Roman *opus sectile* wall decoration made of glass is the Thomas Panel (second half of the 4th – early 5th century), which is believed to originate from Faiyum, Egypt.[26]

Besides *tesserae* and *sectilia* glass pieces, four fragments of production waste were also analysed (FR 7–9 and FR 11). All of them were found at the "*villa*" *extra muros*,[27] three of them (FR 7–9) in Room 1, within a glass furnace (trench S10/01).[28]According to the excavator, inside and around the furnace there were many fragments of different vessel types, as well as window pane pieces. The majority of the coin finds excavated in S10/01 came from the first half of the 4th century, and were issued from AD 312 to AD 341, during the reigns of Licinius, Constantine I, Constantius II and Constans. There is one coin from the time of Diocletian (AD 292) and another that is dated to the period of Valens' reign (AD 367–375).[29] The fourth piece of production waste was found in trench 10/06, and is also probably dated to the first half of 4th century, according to the coin finds from the same context.[30] All fragments of production debris are not clear and have numerous bubbles in their structures. Piece FR 7 could be a misshaped vessel (Figs 3, 4, and 7). Tool marks are visible on it. FR 8 is a thread from a removal of a solid impurity from the glass melt. The piece is hollow and has a drop-like shape (Figs 3, 4, and 7). FR 9 is a small piece of production waste. Fractures are visible on the surface of the fragment, as well as a large oval bubble (Fig. 7). FR 11 is almost entirely covered with an adhering of fired clay of light-greyish colour. It may have come from the surface of a furnace wall or, more likely, from a crucible. This could be a piece of glass left on the very bottom of a crucible (Figs 3, 4, and 7).

Two "window pane" fragments (FR 5 and FR 6), as already mentioned, were found in the glass furnace (trench S 10/01) together with three pieces of production waste, and are dated to the same time, most probably to the first half of the 4th century.[31] They are small, with visible bubbles and tool mark on the surface (Fig. 7).

The only vessel fragment in the set – a wall sherd (FR 10) – is not a diagnostic piece, so it is not possible to identify the vessel shape (Figs 3 and 7). It was found in Tower 1, in a destruction layer dated to the late 4th century.

The blue glasses from *Romuliana* – chemical data and interpretation

The set of eighteen glass pieces presented above was selected for chemical analysis primarily because of the visual characteristics of the finds. The range of distinct deep blue hues observed in the set suggests that cobalt is most likely the leading chromophore in all samples. The main purpose of this analytical work is to identify the base glass compositions used for the making of the blue pieces, and accordingly, to hypothesize the likely origin of the primary raw glass established in the *Romuliana* samples, and to characterise the added ingredients that impart the colour. The studied finds vary in terms of their functional identification (architectural decoration/fittings and tableware), how they relate to

[20] Kiilerich 2016, 41–58.

[21] Kiilerich 2014, 179.

[22] Kiilerich 2014, 185; Kiilerich, Torp 2018, 643–658; Gliozzo et al. 2010, 409.

[23] Kiilerich, Torp 2018, 643.

[24] Gliozzo et al. 2010, 389–415, Fig. 1.

[25] Gliozzo et al. 2010, 409; Kiilerich 2014, 186; Kiilerich, Torp 2018, 648–649.

[26] Brill, Whitehouse 1988, 34–50; Kiilerich, Torp 2018, 650.

[27] von Bülow 2020, 281.

[28] About glass furnace see von Bülow 2020, 251–254.

[29] In the destruction layer of the furnace dome coins of Constantine I (AD 315–316, AD 320, AD 330–335) and Valens (AD 367–375) were found – von Bülow 2020, 278. The context was already mentioned when it came to mosaic *tesserae*.

[30] von Bülow 2020, 278–279, 283–284.

[31] von Bülow 2020, 283–284.

the production process (finished objects and production waste), and they also come from four different findspots within the site (Fig. 2). Accordingly, the analytical data is discussed from the perspective of possible links between compositions and object categories (glass working waste in particular), distinguishing output from single glass melting episodes, as well as regarding more general specifics of production technologies and supply of glass to the site.

Analytical techniques

The eighteen pieces from *Romuliana* were analysed in the Wolfson Archaeological Science Laboratories of the UCL Institute of Archaeology, London. Small samples were cut, the cross-sections mounted in epoxy resin blocks, polished with abrasive agents, and carbon coated. The measurements were performed by means of electron probe microanalysis (EPMA), according to established laboratory procedures.[32] Seven or ten individual measurements were taken on each sample, and the results averaged in order to obtain representative mean values (reported in Table 2 without normalisation to 100%). Twenty-four elements were routinely sought (calculated as wt% oxide values using stoichiometry to determine oxygen). Nevertheless, due to the limitations of the EPMA technique (e.g., its limits of detection), reliable quantification was not possible for all of the oxides found in the samples.[33] Corning A and B reference glasses were measured along with the archaeological glass samples; the results demonstrate an overall fair agreement with the published values of the reference materials,[34] and only occasional minimal empirical corrections were applied to bring the data in line with the standards.[35]

Results

As expected, all analysed samples are consistent with typical Roman soda-lime-silica glass (Table 2). The levels of potash (ranging from 0.47 to 0.65 wt%) and magnesia (0.45–0.71 wt%) conform with mineral soda glass ("natron") composition. Alumina and lime values vary within relatively narrow ranges (approx. 2.2–2.6 wt% Al_2O_3; approx. 7.0–8.0 wt% CaO), except for sample FR 10, which features a lower CaO concentration (5.8 wt%). Significantly, the same differentiation of sample FR 10 from the rest of the analysed glasses is also seen in the soda values: for FR 10 the content of Na_2O is 19.3 wt% while for all the other samples it is lower, ranging from 14.3 to 16.7 wt%. An identical trend is observed in the iron oxide and titania levels, which are approx. 0.55–0.75 wt% Fe_2O_3 and 0.05–0.07 wt% TiO_2 for the majority of the samples but somewhat higher in sample FR 10. Manganese values are generally below 0.5 wt%, with the lowest one found in FR 10 (0.08 wt% MnO) and the highest in FR 15 (0.61 wt%).

The EPMA data confirm the anticipated identification of the blue chromophore as cobalt for the entire set – CoO is measured at levels of 0.03–0.07 wt%, and CuO is in comparable or slightly higher concentrations (0.04–0.14 wt%), typical for Roman cobalt blue glass. All samples, again with the exception of FR 10, contain antimony mostly within the range of approx. 0.6–2.0 wt% Sb_2O_5, with samples FR 14 and FR 15 featuring respectively higher and lower concentrations (2.51 and 0.46 wt%). The EPMA measurements indicated that tin and zinc are present as trace oxides in all analysed glasses but the quantification, generally around 0.01 wt%, is considered not reliable. Finally, the samples from the studied dataset contain lead at variable levels (typically within the range of approx. 0.2–0.4 wt% PbO), with FR 14 and FR 10 standing out with the lowest and the highest values (0.06 wt% and 0.51 wt%, respectively).

Discussion

Base glass compositions

The ingredients deliberately added to the glass in order to modify its visual appearance – colour and/or texture – often distort the base chemical composition, i.e. the original makeup of the glass before the colouring (on the assumption that the colouring process is not part of the primary raw glass production). Nevertheless, in the case of the *Romuliana* blue glasses, the amount of added material is estimated at approx. ≤3 wt% of the

[32] For details of the particular EPMA instrumental settings and the data acquisition parameters of this study see Cholakova, Rehren, Freestone 2016, 627.

[33] Accordingly, certain data is not reported in Table 2; the concentrations of BaO, typically at 0.01–0.03 wt% levels, are included in the dataset but considered indicative only and not taken into account in the discussion.

[34] Adlington 2017, Tabl. 3; cf. Corning A measurements in Table 2.

[35] The eighteen blue samples from *Felix Romuliana* were measured in two separate analytical runs, which had a certain impact on the data (e.g. an inconsistency in the P_2O_5, Cl, SO_2 values observed across the whole set). Empirical corrections were applied selectively only (e.g., for the Sb_2O_5 values), while for some other oxides (e.g., P_2O_5) the data in Table 2 is reported without corrections.

		SiO_2	Na_2O	Al_2O_3	CaO	K_2O	MgO	Fe_2O_3	TiO_2	MnO	Sb_2O_5	P_2O_5	Cl	SO_3	CoO	CuO	PbO	BaO	total
FR14	tessera (2)	69.7	14.3	2.35	7.34	0.49	0.45	0.72	0.05	0.27	**2.51**	0.15	0.83	0.17	0.07	0.10	0.06	0.02	99.49
FR17	tessera (1)	69.5	14.5	2.61	7.31	0.65	0.50	0.65	0.05	0.24	**1.95**	0.14	0.90	0.14	0.06	0.07	0.33	0.02	99.61
FR18	tessera (1)	69.8	14.4	2.62	7.33	0.50	0.50	0.63	0.06	0.25	**1.92**	0.12	0.91	0.16	0.05	0.07	0.31	0.02	99.66
FR16	tessera (1)	69.5	14.6	2.61	7.30	0.49	0.50	0.65	0.06	0.23	**1.91**	0.14	0.91	0.15	0.05	0.07	0.30	0.02	99.43
FR13	tessera (2)	69.5	14.6	2.59	7.32	0.50	0.49	0.66	0.06	0.24	**1.86**	0.14	0.89	0.15	0.05	0.07	0.30	0.03	99.45
FR12	sheet (2)	68.8	14.8	2.57	7.47	0.54	0.58	0.72	0.06	0.33	**1.79**	0.14	0.90	0.15	0.05	0.09	0.43	0.02	99.43
FR3	sheet (3)	69.1	14.9	2.57	7.43	0.55	0.58	0.76	0.06	0.34	**1.77**	0.14	0.93	0.14	0.05	0.11	0.41	0.02	99.84
FR2	sheet (3)	69.1	14.9	2.57	7.47	0.53	0.58	0.73	0.06	0.33	**1.77**	0.14	0.89	0.14	0.05	0.10	0.38	0.02	99.73
FR1	sheet (3)	69.1	15.0	2.57	7.38	0.51	0.54	0.77	0.06	0.35	**1.66**	0.13	0.96	0.14	0.05	0.11	0.39	0.03	99.72
FR4	sheet (4)	68.9	16.0	2.48	7.10	0.50	0.57	0.66	0.06	0.28	**1.44**	0.10	1.05	0.15	0.04	0.07	0.28	0.02	99.66
FR5	“window pane” (1)	68.8	15.2	2.52	7.89	0.54	0.51	0.65	0.06	0.43	**1.39**	0.07	1.18	0.24	0.05	0.08	0.24	0.02	99.89
FR6	“window pane” (1)	69.0	15.1	2.53	7.72	0.60	0.51	0.66	0.07	0.46	**1.33**	0.14	0.99	0.14	0.04	0.08	0.28	0.03	99.63
FR11	prod. waste (1)	68.6	16.3	2.38	7.13	0.54	0.55	0.67	0.07	0.35	**1.21**	0.11	1.03	0.17	0.03	0.07	0.29	0.01	99.47
FR7	prod. waste (1)	69.2	16.6	2.28	6.98	0.48	0.54	0.56	0.06	0.25	**0.95**	0.09	1.12	0.14	0.03	0.04	0.23	0.02	99.55
FR9	prod. waste (1)	69.3	16.7	2.23	6.95	0.47	0.55	0.55	0.07	0.22	**0.83**	0.09	1.14	0.16	0.03	0.06	0.17	0.02	99.56
FR8	prod. waste (1)	69.7	15.8	2.34	7.08	0.49	0.48	0.56	0.06	0.38	**0.62**	0.06	1.30	0.18	0.03	0.04	0.21	0.03	99.42
FR15	tessera (1)	69.0	15.2	2.55	7.99	0.58	0.50	0.63	0.06	0.61	**0.46**	0.15	1.05	0.09	0.05	0.07	0.34	0.03	99.38
FR10	vessel (4)	67.4	19.3	2.28	5.79	0.53	0.71	0.84	0.11	0.08	**0.00**	0.03	1.21	0.31	0.04	0.14	0.51	0.02	99.36
Corning A measured																			
mean (n=6)		**66.74**	**14.31**	**1.02**	**4.97**	**2.87**	**2.51**	**1.05**	**0.77**	**0.96**	**1.59**	**0.12**	**0.10**	**0.06**	**0.17**	**1.08**	**0.07**	**0.47**	**98.86**
standard deviation		0.17	0.10	0.04	0.03	0.08	0.02	0.01	0.03	0.01	0.04	0.02	0.00	0.01	0.01	0.02	0.02	0.02	
Corning A published		**66.56**	**14.30**	**1.00**	**5.03**	**2.87**	**2.66**	**1.09**	**0.79**	**1.00**	**1.75**	**0.08**	**0.09**	**0.14**	**0.17**	**1.17**	**0.07**	**0.46**	
difference absolute		0.18	0.01	0.02	-0.06	0.00	-0.15	-0.04	-0.02	-0.04	-0.16	0.04	0.01	-0.08	0.00	-0.09	0.00	0.01	
difference relative		0.3%	0.1%	1.9%	-1.3%	0.1%	-5.5%	-3.8%	-2.0%	-3.8%	-8.9%	46.5%	14.8%	-57.4%	-1.2%	-7.8%	2.8%	1.3%	

Table 2. Average values of the Romuliana glass samples, as determined by EPMA, and measurements of Corning A reference glass compared to the published values; samples arranged in descending order of their Sb_2O_5 concentrations; the findspots are indicated as follows: (1) “villa” extra muros; (2) the area of the portico inside the northern rampart wall; (3) palace D1; (4) tower no. 1; highlighted in grey are the samples identified as belonging to single batches

Табела 2. Просечне вредности за узорке стакла из Ромулијане, одређене EPMA методом и мерењима Corning A референтног стакла у поређењу са објављеним вредностима; узорци су поређани према вредностима концентрације Sb_2O_5, од виших ка нижим; места налаза узорака назначена су на следећи начин: (1) „вила” ван бедема; (2) простор портика са унутрашње стране северног зида бедема; (3) Палата Д1; (4) Кула 1; сивом бојом су обележени узорци издвојени по смесама стакла којима припадају

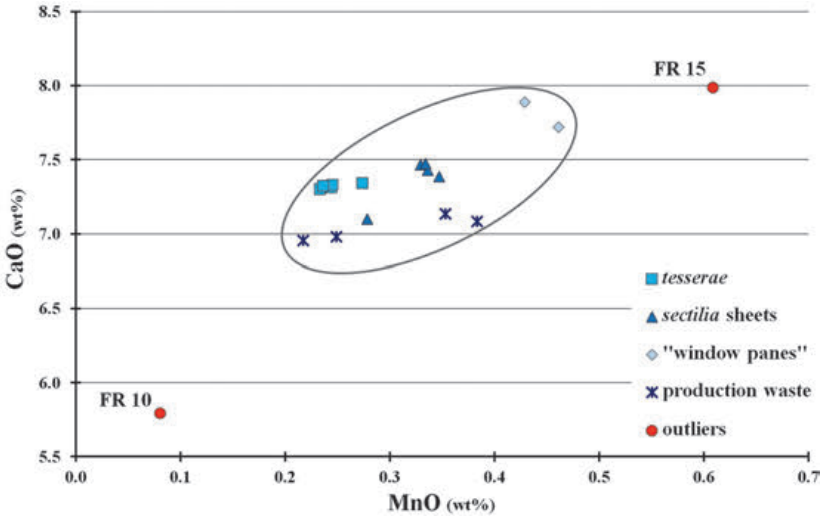

Fig. 8. Manganese and lime concentrations in the analysed samples

Сл. 8. Концентрација манīана и кречњака у анализираним узорцима

total amount of the batch,[36] and therefore it does not practically alter the base glass composition.

In terms of base glass composition, the present assemblage comprises a single, relatively uniform cluster of samples, and only two samples lie outside it (FR 10 and FR 14; Fig. 8). In the overwhelming majority of the *Romuliana* samples (17 out of 18), the ratio of the alumina to silica contents, indicative of the source of glassmaking sands, along with the relatively low soda and high lime contents, correspond to the characteristics of the primary production glass groups of Syro-Palestinian origin.[37] Their resemblance to Roman manganese containing glass, presumably produced in that region, is also evidenced by the similarities of the present dataset to the Roman Mn-decolourised glass found at 2nd–4th c. AD sites in the Northern Adriatic region and Britain.[38]

At the same time, it has to be noted that these 17 samples feature significantly lower manganese values than those found in the truly colourless "Mn-decolourised glass", mentioned above. Only the MnO content of 0.61 wt% in FR 15 (*tessera* – one of the two samples lying outside the main cluster, Fig. 8) is high enough to suggest a tentative identification of the base glass as being affiliated to Roman Mn-decolourised primary composition. Nevertheless, nothing could be stated with certainty about the original tint of the FR 15 glass, prior to colouring. This sample also features the lowest antimony content in the current dataset, possibly deriving entirely from the ingredients added to the melt during the colouring process (see below). The high lime concentration in FR 15, in fact the highest among the studied samples (Fig. 8), corroborates its association with the Mn-bearing group. A similar base glass composition is known in cobalt blue *tesserae* dated to the 2nd c. AD, and is interpreted as particularly suitable for the production of antimony-opacified mosaic glass.[39]

The main cluster (16 out of 17 – *tesserae*, *sectilia* sheets, window panes, production waste) of the samples assigned above to the Syro-Palestinian primary production region has MnO contents within the range of 0.22–0.46 wt%. Samples FR 5 and FR 6 (window panes) are at the higher end of this range and, significantly, they feature the highest lime values in the cluster (Fig. 8). These *Romuliana* glasses can be associated with the low MnO makeup, denoted also as weakly coloured or blue-green glass, regarded as a primary glass production group originating from the Syro-Palestinian region,[40] and most likely related in terms of production technology to the already mentioned Mn-decolourised group. Importantly, the lower manganese concentrations of the

[36] This sum includes the values of CoO, CuO, PbO and Sb_2O_5 found in the samples, still admitting that a certain amount of Sb_2O_5, at least in theory, could come from the base glass as it was prior to the colouring, instead of from the modifying ingredients added to it (see below). On the other hand, the added cobalt-rich material certainly introduced further quantities of some other oxides, e.g. Fe_2O_3 (Fig. 10; cf. Cholakova et al. 2017, Fig. 7), but estimating these quantities is not practicable in the current analytical set.

[37] Freestone 2020, Fig. 22.1, Table 22.2; cf. Freestone 2021, 249–251.

[38] Jackson 2005, Group 2b; Silvestri, Molin, Salviulo 2008, Group CL2; Foster, Jackson 2010, Colourless 2b.

[39] Paynter et al. 2015, 74; see below.

[40] Jackson, Paynter 2016, 73; Silvestri 2008, Group Ic1a and Group Ic2a; cf. Freestone et al. 2015; cf. Jackson 2005, Table 2.

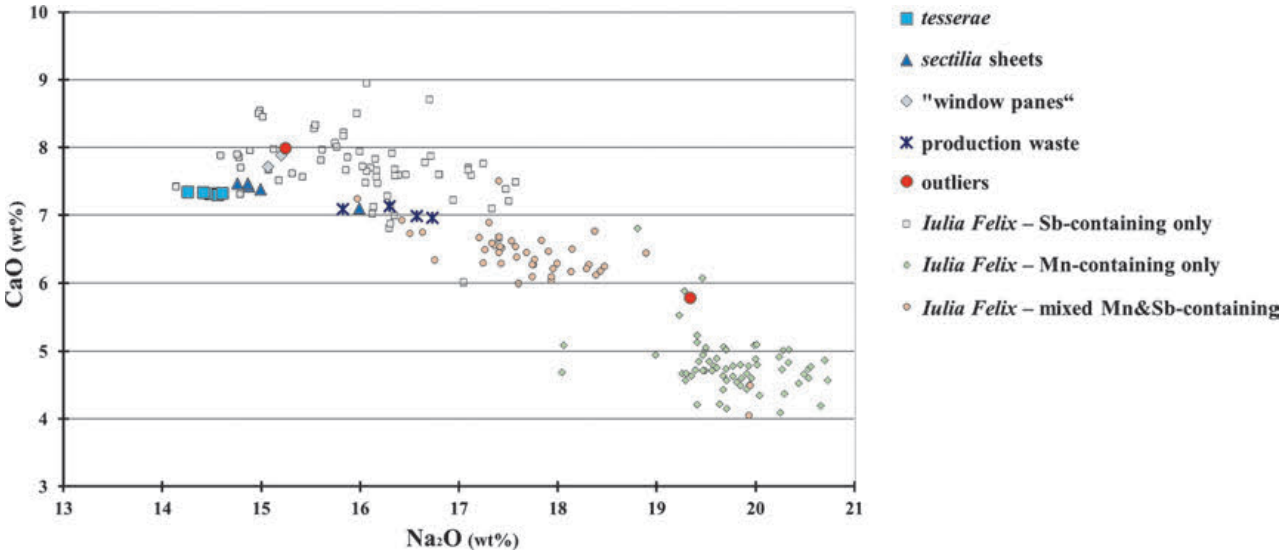

Fig. 9. Soda and lime concentrations in the analysed samples compared to the glass from Iulia Felix wreck (data from Silvestri, Molin, Salviulo 2008 and Silvestri 2008)

Сл. 9. Концентрација соде и кречњака у анализираним узорцима у поређењу са стаклом из бродолома Iulia Felix *(подаци из Silvestri, Molin, Salviulo 2008 и Silvestri 2008)*

samples in this main cluster are still above the proposed background levels of MnO caused by natural mineral impurities in the glassmaking sands (typically less than 0.05 wt%),[41] and therefore should be again regarded as resulting from addition to the melt.

Admittedly, the weakly coloured or blue-green glass composition with low MnO content often features a certain level of antimony oxide.[42] It is typically found in small amounts but still cannot be explained by the background Sb concentrations in the glassmaking sands (estimated at Sb<1.4 ppm).[43] Regarding the 16 samples from *Romuliana* with low MnO levels, it is not possible to unambiguously state whether they contained some amounts of antimony oxide in the base glass (i.e. prior to colouring), since their high Sb_2O_5 concentrations (>0.6 wt%) are clearly related to an intentional separate addition to the melt (see below).

The presence of both decolourisers – manganese and antimony oxides – in Roman glass is seen as an indication of mixed recycling of Mn-decolourised and Sb-decolourised glasses.[44] Analytical findings from sites in the Central Balkans, dated to the mid-3rd–4th c. AD and roughly contemporaneous to the *Romuliana* assemblage confirm the circulation and local secondary glassworking of mixed Mn-Sb colourless or weakly coloured glass.[45] Therefore, it could be suggested that a proportion of the Sb_2O_5 in the composition of the main *Romuliana* cluster comes from such a mixed base composition,[46] rather than from the added colouring ingredients. The use of recycled base glass may be seen as a pragmatic choice for a batch of strongly coloured glass intended for the production of architectural decoration pieces. Nevertheless, the correlation of CoO and Sb_2O_5 responsible for colouring and opacification of the *Romuliana* blue glasses implies that the overwhelming amount of antimony oxide comes from the colourant material added to the base composition (Figs 11 and 12, see below).[47] Therefore, it is unlikely that the original base glass of the samples in the main cluster was of typical mixed Mn-Sb chemical makeup; an

[41] Brems, Degryse 2014, 38; Schibille, Sterrett-Krause, Freestone 2017, 1230.

[42] Jackson 2005, Table 2.

[43] Brems, Degryse 2014, 79.

[44] Jackson 2005, 772; cf. Gratuze 2018, Fig. 6.

[45] Stamenković, Greiff, Hartmann 2017, Table 1, note the dark blue sample 16; Ivanov, Cholakova, Gratuze 2021.

[46] Cf. Jackson 2005, Group 2a; Silvestri, Molin, Salviulo 2008, Group CL1/2.

[47] In Fig. 12, the origin of the correlation trend of CoO and Sb_2O_5 is approximately at the intercept of both axes. This implies that, according to the EPMA data, the base glass before the addition of the Co colourant likely contained no substantial quantities of antimony oxide.

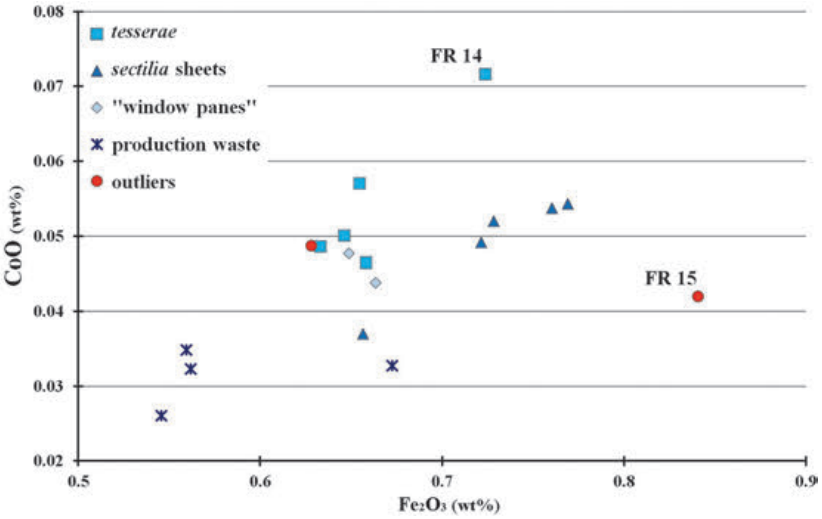

Fig. 10. Iron oxide and cobalt oxide concentrations in the analysed samples

Сл. 10. Концентрација оксида гвожђа и кобалта у анализираним узорцима

overall affiliation to the compositional range of low MnO weakly coloured group mentioned above seems more probable.

Nevertheless, the presence in some of the samples in the main *Romuliana* cluster of a certain amount of antimony oxide originating not from the added colouring material but from the base glass, should still not be definitely ruled out. The production waste pieces (FR 7–9 and FR 11) stand out with their higher soda levels, especially when compared to the *sectilia* sheets and the *tesserae* (Table 2). A comparison of the soda and lime contents in the *Romuliana* dataset to the Roman glass assemblage from the *Iulia Felix* wreck[48] – an illustrative example of Mn-containing and Sb-containing compositions and their mixing[49] – demonstrates that the production waste and a single *sectilia* sheet sample lie closer to the mixing line between the main Mn-containing and Sb-containing glass compositions and clearly away from the architectural glass samples (Fig. 9). This pattern most probably reflects the particular technology of blue glass making used by the *Romuliana* craftsmen, which likely involved a certain degree of mixing of various glasses (see below).

The remaining sample, FR 10 (the only vessel fragment in the set), was already defined as an outlier in terms of both base glass composition and added ingredients. Its low lime level and higher soda (Fig. 9), as well as elevated iron oxide and titania resemble the characteristics of the primary production groups of Egyptian origin (Fig. 10).[50] At the same time, the virtual absence of any decolourisers (no Sb_2O_5 is detected in the EPMA measurements and MnO is found at 0.08 wt% only, which may also be due to the added colourant) set this peculiar composition apart from well-known primary glass groups, such as Sb-decolourised or Mn-decolourised Foy 3.2., regarded as Egyptian production,[51] leaving the question open as to the precise affiliation of the FR 10 base glass.

To sum up, the present data allow the distinguishing of three groups of probable base glass compositions used for the production of the *Romuliana* blue glasses: Roman Mn-bearing/decolourised (FR 15) and low Mn composition (the main cluster – FR 1–9, FR 11–14, FR 16–18; some of the samples likely adulterated by some glass mixing), both originating from the Syro-Palestinian region, and a soda-rich low Ca glass (FR 10), possibly related to Egyptian primary glass production. Given the abundance of the second group (16 out of 18 analysed pieces), samples FR 10 and FR 15 are rather regarded as outliers.

Added ingredients

As already mentioned, all analysed glasses from *Romuliana* are rendered blue by the deliberate addition of cobalt-containing ingredient(s). It is known that the ores used as sources of this colourant contained certain amounts of other elements, which were also introduced in the glass melt. Gratuze and co-authors have established that during the Roman and late Roman period the

[48] Silvestri, Molin, Salviulo 2008; Silvestri 2008.

[49] Cf. Freestone 2015, Figs 1 and 2.

[50] Freestone 2021, 250.

[51] Schibille, Sterrett-Krause, Freestone 2017, 1237–1238; Cholakova, Rehren 2018, 57.

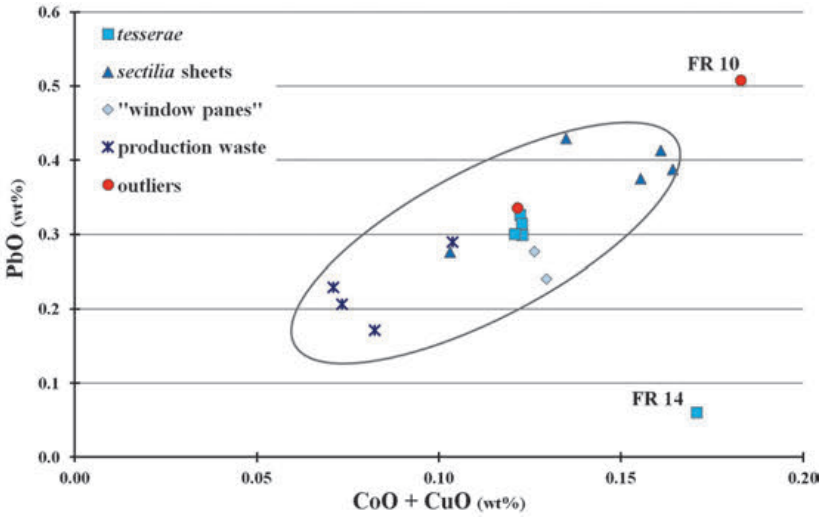

Fig. 11. Sum of cobalt and copper oxide values in the analysed samples compared to lead oxide concentrations

Сл. 11. Збирне вредности оксида кобалта и бакра у анализираним узорцима у поређењу са концентрацијама оксида олова

colourant consisted mainly of a mixture of iron, copper and cobalt oxide, with nickel recognised as a diagnostic impurity, being found consistently in low concentrations in the finds dated prior to the late 4th c. AD.[52] The present dataset is generally in line with such characteristics of the cobalt-bearing additive.[53] A general positive correlation of cobalt and iron oxide levels is seen (Fig. 10), even though the trend is not clearly pronounced, possibly because of the different Fe_2O_3 levels in the base glass compositions, and/or variable CoO/Fe_2O_3 ratio in the added colouring ingredient. An almost identical correlation is observed between CoO and CuO, although their low concentrations, close to the detection limits of EPMA, suggest that caution should be exercised.

Antimony and lead oxide are the other two components that stand out with their elevated concentrations in the analysed set. In such concentrations they can hardly be related to the natural impurities from the glass-making sands used for the production of the discussed base glass compositions, nor to be explained as an unintentional effect of glass recycling (see above). Therefore, they are considered parts of the suite of added colouring ingredients, even though they did not contribute to the blue colour of the glasses.

Lead oxide in Roman cobalt blue glass is often associated with the CoO-containing geological material, even though the CoO/PbO ratio of the colourant seems quite variable.[54] A combined scatter graph of cobalt, copper and lead oxide concentrations in the studied set shows that their levels are positively correlated in almost all samples, regardless of the differences in their base glass compositions (Fig. 11). An exception to this trend is sample FR 14 (*tessera*), which features a significantly lower PbO content. Since the analysed selection of finds does not represent an entirely consistent technological assemblage from a single context, it is expected for the correlation in Fig. 11 not to be too distinctly outlined. At the same time, it is clear enough to suggest that the majority of the analysed glasses are rendered blue by the addition of Co-containing material of fairly comparable composition, and the main difference lies in the amount of the admixed colourant, with the lowest quantities found in the production waste pieces. As already pointed out, *tessera* FR 14, with its lower PbO content, especially relative to its highest CoO level in the set, is an outlier in terms of ratios of the main colourant components. On the other hand, the vessel fragment FR 10 (an outlier in respect of the base glass makeup), even if fitting well into the general correlation, is also somewhat atypical for the main group of samples because of its high CuO and PbO contents, relative to CoO.

Summarising, it is suggested that, in terms of the added CoO colourant and the oxides likely related to its geological source (CuO, PbO), the present dataset is relatively homogenous (i.e. a more or less uniform origin of the colouring ingredient could be proposed), with only sample FR 14 standing out as an exception.

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[52] Gratuze, Pactat, Schibille 2018, 18.

[53] NiO was only occasionally detected in some of the EPMA measurements at levels of around ≤0.01 wt%, indirectly confirming that the composition of the Co-containing material in the *Romuliana* blue glasses is in accordance with the conclusions of Gratuze and co-authors – Gratuze, Pactat, Schibille 2018, 5.

[54] Gratuze, Pactat, Schibille. 2018, Table 3.

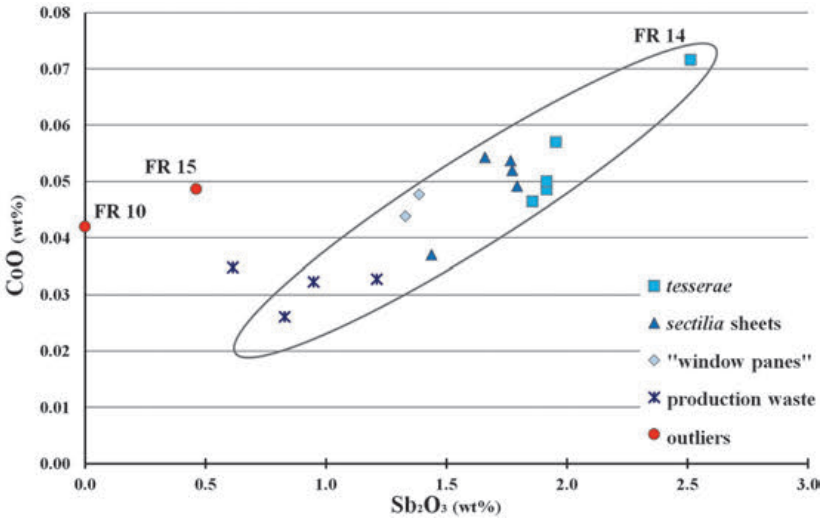

Fig. 12. Antimony oxide and cobalt oxide concentrations in the analysed samples

Сл. 12. Концентрација оксида антимона и кобалта у анализираним узорцима

Interestingly, the levels of lead oxide are also positively correlated with the antimony oxide concentrations in most of the *Romuliana* blue samples (cf. Figs 12, 13). The exceptions to this trend are again samples FR 15, FR 14, and FR 10 – the latter containing virtually no Sb_2O_5. The presence of high lead levels in Sb-rich glasses – decolourised and opacified – is a well-known phenomenon, and lead could be explained as an impurity in the geological Sb source.[55] However, recent studies suggest that lead may well be a deliberate additive to the Sb-containing glass compositions, which changes the properties of the glass by lowering the working temperature, improving the formation of opacifying particles, etc.[56] The specifics of the present dataset do not allow an unambiguous identification of the origin of the elevated PbO concentrations in the *Romuliana* blue samples (i.e., the association of PbO either with cobalt or with antimony), in particular because of the observed interdependencies in the concentrations of added oxides.

Antimony was used in the Roman glass industry as a decolouriser,[57] as well as for opacification – of strongly coloured glasses and white glass – through the formation of calcium antimonate crystals in the glass – in essence, minute particles, which do not allow light to pass through glass, thus preventing its transparency.[58]

For the majority of the *Romuliana* blue samples, it would be reasonable to assume that the elevated Sb_2O_5 concentrations do not derive from decolourising of the base glass (see above), but the purpose of this additive is opacification of the *tesserae* and *sectilia* glass, as expected for such kinds of materials. This supposition is further reinforced by the fact that the only sample without antimony oxide is a fragment of a vessel (FR 10), for which clear transparent glass was certainly preferred (Fig. 7: FR 10). Nevertheless, antimony oxide is present at the levels of approx. 0.5–1.5 wt% also in other categories of finds – window panes and production waste (Fig. 12) – which, in principle, do not require alteration of the glass texture. Furthermore, the macroscopic inspection of the studied fragments *tesserae*, *sectilia* sheets, window panes and production waste indicates that they are quite translucent, and that no proper opacification of any of the pieces has been achieved, despite the Ca- and Sb-rich composition.[59] Indeed, the translucency observed in the majority of them may well result from the gas bubbles present (Figs 5 and 6). In the absence of microstructural evidence and information about different phases in the *Romuliana* samples, it is not possible to definitely determine the effect of the antimony in the glass. The successful formation and preservation of opacifying calcium antimonate crystals in glass depends on various parameters (e.g., temperature of the melt, levels of saturation of the batch with Sb, etc.), and some other technological factors, such as remelting and mixing of opaque blue with transparent glass, may well have caused these particles to dissolve during secondary glassworking.

Probably the most pronounced correlation of the compounds added to the base glass compositions is seen

[55] Freestone, Stapleton 2015, 68.
[56] Paynter, Jackson 2019; Boschetti et al. 2020, 558.
[57] Cf. Paynter, Jackson 2019.
[58] Neri et al. 2016, 18864; Freestone, Stapleton 2015, 67–68
[59] Cf. Paynter et al. 2015.

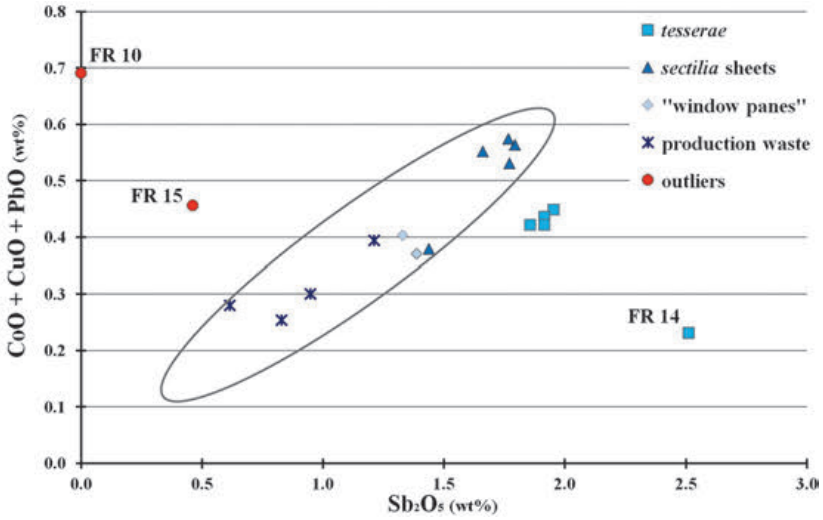

Fig. 13. Antimony oxide concentrations in the analysed samples compared to the sum of cobalt, copper and lead oxide value

Сл. 13. Концентрација оксида антимона у анализираним узорцима у поређењу са збирним вредностима оксида кобалта, бакра и олова

for antimony and cobalt oxide (Fig. 12). Only two of the samples – FR 10 with no Sb_2O_5, and FR 15 with the lowest Sb_2O_5 content – plot clearly outside this trend. Significantly, both samples are also outliers in terms of their base glass compositions. One of the production waste pieces – drop FR 8 – has a lower antimony concentration, which sets it slightly away from the correlation outline but, on the other hand, the samples of production debris seem to be generally more heterogeneous than the finished objects (see below; Figs 13 and 14). The observed link between antimony and cobalt oxide content in the majority of the samples cannot be explained by the association of the two compounds in some kind of geological material, since such a natural co-occurrence is unlikely. Nevertheless, the correlation trend leaves the impression that both components could have been incorporated into the melt from a single ingredient, similarly to the interpretation suggested for a 2nd c. AD group of cobalt blue *tesserae* from Britain.[60]

In an attempt to further explore this aspect of the *Romuliana* blue glass set, the sum of the cobalt, copper and lead oxide concentrations, presumably linked to the colouring, is plotted with antimony oxide levels (Fig. 13). As expected, an overall pattern of diversity emerges in the scatter graph: samples FR 10 and FR 15 with no/low Sb_2O_5 content are again identified as outliers, as well as FR 14, with its much higher Sb_2O_5 and low PbO levels, i.e. with a different proportion of the added colouring ingredients. Interestingly, the group of the remaining four *tesserae* also features higher antimony oxide concentrations relative to the colour-related compounds. At the same time, the *sectilia* sheets, window pane fragments and production waste pieces apparently form a consistent group of a comparable ratio of Sb_2O_5 and colourants, resembling the correlation trend in Fig. 11.

As mentioned above, a similar pattern of correlations is observed in a Roman assemblage of cobalt blue *tesserae* from Britain, which feature a strong association of their lead, copper, cobalt, nickel, arsenic and antimony levels, as well as iron and manganese.[61] Such an interdependence is interpreted by Paynter and co-authors as indicating that these colour and opacity related elements were introduced into the glass melt as a single ingredient – a concentrated form of mixed colouring substance prepared in advance.[62] The *Romuliana* samples data could be seen as further evidence for such a production technology. Nevertheless, our sample set does not represent an entirely homogeneous archaeological and technological assemblage, and even if being relatively consistent in terms of chemical glass composition, there is a variability in the detail (i.e., ratios and extent of correlation of the colour and opacity related elements). Therefore, a more nuanced interpretation of the correlation trends is preferred in the case of the *Romuliana* blue set, especially regarding the production waste pieces (see below).

Recapitulating the significance of the elevated lead and antimony oxide contents of the present samples, it is not possible to conclusively associate the PbO with either the Co-colouring ingredient, or with the Sb-opacifying additive, in the settings of this study. The only

[60] Paynter et al. 2015, Fig. 6.
[61] Paynter et al. 2015, 72.
[62] Paynter et al. 2015, 75.

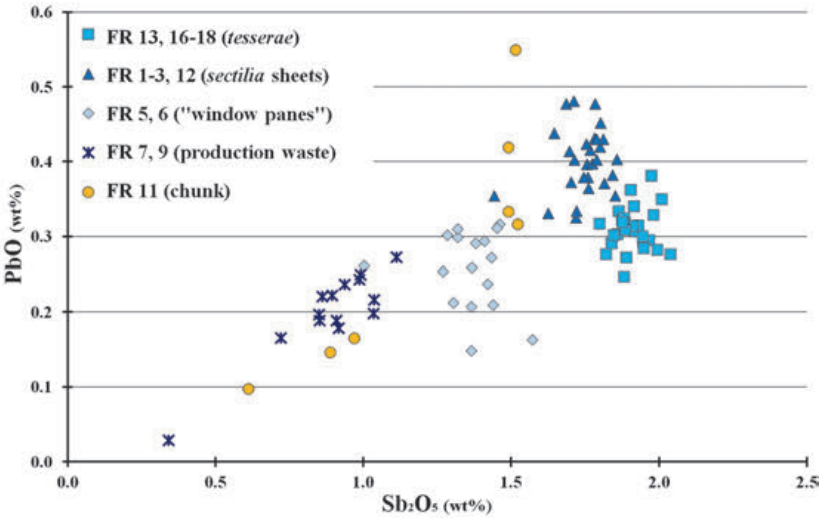

Fig. 14. Individual EPMA measurements of antimony oxide and lead oxide contents in samples identified as belonging to single production batches, and of sample FR 11 – an example of significant heterogeneity of the glass

Сл. 14. Појединачна ЕРМА мерења садржаја оксида антимона и олова у узорцима који припадају одређеним стакластим смесама, и за узорак ФР 11 – пример значајне хетерогености стакла

exception is the vessel fragment FR 10 featuring virtually no antimony but high lead oxide content, likely linked to the Co-containing raw material. The apparent lack of proper opacification in almost all the *Romuliana* pieces, despite the high Sb_2O_5 concentrations, can be explained by technological specifics and the likely remelting of the blue glasses (see below).

Production waste

The presence of blue coloured glassworking waste (FR 7–9 and 11) found in the context of a glass furnace in the "*villa*" *extra muros* area of *Romuliana*, is clear evidence that blue glass was not only supplied to the site as a readymade product but local craftsmen were also processing this material for the needs of the local consumption during the period of the active functioning of the luxurious complex. The production waste samples repeatedly at the lower end of the correlation trends discussed above (Figs 10–14) indicate that the locally worked blue glass has the lowest levels of all oxides responsible for glass colour and texture modification. The likely explanation, as discussed above, comes from the technology used by the *Romuliana* craftsmen – the observed correlation trends indicate glass mixing (i.e. these are in fact mixing lines). Most probably the local glassworkers were extending the amount of available blue glass by remelting and blending/diluting some of the strongly coloured blue pieces (e.g. *tesserae* or *sectilia* sheets) with common glass cullet. In essence, such a technology means using the blue (architectural) glass as a colouring ingredient in the local workshop, as also practiced elsewhere in late Roman and post Roman contexts.[63] As pointed out above, the position of the *Romuliana* production waste pieces in the soda and lime scatter graph (Fig. 9), away from the *sectilia* and *tesserae* and towards the area of the mixed Mn and Sb glass, implies that some mixing was involved. However, it is likely to have been a feature of the colouring process itself rather than a defining characteristic of the base glass. Quite probably, the batch of blue coloured glass blended by the local glassworkers contained some amount of Sb-decolourised cullet and/or any other available pieces intended for recycling, while the craftsmen had the skill to maintain the required blue tint of the melt. Accordingly, a remelting of this kind could have caused some decrease in the calcium antimonate particles from the blue component of the batch, and would explain the lack of proper opacification in the studied samples.

Such a reconstruction of the technology of blue glass making in the *Romuliana* workshop seems more probable than a hypothetical addition of some concen-

[63] Cf. Schibille, Freestone 2013; Boschetti, Mantovani, Leonelli 2016; Cholakova et al. 2017.

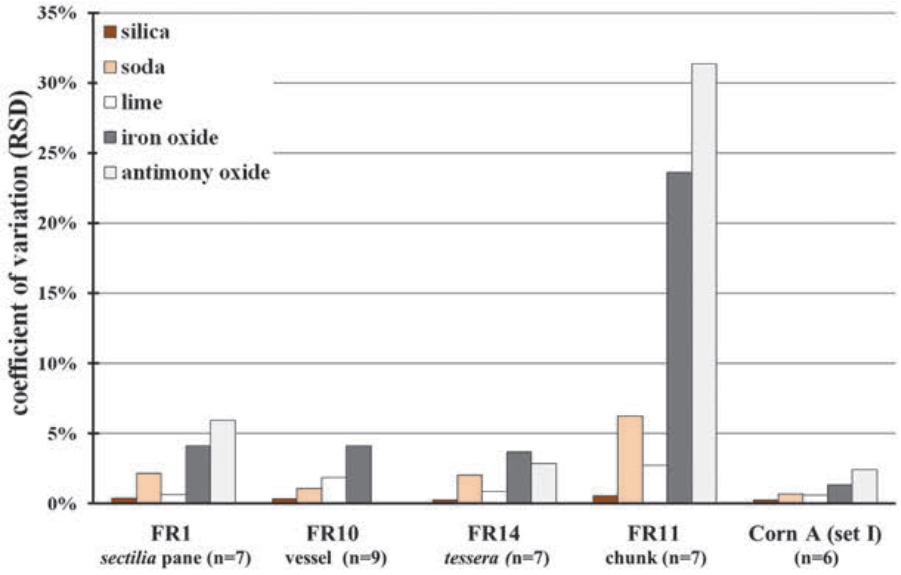

Fig. 15. Coefficient of variation of the individual EPMA measurements of selected five oxides in four of the Romuliana samples and of the reference glass Corning A.
The comparison is indicative of the degree of glass heterogeneity across different groups of finds

Сл. 15. Коефицијенш варијације индивидуалних EPMA мереља йеш изабраних оксида у чешири узорка из Ромулијане и референшної сшакла Corning A.
Поређење је индикашивно за сшейен хешероїеносши сшакла у различишим їрупама налаза

trated mixture of raw colouring ingredients,[64] which would mean access to quite different sources of raw materials and relevant supply chains.

Finally, the heterogeneity of the glassworking waste samples provides further evidence about the mixed remelting carried out at *Romuliana* – the different components of the melt were not well homogenized, and this is the reason for the significant scattering of the individual EPMA measurements of these samples, specifically the calculated higher coefficient of variation (Figs 14 and 15). The most pronounced heterogeneity, also evident in the macroscopic appearance, is found in sample FR 11 – an unworked chunk with adhered fired clay from the walls of a production installation/crucible (Fig. 7), i.e. an area at the very edge of the melt where complete homogenization was not feasible.

Single production episodes

The close compositional similarity between certain samples allows identifying them as likely output from single glass melting episodes (Table 2). The recognition of the so-called single batches[65] in the *Romuliana* blue set is further reinforced by a plot of the individual EPMA measurements (Fig. 14). An overlap is seen for four out of six *tesserae* (FR 13, FR 16–18), four out of five *sectilia* sheets (FR 1–3, FR 12), the two window panes (FR 5, FR 6) and two of the four production debris pieces (FR 7, FR 9). The most tightly clustered group of the *tesserae* probably indicates that the four mosaic cubes were cut from one and the same cake, and/or that the *tessera* glass was better homogenised, compared to the other groups of finds (Fig. 15). The clusters of the *sectilia* sheets and the window panes demonstrate a more dispersed pattern, while the two glassworking waste pieces seem even more heterogeneous, as discussed above.

The significance of the single batches identified in the *Romuliana* blue set has two aspects. Firstly, and not surprisingly, pieces originating from a single production episode likely formed a single delivery to a particular area of the site and, therefore, they come from one and the same findspot – the majority of the *tesserae* were found at the "*villa*" *extra muros*; most of the *sectilia* sheets come from palace D1 (Table 2, Fig. 2). Never the

[64] Cf. Paynter et al. 2015, 75.

[65] Freestone, Price, Cartwright 2009.

less, *tessera* FR 13 and *sectilia* piece FR 12 from these two batches were found at a different findspot (the portico inside the northern rampart wall – Fig. 2). That would indicate that either these deliveries secured architectural glass for more than just a single building construction in *Romuliana*, or that the blue pieces were subject to secondary redistribution within the site, possibly chronologically later than the original delivery.

The second aspect of single batch samples from the present dataset concerns the production waste pieces. Two of them (FR 7 and FR 9 – a fragment of a misshaped vessel and a small unworked chunk) most probably come from a single glass melting episode, but the remaining two pieces are compositionally slightly different, which could tentatively suggest that blue glass was produced at *Romuliana* in more than just a single isolated batch.

Conclusion

The presented data and interpretations of a set of 18 blue glass pieces from the late Roman site of *Felix Romuliana* are the first attempts to explore the chemical composition of glass finds of the first half of the 4th century from this important imperial residence. The results demonstrate that glasses originating from the Syro-Palestinian region coloured blue by adding various amounts of cobalt-bearing colourant, as well as antimony, commonly used as an opacifier, and supplied to the Central Balkans, mostly for the purposes of luxurious mosaic decorations. The single vessel fragment has a different base glass origin (Egypt?), as well as a different makeup of its added ingredients. Furthermore, the analysed glassworking waste indicates that the local craftsmen were likely using available blue architectural glass pieces as a colouring material in their workshop.

Acknowledgments

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ПЛАВИ ТОНОВИ РОМУЛИЈАНЕ

Кључне речи. – Касноримски период, централни Балкан, кобалтно плаво стакло, секундарна производња стакла, плочице *sectilia* стакла, коцкице мозаика, стаклени отпад, хемијски састав стакла, *EPMA*

У раду је приказано 18 стаклених фрагмената и коцкица мозаика са неколико различитих локација унутар и изван утврђене касноримске царске резиденције Феликс Ромулијане (Гамзиград, Србија). Налази су опредељени у 4. век, са прецизнијим датовањем за одређене комаде. Већину чине коцкице мозаика (6 ком.), комади стаклених плочица (*sectilia sheets* – 5 фрагмената) коришћени у архитектонској декорацији, затим отпаци настали током секундарне стаклене производње (4 ком.), два фрагмента танког равног стакла, које је, са резервом, идентификовано као прозорско, и један уломак стаклене посуде неодређеног типа (Сл. 3 и 4). Фрагменти су нађени унутар и изван „виле" *extra muros*, која се налази северно од утврђене палате (1), у портику, уз северни бедем царског комплекса (2), у палати Д1 (3), и у кули 1 – јужној кули источне капије старије фортификације (4) (Сл. 2; Табела 1). Пар примерака стакленог отпада, као и два фрагмента „прозорског" стакла нађена су у стакларској пећи у Просторији 1 „виле" *extra muros*. Критеријуми за издвајање ове групе налаза представљале су њихове визуелне карактеристике – кобалтноплава боја, пре свега, и њихови морфолошко-типолошки атрибути. Примерци су хемијски испитани помоћу микроанализатора електронске сонде (*EPMA*) у Волфсоновим археолошким научним лабораторијама Универзитетског колеџа у Лондону.

Као што је очекивано, сви анализирани узорци уклапају се у оквирне вредности типичног састава римског стакла на бази соде, кречњака и силицијум-диоксида (Табела 2). Што се тиче основне композиције стакла, ова група састоји се од једне релативно уједначене скупине узорака, од које одступају само два налаза – фрагмент стаклене посуде и једна коцкица мозаика (ФР 10 и ФР 14; Сл. 8). У саставу 17 од 18 узорака, однос садржаја алуминијума и силицијум-диоксида, који је индикативан за утврђивање изворишта песка коришћеног у примарној производњи стакла, заједно са релативно ниским вредностима за соду и високим вредностима за кречњак, одговара карактеристикама примарних производних група сиријско-палестинског порекла, изузев за фрагмент стаклене посуде (ФР 10) који би се могао повезати са египатском примарном производњом. Сирово стакло које потиче из сиријско-палестинске области бојено је плаво додавањем различитих количина кобалта, који је коришћен као колорант, и антимона, који је обично служио да стакло учини непрозирним. Такво стакло је достављано на централни Балкан најчешће за потребе луксузних мозаичких декорација. Присуство плаво обојеног стакленог отпада (ФР 7–9 и ФР 11) у контексту стакларске пећи у „вили" *extra muros* представља јасан доказ да плаво стакло није достављано у Ромулијану само као готов производ, већ су локални мајстори (занатлије) такође обрађивали овај материјал за потребе локалне потрошње током периода активног функционисања овог луксузног комплекса. Приликом поређења нивоа садржаја оксида који се односе на боју и непрозирност стакла у узорцима из Ромулијане, констатују се њихове најниже вредности у саставу стаклених отпадака (Сл. 12 и 13). Паралелно са овим, трендови корелације ових оксида показују да су локални мајстори вероватно користили спремно и доступно интензивно бојено архитектонско стакло као колорант у својим плавим смесама, чиме су разблаживали концентрацију кобалта и антимона, а да су и даље могли одржати жељени визуелни изглед своје продукције.

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ANIMAL REMAINS FROM THE LATE MEDIEVAL KITCHEN OF THE ESZTERGOM ARCHDIOCESE, HUNGARY – THE BENEFITS OF SCREENING

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Abstract. – Medieval animal remains from the Esztergom archbishopric (Hungary) were screened using 5 mm and 2 mm mesh sizes, aimed at the high-resolution study of fish and bird remains and helping to achieve better comparisons with documentary sources. This is the first medieval assemblage in Hungary recovered using screening.

A total of 7,294 animal remains are studied here, representing the 14th and 15th century. The screening resulted in quantities of fish and bird bones. The large find numbers also multiplied the taxonomic diversity. In addition to the remains of new, small-bodied species, bones of young fish showed a diachronic increase in the contribution of carp and young pike to the diet. This seems consonant with the expansion of medieval fish farming. Remains of juvenile birds could also be identified. Some worked bones recovered by screening indicate the manufacturing or reparation of crossbows at the site.

Thanks to these details, our material stands out among other contemporaneous animal bone assemblages from the Carpathian Basin. Comparisons between sites, however, must be done with caution, as our data are qualitatively different from others. Large bones of livestock and the near absence of those from large game may be interpreted in the light of other hand-collected samples, while fish and bird remains and even the abundance of brown hare need to be seen in part as a product of high-resolution recovery.

The newly discovered spectrum of animal remains could be profitably interpreted in the light of late 15th century accounting books of the archbishop. Although these documentary sources slightly post-date our material, they shed light on the complexities of meat procurement between possibly local production and trade.

Key words. – Late Middle Ages, meat provisioning, ecclesiastic centres, pond fishing, fowling, documentary sources

Hungarian archaeology has developed a strong specialisation by chronological periods. Among these, prehistory has been most dependent on the use of scientific methodology – including the analysis of animal remains – since the mid-19th century.[1] Medieval archaeology, on the other hand, rooted in a strong tradition of art history and architecture, has only relatively recently discovered the value of animal studies; moreover, screening was practically unknown in the recovery of medieval finds.

The animal remains under discussion here originate from a high-status context and represent the first ever medieval faunal assemblage recovered using systematic screening, which helps re-assess the stereotypical roles of birds and fish in medieval cuisine.

The aim of this article is to evaluate the importance of fish and birds, especially domestic hens, pigeons and thrushes, in addition to that of ordinary livestock, in the diet. Fine recovery and its beneficial impact on reconstructing late medieval meat consumption could be appraised in the light of the kitchen's architecture[2] as well

[1] Bartosiewicz et al. 2011, 280.
[2] Benkő et al. 2021.
[3] Kuffart 2018.

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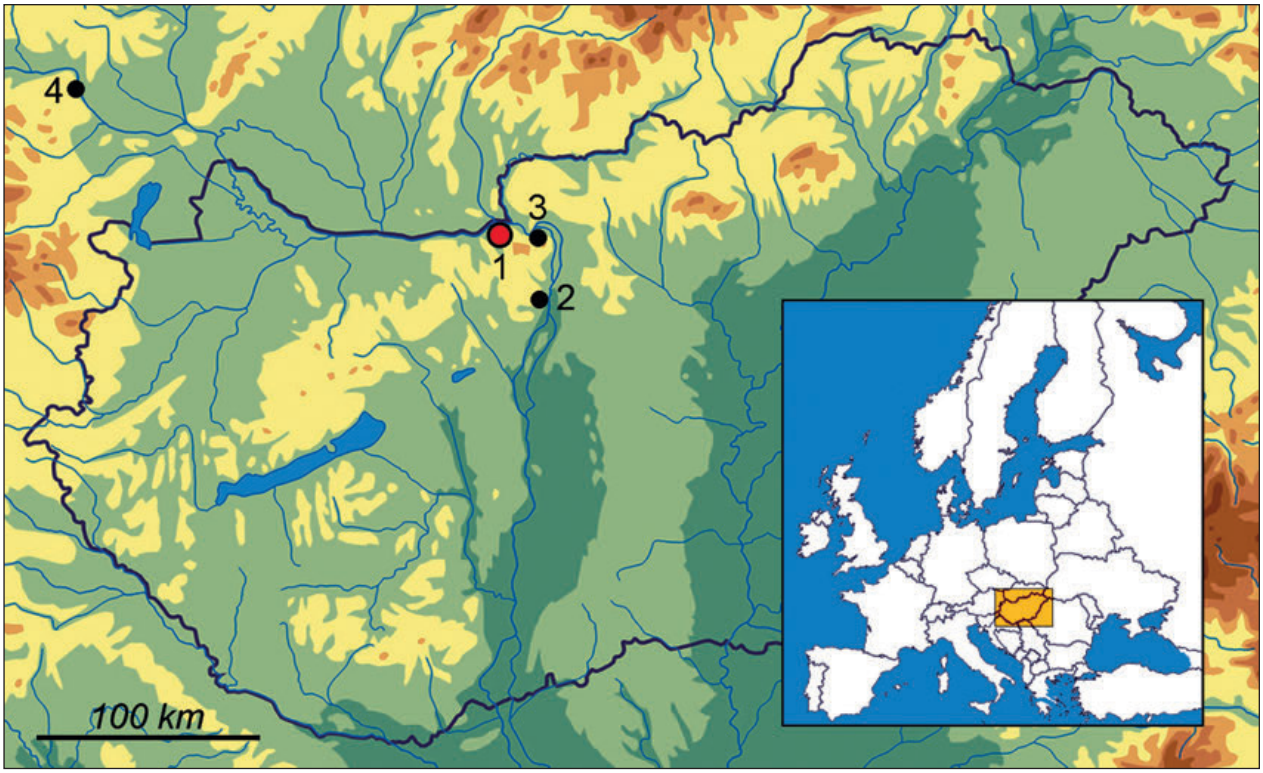

Figure 1. The location of Esztergom in present-day Hungary (insert).
Legend: 1) Esztergom; 2) Buda; 3) Visegrád; 4) Vienna

Слика 1. Положај Естергома у данашњој Мађарској (исечак).
Легенда: 1) Естергом; 2) Буда; 3) Вишеград; 4) Беч

as the contemporaneous documentary record on the purchase of animals for the archbishop's kitchen.[3] The detailed information obtained through screening also offered possible evidence of undocumented phenomena such as hawking.[4]

Geography, chronology, cultural context

The site of Esztergom-Várhegy-Kőbánya (Esztergom- Castle Hill-Stone quarry) was excavated outside the wall of Esztergom Castle. Esztergom was one of the most prominent political and cultural centres in medieval Hungary. The town is located on the right bank of the Danube, upstream from the Danube Bend gorge (Fig. 1). Its castle was built on an elevation of some 50 m above the floodplain (latitude: 47°47′53.88″ N; longitude: 18°44′14.28″ E).

The finds were brought to light in 2014–2016 during excavations by the Department of Archaeology of the Pázmány Péter Catholic University (Hungary) of a 5 m by 2 m trench opened at the southern tip of the castle, perpendicular to the medieval wall facing southwest.[5] Animal remains were found in the pits of an abandoned stone quarry in which refuse from the archbishop's kitchen had accumulated to a thickness of several metres. The animal remains could be divided into five sets of layers by the vertical stratigraphy in a quasi-chronological sequence[6], of which Sets II and III were undisturbed.

Of the five radiocarbon measurements taken[7], two were singled out to illustrate the most marked chronological difference between the studied undisturbed sets of strata (Fig. 2). Set II, the uppermost section, represented the smaller portion of the material. A domestic hen[8] tibiotarsus (sample E1) yielded a 1405–1430 cal

[4] Serjeantson 2006.

[5] Benkő et al. 2021, 3, Fig. 1.

[6] Re-deposition due to the differential density of layers needs to be reckoned with even if no disturbance is visible.

[7] Benkő et al. 2021, 5.

[8] The short lifespan of hens helps narrow the ranges of dating.

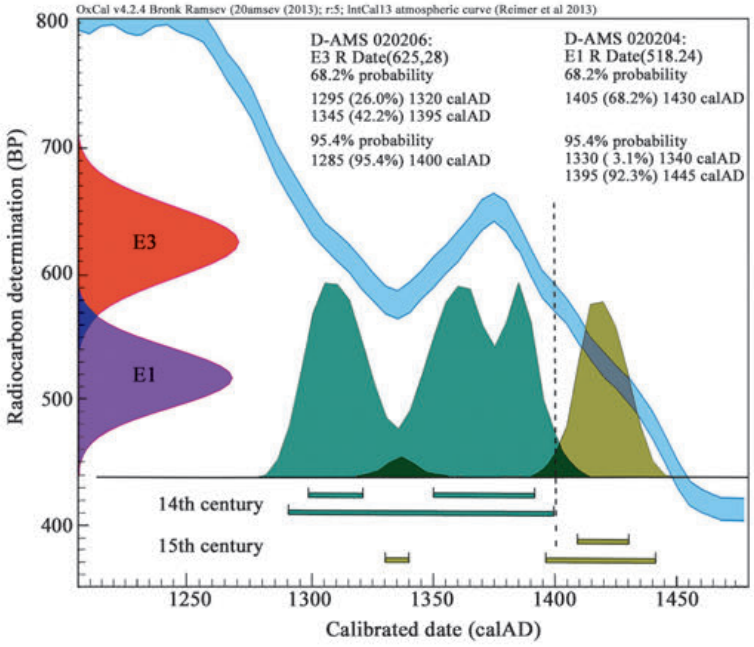

Figure 2.
Calibrated radiocarbon dates illustrating the periodisation of the site

Слика 2.
Калибрисани радиокарбонски датуми који показују датовање локалитета

AD (1σ; 1330–1445 cal AD, 2σ) calibrated date. The 1395–1445 interval was characterised by a 92.3% probability (Fig. 2, D-AMS 020204). It will, thus, be referred to as the 15th century assemblage.

Set III formed the bulk of the deposit in the middle of the stratigraphy for which another hen tibiotarsus (sample E3) provided a date of 1295–1395 cal AD (1σ; 1285–1400 cal AD, 2σ), marking the 14th century. This set contained twice as many remains as Set II in all three studied vertebrate classes.

In addition to comparing our material to those of relevant medieval sites, kitchen archives kept among the 33 accounting books of Ippolito d'Este, archbishop between 1486–1497, complement our results, even if these 1489 and 1492–1494 records slightly post-date the zoological material.[9] However, they contain purchases for the kitchen, and rarely refer to upper class gifts or tithe paid by serfs.[10] In addition, these documents may show social differentiation in food provisioning, invisible in the mixed archaeological deposit.[11]

Recovery by screening

Methods of fine recovery were pioneered in prehistoric archaeology, first related to the interest in ancient environments.[12] Remains of small vertebrates (*poikilotherm* animals as well as small birds and mammals) cannot be reliably retrieved by hand. An experiment on fish remains showed a 58-fold increase in the number of fish remains when screening at 1/4″ (6.35 mm, n=224) was enhanced using a 1/8″ mesh (3.175 mm, n=12,893).[13] Excavations at the Augustine abbey at Sankt Pölten showed the difference in efficiency between recovering 15th century fish remains by hand and screening. While 85–90% of small cyprinid fish were recovered from screened samples, only 35–40% of even large carp and pike remains appeared in the hand-collected assemblage.[14] In a different setting, screening at 3 mm was also instrumental in the recovery of bird remains.[15]

Although screening experiments began at two medieval sites in Hungary during the 1980s,[16] the method has not made it to the mainstream of archaeology. It was the international excavation of prehistoric sites, where, fifteen years later, screening was first included in the protocol.[17] Thanks to the archaeologists' interest in medieval diets,[18] dirt from the Esztergom deposits was screened using 5 mm and 2 mm mesh sizes.[19]

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[9] Nyáry 1870; Kuffart 2018.
[10] Kuffart 2018, 54–55.
[11] Benkő et al. 2021, 9.
[12] Barker 1975; Payne 1972; Clason, Prummel 1977.
[13] Peres 2001, Table 4.1.
[14] Galik et al. 2011, 102.
[15] Roberts et al. 2020, 73.
[16] Bartosiewicz 1988; Takács 1988.
[17] Pike-Tay et al. 2004; Kovács et al. 2010; Bartosiewicz 2020.
[18] Benkő et al. 2021.
[19] Eszter L. Kis Szabó and Róbert Lóki, personal communication.

Best represented fish taxa	14th century	15th century
sterlet	43	13
large acipenserids	35	16
pike	128	45
pikeperch	12	5
carp	120	95
small cyprinids	277	161
Fish: Chi^2=18.568, degrees of freedom=5, **P<0.002*** **		
Best represented bird taxa		
domestic hen	1368	612
goose (wild or domestic)	67	33
duck (wild or domestic)	10	7
wild birds	212	98
Bird: Chi^2=1.014, degrees of freedom=3, P<0.791		
Best represented mammalian taxa		
cattle	775	443
caprine	634	325
pig	612	282
brown hare	70	41
Mammal: Chi^2=5.748, degrees of freedom=3, P<0.125		

Table 1. The distribution of best represented animals (NISP) by vertebrate classes between the two main chronological sets

Табела 1. Дистрибуција најзаступљенијих животиња (БОП) по класама кичмењака у оквиру две хронолошке групе

Screening is significant in appraising diversity in archaeological samples in general, and of fish and bird assemblages in particular.[20] A previous study of sieved prehistoric fish remains from the Danube has shown a close (r=0.792) exponential relationship between the number of identifiable specimens (NISP henceforth) and the number of fish taxa represented in the assemblage.[21] The 0.302 exponent, indicative of a degressive trend in the increase of taxa as a function of NISP, seems comparable with the value obtained for micromammals.[22] In comparison with the frequency of small birds in hand-collected medieval assemblages from Hungary, screening carried out in Esztergom clearly led to an increase of both NISP and the number of taxa.[23]

Aside from the positive effect of sieving on appraising taxonomic diversity, the relationship between NISP and the number of taxa is influenced by the skeletal morphology and actual body size that vary both between and within vertebrate classes.[24] Moreover, modes of deposition, as well as a host of taphonomic factors, determine rates of identification.[25]

Most of the results are presented in terms of NISP, a primary observational unit. In the case of bird remains, the minimum number of individuals (MNI henceforth) was calculated and the age of birds, such as 'neonate', 'juvenile', 'subadult', and 'adult'[26], was identified by epiphyseal fusion.

Results

A total of 7,294 animal remains (including non-identifiable specimens) were recovered from the studied two periods (1,168 fish, 2,600 birds, 3,526 mammals). First, the differences between the sets of radiocarbon dated strata (III: 14th century, II: 15th century) were tested. Meat purpose animals represented by over five identifiable bones could be included in the Chi^2 tests to appraise the chronological heterogeneity of data (Table 1). When pooled fish, avian, and mammalian bones were compared between sets II and III, the resulting

[20] Serjeantson 2001; Zohar, Belmaker 2005; Baker 2010.
[21] Bartosiewicz 2020a, 100–101.
[22] Bartosiewicz et al. 2013, 857, Table 1.
[23] Gál 2020a.
[24] Bartosiewicz, Gál 2007.
[25] Goffette 2020, 123.
[26] Serjeantson 2009, 46, Table 3.6.

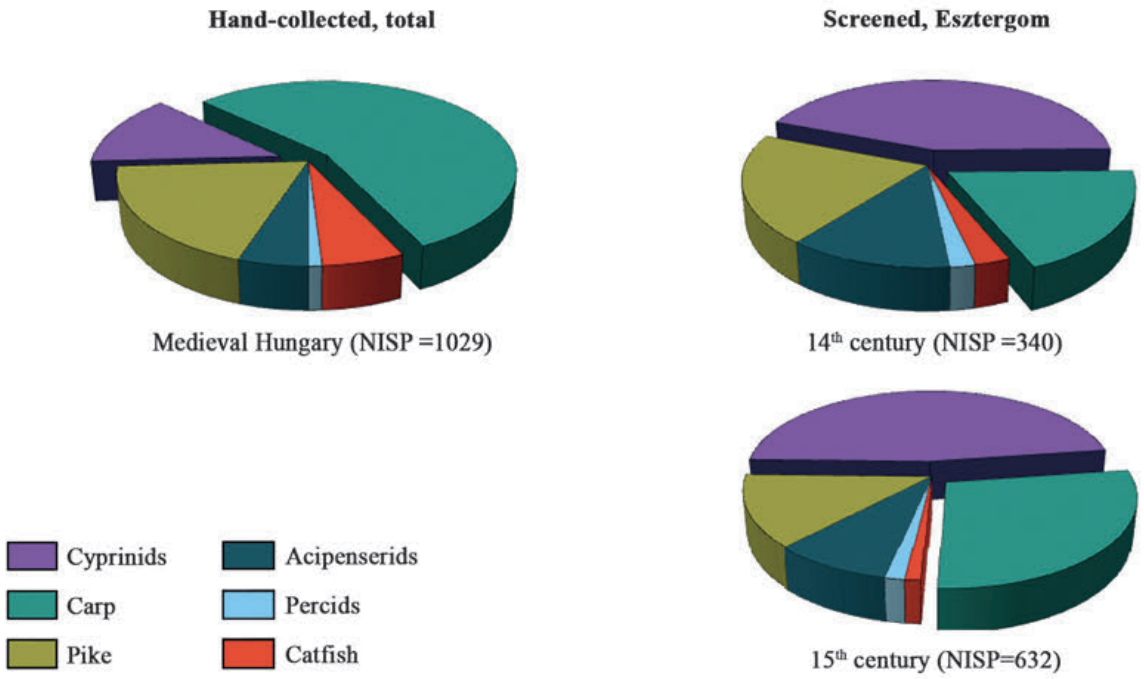

Figure 3. The proportion between fish taxa in 23 hand-collected medieval assemblages (left) and the two sets of strata at Esztergom (right)

Слика 3. Разлике у уделу различиτих врсτа риба између 23 средњовековне фаунисτичке збирке које су ручно сакуπљене (лево) и две збирке налаза из Есτерīома (десно)

Chi^2=7.492 value (degrees of freedom=2) was statistically significant at a 5% probability (P=0.024), the taxonomic composition of the 14th and 15th century material was different.

The source of chronological difference was studied in greater detail. The three vertebrate classes differed significantly between the two centuries only in the taxonomic composition of fish bones (Table 1). Therefore, although the chronological sub-division will be retained in this presentation, the differences will be detailed only in the case of fish, characteristic of diachronic change.

Fish remains

Figure 3 (left side) shows the aggregated taxonomic composition of 23 hand-collected fish bone assemblages from medieval sites in Hungary. They are dominated by the "usual" sizeable taxa: sturgeon, catfish, carp and pike, also known in such assemblages elsewhere.[27] Bones representing smaller species were relatively rarely found. The single screened sample from Esztergom contained nearly as many identifiable remains as all medieval sites during previous research[28] and showed far greater diversity (Table 2). The percent of bones from sturgeon and catfish understandably decreased, while the relative frequency of small cyprinids and sterlet (the smallest acipenserid) increased (Fig. 3, right). Thus, comparisons with previously excavated medieval fish bones need to be cautious: the increased taxonomic richness of the Esztergom assemblage in itself is partly a product of precise recovery rather than a change in fishing strategy.

Despite unequal sample sizes, a statistically significant difference was found between the 14th and 15th century fish bone assemblages from Esztergom (c.f. Table 1).[29] This deserves particular attention as it is the only zoological feature in which the two chronological

[27] Živaljević et al. 2019, 187.

[28] Not including remains only denoted as "fish" without further identification.

[29] Great sturgeon and catfish were not included in the calculation as they were each represented by fewer than five bones in the chronological sub-assemblages.

Species	14th century		15th century		Total
	NISP	%	NISP	%	NISP
Sturgeon (*Huso huso*)			1	*0.3*	1
Sterlet (*Acipenser ruthenus*)	43	*6.8*	13	*3.8*	56
Large acipenserids (Acipenseridae)	35	*5.5*	15	*4.4*	50
Pike (*Esox lucius*)	128	*20.2*	45	*13.2*	173
Common carp (*Cyprinus carpio*)	120	*18.9*	95	*27.9*	215
Bream (*Abramis brama*)	4	*0.6*	9	*2.6*	13
Barbel (*Barbus barbus*)	4	*0.6*	2	*0.6*	6
Crucian carp (*Carassius carassius*)	6	*0.9*	1	*0.3*	7
Ide (*Leuciscus idus*)	8	*1.3*	2	*0.6*	10
Common roach (*Rutilus rutilus*)	4	*0.6*	3	*0.9*	7
Tench (*Tinca tinca*)	2	*0.3*			2
Vimba bream (*Vimba vimba*)	3	*0.5*			3
Small cyprinids (Cyprinidae)	246	*38.8*	144	*42.4*	390
Wels catfish (*Silurus glanis*)	17	*2.7*	4	*1.2*	21
Perch (*Perca fluviatilis*)	2	*0.3*	1	*0.3*	3
Pikeperch (*Stizostedion lucioperca*)	12	*1.9*	5	*1.5*	17
Non-identifiable (Pisces)	134		60		194
Total	**768**		**400**		**1168**

Table 2. Fish remains (percentages show a significant chronological difference)

Табела 2. Остаци риба (разлике у процентуалном учешћу између периода су значајне)

sets differ at the site (Table 2 and Fig. 3). Descriptions of the species are given in a detailed study,[30] here only some special aspects of the material will be summarised as highlighted by screening. The main difference between the two chronological samples is that the contribution of cyprinids (including carp) rose from two-thirds to three-quarters of all fish remains by the 15th century. The ratio of securely identifiable carp remains grew one-and-a-half-fold, which is particularly striking.[31]

The overwhelming majority of fish species identified at Esztergom are *eurytopic*: they thrive in a variety of freshwater environments, including both the Danube and fish ponds. The taxonomic diversity of the 15th century sample was particularly high: 15 fish taxa could be identified in one-third of the entire assemblage. Thanks to the use of screening, the increased number of small cyprinid bones included those of barbel and vimba bream, two *rheophilic* species, which prefer fast flowing waters with high concentrations of dissolved oxygen. They can be caught in streams of the nearby Visegrád mountains today,[32] and represent a potentially diverse source of fish brought to the archbishop's kitchen.

In addition to the recovery of small fish illustrating resource diversity, small individuals of large species were found in quantities, with some measurable bones allowing the calculation of total lengths.[33] Eight size estimates for carp yielded a mean value of only 39.8 cm (median=42.5 cm, standard deviation=8.5 cm). The mean total length of ten small pike was 26.9 cm (median= 25.6 cm, standard deviation=8.7 cm).[34] Catfish, often dominant in hand-collected assemblages, are also represented by small individuals. The total lengths calculated from two intact cleithra were 34.1 and 39.9 cm, and some non-measurable fragments also originate from small carp. Such small bones are hardly ever seen in non-screened samples.

Counting skeletal elements by body region (neurocranium, viscerocranium, zonoskeleton, axial skeleton, lepidotrichia and dermal scutes) showed no significant chronological differences (Chi^2=3.848, degrees of freedom=5, P=0.572): bones of the head region and the trunk were represented in similar ways through time.

[30] Bartosiewicz 2021.

[31] The minor "increase" in sturgeon is not statistically significant.

[32] Weiperth et al. 2015, 52.

[33] Cyprinids: *Libois*, *Hallet-Libois 1988;* catfish: Takács 1987; *pike:* Bartosiewicz 1990.

[34] A single outlier, a 83.3 cm long individual, was not included in this calculation.

Figure 4.
Humerus of domestic pigeon (middle); coracoideum of pheasant (left); coracoideum of a juvenile partridge (right)

Слика 4.
Хумерус голуба (средина); коракоид фазана (лево); коракоид младе јаребице (десно)

Bird remains

Firstly, the outstanding contribution of the domestic hen must be mentioned. Since some of the long bones of hens contained medullary bone, it is evident that breeding females were slaughtered.[35] Based on this osteological evidence one may assume that the kitchen of the archdiocese, a consumption rather than production unit, also purchased eggs along with poultry.[36] In addition to the domestic hen, the domestic pigeon was represented by 22 remains. The possibility of keeping pigeons is supported by the skeletal elements of two juveniles in addition to the remains of at least three adult pigeons (Fig. 4, left side).

The bones of geese and ducks that fall within the size range of the wild greylag goose (*Anser anser*) and the mallard (*Anas platyrhynchos*) (NISP=117) pose problems of interpretation. Morphometric differences, blurred by sexual dimorphism, are insufficient for distinguishing between the wild and domestic forms of these birds. Not even aDNA analyses could reliably aid distinction, given potential interbreeding between the two forms. A possible indication of their domestic status is that these bones are more numerous than those of wild fowl (with the exception of partridge). Moreover, some remains from juveniles are also more likely to originate from domestic goslings. However, one cannot rule out that these remains represent the wild forms: following thrushes, bones of wild ducks are the most numerous game birds in the assemblage, originating from four safely identifiable species (Table 3).

The remains of wild birds come from at least 20 different species, a diversity possibly suggesting a high-status diet.[37] They range from small birds (e.g. quail, starling and thrushes) to medium-size and large game birds such as wild ducks, pheasant (Fig. 4, middle), little bustard, and possibly graylag goose. Pheasant, a game bird whose first osteological evidence in medieval Hungary comes from the 13th century layers of the Dominican monastery at Buda,[38] is represented in this assemblage only by nine remains.

The variety of thrushes[39] in our material included five species, of which three (blackbird, redwing and song thrush) have been identified for the first time in medieval Hungary. The consumption of two large commensal perching birds, jay and rook cannot be ruled out.[40] Nevertheless, the small number of remains from

[35] Gál 2021a, Fig. 7.

[36] The consumption of old hens was also observed in the 14th to mid-15th century bird material of the Studenica monastery in Serbia: Marković et al. 2016.

[37] Serjeantson 2006.

[38] Matolcsi 1981, 241.

[39] Jánossy 1983; Wójcik 2002.

[40] Bartosiewicz 2004, 38.

individual species, except for partridge, point to only opportunistic fowling.[41] In addition to these species widely considered "edible", bones of two diurnal raptors, goshawk and sparrow hawk, were also recovered (Table 3). Both are common in the present-day avifauna of Hungary[42] and can be used in hawking.[43]

Mammalian remains

Ordinary livestock are well represented in the kitchen refuse from the archdiocese. While cattle remains were identified most frequently, those of caprines and pig were found in almost comparable numbers (Table 4). This means that beef (represented by far larger bones) indubitably played a leading role in meat provisioning, although mutton and pork were also important. Unsurprisingly, horse bones were missing from the food refuse. Among meat-purpose domesticates, ageing was rarely possible due to the high degree of butchering and fragmentation. Many ageable remains, however, originated from young individuals.

In terms of the meat quality categories defined by Uerpmann[44], bones of B (in bovids) and C (in pig) quality cuts dominated among the remains of livestock.[45] In the case of cattle, bones representing high quality meat (especially vertebrae[46]), as well as elements of the head and dry limbs seem to be underrepresented. Additionally, ribs associated with medium quality meat are conspicuously numerous. Even if pot-

Species	14th century	15th century	Total	Total %
Domestic hen (*Gallus domesticus*)	1368	612	1980	*81.5*
Domestic pigeon (*Columba domestica*)	17	5	22	*0.9*
Domestic fowl total	**1385**	**617**	**2002**	***82.4***
Glossy ibis (*Plegadis falcinellus*)	0	1	1	*0.0*
Eurasian teal (*Anas crecca*)	0	1	1	*0.0*
Gadwall (*A. strepera*)	0	2	2	*0.1*
Garganey (*A. querquedula*)	0	1	1	*0.0*
Tufted duck (*Aythya fuligula*)	1	0	1	*0.0*
Goshawk (*Accipiter gentilis*)	0	1	1	*0.0*
Sparrow hawk (*A. nisus*)	0	1	1	*0.0*
Partridge (*Perdix perdix)*	170	69	239	*9.8*
Quail (*Coturnix coturnix*)	1	3	4	*0.2*
Pheasant (*Phasianus colchicus*)	6	3	9	*0.4*
Little bustard (*Tetrax tetrax*)	1	0	1	*0.0*
Fieldfare (*Turdus pilaris*)	6	3	9	*0.4*
Blackbird (*T. merula*)	3	0	3	*0.1*
Redwing (*T. iliacus*)	2	0	2	*0.1*
Song thrush (*T. philomelos*)	4	4	8	*0.3*
Mistle thrush (*T. viscivorus*)	8	2	10	*0.4*
Starling (*Sturnus vulgaris*)	1	0	1	*0.0*
Jay (*Garrulus glandarius*)	1	0	1	*0.0*
Spotted nutcracker (*Nucifraga caryocatactes*)	1	0	1	*0.0*
Rook (*Corvus frugilegus*)	0	3	3	*0.1*
Perching bird (Passeriformes sp. indet.)	7	4	11	*0.5*
Wild fowl total	**212**	**98**	**310**	***12.8***
Domestic goose/Greylag goose (*Anser* sp.)	67	33	100	*4.1*
Domestic duck/Mallard (*Anas* sp.)	10	7	17	*0.7*
Galliform (Galliformes sp. indet.)	29	17	46	
Bird (Aves sp. indet)	85	40	125	
Total bird remains	**1788**	**812**	**2600**	

Table 3. Bird remains (NISP, percentages showed no significant chronological difference)

Табела 3. Остаци птица (БОП, разлике у процентуалном учешћу између периода нису значајне)

Species	14th century	15th century	Total	Total %
Cattle (*Bos taurus*)	775	443	1218	*37.1*
Sheep (*Ovis aries*)	43	15	58	*1.8*
Sheep or goat (Caprinae)	591	310	901	*27.4*
Pig (*Sus domesticus*)	612	282	894	*27.2*
Dog (*Canis familiaris*)	3	5	8	*0.2*
Cat (*Felis catus*)	6		6	*0.2*
Domestic mammal total	**2030**	**1055**	**3085**	***93.9***
Red deer (*Cervus elaphus*)		2	2	*0.1*
Roe deer (*Capreolus capreolus*)	2		2	*0.1*
Brown bear (*Ursus arctos*)		1	1	*0.0*
Hare (*Lepus europaeus*)	70	41	111	*3.4*
Wild mammal total	**72**	**44**	**116**	***3.5***
Rodent (cf. Muridae)	60	24	84	***2.6***
Red deer antler	70	32	102	
Roe deer antler	1	1	2	
Large ruminant	14	2	16	
Small ruminant	81	18	99	
Small mammal	5	5	10	
Mammal	10	2	12	
Total mammalian remains	**2343**	**1183**	**3526**	

Table 4. Mammalian remains (NISP, percentages showed no significant chronological difference)

Табела 4. Остаци сисара (БОП, разлике у процентуалном учешћу између периода нису значајне)

sizing may have increased the number of rib fragments, their dominance among cattle remains is unquestionable. The side of the animals represented by ribs was also frequently consumed among small ungulates. However, in the case of sheep, goat and pig, the feet of the animals were also present. Head elements of pig were found in particularly large numbers, which seems to point beyond the robust structure of these bones (Table 5). The tender head meat of pig seems to have been a popular delicacy, among others, at St Albans Abbey in England during the 11th–12th century.[47]

Of all game animals, the remains of brown hare were found most commonly. Fragmented hare bones are not easily distinguishable from those of rabbit (*Oryctolagus cuniculus*). However, the latter was not native to the Carpathian Basin and the earliest osteological evidence of its probable domestic form is available from the 16th century.[48] It seems that hare (similarly to fowl) were taken to the kitchen complete. Thanks to screening, small bones of their feet, including phalanges, were found, showing that these non-edible limb segments had been retained, likely for transport or storage by hanging (Table 5).

The remains of large game, potential indicators of a high-status diet, are almost entirely missing. Skeletal remains of cervids[49] occurred only sporadically, and no wild pig could be identified on the basis of size. Brown bear, usually found at prehistoric sites in Hungary,[50] is rare in ordinary medieval assemblages. It contributed a proximal phalanx to the material (Fig. 5).

41 Gál 2020a.
42 Hume 2009.
43 Duhay 2000.
44 Uerpmann 1973.
45 Gál 2021a, Table 3.
46 Uerpmann 1973.
47 Serjeantson et al. 2018, 129–130, Table 9.
48 Bökönyi 1974, 429.
49 Antler fragments need to be counted separately, as unrelated to diet.
50 Bárány 2011–2013, 26.

Skeletal element	Meat value	Cattle	Caprine	Pig	Hare	Domestic hen	Partridge
cornus	C		1				
neurocranium	B	10	5	26		6	
viscerocranium	C	5	4	24		7	
mandibula	B	16	12	28	12	9	
linguale	B	1	4				
dentes	C	15	13	31	7		
atlas	A			7			
axis	A		2	1			
Head		**47**	**41**	**117**	**19**	**22**	**0**
vert. cervicalis	A	33	16	14	3	69	2
vert. thoracalis	A	21	78	40	4	1	
vert. lumbaris	A	61	41	22	2	6	
os sacrum	A	1	3	1		3	
clavicula	-					53	17
coracoid	-					158	27
sternum	B	7				90	6
costa	B	716	299	448	22	140	3
Trunk		**839**	**437**	**525**	**31**	**520**	**55**
scapula	A	58	59	16	5	130	36
humerus	A	14	55	16	6	143	25
radius	B	23	57	11	4	188	24
ulna	B	33	29	14	11	143	23
pelvis	A	31	23	22	6	92	4
femur	A	17	28	17	7	105	15
patella	B		1	2			
tibia	B	21	75	12	10	190	26
fibula	B			18		27	
Meaty limb		**197**	**327**	**128**	**49**	**1018**	**153**
carpalia	C	10	2	7			
metacarpalia	C	11	19	23	1	41	10
calcaneus	C	6	8	8			
astragalus	C	3	11	4	1		
centrotarsale	C		4				
metatarsalia	C	13	10	26	6	138	14
Dry limb		**43**	**54**	**68**	**8**	**179**	**24**
vert. caudalis	C	4	4	4	1		
ph. proximalis	C	8	17	16	2	125	4
ph. media	C	12	19	19		115	3
ph. distalis	C	12	5	13		1	
Terminal bones		**36**	**45**	**52**	**3**	**241**	**9**
Long bone	?	45	54	3	1		
Flat bone	?	11	1	1			
Total		**1218**	**959**	**894**	**111**	**1980**	**239**

Table 5. The anatomical distribution of remains among the best represented mammalian and avian species (NISP) after Kretzoi (1967). Meat value categories for mammals after Uerpmann (1973)

Табела 5. Анатомска дистрибуција остатака међу најзаступљенијим врстама сисара и птица (БОП) по Kretzoi (1967). Вредности категорија меса по Uerpmann (1973)

Figure 5.
Proximal phalanx of brown bear next to a modern reference specimen (right)

Слика 5.
Проксимална фаланга мрког медведа поред референтног савременог примерка (десно)

Aside from the animals of potential culinary importance, screening was instrumental in recovering a few small bones of dogs and cats and almost a hundred bones of mice and rats. While these commensal animals evidently played no role in the medieval diet and, thus, will not be additionally discussed here, they further illustrate medieval life.

Discussion

Fish

Medieval finds of large sturgeons are known from ten secular and ecclesiastic centres in Hungary and were also reported in detail at the Studenica monastery in Serbia.[51] The finds from the archiepiscopal kitchen of Esztergom fit within this picture. All finds from these ecclesiastic settlements date from the 14th–15th centuries (rare finds from secular settlements have a broader temporal distribution).[52]

In the early 1410s, the archbishop of Esztergom entertained the bishop of Passau visiting a fishing site, where fishermen landed ten sturgeons within one and a half hours.[53] According to sources discussing the economy of the Esztergom archdiocese, villages some 60 km to its north, along the River Vah in present-day Slovakia, were well-known for sturgeon fishing.[54] According to the documents of the butchers' guild of Buda, their catch was even brought to the capital at the turn of the 15th–16th century.[55] However, the bones of large acipenserids are rare in the Esztergom assemblage. The archbishop's kitchen seldom purchased cuts of these valuable fish.[56]

The significance of Danube fishing upstream from Esztergom is reflected in 1206 in a dispute between settlements along the Vah regarding the sturgeon catch and the use of fish ponds.[57] This latter point in legal sources has directed attention to the possible consumption of farmed fish at the archdiocese. The most striking trend in the fish bone material from the archbishop's kitchen is the statistically significant increase in cyprinid remains. In the absence of known environmental changes at the time, the marked shift in fish consumption may be explained by subtle trends in provisioning: fish ponds were established across Central Europe by the 13th century[58] and in the 13th to 15th century period all major Orthodox monasteries in Serbia also cultivated their own fish ponds.[59] During the 11th–13th century,

[51] Živaljević et al. 2019, 188.
[52] Bartosiewicz 2018, 122, Fig. 3.
[53] Zolnay 1977, 96–121.
[54] Nyáry 1870, 362.
[55] Kuffart 2018, 366; Kenyeres et al. 2008.
[56] Kuffart 2018, 280–281.
[57] Novák 2005, 48.
[58] Hoffmann 2002.
[59] Živaljević et al. 2019, 182.

there may already have been three to four thousand fish ponds in Hungary,[60] thus the trend seen in the Esztergom material may be explained by their steadily increasing impact in fish provisioning.

The best seasons for fishing are spring and summer: the demand for the forty days of Lent and the June fast associated with St. Peter and St. Paul could be easily met. However, catering for the winter fasting days from natural waters may sometimes have been difficult.[61]

Although undocumented in Esztergom, in nearby Bohemia, 87 ponds were registered between 1347 and 1418. By 1450–1550, extensive fish farms transformed the Czech landscape,[62] eventually even supplying the market in Vienna.[63] Archaeological evidence of medieval damming indicates that ponds were established in the Búbánat Valley near Esztergom after the 13th century.[64] Their management can probably be linked to a medieval residence there (MRT 8, Site 116), a property of the archdiocese by the late 14th century.[65]

In addition to carp, ponds were also stocked with predatory species in order to eliminate less valuable small fish competing with carp. The high numbers of fry produced by carp would also have led to overpopulation; they were reduced by stocking young pike (not threatening full-grown carp), mirroring the fish fauna in natural waters.[66] By the 14th century, pike became an important by-product in aquafarming. Less commonly, pikeperch and catfish, whose meat was highly valued, were likewise kept in ponds. Fully developed voracious predators, however, would have seriously damaged carp stocks.

In light of these methods, it is particularly interesting that the consumption of pond fish in the archbishop's court is indirectly suggested by estimated total lengths of carp around 40 cm, the optimal size at the time of harvest in aquafarming.[67] This observation is supported by the similarly small size of many pike, whose contribution slightly increased by the 15th century (Chi^2=0.020, degree of freedom=1, P=0.924). Two catfish, barely longer than 30 cm fall in line with these data. Predatory fish of this size may have been caught along with carp in the same net. These zoological observations fall in line with the rare mention of large carp in the kitchen's accounting book.[68] The same source quotes the presentation of small pike on plates.[69]

Birds

The avian assemblage from Esztergom is also the most diverse assemblage from a medieval ecclesiastic centre in the entire Carpathian Basin. The unusually high number of domestic hen and wild bird bones may be attributed to screening. Fully grown birds were identified most frequently, although even such bones often originated from small individuals.[70]

Among birds, poultry played the most significant role in meat provisioning: domestic hens were represented by two forms of different sizes in Esztergom. This species is commonly recorded at medieval settlements of various social statuses.[71] Poultry may be regarded as a complementary and/or seasonal item to the repertoire of light, tender meat. According to the archbishop's accounting, young chickens, hens and fattened capons were regularly purchased or collected as tithe in villages.[72]

Among ecclesiastic sites (Fig. 6) the domestic hen was well represented in the Pauline monastery at Márianosztra (Hungary) and the Franciscan monastery of Marosvásárhely, in Transylvania (present-day Romania), although it was always outnumbered by the remains of meat purpose livestock. The contribution of poultry was small at the Dominican monastery in the medieval capital, Buda, where even wild mammals and fish yielded more remains than the domestic hen.

Pigeons were also consumed in the archbishop's kitchen. They were bought along with chicken and the spring purchase of juveniles (also identified in the screened material) may be explained by the keeping of the domestic form.[73] Thanks to the Esztergom finds, the number of medieval sites yielding the domestic pigeon in Hungary has increased to five.[74]

The exploitation of domestic geese and ducks (meat, eggs and down) is likewise suggested by the bones of

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[60] Pesty 1867, 68. Although this estimate might seem exaggerated, there were 25,000 fish ponds in Bohemia by the late medieval period, in the wake of the upswing in fish farming (Hoffmann 1999, 191).

[61] Wyrwa, Makowiecki 2009, 67.

[62] Andreska 1984.

[63] Wacha 1956.

[64] Csilla Zatykó pers. comm.

[65] Horváth et al. 1979, 215–219.

[66] Bourquelot 1863, 71.

[67] Galik et al. 2015, 347.

[68] Two out of 41 mentions: Kuffart 2018, 275 and 289.

[69] Kuffart 2018, 125.

[70] Gál 2021a.

[71] Gál 2021b.

[72] Kuffart 2018, 110, 143.

[73] Kuffart 2018, 276–277.

[74] Gál 2021a, Fig. 15.

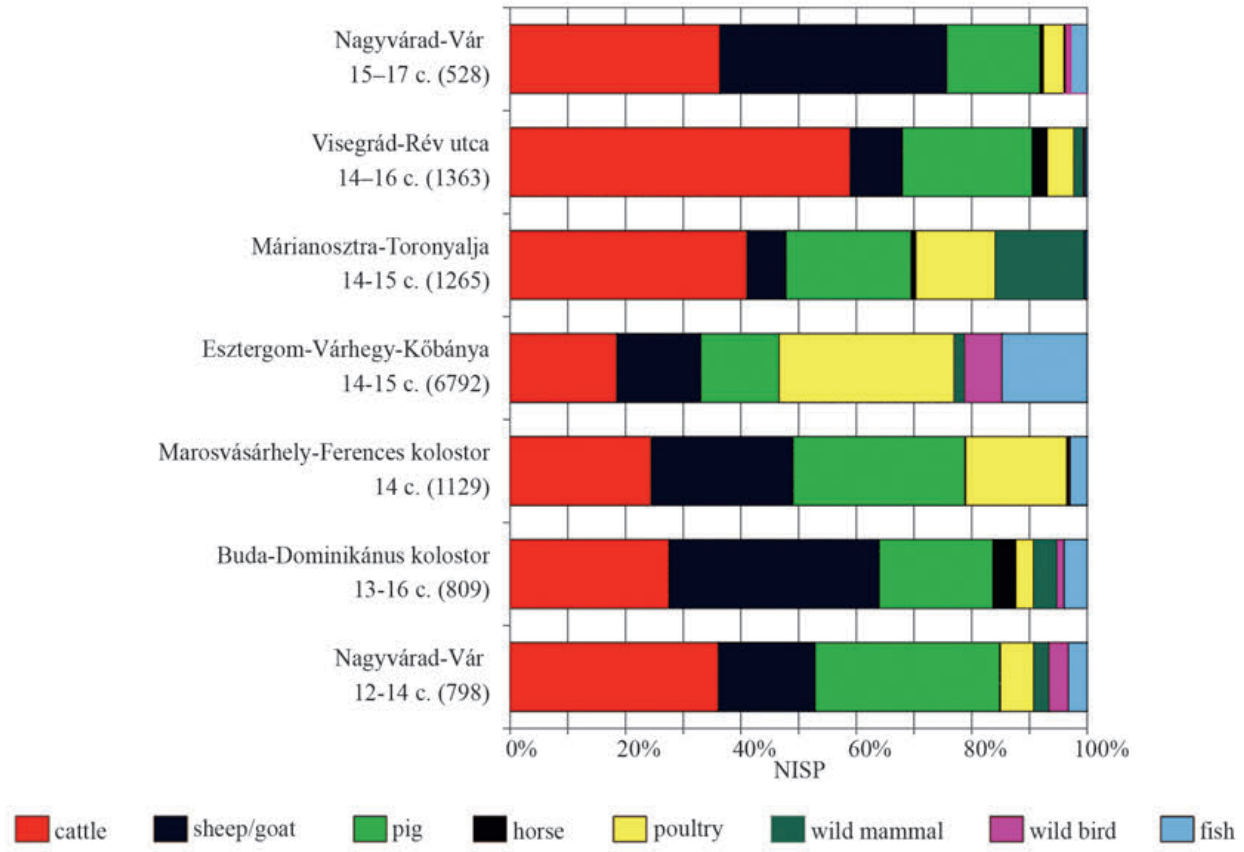

Figure 6. The taxonomic composition of animal bone assemblages from ecclesiastic centres of representative sizes (NISP≥500). The approximate dating of sites increases from top to bottom

Слика 6. Таксономски састав животињских остатака из црквених центара са репрезентативним узорком (БОП≥500). Оквирно датовање локалитета расте одозго надоле

young individuals in the screened material. They may be more related to the documented purchase of geese[75] than the hunting of goslings and ducklings. However, the presence of the wild greylag goose and mallard cannot be excluded. Domestic origins may sometimes be established using circumstantial evidence: geese identified among kosher food remains from a medieval well at Teleki Palace in Buda should be considered domestic.[76]

Wild fowl, including small species characteristic of high-status medieval settlements,[77] are probably indicative of prestigious luxury diets. Summaries of medieval bird remains in Hungary[78] show that partridge was the most frequently identified wild species, found at six rural, three urban and eight high-status sites.[79] The great number of partridge remains in Esztergom (239 bones from 20 individuals[80]) seems to indicate regular hunting. The presence of bones from chicks (Fig. 4, right side) may even imply partridge keeping alongside poultry, as documented in medieval England.[81] So far, however, neither medullary bone nor written evidence of partridge farming have supported this hypothesis in Hungary. Nevertheless, payment to a partridge hunter in late October is mentioned in the kitchen's accounting book.[82]

[75] Kuffart 2018, 167.

[76] Daróczi-Szabó 2004, 257, Fig. 6.

[77] Both in England (Serjeantson 2001; 2006; Albarella, Thomas 2002; Baker 2010; Serjeantson et al. 2018) and the Carpathian Basin (Gál 2015; Gál 2020b, Appendix 9).

[78] Gál 2015; 2021.

[79] Gál 2020a, 100–101, Tables 1–3.

[80] Gál 2021a.

[81] Woolgar 1999, 114.

[82] Kuffart 2018, 367, footnote 2434.

The few pheasant bones may indicate that this bird was either purchased or was still rarely kept when the food remains accumulated. By the end of the 15th century, however, cartloads of pheasants (during the autumn and winter of 1487), were sent to King Mathias and Queen Beatrix in Vienna.[83] Delicacies such as pheasants and ox tongue, in addition to capons, were bought for the kitchen when the royal couple visited the archbishop in 1489.[84]

The remains of two common raptors may be indicative of the keeping of trained hawks: both goshawk and sparrow hawk have been frequently used in hawking, they originate from a high-status settlement, and they were found in association with bones of a variety of game birds known to be hunted this way. Most of the wild birds identified from the abbeys of Eynsham and St Albans in England, assemblages similar in composition to the Esztergom avian finds, were possibly indicative of hawking.[85] Partridge and hare are represented by young individuals in the Esztergom assemblage.[86] Spring hunting may have been an alternative to raising these animals in captivity. Along with small to medium size birds, some hare and partridge may have been caught using trained hawks. Although direct evidence (complete or partial raptor skeletons or equipment) is yet to be found in Hungary, bone finds of both hawk species, their possible prey, and a tiny bronze bell were found in the 16th century assemblage of the Ottoman Turkish fort at Bajcsa, in western Hungary.[87] The chapter on hawking in *The Boke of St Albans*, published in England in 1486, assigns various birds of prey to social status: yeomen used goshawks, priests had sparrow hawks. Although medieval English social hierarchy cannot be projected to Hungary, the Esztergom finds suggest that if hawking was practiced, easily available hawks (rather than imported, high-status falcons) may have been trained for hunting birds and small game.[88]

Mammals

The representation of identified mammals in the kitchen accounts shows a similar dynamic as noted in the case of fish and birds. According to this documentary source, oxen, calves, pigs and sheep were regularly purchased, while a stag was sent to the king.[89] The scarce evidence of venison in the find material is matched by the absence of wild pig. Large game was also missing from the contemporaneous meat diet of the Studenica monastery in Serbia,[90] and while red deer was rare, wild pig was completely absent from the menu of the two medieval abbeys studied in England.[91]

The single bear bone (Fig. 5) raises the question as to whether it originates from a meal,[92] as bearskins were also highly valued as rugs and blankets.[93] However, an 11th–12th century settlement in the outskirts of Esztergom yielded a bear radius fragment, possibly indicating meat consumption.[94] Regarding small game, it is interesting to note that during the 1489 visit of Perotto Vesach from Naples to the archbishop, 'only' 15 hens and hares were slaughtered.[95] This is not only in contrast to the lavish feast served to the royals the same year, but illustrated the role of commonly identified hare in the diet. Hare was also the best represented species among the few game animals identified in the 14th to mid-15th century assemblage from Studenica, Serbia.[96]

Assuming that food refuse of common people was also mixed in the deposit, the selective procurement, preparation and consumption of meat may explain the high variability of meat quality categories in the mammalian material.

It should be mentioned that bone and antler artefacts as well as workshop debitage, mainly red deer antler, were mixed with the kitchen refuse. The number of finished artefacts is small, 28 objects and a few dice[97], but varied. Aside from mundane household items (bone and antler handles, pins and belt-stiffeners), ornaments (e.g. belt mount), musical instruments (a flute and a buzz bone), arrow base plates for crossbows were the most frequent type (15 pieces). Despite the religious context of the settlement, while dice were found, mass-produced rosary beads[98] were missing.

Most of the workshop residue seems to have resulted from making or repairing elements of crossbows, it is possible that such a high-status workshop was located

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83 Kuffart 2018, 191.
84 Kuffart 2018, 78.
85 Serjeantson et al. 2018, 123, Table 3; 131.
86 Gál 2021a.
87 Gál 2012.
88 Bartosiewicz 2012.
89 Kuffart 2018, 178.
90 Marković 2015.
91 Serjeantson et al. 2018, 128.
92 Gál 2021a.
93 Zolnay 1977, 84–88.
94 Vörös 1989.
95 Kuffart 2018, 139–140.
96 Marković 2015.
97 Benkő et al. 2021, 8.
98 Bartosiewicz et al. 2018, 145.

in the archbishop's residence, even if it operated only seasonally.[99] This may be an earlier analogue of the 15th – early 16th century crossbow makers' workshop found in the archbishop's palace in Trondheim, Norway, where 19 crossbow nuts and 71 arrow base plates were found.[100]

Considered "earthly" pleasures, the tolerance by the Catholic church for gambling[101] and hawking[102] varied greatly in space and time, depending on local political situations. Bones of raptors and dice at a high-status religious site, therefore, are difficult to interpret without detailed knowledge of the historical context.

A site nearby

In addition to the aforementioned medieval ecclesiastic sites, the assemblage from Esztergom shows the greatest similarity to the animal remains brought to light at the site of Visegrád-Palota,[103] the former palace of King Matthias, only 26 km downstream from Esztergom, toward the east along the Danube. That site yielded food remains from the 14th to 16th century, directly relevant from both a chronological and social point of view. The comparison between the bone materials may also shed light on some discrepancies between the Esztergom animal finds and accounting books, as these records are in part contemporaneous with Visegrád-Palota.

Unfortunately, as the animal remains were collected by hand at this latter site, fish bones were only found in relatively small numbers (NISP=103; 2.7%). As usual in such assemblages, they represented large pikeperch, pike, carp and catfish. The absence of sturgeon may be explained by random bias in the small fish bone material, although the large remains of sturgeon could be easily noted.

On the other hand, Visegrád-Palota yielded an abundance of avian material (NISP=1,130; 29.2% of the total assemblage). It included a variety of domestic and wild fowl, with an unquestionable dominance of domestic hen (NISP=1,051; 27.1%; MNI=132). However, individual bones of rare peafowl (*Pavo cristatus*), pheasant, and Guinea fowl (*Numida meleagris*) were also identified. Small birds, including thrushes, were also well represented, bones of partridge being the most numerous in the Visegrád assemblage (NISP=33, 0.9%; MNI=13). In addition, although bones of large game (red deer, wild boar and brown bear) were better represented in Visegrád than in Esztergom, brown hare was still the most frequently consumed wild mammal (NISP=77).[104]

Conclusions

Screening dramatically increases the number of animal remains recovered. Although identification rates are lowered by fine recovery, [105] given the positive correlation between assemblage size (NISP) and taxonomic diversity (the number of species represented), screening offers a qualitatively different, more refined picture of animal exploitation. How did this method benefit the understanding of zoological finds from the archdiocese's kitchen in Esztergom?

– Several previously unknown small-bodied fish and bird species, not mentioned in medieval documentary sources, could be identified.
– Bones of juvenile fowl came to light, making comparisons with the documentary record more realistic.
– An increased size range of cyprinid fish and pike, i.e. the recovery of bones from small individuals, helped fine-tuning hypotheses concerning fish exploitation.

In addition, complexities in the socio-economic interpretation of animal remains also became apparent, since high-status species such as great sturgeon or large game were underrepresented in the assemblage. The scarcity of such large bones cannot be explained by methodological reasons, they were *de facto* rarely eaten. Research of Anglo-Saxon England has revealed that a certain degree of "background noise" in the interpretation of status (indicated by taxonomic diversity) is created by the fact that low ranking people also formed part of the communities at ecclesiastic and other high-status centres.[106]

The possible mixing between food refuse left behind by people of different social standings is supported by comparisons with documentary sources and architectural history suggesting that the archbishop's kitchen was located above that of the personnel employed in the preparation of his meals.[107] High-status animals mentioned in the archbishop's archives were often

[99] Gál 2020b.
[100] Holst Booth, 1996.
[101] Bartosiewicz et al. 2018, 144.
[102] Bartosiewicz 2012, 181.
[103] Bökönyi 1974, 426.
[104] Bökönyi 1974, 426–427.
[105] Goffette 2020, 122.
[106] Dobney, Jaques 2002, 8.
[107] Benkő et al. 2021, Fig. 1.

passed on to urban markets or royal residences (Buda, Vienna and Visegrád), rather than being regularly consumed at the archbishop's residence. Only a fraction of such luxury foods seems to have been retained by the archdiocese, where meat consumption was characterised by mass-produced carp and related fish, commonly available domestic poultry as well as wild birds (partridge, waterfowl and thrushes) and hare, easily caught in the town's environment. The use of trained hawks in this activity may be hypothesised.

It remains open to question whether the reparation or manufacturing of crossbows (similar to that observed in the archbishopric of Trondheim) was associated with hunting large game, so poorly represented in the osteological material.

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Erika GÁL, László BARTOSIEWICZ
Animal Remains from the Late Medieval Kitchen of the Esztergom Archdiocese, Hungary – The Benefits of Screening (231–251)

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ОСТАЦИ ЖИВОТИЊА ИЗ КАСНОСРЕДЊОВЕКОВНЕ КУХИЊЕ ЕСТЕРГОМСКЕ НАДБИСКУПИЈЕ, МАЂАРСКА – ПРЕДНОСТИ ПРОСЕЈАВАЊА

Кључне речи. – касни средњи век, снабдевање месом, црквени центри, риболов, лов, документарни извори

Животињски остаци из касне средњовековне надбискупије у Естергому, Мађарска (Сл. 1) сакупљани су методом просејавања, како би се разумео значај ситних животиња (нпр. шарана, домаће кокошке, голуба, дрозда) у исхрани, а као додатак уобичајеној исхрани заснованој на домаћим сисарима. Просејавање је такође допринело бољем упоређивању са писаним изворима који говоре о снабдевању надбискупијске кухиње месом. Ово је прва фаунистичка средњовековна збирка из Мађарске, која је систематски сакупљана просејавањем помоћу сита са промером отвора од 5 и 2 мм.

Укупно је проучено 1168 остатака рибе, 2600 остатака птица и 3526 остатака сисара, грубо подељених у две хронолошке групе, од којих се једна односи на 14. век, а друга на 15. (Сл. 2). Помоћу ове методе је установљено велико присуство рибљих и птичјих костију, укључујући како живину, тако и дивље птице. Величина узорка је такође повећала таксономски диверзитет групе. Као додатак новим врстама мале телесне величине, ситне кости младих риба су указале на статистички значајно дијахроно повећање удела шарана и младе штуке у исхрани (Сл. 3). Ова запажања су у складу са све већим значајем узгајане рибе у исхрани. Такође су могли бити идентификовани сићушни остаци младих птица (нпр. голуб, јаребица, Сл. 4). У саставу истраживаног материјала су се чак појавили остаци јастреба, који би могли да указују на лов на мање птице и зечеве помоћу тренираних грабљивица. Кости са траговима обраде, откривене просејавањем, указују на производњу или бар на поправке самострела.

Захваљујући овим значајним подацима, наш материјал се издваја од осталих фаунистичких збирки сакупљених у црквеним настамбама Карпатског басена (Сл. 6) из истог периода. Међутим, неопходно је бити веома обазрив приликом међусобног упоређивања различитих локалитета, с обзиром на то да се наши подаци квалитативно знатно разликују од ручно скупљеног материјала. Док се кости домаћих сисара и мали број остатака крупне дивљачи могу тумачити у складу са другим средњовековним збиркама које су ручно сакупљене, остаци риба и птица, па чак и обиље зечјих костију, морају да се посматрају као резултат прецизног сакупљања.

Новооткривени животињски остаци који су се раније сврставали међу недовољно заступљене врсте, а које су сада доступне услед просејавања, могу успешно да се интерпретирају упоређивањем са рачуноводственим књигама Хиполита д'Естеа (Ippolito d'Este), надбискупа Естергома између 1486. и 1497. године. Иако су ова писана сведочанства млађа од наших налаза, она расветљавају сложеност снабдевања надбискупове кухиње месом, за коју је могуће да је укључивала локалну производњу и трговину. Напред наведени фактори су могли да утичу на заступљеност животиња у овој археолошкој збирци. Релативно скромна исхрана, на коју указују наши резултати (мали удео луксузних великих моруна и крупне дивљачи) може се такође објаснити архитектонским обликом кухиње откривеним током археолошких ископавања. Могуће је да је особље кухиње отпатке од обраде висококвалитетног меса бацало заједно са осталим остацима.

Наши резултати пре свега указују на значај интензивне и непосредне сарадње међу дисциплинама и продубљивање методолошке сарадње међу стручњацима из области друштвених и природних наука.

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A NEW INTERPRETATION OF PRINCE LAZAR'S "TIPAR" FROM THE RUDNIK MOUNTAIN

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Abstract. – This paper offers a new interpretation of an object found on the Rudnik mountain in 2015. On its first public presentation, it was defined as a tipar (seal die) of the Serbian prince Lazar. However, a new reading of its inscription revealed a detail that demonstrates that it is not a seal die but an object with a different purpose. It is a mould (matrix) which would have been used for the fabrication of a medallion (plaquette) on the bottom of a goblet destined for the prince. This identification is also corroborated by examples of similar medallions known in the region of medieval Serbia and its surroundings. This find from the Rudnik mountain remains unique in our region while the new interpretation raises a series of questions about the development of artistic crafts and the fabrication of luxurious receptacles in medieval Serbia.

Key words. – Rudnik mountain, prince Lazar, goblet, medallion, plaquette.

The 2016 issue of *Starinar* presented an object found in 2015 during archaeological excavations of the remnants of a medieval settlements on the Rudnik mountain. On the basis of the representation in its central field as well as on the basis of the inscription surrounding it, it was interpreted as a tipar (seal die) of the Serbian prince Lazar (around 1329–1389). Its purpose was identified mostly on the basis of the content of the inscription that was read as + **СИ ІЄ[СТЬ] ХѦРЬ Г[ОСПО]Д[И]НѦ КНЄЗѦ ЛѦЗѦРѦ СВЄ СРЬСКЄ ЗЄМЛЄ** (+ This is a grace of lord prince Lazar of all Serbian land). It was ascribed to the time of Lazar's reign over the Rudnik mountain between 1373 and 1389 or, more precisely, to the last decade of the prince's life when he had the rank of an all-Serbian ruler.[1]

The find attracted considerable public attention and found its way into the professional and popular scientific literature,[2] as well as being permanently displayed in the National Museum in Belgrade. It was interpreted as a seal die although some questions remained open. The first one related to the fact that the object does not resemble the usual shapes of seal dies used for the fabrication of seals, while the second one related to the fact that the expression *milost* [*grace*], otherwise known in Serbian charters as a designation of a particular legal action of a specific content and meaning, had never before been seen on a seal.[3]

Our new interpretation starts precisely with the content of the inscription, which offers the possibility of a different understanding of the original purpose of this object. Namely, a new reading revealed a detail that had hitherto remained unnoticed. It is the ligature in the inscription's initial part in which the second and third letters are connected and which now read as I and P (Fig. 1).[4] Read in this way, the inscription gives: + **СИ**

[1] Радичевић, Цицовић 2016, 161–171.

[2] Радичевић, Јечменица 2016, 9–19; Радичевић 2017, 153; Цицовић, Марјановић 2018, 159–176.

[3] Радичевић, Цицовић 2016, 167.

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a b

Fig. 1. Find from Rudnik, Museum of Rudnik–Takovo Region of Gornji Milanova (photo: Museum of Rudnik–Takovo Region of Gornji Milanovac)

Сл. 1. Налаз са Рудника, Музеј рудничко-таковскоī краја Горњи Милановац (фото: Музеј рудничко-таковскоī краја Горњи Милановац)

ПЄХАРЬ Г[ОСПО]Д[И]NА КNЄЗА ЛАЗАРА СВЄ СРЬСКЄ ЗЄМЛЄ (+ This is a goblet of lord prince Lazar of all Serbian land).

The mention of a goblet (**ПЄХАРЬ**) in the inscription, and not of mercy (**ХАРЬ**), indicates that the object in question is not a prince's seal die but a different object with a different purpose. Taking into account the appearance and the mode of fabrication of the object's front side, we can conclude that it is a mould (matrix) that could have been used for the fabrication of a goblet destined for Prince Lazar.

As for goblets as a kind of medieval vessel, they are usually described as drinking vessels on high stems, similar to chalices. It is generally held that they used to be made of gold and silver, decorated with precious stones and enamel, and that they could also bear heraldic signs. Aside from these goblets, there were also smaller goblets on low stems that could have two handles on the sides to facilitate drinking.[5]

Vessels made of silver, gilded silver or gold, decorated with precious and semi-precious stones, mountain crystal, pearl or enamel, embossed, engraved, cast or produced using some other technique were highly prized in the Middle Ages. As an indicator of wealth and social status they presented a representative image of the owner's family and home.[6] They were usually obtained on special order and were produced in various materials and shapes, in accordance with the customer's wishes and needs. Their special names reveal that they were classified according to their appearance and use.[7] They were particularly precious because of the materials they were made of, while their stylistic details represented a secondary, although also very important, criterion of their value as well as a proof of the customer's sophisticated taste.[8]

The luxury of the table of Serbian medieval rulers was also enhanced by the vessels used. Theodore Metochites who, in 1299, led a Byzantine delegation to King Milutin (1282–1321) noted that he was served every day many tasty meals and delicacies in gold and silver dishes and vessels „*not only for the need but more as a sign of honour*".[9] As proof of the generosity of Serbian rulers regarding their endowments, medieval writers

[4] Dr. Gordana Tomović drew our attention to this detail and we feel sincerely indebted to her. We also have to note that it is not the only ligature in the inscription, since one exists in the word *knez* as well, between N and E. As this detail was not noted during the making of a drawing of the object for the first publication, we present now a rectified version of the drawing (Fig. 2).

[5] Радојковић 1977, 90; Радојковић 1999, 564.

[6] Ивановић, Војводић 2016, 163–164; Зечевић, Гајић 2016, 180.

[7] Радојковић 1999, 562–564.

[8] Бикић 2004, 153–154.

[9] Метохит 1986, 113–114.

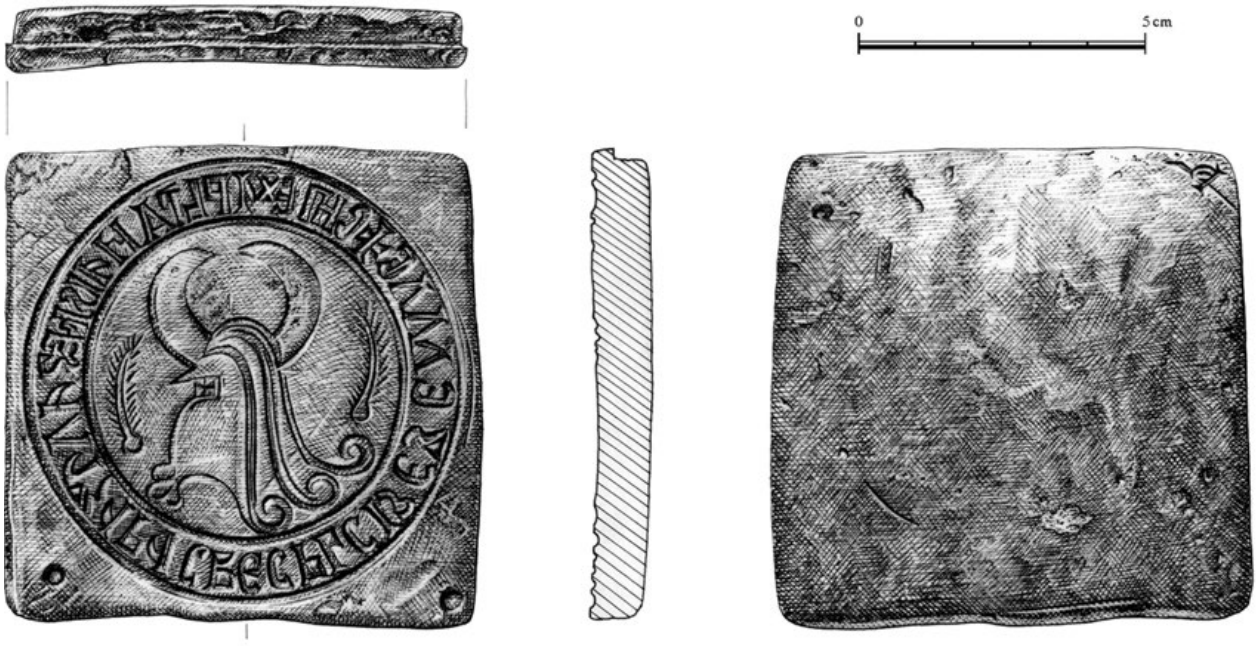

Fig. 2. Find from Rudnik (drawing: S. Marković, correction: D. Ćirković)

Сл. 2. Налаз са Рудника (цр̄теж: С. Марковић, исп̄равка: Д. Ћирковић)

especially mentioned gold and silver vessels decorated with expensive pearls and precious stones.[10]

Luxurious vessels were mentioned in other sources as well, including medieval fresco painting, although they were often presented in a rather stereotypical and simplified fashion.[11] They were most frequently recorded in deposit lists, receipts of the objects deposited in Dubrovnik. Aside from a mere mention, a list could also contain a brief description of a vessel with an indication of the material of construction as well as information about the quantity of vessels that a ruling or aristocratic family had. Among other vessels, the lists also mention goblets. Thus, the list of the objects that Vuk Branković (around 1345–1397) sent to Dubrovnik from January 1395 to January 1396 also mentions a gold goblet.[12] Two goblets *with braids and lids* are mentioned in the deposit of the grand duke Sandalj Hranić (1392–1435).[13] Some goblets are also mentioned in the testaments of Jelena Sandaljeva Balšić (1366/1371–1443) and of Stefan Vukčić Kosača (1435–1466), Herzog of Saint Sava.[14]

Unfortunately, we can only imagine the appearance of medieval goblets, on the basis of indications in written documents and simplified pictorial representations. To date, no material proof of their existence in our region has been found. In general, the wealth of data from the 14th and 15th centuries about the valuables in royal and aristocratic deposits is contrasted by a rather modest number of vessels that have survived pillage, selling or remelting. Examples of vessels that belonged to Serbian medieval rulers are extremely rare. Emperor Dušan's gilded plate (cup) from the collection of the National Museum in Belgrade (Fig. 6) is the only preserved example of a vessel belonging to a ruler from the Nemanjić dynasty.[15]

Although those objects offer only a vague idea of the variety of medieval tableware, the preserved examples nevertheless corroborate the written sources. The most frequently preserved vessel type is what in medieval Serbia was referred to as a „cup". Created within the framework of Byzantine goldsmithing and enriched with elements of Gothic decoration, these vessels were used in our region in later centuries of the Middle Ages and even later, on the eve of the Modern Age. The pieces that

[10] Данило Други 1988, 67, 95, 133.

[11] Бикић 2004, 152–153.

[12] Стојановић 1929, 145–146.

[13] Стојановић 1929, 366, 369, 371.

[14] Стојановић 1929, 395; 1934, 88.

[15] Јовановић 1995, 272, Fig. 7; Гајић 2010, 25–26, 80, cat. No. 1.

Fig. 3. Chalice of Manuel Kantakouzenos Palaiologos, the treasury of Vatopedi Monastery (after: Loverdou-Tsigaridou 1997, no. 9.14)

Сл. 3. Пехар Манојла Кантакузина Палеолога, ризнице манастира Ватопеда (према: Loverdou-Tsigaridou 1997, no. 9.14)

have been preserved so far captivate our attention by their representativeness, beauty and luxury. They came in various shapes: shallow, round or oblong ones, most often without stems or on quite low ones and usually without handles. They were made of gilded silver, perfectly crafted and stylistically contemporary to the ones used in princely and aristocratic courts of Western and Central Europe.[16]

When thinking of a possible appearance of the goblets used by Serbian rulers and aristocracy, B. Radojković pointed out the goblet of „*Michael Paleologos kept in the Athos treasury (Vatoped monastery)*".[17] It is not clear what this remark – stated without a clear source indication – refers to. We are not familiar with that particular goblet, but we assume that the author refers to an other object from that Athos monastery, namely a magnificent goblet/chalice made of a single piece of jasper (aperture diameter 20.5 cm), set on a high stem made of gilded silver (height 19.5 cm), and provided with handles in the form of dragons (Fig. 3). It belonged to Manuel Kantakouzenos Paleologos (1349–1380), despot of Mistra and son of Emperor John VI Kantakouzenos (1347–1354). The inscription on the subsequently added layer on the rim demonstrates that it was secondarily used as a liturgical vessel, but we cannot exclude the possibility that its original purpose was of a secular nature. This vessel is often mentioned in the relevant literature as a masterpiece of late Byzantine art and one of the most beautiful examples of Gothic influences in the work of Byzantine masters.[18]

Our idea of the appearance of medieval goblets seems quite similar to the vessel accidentally found in Northern Macedonia, at the site of Krušarski Rid, in the

[16] Радојковић 1966, 28–34; Шакота 1981, 75–76; Гајић 2010, 14–16.

[17] Радојковић 1977, 90.

[18] Loverdou-Tsigaridou 1997, 334–335, no. 9.14; Durand 2004, 338–339, Fig. 5; Bosselmann-Ruickbie 2018, 90, Fig. 24. In the past, this vessel was wrongly ascribed to Emperor Manuel Paleologos (1391–1452), and we think that the remark made by B. Radojković might refer to the same thing.

[19] Поленаковиќ-Стеиќ 1965, 5–17.

[20] Гајић 2010, 24–43.

[21] Тошић 2008, 149–151, Fig. 4: Гаврић 2015, 29–32. As they were produced separately and applied later to already finished objects, they could come off, which means that preserved cups often do not have medallions. On the other hand, and for the same reason, they found their way to museum collections as separate objects (Хан 1960–1961, 45–55; Гајић 2010, 82, cat. No. 2), or were found as such during archaeological excavations. (Миловановић 1981, 27, cat. No. 48; Поповић, Бикић 2017, 396–397, Fig. 5).

village of Gorno Orizari, near Kočane (Fig. 4). It is made of gilded silver, shaped as a shallow plate/cup (aperture diameter 15.5 cm), set on a high stem with a knot (height 27 cm) and richly decorated both inside and out. This vessel was a part of a hoard buried in the 14th century in its vicinity was also excavated a ceramic vessel („grne") that contained a gilded diptych reliquary and three pairs of massive gold earrings executed with supreme craftsmanship. It is a very luxurious find, perhaps the most luxurious one in the entire territory of the present-day Northern Macedonia and even beyond. The objects had undoubtedly belonged to someone from the uppermost social stratum and some scientist even hypothesized that the owner had belonged to the Dejanovićs, the aristocratic family that ruled over those parts of medieval Serbia.[19]

Medieval cups were called as such, „cups", which is confirmed by the original inscriptions preserved on some of them. The inscriptions usually began by the expression „*this cup*", followed by the owner's name and sometimes accompanied by a formula blessing the one who drinks from the cup. As for goblets, inscriptions of that type are not formerly known to us, which means that the Rudnik find represents the first material proof that they existed on that kind of medieval vessel as well. Moreover, the Rudnik find is also precious because it highlights yet another common element that binds together cups and goblets. It was intended for the fabrication of a single but very important part of the goblet: the central medallion that stood on the vessel's bottom. Similar medallions-plaquettes represent one of the frequent and particular details of cups.[20] A medallion of that type, with a representation of a lion, exists on the aforementioned type of vessel from the vicinity of Kočani as well (Fig. 4). They are usually engraved and filled with niello, most often round, although, depending on the shape of the object for which they are made, they can also be rectangular with rounded angles or even rhomboid, like the plaquette found in Manastirak near Rekovac (dimensions 2.8 x 4.7 cm.). Its inscription reveals that it stood on a cup that once belonged to Chief Hrebeljan (Fig. 5).[21]

Fig. 4. Vessel from the village of Gorno Orizari near Kočani, Archaeological Museum of the Republic of North Macedonia, Skopje (after: Поленаковиќ-Сшеиќ 1965, figs. 9 and 10)

Сл. 4. Посуда из села Горно Оризари код Кочана, Археолошки музеј Рейублике Северне Македоније, Скойље (йрема: Поленаковиќ-Сшеиќ 1965, сл. 9 и 10)

Fig. 5. Medallion from Manastirak, Regional Museum of Jagodina (photo: Regional Museum of Jagodina)

Сл. 5. Медаљон из Манасширка, Завичајни музеј Јагодина (фошо: Завичајни музеј Јагодина)

As separate elements of vessels, medallions began to appear in the 14th century and are seen as a borrowed element from Western, Gothic art.[22] They can contain inscriptions that reveal the owner, but also representations, and even entire compositions, Christian or secular ones, depending on whether a vessel was destined for religious or secular use. In the spirit of Western heraldry, they often contained coats of arms, i.e. the owner's heraldic symbols. The bottom of the plate/cup of Emperor Dušan (1346–1355) contains a gilded plaquette with a representation of a two-headed eagle with spread wings, surrounded by an inscription containing the emperor's name (Fig. 6).[23] The collection of the Museum of Applied Arts in Belgrade contains a round medallion (diameter 5 cm) with a complete coat of arms comprising a shield surmounted by a helmet bearing a wolf with raised paws (Fig. 7). It originates from Kosovo and was ascribed to the second half of the 14th century on account of its style.[24]

All those characteristic elements exist on the Rudnik find as well. The circular inscription around the central field contains the prince's name, while the centre itself contains a representation of a helmet with horns, which is considered to be Prince Lazar's heraldic sign.[25] We cannot imagine the appearance of the rest of the goblet, its shape and decoration, because we have not even the slightest indication of it. Bearing in mind the medallion's shape and size (diameter 7.2 cm), we can assume that the receptacle was of a circular or oval shape, broadly open and of considerable dimensions. For the sake of comparison, the diameter of the medallion on the so-called Dušan's plate is somewhat larger (around 8 cm), while the vessel's aperture diameter is 18.6 cm.

Aside from belonging to the group of extremely rare objects that bear clear marks or inscriptions that relate them to some of the Serbian rulers, the Rudnik find raises some other important questions as well, including the one of the master and the place of fabrication. Namely, it was made for a goblet commissioned by Prince Lazar or commissioned for him. Rulers and aristocrats exchanged such objects as gifts. They could have been offered as a token of gratitude for loyal service, a prize for special favours or a sign of good interstate or personal relationships.

We cannot say who the master of Lazars's goblet was, but we can rather confidently state that he had developed his practice in the Rudnik mountain. In general, the places of fabrication of precious vessels most often cannot be precisely ascertained. Scientists usually state that these objects were produced either in domestic workshops (where masters, mainly from Kotor and Dubrovnik, worked) or that they were commissions realised in coastal cities.[26]

The development of goldsmithing is usually seen as intimately related to the exploitation of precious metals, which intensified in medieval Serbia from the mid-13th century on. The opening of new mines and the accelerated development that followed represented a big turning point in the whole economy of the country, while the rise of mining was of crucial importance for the development of other activities as well, especially trade and handicrafts. The intense economic development also enabled a larger mass production and trade of objects made of precious metals. That was a time characterised

[22] Радојковић 1966, 32–33.
[23] Гајић 2010, 25–26, 80, cat. No. 1, with older literature.
[24] Гајић 2010, 26–27, cat. No. 2.
[25] Иванишевић 2004, 225; Ацовић 2008, 200–202.
[26] Радојковић 1977, 89–90; Гајић 2010, 20–21.

Fig. 6. Plate/cup of Emperor Dušan, National Museum in Belgrade (after: Gajić 2010, cat. no. 1)

Сл. 6. Тањир/чаша цара Душана, Народни музеј у Београду (према: Гајић 2010, кат. бр. 1)

by the enrichment of rulers and aristocrats, quicker commodity circulation and an influx of masters into an economically developed region. Courts became places of luxurious and comfortable living, which implied jewellery, expensive vessels and other precious objects.

It is very hard to precisely locate the centres of production of luxurious vessels, but, generally speaking, workshops for metal processing and the production of metal objects were set up in or around mining centres, which was also the case with smelting plants, mints and marketplaces. Some data on goldsmiths' places of living and working can be found in the emperor Dušan's codex, which stipulates that, within the emperor's country and counties, they must only be in marketplaces, just like mints (Article 168), or in royal cities, to produce other useful objects as well (Article 170).[27] The development of goldsmithing was followed by professional specialisation and its high degree of development is proven by data on a wide spectrum of goldsmiths' activities, from the purification of gold and silver in smelting plants, through the fabrication of jewellery, church items and objects of everyday life, to the production of gold threads necessary for decoration (especially of textiles).[28]

Decorative motifs can reveal the style that was dominant in a particular region and can thus facilitate identification of the location of a particular workshop. Accordingly, the cups produced in the region of Novo Brdo, Priština and Janjevo mixed old Byzantine motifs with Gothic elements. A similarity of decorative motifs, not only on vessels but on jewellery as well, testifies to a common style that was dominant in the workshops of this region. This is further confirmed by a document from Dubrovnik wherein a master Andrija from Novi, who had previously had a workshop in Novo Brdo, took to producing cups in his own fashion. It is assumed that „his fashion" actually represented the style of the environment in which he lived and which can be defined as Serbian.[29]

Individual mentions are mainly to be found in the archives of coastal cities and specifically in the documents relating to the business dealings of domestic and foreign goldsmiths working in Serbian or outside of it. According to those sources, goldsmiths and smiths were the most common artisans in medieval Serbia. The reputation of some very famous goldsmiths is revealed by the data on the masters who continued their careers

[27] Законик цара Стефана Душана 1960, 77, 134–135.
[28] Фостиков 2019, 65.
[29] Радојковић 1977, 89–90.

Fig. 7. Medallion from Kosovo, Museum of Applied Arts, Belgrade (after: Gajić 2010, cat. no. 2)

Сл. 7. Медаљон са Косова, Музеј примењене уметности, Београд (према: Гајић 2010, кат. бр. 2)

in the coastal cities, either because of their work or as a result of fleeing the Turks.[30] The most famous goldsmith from Novo Brdo, Jovan Progonović, who moved to Dubrovnik after the fall of Novo Brdo in 1455, was obviously very appreciated precisely because of his art of the production of precious vessels. It was he whom the archbishop of Dubrovnik commissioned in 1470 to produce a silver pitcher and a washing basin intended as gifts to the Hungarian king Matthias Corvinus. Three years later, the same master was commissioned by another archbishop to fabricate numerous silver vessels, cups and plates.[31]

Similarly to other mining centres, the dynamic development of mining in Rudnik, together with the fact that a mint began working early on,[32] implies the development of crafts, especially those related to the processing of precious metals. Unfortunately, we know very little of those crafts. Among the members of the Dubrovnik community on Rudnik mountain, the presence of craftsmen was only sporadically recorded,[33] which surely does not offer the real picture because their number must have been much bigger. Pieces of medieval jewellery, mostly signet rings (that, by their quality, can be considered luxurious jewellery of their time),[34] were found in several localities on Rudnik mountain and its immediate vicinity. By their high artistic value, these objects testify to the economic possibilities, prosperity and wealth of a social milieu that sought refinement and artistic beauty. However, the present state of research does not allow us to ascertain whether these were produced by local masters or by outsiders who came to Rudnik.

The find that this paper deals with comes from the area of the medieval marketplace which was normally related to the activities of merchants and craftsmen, both local and foreign.[35] Thus, the object in which it was found could also have had a special function, which is indicated by yet another particular item found in it – a set of weights for precise measurement.[36] It is quite unforgivable that the central part of the object has, thus far, remained inaccessible for research.

The method of execution of the central representation on the Rudnik mould reveals the hand of a skilful master possessing an art of representation where no detail was neglected. This precision resembles some similarly cut representations on seals and coins. The presence of skilful mould cutters on Rudnik mountain is confirmed by Rudnik dinars minted from the time of King Dragutin until the fall of the Serbian despotate. They are characterised by various representations – from the earliest ones (Christ on a throne on one side and the ruler, with the saint or alone, on the other) until the dinars of despot Đurađ Branković with Rudnik's

[30] Фостиков 2019, 71–73.

[31] Јовановић 2004, 50.

[32] Иванишевић 2001, 63–64.

[33] Храбак 1984, 6–15.

[34] Гај-Поповић 1967, 309–316; Милошевић 1990, 108–109, cat. No. 136, 162, cat. No. 262; Мадас 1990–1991, 177–181; Тешић-Вулећ 2016, 28; Радичевић, Цицовић 2019, 34, Fig. 25.

[35] Радичевић 2019, 63–88.

[36] Цицовић, Марјановић 2018, 167–168, Fig. 6.

name on the reverse.[37] Among the issues ascribed to the Rudnik mint in the time of Prince Lazar there is also one that displays a new heraldic motif: a helmet with a pair of bovine horns.[38]

If we bear in mind that Rudnik masters could make moulds and mint money, then we should not be surprised if they could also produce plaquettes with heraldic signs and place them as decorations onto already finished objects. Of course, we still do not know if the same master executed both the medallion and the vessel itself. It is quite possible that the goblet was produced by several masters within the same goldsmith workshop, where specially commissioned objects were made along with those intended for everyday use. It is a known fact that, depending on the need and agreement, the same goldsmiths used to produce various kinds of objects.[39]

It is a different situation with the inscription because it does not reflect the same quality of execution as the representation in the central field. The majority of the letters are of the same height, regular and legible, but they nevertheless contain several errors. The letter „H" is half the size of the remaining ones and is thus „squeezed" into the inscription. Within the abbreviation **Г[ОСПО]Д[И]NИ**, the letter N's slanted line is reversed. The word **СРЬСКЄ** lacks a letter, while the bent line in the letter K is wrongly turned to the left. Finally, the syntax is wrong and it should have been as follows: „This is a goblet of prince Lazar lord of all Serbian land" (in accordance with the prince's title after 1378/1379, when he had the rank of an all-Serbian ruler, valid for his office as well as for the Serbian church.[40]

On the basis of the inscription with „Serbian" letters, one could initially say that it is the work of Serbian masters, but one cannot be absolutely certain. The lettering errors suggest that the master who engraved the letters was not overly familiar with them, which implies that he was probably a stranger. The errors could also have been the reason for which the object was discarded. Namely, it does not bear any trace of use and it is not clear if it was ever used. Its exact purpose – a casting mould or a matrix for medallion impression? – remains a mystery. The lack of the usual casting channels precludes its definition as a mould, although we cannot completely exclude the possibility that they existed on the object's second part, which certainly existed. This is corroborated by the small cavities in the lower angles of the front side, which served as a connection with the second part. The letter „a", carved in the back, can be interpreted in a similar fashion. We have already said that it was the master's way of marking his product or perhaps a series mark or even a mark of the mould's part that would fit in with the other.[41] In the latter case, „a" did not denote a letter but number one, as the first part of the mould. In any case, it is not the only mystery of this find, which remains unique in our region. The mystery is certainly reinforced by a lack of comparable objects and it is quite understandable that some questions remain open until further discoveries.

[37] Иванишевић 2001, 96 (2.5), 102–103 (3.9, 4.1 and 4.2), 192 (45.29).

[38] Иванишевић 2001, 163–164 (24.24).

[39] Фостиков 2019, 65–67.

[40] Мишић 2014, 13–17.

[41] Радичевић, Цицовић 2016, 168.

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Dejan RADIČEVIĆ, Ana CICOVIĆ
A New Interpretation of Prince Lazar's "Tipar" from the Rudnik Mountain (253–265)

Резиме: ДЕЈАН РАДИЧЕВИЋ, Филозофски факултет Универзитета у Београду,
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НОВО ТУМАЧЕЊЕ РУДНИЧКОГ „ТИПАРА" КНЕЗА ЛАЗАРА

Кључне речи. – Рудник, кнез Лазар, пехар, медаљон, плакета

На страницама *Старинара* за 2016. годину публикован је предмет пронађен годину дана раније приликом археолошких истраживања остатака средњовековног насеља на планини Руднику. На основу представе на централном пољу и натписа око њега, протумачен је као типар (печатњак) српског кнеза Лазара (око 1329–1389). За одређивање његове намене пресудан је био садржај натписа који је прочитан као: + **СИ Ꙗ[СТЬ] ХѪРЬ Г[ОСПО]Д[И]НѪ КНЄЗѪ ЛѪЗѪРѪ СѢЄ СРЬСКЄ ЗЄМЛЄ** (+ Ово је милост господина кнеза Лазара све српске земље).

Нова интерпретација управо полази од садржаја натписа који нуди могућност за другачије одређење првобитне намене овог предмета. Наиме, поновним читањем уочен је детаљ који је раније остао непримећен. Ради се о лигатури у почетном делу натписа у којој је повезано друго и треће слово, која се сад читају као **И** и **П** (сл. 1). Прочитан на овај начин, натпис гласи: + **СИ ПЄХѪРЬ Г[ОСПО]Д[И]НѪ КНЄЗѪ ЛѪЗѪРѪ СѢЄ СРЬСКЄ ЗЄМЛЄ** (+ Ово је пехар господина кнеза Лазара све српске земље).

Помен пехара у натпису, а не милости, показује да се не ради о кнежевом печатњаку, већ да је предмет направљен за нешто друго. Узимајући у обзир како је обликована и на који начин обрађена предња страна, може се закључити да се ради о калупу (матрици) који је требало да буде употребљен приликом израде посуде – пехара намењеног кнезу Лазару.

Кад је реч о пехарима као врсти средњовековних посуда, обично се описују као посуде за пиће на високој стопи, сличне путирима. Нажалост, изглед средњовековних пехара можемо само замишљати на основу назнака у писаним документима и поједностављених ликовних представа. Уопште узев, насупрот обиљу података из XIV и XV века о драгоценостима владарских и племићких депозита, стоји прилично скроман број посуда које су, након пљачки, продаја и претапања, до данас преостале. Највише је сачуван тип посуде који је у средњовековној Србији одређен термином – чаша. Примерци који су до данас очувани плене својом репрезентативношћу, лепотом и луксузом. Да су чаше у средњем веку баш тако и називане, потврђују оригинални натписи сачувани на некима од њих. Обично почињу речима „сиа чаша" да би потом уследило име власника, понекад и уз формулу којом се благослови онај ко из чаше пије. Кад је реч о пехарима, натписи тог типа раније нам нису били познати, па је налаз са Рудника први материјални доказ да су постојали и на тој врсти средњовековних посуда. Рудnички налаз је драгоцен и због тога што указује на још један заједнички елемент који повезује чаше и пехаре. Он је био намењен за израду само једног, али веома значајног дела пехара. Ради се о централном медаљону који се налазио на дну посуде. Такви медаљони се као самостални елемент на посудама јављују од XIV века, а сматрају се позајмицом из западне, готичке уметности. На њима се могу налазити натписи који откривају власника, али и представе, па и читаве композиције, хришћанске или лаичке садржине, зависно од тога да ли је посуда била намењена у профане сврхе или за култне потребе.

Осим тога што припада групи изузетно ретких предмета који на себи имају јасне ознаке или натписе који их повезују са неким од српских владара, руднички налаз отвара и друга важна питања. Међу њима је и питање мајстора и места израде. Наиме, он је направљен за пехар чију је израду поручио кнез Лазар или који је поручен за кнеза. Посуде тог типа владари и властела су поклањали једни другима. Могле су бити даване у знак захвалности за верну службу, као награда за посебне услуге или као знак добрих међудржавних или личних односа. Не можемо рећи ко је био мајстор Лазаревог пехара, али са великом вероватноћом можемо констатовати да је своју делатност развио на Руднику. Начин на који је израђена централна представа одаје руку вештог мајстора који располаже вештином минуциозног приказивања. Са натписом је другачија слика и он не одражава исти квалитет израде. Већина слова је уједначене висине, правилна и читка, али на њима има више погрешака. На основу натписа са „српским" словима, на први поглед би се могло закључити да је у питању рад српских мајстора, али то се не може прихватити са сигурношћу. Грешаке са словима указују да им мајстор није био сасвим близак, што би пре указивало на странца који их је урезивао. Оне су могле бити и разлог за одбацивање предмета, будући да се на њему не уочавају трагови употребе, па је питање да ли је икада и био коришћен.

КРИТИКЕ И ПРИКАЗИ – COMPTES RENDUS

Aleksandar Bošković, *William Robertson Smith*, Berghahn Books (Anthropology's Ancestors Series, vol. 2), New York and Oxford, 2021 (xiv+139 pages, 10 illustrations, bibliography, index)

In many respects, William Robertson Smith (1846–1894) was a true pioneer in the social sciences and humanities of the late 19th century. This Scottish anthropologist, biblical scholar and Arabist, was originally educated for the ministry of the Free Church of Scotland. From 1870, he was a professor of Oriental languages and Old Testament exegesis at the Free Church College Aberdeen. However, some entries from the ninth edition of *Encyclopaedia Britannica* (of which he was first Assistant Editor, and later Editor-in-Chief) caused a stir in his church and in 1881 he was dismissed from his position. Shortly after, in 1883, he was appointed Professor of Arabic and chief librarian at the University of Cambridge. His two seminal works, *Kinship and Marriage in Early Arabia* and *The Religion of the Semites*, among other acclaimed writings, paved the way for various academic disciplines in the following century, including social anthropology.

Aleksandar Bošković, the author of this well-conceived, firmly founded, yet intriguing volume about the famous Scottish scholar, is Senior Researcher at the Institute of Archaeology in Belgrade and Professor of Anthropology at the Faculty of Philosophy, University of Belgrade. Professor Bošković commenced his own *longue durée* study of Smith's life and work in 1992 at a Presbyterian institution – Pittsburgh Theological Seminary – and has developed it considerably over the last quarter of a century. Robertson Smith was the subject of his M.A. thesis at Tulane University, as well as the topic of his subsequent conference papers and university courses on religion and ritual. The author returned to the famous Scott more intensively in 2015 and this book is a result of that return to his continued academic interest. This time, Bošković's manuscript has been enriched by precious family photos provided by some of Smith's descendants and by excerpts from the valuable copies of Smith's letters written during his journey to Italy (Sicily) and Egypt.

The author himself explicitly states the main rationale for writing this monograph on Robertson Smith. It is "the reconsideration and proper evaluation of Smith as one of the most important ancestors of anthropology, placing him firmly within the history of our discipline. This is not another biography of William Robertson Smith… This book is more like a journey through anthropology and related disciplines with Smith as the guide" (Bošković, 2021, 4). Again, "the main aim of this book is to demonstrate specific examples of his influence on the development and establishment of some key concepts of social anthropology, such as totemism" (Bošković, 2021, 4). In this context, Bošković pays utmost attention to Smith's study of myth and his establishment of a comparative study of religion, an academic discipline that equally owes its foundation to Smith's contemporary from Oxford – Friedrich Max Müller. During the 20th century, the new discipline flourished under the masterful guidance of Joachim Wach, Gerardus van der Leeuw and Mircea Eliade.

Upon providing, in the first part of his book, a concise, yet very informative, outline of Smith's life, Bošković tackled the scholar's much less known field experience in Egypt and in the Arabian Peninsula (Hijaz). Then follows the exposition of Smith's view of myth and ritual and of the sociological dimensions of his oeuvre, including his profound influence on Emile Durkheim, especially with regard to his insistence on religious *practice* (rather than belief) and on the elementary forms of religious phenomena. For example, Smith's interpretation of the sacrificial ritual among the Arabs, its purpose for the communal, collective identity, was probably one of the key points that prompted Durkheim's own interpretations of the integrative social function of ritual. Sigmund Freud was yet another scholar who immensely benefited from Robertson Smith's interpretations

of totemism and taboo. Finally, a true bonus of this volume is the chapter on the Scandinavian researchers who developed some of Smith's concepts in the 20th century.

I will now highlight some of the lesser known aspects of W. R. Smith's ethnographic work in the Middle East and his contribution to Arabic and Oriental studies in the 19th century, as outlined in Bošković's book. Smith's travels to the Middle East took place in several periods: 1. A six-month sojourn in Egypt and Palestine (1879–80); the report from this trip was published in a series of ten letters to *The Scotsman* in February–June 1880; 2. Travel through the Arabian peninsula in 1880–81, when he stayed two months in Jeddah and visited Palestine, Syria and Tunis; 3. A private stay in the Middle East in the winter of 1890–91. During his "field visits", Smith improved his Arabic, collected significant ethnographic data, and shed new academic light on the religion and culture of the Semitic people, especially regarding Islam. It should be noted that, during Smith's lifetime, Arabic and Islamic studies in Europe were still in their formative stage, while only a few scholars (such as Wellhausen, Nöldeke and Hurgronje) were able to competently read and interpret Islamic sacred texts or engage in any kind of fieldwork in the Arab lands. The Dutch scholar Christiaan Snouck Hurgronje (1857–1936) was, for example, one of the rare Westerners who were able to visit Mecca in 1880s (besides Robertson Smith's fellow traveller Captain Richard Burton, who was best known for his clandestine participation in the Hajj). Smith, on the other hand, did not visit Mecca, but his guides nicknamed him Abdullah Efendi, due to his complexion and proficiency in Arabic language. "The image today serves as a reminder of a nineteenth-century scholar 'going native'", declares Bošković (2021, 43).

It is interesting that Edward Said mentioned Robertson Smith more than a dozen times in his *Orientalism*. Although Smith perfectly fitted into Said's typology of Orientalism in Western scholarship, it would be 'profoundly misleading', according to David Livingstone (2004, 653), "to stage Smith as prosecuting 'an ontological … distinction'… between Orient and Occident, or [treat him] as an advocate of some 'ineradicable distinction between Western superiority and Oriental inferiority'". Bošković, of course, aligns himself with Livingstone in terms of defending Smith from the often superficial accusations for Orientalism. He has argued persuasively that Said was "completely unaware of the social, historical, and methodological context or complexity of Smith's work" (Bošković 2021, 46). Paradoxically enough, "Smith was a man who was accused of promoting (and, in a sense, enabling) Orientalism, but who believed that Arabic was the closest language to the one that God spoke" (Bošković 2021, 116).

Ending his book, the author emphasises that the "foundations of social anthropology in the second half of the nineteenth century, with the initial studies of kinship and attempts to explain new concepts like totemism, cannot be properly understood without the contributions of William Robertson Smith" (Bošković, 2021, 110). Let me conclude by stating that Aleksandar Bošković has written a nuanced, reliable, highly recommendable guide through the life and opus of Robertson Smith, which, on a more general level, is also a journey through the beginnings and later developments of social anthropology. I am, therefore, convinced that this book will greatly benefit a range of audiences in the field of humanities and social science, including anthropology, history of religions, sociology, and Arab and Islamic studies.

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BECAP 2021: Pots in context: Vessels' use, function, and consumption, research strategies and methodology; 1–2. фебруар 2021. године

„Pottery has many joys."
James Skibo, *Pottery function*

Иако се већина студената археологије не би сложила са горенаведеним цитатом, усуђујем се сагласити са професором Скибом – грнчарија нам пружа многе радости. Једна од тих радости била је и прва београдска конференција о археолошкој грнчарији, одржана 1. и 2. фебруара 2021. године у онлајн формату.[1] *Belgrade Conference on Archaeological Pottery* (BECAP) замишљена је тако да сваке две године окупља стручњаке за истраживање археолошке грнчарије, који би кроз тематске конференције приказивали резултате актуелних истраживања. Организатори конференције су Одељење за археологију Филозофског факултета у Београду, са проф. др Јасном Вуковић на челу, и Археолошки институт, са др Весном Бикић на челу.

Прва конференција била је посвећена анализама функције, употребе и потрошње грнчарије. Окупила је 45 истраживача из 16 земаља, а у дискусијама су учествовали и еминентни истраживачи из Европе који нису имали презентације, али су пратили конференцију. Конференција је уживо емитована на Јутјубу и Фејсбуку, и имала је прилично добар одзив са око 150 гледалаца на најпосећенијим сесијама. Ово је први подухват овог типа у региону и показао се као врло користан формат за ширу научну заједницу, у смислу доступности и видљивости резултата најновијих истраживања.

Кроз шест сесија разматране су следеће теме: трагови употребе као показатељи стварне употребе грнчарије, запремина и капацитет посуда као показатељи функције, интегрисане анализе употребе посуда са анализама технологије израде, секундарна и продужена употреба посуда, контекстуалне и просторне анализе у вези са употребом грнчарије, употреба грнчарије и друштвени односи. Посебно су се истакла предавања која су студије употребе грнчарије интегрисала са студијама технологије и друштвених односа. Међутим, упадљиво је да су разматрања друштвених односа на основу употребе грнчарије била ограничена на етноархеолошка истраживања и археологију историјских периода – антички период и средњи век. То је донекле разумљиво јер су за ове периоде и околности друштвене категорије видљивије и читљивије него што је то случај са праисторијском археологијом. Међутим, приказани потенцијал таквих подухвата треба да послужи као изазов за нас праисторичаре, да даље померамо границе могућности наших интерпретација и покушамо да операционализујемо наше резултате у разматрању ширих друштвених питања.

Ова конференција значајна је из више разлога, како на локалном тако и на међународном нивоу. До њеног оснивања, у овом делу света није постојала ниједна устоличена конференција посвећена студијама керамике, на којој би се стручњаци редовно окупљали како би се упознали и размењивали искуства. Приказани су различити методолошки приступи у разматрању употребе грнчарије, као и њихови потенцијали и ограничења: анализе саме грнчарије, физичко-хемијске анализе органских наслага са посуда, анализе археолошких контекста, просторне анализе, експериментална и етноархеолошка истраживања. Конференција је обухватила широк хронолошки распон, не ограничавајући се само на један период. Показало се да, без обзира на хронологију и географски положај, проблемски оријентисана истраживања могу покренути заједничка питања и дискусије, што је и био један од постављених циљева конференције. Приказане студије су илустровале да нам анализе керамике могу дати важне информације о свакодневним активностима, праксама припреме и конзумације хране, родним идентитетима, друштвеним и економским статусима, размени и контактима између заједница. То би био и највећи локални значај конференције – указивање на различите интерпретативне потенцијале грнчарије, која је у српској археологији често и даље само у служби релативно-хронолошког и културног опредељења налазишта. С друге стране, конференција је показала да у региону постоји снажан кластер стручњака за студије керамике, који обећава одржавање континуитета BECAP-а. Надам се да ће се добро одразити на студенте археологије, међу којима је у последње време бављење грнчаријом непопуларно.

Посебна радост конференције било је гостујуће предавање професора Џејмса Скиба са Одељења за социологију и антропологију Државног универзитета Илиноис. Као један од утемељивача методологије анализе трагова употребе на грнчарији, професор Скибо нас је и овом приликом својим ентузијазмом подсетио на драж ових истраживања. Међутим, својим огромним искуством упозорио нас је и на многе методолошке проблеме и ограничења, као што је фрагментованост материјала и разликовање постдепозиционих трагова од трагова употребе посуда. Његово учешће у дискусији допринело је истицању значаја и потребе за даљим експерименталним истраживањима и физичко-хемијским анализама наслага на посудама, али и укрштању различитих истраживачких приступа. У коначној дискусији покренута су и нека шира питања археолошке праксе, у којима се можда крију и теме наредних конференција, као што је питање начина документовања налаза керамике при археолошким ископавањима и примарној анализи.

Речима професора Скиба, истраживања употребе грнчарије су кроз ову конференцију померена за корак даље. А верујем да говорим у име свих учесника када кажем да смо се након конференције са новом вољом и еланом вратили својим истраживачким пројектима и видели нове радости у свим тим фрагментима.

Олга БАЈЧЕВ

[1] Предавања су доступна на званичном Јутјуб каналу конференције – BECAP Conference https://www.youtube.com/channel/UCn099hY5i89bTaocMq_yRhg

ПРЕДРАГ МИКА МЕДОВИЋ
(1930–2021)

Предраг Медовић, познатији по надимку Мика, који је носио од раног детињства, цео живот је посветио археологији. Од лета 1950. године, када је на плажи поред Дунава у Новом Саду, заједно са својим добрим другом Борислављом Јовановићем, одлучио да упише студије археологије, све до своје смрти, пуних 65 година, археологијом се бавио целим срцем, улажући сву своју снагу, време и знање. Археологија је, како је волео да каже, за њега била слатка мука.

Рођен је 13. августа 1930. године у Рогатици, од оца Алексе из Штрбаца и мајке Милене из Подроманије, поврх археолошки чувеног Гласиначког поља, усред пресељења породице из такође археолошки познатог Бутмира, па је у неком моменту сам Медовић, у шали, прокоментарисао да је то „археолошко порекло" утицало на његов даљи животни пут. Детињство је провео у селу Борика код Рогатице и ту завршио четворогодишњу основну школу. Средњошколско образовање започео је у Рогатици 1940. године. Прекинуо га је због Другог светског рата, који је породици Медовић донео доста патње, приморао је на бежање од усташког погрома, пресељење у Штрпце и велику немаштину и глад. Но ту није био крај патњама породице јер су је нове власти прогониле и по окончању рата. Образовање наставља 1945. године у гимназији у Сарајеву, затим прелази у Зрењанин и на крају у Нови Сад. Ту завршава гимназију 1950. године, упоредо радећи у Повереништву за пољопривреду Извршног већа Војводине како би зарадио за живот. Исте године уписује студије археологије на Филозофском факултету у Београду. Треба поменути да је те 1950. године археологију уписало чак 120 студената, и то је била најбројнија генерација све до оне из 1968. Генерација се током студија осипала, али ју је завршио велики број студената који су касније допринели развоју археологије код нас (Драгослав Срејовић, Борислав Јовановић, Никола Тасић, Богдан Брукнер, Љубица Зотовић, Милица Косорић, Михаило Зотовић, Милена Ђукнић, Емилија Томић, Олга Милутиновић Брукнер, Милорад Гирић, Мила Прикић, Петар Милошевић и други). Током студија учествовао је на бројним археолошким теренима показујући способност и спремност да се тим послом бави до краја живота. Дипломирао је у року, у јуну 1955, и након одслужења војног рока већ 1956. добио прво запослење у Титовом Ужицу. Новембра 1958. прелази у новоосновани Музеј града Новог Сада, априла 1965. у Покрајински завод за заштиту споменика културе у Новом Саду и радни век завршава 1994. године у Музеју Војводине (до 1992. Војвођански музеј), у коме је запослен од септембра 1980. године. Пензионисао се на лични захтев 1994. године, у знак протеста због све већих политичких притисака на археолошка истраживања.

Током каријере, у свакој од институција у којој је радио, без обзира на дужину боравка, улагао је максималан труд и доприносио развоју археологије у њој. У Музеју Устанка 1941, како се у почетку звао Народни музеј у Ужицу, инвентарише археолошке предмете које је затекао у музеју, организује рекогносцирање око Косјерића и територију од Пожеге до Бајине Баште, ископава средњовековне и праисторијске локалитете око Радоиње, као и градину у Стапарима. У почетку је једини археолог, а затим му се придружује Михаило Зотовић.

У Музеју града Новог Сада наставља истим темпом као и у Титовом Ужицу те одмах креће на заштитно ископавање у тврђави на Петроварадину, код зграде Топовњача. Ту ће се први пут сусрести с налазима из средњег палеолита које тада није препознао, али ће, како је сам тврдио, грешку исправити тек 2002. године приликом заштитних истраживања на Петроварадину, где је откривен средњопалеолитски слој управо захваљујући његовом упозорењу да се такав слој може очекивати у лесу. Неуморно ради на инвентарисању материјала, рекогносцирању околине Новог Сада и откривању нових локалитета. Истраживање насеља и некрополе из периода бронзаног и гвозденог доба на локалитету Попов Салаш сматра се једним од његових значајнијих радова током ране каријере.

Након непуне две године у музеју, 1960. године, постаје в. д. управника што ће утицати на њега, због обавеза и непријатности које носи то место, да пређе у Покрајински завод за заштиту споменика културе у Новом Саду. У то време директор завода је био архитекта Милоје Милошевић, који је од ове установе направио модерну и функционалну службу заштите. П. Медовић се укључује у рад с пуно радног елана, који га неће напустити наредне две деценије проведене у тој кући. Одмах по доласку у завод почео је да сакупља документацију са послератних археолошких истраживања у Војводини, која је била расута по институцијама широм Покрајине. Након успеха у том послу покренуо је уједначавање критеријума за израду теренске документације и израду формулара за дневник, теренски инвентар, нивелман итд. Предлог такве документације је на крају у Војводини усвојен као подзаконски акт и важио је годинама, све до осавремењивања начина вођења документације. Са Олгом Брукнер је израдио предлог Закона о обавези инвеститора, по узору на исти који је већ постојао у Словенији, да пре почетка инвестиционих радова обезбеди сагласност Покрајинског завода за своје радове. Закон је био усвојен, што је отворило пут обимним истраживањима на великим државним пројектима изградње ауто-пута, гасовода итд. који су се тих година спроводили по целој земљи. Доласком у Завод прикључио се великом тиму који је радио на пројекту „Топографија споменика културе Војводине", покренутом неколико година раније. Овај амбициозни пројекат подразумевао је рекогносцирање комплетне територије Војводине, тако да су археолози сваке године обилазили атаре 24 села да би се након десет година тај број смањио на 12 села годишње. До 1980. године рекогносцирано је 85% територије Војводине.

Највећи број истраживања обавио је док је радио у Покрајинском заводу. Реч је о рекогносцирањима, сондажним истраживањима и вишегодишњим систематским истраживањима неколико локалитета: десна обала Тамиша (Ботош, Орловат, Фаркацин, Чента), лева обала Бегеја од Стајићева до Перлеза, лева обала Дунава од Богојева до Бођана, хумке у Војловици код Панчева, Батки и на Вуни код Перлеза, заштита леве обале Дунава од Панчева до Банатске Паланке у време изградње ХЕ Ђердап I, праисторијско насеље у Брзој Врби (1969–1971) итд. Паралелно са својим истраживањима гостује и на другим археолошким радовима код колега у Војводини (Сирмијум, Белегиш, Мокрин, Иђош, Сајан).

Када је прешао у Војвођански музеј 1980. године на место руководиоца свих стручних служби и заменика директора, почиње да се бави припремањем великих изложби. Исте године је организовао изложбу „Културно благо Војводине", која је одржана у Љубљани, Бечу, Клагенфурту, Загребу, Скопљу, Београду и на крају у Новом Саду. Био је један од креатора сталне поставке Музеја, отворене 1990. године.

У археологији је остао запамћен по великим истраживањима Градине на Босуту, Калакаче и Феудвара. Велика ископавања Градине на Босуту започета су 1974. и трајала су 13 година. Нажалост, комплетни резултати нису публиковани због економске кризе која је уследила врло брзо по окончању истраживања и смрти неких од његових руководилаца, али је Предраг Медовић, у сарадњи с Илдико Медовић, објавио књигу о хоризонту гвозденог доба (P. Medović. I. Medović, *Gradina na Bosutu: naselje starijeg gvozdenog doba*, Novi Sad, Pokrajinski zavod za zaštitu spomenika kulture, Platoneum, 2011).

Локалитет Калакача је откривен 1971. приликом рекогносцирања трасе ауто-пута Београд – Нови Сад. Наредне три године уследила су велика истраживања и то је до тада била највећа акција заштите археолошких налазишта у Војводини, у којој је учествовало више покрајинских институција. Књига о тим истраживањима објављена је 1988. године (P. Medović, *Kalakača: naselje ranog gvozdenog doba*, Novi Sad, Vojvođanski muzej). Калакача је била одлучујућа у успостављању реалне стратиграфије гвозденог доба, Медовићев лични напредак и афирмација. Након тих истраживања почетак раног гвозденог доба у нашем Подунављу померен је од средине 8. века на средину 10. века пре нове ере. Управо је ту на Калакачи Медовић констатовао да се у средњем Подунављу издваја посебан хоризонт који хронолошки и територијално јасно одваја период раног гвозденог доба од старије културе поља с урнама (*Urnenfelderkultur*). Називи „Калакача хоризонт" и „насеља типа Калакача" данас су потпуно усвојени у европској археологији, а издвајање тог периода Медовића је винуло у врх југословенске археологије. Осим Калакаче, на траси ауто-пута у то време је истраживао још шест локалитета: Мардик, Сремски Карловци – Фрушка гора, Клиса у Новом Саду, Бачко Добро Поље, Врбас и Фекетић.

Каријеру су му крунисала велика истраживања на локалитету Феудвар, на ободу Тителског брега код Мошорина. Истраживања су почела 1986. године у сарадњи са Бернардом Хензелом, професором на Слободном универзитету у Берлину (Freie Universität Berlin). Прекинута су након 1991. године због политичких прилика, ратова и санкција у нашој земљи. После тога је настављена само обрада материјала и документације, као и публиковање резултата истраживања. У водећим међународним часописима објављено је више научних радова, резултати су презентовани на неколико научних скупова, увек у коауторству с Бернардом Хензелом (да поменем само неке: C-Datierungen aus den früe- und mittelbronzezeitlichen Schichten der Siedlung von Feudvar bei Mošorin in der Vojvodina, *Germania* 70 / 1992, 251–291; Bronzezeitlichen Inkrustationskeramik aus Feudvar bei Mošorin an der Theissmündung, *Archäologische Konferenc des Komitätes Zala und Niderösterreiches* III, Keszthely 1992, 252–291; Eine Bronzegiesserwerkstatt der frühen Bronzezeit in Feudvar bei Mošorin in der Vojvodina, *Universitätforschungen zur Prähistorischen Archäologie* Bd. 10, Bon 2004, 83–111; Феудвар код Мошорина – насеље гвозденог и бронзаног доба, *Рад војвођанских музеја* 31 / 1988–1989, 21–36). Такође, изашао је и опширан извештај о истраживањима свих научних дисциплина (В.

Hänsel, P. Medović, Vorbericht über die jugoslawisch-deutschen Ausgrabungen in der Sidlung von Feudvar bei Mošorin von 1986–1990, *Bericht der Römisch-germanischen Kommission* 72 / 1991, 45–204), настала је једна докторска дисертација о Тителском платоу, објављена као монографија (Frank Falkenstein, *Feudvar II: Die siedlungsgeschichte des Titeler Plateaus*, Prähistorische Archäologie in Südosteuropa Bd. 14, Kiel 1998) и једна монографија о Шајкашкој у прошлости (*Feudvar I. Das Plateau von Titel und die Šajkaška: Archäologische und naturwissenschaftliche Beiträge zu einer Kulturlandschaft = Titelski plato i Šajkaška: Arheološki i prirodnjački prilozi o kulturnoj slici područja*, Prähistorische Archäologie in Südosteuropa Bd. 13, Kiel 1998). На основу истраживања на Феудвару отклоњене су недоумице око развоја ватинске културе. На основу јасне стратиграфске слике насеобинских слојева откривених на локалитету установљене су само две развојне фазе те веома распрострањене културе – старија вршачко-ватинска и млађа панчевачко-омољичка фаза.

Након престанка рада на Феудвару наставља истраживање околине овог важног локалитета и започиње рад на великој некрополи из бронзаног доба и средњег века на локалитету Стубарлија. Истраживања су рађена у најтежим годинама инфлације и беспарице и радови су једним делом лично финансирани. Резултат је био монографија објављена 2007. године (P. Medović, *Stubarlija: nekropola naselja Feudvar kod Mošorina (Bačka)*, Novi Sad, Muzej Vojvodine, Posebna izdanja 20, 2007). Књига је била повод за награду општине Тител за доприносе на истраживању Тителског брега и ово је једина награда коју је добио за свој вишедеценијски рад у заштити и очувању културне баштине Војводине.

Поред веома активног стручног ангажовања у заштити археолошке баштине и унапређењу струке, Предраг Медовић је био и успешан научник. Докторску тезу под насловом „Релативна хронологија насеља старијег гвозденог доба у југословенском Подунављу" одбранио је новембра 1977. године на Филозофском факултету у Београду. Наредне године теза је објављена у едицији *Dissertations et Monographiae* Савеза археолошких друштава Југославије (*Naselja starijeg gvozdenog doba u jugoslovenskom Podunavlju*, Novi Sad, Beograd 1978). Дисертација се добрим делом заснивала на резултатима његових истраживања Градине на Босуту и Калакаче, где је на основу откривеног материјала могао јасно да дефинише развој раног гвозденог доба и посебно издвоји Калакача хоризонт у оквиру босутске културе као најраније фазе развоја гвозденог доба. На основу сопствених истраживања раног гвозденог доба у Војводини, расветлио је нејасну слику тог доба коју је затекао када је почео да се њиме бави, што се сматра његовим највећим научним доприносом у нашој археологији. На истом факултету добио је и сва научна звања до оног највишег – звања научни саветник, које је стекао 1991. године. Одмах по доласку у Војвођански музеј, покренуо је оснивање Научне јединице у Музеју, која је почела с радом 1981. године, и био њен руководилац наредних десет година. Преко Научне јединице Музеј је за своја истраживања могао да користи средства из покрајинских фондова за научна истраживања, што је био одличан потез. Научна јединица је угашена 1991. због политичких промена, након којих су нека овлашћења са покрајинских прешла на републичке органе власти. Од 1971. године био је на више студијских боравака у Немачкој, Бугарској, Румунији, Мађарској, Чехословачкој, Украјини, Енглеској, Италији и Аустрији. Због плодне сарадње с немачким археолозима постао је почасни члан Немачког археолошког института (Deutsches Archäologisches Institut).

Предраг Медовић је био и друштвено ангажован у археологији. Био је један од иницијатора оснивања Археолошке секције Музејског друштва Војводине. Из ње ће касније израсти Археолошко друштво Војводине, којим ће једно време и председавати. У периоду 1980–1984. био је председник Савеза археолошких друштава Југославије и у том својству је организовао XII конгрес археолога Југославије, под називом „Одбрамбени системи у праисторији и антици на тлу Југославије" (*Odbrambeni sistemi u praistoriji i antici na tlu Jugoslavije*, Materijali XXII, Novi Sad 1984).

Одлазак у пензију није га прекинуо у раду у археологији. Прве године након пензионисања посветио је завршетку публикација са својих великих истраживања на Феудвару и Стубарлији. У периоду 2002–2004. учествовао је на великим заштитним истраживањима на Петроварадинској тврђави, где је водио инвентарисање материјала и био стручни консултант. Године 2008. као један од аутора, поред Нађе Фолић Куртовић, Бранке Кулић и Мирјане Ђекић, потписује монографију „Културно наслеђе Војводине", коју је издао Покрајински завод за заштиту споменика културе.

Највећи део времена у пензији посветио је популаризацији археолошког наслеђа у Војводини. Објавио је неколико књига: *Praistorija na tlu Vojvodine: od Panonskog mora do dolaska Rimljana* (Novi Sad 2001), *Od pećine do palate: praistorija Evrope* (Novi Sad 2003), *Vojvodina u praistoriji: od neandertalaca do Kelta* (Novi Sad 2006), *Нови Сад од неандерталаца до Турака* (Нови Сад 2014). Књига *100 najlepših umetničkih dela praistorije Evrope* (Novi Sad 2020) изашла је из штампарије тек након његове смрти, а чека се и њена енглеска верзија.

Предраг Медовић је био један од ретких археолога код нас који је био велики стручњак у практичним археолошким пословима (теренско истраживање, заштита и презентација културног наслеђа) и у исто време успешан научник. Због тога је био цењен како у својој земљи тако и у иностранству. Велика љубав и енергија које је улагао на послу виде се у свему што је урадио у свом дугом веку, свакој књизи и чланку који је написао. Тако вредан и енергичан исто је захтевао и од својих сарадника, од којих су неки могли да га прате, али било је и супротних случајева. Понекад је та његова енергија наилазила и на отпор, нарочито у кризним временима када је дошло до девалвације сваке врсте у земљи која се распадала. Медовића, међутим, никада ништа није могло да поремети у великом жару који је осећао према археологији, код њега није било пословних падова нити повлачења пред препрекама које су му стајале на путу ка стручној афирмацији. Увек је био принципијелан, спреман да истера правду по сваку цену, да одбрани своје ставове, због чега је на крају пре времена пензионисан. Те нестабилне године крајем двадесетог века, када је отишао у пензију, далеко су иза нас, многи их се чак и не сећају, али име Предрага Медовића остаће уписано великим словима у историји дисциплине коју је волео до последњег даха и која је обележила његов живот.

Драгана АНТОНОВИЋ

ДУШИЦА МИНИЋ
(1933–2020)

Последњег дана прошле године напустила нас је др Душица Минић, научни саветник Археолошког института у пензији. Дискретан одлазак, далеко од очију стручне јавности, био је у складу с њеном тихом, сталоженом природом, због које је савесним радом испуњена каријера протекла у хармоничним односима са колегама у различитим истраживачким тимовима. Име Душице Минић везује се, пре свега, за проучавање насеља и манастирских комплекса српске средњовековне државе, а уз то и за низ тема и појава из средњовековне прошлости централног Балкана.

Душица Минић рођена је 18. јануара 1933. године у Крагујевцу, а школовала се у Београду. На Одељењу за археологију Филозофског факултета дипломирала је 1955. године, затим је на истом факултету завршила трећи степен студија 1965. године, одбранивши магистарски рад *Најновији резултати истраживања етничке припадности носилаца белобрдске културе*, и докторирала 1975. године са темом *Средњовековна сеоска насеља у Србији од X до XIV века*. Темом докторске дисертације јасно су исказана интересовања и уцртан пут доцнијих Душичиних истраживања.

Непосредно након стицања дипломе археолога, запослила се као кустос у Народном музеју у Крагујевцу, где је радила до 1961. године. Након петогодишње паузе, 1966. године долази у Археолошки институт, на место асистента за средњовековну археологију. У звање научни сарадник изабрана је 1975, виши научни сарадник 1979. и научни саветник 1990. године. Након одласка у пензију 1997. године наставља да ради на публиковању резултата својих истраживања.

Душица Минић је стекла велико искуство на бројним теренима учествујући у низу истраживачких пројеката. Руководила је истраживањима у Мачванској Митровици и у Ђердапу у обе фазе пројекта – у оквиру прве фазе (Ђердап I) на налазиштима Рибница, Манастир, Песача, Поречка река, Пецка, а у другој фази (Ђердапа II) у Велесници, Биљевини, Грабовици и Брзој Паланци. Потом је била на челу истраживања на Трговишту код Новог Пазара, у Крушевцу и Сталаћу. Истовремено је радила на археолошком рекогносцирању Пештери, источних делова Косова, као и на прикупљању грађе о средњовековним надгробним споменицима – стећцима у западној Србији. Обавила је опсежна истраживања у средњем Полимљу, где је уз убицирање и техничко снимање низа средњовековних утврђења утврдила североисточну границу поседа властеоске породице Косача.

Вишегодишњу успешну истраживачку активност Душица Минић усмерила је на свестрано проучавање материјалне и духовне културе становништва на подручју данашње Србије како у раном тако и касном средњем веку. Њена примарна и константна научна интересовања тицала су се проблема насељавања, формирања сеоских и градских насеља те развојних облика насеобинских објеката у различитим природним, политичким и привредним условима. Истовремено, археолошки материјал сакупљен приликом ископавања успешно је обрађивала, уз праћење развоја домаће занатске делатности. С нарочитом пажњом радила је на типолошко-хронолошкој обради керамичког материјала из затворених археолошких целина, међу којима се издва-

јају асемблажи из Мачванске Митровице, Рибнице, Сталаћа и Крушевца.

У богатој и разноврсној каријери Душице Минић свакако се истичу резултати систематских истраживања средњовековног насеља на локалитету Зидине (Шарингрaд) у Мачванској Митровици, која су обављена у оквиру пројекта истраживања Сирмијума између 1966. и 1970. године, а резултати објављени на француском језику у угледној едицији *Sirmium* (D. Minić, Le site d'habitation médiéval de Mačvanska Mitrovica, *Sirmium* XI, éd. V. Popović, Beograd 1980). До данас ово је једно од најбоље истражених насеља са црквама и некрополама из раздобља од 10. до 15. века на територији Србије, које је омогућило разумевање низа различитих појава у вези са становањем и сахрањивањем у средњем веку.

Низ нових података о средњовековним насељима добијен је приликом археолошких ископавања у Бољетину, Хајдучкој Воденици, Рибници, Ушћу Поречке реке, Велеснице, Грабовице и Брзе Паланке, које је Душица Минић објавила у плодотворној сарадњи са колегиницом Славенком Ерцеговић-Павловић. Поред тема из домена насеобинске археологије у Подунављу, обрадила је и објавила накит из највреднијих остава из средњег века на подручју Србије, из Народног музеја у Пожаревцу (*Старинар* XXI/1970 и из Великог Градишта (*Старинар* XXIII/1972, 163–168), оба у коауторству са Мирјаном Томић.

Након завршетка рада у Ђердапу, Душица Минић се укључила у обимна археолошких истраживања Археолошког института у централној и југозападној Србији, у изузетно важном сегменту проучавања насеља и манастирских комплекса српске средњовековне државе. Веома сложени програми одвијали су се готово истовремено на оба подручја. Вишегодишња систематска истраживања касносредњовековног насеља на локалитету Пазариште код Новог Пазара, којима је Душица Минић руководила, била су саставни део ширег истраживачког захвата који је обухватао истраживања тврђаве Рас, под руководством Марка Поповића (Археолошки институт) и касносредњовековних некропола на локалитету Табачина, којима је руководио проф. др Војислав Јовановић (Одељење за археологију Филозофског факултета у Београду), уз подршку Музеја Рас у Новом Пазару и сарадњу тадашњег кустоса Драгице Премовић, као и архитекте Гордане Милошевић Јевтић (Археолошки институт). Истраживања на Трговишту су изузетно значајна за изучавање изгледа кућа, како брвнара у старијој фази, тако и камених спратних кућа у млађој фази, такође и за њихову просторну организацију и укупну структуру тих насеља. Нажалост, изузев прелиминарних извештаја (нпр. Д. Минић, Нека запажања о градњи кућа у средњовековном Трговишту, *Гласник Српског археолошког друштва* 5 (1989), 94–99; В. Јовановић, Д. Минић, С. Ерцеговић-Павловић, Некрополе средњовековног Трговишта, *Новопазарски зборник* 14 (1990), 19–44), комплетна објава резултата истраживања Трговишта је изостала стицајем различитих непредвиђених околности.

С друге стране, пројекти истраживања тврђава Сталаћ и Брвеник, манастира Жиче и Милешеве, Цркве Св. Николе у Кончулићу код Рашке, различити у погледу организације теренског рада који је укључивао и благовремено изведене конзерваторско-реставраторске захвате, изискивао је дугорочно партнерство са службом заштите. Успешна пословна сарадња која је надграђена пријатељством између Душице Минић и Обреније Вукадин, колегиница сличних, добрих радних навика и темперамента, и уз њих архитекте Слободана Ђорђевића, свакако је допринео чврстој дугорочној повезаности између Археолошког института и институција у Краљеву, пре свега Завода за заштиту споменика, али и Народног музеја. Најбољу илустрацију те сарадње видимо у чланцима објављеним у зборнику радова *Рашка баштина* и, нарочито, монографији Душице Минић и Обреније Вукадин *Средњовековни Сталаћ*, објављене 2009. године у суиздаваштву Института и Завода. На овом месту подсетићемо и на значајне резултате које је Душица Минић постигла приликом археолошких истраживања у манастирима Жича и Милешева (Археолошки подаци о манастиру Жичи, у: *Манастир Жича. Зборник радова*, ур. Г. Суботић, Краљево 2000, 223–246; О. Кандић, Д. Минић, Е. Пејовић, *Манастир Милешева: истраживања и обнова*, Каталог изложбе, Београд–Пријепоље 1995).

Преузевши осамдесетих година прошлог века истраживања старог Крушевца, Душица Минић се подухватила захтевног задатка да уз дефинисање два главна културна хоризонта: старији, из времена од оснивања града до средине 15. века, и млађи, из времена турске превласти, систематизује целокупан, врло разнородан археолошки материјал. Резултати њеног преданог рада објављени су *Старинару* XXX (1980), у чланку *Прилог проучавању средњовековне керамике из Крушевца*, и у зборнику радова под уредништвом Павла Васића *Уметничка топографија Крушевца* (Матица српска Нови Сад 1990), где је Душица Минић дала прилог о примењеној уметности средњовековног Крушевца.

Осим у публикацијама, резултате својих истраживања Душица Минић је саопштавала на стручним и научним скуповима, међу којима су симпозијуми Савеза археолошких друштава Југославије и годишњи скупови Српског археолошког друштва и Друштва конзерватора Србије. Као угледни истраживач српског средњег века била је укључена у рад низа стручних комисија, као и Комисије за средњовековно споменичко наслеђе.

Душица Минић је оставила велики траг у југословенској и, нарочито, српској археологији средњег века. Налазишта која је савесно истраживала и документовала и даље представљају референтне примере насеобинских контекста на ширем балканском простору, како по сачуваним структурама тако и у погледу покретног археолошког материјала. Својом посвећеношћу раду, великим стручним знањем и искуством, ненаметљивим понашањем и господственим држањем представљала је археологију на високом професионалном нивоу, дајући у то време (још увек) доста суровим теренским условима дашак елеганције и префињености.

Весна БИКИЋ

ЉУБИЦА ЗОТОВИЋ
(1931–2021)

Др Љубица Зотовић, научни саветник Археолошког института у пензији, преминула је лета 2021. године, остављајући за собом неизбрисив траг у археолошкој струци и науци. Своја истраживања посветила је античким култовима, а најзначајније резултате постигла је изучавајући култ Митре и источњачке религије. Спада међу највеће познаваоце римског култа и религије на простору некадашње Југославије. Резултати њеног дугогодишњег руковођења ископавањима археолошких локалитета Медијана и Виминацијум несумњиво су били и остали основа за сва следећа истраживања, а у аманет будућим истраживачима оставила је и документациони центар формиран како за археолошки тако и за антрополошки материјал.

Љубица Зотовић рођена је 5. јуна 1931. године у Љубљани. Време рата провела је у Шапцу, где је завршила основну школу, и ту остала до ослобођења. По ослобођењу, када се њен отац вратио из заробљеништва, преселили су се у Београд, где је завршила гимназију и матурирала 1950. године. Исте године је уписала археологију на Филозофском факултету, где је и дипломирала 1954. године. За време студија била је члан Савеза студената и учествовала у раду стручних кружока које је студентска организација основала као помоћ млађим колегама.

По завршеним студијама 1954. године, кратко време радила је као волонтер у Савезном институту за заштиту споменика културе, а 1955. године изабрана је за асистента Археолошког института, где је најпре радила на документацији, а потом као асистент за класичну археологију.

Докторску дисертацију *Ликовне представе оријенталних божанстава са територије Југославије* одбранила је 1964. године на Филозофском факултету у Београду. Годину дана касније изабрана је за научног сарадника за класичну археологију у Археолошком институту. Њена докторска теза и данас представља важно научно упориште за проучавање античких, источњачких култова, јер је по први пут на једном месту сакупљен целокупан до тада расположив материјал, који заједно са аналогијама превазилази географске оквире некадашње Југославије.

За вишег научног сарадника Археолошког института изабрана је 1968, а за научног саветника 1979. године.

Од 1958. до 1960. године била је задужена за археолошку контролу радова на античким локалитетима угроженим изградњом ауто-пута „Братство-јединство" на секторима од Ниша до Скопља, заједно са М. Гарашанином, који је контролисао рад на праисторијским локалитетима. У оквиру тог посла спровела је заштитна ископавања у Великој Грабовници и Малој Копашници код Лесковца. Истраживања на римској некрополи спаљених покојника у Малој Копашници вршена су од 1960. до 1962. године и током 1964. године. Та истраживања за археолошку науку имају немерљив значај јер се дошло до сазнања о новим типовима сахрањивања, веома специфичним за Горњу Мезију, а она су до дан данас позната као гробови типа „Мала Копашница – Сасе". Током 1958. године учествовала је на рекогносцирањима угроженог подручја на Ђердапу, а 1965. године са Н. Петровић радила је на систематском ископавању римског

војног логора у Бољетину. На ископавању касноантичке некрополе у Нишу радила је од 1956. до 1962. године и 1967. године, заједно са колегама М. Грбићем и Н. Петровић. Иста археолошка екипа, заједно са П. Петровићем радила је на истраживању касноантичког насеља на Медијани у периоду 1959–1962. и 1967. године.

Љубица Зотовић је била руководилац два најважнија истраживачка пројекта из археологије римског доба на територији Србије.

Од 1972. године руководила је пројектом „Медијана – касноантичко насеље у Нишу", током којег је извршено и систематско истраживање римске виле. Од 1973. године руководила је пројектом Виминацијум, а 1976. године Републички завод за заштиту споменика културе именовао је др Љубицу Зотовић за потпредседника Републичке комисије за Виминацијум. То су била прва систематска ископавања након оних спроведених пре Првог светског рата која су започели Валтровић и Васић. Та истраживања пружила су значајне податке за топографију Виминацијума и хронологију тог античког града и војног логора. Тада је откривена и некропола из доба Сеобе народа. Од 1977. године на Виминацијуму руководила је систематским, заштитним ископавањима терена угроженог изградњом термоелектране „Дрмно". Током руковођења ископавањима на Виминацијуму оформила је документациони центар за археолошки и антрополошки материјал.

Љубица Зотовић је била члан редакције и сарадник више истакнутих научних часописа и серија у иностранству:

– Стални дописни члан *Journal of Mithraic Studies (University of East England)*

– Повремени сарадник серије *Aufstieg und Niedergang der römischen Welt (University of Tübingen)*

– Сарадник серије *Études préliminaires aux religions orientales dans l'Empire romain (Brill)*

– Придружени члан *Society for Mithraic Studies (University of Manchester)*

У својим научним радовима највише се бавила проблемима античке уметности, историје религије и култа, као и погребним праксама и ритуалима.

Круна њеног истраживачког рада је монографија *Митраизам на тлу Југославије* из 1974. године, у којој је дат потпун каталог Митриних споменика са свестраном иконографском анализом и у којој су посебно обрађена Митрина култна места. Незаобилазна литература за изучавање античког култа и религије на простору Горње Мезије свакако је монографија *Les cultes orientaux sur le territoire de la Mésie supérieure* из 1966. године, коју је издао угледни *Brill*. Монографије о Виминацијуму су полазна основа сваком истраживачу овог античког града, војног логора и нарочито његових некропола: *Некропола из времена сеобе народа са уже градске територије Виминацијума* (1981) и *Viminacivm: некропола „Више гробаља"* (са Ч. Јордовићем 1990). Резултати истраживања нишке некрополе објављени су у књизи *Касноантичка некропола у Јагодин мали у Нишу* (1968).

Треба поменути значајне енциклопедијске одреднице:

– *Princeton Dictionary of Classical Archaeology, New Jersey* 1976. – енциклопедијски прилог *Limes of Đerdap*

– *Енциклопедија Југославије* 1982. – одреднице Виминацијум, Орешац, Талијата

– *Ликовна енциклопедија Југославије* 1980. – одредница Медијана касноантичко налазиште

Др Љубица Зотовић је носилац Октобарске награде за 1974. годину за коауторски рад на публикацији *Религиозни споменици са територије Синђидунума.*

Формални одлазак у пензију 1995. године није значио њено повлачење из науке јер је исте године наставила рад на научном пројекту *Археологија Србије*, на којем је била задужена за обављање научно истраживачког рада на теми – Антички градови: Виминацијум, Медијана и историја религије римског доба.

На вест о смрти мени драге и изузетно поштоване колегинице Љубице Зотовић, прва мисао, прво осећање, била је захвалност на свему оном чему нас је научила. И примарно затечен мишљу о губитку, полако сам добијао слику не о губитку већ о томе чиме нас је она све обогатила. А обогатила нас је несебичним даривањем знања у предивном занату који се зове археологија и заувек нам уткала љубав према њој. Али осетио сам и оно друго, можда и важније: пренела нам је своју отменост и достојанственост. Виминацијумски тим и ја смо јој дубоко захвални на томе.

Миомир КОРАЋ

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Editorial Board must hold no conflict of interest with regard to the articles they consider for publication. If an Editor feels that there is likely to be a perception of a conflict of interest in relation to their handling of a submission, the selection of reviewers and all decisions on the paper shall be made by the editor and editorial board.

Editorial Board shall evaluate manuscripts for their intellectual content free from any racial, gender, sexual, religious, ethnic, or political bias.

The Editor and the Editorial Staff must not use unpublished materials disclosed in submitted manuscripts without the express written consent of the authors. The information and ideas presented in submitted manuscripts shall be kept confidential and must not be used for personal gain.

The journal Starinar applies the system of double-blind peer review. Editors and the Editorial Staff shall take all reasonable measures to ensure that the reviewers remain anonymous to the authors before, during and after the evaluation process and the authors remain anonymous to reviewers until the end of the review procedure.

Papers prepared for publishing should be submitted to the editorial secretary between 20 November to 20 December of the current year for the volume that will be published the following year. The Editorial board meets after the submission of all papers. At the first meeting, reviewers are selected and assigned manuscripts for review.

AUTHORS' RESPONSIBILITIES

Authors warrant that their manuscript is their original work, that it has not been published before and is not under consideration for publication elsewhere. Parallel submission of the same paper to another journal constitutes a misconduct and eliminates the manuscript from consideration by *Starinar*.

The Authors also warrant that the manuscript is not and will not be published elsewhere (after the publication in Starinar) in any other language without the consent of the Publisher.

In case a submitted manuscript is a result of a research project, or its previous version has been presented at a conference in the form of an oral presentation (under the same or similar title), detailed information about the project, the conference, etc. shall be provided in front of the first footnote and it should be marked with a star. A paper that has already been published in another journal cannot be reprinted in Starinar.

It is the responsibility of each author to ensure that papers submitted to *Starinar* are written with ethical standards in mind. Authors affirm that the article contains no unfounded or unlawful statements and does not violate the rights of third parties. The Publisher will not be held legally responsible should there be any claims for compensation.

Reporting standards

A submitted manuscript should contain sufficient detail and references to permit reviewers and, subsequently, readers to verify the claims presented in it. The deliberate presentation of false claims is a violation of ethical standards. Book reviews, critical reviews, necrologies and other professional articles are reviewed as well and the decision on their acceptance or rejection is made by the Editorial Board based on reviews.

Authors are exclusively responsible for the contents of their submissions and must make sure that they have permission from all involved parties to make the data public.

Authors wishing to include figures, tables or other materials that have already been published elsewhere are required to obtain permission from the copyright holder(s). Any material received without such evidence will be assumed to originate from the authors.

Authorship

Authors must make sure that all only contributors who have significantly contributed to the submission are listed as authors and, conversely, that all contributors who have significantly contributed to the submission are listed as authors. If persons other than authors were involved in important aspects of the research project and the preparation of the manuscript, their contribution should be acknowledged in a footnote or the Acknowledgments section.

Acknowledgment of Sources

Authors are required to properly cite sources that have significantly influenced their research and their manuscript. Information received in a private conversation or correspondence with third parties, in reviewing project applications, manuscripts and similar materials, must not be used without the express written consent of the information source.

Plagiarism

Plagiarism, where someone assumes another's ideas, words, or other creative expression as one's own, is a clear violation of scientific ethics. Plagiarism may also involve a violation of copyright law, punishable by legal action.

Plagiarism includes the following:

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– Copying equations, figures or tables from someone else's paper without properly citing the source and/or without permission from the original author or the copyright holder.

Please note that all submissions are thoroughly checked for plagiarism. Any paper which shows obvious signs of plagiarism will be automatically rejected and authors will be temporary permitted to publish in Starinar.

In case plagiarism is discovered in a paper that has already been published by the journal, it will be retracted in accordance with the procedure described below under Retraction policy, and authors will be temporary permitted to publish in Starinar.

Conflict of interest

Authors should disclose in their manuscript any financial or other substantive conflict of interest that might have influenced the presented results or their interpretation.

Fundamental errors in published works

When an author discovers a significant error or inaccuracy in his/her own published work, it is the author's obligation to promptly notify the journal Editor or publisher and cooperate with the Editor to retract or correct the paper.

By submitting a manuscript the authors agree to abide by the *Starinar*'s Editorial Policies.

REVIEWERS' RESPONSIBILITIES

Reviewers are required to provide written, competent and unbiased feedback in a timely manner on the scholarly merits and the scientific value of the manuscript.

The reviewers assess manuscript for the compliance with the profile of the journal, the relevance of the investigated topic and applied methods, the originality and scientific relevance of information presented in the manuscript, the presentation style and scholarly apparatus.

Reviewers should alert the Editor to any well-founded suspicions or the knowledge of possible violations of ethical standards by the authors. Reviewers should recognize relevant published works that have not been cited by the authors and alert the Editor to substantial similarities between a reviewed manuscript and any manuscript published or under consideration for publication elsewhere, in the event they are aware of such. Reviewers should also alert the Editor to a parallel submission of the same paper to another journal, in the event they are aware of such.

Reviewers must not have conflict of interest with respect to the research, the authors and/or the funding sources for the

research. If such conflicts exist, the reviewers must report them to the Editor without delay.

Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the Editor without delay.

Reviews must be conducted objectively. Personal criticism of the author is inappropriate. Reviewers should express their views clearly with supporting arguments.

Any manuscripts received for review must be treated as confidential documents. Reviewers must not use unpublished materials disclosed in submitted manuscripts without the express written consent of the authors. The information and ideas presented in submitted manuscripts shall be kept confidential and must not be used for personal gain.

PEER REVIEW

The submitted manuscripts are subject to a peer review process. The purpose of peer review is to assists the Editorial Board in making editorial decisions and through the editorial communications with the author it may also assist the author in improving the paper.

To every paper submitted to editorial board of Starinar two reviewers are assigned. Reviewers could be members of the Editorial Board, associates of the Institute of Archaeology or eternal associates, with the same or higher scientific degree as the author(s), competent in the field of the manuscript's topic. The suggestions on who the reviewers should be are made by the Editorial Board, and adopted by the Editor-in-Chief.

All papers are reviewed by using the double-blind peer review system: the identity of the author is not known to the reviewers and vice versa. Reviewers shall send their reviews within the period of 30 days after the receipt of the manuscript. Reviewers are not paid for this work.

If a reviewer requires a revision of a manuscript, authors shall send a revised version with changes made in accordance with the reviewer's suggestions within the period of 30 days. In case they consider the revision request unfounded, the authors should send their arguments explaining why they did not make the required revision. The same timeframe applies to revisions of manuscripts that are not written in accordance with the author guidelines.

The decision of acceptance of the paper is made by the Editorial Board of Starinar by majority vote based on the peer reviews and the evaluation of the authors' revision or their arguments, if they did not make changes to the manuscript.

After the final decision on the content of a volume is made, manuscripts are sent for editing and proofreading, and then to a graphic designer, who is responsible for computer layout, design and prepress. Before printing, the authors will have the opportunity to proofread their paper twice in the PDF format. The final approval for printing is given by the Editor-in-Chief. The whole volume should be send to the printing press by 1 October.

The reviewers selected by the Editorial Board, receive a peer review form with questions that they should answer. The purpose of the questions is to indicate all aspects that they should consider in order to make a decision on the destiny of a paper. In the final part of the form, reviewers are supposed to write their opinion and suggestions how to improve the paper. The identity of reviewers is unknown to authors, before, during and after the review procedure. The identity of authors is unknown to reviewers before, during and after the review procedure (until the paper is published). It is suggested to authors to avoid formulations that could reveal their identity. The Editorial Board shall ensure that before sending a paper to a reviewer, all personal details of the author (name, affiliation, etc.) will be deleted and that all measures will be undertaken in order to keep the author's identity unknown to the reviewer during the review procedure.

The choice of reviewers is at the Editorial Board's discretion. The reviewers must be knowledgeable about the subject area of the manuscript; and they should not have recent joint publications with any of the authors.

All of the reviewers of a paper act independently and they are not aware of each other's identities. If the decisions of the two reviewers are not the same (accept/reject), the Editor may assign additional reviewers.

During the review process Editor may require authors to provide additional information (including raw data) if they are necessary for the evaluation of the scholarly merit of the manuscript. These materials shall be kept confidential and must not be used for personal gain.

The Editorial team shall ensure reasonable quality control for the reviews. With respect to reviewers whose reviews are convincingly questioned by authors, special attention will be paid to ensure that the reviews are objective and high in academic standard. When there is any doubt with regard to the objectivity of the reviews or quality of the review, additional reviewers will be assigned.

PROCEDURES FOR DEALING WITH UNETHICAL BEHAVIOUR

Anyone may inform the editors and/or Editorial Staff at any time of suspected unethical behaviour or any type of misconduct by giving the necessary information/evidence to start an investigation.

Investigation

– Editor-in-Chief will consult with the Editorial Board on decisions regarding the initiation of an investigation.
– During an investigation, any evidence should be treated as strictly confidential and only made available to those strictly involved in investigating.
– The accused will always be given the chance to respond to any charges made against them.
– If it is judged at the end of the investigation that misconduct has occurred, then it will be classified as either minor or serious.

Minor misconduct

Minor misconduct will be dealt directly with those involved without involving any other parties, e.g.:

– Communicating to authors/reviewers whenever a minor issue involving misunderstanding or misapplication of academic standards has occurred.
– A warning letter to an author or reviewer regarding fairly minor misconduct.

Major misconduct

The Editor-in-Chief, in consultation with the Editorial Board, and, when appropriate, further consultation with a small group of experts should make any decision regarding the course of

action to be taken using the evidence available. The possible outcomes are as follows (these can be used separately or jointly):

– Publication of a formal announcement or editorial describing the misconduct.
– Informing the author's (or reviewer's) head of department or employer of any misconduct by means of a formal letter.
– The formal, announced retraction of publications from the journal in accordance with the Retraction Policy (see below).
– A ban on submissions from an individual for a defined period.
– Referring a case to a professional organization or legal authority for further investigation and action.

When dealing with unethical behaviour, the Editorial Staff will rely on the guidelines and recommendations provided by the Committee on Publication Ethics (COPE): http://publicationethics.org/resources/.

RETRACTION POLICY

Legal limitations of the publisher, copyright holder or author(s), infringements of professional ethical codes, such as multiple submissions, bogus claims of authorship, plagiarism, fraudulent use of data or any major misconduct require retraction of an article. Occasionally a retraction can be used to correct errors in submission or publication. The main reason for withdrawal or retraction is to correct the mistake while preserving the integrity of science; it is not to punish the author.

Standards for dealing with retractions have been developed by a number of library and scholarly bodies, and this practice has been adopted for article retraction by Starinar: in the electronic version of the retraction note, a link is made to the original article. In the electronic version of the original article, a link is made to the retraction note where it is clearly stated that the article has been retracted. The original article is retained unchanged, save for a watermark on the PDF indicating on each page that it is "retracted."

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SUBMISSION INSTRUCTIONS FOR THE *STARINAR* JOURNAL

By applying the new rules (Acta) for publishing activities issued by the Institute of Archaeology, Belgrade and in accordance with the editorial policy of the Starinar journal, the editorial board of the Starinar journal have decided to improve its quality and, thus, contribute to its full integration into the international system of exchanging scientific information.

The Starinar journal is dedicated to topics from the scientific areas of archaeology, history, history of arts, architecture and similar scientific disciplines.

The Starinar journal publishes original papers that have not been previously published: original scientific articles, excavation reports, scientific reviews, book reviews, critiques, bibliographies and necrologies.

Articles can be submitted in English, German or French. If the paper is written in English, the summary can be written in Serbian (for authors from Serbia) or English (for foreign authors), while articles submitted in German or French need to have the summary in English.

Articles submitted to the Starinar editorial board must contain customary data. Each article should therefore include: title; author's forename and surname; affiliation; abstract; key words; main text; summary; graphic images with list of captions; bibliography; contact details.

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1. The title should be short and clear, reflecting as much as possible the content of the article. The title should include words which are easy to index and search for. If there are no such words integrated into the title, it is preferable to have an added subtitle. The title should appear in either the fifth or sixth row under the upper margin, in bold, with a font size of 14 pts.

2. The author or authors should include their full names.

3. The author or authors should write the official name and address of the institution they represent, together with, where applicable, the official name and address of the location where they performed their research. With complex institutions, all names should be included (e.g. University of Belgrade, Philosophical Faculty, Department of Archaeology, Belgrade).

4. The abstract represents a short overview of the article (100–250 words). It is advisable for this to contain words which are easy to index or search for. The abstract should offer data about the research goal, method, results and conclusion. Abstracts should be written in the same language as the article (English, German or French). It is necessary to use correct grammar and spelling and to have the document reviewed by a qualified native proof-reader.

5. The key words should include words or phrases that effectively describe the content of the article, and which are easy to index and search for. They should be selected according to an internationally recognised source (index, vocabulary, and thesaurus), such as the list of key words Web of Science. The number of key words should not exceed ten.

6. Articles should be no longer than 32 DIN A4 pages, including footnotes and illustrations. The body text should be written digitally, using Times New Roman or Arial font (font size 12 pts), MS Office Word 97 or later, with a line spacing of 1.5 and margins set to 2.54 cm. The body text must not contain illustrations. Illustrations must be submitted as separate files.

7. Manuscripts must be submitted in English, German or French, with the author obliged to state the name of the translator and the proof-reader who checked the paper. Words, statements

and titles written in a foreign language should be written using their original spelling and, in accordance with the editor's or reviewer's suggestions, transliterated (translated) into the submission language of the manuscript.

Footnotes can be included in the main paper. They should contain less important data, required explanations and cited literature. (A separate chapter of the Submission Instructions details the required method for quoting that is to be applied when writing a paper).

8. The summary must have the same content as the abstract, only expanded, but not longer than 1/10 of the paper's overall size. It is strongly advised to write the summary in a structural form. Papers submitted in English must have the summary in Serbian (for Serbian authors) or English (for foreign authors). Papers in German or French must have the summary in English. As well as the summary text, the title of the paper, the key words and the author's affiliation should be written in the appropriate language.

9. Illustrations (photographs, tables, drawings, graphs etc.) should all be in the same format. Scanned illustrations should be in a resolution of 600 dpi, while photographs should be in a resolution of at least 300 dpi, and of a TIFF, PSD or JPG format. Illustrations are to be submitted as a separate part of the paper and should not be integrated into the basic text. Titles and captions should be submitted bilingually, where applicable, (the languages in which the paper and summary are written), and as a Word document.

10. The bibliography should include bibliographic sources (articles, monographs etc.). Within the paper it should be quoted with references in the footnotes and as a list of literature/bibliography at the end of the manuscript. The bibliography represents a part of every scientific paper, with precisely quoted bibliographical references. The list of used sources should follow a unique pattern, in a sequence based on the quoting standards determined by these instructions. The bibliography must be presented in the language and alphabet in which each source has been published. In cases when the publication is published bilingually, all data should also be written bilingually. In cases where the summary is written in another language, then the title of the summary should be written in the same language.

In the list of references: **Popović 2009** – I. Popović, Gilt Fibula with Christogram from the Imperial Palace in Sirmium (Резиме: Позлаћена фибула са христограмом из царске палате у Сирмијуму) *Starinar* LVII (2007), 2009, 101–112.

Publications published in Cyrillic, Greek or any other non Latin alphabet should be transliterated into the Latin alphabet in accordance with the standards of The American Library Association and The Library of Congress of the United States (http://www.loc.gov/catdir/cpso/roman.html), for example:

Quotation within a footnote: (Поповић 1994, 65)

In the list of references: **Поповић 1994** – И. Поповић, (прир.), *Античко сребро у Србији*, Београд 1994. (I. Popović, (prir.), *Antičko srebro u Srbiji*, Beograd, 1994.)

11. Parts of references (authors' names, title, source etc.) are to be quoted in accordance with the accepted quoting form. The most commonly quoted references are listed below:

(MONOGRAPHS)

1**. How to quote an author's books:**

a. A single author

In a footnote: (Popović 2006, 21)

In the list of references: **Popović 2006** – I. Popović, *Roma aeterna inter Savum et Danubium*, Belgrade 2006.

b. Two authors

In a footnote: (Vasić, Milošević 2000, 125)

In the list of references: **Vasić, Milošević 2000** – M. Vasić, G. Milošević. 2000. *Mansio Idimvm rimska poštanska i putna stanica kod Medveđe*, Beograd, 2000.

c. Three or more authors

In a footnote: (Petković et al. 2005, 129–131)

In the list of references: **Petković et al. 2005** – S. Petković, M. Ružić, S. Jovanović, M. Vuksan, & Z. K. Zoffmann. 2005. *Roman and Medieval Necropolis in Ravna near Knjaževac*. Belgrade, 2005.

2**. Quotation of papers in serial publication, collection of papers:**

In a footnote: (Popović 2014, 261)

In the list of references: **Popović 2014** – I. Popović, The Motif of Christogram on the Architectural Elements of the Imperial Palace in Sirmium, in: *The Edict of Serdica (AD 311). Concepts and Realizations of the Idea of Religious Toleration*, (ed.) V. Vachkova, D. Dimitrov, Sofia 2014, 261–276.

3. **How to quote prepared editions (editor, translator or preparator instead of author):**

In a footnote: (Поповић 1994, 65)

In the list of references: **Поповић 1994** – И. Поповић, (прир.), *Античко сребро у Србији*, Београд 1994. (I. Popović, (prir.), *Antičko srebro u Srbiji*, Beograd, 1994.)

4. **How to quote books without indicated author:**

In a footnote: (*Гамзиград. Касноантички царски дворац* 1983, 43)

In the list of references: ***Гамзиград. Касноантички царски дворац* 1983** – *Гамзиград. Касноантички царски дворац*, Београд 1983. (*Gamzigrad. Kasnoantički dvorac*, Beograd, 1983.)

5. Quoting several books of the same author:

a. written in different alphabets

In a footnote: (Поповић 2002, 23–26; Popović 2006, 33)

In the list of references:

Поповић 2002 – И. Поповић, *Накит са Јухора, остава или сакрални тезаурус*, Београд 2002. (I. Popović, *Nakit sa Juhora, ostava ili sakralni tezaurus*, Beograd, 2002.)

Popović 2006 – I. Popović, *Roma Aeterna inter Savum et Danubium.* Belgrade, 2006.

b. written in the same year

In a footnote: (Dawkins 1996a; 1996b)

In the list of references:

Dawkins 1996a – R. Dawkins, *Climbing Mount Improbable*, London, 1996.

Dawkins 1996b – R. Dawkins, *River out of Eden*, London, 1996.

6**. Quoting chapters or parts of books:**

In a footnote: (Кондић 1994, 66)

In the list of references: **Кондић 1994** – Ј. Кондић, Рановизантијско сребро, у: *Античко сребро у Србији*, И. Поповић, (ур.), Београд 1994, 65–67. (J. Kondić, Ranovizantijsko srebro, u: *Antičko srebro u Srbiji*, I. Popović, (ur.), Beograd 1994, 65–67.)

7. **Quoting chapters or parts of previously published books (as an original source):**

In a footnote: (Cicero 1986, 35)

In the list of references: **Cicero 1986** – Cicero Quintus Tullius, Handbook on canvassing for the consulship, in: *Rome: Late republic and principate*, W. E. Kaegi, P. White (eds.), vol. 2, Chicago, 1986, 33–46. Originally published in: E. Shuckburgh (trans.) *The letters of Cicero*, vol. 1, London, 1908.

8. **Quoting books which have been published on-line:**

In a footnote: (Kurland, Lerner 1987)

In the list of references: **Kurland, Lerner 1987** – Ph. B. Kurland, R. Lerner, (eds.) *The founders' Constitution*. Chicago 1987. //press-pubs.uchicago.edu/founders/, accessed (date of visit to the page)

ARTICLES FROM PRINTED PERIODICALS OR PERIODICALS PUBLISHED ON-LINE

9**. Quoting an article from a printed periodical:**

In a footnote: (Vasić 2004, 91, fig. 17)

In the list of references: **Vasić 2004** – M. Vasić, Bronze railing from Mediana. *Starinar* LIII–LIV 2004, 79–109.

10**. Quoting an article from a periodical published on-line:**

In a footnote: (Van Eijck 2009, 41)

In the list of references: **Van Eijck 2009** – D. Van Eijck, Learning from simpler times, *Risk Managemen*t, vol. 56, no 1, 2009, 40–44. http://proquest.umi.com/, accessed (date of visit to the page)

DOCTORAL AND MASTER THESES

11. **Quoting doctoral or master theses:**

In a footnote: (Ilić 2005, 25–32)

In the list of references: **Ilić 2005** – O. Ilić, *Ranohrišćanski pokretni nalazi na području dijeceze Dakije od IV do početka VII veka.* Unpublished MA thesis, University of Belgrade, 2005.

LECTURES FROM SCIENTIFIC GATHERINGS

12. **Quoting a published lecture or communication presented at a scientific gathering:**

In a footnote: (Vasić 2008, 69, fig. 3)

In the list of references: **Vasić 2008** – M. Vasić, Stibadium in Romuliana and Mediana. *Felix Romvliana 50 years of archaeological excavations*, M. Vasić (ed.), (Papers from the International Conference, October, 27–29 2003, Zaječar, Serbia), Belgrade–Zaječar 2006, 69–75.

13. **Quoting an unpublished lecture or communication presented at a scientific gathering:**

In a footnote: (Gavrilović 2004)

In the list of references: **Gavrilović 2004** – N. Gavrilović, *Interpretatio Romana* of Oriental Cults in Upper Moesia from I to IV century A.D. Paper presented at the 10th Annual meeting of the European Association of Archaeologists, September 7–12, 2004 in Lyon, France.

POPULAR MAGAZINES (PERIODICALS) AND NEWSPAPER ARTICLES

14. **Quoting an article from a popular magazine:**

In a footnote: (Јањић 2007, 32–33)

In the list of references: **Јањић 2000** – Ј. Јањић, Прво хришћанско знамење, *НИН*, јул 2007. (J. Janjić, Prvo hriščansko znamenje, *NIN*, jul 2007.)

15. **Quoting an article from a newspaper:**

In a footnote: (Марковић-Штрбац 1999)

In the list of references: **Марковић-Штрбац 1999** – С. Марковић-Штрбац, Пустахије са Јухора, *Политика*, 18. септембар 1999, Одељак Култура, уметност, наука. (S. Marković-Štrbac, Pustahije sa Juhora, *Politika*, 18. septembar 1999, Odeljak Kultura, umetnost, nauka.)

ELECTRONIC DATABASES, WEB PAGES, COMMENTS etc.

16. **Quoting an electronic database** (Name of the database. Address):

In a footnote: (Pliny the Elder, Perseus Digital Library)

In the list of references: **Pliny the Elder, Perseus Digital Library** – Perseus Digital Library. http://www.perseus.tufts.edu/, accessed (date of access)

17. **Quoting documents and data taken from institutional web pages** (Name of institution. Name of document. Editor. Web site. (Date of access)):

In a footnote: (Evanston Public Library Board of Trustees)

In the list of references: **Evanston Public Library Board of Trustees** – Evanston Public Library Board of Trustees, Evanston Public Library strategic plan, 2000–2010, A decade of outreach, Evanston Public Library, http://www.epl.org/library/strategic-plan-00.html, accessed (example: June 1, 2005).

12. All of the quoted bibliography/literature is to be listed in Latin alphabetic order, by the author's surname initial or the first letter of the publication's title (in cases where the author or editor is not listed).

13. When submitting a manuscript, the author should supply his/her contact details in a separate file: the address of his/her affiliation and his/her e-mail address and telephone number. In cases where there are several authors, the contact details of the first author should only be supplied. The author is also obliged to state the specific name and code of the project within which the paper was created, along with the name of the institution(s) that financed the project. The dates of birth of all authors should be written at the end.

14. Each of the submitted scientific papers will be forwarded to anonymous reviewers by the STARINAR editorial board. For further information concerning the peer review process and the editorial board's, reviewer's and author's obligations and duties, authors can refer to the EDITORIAL POLICY OF THE STARINAR JOURNAL.

15. Papers prepared for printing should be submitted to the secretary of the editorial board in the period between 20th November and 20th December of the year prior to the year of publication of the volume. Apart from a printed version, papers must also be submitted in digital form, on a CD or via e-mail j.andjelkovic@ai.ac.rs

– The printed version should be arranged as follows: 1. title; 2. author's forename and surname; 3. author's affiliation; 4. abstract; 5. key words; 6. basic text; 7. Summary with translated title of the paper, author's affiliation and key words; 8. bibliography; 9. illustrative section; 10. captions (list of illustrations); 11. contact details (address, e-mail and phone number).

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