Socio-cultural development during the Neolithic and Eneolithic in northwestern Banat: the role of resources

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Introduction

Archaeological investigations of Neolithic and Eneolithic sites in northwestern Banat began in the second half of the 19th century. These pioneering investigations rendered significant results stimulating the researchers' interest for this region. Consequently, in the first part of the 20th century, the investigation has intensified, numerous sites being archaeologically excavated (some extensively), and important studies being published, thus rendering northwestern Banat one of the best-researched regions in Southeastern Europe for the time.

With the onset of the First World War, however, this research suddenly came to a halt, and at the end of the war, when the geopolitics of the Southeastern Europe had fundamentally changed, northwest Banat was partitioned between Hungary, Romania, and Yugoslavia. Following this, in the interwar period, with the exception of the Hungarian part of northwestern Banat, archaeological investigations were rarely carried out, and the excavated areas were limited in size. In the socialist period, research intensified again, but the slowdown from the interwar period could not be recuperated, and northwestern Banat could not be counted anymore among the best-researched regions in Southeastern Europe. In this period, the main focus of researchers was on constructing systems of relative chronology, but the strictly enforced border policy and linguistic differences limited cooperation across these borders and access to foreign literature.

In the democratic period, the liberalization of border policy permitted better communication across these borders, easier access to foreign literature, and, most importantly, the commencement of international collaborative research projects. All of these had as an effect a substantial increase in the quality of research. The investigations often included, besides archaeological excavations, also interdisciplinary methods such as geophysical survey, radiocarbon dating, and archaeobotanical, archeozoological, and geomorphological studies, while reconnaissance surveys were systematically carried out, often over extensive territories. These investigations provided valuable insights into previously unknown aspects of the relevant Neolithic and Eneolithic communities.

Sociocultural development is the process by which societies undergo transformations over time. This development has long been a focus of study within the social sciences, especially in Archaeology, where it can be studied diachronically. In studying sociocultural development, several main approaches have been developed, among which might be mentioned the Evolutionary, Culture-historical, Structural-functional, Processual, and the Post-processual approaches (Trigger 2009). Yet, in north-western Banat, Neolithic and Eneolithic sociocultural development has been studied almost entirely from the Culture-historical perspective. According to this, sociocultural transformations are identified on the basis of stylistic changes in the pottery, and are put on the account of influences exerted by another society either through migration or cultural diffusion. This approach, however, has long been criticized, inasmuch as instead of explaining the transformations occurring within a society, it instead attributes them to another society (Plog 1974: 34; Renfrew, Bahn 2004: 37-42). Although there is no doubt that migration or cultural diffusion are factors inducing sociocultural transformation, they are hardly the only ones. In addition to this, it was also realized that pottery style alone is not the most accurate indicator of sociocultural transformations. There are cases when sociocultural transformations are reflected with a delay in pottery production, and there are other cases when changes in pottery style are not linked to significant sociocultural changes (Raczky, Anders 2003: 156). Given these

shortcomings of the Culture-historical approach, a new assessment of the sociocultural development within northwestern Banat is more than necessary. In addition, the archaeological research carried out in the study region, especially that from the last decades has presented results permitting this sociocultural development to be studied from a different perspective.

The aim of the present thesis is to study this sociocultural development in relation to the use of resources. In order to achieve this aim, the following objectives are to be accomplished: Firstly, the synthesizing and chronological organization of the extant results of archaeological investigations. Secondly, the identification of the sociocultural transformations by analyzing changes in the pottery style, in site distribution, in site continuity, in settlement area, in the internal structure of settlements, in architecture, and in burial customs. Thirdly, to analyze the crucial resources used by the Neolithic and Eneolithic societies, and to explain the role they played within these sociocultural dynamics.

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I. Geographical background

The territory under study is the northwestern part of the geographical and historical region Banat[1] (Fig. 1). To the north and west this territory has natural borders – the rivers Mureş and Tisa – while to the east and south there are artificial ones. They consist of imaginary straight lines – one oriented north-south passing through the modern village of Fântânele and another oriented east-west passing through the city of Zrenjanin. The territory thus defined has a perimeter of 457 km and an area of 910889 ha.

Administratively, northwestern Banat is divided between three modern states. Romania occupies the largest part (57%), followed by Serbia (41%) and, partially, Hungary (2%). In Romania this region covers the western half of Timiș county and the southwestern part of Arad county, in Serbia it covers Severni Banat county and the northern half of Srednji Banat county, while in Hungary it covers the southernmost part of Csongrád county.

1. Geology and geomorphology

The region under study is situated in the southeastern part of the large sedimentary Carpathian (Pannonian) Basin, which is a subsystem of the Alpine-Carpathian-Dinaridic orogenic system. This orogenic system formed as a result of a long-term process of convergence of the European and the African tectonic plates (several orogens), a process which commenced in the late Triassic and continues to this day (Cavazza et al. 2004; Lóczy et al. 2012: 208).

Cretaceous orogenic activity shaped to a great extent the present-day East and South Carpathians, Paleogene tectonic processes controlled the formation of the current Alps, Western Carpathians and Dinarides while Neogene tectonic activity formed the back-arc-type Carpathian Basin (Schmid et al. 2008). The tectonic processes that determined the formation of the Carpathian Basin began in the late Early Miocene and consisted of tinning[2] and subsidence of the continental crust. The Transdanubian Mountains are a lower mountain range, located within the Carpathian Basin, which divide it into two sub-basins. They formed during two main orogenic processes that took place in the Cretaceous and Paleogene (Lóczy 2015: 42). By ca. 12 Mya (beginning of Upper Miocene) the subsidence processes, together with the simultaneous uplift of the surrounding mountain ranges and the regression of the Paratethys Sea, had produced the separation of the Pannonian Lake located in the Carpathian Basin from the aforementioned sea. Its separation created a sudden drop in water salinity, which led to the evolution of endemic freshwater mollusk fauna. Initially the basin was starved, reaching 1 km in depth, but gradually the subsidence processes began to be

[1] The name Banat originates in the medieval Hungarian terms "banatus" and "banus", which designated the honor and the title of a governor in a border region. It seems that with time the term "banatus" acquired a geographical connotation and during the Great Turkish War (1683-1699) the Hapsburgs associated it with the territory situated between the Mureș, Tisa, Danube and the Carpathians. They called this region "Banatus Timisvariensis/Temeswarer Banat". This name became official (administrative) in 1718 when this region was annexed as a new province into the Habsburg Monarchy and, with the Treaty of Beograd (1739), it was internationally recognized. Besides the full form of the name, there was also a short one "Banatus/Banat", which initially was less common, but in the18th century became predominant. With the incorporation of the territory of Banat into the Habsburg Kingdom of Hungary in 1779, Banat was no longer an administrative unit but its name continued to be used up to this day in the geographical sense (Forțiu 2007a; Forțiu 2007b).

[2] In the Middle Miocene the continental crust was ca. 36 km thick, while today is only 24-27 km thick (Kázmér 1990: 172).

compensated by intensive sedimentation. Consequently, by 2.4 Mya (Pliocene-Pleistocene boundary) the Pannonian Lake was completely filled with up to 7 km thick marine, lacustrine and fluvial sediments, which cover an area similar to that of the Caspian Sea (Kázmér 1990; Radivojević et al. 2010a: 341; Lóczy 2015: 40). During the Quaternary, aeolian (loess) and fluvial sedimentation continued to fill the basin, which formed strata 400-700 m thick in total, and formed what is today the Pannonian plain (Lóczy et al. 2012: 210). This plain is divided by the Transdanubian Mountains into a small plain called Western Pannonian Plain (Little Hungarian Plain) and a vast plain called Eastern Pannonian Plain (Great Hungarian Plain) (Lóczy 2015: 40-41).

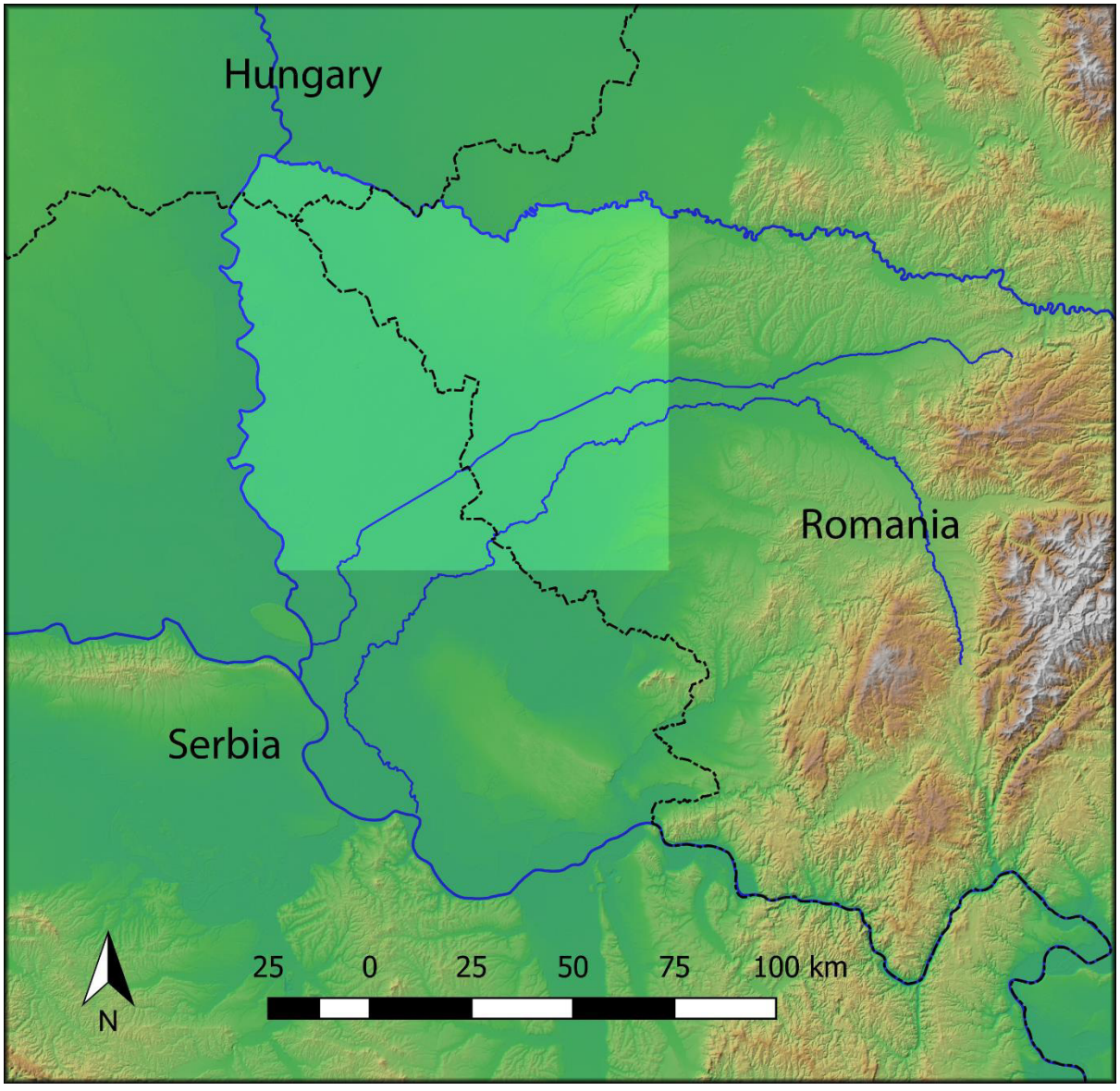

Fig. 1. Location of northwestern Banat and the political borders.

The geological stratigraphic profile in the western part of the region under study (Čoka) has the following sequence: the basement lies at a depth of -1000 m to -1800 m and consists of Lower Triassic clastics and Paleozoic greenschists; the Badenian sediments have a maximum thickness of 19 m and include marine biogenic limestones; the Sarmatian stage is not represented due to erosion; the Pannonian deposits have a maximum thickness of 87 m and consist of compact marlstone and marly limestones; the Early Pontian sediments have a

maximum thickness of 361 m and comprise of marls with thin intercalations of sandstone and black clays; the Upper Pontian accumulations have a maximum thickness of 303 m and consist of sand-marly clays with coals, thin sandstone layers and grey-greenish marls; and the post-Pontian (Pliocene, Pleistocene and Holocene) deposits are fluvial, lacustrine, marsh and terrestrial, have a maximal thickness of 886 m and contain fine-grained sandstones and gravels, sandy clays with coals and marly-clayey sandstones (Radivojević et al. 2010a). In the eastern part of the region the geological sequence is quite similar. The differences result from the shallower depth of the basement at ca. 600 m, the Sarmatian sediments are not overall completely eroded, the Lower Pliocene sediments consist almost entirely of alluvial materials eroded from the neighboring hills to the east and that the quaternary deposits are better distinguished from the earlier ones. These deposits have a thickness of 80-100 m and consist of red clays, sands and loess (Posea 1997: 38-39, 363; Pop 2005: 16-17).

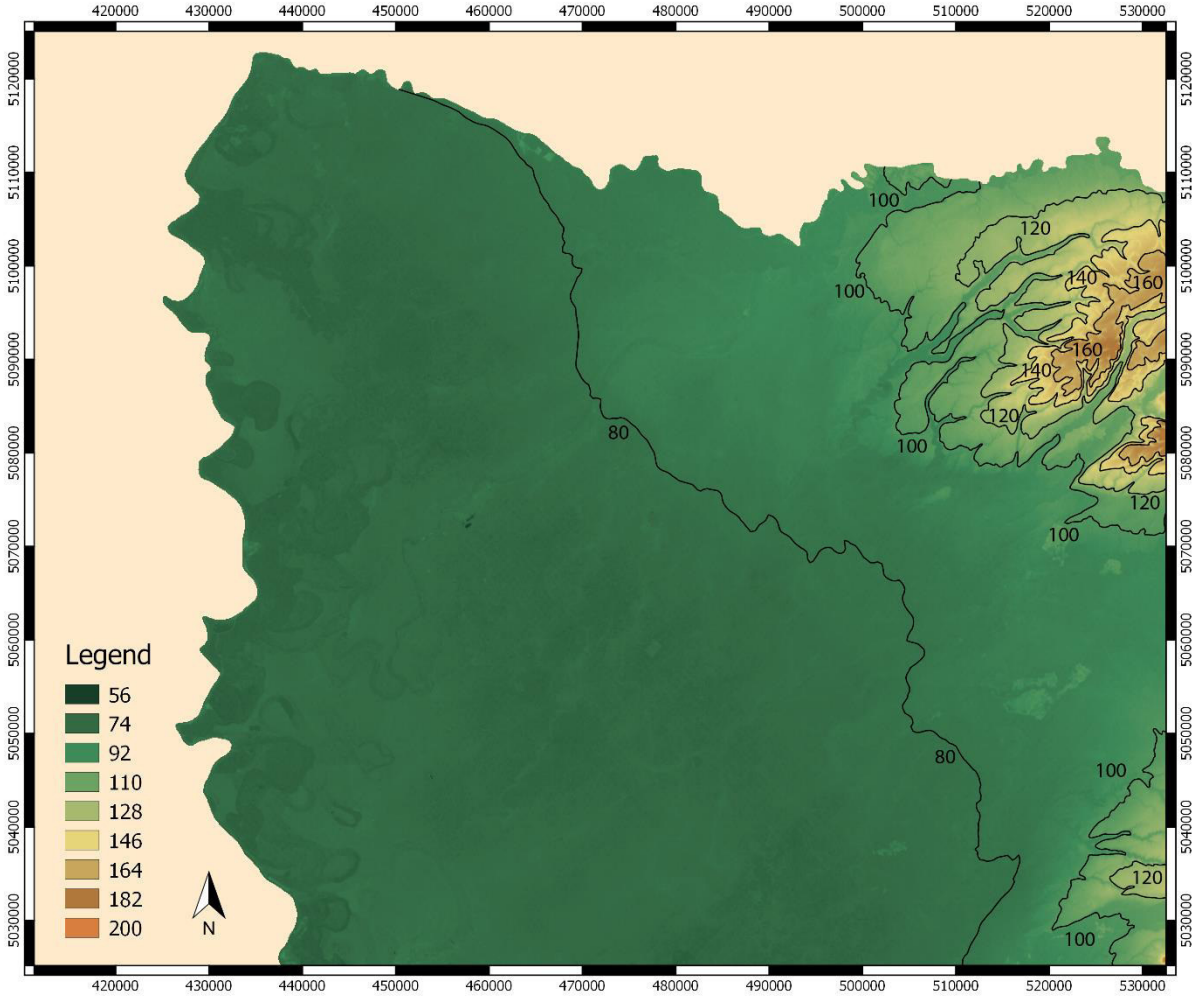

Fig. 2. Hypsometric map of northwestern Banat.

The region under study lies in the southern part of the Eastern Pannonian Plain. Its relief is characterized by two high plains that cover ca. 20% of its territory to the north- and southeast respectively, and a low plain that extends over the remaining area (Figs. 2-3). The two types of plain are conventionally demarcated by the elevation line of 100 masl (Pop 2005: 19).

The northeastern high plain represents the western part of the Vinga Plain, which is the oldest geomorphological structure in the study region and the most elevated one.

Geomorphologically this plain is classified as a piedmont type, as it was formed mainly by the shifting alluvial fan of the Mureș river, which accumulated thick layers of gravel, sand and silt. Aeolian sediments (loess) also contributed to its formation, which are present, especially in its western part. The high altitude of the Vinga Plain is the result of tectonic and igneous (laccolith) uplifts in its eastern part. The plain is divided by several deep and wide valleys with steep slopes and a flat bottom (Posea 1997: 360-366). The second high plain, located in the southeastern corner of the region, represents the most western part of the Bârzava Plain. It was formed by the erosion of a piedmont and, therefore, is classified as a glacis-piedmont type plain. Its surface is covered by red clay and aeolian sediments (loess). The plain is divided by several river valleys oriented east-west, the largest of which being the Bârzava valley (Posea 1997: 402).

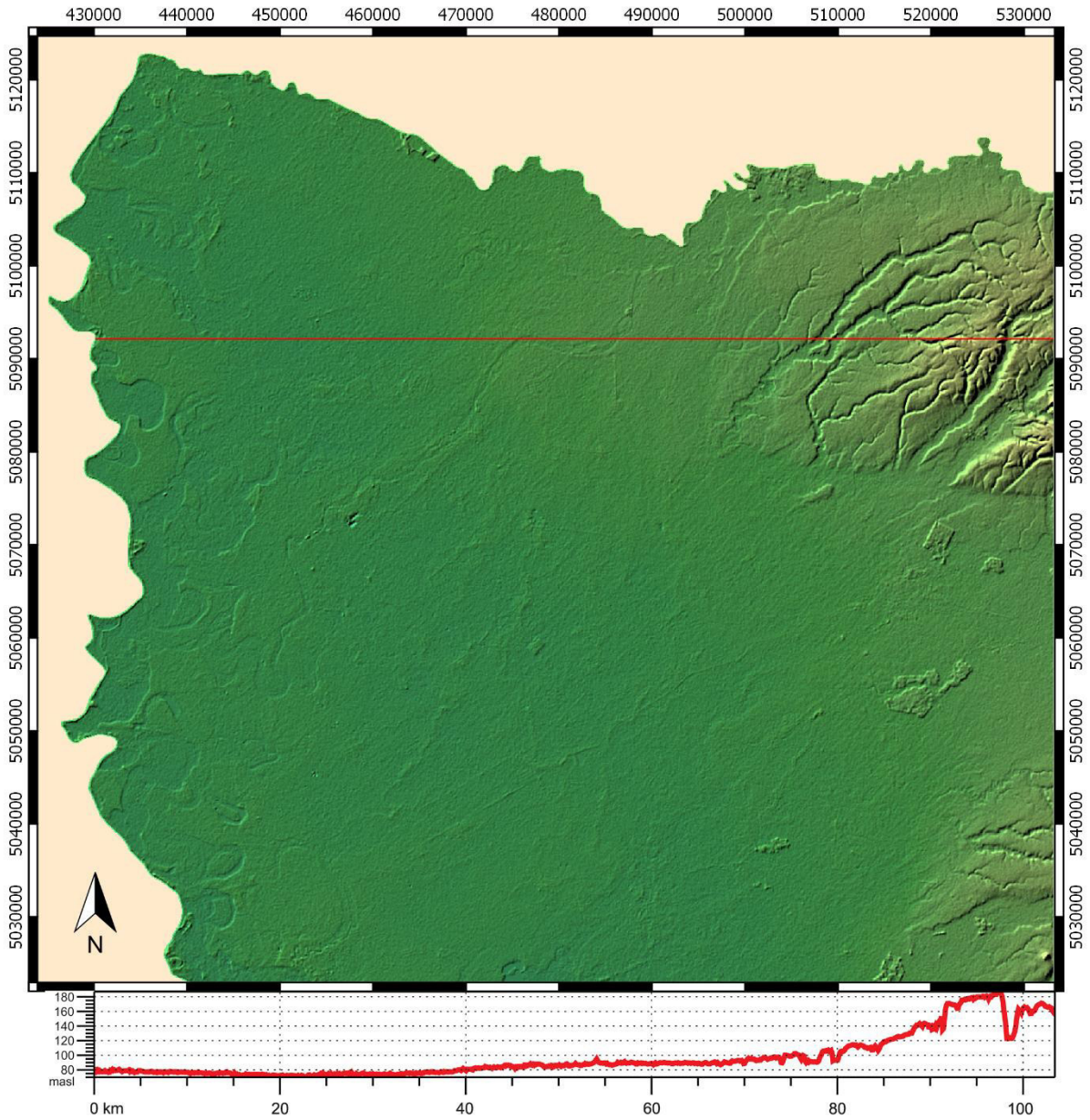

Fig. 3. Elevation map of northwestern Banat and a transversal elevation profile.

The low plain consists of four units (Timis Plain, Aranca Plain, Jimbolia-Kikinda Plain and Tisa plain), which, because of their very similar properties, are presented together.

Geomorphologically, the low plain is the most recent formation in northwestern Banat and is classified as a subsidence-sedimentary type. It is formed mostly by alluvial sediments carried by the large rivers and to lesser degree by aeolian deposition. The loess sediments are mainly present in the northern part of the Jimbolia-Kikinda Plain, which is a continuity of the high Vinga Plain, and are up to 5 m thick. The plain has a very flat appearance and the only relief consists of old river valleys, thicker fluvial deposits in the forms of knolls and sandy dunes and, less often, small depressions formed by subsidence of the alluvium or the loess. The gradient of the plain is only 0.15-0.30 ‰ in a southwesterly direction. Due to the low gradient the rivers could not deepen their valleys and therefore the fragmentation of the plain is almost non-existent (Posea 1997: 384-391).

2. Elevation

For a better understanding of the landscape of northwestern Banat a statistical assessment of the elevation was conducted. The analyses were performed in Q GIS on the base of the SRTM 90m Digital Elevation Data provided by NASA[3]. From the analyses, the artificially excavated basins from the vicinity of Kikinda, Novi Bečej, Jimbolia and Cărpiniș were excluded, which could bias the results[4]. The elevation of northwestern Banat ranges from 59 to 187 masl (Figs. 2-4). The lowest elevation is attested in the Serbian part of the Timiș Plain, ca. 5 km southwest of the center of Torda, while the highest elevation is attested in the Vinga plain ca. 2 km southeast of the center of Seceani. This region has a mean (average) elevation of 84 masl and a standard deviation of 17 masl. This means that although the region has a quite large elevation amplitude (128 masl), the largest part of the territory is comprised within the 67-101 masl elevation range. If the territory under study is divided in units of 10 masl, more than half of the territory is found within the interval of 70-80 masl, the second largest area is comprised within 80 and 90 masl, while the remaining units occupy only small areas.

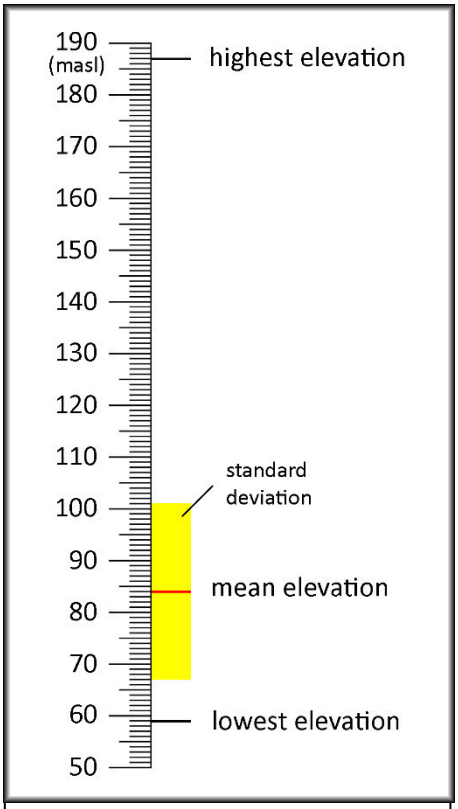

Fig. 4. Elevation of northwestern Banat statistically expressed.

3. Hydrography

The water table in the high plain is at a depth of 10-15 m, while in the low plain it is at a depth of 1-3 m. The maximum ground water level is reached at the end of winter, caused by the snow melt and in March-April, produced by the large amount of rainfall, while the minimum levels are reached in September-October, induced by the prolonged dry season (Munteanu, Munteanu 1998: 29). The well investigated at Bucova Pusta IV, which was about

[3] http://www.cgiar-csi.org/data/srtm-90m-digital-elevation-database-v4-1

[4] The lowest elevation detected by the satellite radar (55 masl) is obtained from the bottom of the clay quarry in the southern outskirts of Kikinda.

1 m deep (measured from the Neolithic surface) indicated that the groundwater level in the low plain was similar to the present level.

The surface hydrographic system in northwestern Banat is part of the hydrographic basin of Tisa. It consists of autochthonous streams that spring from the high plains and allochthonous large rivers that collect them.

The Vinga Plain is the single unit crossed only by streams, which according to their direction they can be divided into two groups – with a northern and southwestern direction. The first group includes several short, often temporary, streams in the very northern part of the plain, which drain off into the Mureș. The largest of them are Zădăreni and Zădărlac. The second group consists of long streams, which drain most of the Vinga Plain and are collected by the Bega Veche (the old course of Bega). Listed from west to east, the main streams are: Pământ Alb, Apa Mare, Iericici, Surduc, Pârâul Lacului, Măgheruș, Beregsău and Behela. Most of these streams have smaller tributaries. In the upstream portion the streams have shallow valleys while in the downstream portion the valley becomes deeper and the course permanent (Posea 1997: 369). The Bârzava Plain is drained by three rivers, two of which (Pogăniș and Bârzava) spring from the Semenic Mountains and cross the plain, and one (Lanca Birda) which originates in the plain. Pogăniș runs to the northwest and passes through the northern part of the Bârzava Plain before it empties into the Timiș near the village of Uliuc, while Bârzava and Lanca Birda flows to the southwest collecting several streams and discharges into the Timiș beyond the borders of the study region. The hydrographic system in the high plain, where the rivers have well shaped valleys, has suffered fewer significant changes since the period under study and thus can easily be reconstructed.

The low plain is drained by four large rivers, namely the Bega, Timiș, Mureș and Tisa, and several streams, namely the Galațca, Giucoșin, Aranca, Mureșan (Țiganca, Gornya Aranka), Ciarda Roșie, and Cociohat (Posea 1997: 319-320). In fact, the streams in the low plain are not streams in the strict sense of the word but are old courses or branches of the Mureș that were channeled in modern times. The Bega[5] originates in the Poiana Ruscă Mountains. It enters the study area from the east and flows to the southwest, draining the streams from the northern part of the region. At Balinț, about 35 km before entering the territory under study, it has an average flow of 6.85 m^2/s (Posea 1997: 320). The Timiș[6] rises in the Semenic Mountains and enters northwestern Banat from the east. It runs almost parallel to the Bega and collects the rivers and streams from the southern part of the region. At Șag it has an average flow of 40 m^2/s (Posea 1997: 321). The Mureș[7] springs from the Eastern Carpathian Mountains and runs westward forming the northern border of the study region before it flows into the Tisa. At Nădlac, its average flow is 191 m^2/s (Posea 1997: 319). The Tisa[8] originates in the Chornohora mountains and, flowing southward, constitutes the western border of the study region and collects all the streams and rivers. Its average flow is 820 m^3/s.

Due to the flat character of the low plain, which raises up only few meters above the thalweg[9], before human intervention in modern times the low plain was poorly drained (Figs. 5-6). In addition, the slow-flowing rivers, with shallow and extremely wide valley floors, had

[5] Béga in Hungarian and Begej in Serbian.
[6] Temes in Hungarian and Tamiš in Serbian.
[7] Moriš in Hungarian and Maros in Serbian.
[8] Tisza in Hungarian.
[9] The lowest elevation within a valley or watercourse.

very sinuous courses and yearly flooded extensive areas of the plain. After the withdrawal of the floodwater these areas, interlaced by many side channels, remained marshy for the rest of the year. The flooding occurred usually in early spring when the flow of the rivers was increased by the intense rainfall and snowmelt, and in some years the currents were strong enough to change the river course, a process known as avulsion (Posea 1997: 53; Pop 2005: 24-25; Pavlović et al. 2012: 358). Besides the large marshy floodplain along the rivers, there were also small but quite numerous lakes and waterlogged areas. They have formed in depressions where pluvial water, retained by the clayish soils, has accumulated and where the water table was high. Other smaller but usually quite deep accumulations of water are the oxbow lakes formed by the meandering rivers.

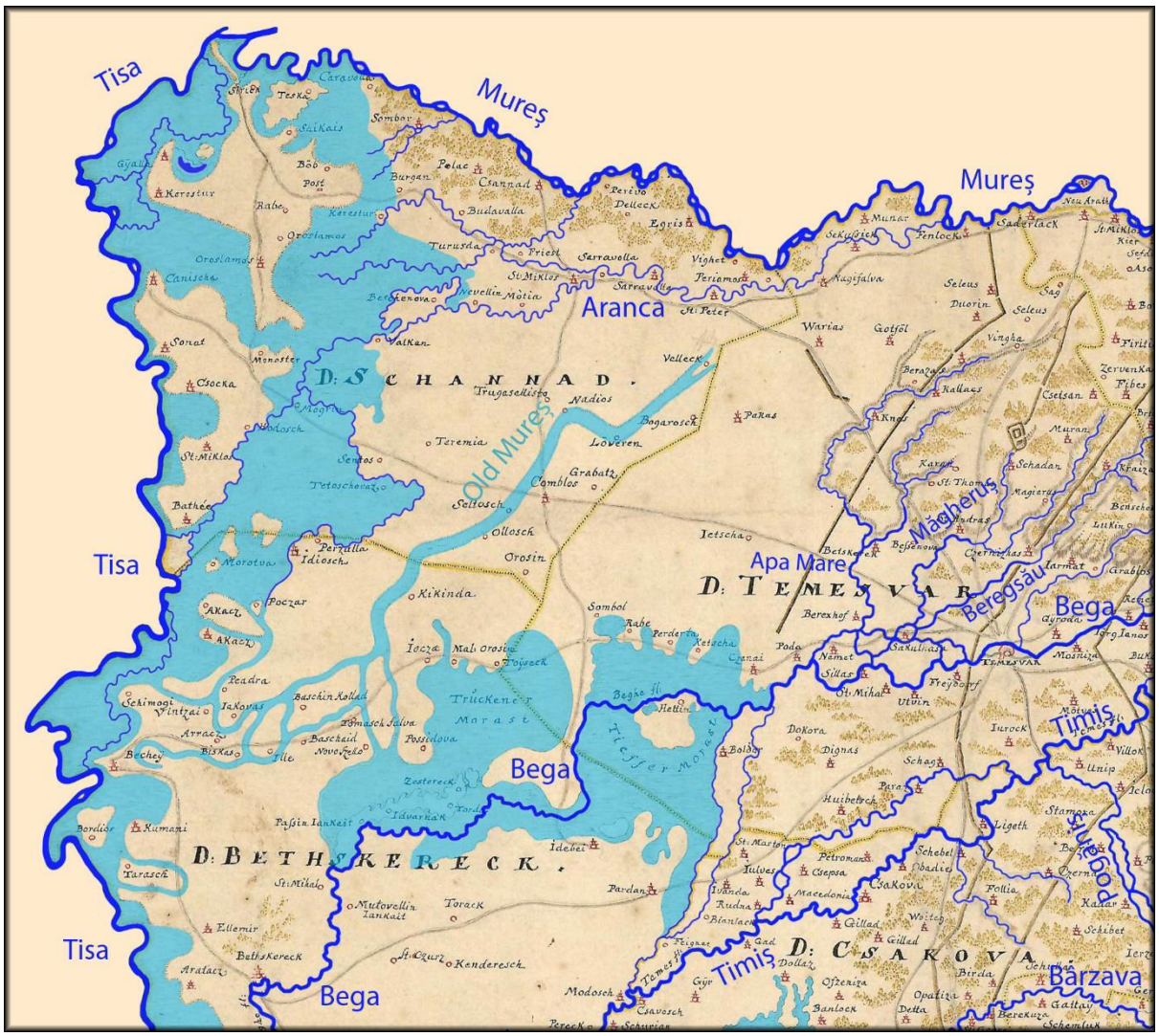

Fig. 5. Hydrographic system of northwestern Banat in the first half of the 18th century, indicated on the military map of Count Claudius Florimund de Mercy (adapted).

Shortly after Banat was incorporated into the Habsburg Empire, large-scale projects of land improvement began, aiming to transform the floodplain into agricultural land. They consisted of river regulation (by cutting off the meanders), construction of dikes along the rivers and excavation of channels that drain the plain (Pop 2005: 25). It is worth mentioning that the Bega was diverted into a newly excavated riverbed, which started in 1728, and two channels were constructed upstream in 1758 connecting the Bega and Timiș to regulate their water

level (Munteanu, Munteanu 1998: 32-34). These land improvement works continued in the following centuries, with an intensification in the second part of the 18th century and the first part of the 19th century, up to this day, and in certain cases, they were – and still are – destructive for the archaeological sites (Ciocani, Jozsa 2015: 30).

During the almost three century-long land improvement works, all the rivers were regulated, most of the marshland was transformed into agricultural land and a dense network of drainage channels was constructed over the whole territory, making the present-day hydrographic system much different than the one shaped by nature.

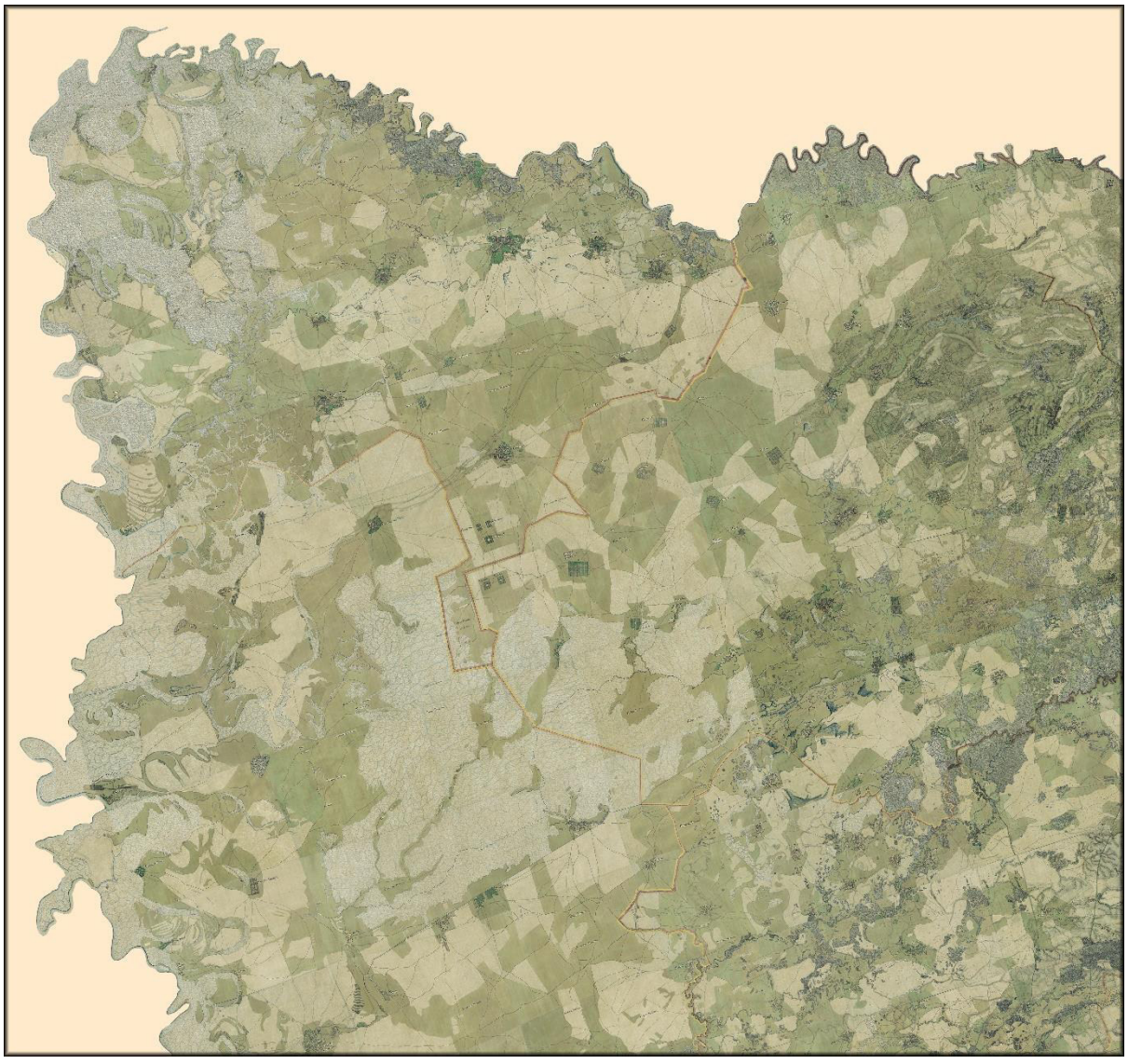

Fig. 6. Hydrographic system of northwestern Banat in the mid-18th century, indicated on the First Hapsburg Military Map.

For understanding how this system looked before the regularization, the old maps are of great importance, which can also give a glimpse of how it might have looked in earlier times. Although the region under study appears on such maps since the 14th century[10], the first detailed ones were made only after its annexation to the Habsburg Empire. For interpreting the hydrographic system before regularisation, we have chosen two such maps: *Der*

[10] The fortress of Temesvar (Timișoara) appears on a portolan map made by Angelino Dulcert in 1339.

Temesvarer Bannat abgetheilt in seine Districte aufgenommen und abgemessen von Generalfeldmarschall Grafen Claudii von Mercy in den Jahren 1723, 24 et 1725 and *Josephinische Landesaufnahme* (made in the period 1769-1772). The first map (Fig. 5), although less detailed, depicts the region prior to the beginning of the land improvement works. On it one can see the old course of the Bega and its flood area, the floodplain of the Tisa and the floodplain of a former course of the Tisa (to the east), as well as the old riverbed of the Mureș, which is much larger than the current one. The second map (Fig. 6), which is much more detailed, was made when the first land improvement works had already begun and, as can be seen, the Bega was already channelized, but its surroundings were still marsh and no other river had yet been regularized. It illustrates the small and numerous meanders of the Bârzava, Timiș and Mureș as well as the large meanders of the Tisa. The location of numerous old river valleys and small lakes is also indicated. It is worth noticing that, in the northern part of the Jimbolia-Kikinda plain between the Jimbolia and Sânpetru Mare, there is no single stream that drains the water, which is a good indication of the sparse drainage network of the low plain. Moreover, one can assume that the situation would be similar in the remaining part of the low plain, if there would be no (pseudo) streams created by the large rivers.

Although these military maps give an idea of how the hydrographic system might have looked like in earlier times, still they are early modern maps and can fully account only for this period. Since the rivers in the low plain have often changed their course, the reconstruction of the hydrographic system for the period under study can be done only on the base of paleoenvironmental studies; however, these studies are still few and exist only for the Mureș river.

During the latest part of the Pleistocene and the first part of the Holocene, the river Mureș developed the northern lobe of its alluvial fan, but at ca. 6500 BC suddenly changed its course (avulsion) almost at a right angle and began making its southern fan. This sudden shift is believed to have been caused by intensive sediment accumulation in the northern part of the fan. After passing through the Lipova gorges, the river initially flowed in a northwesterly direction as before, but in the vicinity of the town of Sântana it turned to the southwest and passed south of the elevated plain of Nădlac and entered the study region. The upstream section of the river had a meandering pattern, while the channel was braided from Periam southwards (Kiss et al. 2012: 176; Kiss et al. 2014: 55). In this southern part, the river was very wide, in some locations up to 2 km in width (Fig. 7), relatively shallow (mean depth: 2–3 m) and had enormous islands and natural levies. According to the estimations, at Lovrin it could transport up to 2000 m^3 water per second, while during floods the amount of water was much higher. These values are huge if compared with the current ones – the bankfull discharge of the river at Makó is 600–700 m^3/s, while during the flood in 1970 was 2420 m^3/s (Kiss et al. 2012: 172-173).

If the upstream section of the river lasted with minor changes until 3300 BC, the downstream section at ca. 4100 BC shifted east-west, almost parallel to the current course of the river. By this time its flow decreased to about 1000 m^3/s and the channel acquired a meandering pattern. At ca. 100 AD the river changed its course again towards southwest, creating the valley of what would later be the Aranka stream and, by 400 BC, occupied the present channel, when its bankfull discharge decreased to 680 m^3/s (Kiss et al. 2012: 176; Kiss et al. 2014: 55).

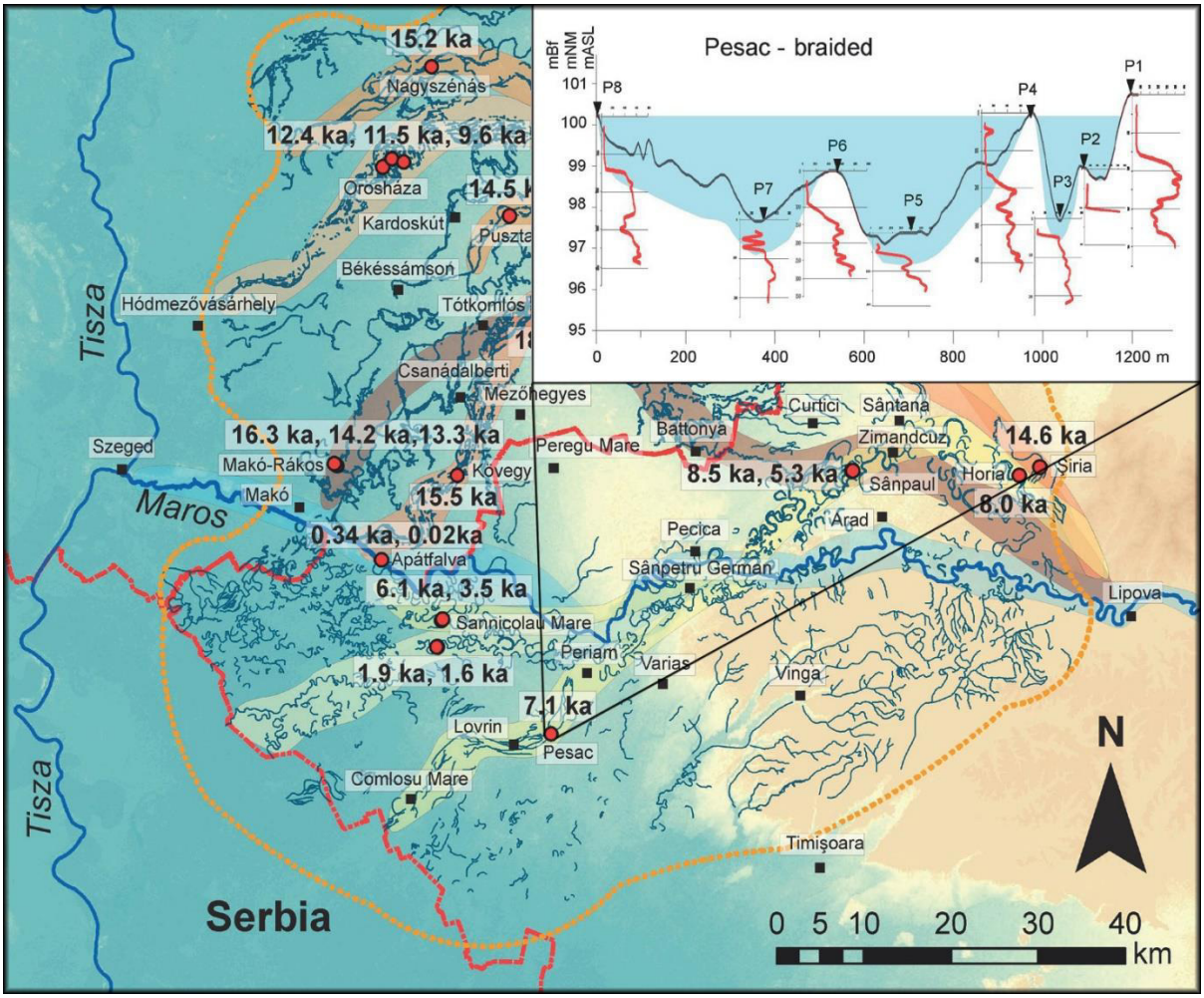

Fig. 7. Age of the major paleochannels in the alluvial fan of river Mureș (Maros) and reconstruction of the paleochannel cross-section at Pesac (after Kiss et al. 2012: Figs. 10, 13).

4. Vegetation

The present day vegetation is almost entirely composed of agricultural crops and when the fields are not cultivated have a steppe-like appearance. This appearance, however, is not a natural one, but was created by a process of deforestation which began in the Neolithic and has intensified in the following millennia, together with the increasing agricultural exploitation. The early Habsburg military maps (Figs. 5-6) indicate that in the 18th century patchy forested areas still existed in the eastern part of the region, along the Mureș and in the area north of Zrenjanin. By the late 19th century, however, as indicated by the "*Franzisco-Josephinische Landesaufnahme*" a large part of these forests had already been cut down. Currently, the original (primary) forest cover exists only in limited areas along the Mureș, Tisa and along the Timiș on the segment between Unip and Șag.

For insights into how the natural vegetation may have looked before the extensive agrarian transformations, the studies on potential natural vegetation are of great relevance. According to the "Map of the Natural Vegetation of Europe" (Fig. 8), the potential vegetation of the largest part of the region under study is forest steppe (grassland mixed with woodland) associated with loess sediments. It consists of thermophilous mixed pendunculate oak forests, represented by *Quercus cerris, Q. pubescens,* and *Acer tataricum*, in alternation with

relatively mesophilous herb-grass steppes represented by *Festuca rupicola* and *F. valesiaca* (Bohn et al. 2004: 387).

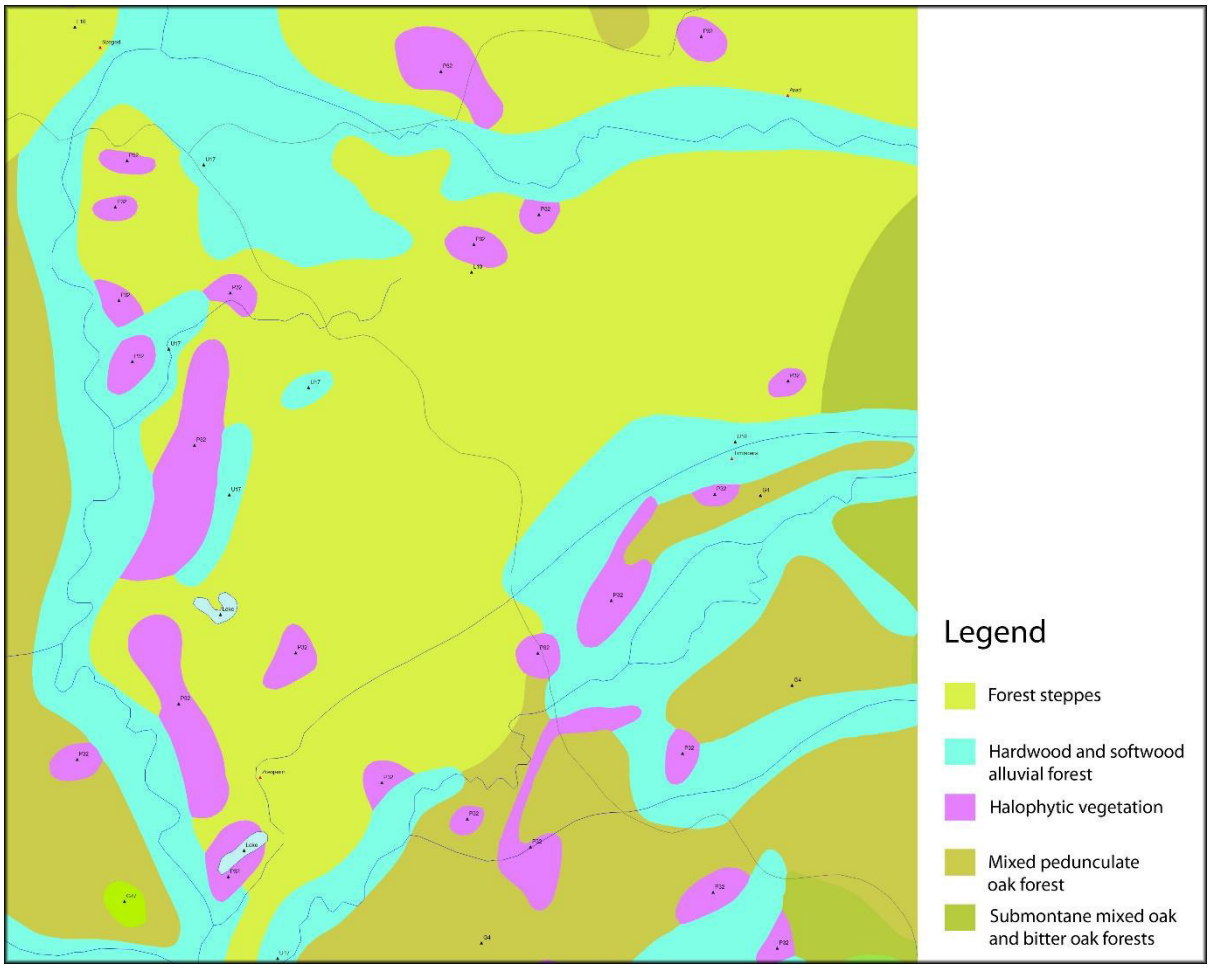

Fig. 8. Distribution of potential vegetation zones in northwestern Banat (after Bohn et al. 2004).

Along the main rivers the potential vegetation is hardwood alluvial forest in combination with softwood alluvial forest. The hardwood forest is represented by the combination of *Quercus robur, Ulmus minor* and *Fraxinus angustifolia danubialis* in the tree layer and *Carex pendula, Genista elata, Pseudostellaria europaea* and *Carex brizoides* in the herb layer, while the softwood forest is represented by the *Salix* and *Populus* sp. (Bohn et al. 2004: 478, 484-485). Over limited areas, distributed in a patchy pattern and relatively close to the main rivers, the potential natural vegetation is halophytic vegetation associated with saline or alkaline soils. It consists of salt meadows represented by *Puccinellia peisonis, Festuca pseudovina* and *Beckmannia eruciformis* in combination with halophyte vegetation represented by *Salicornia prostrata, Suaeda pannonica, Cyperus pannonicus* and *Camphorosma annua*, as well as halophilous steppes represented by *Festuca pseudovina* and *Artemisia santonicum* (Bohn et al. 2004: 435).

In the southeastern part of the region, in the interfluve area, the potential natural vegetation is mixed pedunculate oak forest, represented mainly by *Quercus robur* in the upper tree layer and *Q. cerris, Q. pubescens, Q.virgiliana, Q. pedunculiflora* and *Acer campestre* in the lower tree layer (Bohn et al. 2004: 330). In the most eastern part of the study region, covering only a small part, the potential natural vegetation is mixed oak and bitter oak forest, represented by

Quercus cerris and *Q. frainetto* in the upper tree layer, *Acer tataricum, A. campestre, Fraxinus ornus, Carpinus orientalis, Ulmus minor, Pyrus pyraster, Carpinus betulus, Sorbus domestica, S. torminalis*, and *Tilia tomentosa* in the lower tree layer and *Crataegus monogyna, Ligustrum vulgare* and *Cornus mas* in the shrub layer (Bohn et al. 2004: 331-332).

Of interest, is that out of the neighboring regions, only the one to the north is dominated by forest steppe, like the study region, while to the south, west and east, the vegetation is dominated by mixed lowland pedunculate oak forests and submontane mixed oak and bitter oak forests.

5. Climate

The climate is a very dynamic system. It is continuously exposed to changes driven by factors such as the concentration of greenhouse gases in the atmosphere, volcanic and solar activity, the variation in the Earth's orbital parameters and disturbances to ocean circulation (Kubatzki 2010: 39). Therefore, the present climate cannot fully account for the past climate, nevertheless it can still be used as a reference point and, since there is limited paleoclimatic information here, we discuss both.

a) Current climate

The climate is temperate continental with sub-Mediterranean influences, characterized by relatively large seasonal temperature differences. In the winter, the continental polar air masses, brought by the Siberian Anticyclone, prevail as well as the maritime polar air masses, brought by the northern Atlantic cyclones. The latter induce a pronounced humidity, which in some winters causes heavy snow. Oceanic air masses induced by the Azores Anticyclone and the Mediterranean air masses induced by Mediterranean cyclones also play an important role. The latter are warmer and produce sharp rises in the temperature leading to thawing. Different air masses prevail throughout the year: oceanic air masses inducing heavy rainfall for spring, tropical ones producing aridity for July-early September, followed by an increase in rainfall by oceanic air masses arriving in autumn (Ardelean, Zăvoianu 1979: 31).

The average annual temperature is 11 °C and the average annual amplitude is 22°C (Rusu 2007: 45-46). In the coldest month (January) the average temperature is -2 °C, the absolute minimum is -35 °C and the absolute maximum is 17 °C (induced by the Mediterranean air masses), while in the warmest month (July) the average temperature is 21 °C, the absolute minimum is 9 °C and the absolute maximum is 35 °C (Munteanu, Munteanu 1998: 20-24). These temperatures are also characteristic for the neighboring regions, except for the mountainous region to the east, where the contrast between the summer and winter temperatures is less pronounced.

The average annual rainfall is relatively modest, and it follows an increasing pattern from west to east. In the western part of the study area, it is 536 mm (per m^2), while in the eastern part of the region it is 631 mm (Rusu 2007: 46; Pavlović et al. 2012: 348). There are, however, rainy years in which values up to 1381 mm were registered as well as dry years with 408 mm. Moreover, in the summer torrential rains are quite frequent, which in certain situations can exceed the multiannual average of that month. The highest recorded such value is 127 mm (Munteanu, Munteanu 1998: 26). The multiannual analysis on the monthly distribution of rainfall indicates a pluviometric maximum in the period May-June, followed by a continuous decrease until September. In the period October-November it increases

again, followed by a decrease in the winter, when the lowest values are recorded (Ardelean, Zăvoianu 1979: 38-40). During the pluviometric maximum, 25% of the annual precipitations fall in the western part of the study region and 34% fall in its eastern part. Annually there are 120 to140 rainy days and 20 to 26 days with snow fall. On average the snow cover lasts about 24 days in the western part of the region and 30 days in its eastern part (Munteanu, Munteanu 1998: 24-26).

In the western part of the region, the southern winds are most common throughout the year, being followed by the southeastern ones, while the northwestern winds have the highest average speed (3.8 m/s). In the eastern part of the study region, the northwestern winds are most common, being followed by the western ones. The winds with the highest speed are those form the north (3.5 m/s), south (3.4 m/s), and southwest (3.1 m/s) (Munteanu, Munteanu 1998: 26-27).

b) Past climate

The paleoclimatic investigations on a global scale revealed that a large variability in the climatic and meteorological parameters existed during the Holocene. Seen in a long-term perspective, this variability consisted of an alternation of relatively stable periods with periods of abrupt change (Weninger, Clare 2011: 11). On the base of glacier fluctuation, ice cores, and marine core records, Mayewski et al. (1997; 2004) have identified six abrupt events, which have been termed Rapid Climate Changes (RCC). These events appeared in quasi-periodic cycles and are believed to be the result of changes in insolation, glacier meltwater, ice-rafted debris events and to a lesser degree volcanic activity (Mayewski et al. 2004: 251-252; Gronenborn 2010: 66). Although the RCC events had a global extent, their intensity and length varied in different regions (Mayewski et al. 2004: 252).

Detailed studies on the RCC events in the Eastern Mediterranean region, based on marine, ice-core and terrestrial records, indicate that there these events were primarily induced by inflows of large amounts of cold and dry air masses from Siberia. These air masses were determined by the strengthening of atmospheric pressure gradients between Siberia (High), Iceland (Low) and the Azores (High) (Weninger et al. 2009: 9-10; Clare, Weninger 2010: 284-285) and moved along a corridor that runs from Ukraine through Southeastern Europe into the Aegean (Weninger, Clare 2011: 14). It is in this "RCC-corridor", which is relatively close to the study region, the effects of the RCC-s are expected to be the strongest.

Two of the mentioned six RCC events are relevant for our study (Fig. 9). The first one took place in the interval 6600 – 6000 cal BC and although only shortly overlaps with the beginning of the period under study, from the archaeological perspective, it is significant because it coincides with the Neolithization of Southeastern Europe. In addition, this event, in its second half, was amplified by the 8200 cal BP Hudson Bay event and the combination of both appears in the paleoclimatic records as the most extreme climatic anomaly of the entire Holocene. This second event was caused by the collapse of the remnant Laurentide Ice Sheet and the consequent outflow of a large volume of meltwater from the Hudson Bay into the Atlantic, which disrupted the Thermohaline Circulation (Weninger et al. 2007: 7-8; Weninger et al. 2009: 11; Clare, Weninger 2010: 289). The second RCC event occurred during the period 4000 – 3200 cal BC, which coincided with the second part of the Middle Eneolithic and the first part of the Late Eneolithic, again being correlated with important societal changes visible in the whole of Southeastern Europe.

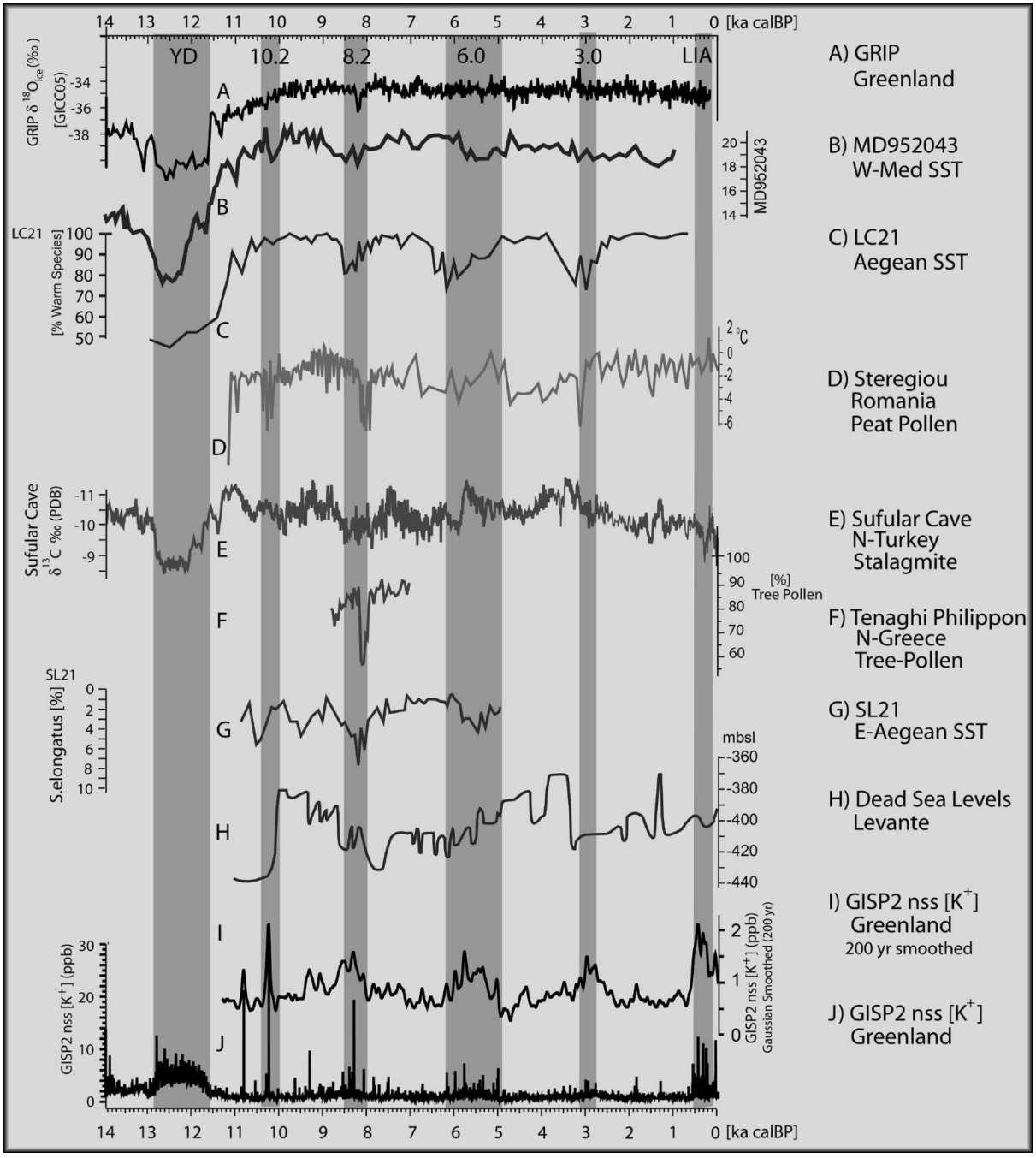

Fig. 9. Holocene RCCs indicated by paleoclimate records from the Northern Hemisphere (after Weninger et al. 2014: Fig 5).

The RCC events, although less severe than the glacial-interglacial transitions, constituted substantial climatic disturbances present on a global scale (Kubatzki 2010: 39; Mayewski et al. 2004: 246-247), which could produce social transformations. Important insights for understanding their potential social impact include the historical accounts on the last RCC, which took place in the period 1500-1900 cal AD (also known as the Little Ice Age). One such account testifies that in the Eastern Mediterranean during the period 1550-1610 AD a clustering of drought years, severe winters, famine and plague existed, which also coincided with two strong dust storms in China (Weninger et al. 2014: 10-11). Another account regarding Anatolia indicates that a great drought in in the summer of 1873 followed by torrential rains and a large snow fall in the winter caused one of the worst famines lasting

three years (Clare, Weninger 2010: 289). Therefore, the written sources indicate that the RCC events consisted of a combination of several consecutive natural hazards[11], which included severe winter outbreaks associated with drought and extreme precipitation anomalies (Clare, Weninger 2010: 289; Weninger et al. 2014: 10). These hazards could lead to harvest failures and loss of domestic animals. And if in the Middle Ages and the Modern period their effect could be diminished by long-distance imports, in prehistory their impact had more serious outcome (Gronenborn 2010: 67).

6. Soils

The Pannonian Plain, to which the study region belongs, is well known for its very fertile soils formed on the above described aeolian and fluvial deposits. Hungarian scientists began quite early (late 19th century) to study these soils extensively culminating in the elaboration of large pedologic maps, which cover the Carpathian and Transylvanian Basins[12]. However, at the end of WW I, when the Austro-Hungarian Empire fell apart and its territory was divided among several states, the research could no longer be conducted unitarily over such an extensive area. This political amendment impacted the study region, which was divided among three states (Hungary, Romania, Serbia). Consequently, each of these states has developed its national soil classification system, the soil surveys have been conducted separately and the elaborated pedologic maps followed the new political borders. For this reason, none of the pedologic maps compiled after WW I cover the whole region under study, while those that follow the political borders are made on the base of different classification systems, which makes their unification difficult. Since a pedologic map is needed for the current study, and the maps elaborated on before WW I are outdated, it is possible to overcome this deficiency by the harmonization of three more recent maps after correlating their classification systems.

a) Classification and correlation

Due to variation in pedogenetic factors such as climate, vegetation and geological bedrock, soils acquire different properties and – according to these properties – people classify them into different types (Krasilnikov et al. 2009: 7). Although traditional classifications existed long ago, the first scientific classifications were developed only in the second half of 19th century and this was mainly because soil cover is a continuum and its properties change gradually, which makes it difficult to classify (Krasilnikov et al. 2009: 10). The relatively late formation of soil science and its spread in an incipient state had the consequence of many different schools emerging, which separately developed soil classification systems. And, since there was neither strong international coordination nor interest for uniformity, the nomenclature and the applied criteria for defining soil types largely varied, which makes their correlation difficult (Krasilnikov et al. 2009: 20; Jones et al. 2005: 25). Yet, with increasing globalization in the 20th century, the need for a common international classification has appeared and several classifications were designed to have worldwide use, such as the US Soil Taxonomy, the French Reference System and the Food and Agriculture System of the United Nations. Although each of them had some success in different parts of the world, none became internationally accepted. To overcome this, a new soil classification system was

[11] The hazard is defined as a disruption in the equilibrium of the natural event's system (Clare, Weninger 2010: 287).

[12] Magyarország talajtérképe, scale 1:900000, compiled by Imre Timkó in 1914; General Map of the Soil Regions of Hungary, scale 1:1000000, compiled by Péter Treitz in 1918, published in 1927.

developed, named the World Reference Base for Soil Resources (WRB), which was designed not to replace the national classification systems, but to make possible their correlation (Krasilnikov et al. 2009: 2; Vlad et al. 2012: 616; Jones et al. 2005: 25). The WRB became quickly accepted and soil scientists began to correlate the national soil types to this system.

By correlating the different national soil types to the WRB, Jones et al. (2005) have created harmonized soil maps for the whole of Europe. This method in general worked well; however, the map of the current study region was less successfully harmonized, as indicated by the Romanian-Serbian political border that divides soil types (Jones et al. 2005: 63, Pl. 11). The difficulties in harmonizing consisted of the fact that the Romanian and Serbian national systems were still not simplified and well correlated with the WRB. However, in recent years, this simplification has been done enabling this project to make a better harmonized soil map for the northwestern Banat. For doing this, a representative soil map from each of the three countries was digitized and its legend correlated to the WRB terminology.

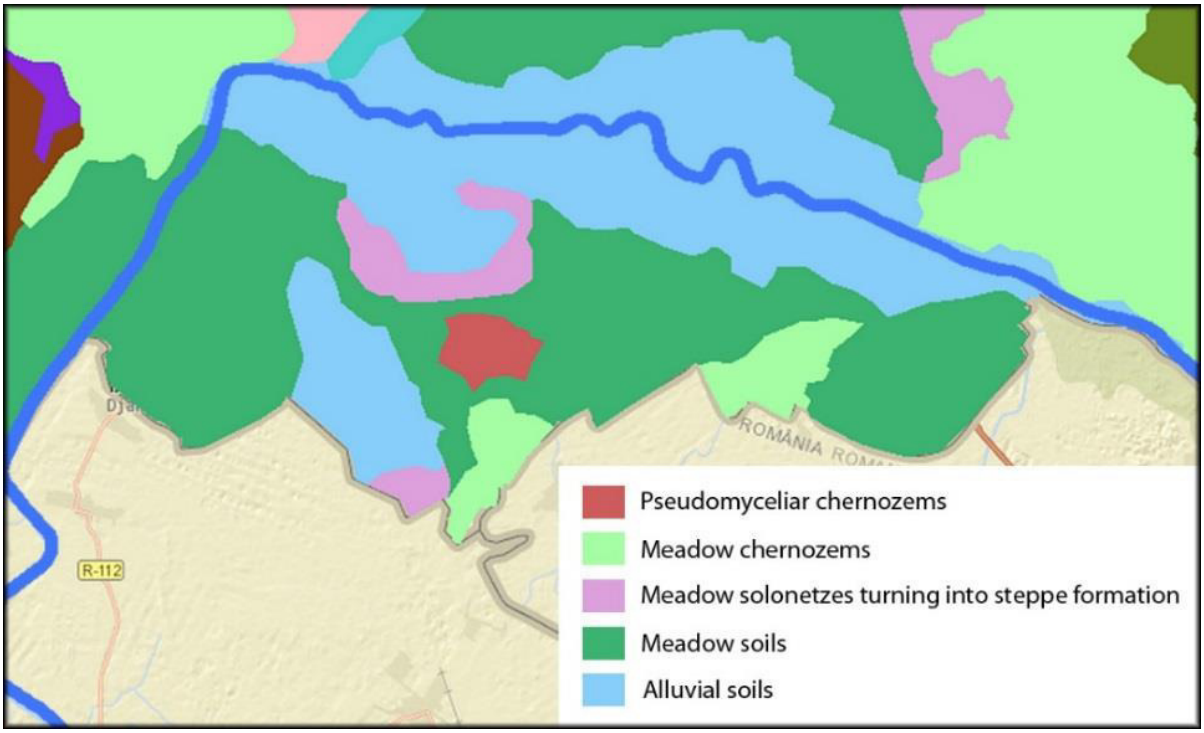

Fig. 10. Pedologic map of the Hungarian part of northwestern Banat (after "AGROTOPO" soil database).

For the Hungarian part of Banat, the 1:100 000 soil map ("AGROTOPO" soil database), which is elaborated, on using the national soil classification, by the Institute for Soil Sciences and Agricultural Chemistry of the Hungarian Academy of Sciences[13], was selected (Fig. 10).

As mentioned above, the pedological studies in Hungary began very early and today it is one of the most investigated countries in Europe and the first in the world to have a 1: 25.000 soil map covering its whole territory (Tóth 2007: 79). However, since the soil classification was designed early on it is mainly based on soil genesis (without diagnostic horizons) and the used terminology is traditional and descriptive. These characteristics make its correlation

[13] http://maps.rissac.hu/agrotopo_en/, accessed 21.01.2016.

with the WRB difficult and not very precise. In the current study, the harmonization developed by Krasilnikov et al. (2009: 171-175) is used (Tab. 1) and in the cases when a soil type of the national classification is correlated with more than one WRB soil, then the first one listed is used. Exception is made to Meadow soil which primarily corresponds to Gleyic Chernozem (Birkás et al. 2012: 18; Einar Eberhardt, personal communication, 17.05.2016), which is also evident when comparing the soils on both sides of the political border.

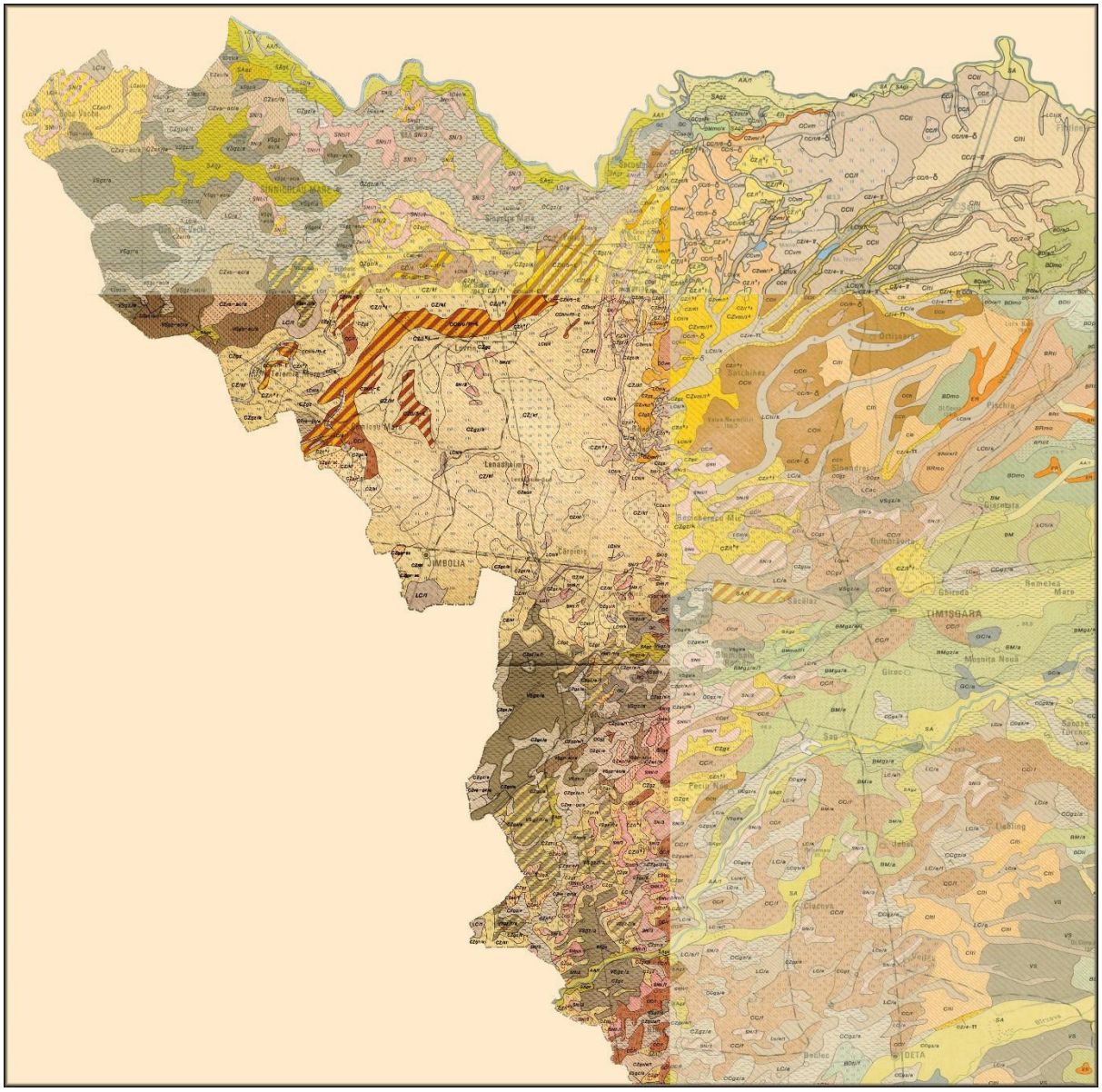

Fig. 11. Pedologic map of the Romanian part of northwestern Banat (after Florea at al. 1963-1993).

For the Romanian part of the study region, the 1:200.000 soil map (Florea at al. 1963-1993)[14], elaborated on using the national classification, was chosen (Fig. 11). Four sheets of this map, produced in the period 1989-1990 cover the Romanian part of the region under study (15-Sânnicolau Mare, 16-Arad, 23-Jimbolia, 24-Timișoara).

[14] The largest scale map available for the entirety of Romania (Vlad et al. 2012: 615).

The Romanian System of Soil Classification (SRCS) was designed in the period 1960-1980 (Conea et al. 1980) and although originally it consisted of a large diversity of taxonomic unities, in the last decades, it underwent several modifications (Florea, Munteanu 2000; 2003; 2012), which resulted in the reduction of the number of taxonomic units and their adaptation to the WRB.

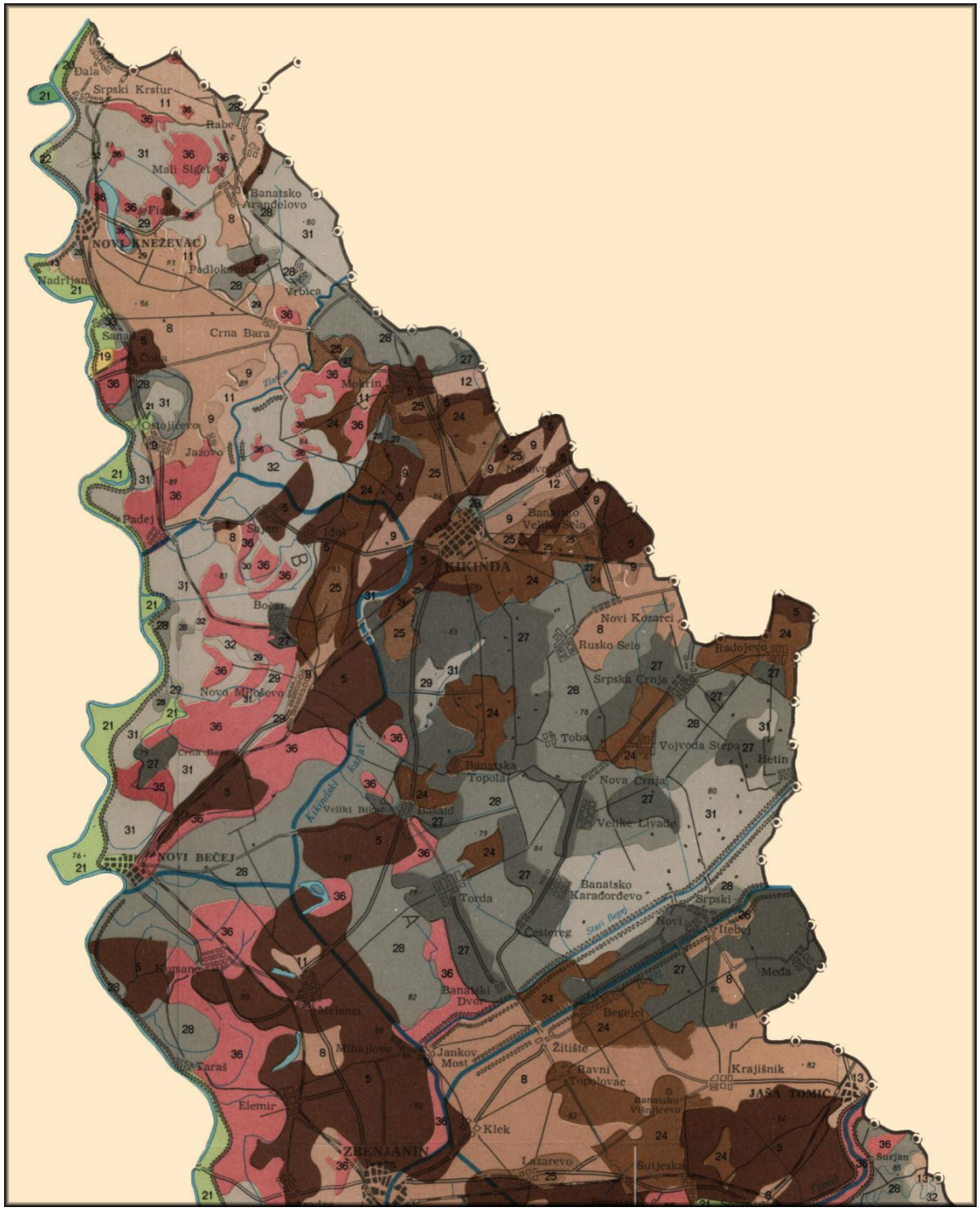

Fig. 12. Pedologic map of the Serbian part of northwestern Banat, clipped from the Soil Map of Vojvodina (after Nejgebauer et al. 1972).

The adjusted form, designated as the Romanian System of Soil Taxonomy (SRTS), appears as a combination of the theoretical concepts of the Russian school, the US Soil Taxonomy

and the Food and Agriculture Organization (FAO) taxonomy, while for the higher taxonomical levels artificial terminology is used, primarily borrowed from foreign classifications (Krasilnikov et al. 2009: 176-179).

The current study uses the last available correlations to the WRB (Vlad et al. 2012: 16-17; Florea, Munteanu 2012: 124-126) (Tab. 2). On the pedologic map, the study region is covered by 14 soil types according to the SRCS. These soils are transformed to the SRTS into 11 soil types and then correlated to the WRB with 10 soil types. In the cases when a SRTS soil type is correlated with more than one soil type in the WRB, the first one indicated is used.

For the Serbian part of northwestern Banat, the Soil Map of Vojvodina scale 1: 400.000 (Fig. 12), published by the Institute of Agricultural Research in Novi Sad (Nejgebauer et al. 1972), was chosen.

This map was elaborated on using the national classification of former Yugoslavia (Neugebauer et al. 1963), which relies mainly on genetic principles. Later, this classification was twice improved (Škorić et al. 1973; Škorić et al. 1985), but its main principles were maintained. Currently the official national soil classification (the 1985 version) does not have an official correlation to the WRB (Vidojević, Milanović 2007: 88, 97; Dragana Vidojević, personal communication, 24.05.2016). However, a collaborative research team from the University of Novi Sad[15] recently developed one, which we used in the present study (Tab. 3).

b) Soil types in northwestern Banat

The resulting harmonized map (Fig. 13) shows quite good matches of the soils across the political border, which can be taken as a mark of relatively good correlation of the soil types. There are, however, some portions of the map, where the Gleysol and Vertisol are divided by the political border between Romania and Serbia, which indicates that there could be some inconsistency in the translation of one of these two soil types. This in the future can be remediated by pedologists.

According to WRB, 10 soil types exist within the study region. The main characteristics of each type are presented:

1) Cambisols are brownish colored young soils that have at least one incipient horizon differentiation in the subsoil. They are characterized by slight or moderate weathering of parent material and by absence of appreciable quantities of illuviated clay and organic matter. These soils are agriculturally productive (WRB 2015: 152-153; Jones et al. 2005: 29).

2) Chernozems are very dark brown or blackish soils with a thick surface horizon and secondary calcium carbonate concentrations in the deeper horizons. The topsoil is rich in organic matter (mainly decayed grass) and has a high pH. These soils are agriculturally very productive and also are used for livestock rearing (WRB 2015: 153-154; Jones et al. 2005: 29).

3) Fluvisols are young alluvial soils formed in periodically flooded areas. Their profiles exhibit layering of sediments and weak pedogenic horizon differentiation. They are fertile soils (WRB 2015: 157-158; Jones et al. 2005: 30).

[15] Acknowledgements to Vladimir Ciric and Pavel Benka, who provided information.

4) Gleysols occur in lowland areas where the groundwater comes close to the surface and stays long enough to develop reducing conditions, under which the gleyic properties develop. Reddish, brownish or yellowish colors on ped surfaces or in the upper soil layers are characteristic, and greyish/bluish colors inside the peds or deeper in the soil profile. These soils are not well drained and for agricultural use require intensive management (WRB 2015: 158-160; Jones et al. 2005: 30).

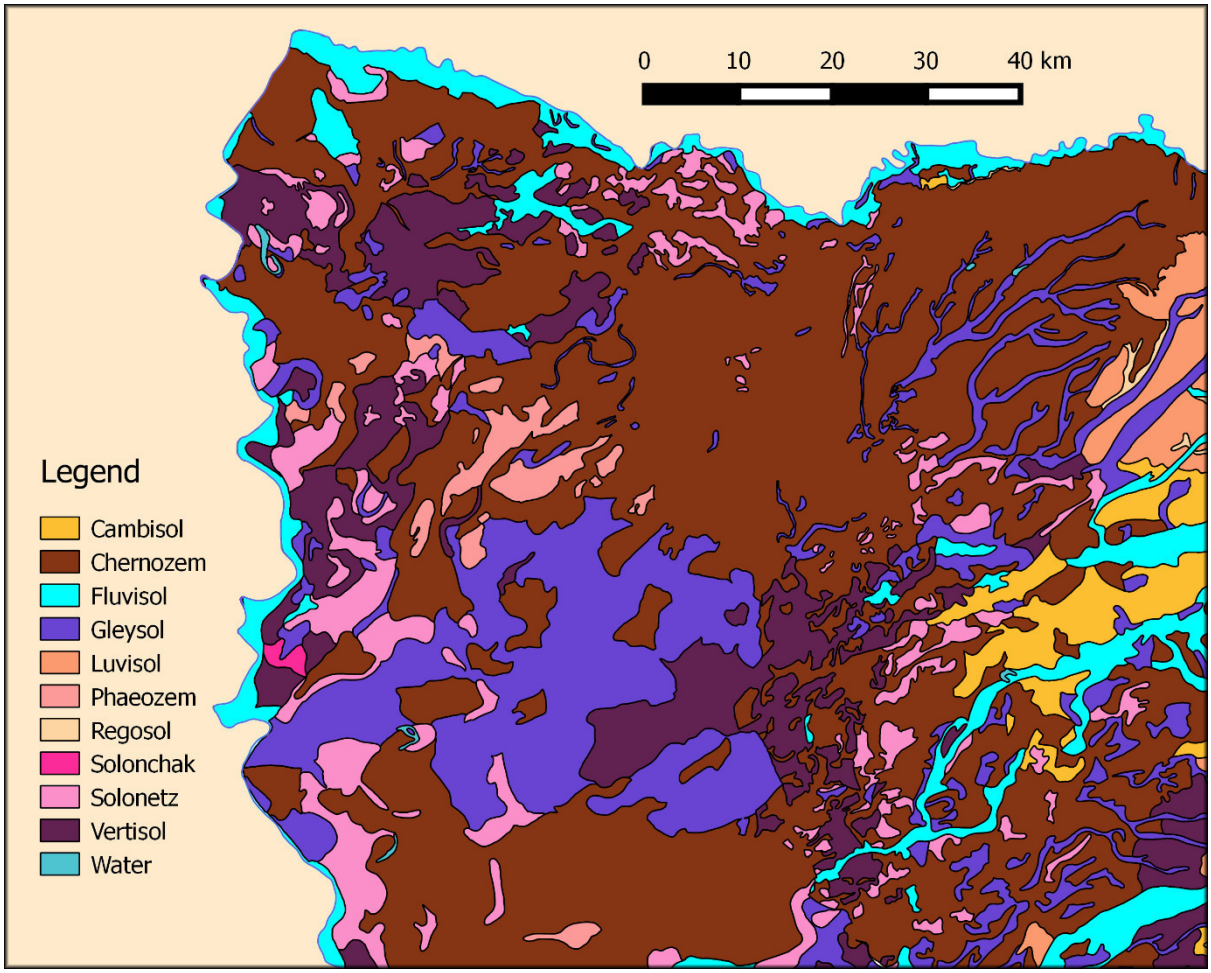

Fig. 13. Harmonized pedologic map of northwestern Banat.

5) Luvisols occur on well drained landscapes (gently sloping land) and have a well-marked textural differentiation between the surface and subsurface horizons. The topsoil has a lower clay content than the subsoil as result of clay migration. Most of them are fertile soils (WRB 2015: 165-166; Jones et al. 2005: 31).

6) Phaeozems occur in wet steppes and are similar to Chernozems, but more intensively leached in the wet seasons. As a result, the surface horizon is dark and rich in humus but has no secondary carbonates. These soils are fertile and suitable for crop cultivation and cattle rearing (WRB 2015: 167-168; Jones et al. 2005: 32).

7) Regosols are weakly developed mineral soils in unconsolidated materials with only a limited surface horizon. They are common in eroding mountainous areas and have minimal agricultural significance (WRB 2015: 172-173; Jones et al. 2005: 32).

8) Solonchaks are strongly salinized soils, which occur where saline groundwater reaches the upper soil or surface water accumulates. After the water evaporates the salts

remain at or near the surface. As the salts affect plant growth the strongly salt-affected soils have little agricultural value. However, they can be used for grazing sheep, goats and cattle (WRB 2015: 174-175; Jones et al. 2005: 32).

9) Solonetz are strongly alkaline soils with a structured clayey subsurface horizon that has a high proportion of adsorbed Na and in some cases also Mg ions. These soils occur in flat lands with hot and dry summers. Because of the high sodium content, they have very low agricultural potential, but can be used for grazing domestic animals (WRB 2015: 175-177; Jones et al. 2005: 33).

10) Vertisols contain a high proportion swelling clay minerals and occur primarily in flat landscapes under climates with pronounced dry and wet seasons. During the dry season the soil shrinks, and deep wide cracks appear creating polished and grooved ped surfaces. These soils have agricultural potential, but its properties (stickiness when wet and hardness when dry) require intensive and laborious management. (WRB 2015: 180-181; Jones et al. 2005: 33).

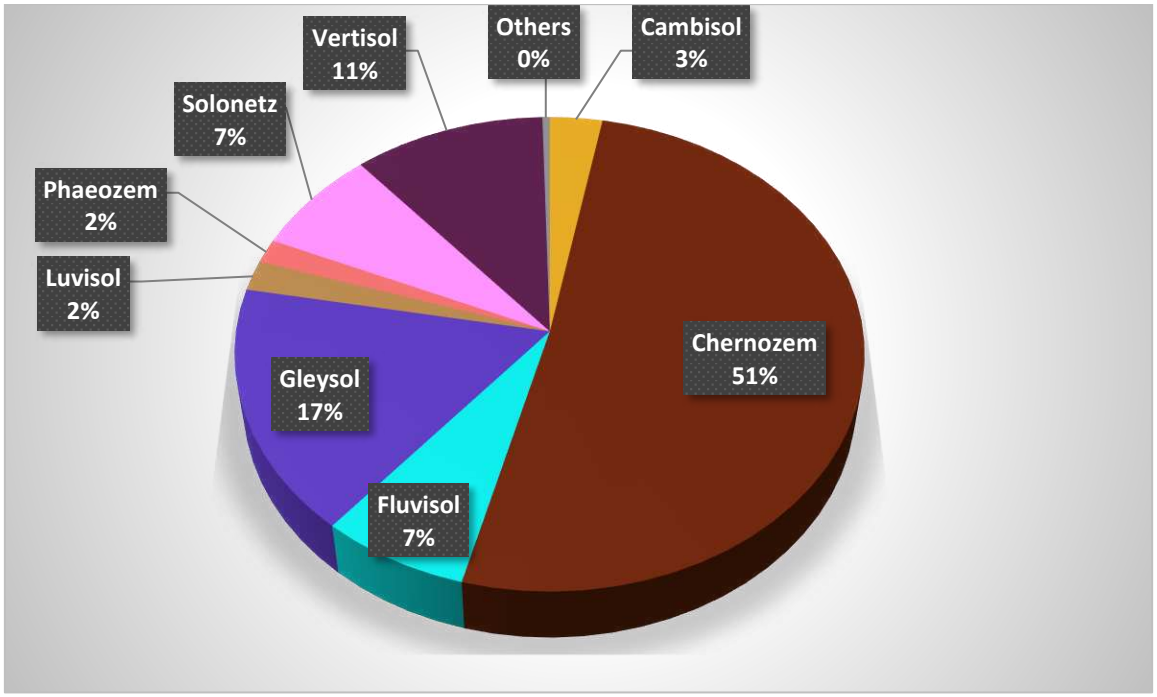

Fig. 14. Distribution of soil types in northwestern Banat in percentages.

The above presented characteristics result in different agricultural potential of the soils, which can be grouped into three main categories:

1. soils with high agricultural potential: Chernozems, Fluvisols, Phaeozems;
2. soils with medium agricultural potential: Cambisols, Luvisols, Vertisols, Gleysols;
3. soils with low agricultural potential: Regosols, Solonchaks, Solonetz.

According to the agricultural potential, the soil categories are distributed (Fig.14; Tab. 4) as follows: the largest part of the region is covered by soils with high agricultural potential (59.75%), followed by soils with medium agricultural potential (32.7%) and only a small part of the region is covered by soils with low agricultural potential (7.51%).

II. Chronological setting

1. Early Neolithic (ca. 6000-5400 BC)

The beginning of this period is marked by substantial transformations occurring throughout Southeastern Europe. The territory previously sparsely inhabited by Mesolithic hunter-gatherers became densely settled by farmers dwelling in permanent or semi-permanent settlements, practicing an economy based upon food production and the manufacturing of pottery.

The agrarian lifestyle has its origin in the processes occurring within the Fertile Crescent (Southwestern Asia) in the period following the last glaciation, when semi-sedentary hunter-gatherer communities domesticated several plant and animal species after a long period of pre-domestic cultivation of wild plants, and captivity as well as selective manipulation of wild animals[16]. Initially, these communities relied very little on the domesticated species, but their dependence gradually increased, leading to the development of a food production economy based on agriculture and husbandry. Together with this development, other changes in the lifestyle of the communities occurred. The previously semi-sedentary hunter-gatherers became ever more sedentary farmers (Düring 2011: 47), which permitted them to increase their material possessions and made them progressively more dependent on things (Hodder 2014: 28-30). Inventions and innovations were also stimulated. An invention worth mention is the manufacture of pottery which had occurred by 7000-6800 cal BC (Özdoğan 2009: 29). Furthermore, cultivation and livestock rearing permitted far larger amounts of food to be produced within a certain area than would naturally occur within it, which yielded as a consequence demographic growth. The increasing population, on the one hand, led to the appearance of agglomerated proto-urban centers modifying the way people interacted with each other (Düring 2011: 47) and, on the other, it was one of the factors stimulating the expansion of farming. If prior to domestication the sedentary lifestyle could only occur in regions rich in nutritive resources throughout the year, after this the sedentary way of life also became possible in regions poor in such resources but with favorable ecological conditions for domesticates (Willcox 2012: 172).

Thus, farming gradually spread from the primary centers in which it appeared to neighboring regions, and its westward expansion led to the neolithization of Southeastern Europe, and implicitly thereby the study region. This expansion, however, was neither regular nor uniform, but rather occurred in stages (periods of rapid advance intermingled with periods of stasis) and its speed, direction, and intensity varied from region to region (Bocquet-Appel et al. 2009). Initially, for a few thousand years, farming did not spread outside the Fertile Crescent, but only a few elements were transmitted to the neighboring and occasionally more distant hunter-gatherer Mesolithic communities. One such example are the semi-domesticated goats and pigs consumed by the Mesolithic communities on the Aegean Islands. These animals must have been brought there by seafarers since they did not exist there in wild form (Kozłowski 2016: 58-59).

Farming spread outside the steppes of Central Anatolia only by 6600-6500 BC and reached the Western and Northwestern Anatolia which had different ecological conditions (Weninger et al. 2014: 17-19; Düring 2011: 125) and, by the same time or slightly later, the Aegean Islands and continental Greece were also neolithised (Weninger et al. 2014: 20-22; Reigruber 2008: 611). After this, followed a period of standstill, which was induced by the RCC and the Hudson Bay outflow events (see Chapter I), and, by 6200/6100 cal BC, the expansion of

[16] The earliest attested plant domestication occurred at ca. 10.500 cal BC, while the first animal domestication took place at ca. 8400 cal BC (Willcox 2012: 170-174; Stiner et al. 2014: 8405).

farming had resumed, reaching the Central Balkans; slightly later, by 6000 cal BC, Bačka, Banat, Transylvania, Oltenia (Whittle et al. 2002; Biagi et al. 2005), western Muntenia (Balasse et al. 2013: Tab. 1), and northern Bulgaria (Krauß et al. 2014) had also been neolithised. In the centuries that followed, farming continued to spread, primarily in westerly and easterly directions. It also spread in a northerly direction, but at a slower pace, the upper Tisa region only being reached by 5620-5470 cal BC (Domboróczki 2010a: 184; Domboróczki 2010b: 157-158). In this way, by the end of the Early Neolithic, most of Southeastern Europe had been neolithised.

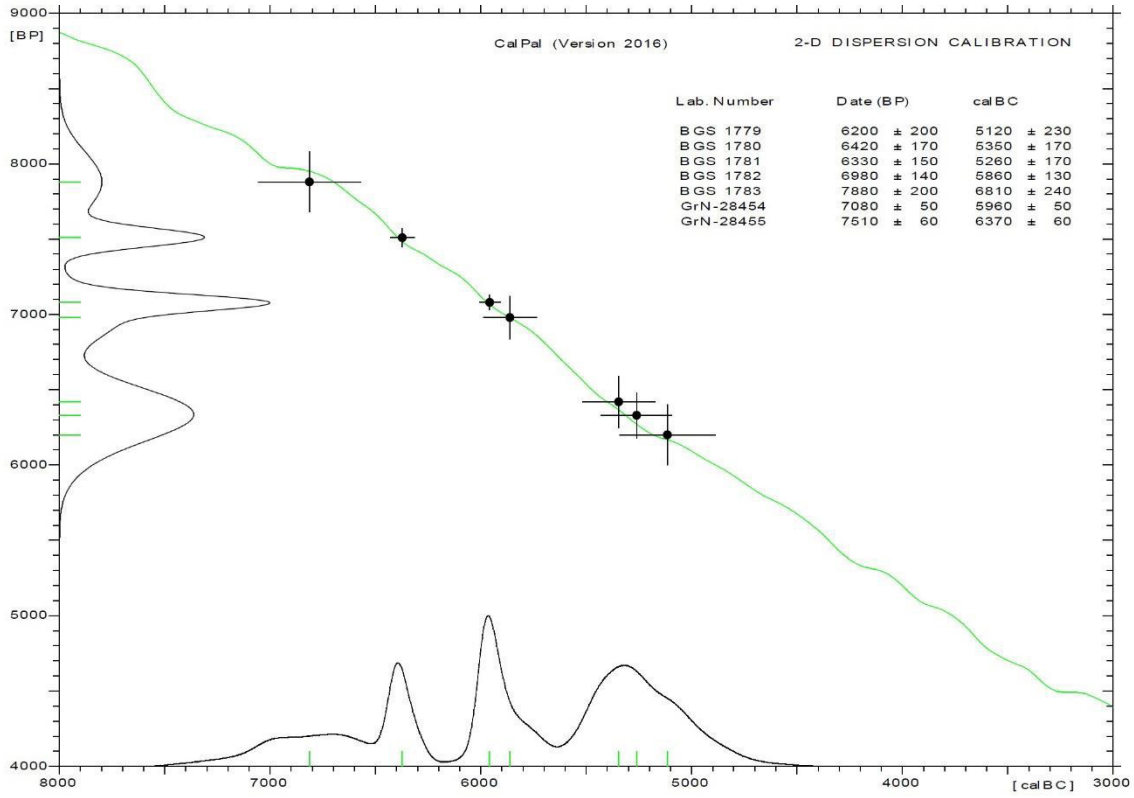

Fig. 15. Calibration plot of the radiocarbon dates obtained from Foeni – Sălaș.

Early radiocarbon dates indicating the approximate date of the introduction of farming within the study region were obtained from two sites, namely Foeni – Sălaș and Deszk – 1 (Olajkút). From the former site, seven dates[17] were obtained (Biagi, Spataro 2004: Tab. 1; Greenfield, Jongsma 2008: Tab. 1), five of which, however, are dubious (Fig. 15). BGS 1783 and GrN-28455 correspond to the time period prior to the neolithization, while BGS 1779, BGS 1780 and BGS 1781 fall within the time-span of the Middle Neolithic, and since neither Mesolithic nor Middle Neolithic traces were attested at the site (Greenfield, Drașovean 1994; Greenfield, Jongsma 2008) we must regard these dates as outliers. The remaining two dates, GrN-28454 and BGS 1782, fall within the time interval of the Early Neolithic and are slightly later than the earliest Early Neolithic dates obtained from the broader region (Whittle et al. 2002; Biagi, Spataro 2004). At Deszk – 1 (Olajkút), two supposedly Early Neolithic graves were sampled;

[17] Five dates were obtained at the Earth Sciences Laboratory of the Brock University and two at the Centre for Isotope Research of the Groningen University. These from the former laboratory, however, have standard deviations that by present standards are quite large.

however, only one appeared to be from this period, namely Grave 6 (Whittle et al. 2002: 115). The date obtained, OxA-9396 7030±50 BP, dates the grave to between 6010-5780 cal BC (95,4% probability). Although additional dates are required for precisely establishing the timing of the introduction of farming within the northwestern Banat, the currently available dates indicate that the study region was neolithised at the beginning of the 6th millennium BC.

The manner in which farming was introduced into Southeastern Europe has been a subject of debate for about a century, it being disputed as to whether this was introduced through migration or cultural diffusion. According to the first scenario, farming was brought into Europe by immigrant farmers replacing and assimilating the indigenous Mesolithic population, while, according to the second scenario, indigenous Mesolithic population adopted farming by interacting with neighboring Neolithic peoples. Given the scarce evidence of Mesolithic occupation within Southeastern Europe (Krauß 2011a: 6) and that the earliest farmers' material culture had many analogies in Anatolia, the first scenario was more preferred (summarized in Boronenț, Dinu 2006: 51; Kalicz 1998b: 257). Recent molecular genetics and stable isotope studies have, indeed, confirmed that agriculture was introduced by immigrant farmers from Anatolia, but also that the indigenous population contributed to this process. Gamba et al. (2014: 3, 6) demonstrated that the Early Neolithic peoples from the Carpathian Basin have a similar genetic signature to the early farmers from Central and Northern Europe, but one different from that of the Mesolithic population, while Hofmanová et al. (2016) revealed that the Early Neolithic population from Central Europe and the Carpathian Basin have analogous genomes with the early farmers from Northern Greece and Northwestern Anatolia, which unequivocally indicates that people from Anatolia migrated to Central Europe.

Stable isotope analysis carried out on individuals from Mesolithic and Neolithic burials from the Iron Gates region (Borić, Price 2013) revealed that the level of regional mobility was limited during most of the Mesolithic, but this suddenly changed by 6200 cal BC, when numerous non-local farmers appeared within the region, settling in the vicinity of the Mesolithic sites. In the centuries thereafter, foreign farmers continued to arrive (probably in several waves) from at least two different regions, and peacefully interacted with the indigenous communities, exchanging goods, ideas, and partners until ca. 6000/5900 cal BC, when the Mesolithic culture was totally assimilated (Borić, Price 2013: 3302; Ciocani 2016: 173). This long interaction of the indigenous population with the newcomers followed by the full adoption of the Neolithic way of life indicates that the Mesolithic communities also actively contributed to the neolithization process. As of yet, no traces of Mesolithic occupation were attested within the study region; however, it is likely that this region was also inhabited during the Mesolithic, since such occupations, while sparse, were attested within the broader area (Krauss 2016).

The neolithization of Southeastern Europe led to the formation of two main pottery-style complexes: Fingernail Impressed Pottery, distributed over most of Southeastern Europe (including the study region), and Cardium Impressed Pottery, distributed along the Adriatic coast. By far the most common pottery category within the former complex was thick-walled coarse pottery, decorated with fingernail impressions (including pinching), barbotine, plastic, incised and grooved patterns. The fine pottery comprised well smoothed (burnished) slipped and unslipped vessels. Of the slipped vessels, some were decorated with painted motives, while one part of the unslipped vessels were ornamented with incised or grooved patterns (Makkay 2000; Pavúk, Bakămska 2000). Unlike the coarse pottery, which varied little from region to region and slightly changed over time, the fine pottery, especially the painted examples, varied more regionally as well as diachronically (Whittle et al. 2002: 88), and, for this reason, was used as the basis for defining archaeological cultures and their relative

chronology. The painted pottery, however, was more common in the southern part of the complex, and, due to its scarcity in the northern part, the extent of the archaeological cultures and their internal chronologies were more difficult to establish.

In the following, the manner in which the archaeological cultures were defined within the northern part of the complex will be presented. The archaeological investigations carried out in the late 19th and early 20th century in southern Hungary (Kisléghi 1907; 1909; Banner 1928; 1929b: 80-81) yielded a large amount of Early Neolithic finds, drawing the attention of Janos Banner (1929a), but he regarded them as representing the third phase of the Tisa Culture. A decisive moment for the study of the Early Neolithic was the American-Yugoslav archaeological expedition at the multi-phase site of Starčevo – Grad conducted between 1931 and 1932 (Fewkes et al. 1933). The extensive investigations carried out there yielded a significant amount of Early Neolithic finds including painted pottery, parallels for which were identified in the lowest layer (A) of the tell site of Vinča – Belo Brdo, permitting the conclusion that these finds "represent the earliest Neolithic culture in the whole region of Banat" (Fewkes et al. 1933: 48).

This conclusion had a superregional resonance, and, only few years later, Ferenc Tompa (1934-1935: 46) introduced the notion of the Körös Group, naming it after the homonymous river, within which he included the aforementioned discoveries from Hungary and Serbia, while by the same time Janos Banner (1937) referred to these discoveries as the Kőrös Culture. Although Tompa (1934-1935: 47) already included the sites of Starčevo – Grad and Vinča – Belo Brdo (lower layer) within the Körös Group, and this was also accepted by other scholars (Banner 1937; Holste 1939: 5-6), the numerous and impressive painted pottery recovered from Starčevo – Grad impelled Miodrag Grbić to introduce the notion of Starčevo Culture, which he defined as a culture with painted pottery (Грбић 1939: 50). This new name quickly came to be adopted by researchers investigating within Yugoslavia (Schmidt 1945: 53, 113-114; Arandjelović-Garašanin 1954), while, in Hungary, scholars continued to use the name Körös Culture (Kutzián 1944). The introduction of two names, however, was severely criticized by Vladimir Milojčić (1949a: 78-79; 1950;1967: 3), who argued that there is no boundary between the two cultures, and that they should be regarded as a single, discrete culture, proposing as unifying name "Starčevo-Körös". The Early Neolithic discoveries in Romania were initially attributed to the Criș Culture (Nestor et al. 1951: 59; Petrescu-Dîmbovița 1958; Comșa 1959; Vlassa 1966), this being the Romanian translation of "Körös Culture"[18] and hence initially equated with the Körös Culture, but later some scholars (Brukner 1968: 32-35; Kalicz 1998b) began to differentiate it from the Körös Culture. Thereafter, however, Gheorghe Lazarovici (1969; 1971a; 1979: 15), following Vladimir Milojčić's views, claimed that the Körös, Starčevo, and Criș are to be regarded as a single culture and proposed for these the unifying term Starčevo-Criș Culture, covering an area from Transylvania until Macedonia and from Bosnia until Moldova. Moreover, after the discovery of sites with Mesolithic and Neolithic occupations within the Iron Gates region Dragoslav Srejović (1971; 1973; 1988: 12-17) he presumed an autochthonous origin of the Neolithic and, in order to explain this, he divided the development of the Starčevo Culture into two cultures: Proto-Starčevo and Starčevo, assigning the former to the Early Neolithic and the later to the Middle Neolithic. Thereafter, notions such as Gura Baciului-Cîrcea and Pre-Criș were also introduced in Romania to represent the earliest Neolithic phase (Dumitrescu 1982: 17, 21-22; Paul 1995). Currently, most of the Serbian and Hungarian scholars regard Körös, Starčevo, and Criș as different cultures, while in Romania the majority of researchers regard them as an individual culture. In addition to this, the period in question in Romania and

[18] Criș is the Romanian name of the river Körös.

Hungary is regarded as Early Neolithic, while in Serbia it is divided into two periods – the Early Neolithic (Proto-Starčevo) and Middle Neolithic (Starčevo) respectively. This complex and confusing historiographic situation illustrates to some degree the limits of Culture-historical Archaeology in explaining the complex processes occurring during and after neolithization.

Differences between the Starčevo and Körös sites exist (discussed in detail by Kalicz 1998b: 258-259; 2000), and the most prominent of them is the far lower frequency of painted pottery within the Körös sites compared to that in the Starčevo examples (Makkay, Trogmayer 1965: 57; Horváth 1996: 126). The painted pottery from the Körös sites, however, has good parallels in that from the Starčevo sites and therefore it is debatable whether these differences are significant enough to warrant defining two distinct cultures. In addition to this, the demarcation line between the Körös and Criș Cultures follows to a great degree the modern political border, while the differences on the basis of which this separation was accomplished remain unspecified. Since ornamented pottery is used as basis for defining these cultures, a comparative statistical analysis would indicate as to whether there are large enough differences to justify separating them. As still no consensus among the researchers was reached, until such detailed analyses are carried out, we propose a middle way: Starčevo-Körös-Criș (SKC) to be regarded as a culture, while Starčevo, Körös, Criș (?) and eventually others to be regarded as groups. Accordingly, the study region falls within the southern area of the Körös Group, near the zone with the Starčevo Group. As of yet, the northernmost site in Banat which might be attributed to the Starčevo Group is Zrenjanin – Mužlja, Krstićeva Humka (Радишић 1966-1968), located at ca. 7 km south of the study region.

As previously mentioned, the relative chronological position of the SKC Culture was determined by the investigators of Starčevo – Grad (Vladimir Fewkes 1933: 48-50). They concluded that the Starčevo type pottery is older than the Vinča type by noticing that the two types of pottery occurred in the lowest layer (A) at Vinča – Belo Brdo, while at Starčevo – Grad no Vinča type pottery was attested. Following this, Ferenc Tompa (1934-1935: 47), well acquainted with the occurrence of Tisa type pottery (imports) at Vinča – Belo Brdo, concluded that the Körös Group preceded the Tisa Culture. These early observations, however, were not very convincing, and did not immediately become widely accepted. For instance, Friedrich Holste (1939: 5-6) interpreted the mixture of Starčevo and Vinča type pottery in the lowest layer (A) at Vinča – Belo Brdo as a simultaneous development of the two cultures, one south and the other north of the Danube. The succession of the two cultures was to be widely accepted only a decade later when Vladimir Milojčić (1949b: 259), noticing that most of the pits excavated into the virgin soil at Vinča – Belo yielded either Starčevo or Vinča type pottery, deduced that the mixture from the layer resulted from an inappropriate excavation methodology and argued that the two cultures cannot be contemporaneous, but rather that the SKC Culture is older. Nevertheless, Milojčić (1949a: 71-72, 75-76; 1950: 112) still admitted that the two cultures were partially contemporaneous as he believed that the appearance of the Vinča Culture was the result of a migration which took place during the last phase of the SKC Culture and led to the dislocation of the SKC Culture to the north – in northern Banat and Southeastern Hungary. His main arguments in support for this hypothesis were the "foreign" influences observable in the SKC IV material culture, as well as some SKC "imports" discovered within some Vinča A sites. Since then, in the following decades, the migrationist concept became the general trend in explaining culture change in Southeastern Europe; his idea of partial cooccurrence of the two cultures was also widely accepted, and, to some degree, is still extant in the present day.

Acknowledging the Vinča Culture's development, Friedrich Holste (1939: 7) presumed that the SKC Culture may also have undergone such development, and, in an evolutionistic fashion, speculated upon an earlier phase when only coarse pottery with barbotine ornamentation would have been produced and a later one in which the pottery would have been decorated with black-on-red curvilinear painting. In the following decade, Vladimir Milojčić (1949a, 70-71; 1949b: 261-265) developed on the basis of an extensive typo-comparative analysis a periodization with four phases. The formative phase (I), however, was inspired by Holste's assumption that initially exclusively barbotine ornamented coarse pottery was manufactured. The following two phases (II and III) were conceptualized on the basis of the changes in the painted pottery: the second phase being characterized by rectilinear motifs mainly painted with white color, the third phase by black or polychrome painted curvilinear compositions. As previously mentioned, Milojčić presumed that, during the last phase (IV), the bearers of the Vinča Culture arrived in Southeastern Europe and dislocated the SKC Culture, sending it northwards. For this reason, he believed that this phase was present only in the northern regions (Körös Culture), and envisioned it as a phase of decline during which the pottery was of low quality, painted pottery rare and the painting became diluted. In the decades thereafter, Milojčić's periodization was further refined and improved by Draga Arandjelović-Garašanin (1954), Dragoslav Srejović (1971; 1973; 1988: 12-17), Stojan Dimitrijević (1974), Milutin Garašanin (1979), and Gheorghe Lazarovici (1979: 39-55). Since the sites with multi-phase occupation are few, these improvements continued to be carried out primarily on the basis of typo-comparative analysis and, to lesser degree, on stratigraphic observations, rendering them less reliable (Whittle et al. 2002: 87). For instance, Holste's hypothetical assumption of an early phase without painted pottery was adopted in all aforementioned periodizations, while some researchers also included Milojčić's assumption that Vinča Culture arrived during the final phase of the KSC Culture leading to the formation of the Körös Group. The simultaneous development of the Körös and Starčevo Groups was demonstrated on the basis of the parallels in the painted pottery (Makkay, Trogmayer 1965; Makkay 1965: 4-5), while more recent studies revealed that painted pottery existed from the very beginning of the Early Neolithic (Whittle et al. 2002: 87; Krauß 2011b). The radiocarbon dates obtained from the study region as well as from the broader region have indicated that the KSC Culture continued to develop until ca. 5400 cal BC (Whittle et al. 2002; Biagi et al. 2005).

2. Middle Neolithic (ca. 5400-5000 BC)

According to changes in the pottery styles, this period may be divided into two parts. The first part includes Phase A of the Vinča Culture and Phase I of the Banat Culture, while the second part of the period encompasses the Szakálhát Culture, Phase B of the Vinča Culture, and Phase II of the Banat Culture.

a) Vinča A and Banat Culture I

The beginning of the Middle Neolithic is marked by transformations occurring over wide areas within Southeastern Europe. Firstly, an innovative technology for the production of the dark well-polished pottery appeared. Secondly, the previous broad cultural similarity in material culture began to be replaced by an increasing regionalization. Finally, the Neolithic way of life expanded within territories which had remained un-neolithised in the Early Neolithic.

Within the Central Balkans and the southern part of the Carpathian Basin, a pottery style appeared which would continue to exist for about a millennium, and which is the defining characteristic of the Vinča Culture. This culture was christened after the tell settlement of Vinča – Belo Brdo (southeast of Belgrade), which has an impressive stratigraphy of over 9 m, and which became well-known after Miloje M. Vasić conducted large scale investigations in the period between 1908 and1934 (with several interruptions) publishing the results in 4 comprehensive volumes (Васић 1932; 1936а; 1936б; 1936в). Soon after these investigations, Vinča – Belo Brdo became a reference point for the construction of relative chronologies for the Central Balkans and the Carpathian Basin. An initial periodization was elaborated by Vere Gordon Childe (1929: 26-70), who divided the Vinča culture in an earlier and a later phase. A decade later, Friedrich Holste (1939) constructed a detailed periodization, dividing the development of the pottery in five stages, termed from A to E. This periodization was further refined by Vladimir Milojčić who divided Phase B into two subphases (B1 and B2) and excluded the last phase (E) (Milojčić 1949b: 266-282). Several other improvements on the existing periodization, based on typological analysis of pottery and figurines, and their relation to the building horizons, were carried out by Josip Korošec (1959), Milutin Garašanin (1951), Borislav Jovanović (Јовановић 1960), Stojan Dimitriević (1969), Gheorghe Lazarovici (1979: 105-122), and Wolfram Schier (1996; 2000). Schier's periodization is based on correspondence analysis of the pottery from the eponym site combined with radiocarbon dating. This periodization keeps the four phases (A-D), but each is divided in several subphases and it might be mentioned as a more significant modification that the final part of Phase B was included in Phase C. According to the chronology of the eastern part of the Carpathian Basin, the first two phases of the Vinča Culture (A and B) belong to the Middle Neolithic, while the last two belong to the Late Neolithic. The Vinča Culture during Phase A occupied the northern part of the Central Balkans, the southern part of the Carpathian Basin (including the study region), southwestern Transylvania, and western Oltenia (Brukner 1974a: 69-70; Suciu 2009). The radiometric evidence indicate that Vinča A lasted from ca. 5400/5300 to ca. 5200 cal BC (Borić 2009: 234).

By the mid-6th millennium BC, the Alföld Linear Pottery Culture (ALPC) developed from the Szatmár Group of the Körös Culture located in the Upper Tisa Region (Domboróczki 2010a; Domboróczki 2010b) and gradually spread southwards reaching the Mureș valley. There, its southernmost group, called the Tére bank, came into contact with the Vinča Culture (Raczki 1989: 235; Raczy, Anders 2003: 158), and, thus, the study region, as well as its neighbouring regions to the west and east, became a zone of interference. Initially, the interference consisted of the presence of Vinča A features among the dominant linear characteristics of the Tére bank pottery as well as the occurrence of individual ALPC sherds (imports) within the Vinča A sites in the northern part of the study region (Horváth 1996: 129; Horváth 2006b: 313). Later, however, a pottery style with a hybrid character (Drașovean 2006b: 95) appeared within the study region and in its neighboring regions, this being defined as Banat Culture. It was established on a typo-comparative basis that the appearance of this type of pottery took place during Subphase A3 of the Vinča Culture (Lazarovici, Drașovean 1991:32). The notion of a Banat Culture was first introduced by János Banner and Mihály Párducz to denote the Vinča A pottery from Tiszasziget – Andróé-alja (Ószentiván VIII) (Banner, Párducz 1946-1948: 40), and later it was used to designate supposed interferences of the Körös, Vinča, and Tisa Cultures (Peters 1954, 25; Vlassa 1967: 407). Gheorghe Lazarovici (1979: 143-145) initially rejected this term and referred to the interferences of the Vinča Culture (Phases B

and C) with the Szakálhát and Tisa Cultures (see below) as the Bucovăț Group, but later, when it became obvious that this interference started earlier (Vinča A with ALPC), and that the area where it occurred was far wider than initially assumed, he adopted the notion of Banat Culture to designate this phenomenon (Lazarovici 1991: 1; Lazarovici, Drașovean 1991). Following this, the term Banat Culture was accepted by scholars, despite its rather problematic definition. Gheorghe Lazarovici and Florin Drașovean (1991: 32-40) articulated a periodization of the Banat Culture, dividing its development into three phases, each further divided into two or three subphases. Phase I belongs to the first part of the Middle Neolithic, Phase II belongs to the second part of the Middle Neolithic, and Phase III belongs to the first part of the Late Neolithic. Phase I is typologically divided into two subphases (IA and IB).

In summary, the earlier sites, such as Tiszasziget – Andróé-alja (Ószentiván VIII) and Satchinez – IX, the pottery of which exhibits almost only Vinča A features are assigned to the Vinča Culture, while the later sites with hybrid pottery are assigned to the Banat Culture I (Horváth, Drașovean 2013; Lazarovici, Luca, Drașovean 1991). During Phase I of the Banat Culture, however, the vinčanoid characteristics in the pottery were still more prominent than the linear examples.

b) Szakálhát Culture, Banat Culture II and Vinča B

In the second part of the Middle Neolithic, in the lower Tisa basin, the ALPC was succeeded by the Szakálhát Culture, which is termed after the site of Hódmezővásárhely – Szakálhát investigated in 1934 (Banner, Bálint 1935). The pottery of this culture continued to be ornamented in the linearoid tradition, and for this reason it is sometimes regarded as ALPC's last phase (Kalicz 1998c: 307; Makkay 1991: 319; Raczky 1989: 235).

Within the northern and eastern part of the study region, the hybrid pottery, defined as the Banat Culture continued its development in Phase II, but now the linear characteristics largely prevailed, and for this reason, Barbara Dammers (2012: 120) proposed this pottery to be called a "Banat version of Szakálhát" or "Banatian Szakálhát". On the basis of the stratigraphic succession of Parța – Tell 1 (Lazarovici et al 2007: Fig. 2.), this subphase was divided into three subphases. Subphase IIA is represented by the Layers 7a and 7b, Subphase IIB is represented by the Layer 7c, Subphases IIB and IIC are represented by Layers 6a and 6b. In order for the duration of these phases to be determined, 14 conventional radiometric dates from Parța – Tell 1 were obtained at the INAN laboratory of the Louvain University in 1995 (Mantu 1999-2000: Tab.1; Lazarovici et al. 2007). The dates obtained, however, have large standard deviations, rendering them less precise (Fig. 16), and 11 of the dates were obtained from charcoal, leaving them susceptible to the old wood effect. In addition to this, the information regarding the stratigraphic position of most of the dates is provided with low accuracy, e.g. Layer 7c-6 or 7c-6a. Florin Drașovean (2014: 136) established by modelling these dates according to Bayesian statistics that Layer 7c-6/6a began somewhere between 5357-5077 cal BC, while Layer 6a started between 5285-5055 cal BC and ended between 5211-4857 cal BC. Three radiocarbon dates were also obtained from the lowest layer (5d) of Sânandrei – Ocsaplatz (Drașovean 2014: 137), which typologically corresponds to the Banat Culture IIB. Theses dates indicate that the settlement was founded somewhere between 5483-4857 cal BC. In order to establish accurately the duration of the subphases, additional radiocarbon dates from well-defined contexts are required.

The Vinča Culture continued its development in Phase B with rather limited changes in the pottery style. Within the study region it occupied only its southern and western parts, as attested at Aradac – Kameniti vinogradi and Čoka – Kremenjak. This phase lasted from ca. 5200 to ca. 5000 cal BC (Borić 2009: 234).

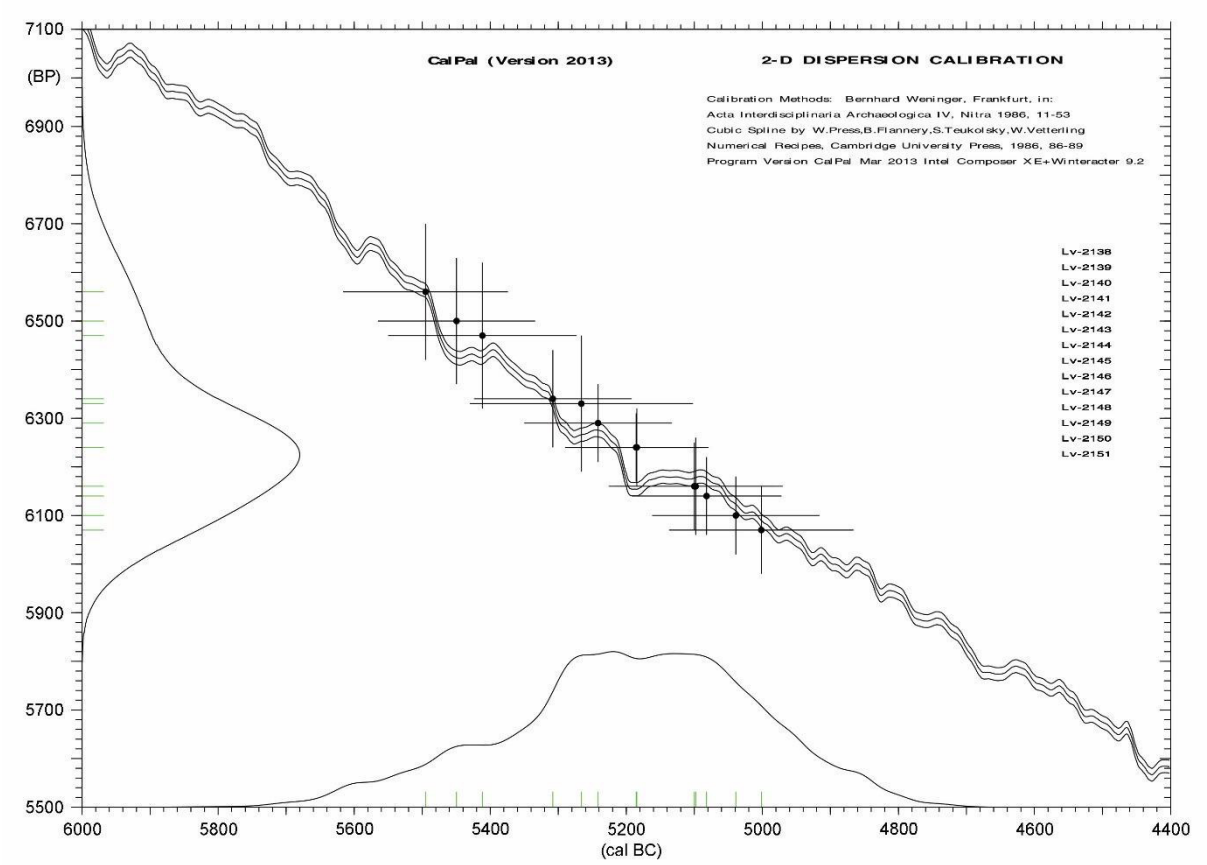

Fig. 16. Plot of Calibrated radiocarbon dates from Parța – Tell 1.

4. Late Neolithic (ca. 5000-4600/4500 BC)

According to changes within pottery, the Late Neolithic can be divided into two parts. The first part encompasses Phase C of the Vinča Culture and Phase III of the Banat Culture, while the second part of the period covers the development of the Tisa Culture and the Foeni Group.

a) Vinča C and Banat Culture III

In the first part of the Late Neolithic, the Vinča Culture continued its development in Phase C. The transition from Vinča B to Vinča C consisted of a significant change in pottery styles. Within the study region, this culture occupied the southern and central areas. On the basis of the radiometric dates from the whole extent of the culture, Dušan Borić (2009: 234) established that Phase C of the Vinča Culture lasted from ca. 5000/4950 cal BC to ca. 4850 cal BC. In Wolfram Schier's (1996: 148) periodization, this phase is divided into three subphases. Within the study region, however, this culture only continued to develop during the first two subphases, after which it ceased to exist (Drașovean 2009b). On the basis of the radiocarbon dates from Vinča – Belo Brdo, Gomolava, and Hodoni – Pocioroane, it was established that Subphase C1 began between 5253-4899 cal BC, while Subphase C2 began between 5002-4877 cal BC and ended between 4801-4655 cal BC (Drașovean 2013: 15).

The northern part of the study region was occupied by the Banat Culture (Phase III) (Drașovean 2009). Although the pottery of this culture continued to display hybrid characteristics (vinčaoid and linearoid) as in the previous period, it developed more distinctive regional features and became more individualized. On the basis of the stratigraphic succession of Parța – Tell 1, Phase III of the Banat Culture was divided into two subphases. Subphase IIIA is represented by Layer 5a, and Subphase IIIB is represented by Layer 5b (Lazarovici et al 2007: Fig. 2.).

In the lower Tisa basin, the Szakálhát Culture was succeeded by the Tisa Culture, which gradually spread northwards along the homonymous river and eastwards into the Criș River basin (Makkay 1991: 319, 321; Kalicz 1998c: 310, 313). This culture only bordered with the study region, but its pottery appeared within the study region in small amounts either as imports or as imitations. In fact, often within a site, other pottery styles also appeared in small amounts alongside the characteristic pottery style. For instance, at Uivar – Gomilă, besides the canonical Vinča pottery, which was the most common style, local Vinča, Banat Culture, tisaoid Vinča, genuine Tisa, and Turdaș styles also occurred (Dammers 2009).

b) Tisa Culture and Foeni Group

In the second part of the Late Neolithic, the Tisa Culture expanded within the western and northern parts of the study region. According to the evidence from Hodoni – Pocioroane, this occurred during Vinča C3 (Drașovean 1995: 80). The first detailed chronology of the Tisa Culture was outlined by Nándor Kalicz and Pál Raczky (1989: 25-27), who divided its development into three phases (I, II, III). Later, Ferenc Horvath (2012: 67-68), employing as a reference point the stratigraphy of the tell settlement of Hódmezővásárhely – Gorzsa, further refined this chronology; he introduced an additional phase, and determined the duration of all of the phases in terms of absolute chronology. Phase I started at ca. 5030 cal BC, Phase II started at ca. 4970 cal BC, Phase III started between 4850-4800 cal BC, and Phase IV started at ca. 4700 cal BC, ending by 4500 cal BC. According to this chronology, the Tisa sites from the study region are to be dated to the III and IV Phases. Both periodizations have an additional phase called the Transitional or Proto-Tiszapolgár Phase, not included here as we regard it as belonging to the following period.

The Vinča Culture began to shrink in extent in Subphase C3, and this process was intensified during Phase D, when its territory was further significantly reduced. Within the southeastern part of the study region, this culture was succeeded by the Foeni Group with painted pottery. The unpainted pottery of this group, however, had similar characteristics to the Vinča pottery (Drașovean 1997: 73). Initially this kind of painted pottery was discovered within southwestern Transylvania, and it was defined as Petrești Culture (Berciu 1961: 24-26; Paul 1992), but afterwards it was also attested within Banat, and, due to regional stylistic differences, was defined as Foeni Group (Agotha, Resch 1997; Drașovean 1997). The name of this group was given after the most representative site for the group, namely Foeni – Cimitirul Ortodox (Drașovean 2003: 40). Both comparative typological analysis and absolute dating indicate that the formation of the Foeni Group preceded the appearance of the Petrești Culture in Transylvania (Drașovean 1997: 76; Drașovean 2003: 45). The internal chronology of the Foeni Group was established on the basis of the eponymous site's stratigraphy, which consists of three occupation phases. Their duration was determined by modelling 24 radiocarbon dates obtained from the layers according to their stratigraphic relation (Drașovean 2014: 145-146). The onset of Phase I was between 4823-4614 cal BC, indicating

that this event took place immediately after the end of Vinča C2. Phase II began between 4626-4518 cal BC, while Phase III started between 4556-4474 cal BC and ended between 4546-4274 cal BC. The end of the Vinča Culture is dated to between 4650 and 4600 cal BC (Borić 2009: 235), which clearly indicates that the Foeni Group continued to develop after the Vinča Culture ceased to exist.

4. Early Eneolithic (ca. 4600/4500-4250 BC)

The onset of this period is marked by the appearance of a new pottery style over a large area within the eastern part of the Carpathian Basin. This pottery style existed over the whole duration of Early Eneolithic, and is the defining characteristic of the Tiszapolgár Culture. This culture (1934-1935: 44) was coined by Ferenc Tompa from the necropolis Tiszapolgár – Basatanya (Northeastern Hungary), which he investigated in collaboration with researchers from the Museum of Cambridge in 1929. Other names to designate this culture were also proposed (Грбић 1939: 54; summarized by Diaconescu 2009b: 71), but after Ida Bognár-Kutzián conducted extensive investigations on the eponymous site and published the results in two comprehensive monographs (Bognár-Kutzián 1963; 1972), the term Tiszapolgár Culture became widely accepted.

The distribution area of the culture included the eastern part of the Carpathian Basin and the western and northwestern parts of the Transylvanian Plateau, which today encompasses Eastern Hungary, Northern Serbia, Western Romania, Eastern Slovakia, and Southwestern Ukraine (Bognár-Kutzián 1972: 160; Diaconescu 2009b: 77). Over this vast area, the Tiszapolgár Culture developed out of several Late Neolithic cultures including Tisa, Herpály, Csőszhalom, Iclod, Suplacul de Barcău, Lumea Nouă, and Pișcolț (Kalicz 1998a: 331; Diaconescu 2009b: 72-74). On the basis of regional variation in the pottery style of the Tiszapolgár Culture, Ida Bognár-Kutzián (1972: 172) has distinguished four groups, namely Basatanya, Lucska, Tiszaug, and Deszk, among which the latter includes the study region (Bognár-Kutzián 1972: 178). The territory of these groups to some degree coincide with that of the Late Neolithic cultures (Kalicz 1998a: 332), which indicates that after the Late Neolithic a process of uniformization in pottery styles began. This process would also continue in the following periods (see below).

The relative chronological position of this culture was determined on a typological basis by Ferenc Tompa (1934-1935: 53), who situated it in-between the already defined Tisa and Bodrogkeresztúr Cultures. Under this heading, however, he also included the Late Neolithic Csőszhalom painted pottery (Tompa 1929: 55-60; Tompa 1934-1935: 44), which was later excluded by Ida Bognár-Kutzián (1963: 538). The scholars' views regarding the assignment of this culture to a chronological period differ. Before Tiszapolgár was defined as a culture, Bodrogkeresztúr Culture was assigned to the Early Eneolithic (Hillebrand 1927: 280). Afterwards, however, Ida Bognár-Kutzián (1963: 537-538), taking stock of the abundant copper items associated to the Tiszapolgár Culture, proposed its assignation to the Early Eneolithic, and the Bodrogkeresztúr Culture to the Middle Eneolithic, which was quickly accepted by most scholars. Yet, the transition between the two cultures consisted of very smooth changes in the pottery style, in addition to which, a strong continuity in the use of necropolises existed (see Chapter V). For this reason, and because in the last decades it became obvious that metallurgical production began in the Late Neolithic, Gheorghe Lazarovici (1983: 3; Lazarovici, Lazarovici 2008: 246) proposed the assignment of both the Tiszapolgár and Bodrogkeresztúr Cultures to the Middle Eneolithic. The Tiszapolgár

settlements were briefly occupied and rarely possessed any stratigraphic succession. For this reason, the periodizations of the culture were constructed primarily on the basis of typo-comparative analysis. Ida Bognár-Kutzián (1973: 304) outlined the first periodization, dividing the development of the culture into two phases (A and B), and later Gheorghe Lazarovici (1975) proposed the division of the last phase into two subphases. On the basis of correspondence analysis combined with absolute dating, Dragoș Diaconescu (2013) refined this periodization and determined the duration of its phases. Phase A started in the period 4709-4544 cal BC, Subphase B1 started between 4562-4413 cal BC, and Subphase B2 started between 4356-4286 cal BC and ended in the period 4326-4235 cal BC (Diaconescu 2013: 48).

By the mid-5th millennium BC, Northern Pontic cultures based on herding economy began to exert their influence on the neighboring populations and, in the second half of the 5th millennium BC, direct contacts between the Northern Pontic Mariupol Culture and the Bolgrad-Aldeni II Culture, part of the Kodžadermen-Gumelnița-Karanovo VI Complex, took place (Gogâltan, Ignat 2011: 20). Yet, during the development of the Tiszapolgár Culture, these influences were confined to the regions neighboring the Northern Pontic steppe and did not appear within the Carpathian Basin until the following period (see below). The appearance of several Sălcuța IIb sites within the eastern part of Banat, which were located in proximity to Tiszapolgár sites (Classical Phase) and the pottery of which possessed besides the typical Sălcuța characteristics, and also some Tiszapolgár ones (Radu 2002: 189-191) was interpreted as a westward expansion of the Sălcuța Culture as result of a pressure exerted from the east by Northern Pontic cultures (Radu 2002: 187-188; Sălceanu 2008: 128-130, 149). This assumption, however, must be refuted inasmuch as it is not consistent with the archaeological evidence.

5. Middle Eneolithic (ca. 4250-3650 BC)

According to the changes in the pottery, the Middle Eneolithic can be divided into two parts. The first part encompasses the development of the Bodrogkeresztúr Culture, while the second part is that of the Sălcuța IV-Hunyadihálom Culture.

a) Bodrogkeresztúr Culture

The Bodrogkeresztúr Culture had developed from the Tiszapolgár Culture, and a strong continuity between the two exists, expressed in the similarity of the material culture (Kalicz 1988: 81; Luca 1993: 72; Virag 2013: 180) and in the continuity in the use of the cemeteries (Bognar-Kutzián 1973: 305). For this reason, some researchers regard them as two phases of the same culture (Pavúk, Šiška 1981; Kalicz 1988: 81). Bodrogkeresztúr Culture was christened after the Eneolithic cemetery at Bodrogkeresztúr (Northeastern Hungary) systematically investigated by Lajos Bella and Jenő Hillebrand between 1920-1922 (Hillebrand 1923; 1927: 278). This culture occupies the area of the Tiszapolgár Culture as well as the eastern Banat and the whole of Transylvania (Kalicz 1998a: 334; Luca 1999: 12; Roman 1973: 58-60). On the basis of the external elements present in the material culture, Ida Bognar-Kutzián (1969; 1972: 94-95) elaborated a periodization of the Bodrogkeresztúr Culture, dividing it into two phases. In Phase A, some Tiszapolgár elements still continued to exist, while, in Phase B, influences from the Lasinja Culture and elements which would later become characteristic for the Sălcuța IV-Huniadyhálom Culture appeared. Pál Patay (1982) further developed this periodization, adding a Transitional Phase between Tiszapolgár and

Bodrogkeresztúr Cultures; this tripartite division was adopted by Sabin Adrian Luca (1999: 42-44).

In the first part of the Middle Eneolithic, the Northern Pontic cultures intensified their influence within Southeastern Europe, and some small-scale migrations of people also took place. This is indicated by the following evidence: Firstly, individual burials of "steppic" tradition were attested south of the Danube within the territory of the KGK VI Complex (Krauß et al. 2016: 288-291). Secondly, the Decea Mureșului Group appeared within Transylvania, the material culture of which has Northern Pontic features (Luca 1999: 40; Gogâltan, Ignat 2011: 21). Finally, at Csongrád – Kettőshalom, about 50 km north of the study region, the westernmost discovery with Northern Pontic characteristics was unearthed. The discovery consisted of a single inhumation burial. The deceased was in a supine position with the legs bent up at the knee and with the head pointing westwards. Within the grave, a layer of ochre was attested, while the inventory consisted of a long obsidian blade, several copper beads, and a clump of ochre (Ecsedy 1979: 11-13). A radiometric measurement dates the grave to between 4390 and 4230 cal BC (Horváth et al. 2013). Therefore, during the first part of the Middle Eneolithic, communities from the Northern Pontic steppes had direct contact with several Southeastern European cultures, including the Bodrogkeresztúr |Culture. These contacts, however, were isolated, and had a rather limited impact on the development of the local cultures.

b) Sălcuța IV-Hunyadihálom Culture

In the second part of the Middle Eneolithic, a new style in the pottery appeared over a large area within Southeastern Europe. The most characteristic feature of it are the handles with discoid attachment on their lower part (Scheibenhenkeln) (Kalicz 1976: 66-67). This pottery style was defined as Sălcuța IV Culture in Romania and as Hunyadihálom Culture in Hungary. The first name was given after the last occupation phase (Layers 7 and 8) of the site of Sălcuța (Berciu 1961), while the second name was given after the site of Hódmezövásárhely – Hunyadihálom, which was investigated in the interwar period by Gyula Török (1935). He was also the first to draw special attention on these specific handles, albeit erroneously dated them to the Bronze Age. Later, however, Ida Bognár-Kutzián (1969; 1973: 308) introduced the notion of a Hunyadihálom Culture, and determined its precise chronological position, filling thereby the "gap" between the Bodrogkeresztúr and Baden Cultures respectively.

The extent of the culture is still not well-defined; this is to a large extent on the account of the rarity of sites. Vessels with discoid attachments on their handles appear over a wide area including the eastern half of the Carpathian Basin, Transylvania, and the Central Balkans (Sălceanu 2008: 23), but besides this common element the pottery assemblages present also considerable regional differences. Petre Roman (1973: 66) claimed that the regional differences in the pottery style are not large enough for defining different cultures, but the similarities are also not sufficiently strong for defining an individual culture. Instead, he preferred the concept of a cultural horizon with superregional connotations. Single sherds with discoid attachments on their handles have been attested from Central Europe to the Aegean islands and the Anatolian coast (Sălceanu 2008: 25-27; Raczki 1991: 332), which may be an indicator increased mobility and long-distance exchange.

During the second part of the Middle Eneolithic, the populations from the Northern Pontic region began to expand their territories to the southwest, influencing the development of the Southeastern European cultures. Firstly, within the Western Pontic region the Bolgrad-Aldeni II Culture and the eastern part of the Gumelnița Culture were replaced by the Cernavodă I (Sovorovo) Culture, which is a mixture of Northern Pontic and local traditions, with the former prevailing. These traditions include the pottery tempered with crushed shells, the short occupation of the sites, the practice of covering the graves by small mounds, the deposition of ochre within the graves, and the placement of the deceased in extended supine position as well as in supine position with the legs bent up at the knees (Sălceanu 2008: 150; Frînculeasa et al. 2015: 80; Krauß et al. 2016: 287-288). Secondly, within the Lower Danube Plain the Classical Sălcuța Culture was replaced by Sălcuța IV Culture, the material culture of which contains both Classical Sălcuța and Cernavodă I features (Sălceanu 2008: 151). Thirdly, vessels tempered with crouched shells (ware C) appeared among the traditional pottery of the Cucuteni-Tripolje Culture (Sălceanu 2008: 127-128). In addition to this, stone maces and scepters, which previously were characteristic for the Northern Pontic region became widespread within Southeastern Europe (Gogâltan, Ignat 2011: 10-17). These artefacts, however, were produced from local stones, indicating that the artefacts were locally produced, and that the Northern Pontic cultural values were adopted by the indigenous population.

The appearance of broad cultural unity during the second part of the Middle Eneolithic was explained in a culture-historical fashion as a result of the population movement from the Northern Pontic territories that dislocated the Eneolithic cultures from the Lower Danube (KGK VI complex), which, in turn, created a chain dislocation of their cultures neighboring to the west, thus creating a population intermixture blurring cultural borders (Roman 1973: 74-75; Roman 1981b: 243-244; Gimbutas 1989: 205-206; Kalicz 1998a: 336; Sălceanu 2008: 9). Although the evidence previously presented indicate undoubtedly that populations from the Northern Pontic regions moved within Southeastern Europe, influencing the development of the local cultures, the proposed chain reaction scenario does not find support within the archaeological record. The cultural unity would rather be the result of the increased mobility characteristic of the Northern Pontic cultures which was introduced within Southeastern Europe.

6. Late Eneolithic (ca. 3650 – 2700 BC)

The beginning of the Late Eneolithic is marked by the appearance of a new pottery style over a large area defined as the Baden Culture. This concept was first introduced by Oswald Menghin (1921) when publishing his excavation results from the site of Baden – Königshöhle located in the vicinity of Vienna. In his view, however, the culture occupied only Lower Austria and territories from Moravia and Bohemia. Three decades later, in a comprehensive study on this culture, János Banner (1956: 223-225) identified its far wider extent, and proposed a different name for it, the Pécel Culture (Banner 1956: 259), but this name did not receive a wide acceptance. In the recent decades, it has been stressed in several studies that a rather strong regional variation existed within the Baden Culture in the flint industry, figurines, burial customs, diet, and pottery manufacture (Furholt 2008: 15; Sachße 2008; Oanță-Marghitu 2003: 14-15). For this reason, some authors regard it as a cultural complex instead as an individual culture (Furholt 2008; Kulcsár 2013: 648; Milanović 2012: 46).

The first periodization of the Baden Culture was elaborated by Evžen Neustupný (1959) dividing its development into five phases (A-E). Her periodization, however, was based upon materials from the northern part of the culture and reflected primarily its development there. Stojan Dimitrijević (1962) constructed the first periodization for the southern part of the culture, comprising of two phases (I and II). Another periodization for the southern portion of the culture was elaborated by Nikola Tasić (1967), who divided its development into three phases. This periodization was further refined by Borislav Jovanović (1974: 159) and Petre Roman and Ioan Németi (1978) becoming the most widely employed periodization (Sachße 2008: 52-55; Drașovean 2011: 35-36). According to the radiocarbon dating, Phase I (Cernavodă III-Boleráz) started at ca. 3650 cal BC, Phase II (Classical Baden) started at ca. 3350 cal BC (Furholt 2008: 19; Krauß 2014: 265; Frînculeasa et al. 2015: 78), while Phase III (Late Baden) began at ca. 2900 cal BC, and continued its existence until ca. 2700 cal BC or slightly later (Krauß 2014: 264-265). During the last phase, influences from the Kostolac Culture appeared within the southern part of the Baden Culture (Kulcsár 2013: 652). The cessation of the Baden Culture and the appearance of the Early Bronze Age Makó Culture mark the end of the Eneolithic within the study region (Rogozea 1994: 179; Gogâltan 1999: 72). The beginning of the Makó Culture is dated to somewhere between 2800 and 2600 cal BC (Frînculeasa et al. 2015: 78).

During Phase I (Cernavodă III-Boleráz), the Baden Culture occupied the Carpathian Basin and the Central and Eastern Balkans (Alexandrov 2001; Zmeykova 2001), while, during the following two phases, its sphere of distribution included the Carpathian Basin, Lower Austria, Moravia, Bohemia, Silesia, and Bavaria in part (Němejcová-Pavúková 1998: 384; Baldia et al. 2008). This wide area indicates that the process of increasing cross-regional similarity in the material culture which started in the previous periods reached its peak during the Late Eneolithic. It is highly likely that the cross-regional similarity in the material culture was the result of increased mobility, encouraged by the appearance of the wagon pulled by oxen (see Chapter VI).

As in the previous periods, most of the cultural influences came from the Northern Pontic region. During the Late Eneolithic, the Yamnaya Culture, which developed in the Pontic-Caspian steppe between 3500 and 2400 cal BC, was primarily responsible for these influences. The Yamnaya people lived a nomadic lifestyle, and their only archaeologically identifiable traces are their tumular burials. At ca. 3300 cal BC, this culture spread to the Northern Pontic region, where it developed a regional variant. At the same time, the first tumuli appeared within the plains of Southeastern Europe, becoming in the centuries thereafter more abundant (Frînculeasa et al. 2015: 48; Gogâltan 2013: 36-37). The appearance of tumuli within Southeastern Europe was interpreted as evidence of the Yamnaya Culture's expansion (Ecsedy 1979; Roman 1973: 75-76; Roman 1981a; Gogâltan 2013: 36-37; Frînculeasa et al. 2015: 48). This interpretation, however, is still not demonstrated by scientific methods (isotope and DNA analysis), and it is still premature to claim that all the tumuli within Southeastern Europe were constructed by the Yamnaya Culture, as this burial type may have also been adopted by some of the local populations. An indication, in this sense, is the fact that tumuli only appeared within the eastern part of the Baden Culture, while, in its western part, the extramural cemeteries were characteristic. If all the tumuli from the eastern part of the culture belonged to the Yamnaya Culture, it remains uncertain where were the Baden people buried themselves.

On the basis of the funeral customs and the absolute dates obtained from the Southeastern European tumuli Frînculeasa et al. (2015: 62, 82) distinguished three chronological phases. In the first phase, occurring between ca. 3300 and 3050/3000 cal BC, the mounds were small and contained primary burials. The orientation of the graves varied, and the funerary ritual was still not standardized, both the contracted position to one side and the extended supine position being employed. Both genders were buried, and the graves tended to be more oval than rectangular. Grave goods were rare and consisted primarily of ochre and pottery from the contemporary local cultures. This phase was interpreted as one of coexistence and acculturation (Frînculeasa et al. 2015: 82-83). During the second phase, dated within the period ca. 3050/3000-2880 cal BC, the number of tumuli increased and the funeral rites became standardized, exhibiting a clearly defined Yamnaya tradition. The deceased were placed in a supine position with the head pointing westwards, and the legs bent up at the knees and tumbled on one side or in a rhombic position. Ochre staining (adjacent to or on the deceased) and deposition of ochre lumps was common. The graves had rectangular (sometimes chamber-like) shape and often contained a wooden construction. The inventory was austere and consisted mainly of silver hair rings or pottery. The use of local pottery had decreased, being replaced by Corded Ware beakers characteristic for Central and Northern Europe. This phase was interpreted as one of domination and assimilation, during which a substantial penetration by the Yamnaya population took place, dislocating some local groups (Frînculeasa et al. 2015: 83-84). In the third phase, dated to between ca. 2880 and 2580 cal BC, the positions, both contracted to the side and extended, reappeared. The later position is believed to be an influence from the Catacomb Grave Culture. The tumuli constructed during the previous phases were reused, and therefore the graves are secondary. This phase is interpreted as one of a dilution of the Yamnaya phenomenon, which took place simultaneously with the formation of the Early Bronze Age cultures (Frînculeasa et al. 2015: 84).

III. Archaeological sites

Sites are locations where traces of past human activity can be identified, and they constitute the main source of information about prehistoric societies. Besides studying the finds and structures discovered within them, important insights about past society can also be gained by analyzing more general aspects of the sites. In this chapter, changes that occurred in the distribution of sites and categories of sites per period, their duration, spatial distribution, elevation and area are diachronically analyzed, with the aim of identifying transformations that occurred within society.

To perform these analyses, a database in Microsoft Access was established (an extract of which can be seen in Tab. 5), in which the existing data of all Neolithic and Eneolithic sites from northwestern Banat was collected. This data was collected mostly from the scientific literature and, to a lesser degree, from unpublished sources, such as information provided by researchers as well as the author's own investigation. The sites in the database keep the numbers they have in the catalogue of sites and for those that existed during more than one period, a letter next to the number is assigned for each period.

There are two aspects regarding the collected data that deserve special attention. Firstly, there are several cases when two (or more) parts of a single site were published as different sites, a practice usually employed when the perimeter of the site has been divided by a modern structure (road, channel) or a natural feature (depression, river). Since counting a single site multiple times would bias the analyses, the sites in question were united[19]. Secondly, the dating of most of the sites included in the database could be verified by examining the published diagnostic finds; however, there are a couple of sites whose publications do not include pictures or drawings of the finds and therefore for these sites we rely solely on the dating provided by the researchers. Those are primarily sites discovered prior to WW II and those discovered by Milorad Girić (1972). Similarly, was with the sites discovered by Constantin Kalcsov (1999; 2006; Ciocani, Jozsa 2015), but as there were doubts regarding their dating, they were surveyed by the author, and only those confirmed as Neolithic or Eneolithic were included in the database.

The total number of sites included in the database is 274 and the collected data for them varies qualitatively and quantitatively, resulting from the different strategies of investigation applied and on the degree of detail of their publications. There is a large dissimilarity in the degree of accuracy of the dating. The sites investigated by archaeological excavations are more precisely dated (on the phase or sub-phase level), than the sites researched by surface surveying (dated on the culture, period or even epoch level). However, since the vast majority of sites in the region under study were investigated only by survey, the proposed analyses can be made only at a higher dating unit. As such, the chosen unit was the period, because numerous sites are dated on the period level (228) and because the variation in the time span of the periods is not very large, in contrast to the length of cultures for instance. Therefore, the remaining 45 sites dated on the epoch level and one dated to the Early/Middle Eneolithic are excluded from the analyses.

1. Distribution of sites per period

[19] The following sites have been united from two and in one case three sites: Tiszasziget – Agyagbánya, Tiszasziget – Szélmalom domb (Ószentiván I & II), Bucova Pusta – VI and VII, Moşniţa Nouă – 07 & 08, Podlokanj – Sirovičin Budžak-istok, Srpski Krstur – 11 & 12, Srpski Krstur – Bajir.

Before discussing the distribution of sites per period it should be mentioned that almost half of the 228 sites dated to the period level, as discussed below, existed during more than one period and, if counting each period separately, their total is 337. The distribution of sites per period is illustrated in Fig. 17. These values, however, do not illustrate the exact ratio of sites per period, because the territory under study was not entirely surveyed and many sites have not been discovered. Nevertheless, since the periods in question are more or less uniformly researched[20] the presented numbers show the general tendencies.

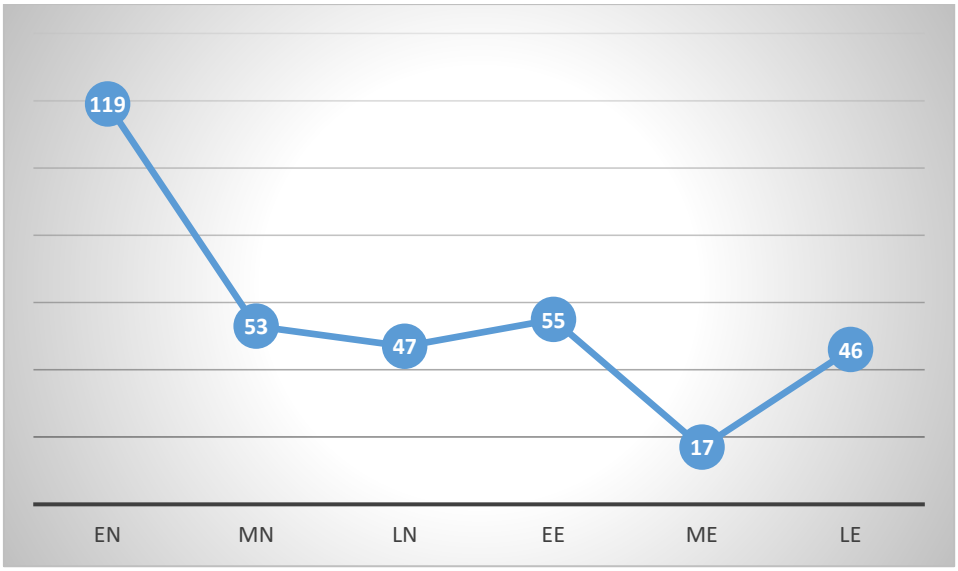

Fig. 17. Distribution sites per period

This analysis indicates that in two of the six periods, the number of sites significantly varies compared to that of the remaining periods (Fig. 17). Firstly, the Early Neolithic sites are more than double the average number of sites from the other periods. To some degree the large prevalence of Early Neolithic sites is influenced by the fact that Milorad Girić (1972) has published only the Early Neolithic sites from his surveys, but even if we rule out the sites discovered by him, the Early Neolithic ones still largely prevail. The fact that the Early Neolithic sites were more numerous by no means should be interpreted as indicator of larger population, since they were occupied briefly, as indicated by the thin cultural layers and the absolute chronology and therefore most of them were not contemporary, but successively established, which can be explained as the result of increased mobility. Secondly, the Middle Eneolithic sites are less than half of the average number of the sites from the remaining periods. This low number to some extent accounts for the fact that all 17 sites are dated to the first part of this period (Bodrogkeresztúr Culture) and there is no single site discovered from its second part (Sălcuța IV-Hunyadihálom Culture). However, as the first part of the Middle Eneolithic has a similar time span to the Early Eneolithic, while the number of sites is only about 1/3, it is obvious that even from the first part of the Middle Eneolithic the number of sites began to decrease. Although there is currently no site discovered from the second part of this period in the studied region, there is no reason to assume that they are completely absent, since such sites, though few, were discovered in the neighbouring regions (Roman 1973: 58-60). Most probably this lack of sites is the result of the current state of research, nevertheless, it also indicates that Hunyadihálom sites are very scarce. This rarity of sites is a common

[20] There is no significant predilection or discrimination for some periods.

feature for this period in the whole of Southeastern Europe and is usually explained to be caused by population movements. A slight increase in the number of sites can also be noticed in the Early Eneolithic, and although it is less sharp than those mentioned above, it is relevant as it occurs during the shortest period. Large number of Tiszapolgár sites were also attested in the neighbouring to the west regions (Kalicz 1998a: 331).

2. Distribution of site categories per period

On the base of their characteristics, the sites can be divided into four major categories – flat settlements, tell settlements, necropolises and tumuli. In some cases, however, the less detailed publications do not allow the settlements to be included in one of the two categories and therefore was created an additional category termed "unspecified settlements". The tell settlements are distinguished by thick cultural deposits, which give them a mound-like appearance. These features are the result of a prolonged inhabitation in a confined space, usually determined by a defensive structure such as a ditch and palisade.

The distribution analysis of the different categories of sites (Fig. 18; Tab. 6) indicates that significant diachronic changes occurred over the six periods studied here.

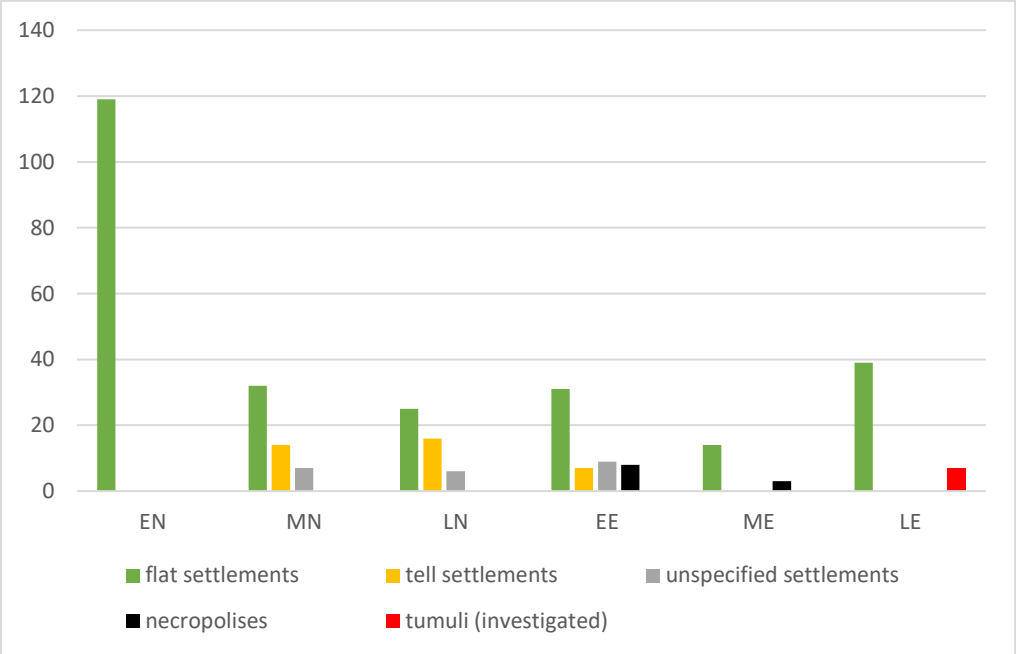

Fig. 18. Distribution of site categories per period

All Early Neolithic sites fall into the category of flat settlements. Seven of these settlements[21], however, lie underneath tell settlements, but they cannot be regarded as tell settlements since their structure is different (no enclosure to confine the inhabitable space) and their occupation is short. These two factors led to the accumulation of thinner cultural deposits over a wider area and therefore these settlements did not acquire the tell-like appearance. In all the seven cases the thick cultural layers were accumulated in later periods, when the sites were fortified.

In neighbouring regions, flat settlements are also characteristic for this period (Horváth 1989: 85), while the tell settlements exist only in the Southern Balkans and Anatolia. In the first

[21] Tiszasziget – Andróé-alja (Ószentiván VIII), Dudeștii Vechi – Movila lui Deciov, Parța – Tell 2, Unip – La Vișini (Liebling 100), Iđoš – Gradište, Novi Bečej – Matejski Brod and Novi Kneževac – Širine.

part of the Middle Neolithic, the flat settlements continued to be the only settlement category. Of the 33 flat settlements, about half existed in the first part of the period. In the second part of the period, besides these settlements, the first actual tell settlements appear. From a macro perspective the region under study in this period is very close to the northwestern margin of the distribution of tell settlements (Kalicz 1998c: 307; Schier 2014b: 428, Fig. 10). Although still no Middle Neolithic necropolises are found, their existence can be assumed, since a necropolis was discovered in Botoš – Živanićeva dolja (Гробић 1933-1934), which is located only a few kilometers south of the region under study. During the Late Neolithic the ratio of tell settlements increases compared to the flat ones. The majority of the tells are from the first part of the period and are present in the areas of both Tisa and Vinča C Cultures. It is remarkable that the tells are not characteristic for the whole area of the Tisa Culture, but are distributed only in the territory southern of Criș river, which coincides with the spread of the previous Szakálhát Culture (Makkay 1991: 319-320; Kalicz 1998c: 310). In the second part of the period, besides their decline in frequency, one can also notice a decrease in their thickness. Like in the previous period so far, no necropolises are found, but their existence is suggested by such discoveries in the wider area, one of them, Tápé – Lebő, being located only ca. 2 km north of the region under study (Kalicz 2013).

The decrease in frequency of tell settlements continues also in the Early Eneolithic, when the ratio of flat to tell settlements is about 4.5:1. In addition to this, the tell settlements – with two exceptions[22] – have relatively thin cultural deposits. It is remarkable that while in the wider region of the Tiszapolgár Culture the tell settlements were already abandoned in the Deszk Group, which also includes the study region, they were still inhabited. This abandonment of the tells is interpreted to be the result of as a shift in the economy (Bognár-Kutzián 1972: 170) Specific for this period is the large number of extramural necropolises, which can be observed also for the wider area and indicates that it became the main form of funeral practice.

In the Middle Eneolithic, the flat settlements again became the only settlement category. Although in two cases[23] the settlements were located on top of tells from earlier periods, they had thin cultural layers and cannot be categorized as proper tell settlements since they contributed very little to its formation and most probably their structure was different to the settlements that formed the tell. A substantial decline in the number of settlements was also observed in the wider region and it does not account on the state of research (Kalicz 1988: 81). Nándor Kalicz (1998a: 334) assumes that the low number of settlements is the result of the modifications in the economy caused by ecological changes. The sharp decrease in the number of settlements and necropolises might be an indicator of population decline. In the Late Eneolithic, the flat settlements continue to be the single settlement category. After the large decrease of the number settlements in the Middle Eneolithic they become numerous again in the Late Eneolithic. This increase is also characteristic for the wider region (Němejcová-Pavúková 1998: 393). As in the previous period, two settlements[24] are located on earlier tells, but cannot be categorized as tells since they have different structure. So far, no necropolises from this period have been discovered and the question remains open

[22] Crna Bara – Prkos and Dudeștii Vechi – Movila lui Deciov.
[23] Crna Bara – Prkos and Novi Kneževac – Kamara humka.
[24] Tiszasziget – Andróé-alja (Ószentiván VIII) and Novi Kneževac – Širine.

whether such existed or not. What is certain is that a novelty emerged in the burial customs, namely tumulus burials.

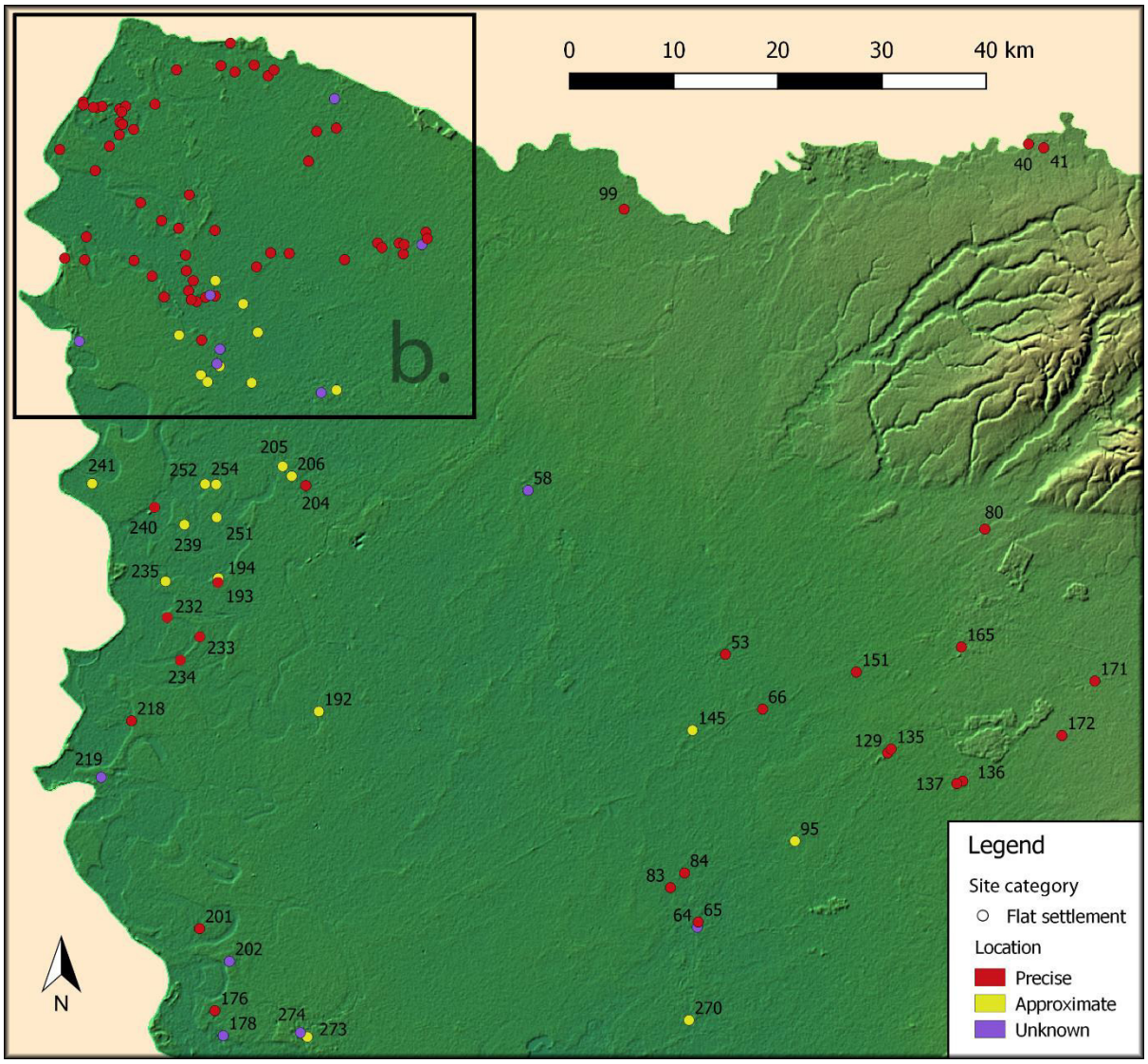

Fig. 19a. Distribution of the Early Neolithic sites: 40 Arad – Aradul Nou, Bufniți; 41 Arad – Aradul Nou, Grădina CAP; 53 Cenei – 1; 58 Comloșu Mic; 64 Cruceni – Malul Timișului; 65 Cruceni – Strada Cimitirului; 66 Diniaș – Casa Albă; 83 Foeni – Gas; 84 Foeni – Sălaș; 95 Giulvăz – Gara; 99 Igriș – Iarc; 129 Parța – 5; 135 Parța – Tell 2; 136 Pădureni – 22; 137 Pădureni – Smithfield; 151 Sânmihaiu Român – Deal; 165 Timișoara – Fratelia, Fabrica de Cărămidă; 171 Uliuc – Timiș; 172 Unip – La Vișini (Liebling 100); 176 Aradac – Leje; 178 Aradac – Veliki siget; 192 Bašaid – Jeseni vinogradi (Jankova ciglana); 193 Bočar – Mala Odaja; 194 Bočar – Petrić Nenada; 201 Elemir – Mazgina humka; 202 Elemir – Zabran; 204 Iđoš – Gradište; 205 Iđoš – Kečkeler; 218 Novi Bečej – Matejski Brod; 219 Novi Bečej – Silošpart; 232 Novo Miloševo – Akači grob; 233 Novo Miloševo – Mali Akač I; 234 Novo Miloševo – Mali Akač II; 239 Padej – Ibelaj; 240 Padej – Katahat; 241 Padej – Pesir; 251 Sajan – Domboš (Jaroš); 252 Sajan – Kasalo; 254 Sajan – Nagy port; 270 Šurjan – Govedarova humka; 273 Zrenjanin – Fabrika piva; 274 Zrenjanin – Maksim Gorki.

3. Duration and continuity of sites

In this subchapter we seek to identify general tendencies in the duration of the sites and the continuity in their use, aiming to gain insights of the past societies and eventual changes that occurred in time. The duration is analyzed by counting the number of chronological periods attested at a site, while continuity is analyzed by counting the number of consecutive

chronological periods attested at site. Since these analyses are made on period level they are sensitive only to long-term processes.

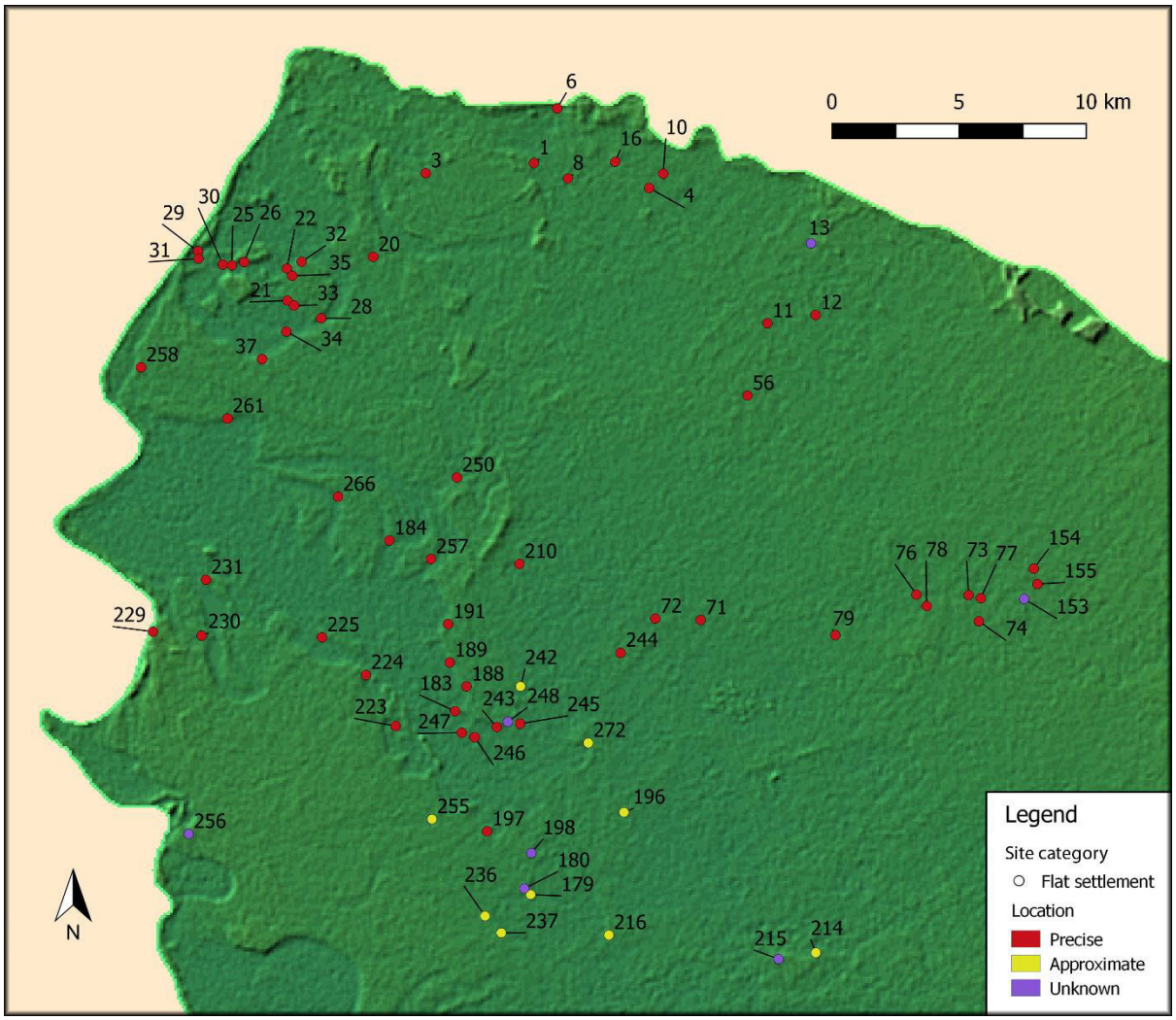

Fig. 19b. Distribution of the Early Neolithic sites: 1 Deszk – 1 (Olajkút); 3 Deszk – B, C, E; 4 Deszk – G; 6 Deszk – I (Okopi-dûlő); 8 Deszk – Ordos csatornánál; 11 Kiszombor – 65; 010 Ferencszállás – Somogyi-dûlő; 12 Kiszombor – 80; 13 Kiszombor – D; 16 Klárafalva – Vasút utca; 20 Szeged – Szőreg, Téglagyár; 22 Tiszasziget – Andróé-alja (Ószentiván VIII); 25 Tiszasziget – Csürü-föld I; 26 Tiszasziget – Csürü-föld II; 28 Tiszasziget – Jató II; 29 Tiszasziget – Kónya-tanya; 30 Tiszasziget – Papok földje; 31 Tiszasziget – Szécsi–tanya; 32 Tiszasziget – Szélmalom domb (Ószentiván I & II); 33 Tiszasziget – Sziget-alja; 35 Tiszasziget – Templom domb (Ószentiván III); 37 Tiszasziget – Térvár, Fehér-part II; 56 Cherestur – 2; 71 Dudeștii Vechi – Cociohatul Mic, Ferma 3; 72 Dudeștii Vechi – Cociohatul Mic, Mihoc; 73 Dudeștii Vechi – Drumul Cenadului; 74 Dudeștii Vechi – Kalcsov 1; 76 Dudeștii Vechi – Movila lui Deciov; 77 Dudeștii Vechi – Orezărie; 78 Dudeștii Vechi – Pescărie; 79 Dudeștii Vechi – Toncivotu; 153 Sânnicolau Mare – Bucova Pusta III.1; 154 Sânnicolau Mare – Bucova Pusta IV; 155 Sânnicolau Mare – Bucova Pusta VI & VII; 179 Banatski Monoštor – Bašće; 180 Banatski Monoštor – Humka; 183 Banatsko Aranđelovo – 10; 184 Banatsko Aranđelovo – 17; 189 Banatsko Aranđelovo – Brdo zapad; 191 Banatsko Aranđelovo – Obala selešto; 196 Crna Bara – Papir-Livade; 197 Crna Bara – Prkos; 198 Crna Bara – Road to Vălcani; 210 Majdan – 39; 214 Mokrin – Hegedišev vinograd; 215 Mokrin – Ritić; 216 Mokrin – Papir; 223 Novi Kneževac – Brestik; 224 Novi Kneževac – Budžak major; 225 Novi Kneževac – Budžak-slatina; 229 Novi Kneževac – Park; 230 Novi Kneževac – Širine; 231 Novi Kneževac – Širine-sever; 236 Ostojićevo – Nad Markučevom kopovom; 237 Ostojićevo – Taladj; 242 Podlokanj – Debelica; 243 Podlokanj – Južne Bašte; 244 Podlokanj – Kočovat; 245 Podlokanj – Selo-jug; 246 Podlokanj – Sirovičin Budžak-istok; 247 Podlokanj – Sirovičin Budžak-zapad; 248 Podlokanj – Velike Livade; 250 Rabe – Šaširaš; 255 Sanad – Sanadske livade; 257 Siget – Jug sela; 258 Srpski Krstur – 01; 261 Srpski Krstur – 11 & 12; 266 Srpski Krstur – 34; 272 Vrbica – Škola.

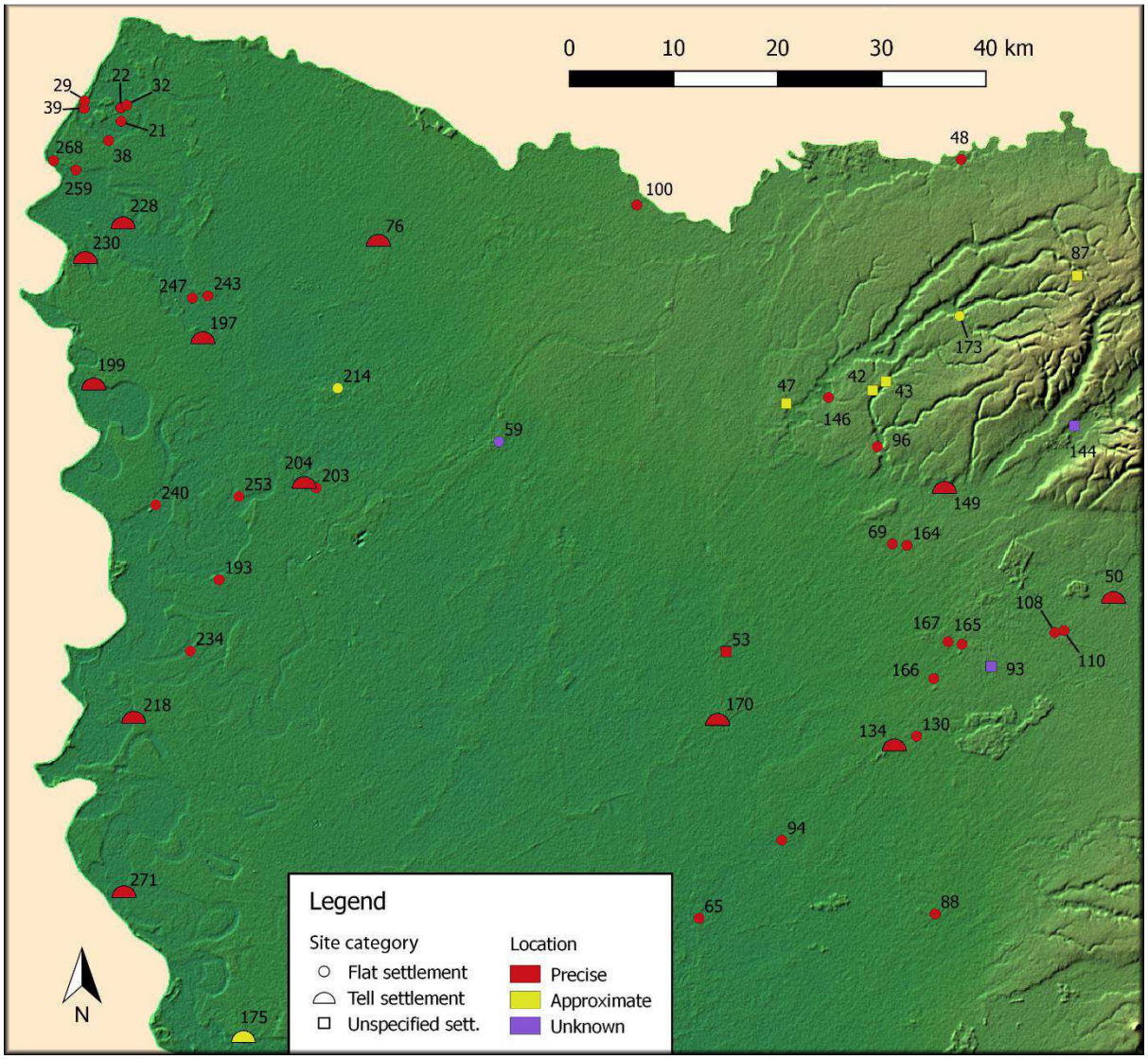

Fig. 20. Distribution of the Middle Neolithic sites: 21 Tiszasziget – Agyagbánya; 22 Tiszasziget – Andróé-alja (Ószentiván VIII); 29 Tiszasziget – Kónya-tanya; 32 Tiszasziget – Szélmalom domb (Ószentiván I & II); 38 Tiszasziget – Térvári-sziget; 39 Tiszasziget – Vedresháza; 42 Băile Călacea – Avicola; 43 Băile Călacea – Stație; 47 Biled; 48 Bodrogu Nou – Către Vale; 50 Bucovăț – Cremeniș (Gruniul cu cremene); 53 Cenei – 1; 59 Comlošu Mare – Millevafeld; 65 Cruceni – Strada Cimitirului; 69 Dudeștii Noi – 12; 76 Dudeștii Vechi – Movila lui Deciov; 87 Friteaz – Șodol; 88 Ghilad – 1; 93 Giroc – La Pruni; 94 Giulvăz – Cimitirul Ortodox; 96 Hodoni – 3; 100 Igriș – Vaoș; 108 Mošnița Nouă – 07 & 08; 110 Mošnița Veche – 01; 130 Parța – 6; 134 Parța – Tell 1; 144 Pișchia – 9; 146 Satchinez – IX; 149 Sânandrei – Ocsaplatz (Oxenbrickel); 164 Timișoara – 3; 165 Timișoara – Fratelia, Fabrica de Cărămidă; 166 Timișoara – Freidorf I (Hladnik); 167 Timișoara – Freidorf IV; 170 Uivar – Gomilă; 173 Vinga – Izvor; 175 Aradac – Kameniti vinogradi; 193 Bočar – Mala Odaja; 197 Crna Bara – Prkos; 199 Čoka – Kremenjak; 203 Iđoš – Budžak-Livade; 204 Iđoš – Gradište; 214 Mokrin – Hegedišev vinograd; 218 Novi Bečej – Matejski Brod; 228 Novi Kneževac – Kamara humka; 230 Novi Kneževac – Širine; 234 Novo Miloševo – Mali Akač II; 240 Padej – Katahat; 243 Podlokanj – Južne Bašte; 247 Podlokanj – Sirovičin Budžak-zapad; 253 Sajan – Kremenjak; 259 Srpski Krstur – 07; 271 Taraš – Selište.

The first analysis focusses on the duration of the sites and it aims to identify to what extent single locations were re-settled/reused during the Neolithic and Eneolithic. Out of 228 sites, 44 sites (19.29 %) existed in two periods, 13 sites (5.70 %) existed in three periods, 11 sites (4.82 %) existed in four periods and one site (Tiszasziget – Andróé-alja) existed in 5 periods. The remaining 159 sites (69.73 %) existed only in one period and there is no site that existed

in all six periods. The fact that less than a third of the sites existed in more than one period and very few existed for three or four periods, indicates that in the long run the sites were infrequently re-settled or reused.

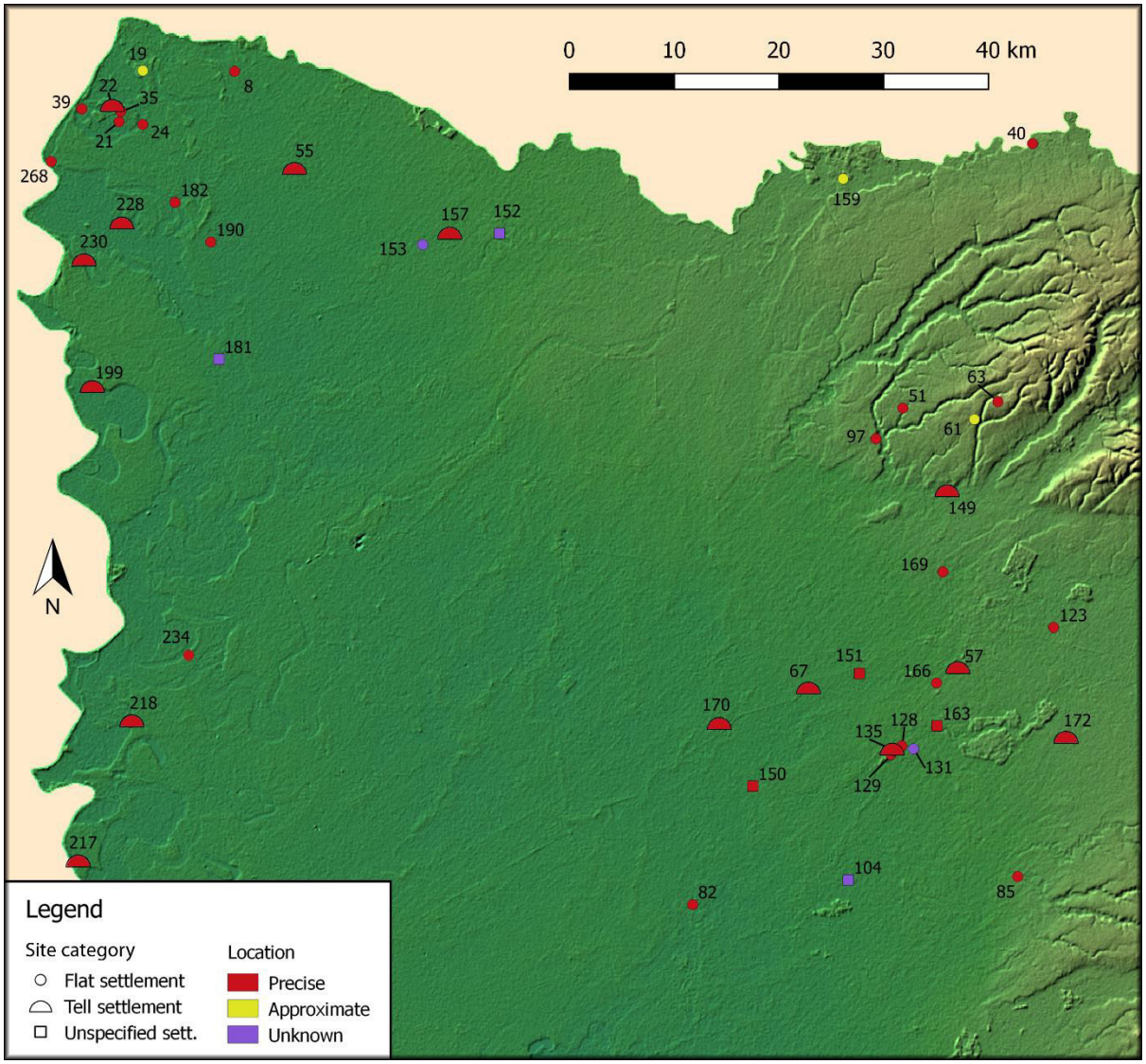

Fig. 21. Distribution of the Late Neolithic sites: 8 Deszk – Ordos csatornánál; 19 Szeged – Szőreg, Homokbánya; 21 Tiszasziget – Agyagbánya; 22 Tiszasziget – Andróé-alja (Ószentiván VIII); 24 Tiszasziget – Boján I; 35 Tiszasziget – Templom domb (Ószentiván III); 39 Tiszasziget – Vedresháza; 40 Arad – Aradul Nou, Bufniți; 51 Carani – Selište; 55 Cherestur – 1; 61 Cornești – Iugosloveni; 63 Cornești – Reiter; 67 Diniaș – Gomilă; 82 Foeni – Cimitirul Ortodox; 85 Folea – La Bruși; 97 Hodoni – Pocioroane; 104 Macedonia; 123 Moșnița Veche – Dealul Sălaș; 128 Parța – 3; 129 Parța – 5; 131 Parța – Sartășu; 135 Parța – Tell 2; 149 Sânandrei – Ocsaplatz (Oxenbrickel); 150 Sânmartinu Sârbesc – Grădiște; 151 Sânmihaiu Român – Deal; 152 Sânnicolau Mare; 153 Sânnicolau Mare – Bucova Pusta III.1; 157 Sânnicolau Mare – La stuf; 159 Sânpetru German – Cărămidărie; 163 Șag – Gostat; 166 Timișoara – Freidorf I (Hladnik); 169 Timișoara – Ronaț, Triaj; 170 Uivar – Gomilă; 172 Unip – La Vișini (Liebling 100); 181 Banatski Monoštor – Road to Vălcani; 182 Banatsko Aranđelovo – 08; 190 Banatsko Aranđelovo – Fazanerija; 199 Čoka – Kremenjak; 217 Novi Bečej – Borđoš; 218 Novi Bečej – Matejski Brod; 228 Novi Kneževac – Kamara humka; 230 Novi Kneževac – Širine; 234 Novo Miloševo – Mali Akač II; 268 Srpski Krstur – Bajir.

The second analysis aims to find out what degree of continuity the sites had. By continuity we mean both sites that were founded in one period and existed without interruption into the following period and sites which were founded and abandoned in one period and re-settled or

reused in the following period. In the second case, continuity would result from the communities' choice to re-settle/reuse an old site for which they knew from their collective memory, since the site was only recently abandoned and traces (ruins of households) were still visible on the surface. Of the 228 sites dated to the period level, 28 sites (12.28%) have two periods of sequential occupation; 9 sites (3.94%) were continuously occupied over three consequent periods; 3 sites (1.31%) have a sequence of four consecutive periods and 2 sites (0.87%) have two sequences of two periods. The remaining 186 sites have no sequence. These results indicate that in the long run the sites had little continuity, which explains why they have relatively thin cultural layers. Even the tell settlements have thin cultural deposits when compared to those in the Southern Balkans.

The third analysis aims to identify the degree of continuity between two periods, which is estimated by calculating the percentage of sites that had continual occupation out of the total number of sites from both periods. Additionally, this analysis looks between which categories of sites have continuity and whether the category of site changed over time. Of the 119 Early Neolithic sites 18 sites (15.12 %) continued to exist in the Middle Neolithic. In 13 cases, the transition was from flat to flat settlement (no change occurred), while in 5 cases the flat settlement became tell settlement. Of the 53 Middle Neolithic sites 12 sites (22.64 %) continued to exist in the Late Neolithic. In 6 cases, the transition was from flat to flat settlement, in one case the transition was from flat to tell settlement and in 5 cases the transition was from tell to tell settlement. Of the 47 Late Neolithic sites 18 sites (38.29 %) continued to exist in the Early Eneolithic. In 9 cases the transition was from flat to flat settlement, in 3 cases the transition was from tell to tell settlement, in 2 cases the transition was from flat settlement to necropolis and in 2 cases the transition was from tell settlement to necropolis. In the remaining 2 cases the transition is from flat to unspecified settlement and from unspecified to unspecified settlement. Of the 55 Early Eneolithic 7 sites (12.72 %) continued to exist in the Middle Eneolithic. In 3 cases the transition was from flat to flat settlement, in one case it was from tell to flat settlement and in 2 cases it was from necropolis to necropolis. There is also one case with a transition from an unspecified to flat settlement. Of the 17 Middle Eneolithic sites, 4 sites continued to exist in the Late Eneolithic, of which, however, only 3 sites (17.64 %) can be considered with continuity as it is defined above. The fourth site (Sânpetru German – Fântâna Vacilor), where a Late Eneolithic flat settlement superposes a Middle Eneolithic necropolis, is ruled out because it is less likely that the founders of the settlement acknowledged the existence of the cemetery and that the cemetery was the reason to choose the area for settlement. In the remaining 3 cases the transition is from flat to flat settlement. The results indicate that the largest degree of continuity was between the Late Neolithic and the Early Eneolithic, while the second largest degree of continuity was between the Middle Neolithic and Late Neolithic. On the other hand, the lowest extent of continuity was between the Early Eneolithic and the Middle Eneolithic. This result, however, is influence by the low number of Middle Eneolithic sites.

The sites with Early to Middle Neolithic continuity have a ratio of flat to tell settlements of 2:1, indicating that the majority remained flat settlements as in the Early Neolithic. The sites with Middle to Late Neolithic continuity have a ratio of flat to tell settlements of almost 1:1 and, since in Middle Neolithic the number of flat settlements is larger than the number of tell settlements, it becomes clear that the tell settlements show a higher extent of continuity than the flat settlements. The sites with Late Neolithic to Early Eneolithic continuity have a ratio of flat to tell settlements of 3:1 and, since this ratio of the Late Neolithic settlements is 1.5:1,

it can be concluded that the flat settlements had a higher degree of continuity. The fact that half of the Early Eneolithic necropolises overlap Late Neolithic settlements is another indicator of increased continuity between the two periods. The necropolises were distributed equally on flat and tell settlements.

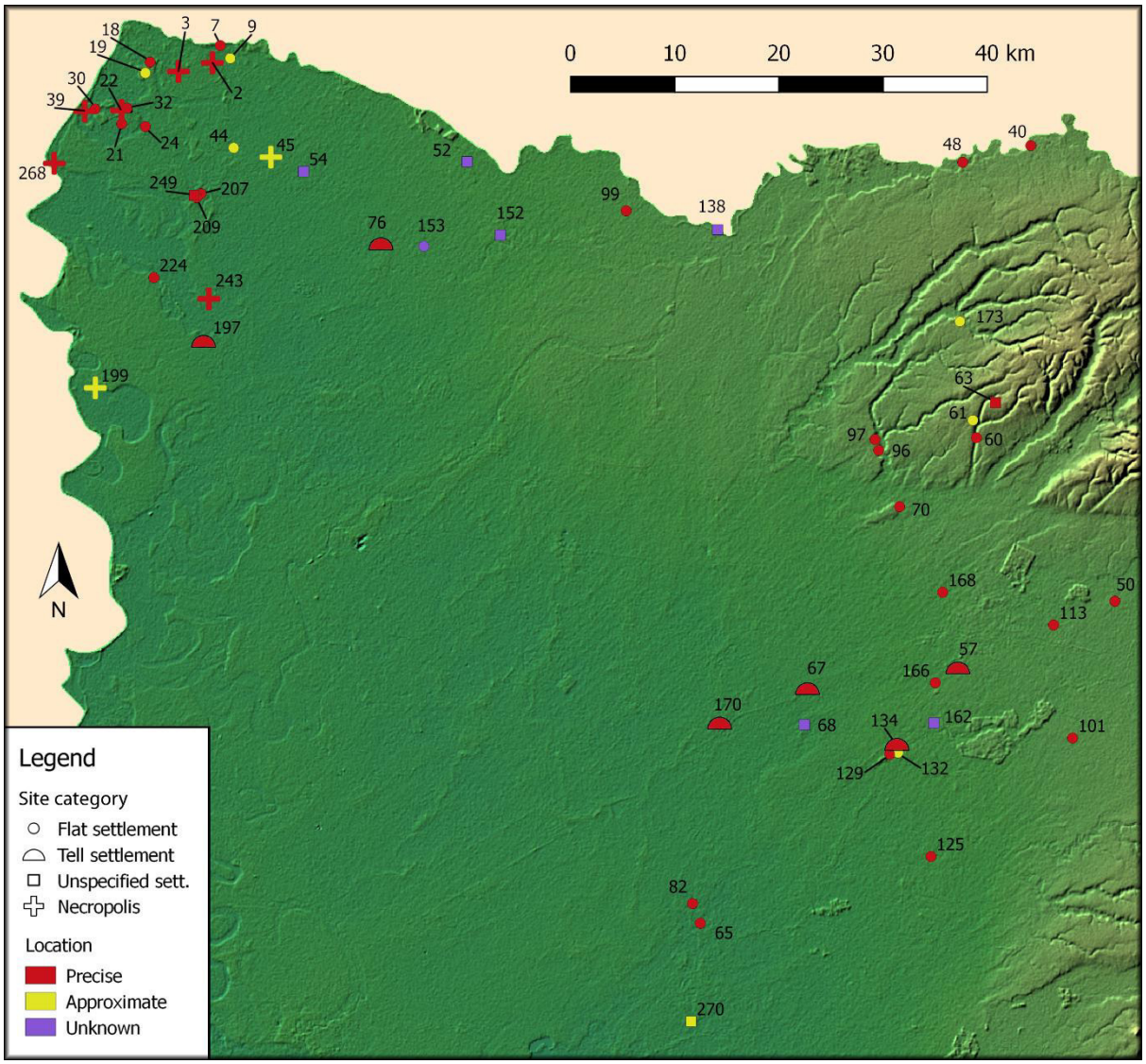

Fig. 22. Distribution of the Early Eneolithic sites: 2 Deszk – A; 3 Deszk – B, C, E; 7 Deszk – Okapi; 9 Deszk – Vénó; 18 Szeged – Szőreg, Aradi utca 58; 19 Szeged – Szőreg, Homokbánya; 21 Tiszasziget – Agyagbánya; 22 Tiszasziget – Andróé-alja (Ószentiván VIII); 24 Tiszasziget – Boján I; 30 Tiszasziget – Papok földje; 32 Tiszasziget – Szélmalom domb (Ószentiván I & II); 39 Tiszasziget – Vedresháza; 40 Arad – Aradul Nou, Bufniți; 44 Beba Veche – Cărămidăria Baravine; 45 Beba Veche – Drumul Kiszomborului; 48 Bodrogu Nou – Către Vale; 50 Bucovăț – Cremeniș (Gruniul cu cremene); 52 Cenad – Belo Brdo; 54 Cherestur; 57 Chișoda – Gomilă; 60 Cornești – Dealu Cornet; 61 Cornești – Iugosloveni; 63 Cornești – Reiter; 67 Diniaș – Gomilă; 68 Diniaș – Trei Sălcii (Trei Plopi); 70 Dudeștii Noi – 42; 76 Dudeștii Vechi – Movila lui Deciov; 96 Hodoni – 3; 97 Hodoni – Pocioroane; 99I griș – Iarc; 101 Liebling – 62; 113 Moșnița Veche – 14; 125 Obad – 1; 129 Parța – 5; 132 Parța – Șaitoș (La vaci); 134 Parța – Tell 1; 138 Periam Port; 152 Sânnicolau Mare; 153 Sânnicolau Mare – Bucova Pusta III.1; 162 Șag – 2; 166 Timișoara – Freidorf I (Hladnik); 168 Timișoara – Mehala IV; 170 Uivar – Gomilă; 173 Vinga – Izvor; 197Crna Bara – Prkos; 199 Čoka – Kremenjak; 207 Majdan – 13; 209 Majdan – 29; 224 Novi Kneževac – Budžak major; 243 Podlokanj – Južne Bašte; 249 Rabe – Anka Siget; 268 Srpski Krstur – Bajir.

The sites with Early to Middle Eneolithic continuity have a ratio of flat to tell settlements (3:1) similar to that of all Early Eneolithic sites, which indicates that both categories of settlements had equal degree of continuity. It is remarkable that of three Middle Eneolithic necropolises, two are continuous with the previous period. In the very few cases of continuity from the Middle to the Late Eneolithic, the transition was from flat to flat settlement.

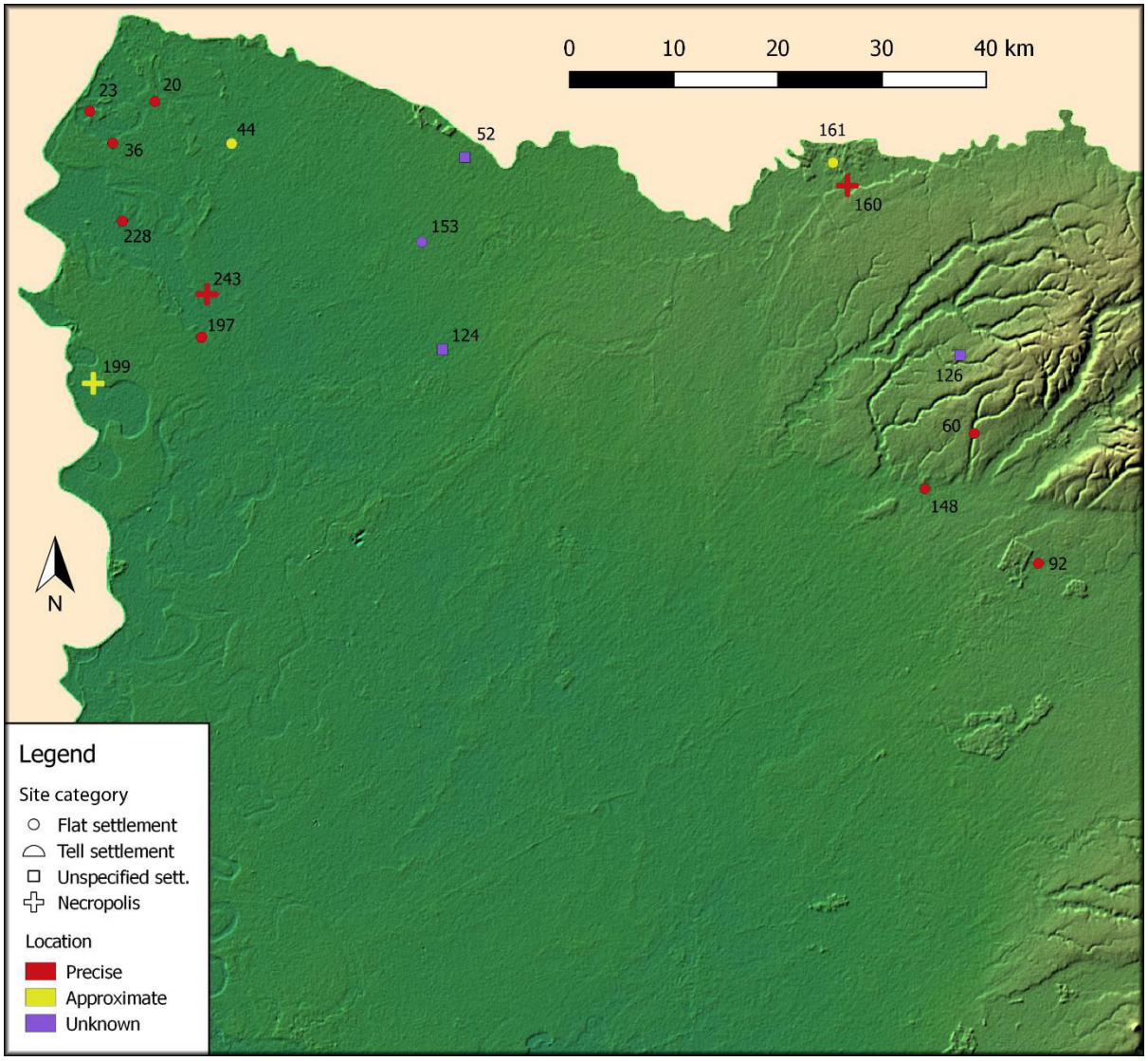

Fig. 23. Distribution of the Middle Eneolithic sites: 20 Szeged – Szőreg, Téglagyár; 23 Tiszasziget – Bíró-föld; 36 Tiszasziget – Térvár, Fehér-part I; 44 Beba Veche – Cărămidăria Baravine; 52 Cenad – Belo Brdo; 60 Cornești – Dealu Cornet; 92 Giarmata Vii – 3; 124 Nerău; 126 Orțișoara; 148 Sânandrei – 7; 153 Sânnicolau Mare – Bucova Pusta III.1; 160 Sânpetru German – Fântâna Vacilor; 161 Sânpetru German – Malul Înalt; 197 Crna Bara – Prkos; 199 Čoka – Kremenjak; 228 Novi Kneževac – Kamara humka; 243 Podlokanj – Južne Bašte.

4. Spatial distribution of sites

The degree of accuracy regarding the location of the sites varies in publications. For this reason, we have classified the sites in three major categories – with precise, approximate and unknown location. The first category includes sites whose publications indicate their geographical coordinates or their position on large scale maps and satellite images. The second category consists of sites whose publications provide descriptive localization by indicating their location in relation to modern landmarks or by mentioning the toponym of the

area. For localizing the sites with descriptive location, Serbian[25] and Romanian[26] topographical maps, as well as the Habsburg military maps[27], were used. The margin of error of the sites with approximate location is estimated at ca. 0.5 km.

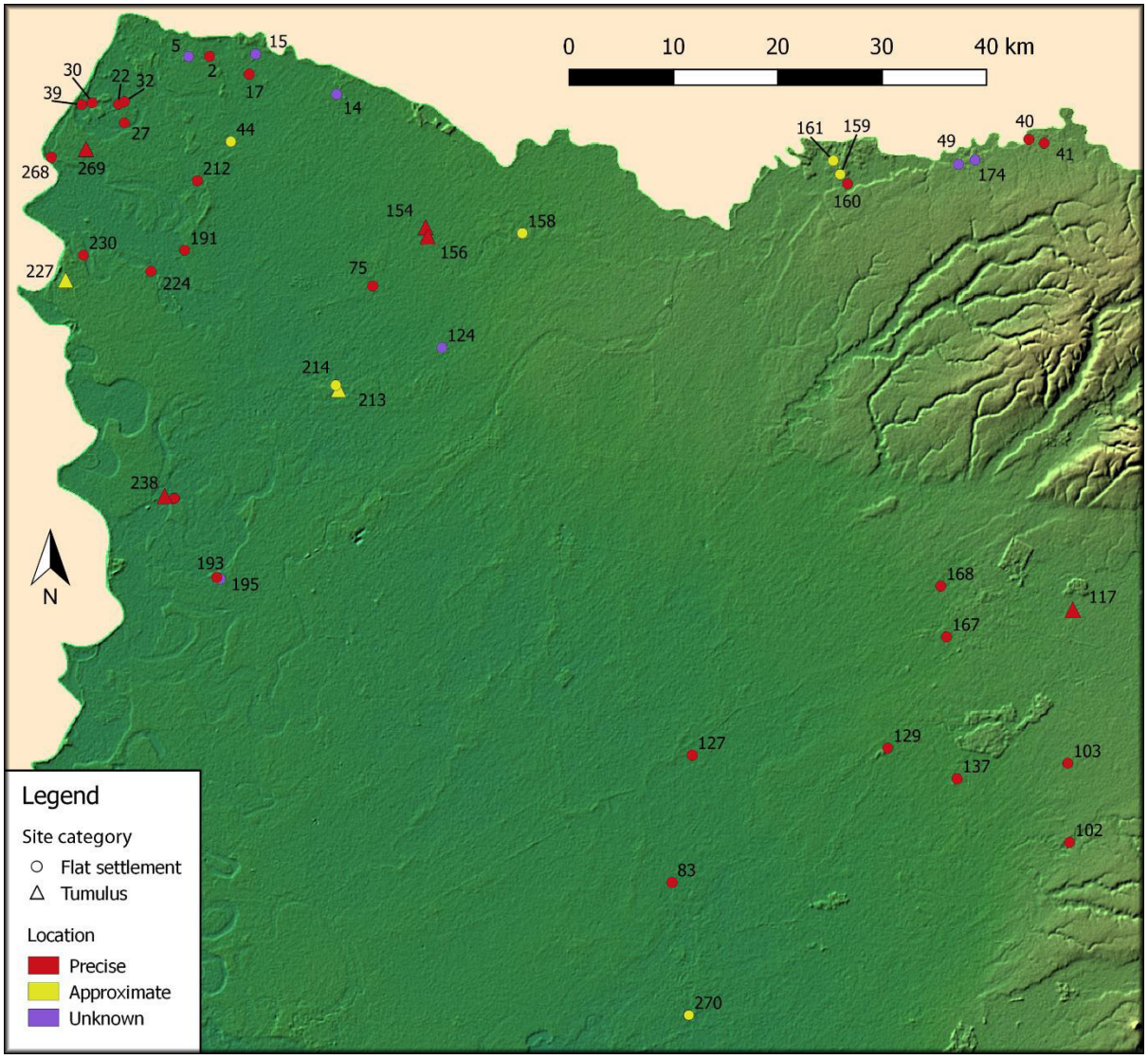

Fig. 24. Distribution of the Late Eneolithic sites: 2 Deszk – A; 5 Deszk – Grundstück des A. Barát; 14 Kiszombor – N; 15 Klárafalva – Nagyérpart; 17 Klárafalva – Vasútállomás; 22 Tiszasziget – Andróé-alja (Ószentiván VIII); 27 Tiszasziget – Dögtemető (Ószentiván V); 30 Tiszasziget – Papok földje; 32 Tiszasziget – Szélmalom domb (Ószentiván I & II); 39 Tiszasziget – Vedresháza; 40 Arad – Aradul Nou, Bufniți; 41 Arad – Aradul Nou, Grădina CAP; 44 Beba Veche – Cărămidăria Baravine; 49 Bodrogu Nou – Pădure; 75 Dudeștii Vechi – Movila lui Dragomir; 83 Foeni – Gas; 102 Liebling – Digul Tofaia; 103 Liebling – Drumul Iclozii; 117 Moșnița Veche – 49; 124 Nerău; 127 Otelec – Drumul Sânmartinului; 129 Parța – 5; 137 Pădureni – Smithfield; 154 Sânnicolau Mare – Bucova Pusta IV; 156 Sânnicolau Mare – Hunca Mare (Bucova Pusta IX); 158 Sânnicolau Mare – Selište; 159 Sânpetru German – Cărămidărie; 160 Sânpetru German – Fântâna Vacilor; 161 Sânpetru German – Malul Înalt; 167 Timișoara – Freidorf IV; 168 Timișoara – Mehala IV; 174 Zădăreni – La vii; 191 Banatsko Aranđelovo – Obala selešto; 193 Bočar – Mala Odaja; 195 Bočar – Staro groblje; 212 Majdan – 46; 213 Mokrin – Arađanska humka; 214 Mokrin – Hegedišev vinograd; 224 Novi Kneževac – Budžak major;

[25] Topografska karta 1:50.000, Vojnogeografski institut, drugo izdanje, 1983.
[26] Harta topografică 1:25000, Direcția topografică militară, 1975.
[27] http://mapire.eu/en/

227 Novi Kneževac – Japina Koliba; 230 Novi Kneževac – Širine; 238 Padej – Barnahat; 268 Srpski Krstur – Bajir; 269 Srpski Krstur – Slatinska humka; 270 Šurjan – Govedareva humka.

The third category comprises sites with a more generally described location, which could not be located, or sites whose publications mention only the administrative district in which they are located. As a general tendency, the newer publications provide a more precise location as compared to older studies. The sites in the study region are classified as follows: 197 with precise location, 41 with approximate location and 36 with unknown location.

Before discussing the spatial distribution of the sites, it must be mentioned that only the administrative districts of Tiszasziget, Moșnița Nouă, Liebling, Đala, Srpski Krstur, Novi Kneževac, Majdan and Banatsko Aranđelovo were completely surveyed and therefore only there have (almost) all the sites been discovered. In the remaining districts, the surveys were conducted randomly and usually not far from cities or towns with institutions that deal with Archaeology. For this reason, most of the discovered sites are concentrated in the vicinity of Szeged, Arad, Timișoara, Kikinda, Novi Bečej and Zrenjanin, while in the more distant places, such as the central part of the region under study, almost no sites have been discovered. Judging on the large density of sites in the systematically surveyed areas one can assume that many sites are still to be discovered in the study region. Nevertheless, although the picture is far from being complete and to a large degree reflects the state of research, some conclusions on the distribution of sites still can be drawn.

The Early Neolithic sites were distributed almost exclusively in the low plain and in immediate proximity to a water course (Fig. 19a). In the western part of the region where the Pleistocene loess terraces rise well above the river valleys, it can easily be noticed that the large majority of the settlements were located along the edge of these terraces. Judging on the entirely surveyed areas in the northwestern part of the region (Fig. 19b) can be concluded that the arrangement of the settlements was linear, along the water courses, and the spacing was quite small, of ca. 1-2 km. This arrangement and density is also characteristic for the Early Neolithic settlements in the larger part of the Eastern Pannonian Plain (Kalicz 1998b: 258; Raczky 2012: 17). However, many of these settlements were not contemporary, as the Early Neolithic communities periodically relocated their settlements along the water courses. Of interest are the sites in the Dudeștii Vechi-Sânnicolau Mare area, which are distributed along the Mureșan stream, indicating that this stream was already active in the Early Neolithic. The Middle Neolithic settlement network (Fig. 20) covered both the low and high plain, however the tell settlements developed only in the low plain. The density of settlements in general has decreased, but the spacing between the flat settlements is much lower than the distance between the tells. The Late Neolithic settlement pattern (Fig. 21) is very similar to the Middle Neolithic one – both plains are inhabited and the tells are distributed solely in the low plain and far from each other. In the area of the Tisa Culture, western of the study territory, was observed that often the tell and the large single-layered settlements were surrounded by a system of small settlements (farmsteads) disposed at a distance of ca. 10 km (Horváth 1989: 89-90; Makkay 1991: 323). Two cases in the study region might indicate the presence of such arrangement of the settlements, namely those sites surrounding Tiszasziget and Parța. In the Early Eneolithic, the distribution pattern (Fig. 22) and the density of settlements remained mostly the same, with the exception that the tell settlements became less common. According to János Makkay (1991: 324-325) the abandonment of the tells was the result of the incapacity of the prehistoric economy to sustain large human concentrations for a long period of time. On the other hand, the number of necropolises sharply increased. Although several

necropolises were found the settlements to which they belong so far were not identified, so the distance between them and whether there was some regularity in their disposal remain unknown. The lack of sites in the southwestern part of the region reflects the state of research rather than a real absence and the same can be stated for the lack of necropolises in the southeastern part of the region, although a decrease in their number should also not be excluded. The Middle Eneolithic is marked by a drastic decrease in the number of sites and the disappearance of tell settlements. It is remarkable that although the density of settlements has decreased, the high plain, with less fertile soil still continued to be populated (Fig. 23). The lack of sites in the southern part of the region is mostly accounted by the state of research. In the Late Eneolithic the number of sites increased but like in the Early Neolithic the higher plain was not preferred (Fig. 24). The settlements were distributed along the water courses, while the tumuli were located in the vicinity of settlements. The lack of sites in the southwestern part of the region reflects again the current state of research.

5. Settlement elevation

Settlement elevation is a relevant indicator for the preferred location of sites in the landscape. In order to find out whether there are general preferences and diachronic changes that occurred, we have analyzed the elevation of the settlements per periods. In these analyses, both the precisely and approximately located settlements were included, since the 0.5 km margin of error of the latter has an insignificant impact on the results in the landscape of northwestern Banat.

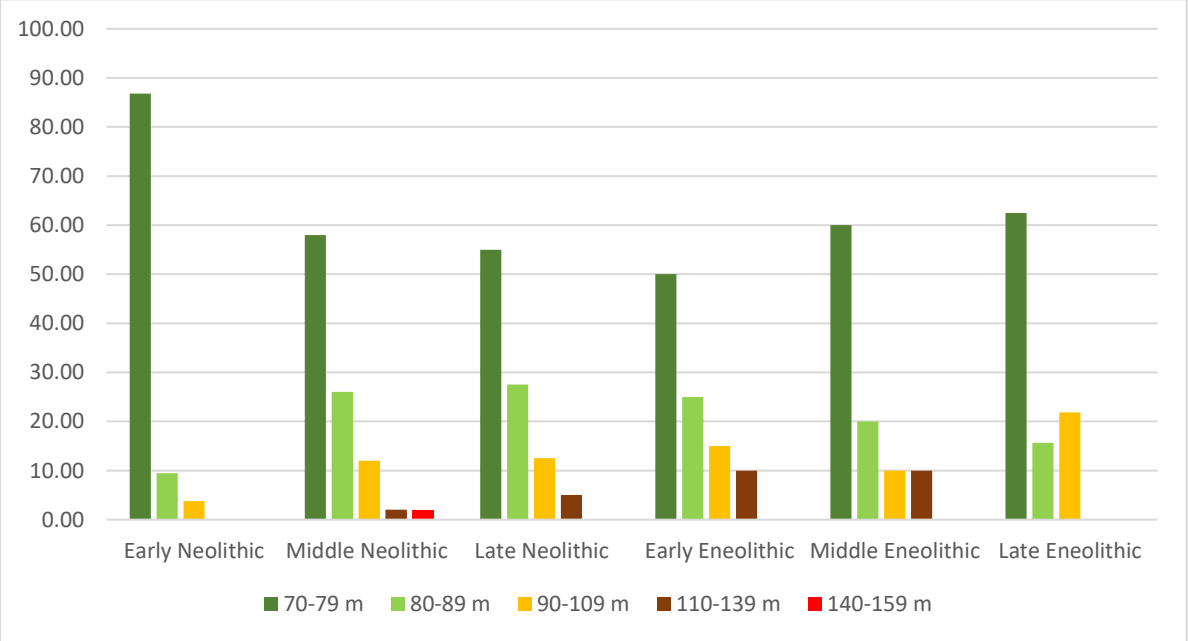

Fig. 25. Distribution of settlements by elevation groups in percentages.

The results indicate three general aspects that are characteristic for all the periods. Firstly, in the region under study no settlements are located below 70 masl, which can be explained by the fact that this area was often flooded. Secondly, in all six periods more than half of the sites are located below the mean elevation of the region (84 masl), which indicates a general preference for lower elevations. Thirdly, as the elevation rises, the number of settlements decreases. This inversely proportional relationship is determined by the mentioned preference as well as by the smaller size of the high plain compared to the low one (see Chapter I).

For an easier comparison of the elevations of the sites, they were divided into groups of 10 masl (Tab. 7). The comparison (Fig. 25) shows that although in all periods at least half of the sites were situated within the interval of 70-79 masl, in the Early Neolithic this elevation was preferred (86.79 % of the sites) more than in the remaining periods. Another characteristic for this period is that the highest elevation was not preferred – so far there are no sites discovered over 110 masl. The picture changes in the Middle Eneolithic when the frequency of sites situated within the interval 80-109 masl increases and when sites appear also in the plain situated over 110 masl. In the following three periods – with little variation – these proportions are maintained, and a significant change occurs only in the Late Eneolithic when the elevation over 110 masl is again no longer preferred.

6. Settlement area

Diachronic changes in the size of sites are good indicators for social transformations. To find if such changes occurred, settlement size has been compared over time. The remaining categories of sites were not included as they did not exist throughout the period under study and their number is very limited.

The extensive reconnaissance surveys carried out in the last few decades have increased the number of new settlements and with that the amount of information regarding their surface area. However, the information provided for multi-period settlements is less accurate as establishing the extent of separate occupations could not be undertaken. Instead, the whole site area was measured, which is either equal to or wider than the most extensive period of occupation depending on horizontal stratigraphy. This inaccuracy is even more pronounced for the Neolithic and Eneolithic settlements, which in most cases were superposed by much larger settlements. To avoid overstating of the area of the settlements, they were divided into settlements with reliable area and settlements with unreliable area (Tab. 8), with only the former were included in the analysis. Reliable areas for sites can be determined from two criteria: single-period sites, or those with several occupations whose area was precisely determined by systematic surveys (with grids), archaeological excavations and other interdisciplinary methods.

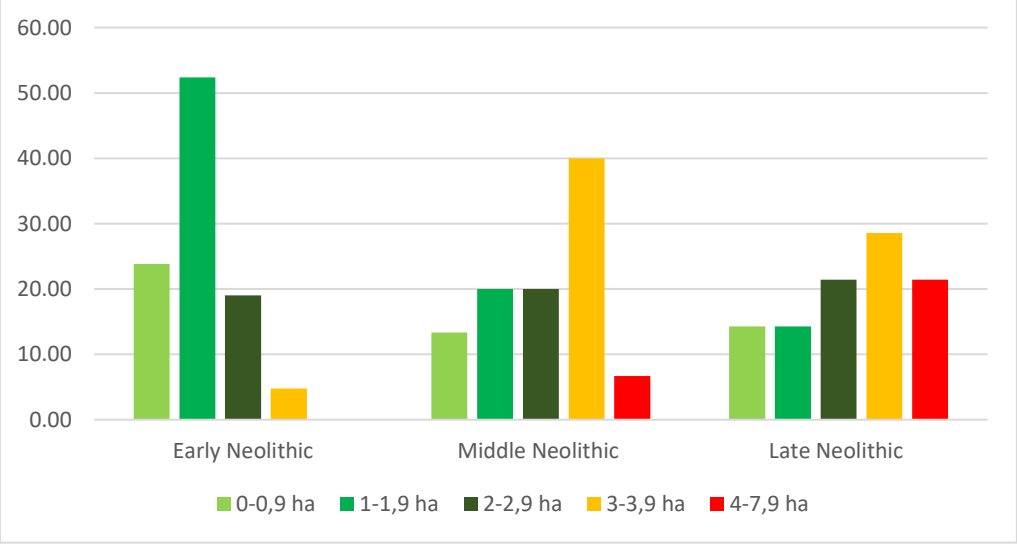

Fig. 26. Distribution of Neolithic settlements by area in percentages

The results (Fig. 26; Tab. 9) indicate that about a quarter of the Early Neolithic settlements had an area of less than 1 ha, about half of them had an area of 1-1.9 ha, ca. 20 % of the sites had an area of 2-2.9 ha and only 5 % had an area over 3 ha. In general, those with larger areas tend to be chronologically later. In the Middle Neolithic, significant changes in the surface area of the settlements occurred. This consists of a decrease in the number of sites with an area of under 2 ha and an increase in the number of settlements with an area of 3-3.9 ha as well as in the appearance of settlements with area over 4 ha. In the Late Neolithic this ratio was maintained with the difference that the number of settlements with area over 4 ha increased to the detriment of the settlements with an area of 3-3.9 ha. The largest settlement in the study region, Novi Bečej – Borđoš, has an area of ca. 7 ha, however in the neighboring to the west region were found Tisa settlements as large as 12 ha (Makkay 1991: 322). For the Eneolithic epoch, no conclusions can be drawn due to the low number of sites with a reliable area.

IV. Settlement structure and architecture

By investigating diachronically the intra-settlement spacing and architecture of the settlements, we seek to shed light on the social and economic organization of the past communities. The internal structure of a settlement can be reconstructed on the basis of extensive archaeological and interdisciplinary investigations such as large scale excavations (preferably of the whole area of a settlement), systematic surface collection surveys, and geophysical analysis, while architectural information can also be obtained from small-scale excavations.

1. Early Neolithic

The Canadian-Romanian investigations at Foeni – Sălaș (Greenfield, Drașovean 1994; Greenfield, Jongsma 2008) were the first to provide a clear image of Early Neolithic settlement structure in the northwestern Banat. This was achieved by combining interdisciplinary methods with extensive archaeological excavations. The extent of the Early Neolithic settlement (ca. 0.5 ha) was determined by combining the results of a systematic surface collection survey and soil coring. Geomagnetic survey was also carried out; however, it did not provide significant results.

The subsequent archaeological excavations uncovered almost the entire surface of the settlement, which consisted of five medium-sized pit-houses ranged in a semicircle around a larger one (Fig. 27). In their vicinity existed other smaller pits and surface structures, which are believed to have possessed a storage function or to have been related to some household activities (Greenfield, Jongsma 2008: 113).

These semi-subterranean dwellings were of circular or slightly trapezoidal shape with vertical or inward sloping edges. Their dimensions varied from 4 x 4 m (Locus 41) to 8 x 8 m (Locus 23). Within the dwellings, internal features such as fire installations (central hearths and peripheral domed ovens) and soil benches were encountered, while "living" horizons with artefact concentrations could be attested on the bottom of the pits. In certain cases, the entrance to the pit-house could be identified, while the presence of postholes inside as well as outside the pits, indicate the location of the posts supporting the roof. Judging by the numerous burned daub fragments (some of a large size) discovered within the pit-houses, and by the exterior postholes, disposed around the perimeter of the pit and perpendicular on the surface, Haskel J. Greenfield and Tina Jongsma (2008: 115-120) assume that the pit-houses had a superstructure (short walls) which collapsed within the pit after the structure burned. All the pit-houses but one became refuse pits after their abandonment, as is indicated by the large concentration of discarded finds discovered within their infill layers (Greenfield, Jongsma 2008: 115). This suggests that, during the period that they were used as garbage pits, the settlement was still inhabited, and, therefore, that it is less likely that all the pit-houses were simultaneously abandoned. Hence, one can assume that Locus 41, which does not contain debris layers, was the last abandoned pit-house. The stratigraphic evidence indicates a short-term occupation of the settlement, which is also supported by archaeozoological, archaeobotanical, and tool repertoire analysis. Haskel J. Greenfield and Tina Jongsma (2008: 127) assume that the site was briefly occupied by mobile pastoral inhabitants. The analysis of the distribution of finds within the settlement does not indicate any specific patterns implying specialization. This suggests that economic activities were conducted on the household level. Absence of functionally distinct areas within the settlements was also noticed in the neighboring to the south region (Greenfield 1993: 112).

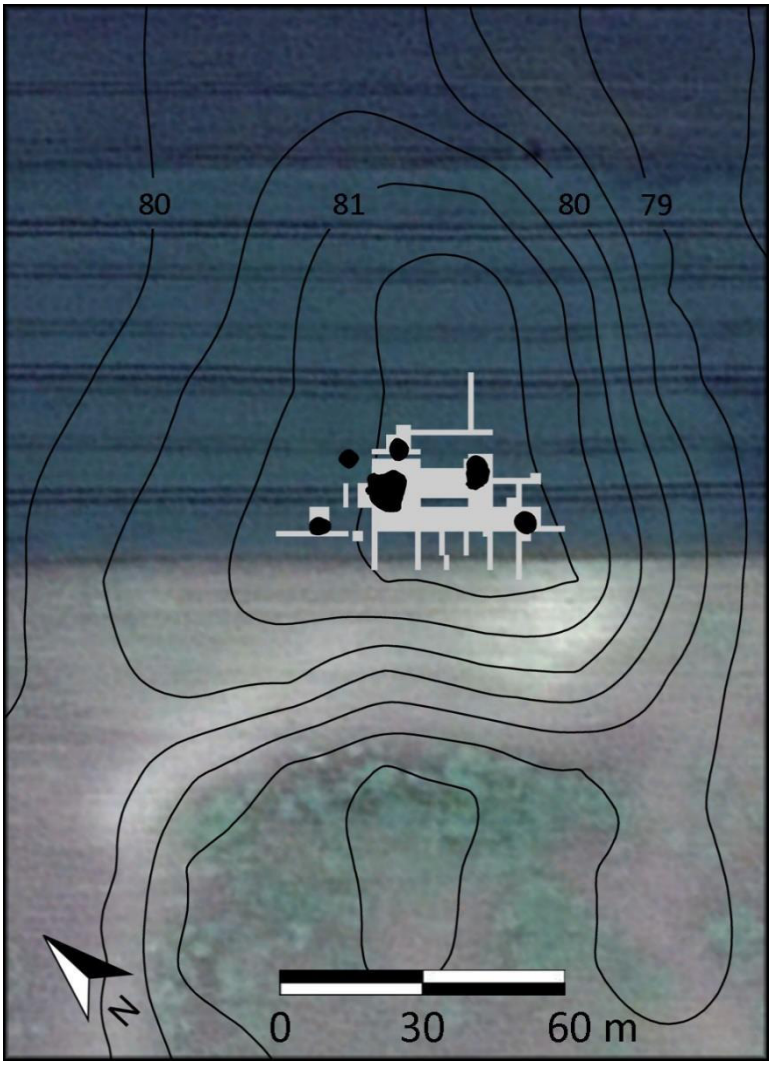

Fig. 27. Distribution of pit-houses (black) and the excavated area (grey) at Foeni-Sălaș.

Recent German-Romanian investigations conducted at Sânnicolau Mare – Bucova Pusta IV, dated to the second part of the Early Neolithic, shed new light in understanding the intra-settlement spacing of the larger settlements. The extent of the settlement was determined by corroborating the results of a geomagnetic survey and a systematic surface survey. Most of the anomalies (representing archaeological features) in the southwestern and central part of the magnetogram (Fig. 28) are from the Early Neolithic, while those in the eastern part are from the Late Bronze Age and Early Iron Age. The excavations evidenced that the strong anomalies were large dug-in structures. The identification of a few postholes and the presence of domed ovens excavated into their sides indicate that at least some of them were pit-houses. Like those at Foeni – Sălaș, these pits were filled with refuse after their abandonment. The stratigraphic observations and the several absolute dates obtained indicate that the settlement was inhabited longer than Foeni – Sălaș, albeit still not all that long – for a few generations around 5700 cal BC. This implies that the majority of the features from the southwestern and the central part of the geomagnetic map were contemporaneous and allows for further interpretation. The settlement appears to be relatively dispersed and the architectural structures tend to be grouped into several clusters. The cluster located in the center of the settlement is the largest one and has the most numerous features. In the eastern part of the site can be noticed that several features were located on the opposite bank of an old riverbed

which was inactive during the Early Neolithic but still constituted a depression. The small size of the pit-houses suggests that they were inhabited by single families. Thus, it may be assumed that the grouped pit-houses belonged to families bound by kinship.

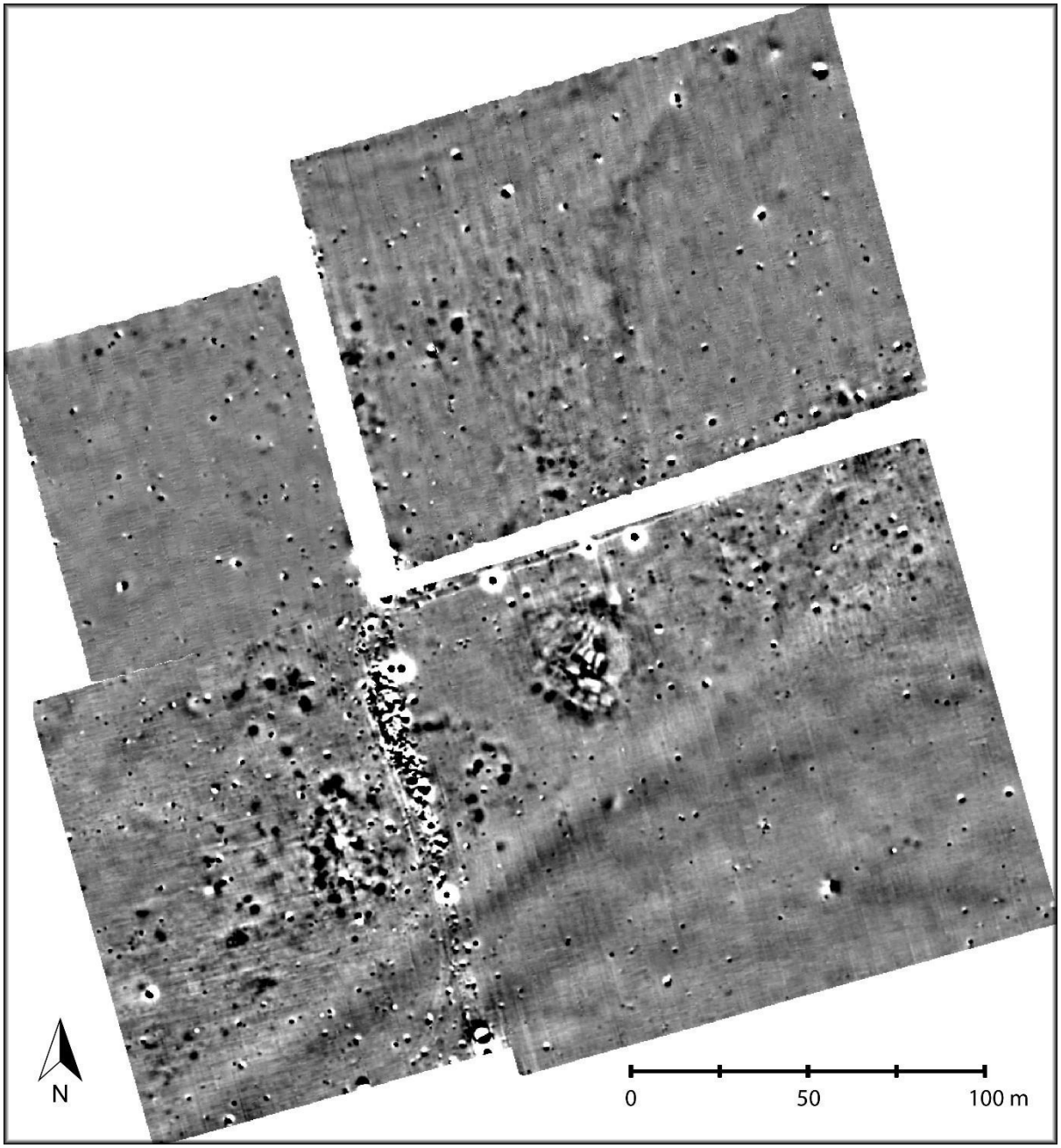

Fig. 28. Magnetogram of Sânnicolau Mare – Bucova Pusta IV (survey Eastern Atlas).

A large pit-house was investigated within Trenches K and L and an oven with a cylindrical chimney dug into the bank of a smaller pit was discovered close to it (Diaconescu et al. 2014: 42). In Trenches S and T, two large pit-houses were investigated. Each of these had two ovens dug into its western side (Diaconescu et al. 2015: 79). The ovens of the eastern pit-house possessed chimneys. Two large interconnected pits were discovered within Trenches I and J. Between the two pits, a little to one side, was located a well, whose shaft was ca. 0.60 m wide and 1.20 m deep. Within the shaft, several potsherds and a complete vessel were found (Diaconescu et al. 2014: 42; Diaconescu et al. 2015: 79). Another installation for water extraction (well) was investigated at Uliuc – Timiș. Part of this site was destroyed by the

meandering River Timiș, and the well installation found itself in the middle of the river bed. As the installation remained submerged, this favored the preservation of its organic material. The installation consisted of a shaft in which a wooden cylinder carved from a trunk was introduced to protect the sides from collapse. The trunk had a diameter of 0.80 m and was preserved to a depth of 1.70 m. Its initial depth was larger, as indicated by the eroded upper part. Within the well were discovered several Early Neolithic finds, among which was an entire pot with textile ropes tied around it. This vessel and the one from Bucova Pusta IV most probably were used for water extraction.

The Canadian-Romanian investigations at Dudeștii Vechi – Movila lui Deciov (Maillol et al. 2004) provided significant results regarding intra-settlement organization. These results, however, cannot be fully interpreted until the finds are processed and published. The extent of the site was determined by means of electromagnetic terrain conductivity and geomagnetic surveys. The first survey provided less accurate results, but the geomagnetic map obtained was much more detailed (Fig. 29). It reveals the location of numerous archaeological features, and the presence of an oval ditch enclosing the settlement. The ditch, which in its southern part was 1.40 m wide and 0.65 m deep (Ciobotaru 2003), enclosed an oval area 80 m long and 62 m wide (Maillol et al. 2004: 25). These dimensions indicate that the ditch had a role more symbolic than defensive. It may have marked the outer limits of the settlement, separating internal and external worlds (see Bailey 2000: 47).

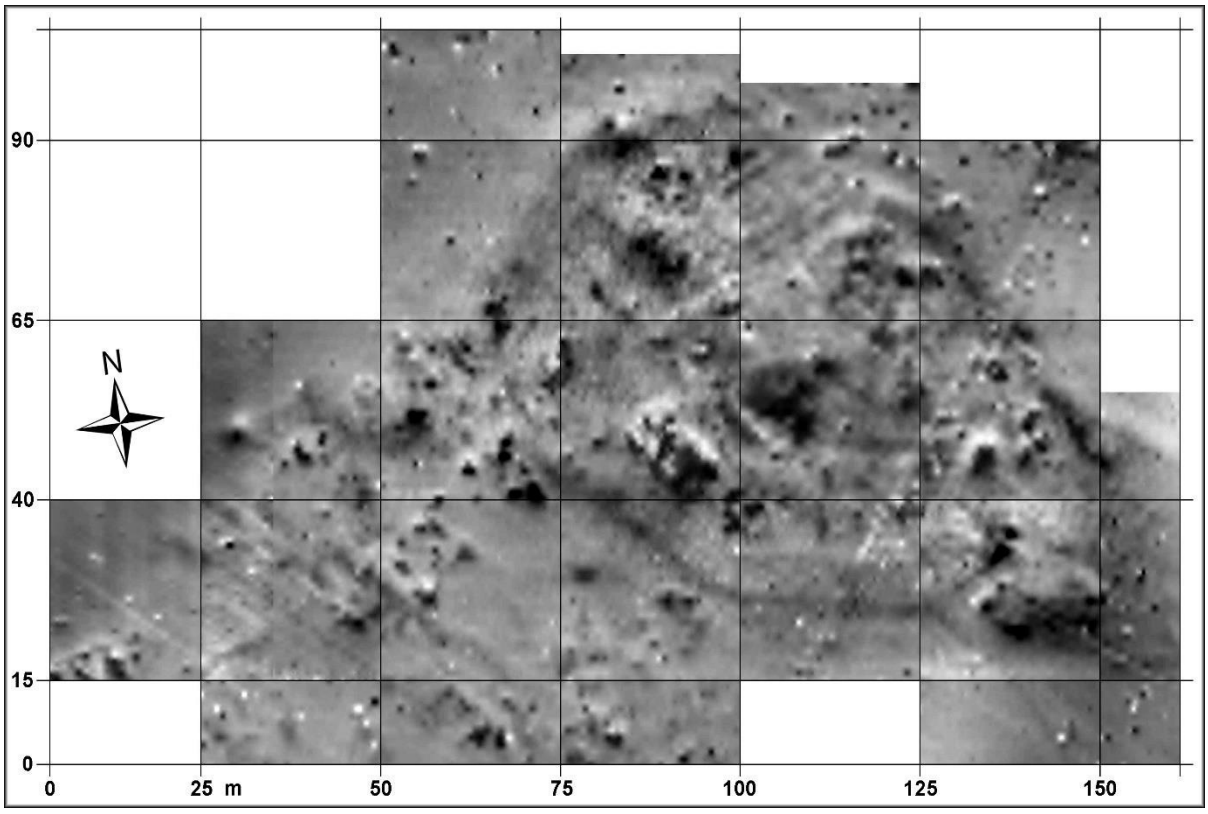

Fig. 29. Magnetogram of Dudeștii Vechi – Movila lui Deciov (adopted after Maillol et al. 2004: Fig. 3).

The excavations consisted of six long trenches, disposed in the southern and northern part of the enclosure. In both areas, ruins of burned surface houses were discovered (Lazarovici, Ciobotaru 2001: 130; Ciobotaru 2004: 144). The houses and the enclosure were attributed to the Early Neolithic, but this dating is suspect since surface houses and ditch enclosures are

absent in other Early Neolithic sites in the region. In addition, the low depth at which the majority of the houses were discovered and the existence of later occupations at the site (Middle Neolithic and Early Eneolithic) suggest a younger dating. Since the results of the excavations are not yet published (excepting the preliminary reports), this question remains open. Another issue is the interpretation of the magnetogram. The fact that the magnetogram displays features from different periods which cannot be distinguished without additional investigation (systematic survey or extensive excavations) hampers the provisioning of an accurate interpretation. The magnetogram reveals that, in the southwestern part of the site, the archaeological features extend beyond the ditch and some of them even overlap it (or are overlapped). This situation indicates that either the settlement was initially dispersed and after the construction of the ditch it became compacted, or that at first the settlement was encircled and the settlement expanded after the abandonment of the ditch. Assuming a later dating of the ditch, the first hypothesis seems more plausible; nevertheless, additional investigation is required for this to be confirmed.

Smaller scale excavations have provided significant data on the architecture. The investigations at Foeni – Gaz, carried out in the period 1998 – 2001, revealed several Early Neolithic pits, two of which are interpreted as pit-houses. The first one had an oval shape (2.5 x 3 m) and a depth of 0.80 m, while the second one had a circular shape (3 m in diameter) and a depth of ca. 0.90 m. Both pit-dwellings contained a large concentration of finds deposited after their abandonment. At Parța – Tell 2, several pit-houses dug into the virgin soil were discovered[28], but remain unpublished. During the rescue excavations at Timișoara – Fratelia, Fabrica de cărămidă a pit-house was uncovered; however, its dimensions could not be determined as it was cut by a Bronze Age structure (Drașovean 2001: 33). At Novi Bečej – Matejski Brod, a large pit-house with hearth on its floor was investigated. The content of the infilling suggests that after the pit was abandoned it was filled with waste (Рашајски 1952: 115). A pit-house was also discovered at Siget – Jug sela (Трифуновић 2012: 332). During the rescue excavations at Deszk – 1 (Olajkút), five pits were investigated. On the basis of the large quantity of finds and ashes discovered in one of them, they were interpreted as waste pits (Trogmayer 1968: 8). They could have also served other purposes before they became refuse pits, as often is the case, but the report does not provide additional information (size, shape) permitting further interpretation. In the lower layer at Iđoš – Gradište, right above the virgin soil, a hearth was discovered by Luka Nadlački. It consists of tamped and evened soil burned to a depth of 8 cm (Гирић 1957: 219). Gyula Kisléghi's investigations carried out in the beginning of the 20th century were extensive in character, but due his less accurate excavation and recording methodology, little information may be gained as to the settlement structure and architecture. All he mentions are burned daub fragments with imprints of wattle and ashes found at Sânnicolau Mare – Bucova Pusta IV (Kisléghi Nagy 1907: 272) and parts of hearths in the lower layers at Dudeștii Vechi – Movila lui Deciov (Kisléghi Nagy 1909: 149).

Remains of surface houses, excluding those at Dudeștii Vechi – Movila lui Deciov due to their uncertain dating, were attested only at Aradac – Leje (Маринковић 1996: 3). In eastern Hungary also very few single roomed rectangular surface houses (Horváth 1989: 85-86; Kalicz 1998b: 259) and a ceramic model of such house (Trogmayer et al. 2005: Fig. 4) were discovered, which, however, are exceptions. This type of house is characteristic for the Early

[28] Dan Ciobotaru, pers. comm., 23.06.2015;

Neolithic societies in the territories south of the Danube, while it appears very rarely in the territories north of the river.

2. Middle Neolithic

a. Vinča A Culture

Evidence regarding the Middle Neolithic intra-settlement organization exists only from the investigations of the site of Moșnița Nouă – 7 & 8. The geomagnetic survey revealed a concentration of strong anomalies disposed along the high bank of the paleo-river (Fig. 30). One of them was archaeologically examined, an oval pit-house being uncovered (Fig. 31); its dimensions were as follows: 4.7 m length, 4.1 m width and ca. 1 m depth. On its southern side, a step cut into the virgin soil indicating the location of the entrance was identified. Outside of the pit, a posthole was attested at each side of the entrance (Floca et al. 2016: 50-51); these perhaps supported a roof above the entrance, forming a structure similar to a modern portico. Judging by the shape and size of the anomalies visible on the magnetogram, one can assume that most of them are also pit-houses. Further support for this assumption may be found in two other pit-houses identified in the profile of a pipeline ditch cutting through the site. In the same profile, however, were visible ca. 20 cm thick burned clay-floors (Măruia et al. 2012: 322), which can be either a fire installation or a burned house floor.

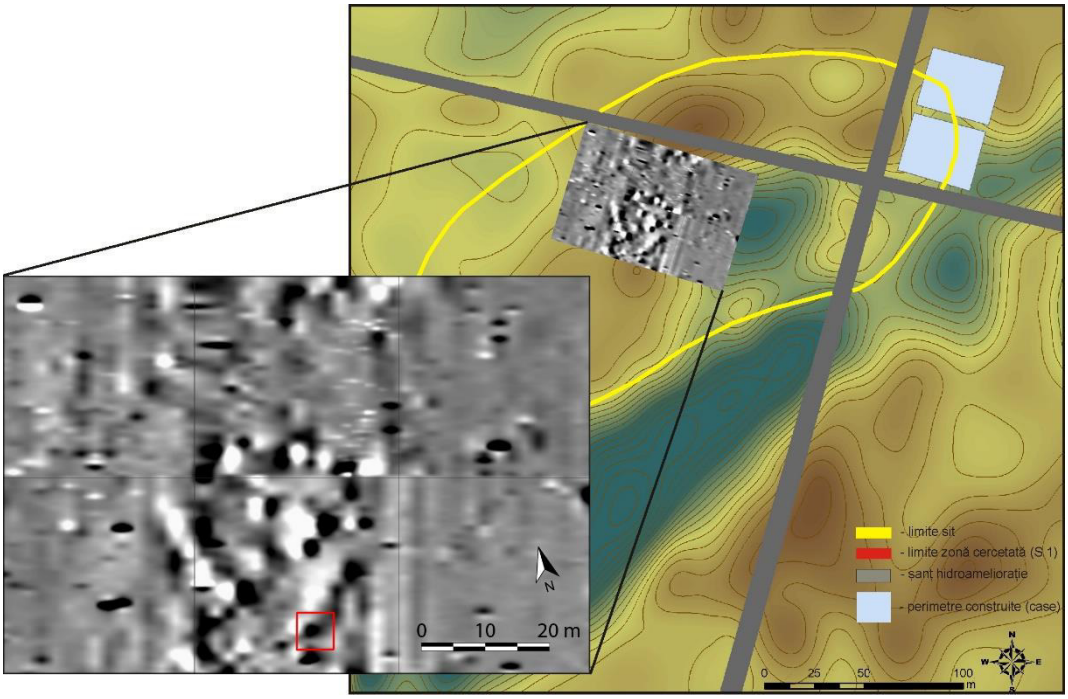

Fig. 30. Magnetogram of Moșnița Nouă – 7 & 8 plotted on a topographic map (adapted after Floca 2016: 32-33).

During the rescue excavations at Satchinez – IX, two pit-houses were investigated. The first one had a diameter of 1.8 m and a well-preserved tamped floor, while the second one had a diameter of 3.6 m. Between them, another large pit with circular shape and a diameter of 3 m was discovered. At its bottom, a 35 cm thick layer of mixed clay with fine sand differing from the virgin soil was attested. These observations led the researcher to assume that this pit served to prepare clay for ceramic production (Drașovean 1993: 25). At Timisoara – Freidorf IV, two pit-houses with irregular circular shape were discovered. At the bottom of Pit-house 1, a line of larger postholes was identified, and, on the sloped sides, smaller postholes

indicating the location of the posts supporting the roof. The pit-house had its entrance on the eastern side (Drașovean 1989: 34-35).

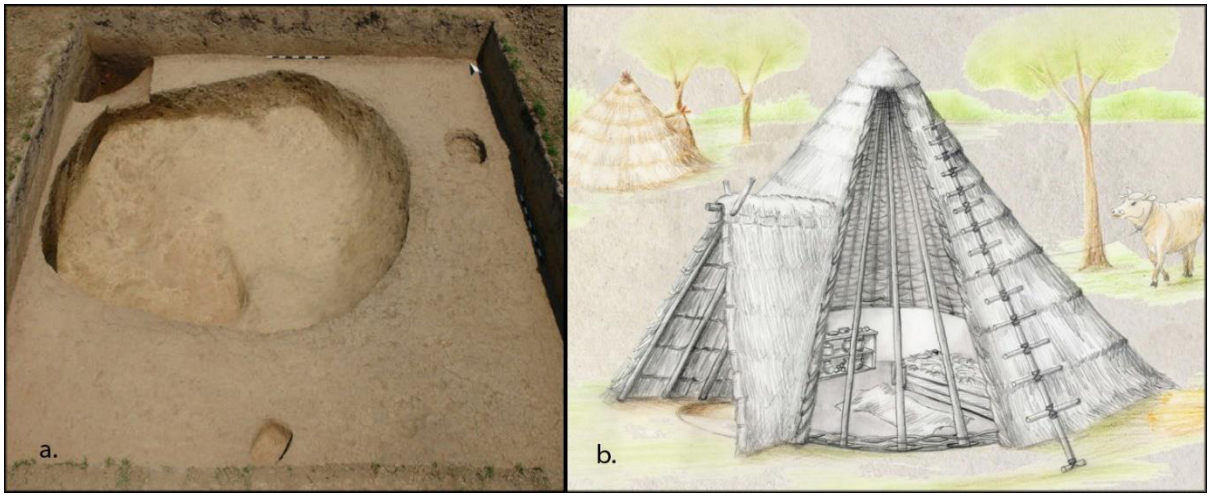

Fig. 31. Remains of a pit-house (a.) and its hypothetical reconstruction (b.) at Moșnița Nouă – 7 & 8 (after Floca 2016: 50-51).

In 1932, at Tiszasziget – Andróé-alja (Ószentiván VIII), three pits were found, two of which, were partly reached within the trench. They had a length of 2.30 m and a width of 1.45 respectively 1.85 m (Bálint, Párducz 1933-1934: 51). In 1941, another pit was uncovered. It had the following dimensions: 4.30 m length, 1.55 m width, and 0.70 m depth (Párducz 1941: 177; Banner, Párducz 1946-1948: 36). The large dimension of the pits indicates that they might be pit-houses. At Tiszasziget – Agyagbánya four pits interpreted as waste pits were investigated, but only two are described within the publications. Pit 1 had oval shape, was ca. 80 cm deep, and on its bottom, were observed few small depressions. The infilling of the pit contained many mussel shells and ceramic sherds (Trogmayer 1978-1979: 297). Pit 2 was between 1.2 m and 1.5 m deep and on its bottom, were observed patches of burned soil (Simon 1980: 12).

At Aradac – Kameniti vinogradi, which is roughly dated to the Phases Vinča A-B1 (Lazarovici, Lazarovici 2006: 132), were found three pit-houses, of which only two were entirely caught within the trench (Карапанцић 1922: 154-156). Each of them consisted of two interconnected pits and each had an oven in its eastern side. In the periphery of the first pit-house, five postholes indicating the location of the posts supporting the roof were attested. East of the second pit-house, another large pit thought to be related to the pit-house was located. The third pit-house, which was only partially caught in the trench seems to have had similar structure with the first two. Besides the two ovens located within the pit-houses other six were found separately (Карапанцић 1922: 156-157). They were overlapped by a burned layer, the thickness of which reached up to 0.60 m (Карапанцић 1922: 152-153). With one flat side and imprints of wattle on the other side, the daub fragments discovered indicate that this layer consisted of the ruins of burned houses, which are to be understood as chronologically younger than the pit-houses. Therefore, it is likely that the pit-houses are from the first part of the Middle Neolithic (Vinča A), while the surface houses come from its second part (Vinča B).

b. Szakálhát, Banat, and Vinča B Cultures

The extensive excavations conducted at the site of Parța – Tell 1 provided valuable information on the settlement's internal structure and its architecture (Lazarovici et al. 2001). The settlement was inhabited for almost the whole second part of the Middle Neolithic, and the houses made from less durable materials often had to be rebuilt and modified. On the basis of these modifications, the researchers distinguished four main construction phases. Most of the information about the architecture may be gathered from the burned structures, which were much better preserved than the unburned ones. The village was destroyed by conflagrations several times and thus burned structures exist from all phases. Usually, the walls were more severely burned from the inside, and in certain cases the fire was so powerful that it vitrified the clay (Lazarovici et al. 2001a: 144). The presence of food (cereals), vessels, and even a skeleton within the burnt houses indicate that these conflagrations were accidental (Lazarovici et al. 2001a: 131).

Fig. 32. Settlement plan of Parța – Tell 1, construction phases 7a, 7b and 7c-6 (after Lazarovici et al. 2001a: Fig. 58, 77, 82).

In the first phase (7a), the constructions had relatively random distribution and large spacing existed between them (Fig. 32). They consisted of pit-houses and surface houses, as the first ones tend to be earlier[29]. The six pit-houses investigated were of oval, circular and rectangular shape. Their interior space varied from ca. 3 to 15 m^2 and their depth ranged from 0.60 to 1.10 m. In few cases, postholes were attested, suggesting the presence of a roof supported by posts. After the pit-houses were abandoned, they were filled, mainly with ashes and charcoal. In some cases, the pits had an uppermost layer of clay, indicating their deliberate filling for levelling the surface in preparation for the following constructions (Lazarovici et al. 2001a: 85-90). The reduced interior space indicates that they were inhabited by a single family. Eleven rectangular surface houses dated to this phase were investigated. Usually, they were single-roomed, but, in certain cases, an inner wall separated the house in two. Their interior space ranged from 17 to 23 m^2. The basic structure of the houses consisted of wooden posts stuck in the ground supporting the roof. They were arranged in a rectangle – four at the corners and the others distributed more or less symmetrically at the sides. Some houses also had central posts, located within the house, which supported the roof. The walls were constructed in-between the external posts. They had a structure of rods, vertically stuck in shallow trenches, interwoven with twigs (wattle), and coated with daub. The authors also mention the existence of walls made of beams plastered with clay. The houses had an indoor fire installation (hearth or oven) and, in some cases, a pit for ashes. The several layers of re-plastering on the floor, the fire installation, and the walls indicate that they were periodically repaired. Some houses had multiple building stages and continued to exist in the following construction phase. Between the houses, numerous pits with differing dimensions were discovered (Lazarovici et al. 2001a: 90-100). During this phase, the settlement was still not fortified (Drașovean 2007b: 20).

The second construction phase (7b) is characterized by a reorganization in the spatial arrangement (Fig. 32), presupposing a preliminary planning of the settlement. Five surface dwellings from the previous phase continue to exist, while the newly constructed ones maintain the same characteristics (Lazarovici et al. 2001a: 101-104).

Most remarkable is the construction of a monumental building known as Sanctuary 1 in the previously empty area at the center of the settlement. It had a rectangular shape, W-E orientation, and an entrance from the south. Similarly to the houses, it was constructed in the wattle-and-daub technique, but its dimensions were larger (12.6 x 7 m). Its interior was divided into 3 parts by two lines of posts. One post, located in front of the entrance, was plastered with clay. In the vicinity of other posts were discovered skulls of horned mammals, which are thought to have been symbolically hung on them. In the northwestern part of the building were two compartments, within which a portable hearth (clay platform on wooden legs), charred cereals, potsherds, and flint flakes were discovered. These compartments were interpreted by the investigators as altars, although, such compartments (for cereals) existed in most of the houses. In the eastern part of the building, a hearth surrounded from three sides by short walls was discovered and was also interpreted as an altar. Directly adjacent to it was located a large pit containing several layers of ashes. Within a small pit, the forehead of a bull with horns was discovered along with layers of ashes. This pit was interpreted as having possessed a symbolic function (Lazarovici et al. 2001a: 204-214). Excepting its large dimensions, this building does not differ from its contemporaries, and the main reason for being interpreted as a sanctuary is that another building with outstanding features was constructed over it (see below Sanctuary 2). The investigations in the northern and the southern periphery of the settlement revealed the presence of a fortification system consisting

[29] The anteriority is indicated by the superposition of pit-house G27 by the surface house P26 (Lazarovici et al. 2001a: 87).

of four ditches, each lined by a palisade. It is assumed that the construction of this fortification took place in Phase 7b (Lazarovici et al. 2001a: 100), while its abandonment is dated to the end of Phase 6. The ditches had a U or W-like shape, and were repeatedly redug. Their depth varied from 1.8 to 3 m and their wideness ranged from 3 to 5.5 m. The outermost ditch was the largest and the deepest. All of the ditches had several infill layers, indicating a long process of sedimentation. The palisades consisted of rows of posts and intermediate stakes, beams, and probably wattle (Lazarovici et al. 2001a: 197-203).

The following two construction phases (7c-6) are taken together since most of the buildings constructed in Phase 7c continued to exist in the following phase (Fig. 32). In these phases, the settlement was much more densely constructed, sometimes the distance between houses being only 40-60 cm. All the buildings acquired the same orientation, and some were grouped in blocks of 4-5 houses (Fig. 34) (Lazarovici et al. 2001a: 105).

Some houses continued to possess the characteristic size from the previous phases (ca. 25 m^2), while others assumed a much larger size (from 30 m^2 to 60 m^2). They were one- or two-roomed, and only in few cases three-roomed. Relatively numerous houses had also a second floor (story). The interior walls were thin (8-14 cm), often without foundations, and, in some cases, were low (not reaching the ceiling). The posts had a diameter of 15-25 cm and were distributed at a distance of 1.6-2.5 m from one another, while their pits had a diameter of 0.50-1 m and a depth of 0.50-1 m. Before being staked into the pits, their bottom ends were sharpened and burned. This practice was aimed to increase the longevity of the wood within humid conditions. Often, the large buildings, especially those with an upper floor, had the posts doubled in order to increase their resistance. Between the posts, up to 3 lines of rods were vertically stuck into foundation trenches filled with tamped soil. This soil could be differentiated by texture and sometimes by color (when yellow clay was used). The foundation trenches were 20-30 cm wide and up to 65 cm deep, while the rods had a thickness of 5-10 cm and were disposed at a distance of 15-30 cm from one another.

Usually, the interior line consisted of thicker rods. Other poles were horizontally disposed at a distance of 30 cm and tied to the vertical ones with plant fibers or bark. The walls had a thickness of 25-30 cm and usually had 2-3 layers of re-plastering on both sides. In one case, an incised meandering decoration on the wall was attested. The entrance usually was located on the western, southern, or eastern wall. The houses had central posts supporting the roof, which were arranged in two rows in the large buildings. In some cases, the interior posts were not introduced in pits, but were fixed on the floor of the house. The lower floor consisted of a structure of beams (10-35 cm wide) made of split trunks, arranged with the flat part upwards. This wooden structure was covered with a layer of clay (2-3 cm thick), which was periodically renewed (usually 2 to 5 layers of re-plastering). In several cases, the lower floor was suspended at 50-70 cm above the ground, which can be interpreted as preventive action against possible seasonal floods. On the lower floor, a large fire installation consisting of an oven or hearth located either in the center of the room or to the side usually existed. The oven usually had a circular shape with a diameter of ca. 90 cm and a plate in front of it. The hearths were either small platforms (up to 30 cm) constructed above the floor, or simply places on the floor (unconstructed) where fire was ignited. In certain cases, the oven in a later construction stage was transformed into a hearth or vice versa. The fire installations usually had 4-5 layers of re-plastering. Often on the lower floor existed loom installations and compartments for cereals consisting of low walls (12-18 cm height) enclosing a rectangular surface (0.30-1.30 m^2). The upper inhabited floor usually covered 2/3 of the house's space and was attested also in the houses with lower suspended floor. Those that could be measured range from 6 to 35 m^2. The ceiling consists of a structure of beams (25-30 cm wide) plastered with clay. In conflagrations, the supporting wooden frame and the vegetal bonds of its joints

burned leading to the collapse of the upper floor over the lower one. Usually, on the upper floor, a light oven existed. The often frequent presence of an upper story during Phases 7c-6 indicates that there was a tendency towards constructing vertically imposed by the deficit of space within the fortified part of the settlement (Lazarovici et al. 2001a: 105-171).

No pattern can be observed in the distribution of the finds in the different houses. Most frequent were the ceramic vessels, present in all the houses and in large quantities. Other finds which appeared in almost all the houses were tools made from bone (awls) and stone (chisels, axes and cudgels). Worth mentioning are ceramic balls, interpreted as sling projectiles, which appeared frequently and often in clusters. Other finds which appear relatively often are weights. The smaller ones are considered to have been used for looms, the larger ones for fishing (Lazarovici et al. 2001a: 105-171). The more or less equal distribution of finds within all the houses shows that the economic activities were conducted on the household level. There are no buildings restricted to a particular type of find, which could indicate that only a specific activity was conducted.

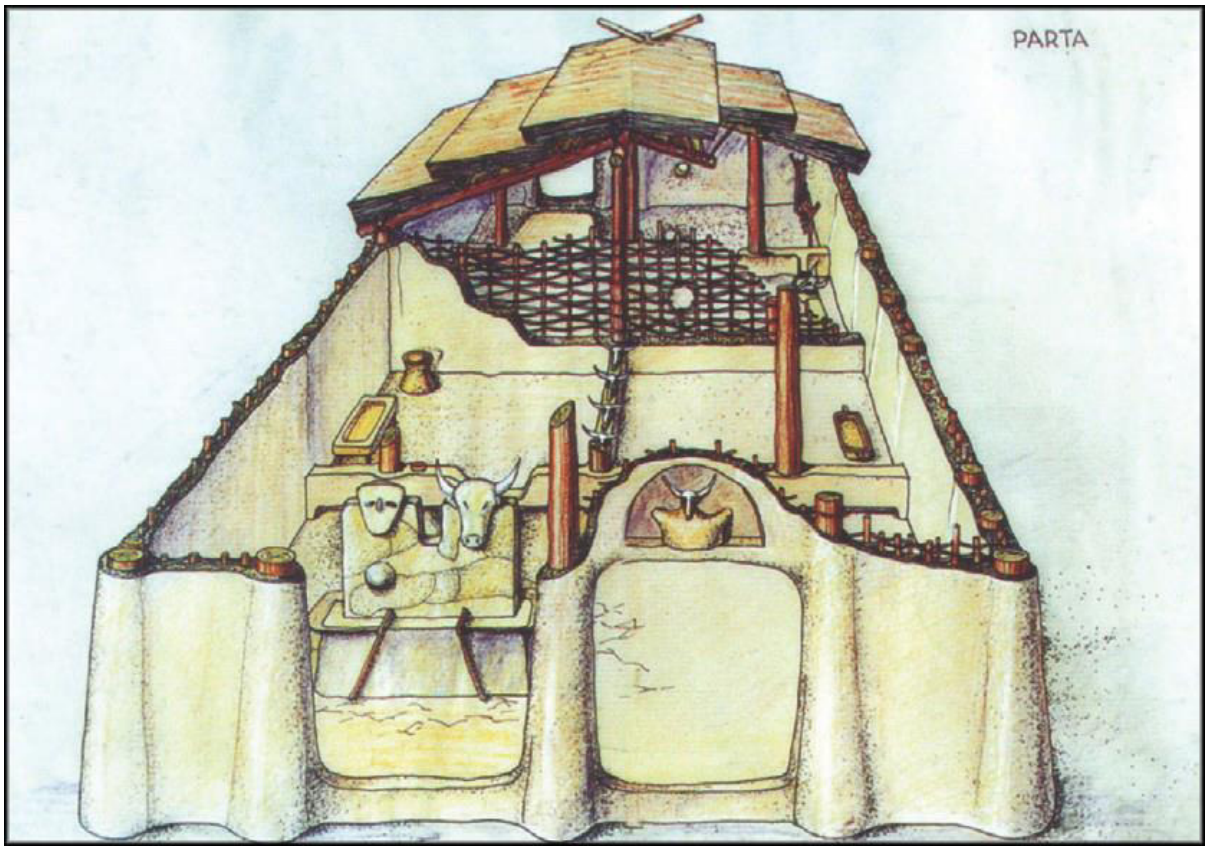

Fig. 33. Graphic reconstruction of Santcuary 2 (after Lazarovici et al. 2001a: front cover).

As previously mentioned, in Phase 7c, Sanctuary 1 was replaced by another large building, namely Sanctuary 2 (Fig. 33). This building had 3 construction stages and continued to exist in the following phase (6) when it was destroyed in a conflagration. The layer formed after its destruction was over 60 cm thick. The Sanctuary 2 kept the form and orientation of the old one but was slightly smaller in size (11.6 x 6 m). A separating wall divided its interior in two almost equal in size rooms, but the plastering indicates that it was added in a subsequent stage. The building had entrance and a window from the western side and an entrance from the eastern side. The window had a plastic application resembling a crescent moon. Flanking the eastern entrance from the inner side were two pseudo-columns each topped with a bull's head. The bull heads were made of clay to which were attached real horns. On the forehead,

they had a decoration of incised lines encrusted with white matter, and the space between them was painted in red.

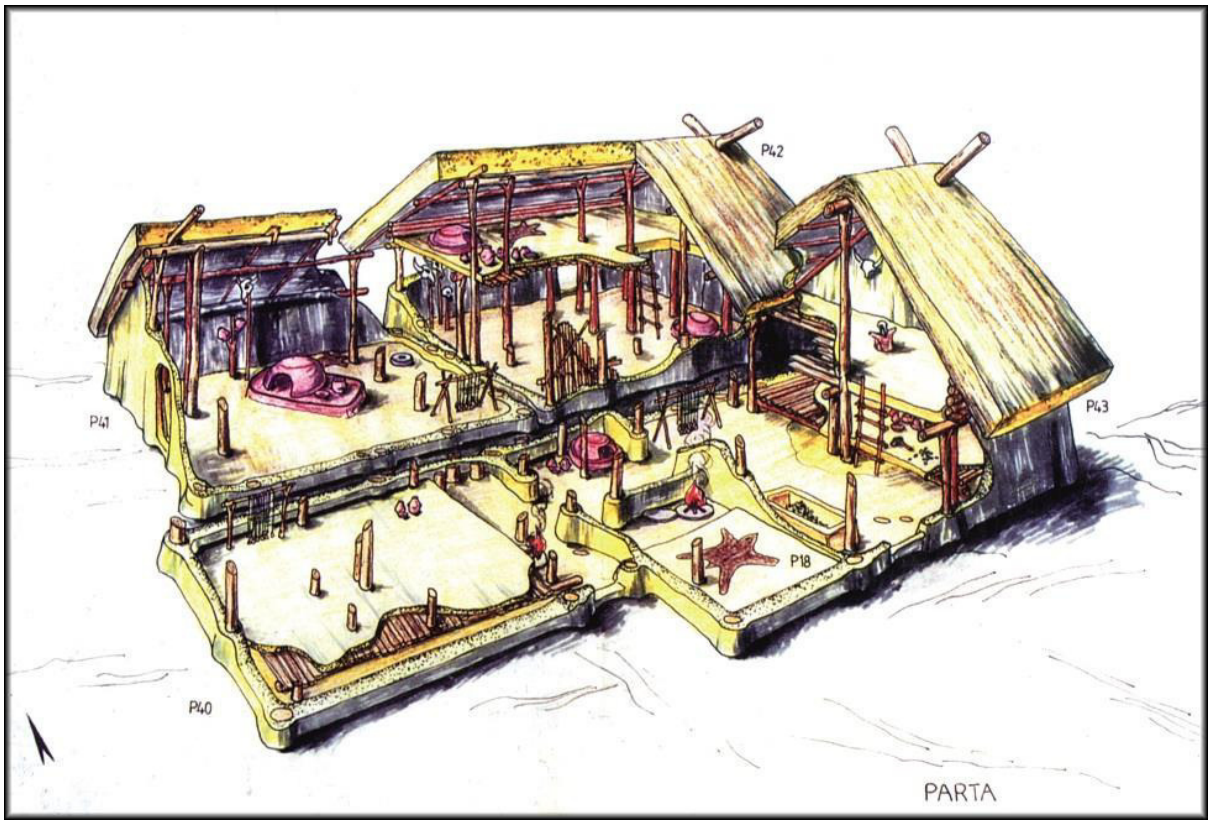

Fig. 34. Graphic reconstruction of Houses P40-P43 (after Lazarovici et al. 2001a: back cover).

The most impressive discovery was a double statue in the eastern room. The statue was made of clay and discovered in a heavily fragmentary condition. It consisted of a pedestal (1.35 x 0.70 x 0.55 m) upon which stood 2 connected statues resembling human torsos. The pedestal also supported a tray surrounding the statues. The southern statue was preserved up to the shoulders, and a hemispheric object of clay was attached to its abdomen, rendering likely an interpretation of a pregnant women. Besides the body, the northern statue also retained parts of the head – the forehead with an imprint of a horn, the left ear, and a piece of a snout. These details permitted the reconstruction of a bull head. One of the statues and the pedestal upon which they stood had incised ornamentation, while the tray had plastic decoration. The statues were interpreted as expressing a divine couple – the Mother Goddess and the Bull God, which were worshiped in a fertility cult. Other outstanding architectural features are the two niches located on the exterior part of the eastern and western walls. The western one contained two vessels plastered with clay, while within the eastern one was found a ceramic disc with an orifice in its center interpreted as support for statue (pedestal). In the southwestern corner, a pit existed containing a fragment of an anthropomorphic vessel, a few weights and an unfired pot. This pit was covered by the plastered floor and was interpreted as having a symbolic function, probably related to a foundation ritual. In the northwestern corner, several loom weights were identified alongside traces in the floor indicating the existence of a loom installation. Each of the rooms had compartments on the side of the interior wall, which were ca. 2.5 m long, had a 12 cm thick floor and were ca. 30 cm suspended above the ground. The short walls which separated them had imprints of skulls of ovicaprines. Within the compartments were discovered portable hearths, a discoid support, an anthropomorphic and a zoomorphic figurine, charred cereal grains, a pile of sling projectiles

and ceramic vessels including an anthropomorphic vessel and a pithos. These compartments were interpreted as altars (Lazarovici et al. 2001a: 213-241).

The central position of this building, its large size, and the numerous outstanding architectural decorations, especially the impressive statues, set it apart from the remaining houses in the settlement. It is highly likely that this building was symbolically-charged, and that ritual practices such as worshiping the deities took place therein. The architectural decorations, however, were not only confined to Sanctuary 2, but they were also attested in singular occurrences within some houses as follows: a column topped with a bull head in House 136 (Lazarovici et al. 2001a: 158), a deer head made of clay with real horns in House 167 (Lazarovici et al. 2001a: 146-147), wall applications resembling a crescent moon in Houses 40 and 41 (Lazarovici et al. 2001a: 125, 132) and a discoid support (pedestal) in House 8 (Lazarovici et al. 2001a: 109). The representations of bull or deer are very common during the Neolithic in Southeastern Europe and Southwestern Asia, and they are believed to be an expression of the deities of the Neolithic society. Therefore, it can be assumed that the bull or deer heads located within houses were charged with symbolic meaning and played the role of mediator between the inhabitants of the house and their deities. This evidence suggests that worship practices were performed also within the home and that the domestic activities and ritual practices were closely connected.

Fig. 35. Enclosure rings of the settlement Timișoara – 3 visible on satellite imagery (Google Earth, 04.09.2013).

At ca. 0.70 m north of the Sanctuary 2, another large building was attested, which was christened the House of the Tribe. It had a rectangular shape with dimensions of 11.6 x 6 m and was constructed in the wattle-and-daub technique. The accumulated ca. 1 m thick layer of ruins also indicate its massiveness. The building had entrance from the east, a hearth in the northeastern corner, and an upper floor (or story) covering 2/3 of the building. The exterior posts were doubled, which might indicate the existence of a larger roof with eaves. The finds discovered inside are relatively scarce and consist of potsherds, bone and stone tools, as well as relatively numerous burned and unburned sling projectiles. The investigators believed that this was not a normal residential house, but rather a building with a social character (Lazarovici et al. 2001a: 148-153). This interpretation, however, should be treated with caution, since the building possessed a hearth and an upper story, and evidenced various tools and sling projectiles, which occur in most of the houses.

An analysis of the satellite images revealed that the site of Timișoara – 3 was encircled by at least four concentric ditches (Fig. 35) with different construction phases (Rogozea 2013b: 119). The innermost ditch encircled an area of 1.20 ha, which most probably was the inhabited area, while the outermost ditch encircled a surface of ca. 12 ha.

Within the Middle Neolithic layers at Uivar – Gomilă, the researchers have identified 11 houses from five consecutive building phases. The houses had large dimensions and their foundations consisted of elongated and deep postholes, in which thick posts (diameter of up to 0.50 m) were introduced (Schier 2014a: 22-23). In the earliest (basal) layer of Trench I, a large burned house (H4b-1) was investigated (Fig. 36). It was 6.5 m wide and 10 m long, and had three rooms, two of which were superposed by an upper story. The ceiling consisted of a massive wooden structure covered with a loam plaster. The house was destroyed by a strong conflagration and numerous vessels remained within its interior (Drașovean, Schier 2010: 170). Fragments of the wall indicate that one of the rooms had a frieze with a polychrome geometrical painting. On the upper floor, a ceramic pedestal and two amphorae with prosopomorphic lids, which might have had a symbolic meaning were discovered (Schier 2014a: 25). While this house was huge compared to those constructed before the second half of the Middle Neolithic, even larger houses have nevertheless been found in the wider region of the Szakálhát Culture, reaching up to 20 x 9 m (Kalicz 1998c: 307). The burned basal layer of the site was overlapped by a sequence of unburned layers. Within the lowermost of them were attested the foundation pits of four houses excavated deep into the lower burned layer. The pits were rectangular in form, and were disposed in parallel lines. None of the structures was entirely caught in the trench, and therefore only their width of 4.5-5 m could be determined (Drașovean, Schier 2010: 170).

Several pit-houses and surface houses were discovered in the earliest layer of the tell settlement Bucovăț – Cremeniș. The pit-houses consisted of oval or rectangular pits with rounded corners and dimensions of 2.5 x 3.5 m. Their depth varied between 0.40 and 0.60 m. The surface houses had rectangular form and dimensions of 3 x 4.5 m. Only surface houses were found in the second layer of occupation, the original dimensions of which, however, could not be determined. The houses had thick floors on which hearths or ovens were constructed (Lazarovici 1991). During archaeological investigation at Iđoš – Gradište a burned surface house was uncovered (Гарић 1957: 220). It had rectangular shape and was constructed in the wattle-and-daub technique. The dimensions of the preserved part of the house were 4.2 x 3 m. Its walls in some parts were preserved up to the height of 24 cm. Imprints on daub fragments indicate that the walls were constructed on a structure made of

beams with rectangular shape, branches, and reeds. The plastered floor was constructed on a platform made of wooden beams and branches (Гирић 1957: 220-221).

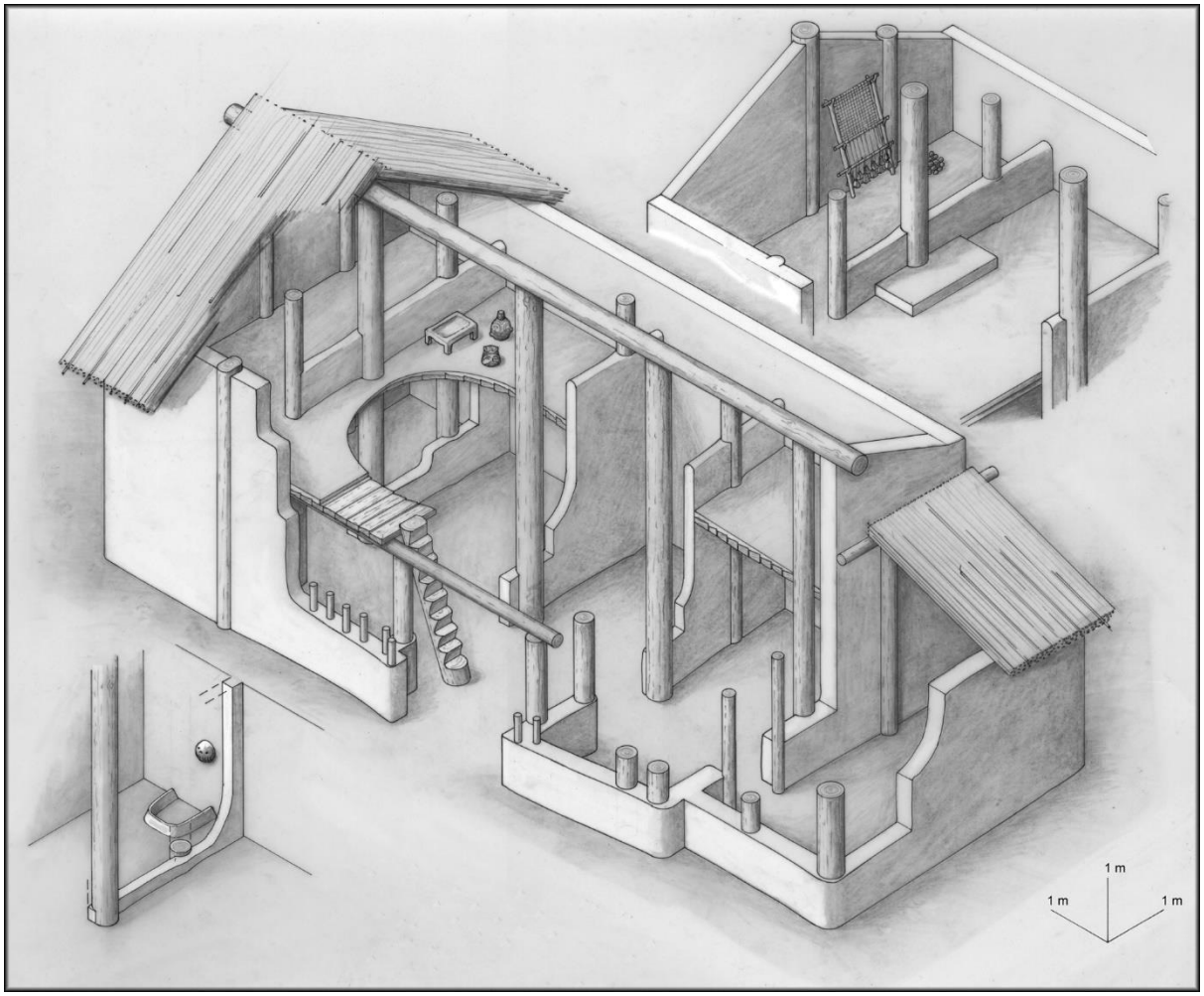

Fig. 36. Graphic reconstruction of House H4b-1 from Uivar – Gomilă (after Schier 2014: Abb. 12).

At Crna Bara – Prkos virgin soil was reached only in some sectors of the trenches and for this reason the Middle Neolithic occupation layer, which yielded both Szakálhát and Vinča B style pottery remained largely unexcavated (Гарашанин, Гарашанин 1957: 199-200). Four large pits stratigraphically related to the Middle Neolithic layer were investigated. The first pit had a circular shape in plan and a pear-shaped cross-section. It had a diameter of ca. 1.60 m and a depth of 0.70 m. In the eastern side of the pit, postholes with a diameter of 0.18 m were attested. The second pit was similar to the first one, but slightly smaller. Postholes were also attested in its northern side. The third pit was 0.70 m deep, and had a pear-shaped cross-section and a maximal diameter of 0.80 m. The forth pit (A) was only partially captured by the trench. The dimensions of its excavated part were 1.80 x 1.56 m and its bottom was situated at a depth of 4.25 m from the modern surface (Гарашанин, Гарашанин 1957: 202). The first two pits contained Middle Neolithic finds, while the second two did not contain any finds, but stratigraphically are to be dated to the same period (Гарашанин, Гарашанин 1957: 204). On the basis of their size and the presence of postholes, the first two and probably the fourth pits can be interpreted as pit-houses.

During the test excavations at Čoka – Kremenjak in 1904, a pit-house with a diameter of 3-4 m was identified. A thick layer of ashes with many bones and sherds in it (Gubitza 1906: 447) was also evidenced within the pit. According to the description of the pottery provided by the investigator, the pit-houses can be attributed to the Vinča Culture. In the years thereafter, the settlement mound was completely excavated; however, the applied methodology of excavation and documentation was less precise and for this reason, the dating of numerous structures remained unknown. According to the description provided in the report, only two features can certainly be associated with Vinča type pottery – a hearth and a pit. The hearth was discovered at a depth of 1.70 m, and it had a circular base with a diameter of 2.50 m (Banner 1960: 20). The pit had a length of 1.50 m, a width of 1 m and a depth of 1 m. Its infill was filled with ashes, which indicates that it functioned as a discard pit before its abandonment (Banner 1960: 22).

The extensive archaeological excavations at Novi Bečej – Matejski Brod revealed the remains of ten burned houses (Fig. 37); however, the majority of them are of uncertain dating since the finds discovered remained unpublished. Only House VII can be dated with certainty to the Middle Neolithic on the basis of a published vessel (Нађ 1953: Сл. 9). The remaining houses may belong either to this period, or to the Late Neolithic. Bogdan Brukner (1974b: 88) assumes that only the first construction phase of Houses II, VII and X dates to the Middle Neolithic.

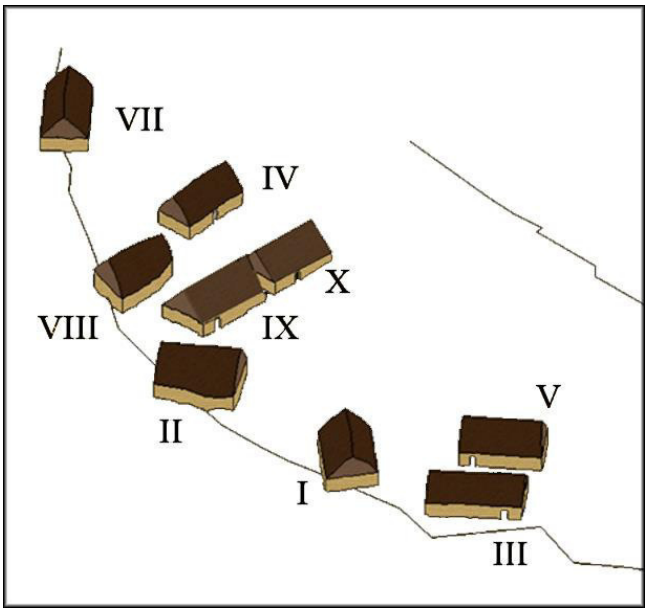

Fig. 37. Graphic reconstruction of houses from Novi Bečej – Matejski Brod (adapted after Marinković 2006: 13).

The houses were rectangular and constructed in the wattle-and-daub technique. House I was affected by the erosion of the tell, and about one third of it was destroyed. It had dimensions of 5 x 4.20 m, was two-roomed, and had an entrance in its northeastern side. Its northeastern room was entirely preserved. The partly preserved intermediate wall had a thickness of 15-20 cm. The wall was constructed on a framework of 6 cm thick rods disposed at a distance of 30 cm, interwoven with twigs and reeds. House II was also affected by erosion and was only partly preserved. Its floor was re-plastered three times, each layer being ca. 2 cm thick. (Рашајски, Нађ 1950: 232-234). House III was cut by younger pits, and its dimensions could not be identified. This house superposed an older pit-house (Рашајски 1952: 106). House IV had two rooms and a hearth located in the corner, which was slightly raised above the floor.

The house was badly preserved, and its dimensions could not be determined (Radišić 1962: 11-12). House V was also double-roomed; nevertheless, due to its bad preservation, only the dimensions of the southeastern room (5 x 5) m could be established. A wooden post supporting the roof was found in the center of this room. The floor of the house was constructed on a structure of beams, rods, and branches. The imprints in the daub show that the wattle framework which supported the wall was made of twigs and stakes, and, more rarely, of reeds and sprigs. On this frame, 2 or 3 layers of clay were applied, of which the first one was the thickest (3-5 cm). The intermediate wall of the house had a thickness of 0.20-0.30 m and was preserved to a height of 0.45 m. On few burned daub fragments was identified plastic decoration, suggesting that at least some parts of the walls were decorated. The house was destroyed by a strong conflagration as indicated by daub fragments burned until vitrification (Рашајски 1952: 106-110). The original dimensions of House VII could not be determined as only about one third of it was preserved. The house was two-roomed; at least one of these rooms had a central post in its center. Its floor consisted of a platform made of split trunks arranged side by side, which were covered with two layers of clay. The trunks were 2-3 m long and 0.20 m wide. Of House VIII, which was affected by erosion, only a small portion was preserved (Hађ 1953: 107-109). House IX had dimensions of 9.5 x 5.5 m and consisted of two rooms. Its floor was constructed on a platform of beams made of 12-15 cm thick split trunks. The walls of the house were preserved up to a height of 0.5 m (Radišić 1964: 16). House X had dimensions of 5 x 8 m and was double-roomed. Its plastered floor was also constructed on a platform of beams (23-30 cm thick) made of split wooden trunks. Unlike the other houses, the beams were transversally arranged (Radišić 1965: 33).

Pit-houses and surface houses were also discovered at Srpski Krstur – Bajir; however, due the fortuitous character of the discovery of the surface houses and the less detailed methodology of investigation and publication of the pit-houses, their dating remains problematic today. During several years of investigation, Luka Nadlački observed that the site was inhabited in the Middle and Late Neolithic[30], while in the Early Eneolithic it was only used as cemetery (Надлачки 1933: 4). Therefore, the mentioned structures can be dated either to the Middle Neolithic or to the Late Neolithic. Considering that the inhabitation in most of the site in the study region began with pit-houses and continued with surface houses, until new research on the site solves the dating problem, we can only hypothetically assume an earlier dating for the pit-houses (probably Middle Neolithic) and a later dating for the surface houses (probably Late Neolithic). The pit-houses uncovered by Luka Nadlački were four in number. The first one had a diameter of 1.72 m (1.94 at the bottom) and contained two hearths. The second had a diameter of 1,88 m (2.26 m at the bottom) and contained a single hearth located in its center. The third pit-house had two hearths. The fourth pit-house had a diameter of 1.73 (2.14 m at the bottom) and also contained a hearth in its center (Надлачки 1929: 7).

3. Late Neolithic

a) Vinča C Culture

The German-Romanian interdisciplinary investigations at Uivar – Gomilă achieved significant results in regards to settlement structure and architecture. The geomagnetic survey, conducted over 11 ha, revealed that the site was much larger than the mound and that it was encircled by a system of concentric ditches (Fig. 38). The ditches all dated to the Late Neolithic (Vinča C1 and C2), and one of them was also reused in the following period. The

[30] In the publication, Luka Nadlački mentions only the Late Neolithic, but, according to the Serbian chronological system, this period also encompasses the Middle Neolithic. A recent publication of the finds stored in the Museum of Kikinda (Трифуновић 2012: 60-61, T.20-21) indicates that the site was, indeed, occupied during both the Middle Neolithic (Vinča B) and the Late Neolithic (Tisa) periods.

fortification system was in use for ca. 200 years and had several construction stages, during which a uniform defensive plan was followed (Drașovean, Schier 2010: 172).

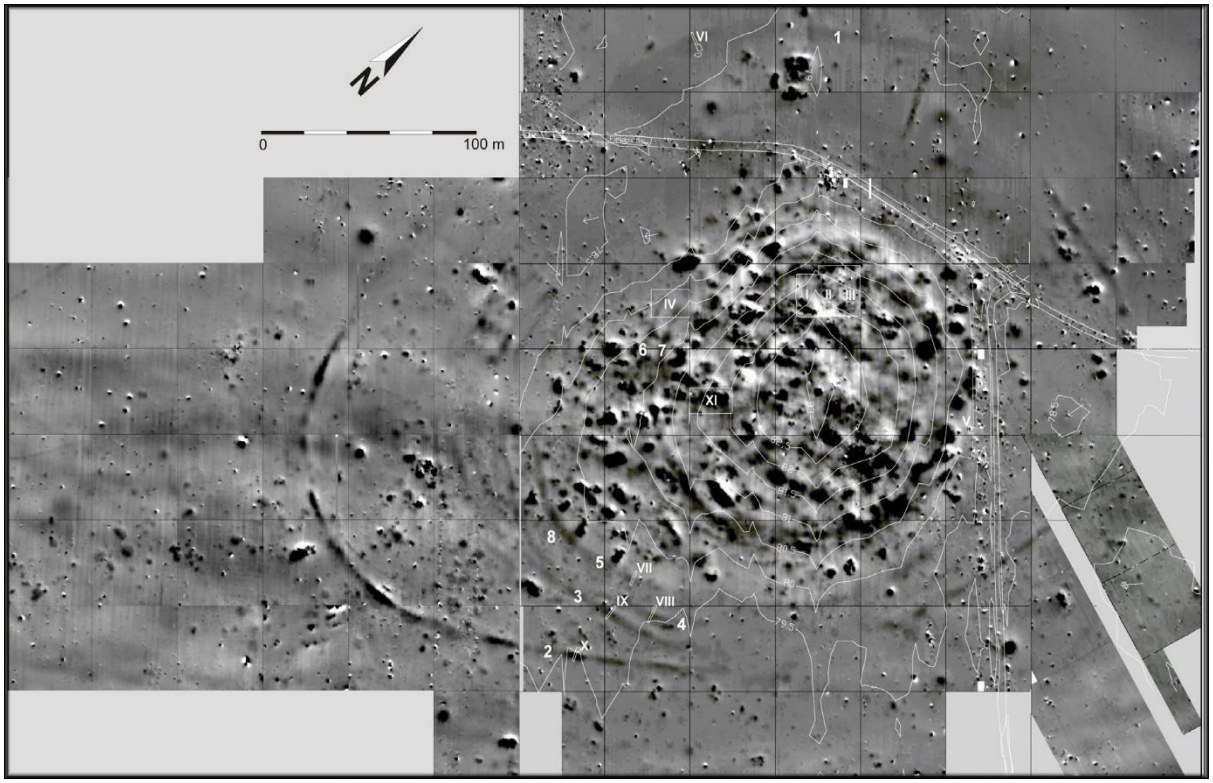

Fig. 38. Magnetogram of Uivar – Gomilă (after Schier 2014a: Abb. 6).

In the following we present the defensive ditches from the exterior to the interior mentioning also the archaeological trenches, which sectioned. The outermost ditch, which enclosed an area of almost 9 ha, was sectioned by two trenches – one in its northwestern area (Trench VI) and another in its southern area (Trench X). In the first area mentioned, the ditch was over 6 m wide and ca. 1.6 m deep, while, in the second area, it was 4.4 m wide and 2.6 m deep. A palisade was located behind the ditch at ca. 2 m, and at about 10 m it was doubled by another ditch without a palisade. The second ditch was 3.3 m wide and 3.5 m deep (Schier, Drașovean 2004: 158-159; Drașovean, Schier 2010: 172-174). A third ditch, sectioned by Trench IX, had a V-shaped cross-section and was 4.5 m wide and 2.4 m deep. Behind the ditch, in its immediate proximity, a palisade was located. Another ditch, sectioned by Trench VIII, had two construction phases. In the first phase, it had a U-shaped cross section and was almost 1.5 m deep, while in the second phase it had V-shaped cross-section and was ca. 3.5 m wide and more than 2 m deep. On the basis of the presence of ashes and carbonized wood in its infill, the investigators suppose the presence of a palisade (Schier, Drașovean 2004: 159). In Trenches VII and XIII, a ditch dug in the Late Neolithic and excavated once more in the Early Eneolithic was detected (Schier, Drașovean 2004: 129-160; Schier 2014a: 31).

The core of the settlement was encircled by two circular ditches. These were sectioned by Trench IV, which was placed in the area where the magnetogram indicates a narrow interruption of the inner ditch and discontinuation of the outer one (Schier, Drașovean 2004: 160-162). The archaeological investigations revealed that the innermost ditch had three construction phases and that the interruption of 1-2 m seen on the magnetogram constituted the NW entrance to the core area. This entrance slightly shifted from phase to phase. At the entrance, in the infilling of the ditch, large skulls and horn cores of aurochs as well as large

red deer antlers were discovered; these were interpreted as trophies or apotropaic symbols (Schier 2006: 325; Schier 2008: 61). Large rectangular postholes located in front of the entrance indicate the presence of a construction of some kind, most probably a gate. The posts were made of split trunks, some with a diameter of over 50 cm (Schier, Drașovean 2004:161-162). In each phase, the size of the inner ditch was increased. If in the first phase, dated to around 5000 cal BC, this was a rather shallow ditch, in the last phase it had impressive dimensions (7 m width and 4.2 m depth) which leave no doubt as to its defensive character. During the third phase, the outer ditch (4 m wide and 2.4 m deep) was excavated at a distance of ca. 10 m from the inner one. The discontinuation of the ditch visible on the magnetogram was confirmed by the archaeological investigations, suggesting that the ditch remained uncompleted. Behind the ditch was a row of double postholes which indicates the presence of a wall (Fig. 39) of horizontally split planks fixed between pairs of posts (Drașovean, Schier 2010: 172; Schier 2008: 56). The ditches, besides protecting the settlement, were also used to delimit the social space. The core of the settlement was used for habitation, while the space encircled by the outer rings could have functioned as haven for the herds, since the ditches would protect them from wild animals and raids from other communities. This space could also have been used for land cultivation and for certain crafts such as pottery production, which would have been dangerous within the inhabited area (Drașovean 2007: 22).

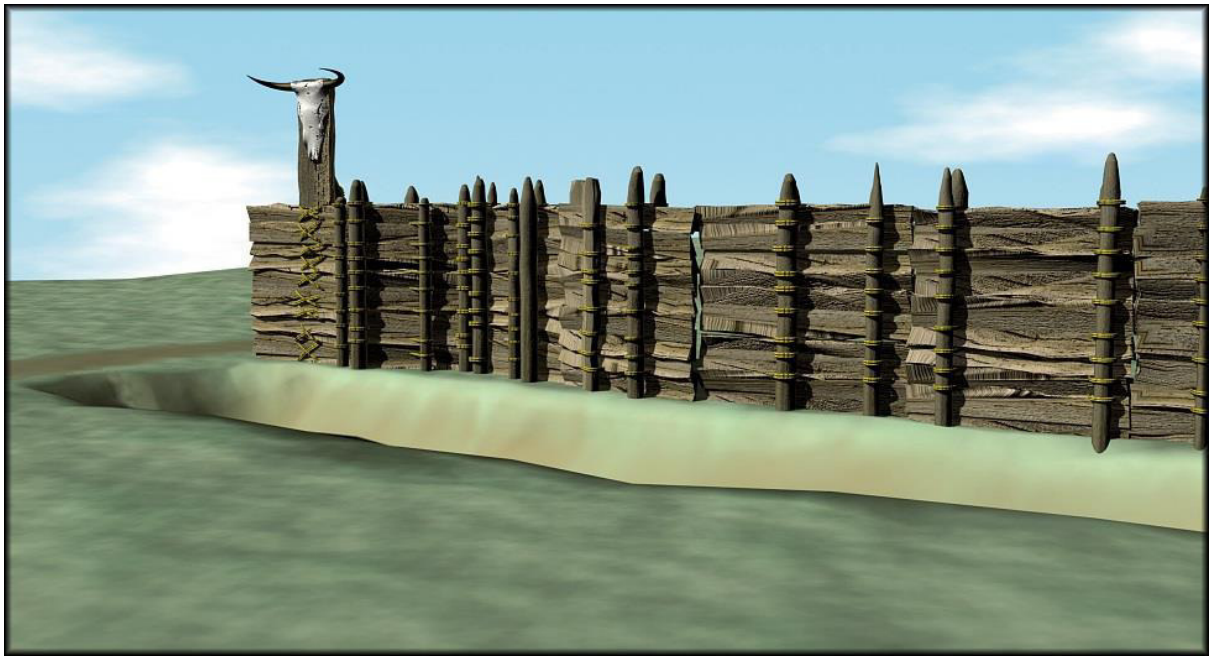

Fig. 39. Graphic reconstruction of the innermost double ditch at Uivar – Gomilă (after Drașovean, Schier 2010: Fig. 16).

The magnetogram also revealed a large concentration of anomalies on the tell. The larger and rectangular ones represent burned houses, while the smaller and circular anomalies represent pits or ovens (Schier, Drașovean 2004: 152-154). The houses represented by more than 70 anomalies are concentrated mainly within the last three concentric ditches. In the core area (within the last two ditches) of the settlement, the houses were organized in concentric circles and the majority have their long axis perpendicular to the inner ditch, leading the researchers assume that the settlement was constructed after a carefully conceived plan (Drașovean, Schier 2010: 175). The geomagnetic survey also detected several burned houses in the outer

area of the tell and it is likely that other unburned houses undetectable by means of this method also existed there (Schier 2009: 223). The archaeological excavations on the tell have revealed that only about 10% of the houses were burned, while the others were levelled and rebuilt. Knowing what the volume of soil necessary to construct a house is, and the volume of the tell, Wolfram Schier (2009: 223) has roughly estimated that around 5000 houses were constructed during the whole occupation of the tell.

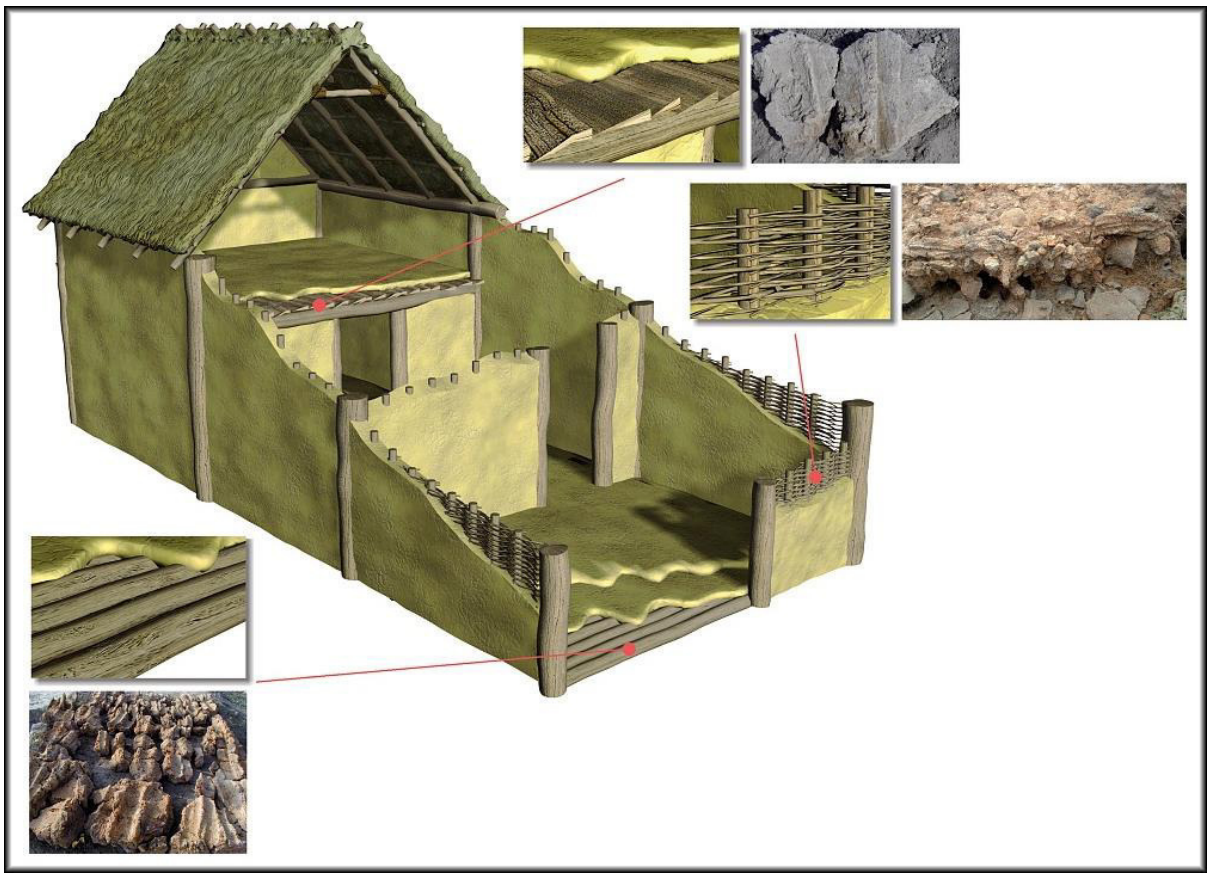

Fig. 40. Graphic reconstruction of House 373 from Uivar – Gomilă (after Drașovean, Schier 2010: Fig. 14).

On the tell, 13 houses or parts of houses dated to the first part of the Late Neolithic were investigated. The Late Neolithic architecture had good continuity from the Middle Neolithic expressed in the location and the orientation of the buildings, but differences also existed. They include a decrease in the size of the buildings (7-8 x 4.5-5 m) and the appearance of a new technique for laying foundations. This technique consists of long and shallow foundation trenches with a dense succession of thinner posts. The change in the construction tradition might be explained as occurring due to the exhaustion of the primary forest in the site's surroundings and the employment of a secondary forest (Schier 2014a: 22-23).

In Trench I a house (373) was found in a very good state of preservation, permitting its reconstruction (Fig. 40). The house had a rectangular shape (12 x 4.5 m) and contained three rooms, of which the westernmost had an upper floor (attic). The walls were ca. 30 cm thick and consisted of wooden posts connected with wattle-and-daub, plastered on both sides with loam. The floor was composed of an array of circular wooden poles covered by two layers of loam. The floor was only re-plastered once, while the walls had up to 20 thin layers. The upper floor (ceiling) was fashioned from split wooden planks plastered from above. The

structure of the roof remains the most hypothetical, since the material from which it was made was not preserved (Schier 2008: 57-58).

Below the burned house described, an unburned structure with the same orientation and dimensions was attested. Both are part of a sequence of several superimposed houses (Schier 2006, 326). Although the house is unburned, it was discovered in good condition of preservation, which allowed various different features to be investigated. Foundation ditches, postholes, and walls could be distinguished from the surrounding soil, as they were of a different consistency. Also discovered was unburned organic material used for construction, including fibrous plants (possibly reeds), thin twigs, branches, and carefully worked wooden planks. Furthermore, in an area between other two houses (H3b-1 and H3b2) randomly spread unburned, but well preserved branches and rods were found. Among these wooden remains were discovered damaged stone axes. This area was interpreted as a work area (Schier, Drașovean 2004: 166; Schier 2006, 326).

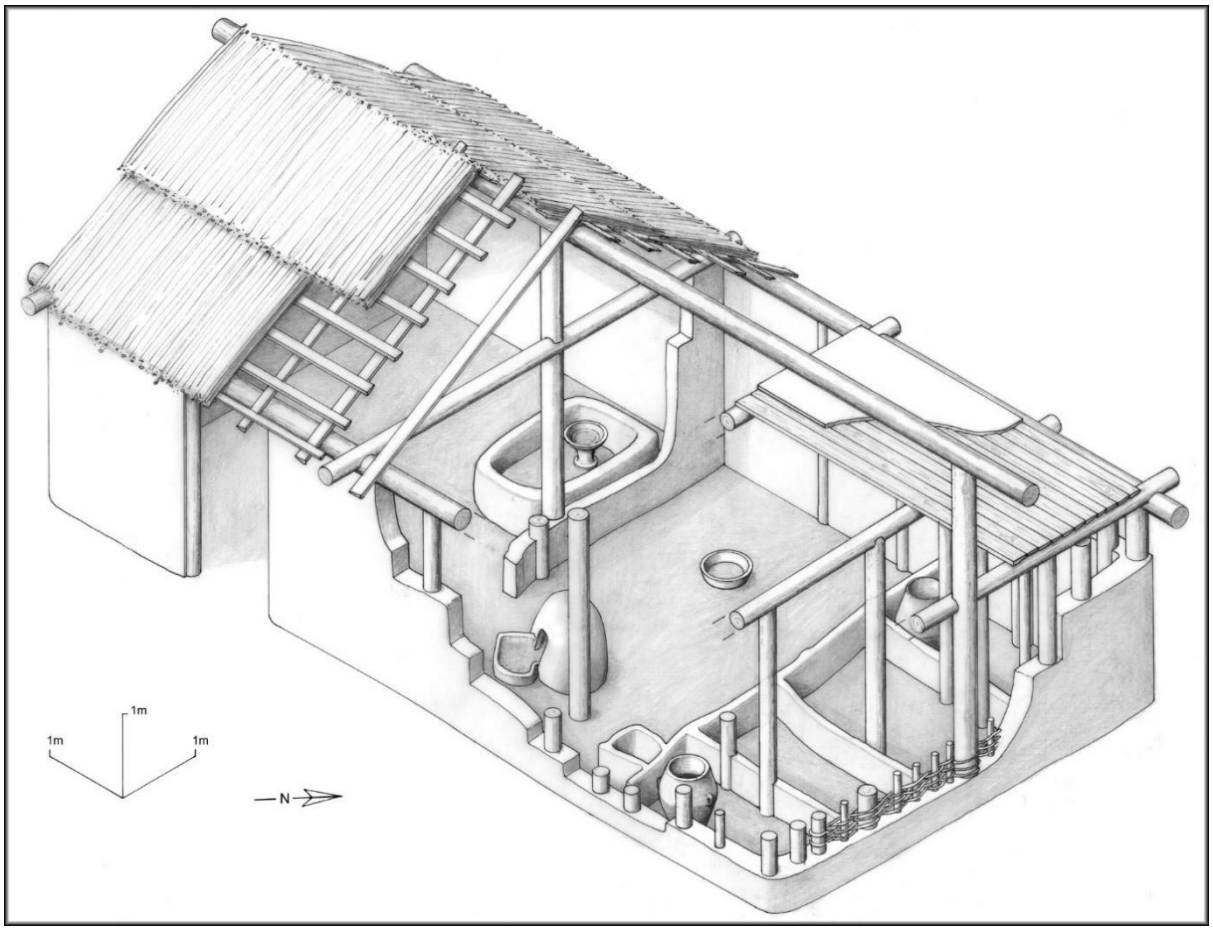

Fig. 41. Graphic reconstruction of House H2b-11at Uivar – Gomilă (after Drașovean, Schier 2010: Fig. 18).

Trench XI was located in the southwestern part of the settlement's core area, where the geomagnetic survey identified a strong rectangular anomaly. The archaeological investigations there revealed a sequence of three superposed houses – two burned examples separated by an unburned one (Schier 2006, 327).

The lower burned house (H2b-11) was less affected by later pits and could be reconstructed (Fig. 41). The house was oriented WSW-ENE, measured about 10 x 5 m, and had a

framework of massive posts. The research also revealed that it had a second flooring (upper story) which covered three thirds of the house. The ceiling was constructed from split and circular wooden rods plastered with loam. The ground floor was divided into three rooms. In the southwestern room, close to the internal wall, a large rectangular hearth with rounded corners surrounded by short walls (40 cm) was located. Within the hearth stood a pot made of building loam, which could not have possessed a functional role. The central room had in each of the corners a fire hearth, while a grinding stone and several vessels were found on the floor. The northeastern room was divided into four compartments by short walls. Two large vessels, a bovidae horn, a ceramic bucranium, a turtle shell, a burnt stone adze, and fragments of square pillar-like socle were discovered in these compartments. All these features and the little space left for domestic activities led the researchers interpret it as a house with a special (ritual) function (Schier 2006: 237-238; Drașovean, Schier 2010: 176). The discovery of a broken human-face-sized ceramic mask, figurines, and densely packed large cattle bones deposited within the foundation trench indicate that rituals were performed during the construction of the house (Schier 2006: 327; Schier 2008: 60-61). In our opinion within this house, as in most houses, both ritual and household activities were carried out. Rituals were performed at the founding of a house, throughout its life, and at its abandonment.

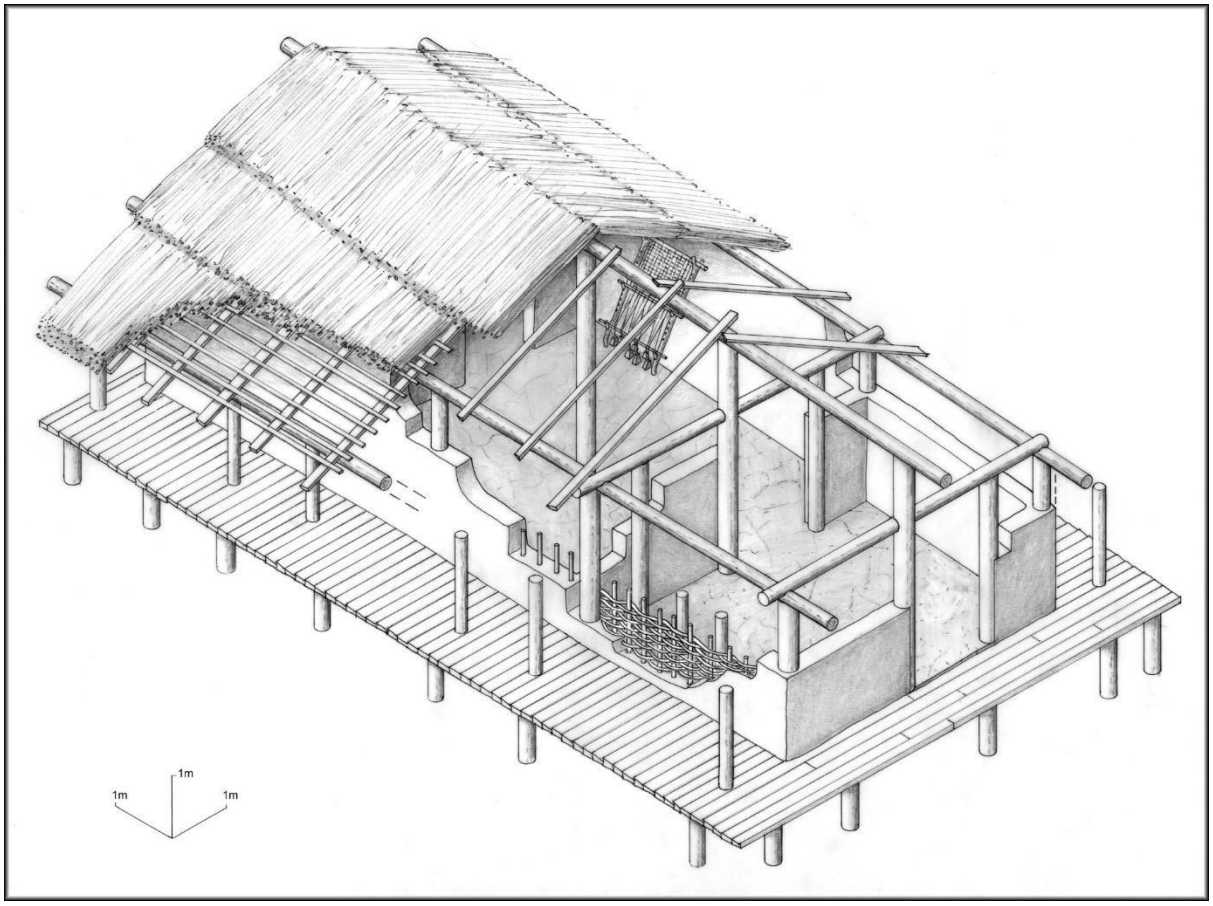

Fig. 42. Graphic reconstruction of the burnt house investigated in Trench XV (after Schier 2009: Fig. 10).

A house identified by the geomagnetic survey northwest of the mound was archaeologically investigated (Trench XV) and dated to a later subphase of the Vinča C Culture, when the tell was uninhabited (Schier 2014a: 33). The house was large, measuring 11.9 m by 5.3 m, and consisted of massive daub remains like those found on the tell (Fig. 42). Its interior was

divided into three rooms of almost equal size and numerous vessels were found within them bearing traces of secondary burning. In addition, several conical weights indicating the location of a loom were attested within the central room. The floor consisted of a thick layer of loam laid over a carefully worked, massive wooden platform of split wooden beams, which had a width of ca. 28 cm. In this trench, unlike those on the tell where, due to the overlapping structures, all the features (e.g. postholes) of a house cannot always easily be separated out, no other constructions existed, permitting detailed observations to be made. On the basis of the crack pattern of the burnt floor, the distribution of fragments of the floor, and the presence of a row of posts outside the house, it could be identified that the wooden platform was elevated a few decimeters from the ground. This design is interpreted as representing a measure of protection against flood, as the house was located in the open, floodable plain. Southeast of the elevated house, a second structure lacking massive daub remains was attested. Due to its lighter character, it was interpreted as a cottage, although it is uncertain as to whether the two structures were contemporaneous or not (Schier 2009: 221-222; Schier 2014a: 32-33).

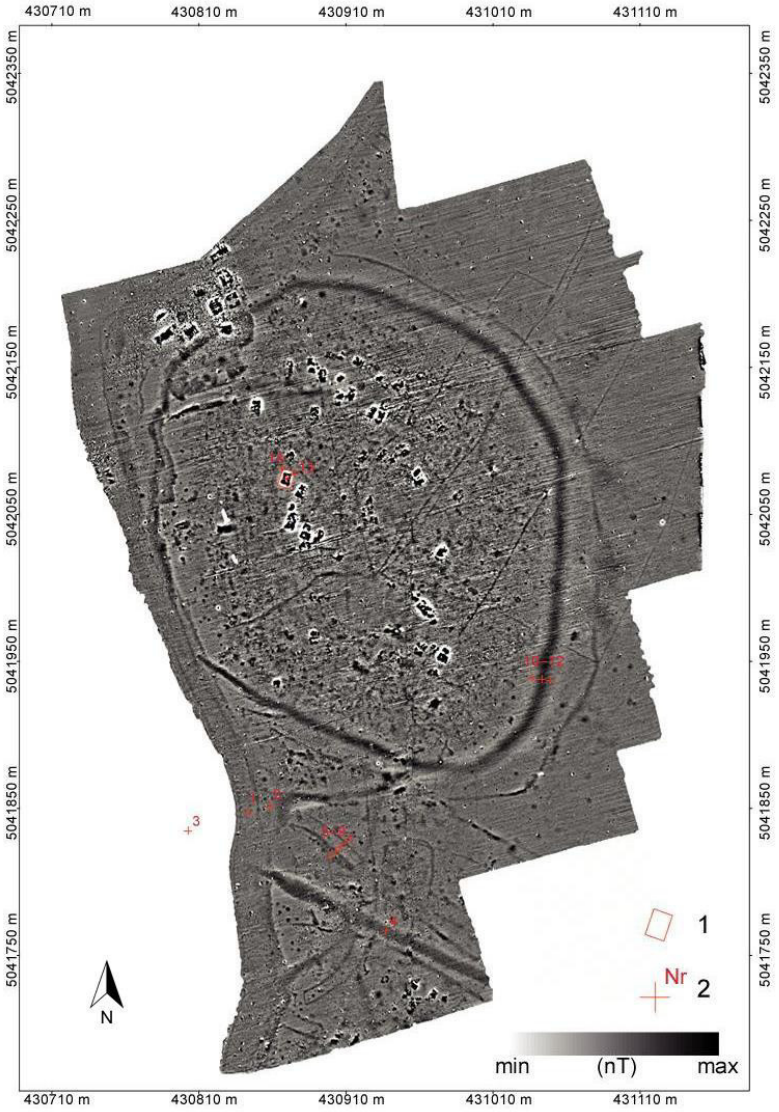

Fig. 43. Magnetogram of Novi Bečej – Borđoš (after Medović et al. 2014: T. 2).

New insights into the Late Neolithic intra-settlement spacing were achieved by means of interdisciplinary research at Novi Bečej – Borđoš. The geomagnetic survey conducted over an area of 18 ha (Medović et al. 2014) revealed the existence of two enclosures – a larger one in the north, and a smaller one in the south (Fig. 43).

The larger one has an oval shape and consists of two ditches encircling an area of 7 ha. The inner marks the edge of the settlement mound and was 8-9 m wide and over 5 m deep as determined by core drilling. The outer ditch was only ca. 3 m wide. At the western and northwestern part of the site, both ditches were affected by erosion caused by the river. On the magnetogram numerous strong anomalies (some with rectangular form) are visible within the enclosure, representing burned houses. They were laid out in radial to elliptical rows, and their orientation varied between north-south and northeast-southwest. The houses were 7.7 to 9.9 m long (mean: 9.1 m), and 4 to 6.3 m wide (mean: 5 m).

The smaller earthwork appears on the magnetogram as two concentric semi-circular ditches, which originally most probably formed an enclosure, but the western part of which is today eroded. Both ditches were ca. 2 m wide, and were disposed at a distance of 7.5 m from each other. Core drilling revealed that the inner ditch was 3 m deep, while the outer one was 2 m deep. Assuming that the enclosure was originally circular, it would have encircled an area of ca. 1.3 ha. The entrance was located in the southern part of the structure, as is indicated by an interruption of the ditches. Within the enclosure, several circular anomalies appear, likely representing dug-in structures, while in its exterior, to the southeast of were detected strong rectangular anomalies representing burned houses. Currently, the chronological relationship between the two defensive systems and the houses located beyond the enclosures has not been established.

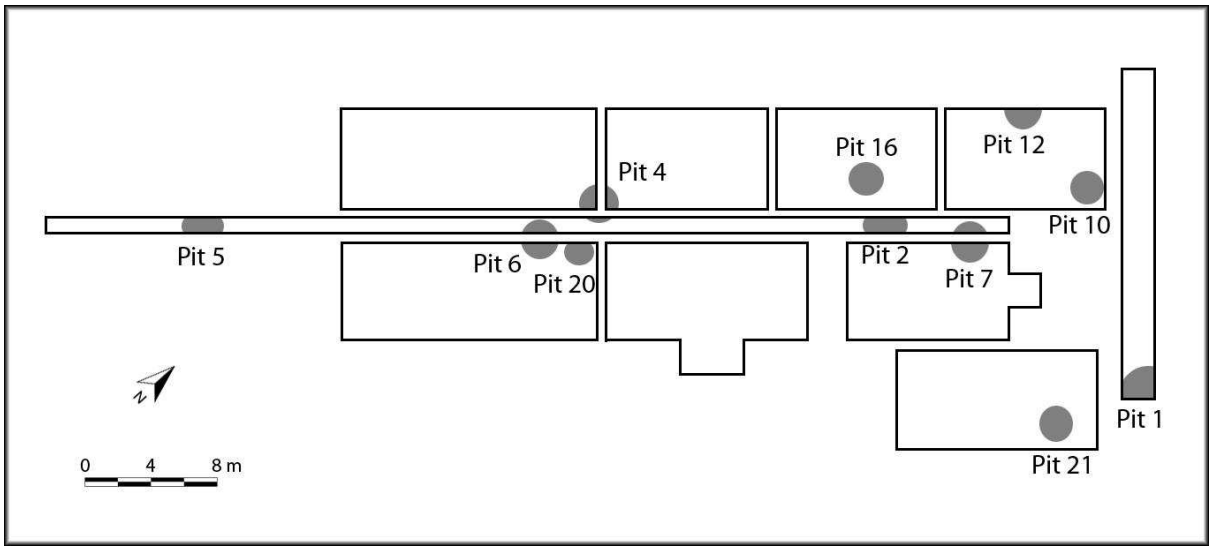

Fig. 44. Distribution of the Vinča C pits at Hodoni – Pocioroane (adapted after Drașovean 1995: Fig 3).

The large-scale excavations at Hodoni – Pocioroane revealed the presence of twelve large dug-in structures (Fig. 44) associated with Vinča C pottery, which are interpreted as pit-houses (Drașovean 1995: 58-59). Pit 1, only partially uncovered, had a circular or oval shape and was 0.70 m deep. Pit 2 had a diameter of 2.4 m, vertical sidewalls, and was 1.5 m deep. Pit 4 had a circular shape with a diameter of 2.8 m and a depth of 1.5 m. It had vertical sidewalls with steps on the eastern part where the entrance was located. On the bottom of the

pit, ashes were attested to the north, which were interpreted as traces of a hearth. Pit 5 had an oval shape with a diameter of 2.5 m, a depth of 1.3 m, and vertical sidewalls. Pit 6 had a circular shape and vertical sidewalls. It had a diameter of 1.8 m and was 1 m deep. Pit 7 had a circular shape, a diameter of 3.4 m and a depth of 0.8 m. In its eastern side steps were attested, indicating the location of the entrance. Pit 10 had a circular shape, a diameter of 2.2 m and a depth of 1.2 m. It had vertical sidewalls with the exception of the northern side, where it had a shallow recess, and where an accumulation of ashes was attested, indicating the location of the fireplace. Pit 12 had an oval shape, a diameter of ca. 2.4 m, and a depth of 1.5 m. One oblong sidewall had steps, while the opposite one was curved outwards (recessed). At the bottom, a layer of ashes was attested. Pit 16 had an elliptical shape and was 2.5 m long, 2 m wide, and 1 m deep. The eastern side of the pit was stepped. Pit 21 had a diameter of 3.5 m and a depth of 1.8 m. Its sidewalls were vertical, with two steps on the northeastern side. In the western part of the pit, a layer of ashes was attested.

The archaeological investigations at Chișoda – Gomilă revealed the existence of pit-houses in the lower layer, and surface houses in the upper layer (Drașovean 1996: 34-36). The pit-houses were of an oval or circular shape, a diameter of 1.5-2.5 m, and a depth of 1 m. No fire installations were attested within the pit-houses, but traces of ash were found at their margin. The surface houses from the second layer possessed a rectangular form with a length of 4-6 m and a width of 2-3 m. Their floor was ca. 20 cm thick (Drașovean 1996: 36).

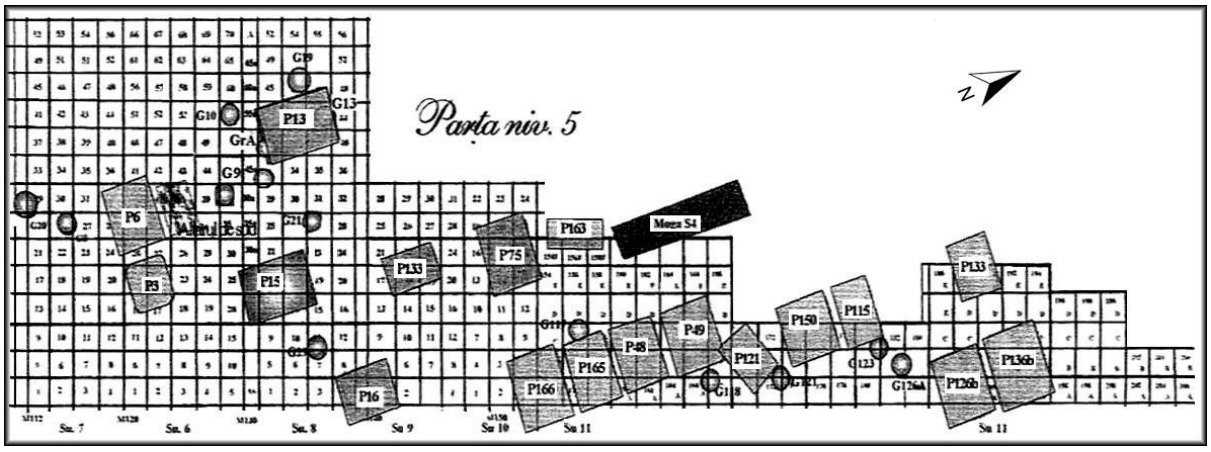

Fig. 45. Settlement plan of Parța – Tell 1, construction phase 5 (after Drașovean 2007b: 28, Fig. 9).

In the Late Neolithic, Parța – Tell 1 was briefly occupied (Vinča C/Banat Culture III) (Drașovean 1996: 32). During this period, the fortifications constructed in the Middle Neolithic were abandoned, and the houses expanded beyond the ditches (Drașovean 2007: 21). The architecture consisted of surface houses and pit-houses (Fig. 45). The surface ones had the orientation like in the Middle Neolithic, but their size was smaller: P44b (2.20 x 1.80 m), P19 (7.5 x 6 m), P 129 (3 x 4 m). Pit-house B23 had a rectangular form with rounded corners. It was 2.5 m wide, 3.5 m long, and 0.5 m deep. At its bottom were attested one large and two smaller postholes. Pit-house B158 had the dimensions of a 2.8 m length, 2 m width, and 0,5 m depth, and its sides were slightly rounded (Lazarovici et al. 2001a: 171-180). Large pits, usually appearing in pairs, were not only discovered in the vicinity of the buildings, but also in unconstructed areas. Their role, however, could not be determined (Lazarovici, Lazarovici 2006: 489-490).

During the investigations at Parța – Tell 2, several surface dwellings were attested (Drașovean 1996: 37). They were recognized by the presence of hearths and concentrations of vitrified daub fragments and ashes. However, no traces of plastered floors, postholes and foundation ditches were found, and therefore the dimensions and the orientations of the houses remain unknown. The hearths were circular and their floors had three re-plastering layers. Gheorghe Lazarovici and Magda Lazarovici (2006: 489) mention the discovery of large surface dwellings and two pit-houses at the site. The surface dwellings were identified by their deep post-pits, one of which had rectangular form and was 0.20 m wide and 1.2 m long. The first pit-house (B1/2001) had one rectangular room (2.9 x 3.3 m) and another circular room (diameter: 1.6 m), while the second pit-house (B2/2009) consisted of a 0.9 m rectangular pit with straight sides. The pit was only partially caught in the trench and just the dimension of one of its sides (2.4 m) was determined. The drainage channels excavated through the site of Parța – 3 allowed stratigraphic observations over several kilometers to be made. The settlement was 2-3 km long and consisted of clusters of 2 to 4 surface houses, whose long axis had a NE-SW orientation. Hearths were attested in their interiors (Lazarovici et al. 2001a: 61). At Sânandrei – Ocsaplatz, remains of surface houses were attested. These consist of hearths and concentrations of daub fragments and ashes but, as at Parța – Tell 2, no traces of plastered floor, post holes or foundation ditches were found (Drașovean 1996: 37).

b) Tisa Culture

At Hodoni – Pocioroane the remains of eight surface houses were identified (Moga, Radu 1979: 231-232; Draşovean 1995: 70-75), of which four captured in their entirety within the trench. With only small deviations, all possessed a NW-SE orientation. The lack of geophysical investigations and the limited excavated area compared to the extent of the site allows only preliminary interpretation of the spatial distribution of the houses (Fig. 46). It appears that they were clustered (probably two by two houses) and these clusters lay ca. 6 m from one another. Such groupings of houses might suggest a kinship relation among their respective inhabitants. All houses were burned; however, they were located only at about 0.30 m below the modern surface, and thus most of them were damaged by modern ploughing. The houses were constructed in the wattle-and-daub technique, had rectangular shape, and were one-roomed. They had the following dimensions: 4.20 x 5 m (House 1); 4 m width (House 2); 5.1 x 4.8 m (House 3); 5.2 x 6 m (House 7).

The floor of these houses consisted of a layer of clay applied over a wooden platform made of split trunks. The trunks had a diameter of 2-8 cm and were disposed along the long axis of the house with the split part towards the ground. A slight difference was noticed at House 3; there, the clayey floor was constructed over a wattle-work overlaying the wooden platform. It is assumed that this wattle-work offered better resistance against cracking. Outstanding is also the floor of House 7, which was thicker and was constructed over a massive wooden platform. Pits with bell-like cross-section, interpreted as storage pits, were attested within Houses 1, 3, and 4. The first example was located in the eastern corner of the house, had a diameter of 0.8 m, a depth of 0.81 m, and plastered sidewalls. The second was located in the center of the house, had a diameter of 0.60 m, a depth of 0.6 m, and a slightly concave bottom. The third pit was located at the eastern side of the house, had a diameter of 0.45 m, and a depth of 0.70 m. The area of the corner of House 1 was enclosed on one side by a thin and most probably short wall which running parallel to the southwestern wall of the house at a distance from it of 1.4 m. Three querns were attested in this area, and over fifty ceramic balls, indicating that it was intended for certain household activities. From the walls, only

separate daub fragments with impressions of wattle were preserved. Vessels, querns, and other small finds with traces of burning were found within the houses.

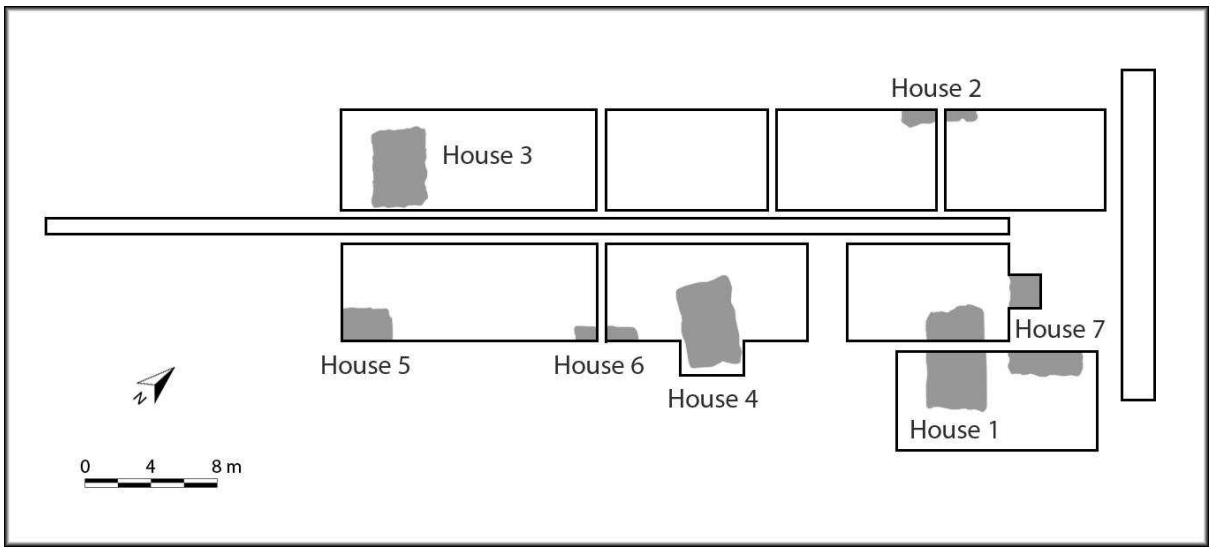

Fig. 46. Distribution of houses at Hodoni – Pocioroane (adapted after Draşovean 1995: Fig 3).

At Tiszasziget – Agyagbánya, the unburned remains of a long house were uncovered. The house was SW-NE oriented, had a width of 5.5 m, and its interior was divided into at least two rooms. Within the infilling of a central post-hole, three complete ceramic vessels were discovered alongside a fragment of a grinding stone deposited next to the post (Pópity 2008). One of the vessels contained traces of food made of cereal flour (see Chapter VI). This feature was interpreted as a building sacrifice (Pető et al. 2013: 67-68).

According to the report (Banner 1960), most of the structures discovered at Čoka – Kremenjak are associated with Tisa style pottery. In 1907, Ferenc Móra uncovered the remains of three burned houses, which he interpreted as ovens. The houses had the following dimensions: 4.5 x 4.5 m, 3 x 3 m, and 6 x 2 m, while the daub fragments of the walls were ca. 10 cm thick (Banner 1960: 14-15).

In the same year, in a previously affected area, three consecutive burned layers containing a large quantity of burned daub fragments were attested. Some daub fragments displayed impressions of posts with a diameter of 20 cm (Banner 1960: 16). Within the second trench excavated in 1908, four pit features were discovered. The first one had a diameter of 1.80 m and a depth of 2.20 m, the second one had a diameter of 2.10 m and a depth of 1.80 m, the third one had a diameter of 1.80 m and a depth of 2 m, while the fourth feature consisted of two pits linked by a 0.40 m wide ditch. The pits had a diameter of 1.80 m and a depth of 2.20 m. Judging by the size of the pits, it might be assumed that they were pit-houses. The third pit was surrounded by a 0.40 m wide and 1.40 m deep ditch, which was located at a distance of 80 cm from the pit. Another ditch, 0.40 m wide and 4 m deep, was located between the second and the third pit (Banner 1960: 17). The first ditch could have been part of a construction related to the third pit, but the role of the second ditch remains unknown. The second, third, and fourth pit features contained pottery made in the Tisa style. In the third trench excavated during the same year, two pits were attested. The first one was 1 m deep and had a diameter of 1.30 m at its top, while the second one was 0.80 m deep and had a diameter of 2 m. A 0.60 m wide and 1 m deep ditch was located to the south (Banner 1960: 17).

During the second excavation campaign in 1911, seven features were attested, of which six are dated to the Late Neolithic. The first one consists of a burnt structure (dwelling) only partly caught within the trench. The unearthed part was 2 m long, 0.90 m wide and 0.10 – 0.15 m thick. Below this burned structure, a layer of sand and ashes was attested. The second feature consists of a burned structure (dwelling) with an oval shape, overlying a layer of sand and ashes. It is 3.50 m long, 2 m wide and 0.10-0.15 m thick. Some of the discovered daub fragments display imprints of posts. The third feature is a burned structure (dwelling) that lies over a layer of sand and ashes. It is 3.70 m long, 2.50 m wide, and 0.20 m thick. The fourth feature is another burned structure (dwelling) built on a layer of sandy ashes, which was only partly captured within the trench. Its unearthed part was 2 m long, 0.50 m wide, and had a thickness of 0.20 m. Among the discovered daub fragments, some display imprints of laths. The sixth feature is also a burned structure (dwelling) the destruction layer of which was 7-8 cm thick and superimposed a Middle Neolithic pit with ashes. Some of the daub fragments from the walls had imprints of wattle, laths, or posts on the inner side, while displaying linear decoration similar to that on pottery on the outer side. In addition, daub fragments of large (storage) vessels and compartments for storage were attested. In the central part of the house, two connected "cauldrons" resembling a "3" were discovered *in situ.* The northern "cauldron" had a diameter of 1 m. It is likely that this structure was an oven constructed in two phases, or an oven with two chambers. The seventh feature is a 7 m long, 4 m wide, and 1.5 m deep pit which can be interpreted as a pit-house. The large concentration of finds within its infilling indicate that after its abandonment it served as a refuse pit. The eight feature represents a burned structure, the southern and eastern parts of which remained beyond the trench's borders. The exposed part had a diameter of 7 m (diagonally), and, in its central part, a triple "cauldron" was discovered, the interior and the area around it of which were plastered. This house was also constructed over a large pit with ashes (Banner 1960: 21-23).

During the construction of the dam at Srpski Krstur – Bajir remains of surface houses were discovered, which initially were interpreted as hearths (Felix Milleker 1893a: 304). Due to the fortuitous character of the discovery, however, the houses do not have a reliable dating[31] and on the basis of Luka Nadlački's observations (see above) we hypothetically assume a Late Neolithic dating. The houses were found in two different areas of the site. In the western area, marked with "w" in the original publication, seven houses disposed at a distance of 1.5 m from one another were found. They were 3 m wide and 4 to 4.5 m long. In the eastern area, marked with "z-y" few other houses disposed at a distance of 10 to 30 m were discovered.

In the wider orbit of the Tisa Culture, west of the study region, tell settlements surrounded by ditches (Horváth 1989: 89-90), and with densely constructed surface houses (Makkay 1991: 320) were attested. The houses were of a sturdy wooden construction with a floor built upon on a wooden platform (Kalicz 1998c: 310). Their dimensions varied from 7 x 3.5 to 18.5 x 8 m, and they had up to three rooms (Makkay 1991: 324-325).

c) Foeni Group

Currently, very little is known regarding the internal spatial organisation and architecture of settlements belonging to the Foeni Group. Examination of satellite imagery of the settlement mound Diniaș – Gomilă revealed the presence of a ditch encircling it, which was later

[31] Felix Milleker (1893: 305) mentions that six Tiszapolgár type vessels were discovered next to one "hearth", however it is unlikely that a stratigraphic connection between them existed.

confirmed in a field survey. During the survey, traces of at least two burned houses were also identified on the surface (Rogozea 2016: 14). At Moşniţa Veche – Dealul Sălaş, a geomagnetic survey was conducted, leading to the location of numerous archaeological features being revealed (Fig. 47); nevertheless, their interpretation is hindered by the multiple occupations of the site.

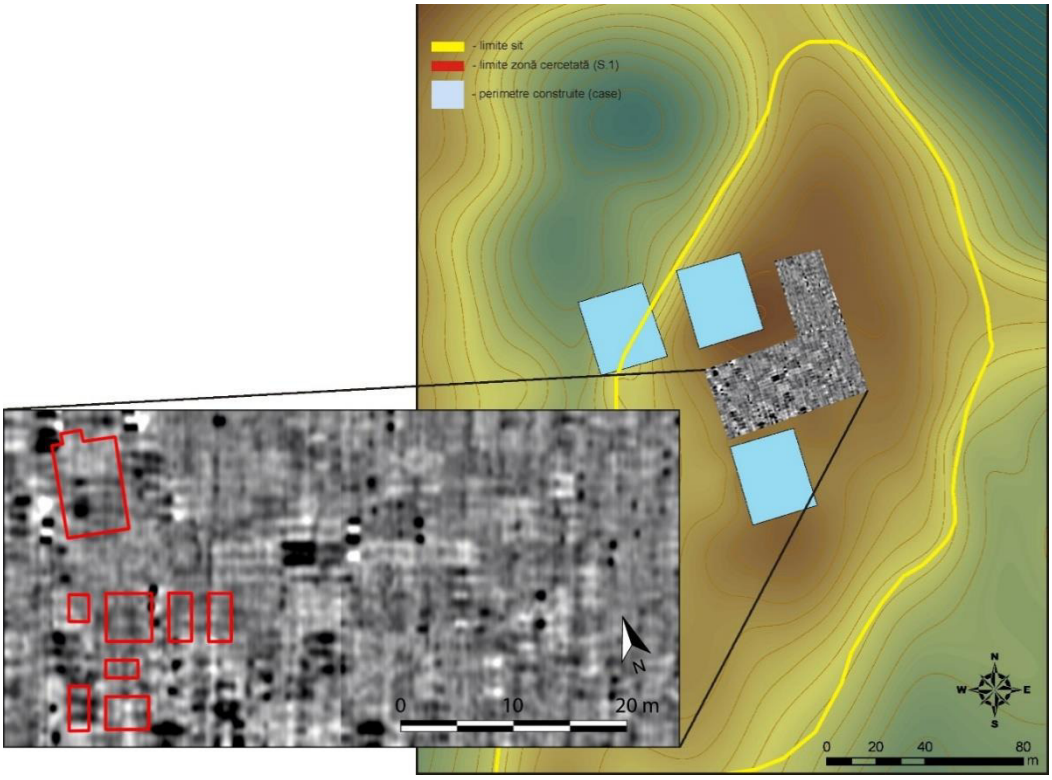

Fig. 47. Magnetogram of Moşniţa Veche – Dealul Sălaş plotted on a topographic map (adapted after Floca 2016: 32-33).

Fig. 48. Pit-houses at Moşniţa Veche – Dealul Sălaş (after Floca 2016: 61).

The archaeological excavations carried out in the southwestern part of the area geomagnetically surveyed yielded several pits with Foeni style pottery, two of which (Features 42 and 47) were interpreted as pit-houses (Fig. 48). According to stratigraphic observations, the eastern one is older and was already abandoned when the western pit-house was inhabited (Floca et al. 2016: 61). Pit-house 42, which was entirely captured within the trench, had a more or less round shape with a diameter of ca. 3 m. After their abandonment, both pit-houses were filled with a large quantity of potsherds and other finds. Within the upper layer (III) of the site of Chișoda – Gomilă, traces of surface houses were attested; these were smaller in size than those discovered in the second layer. They did not have plastered floors and could be identified by the presence of reddish soil and the accumulation of ashes, finds, and daub fragments (Drașovean 1996: 36).

The archaeological excavations carried out at Foeni – Cimitirul ortodox, Parța – Tell II and Timișoara – Ronaț (Suciu 2015) revealed remains of several burnt surface houses. At Parța, it was noticed that the houses from the second part of the Late Neolithic were less massive and less well preserved than those from the first part of this period[32]. The results of these investigations, however, are not yet published.

4. Early Eneolithic

The most comprehensive understanding of the Early Eneolithic intra-settlement structure in the study territory is provided by the research at Cornești – Reiter (Szentmiklosi et al. 2011: 832). The geomagnetic survey conducted there revealed a Tiszapolgár settlement with a system of four concentric ditches (Fig. 49).

Fig. 49. Magnetogram of Cornești – Reiter plotted on a topographic map (after Szentmiklosi et al. 2011: 831, Fig. 14).

The inner ditch encloses the core of the settlement with an area of ca. 1 ha, while the outer ditch encircles an area of more than 3 ha. The magnetogram indicates the presence of numerous burnt structures (houses) within the inner ditch; however, such structures are also present between the ditches and on the ditches themselves. This indicates that the settlement

[32] Dan Ciobotaru, pers. comm., 07.04.2016.

has several phases of occupation (probably from different periods) and additional investigation is necessary for its interpretation.

The extensive archaeological excavations at Parța – Tell 1 revealed an Early Eneolithic occupation layer in the central and southern part of the tell, albeit thin and discontinuous (Lazarovici et al. 2001a: 181). In the central part of site, two long U-shaped ditches (S121 and S17), interpreted as foundation of a palisade, were identified (Fig. 50). They are believed to connect in the unexcavated western part of the site. The first one, investigated over a short area, was 56-60 m wide and had posts disposed at a distance of 1.50 m from each other (Lazarovici et al. 2001a: 190), while the second one, investigated over 15-18 m, was 0.30-0.40 m wide. One of these ditches, as is indicated in the sketch, cuts one of the Early Eneolithic houses, and it should therefore have been constructed in a later construction phase. In the southwestern periphery of the settlement, not far from the old river bed, another ditch (S17b) was identified and was also interpreted as remains of a palisade. Within it, a deep posthole was attested (Lazarovici et al. 2001a: 184-185).

The investigations also revealed the remains of 14 burned surface houses, of which the dimensions of seven could be established: House P1 (3.5 x 2.5 m), House P2 (5 x 4 m), House P14 (2 x 4 m), House P30 (3 x 2.5 m), House LX1 (3.5 x 2.5m), House LX2 (2.5 x 3.4 m), and House P119 (2 x 1.60 m) (Lazarovici et al. 2001a: 181-189; Lazarovici, Lazarovici 2008: 253; Lazarovici et al. 2006: 8-11). The houses had two main orientations – NE-SW for those located north of the palisade, and SE-NW for those located south of it. The houses were constructed more or less akin those in the previous periods, but the daub contained much less organic temper. The walls had foundation ditches and large posts (Lazarovici, Lazarovici 2008: 253-254). Four pit houses were attested, of which the dimensions of two could be determined. Pit-house B14 had a reniform shape and was 5.5 m long, 2.5 m wide, and 0.35 m deep. Postholes were attested in its vicinity indicating the presence of posts supporting the roof (Lazarovici et al. 2001a: 185). Pit-house B13 consisted of a smaller pit (1.50 x 1.60 m), but, besides the pit, its roof covered also an adjacent area of similar size (Lazarovici, Lazarovici 2008: 262-263).

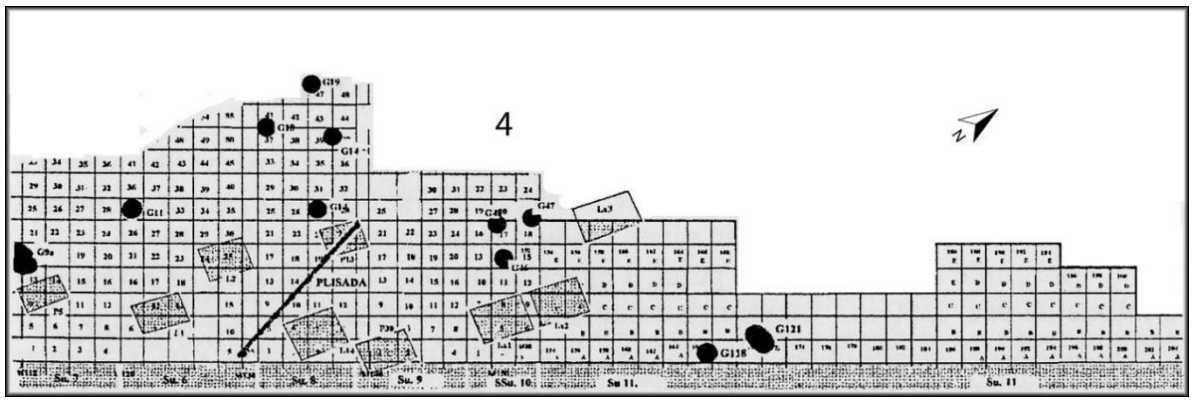

Fig. 50. Settlement plan of Parța – Tell 1, construction phase 4 (after Lazarovici et al. 2005: Fig. 12b).

As previously mentioned, within Trenches VII and XIII at Uivar – Gomilă, one of the ditches encircling the tell was investigated, which was found to have been constructed in the Late Neolithic and excavated once more in the Early Eneolithic. During the later period, the trench had two construction phases. The first phase possessed a V-shaped cross section and was about 3 m deep. Its width could not be determined with certainty due to the later excavation, but it is likely that it was ca. 3.5 m. In the second phase, it had a U-shaped cross section almost 4 m wide and 1.5 deep (Schier, Drașovean 2004: 159-160; Schier 2014a: 31). It seems

that the settlement shifted slightly to the south during this period, as is indicated by the three burnt structures (houses) visible on the magnetogram, the long axis of which was disposed perpendicularly to the ditch. Therefore, it is highly likely that these structures are from the Early Eneolithic. They were ca. 6 m long and 4 m wide. Within Trench XI, a few pits and a foundation trench were attested which seem to belong to a surface house disturbed by a medieval well. It is likely that the house had the following dimensions: 6.1 x 4.5 m (Diaconescu 2009b: 147-153).

The investigations in the northern area of the site of Crna Bara – Prkos yielded remains of two burned and one (or two) unburned houses as well as four ovens. The houses had a NE-SW orientation, but, due to the limited excavated area, their dimensions could not be determined. The unburned houses were identified by their foundation trenches, which were filled with yellow soil. According to the researchers, one of the ovens was located within one of the burned houses, while the remaining three were found separately. In their vicinity, however, were found daub fragments, suggesting that they could have also been located within (unpreserved) houses. The ovens had 2 or 3 layers of re-plastering of their floors (Гарашанин, Гарашанин 1957: 201-202).

At **Parța – 5,** a long ditch (ca. 5 m investigated) was attested, which probably dates to the Early Eneolithic. It had two construction phases and is interpreted as the foundation ditch of a palisade. The ditch was 0.40 m deep, and had several pits, which were probably for posts (Lazarovici et al. 2001a: 63-64; Lazarovici, Lazarovici 2008: 264).

In the wider area, extensive excavations revealed that the settlements consisted of 10-15 houses disposed in small groups (Kalicz 1998a: 33).

5. Middle Eneolithic

Within the study region, only one settlement from this period was investigated – Crna Bara – Prkos. Within its upper layer (1) belonging to the Bodrogkeresztúr Culture (Brukner 1974b: 132), the remains of four burned houses and an oven were identified. The house remains consist of large concentrations of burned daub pieces and, in one case, postholes. The houses were constructed in the wattle-and-daub technique, and had a NE-SW orientation. Nevertheless, their dimensions could not be determined due to the limited extend of the excavated area. The investigated oven was apart from the house remains (Гарашанин, Гарашанин 1957: 201).

In the wider region, the number of discovered settlements is low, their cultural layers quite thin (Luca 1999: 13), and their area small – ca. 1 ha (Kalicz 1998a: 334). The houses continue to be small in size and to have less solid constructions, making them less durable (Luca 1999: 14).

6. Late Eneolithic

At Timișoara – Freidorf IV five dug-in structures were uncovered – three interpreted as pit-houses and two as storage pits (Mare 2011: 15-16). The first pit-house (Feature 7) had an oval shape and sloping walls. It was 2.70 m long, 2.10 m wide, and 1 m deep. The second pit-house (Feature 14) had a rectangular form with rounded corners. It was 2.10 m long, 0.77 m wide, and 0.95 m deep. The third pit-house (Feature 30) had also a rectangular form with rounded corners. It possessed the following dimensions: 3 m length, 2.60 m width, and 1.40 m depth. The first storage pit (Feature 1) had a circular shape, oblique sidewalls, a diameter of 2.20 m, and a depth of 1.70 m. The second storage pit (Feature 41) had a slightly oval shape and a pear-shaped cross-section. It was 1.28 m long, 1.12 m wide, and 1.60 m deep. All

the depths presented are measured from the modern surface level and are therefore slightly increased.

At Foeni-Gaz, a surface house was attested dated to the final phase of the Late Eneolithic, the dimensions of which could not be determined due to its poor state of preservation. Within the house, a hearth ca. 60 x 50 cm was located the well-burned plate of which was made of 2-3 cm thick clay plaster (Krauß, Ciobotaru 2013: 44-46). During the archaeological excavations at Tiszasziget – Andróé-alja (Ószentiván VIII), eight pits were evidenced, of which at least one (Pit 1) is from the Late Eneolithic (Tóth 1942: 143-144). The pit had a diameter of 1.20 m and a depth of 1.10 m.

In the neighboring regions, small unfortified settlements with one thin occupational layer were characteristic. The architecture consisted of pit-houses and surface houses, albeit both had small dimensions. Some of the surface houses had two rooms (Roman, Németi 1978: 22-23).

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In the study region, extensive excavations and interdisciplinary methods were only applied in a few cases, the most common excavation method being the test trench. For this reason, the evidence regarding the architecture is far more than that for the intra-settlement pattern.

In the Early Neolithic, both small and large settlements existed. The small ones like Foeni – Sălaș had a simple structure, which consisted of few small pit-houses surrounding a larger one. The large settlements like Sânnicolau Mare – Bucova Pusta IV consisted of a large number of pit-houses distributed into clusters. In general, the settlements were not occupied for very long period, and this is even more pronounced for the smaller ones. An exception is posed by the settlement Dudeștii Vechi – Movilal lui Deciov, which has two consequent Early Neolithic occupations.

During this period, the common house type was the pit-house. Pit-houses were excavated at ca. 1m below the surface and generally were small (less than 20 m^2), which suggests that they were occupied by a single family. On their floor, a hearth or an oven used for cooking and heating in the cold seasons was usually located. Although surface houses are known, as is evidenced by the example discovered at Aradac – Leje and few others in neighboring regions, they were not preferred by the Early Neolithic communities. The short occupation of the settlements and the use of pit-houses reflect the semi-mobile character of these communities. The spatial analysis indicates that economic activities were conducted on the household level.

In the first part of the Middle Neolithic (Vinča A), a strong continuity in the settlement structure and architecture from the previous period existed. The settlements ware small and consisted of pit-houses. This type of architecture, which is common for a mobile lifestyle, was also present in the region north of the River Mureș within the ALP Culture (Horváth 1989: 87).

In the second part of the period, several large transformations in the settlement structure and architecture occurred. The settlements became inhabited for a longer period and often were enclosed by several concentric ditches, with the outer one enclosing an area several times larger than that of the settlement. The construction and maintenance of such a system required an enormous labor force and much organization. This enclosure, however, prevented the settlements from expanding, and over time they became densely constructed with narrow streets.

Within architecture, a transition from pit-house to surface house took place. The surface houses with a massive wooden structure appeared in the beginning of the second part of the Middle Neolithic, but, as evidenced in the earliest construction phases at Parța – Tell 1 and Bucovăț – Cremeniș, pit-houses were still in use although they were not numerous. In the following construction phases, however, the pit-houses were replaced almost completely by surface houses. In the first construction phase of Parța – Tell 1, the houses were small and disposed randomly. In the following phase, some of the houses increased in size, while others maintained the dimensions characteristic for the previous phases; all became organized according to a carefully conceived plan. In the following two phases, the large houses with two rooms became more frequent, the streets became narrow, some houses were clustered in blocks of 4-5 houses, and the tendency of constructing vertically appeared as indicated by the more frequent occurrence of a second story. Another innovation in the architecture could be the appearance of structures reserved primarily for spiritual activities as is believed to be the case for Sanctuary 2. The spatial distribution of the finds at Parța – Tell 1 indicate that the economic activities continued to be conducted on the household level.

Without a doubt, the changes in the structure of the settlement indicate that societal transformations occurred. Firstly, the gradual increase in the density and size of the houses as well as the tendency of constructing vertically indicates a steady increase in the population. Secondly, if the pit-houses and the small surface houses were inhabited by a single family, the large double- or triple-roomed houses with upper stores encompassed one large family of several generations (grandparents, parents, and children) or a few kin families. In general, this cohabitation would imply a kind of internal hierarchy, as it is likely that the elders would have more authority in the house. Finally, it is likely that living in a large house was prestigious, and this means that the families living in these houses acquired a higher social status. On the basis of these considerations, it is reasonable to assume that in the second part of the Middle Neolithic an incipient social differentiation emerged.

In the first half of the Late Neolithic (Vinča C), the intra-settlement organization was very similar to that from the second half of the Middle Neolithic. The densely settled, carefully planned, and fortified tell settlements continued to exist. In addition, the settlements increased in size and their fortifications became more complex. A continuity with small changes also exists in the architecture. The surface house with 2-3 rooms and upper floor continued to be the most common type, but, as attested at Parța – Tell 1 and Uivar – Gomilă, a decrease in the average size of the houses took place and a less massive framework (posts and poles) was used for their construction. The differences in the size of the houses within the settlement continued to exist, as is evidenced at Uivar – Gomilă, where most houses had the area of ca. 40 m^2 size, but some had an area of 50 m^2 (the houses in Trench XI), or over 50 m^2 (House 373). This contrast between small and large houses suggests that the incipient social differentiation which started in the second part of the Middle Neolithic continued to exist in the first half of the Late Neolithic. The sequences of superposed houses with the same dimensions and orientation show that there was a strong building continuity.

In the second half of the Late Neolithic, a good continuity in the settlement structure and architecture from the first part of the period existed. The tell sites continued to be occupied and fortified with ditches. The houses were constructed in the same manner, but a decrease in their size may be noticed. At Hodoni – Pocioroane, the size of houses varied between 21 and 31.2 m^2. The still very scarce evidence does not allow the verification as to whether there

were some differences between the settlement structure and architecture of the Foeni Group and that of the Tisa Culture.

In the study region, only few Early Eneolithic settlements are investigated, and, for this reason, the evidence regarding their internal organization and architecture is quite limited. In the Early Eneolithic, the Late Neolithic tradition continued to some degree, expressed in the occupation of the tells, the well-conceived planning of the settlements, and the construction of defensive systems. On the other hand, the settlements became smaller, were occupied more briefly, and, as evidenced at Parța – Tell 1, were less densely constructed. The smaller size of the settlements and the fact that they were less densely constructed indicate that they were inhabited by smaller populations.

The architecture is represented mainly by rectangular surface houses and, to a lesser degree, by pit-houses. The surface houses were smaller than the Late Neolithic ones and most often single roomed. The houses at Parța – Tell 1 had an area of less than 10 m^2, while those at Uivar – Gomilă had an area of less than 30 m^2. This indicates that they were inhabited by a single family.

The Middle Eneolithic is poorly investigated in the study region, and for this reason the interpretations rely primarily on evidence from the neighboring regions. The thin cultural layers and the less solid construction of the houses suggests a short occupation of settlements, which would imply an increased mobility. The low number of settlements (even factoring in increased mobility) as well as their small area indicates a decrease in the population during this period. Houses continued to be small, being therefore inhabited by a single family.

The evidence from the study region regarding settlement structure and architecture for the Late Eneolithic is also very scarce. During the Late Eneolithic, the settlements continued to be briefly occupied, as is indicated by their thin occupation layers and the less solid construction of houses. This short occupation implies an increased mobility.

V. Burial customs

1. Early Neolithic

During the rescue excavation at Deszk – 1 (Olajkút), two graves (Graves 5 and 6) located within the settlement were attested (Trogmayer 1967). Initially both graves were dated to the Early Neolithic (Trogmayer 1969: 7), but later radiometric investigation revealed that only Grave 6 belongs to this period (Whittle et al. 2002: 115). The grave was discovered at a depth of 1.20 m and had a south-north orientation. The deceased was placed in a flexed position on its right side, and several potsherds of different dimensions were deposited over its body (Fig. 51).

Fig. 51. Grave 6 at Deszk – 1 (Olajkút) (after Trogmayer 1969: Abb. 2).

At Tiszasziget – Szélmalom domb, a burial was located between houses, the skeleton lying in a crouched position on its side (Matuz, Béres 2000: 55). At Sânnicolau Mare – Bucova Pusta IV, a child grave located within the settlement was investigated (Diaconescu et al. 2015: 79; Krauß et al. 2018: 160). The child was buried within a depression in close proximity to a large pit-house. No grave pit margins could be identified, and it is unclear as to whether a grave had been excavated, or the deceased was deposed directly within the depression. The burial superposed a layer with concentrations of finds indicating that this depression might have been used as refuse pit before the child was buried there. The skeleton was in a position flexed on the left side, with the head pointing southwards (Fig. 52). At Foeni – Sălaș, no regular graves were encountered, but 11 human bones scattered within the settlement were found (Greenfield, Jongsma 2008: 121, Tab. 2).

Besides the well-dated burials, there are also some with questionable datings. At the surface of the site of Csürü-föld I during a survey, human bones and settlement remains were discovered, albeit disturbed by agricultural activity (Pópity 2006: 108). Since the site displays only Early Neolithic occupation, it is likely that the disturbed grave is from this period.

During the old excavations at the tell settlement of Dudeștii Vechi – Movila lui Deciov, six prehistoric burials were attested as follows: (1) a child skull was found at a depth of 2 m next to which were located several ochre concentrations; (2) a contracted to the side skeleton with

a ceramic weight located beneath its pelvis[33] was discovered at a depth of 0.40 m; (3) a pelvis and the two femurs were found at a depth of 0.60 m, (4) a flexed skeleton on its right side was attested at a depth of 0.80 m, (5) badly preserved leg bones were discovered at a depth of 0.15 m; (6) a skull was found at a depth of 0.30 m (Kisléghi Nagy 1911: 162). The absence of any inventory and the poor stratigraphic observations prevent any precise dating of the burials, however, Ida Kutzián (1944: 94) assumed that the 1st, 4th and the 5th burials are to be dated to the Early Neolithic, and this assumption, despite lacking solid arguments, was accepted thereafter by other scholars (Comșa 1960: 84; Lazarovici 969: 21; Lichter 2001: 394).

The more recent research on the tell site, however, provided new evidence, permitting the reassessment of the dating of these burials. Within Trench 4, located not far from Kisléghi's trench at a depth of 0.60-0.80 m, a habitation horizon was attested, containing Early Neolithic, Middle Neolithic, and Early Eneolithic finds (Ciobotaru 2003). Most probably, this habitation horizon is from the Early Eneolithic, while the Early Neolithic, Middle Neolithic finds are in a secondary position. Therefore, the burials found at a depth down to 0.80 m cannot be older than the Early Eneolithic.

Fig. 52. Early Neolithic infant burial at Sânnicolau Mare – Bucova Pusta IV.

In addition to this, the newer research revealed three additional burials, which, like the previous, lacked an inventory. The first was found within Trench S1 at a depth of 0.90 m. It consisted of a skeleton in a crouched position disposed on the left side with the head pointing towards southeast (Lazarovici, Ciobotaru 2001: 130). The second burial was discovered within the northern part of Trench S5 at a depth of 1.65 m. It had a north-south orientation and contained a skeleton lacking its skull, disposed in flexed inwards on the right side position. The skeleton was radiocarbon dated to the Iron Age[34]. The third burial was found in the southern part of Trench S5, within the earliest layer of the site, at a depth of ca. 2 m. It consists of two fragments of a skull lying at a distance of ca. 1 m from each other (Ciobotaru 2003). During the research, no grave could be identified, and it is unclear whether the skull had been properly buried, or rather was simply discarded there. In stratigraphic terms, this skull may be dated to the Early Neolithic. On the basis of the evidence currently available, it

[33] Most probably, this weight is not related to the burial, but rather is part of the cultural layer into which the grave was dug.

[34] D. Ciobotaru, pers. info.

can be concluded that during the Iron Age, the tell was used as a cemetery, and the 2nd, 3rd, 4th, 5th and the 6th burials of the old excavations, as well as the first two burials of the newer excavations, belong to this period, while the two skull burials found within the lowest layer of the mound are to be dated to the Early Neolithic.

At the site of Aradac – Leje, Radovan Radišić investigated two graves, which, according to Snežana Marinković, are to be dated to the Early Neolithic (Маринковић 2004: 14-15). Of the two graves, however, only one was described in the publication. The skeleton was disposed in an extended supine position with the head pointing southwards. Its length *in situ* was 1.30 m. As its inventory, she reported a vessel with barbotine decoration containing a stone axe. The bottom of the vessel, however, was located at ca. 20 cm deeper than the bottom of the grave. The extended supine position unusual for the Early Neolithic as well as the fact that the two artefacts believed to be inventory of the grave were found de facto below the grave clearly show that this grave is later than the Early Neolithic settlement, and that the grave had been dug within its cultural deposits. Until additional information is published, the question regarding the dating of the second grave remains open.

It could be established within the wider area that deposition on the left side was more frequent, that the most common orientation was east-west (with the head pointing east), and that two thirds of those buried were females (Kalicz 1998b: 259; Lichter 2001: 170-175).

2. Middle Neolithic

From the first part of this period (Vinča A), no burials have yet been found within the study region. However, at Moşniţa Nouă – 7 & 8, a human femur was discovered together with other discarded items in the infill of a pit-house. This discovery led the investigator of the site to presume that excarnation may well have been practiced (Floca et al. 2016: 56).

Burials dated to the second part of the period were attested in three sites. At Parţa – Tell 1, a grave was found on the floor of a house. The skeleton was disposed in a crouched position on its right side (Miloia 1931: 172). The publication, however, does not make it clear whether the skeleton was covered by the destruction of the house, or whether it cut through the destruction layer. Another skeleton was found within House P41. The skeleton was not laid out in a normal burial position, but rather was squeezed in-between the floor and the ceiling of a house, and was severely burnt, which indicates that the deceased was rather caught in a conflagration. In the neck region of the skeleton were discovered several beads leading the investigators assume that the deceased was female (Lazarovici et al. 2001: 131). Within the Trench Alfa East within the same site, a human femur and two phalanges were also found, but no information in regards to their context was provided (Lazarovici et al. 2001: 30). At Novi Bečej – Matejski Brod, one burial was partly captured by the trench at the depth of 1.83 m. The grave had oval shape and contained a skeleton in a flexed position (Hað 1953: 111). As previously mentioned Grave 5 at Deszk – 1 (Olajkút) initially was assumed to be Early Neolithic (Trogmayer 1969: 7), but the radiocarbon dating revealed that it belongs to the Middle Neolithic (Whittle et al. 2002: 115). The grave, discovered at a depth of 1.50 m and with southeast-northwest orientation, belonged to a young woman disposed in contracted to the left side position (Fig. 53). A bowl was deposited next to her shoulder.

The discoveries in the neighboring regions, however, show that changes occurred during this period. At Botoš – Živanićeva dolja (Грбић 1933-1934), located at less than 10 km south of the study region, an extramural necropolis dated to the early Vinča Culture was attested. During the rescue excavations, 10 Middle Neolithic burials were investigated; many others are believed to have been destroyed prior to the research. The graves were disposed randomly

at a distance of several meters from one another, suggesting that there was no prior planning. The deceased were disposed in a crouched position resting on one side, and the majority were oriented east-west. Grave goods were attested within 3 graves. In one grave, a stone axe was discovered, while within the other two ceramic vessels were found. In the area of the Szakálhát Culture, north of Mureș, burials grouped within unused parts of the settlements were attested (Hegedűs 1982: 26). The deceased were disposed in a flexed position on their side with the head most frequently pointing east or southeast. In some graves, the skull and the extremities were painted with ochre, and clumps of it were deposited next to the deceased. Grave goods were common, and consisted primarily of adornments and (to a lesser degree) pottery. The adornments included necklaces made of stone, shell, or copper mineral beads, as well as a pendant made of *Spondylus* shell, which was disposed on the chest of the deceased (Hegedűs 1982: 24-26; Kalicz 1998c: 308). The pendant made of *Spondylus* shell should be regarded as highly valuable (prestigious) (Kalicz 2013: 375) because the shell had been brought from a great distance. At Csanytelek–Újhalastó, the adornments were found within the female graves, while, of the two male graves, only one contained inventory – a ceramic vessel (Hegedűs 1982: 24-26). This indicates the presence of a gender-based unequal distribution of grave goods.

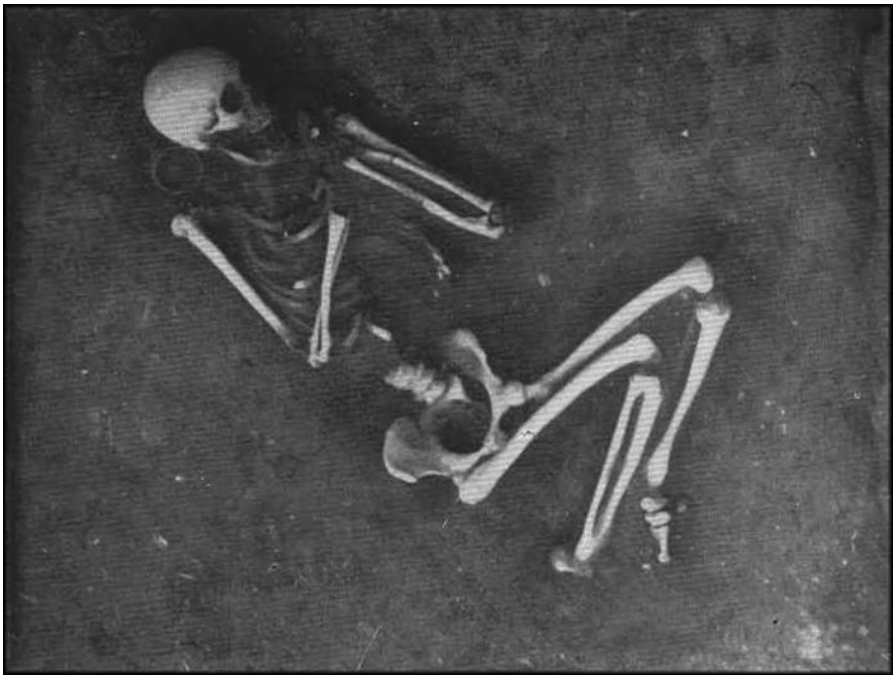

Fig. 53. Grave 5 at Deszk – 1 (Olajkút) (after Trogmayer 1969: Abb. 1).

3. Late Neolithic

As of yet, no burials have been found dated to the first part of the Late Neolithic within the study region. The single human remains currently known are three human bones found scattered within the Vinča C layer at Sânandrei – Ocsaplatz (Jongsma, Greenfield 1996: 306).

The evidence regarding the mortuary practices from the second part of the period is more abundant. For the area of the Tisa Culture, most of the evidence comes from the tell settlement Čoka – Kremejak. During the several excavation campaigns there, numerous prehistoric burials were discovered. The inventory of the graves, especially the multiple bone rings characteristic of the Tisa Culture (Banner 1960: 43; Kalicz, Raczky 1989: 21) indicate that most of the graves (if not all) belong to this culture. In Kalman Gubitza's excavation, a

prehistoric grave superposed by a hearth was discovered. The skeleton was in a crouched position, and the grave's inventory consisted of a harpoon (Gubitza 1906: 447-448). Another three prehistoric burials (nos. 2, 4, and 5) were found by Endre Orosz. Burial 2, discovered at a depth of 0.60 m, contained two skeletons oriented east-west, the legs of which were missing. Burial 4, uncovered at a depth of 0.20 m, consisted of a skeleton contracted on the left side with the head pointing northwards. The inventory consisted of a stone chisel and a fragment of another one deposited in the region of the feet. Burial 5, uncovered at a depth of 0.95 m, contained a skeleton contracted on the left side with the head pointing northwards. Its inventory included a large white stone located in the abdominal region, a double ring made of bone situated on two of its fingers, and beads made from Dentalium shell located in the neck region (Orosz 1912: 32-34; Banner 1960: 7). In 1907, a burial superposed by the ruins of a house was attested. The skeleton, lacking its head was disposed in a contracted position on one side (Banner 1960: 14). In 1909, three graves dug into virgin soil were discovered. The first grave contained a strongly contracted skeleton of a woman. Within its infill a few sherds were discovered, which, however, do not seem to represent grave goods. In the second burial, the deceased was deposited in a strongly flexed position. Its inventory consisted of a knife-shaped bone implement located in the pelvic area, a single ring on the index finger, and a triple ring on the forefinger, the middle, and the ring finger. In the third grave a large skeleton was found, which possessed a double ring on the middle and on the ring fingers. Within the infill, a few pieces of flint and potsherds were also found (Banner 1960: 20). In 1912, a grave was attested with a contracted skeleton resting on one side. In 1913, another four graves with contracted skeletons were discovered. The first grave, found at a depth of 0.80 m, contained a strongly flexed skeleton. Its inventory consisted of a needle made of bone, and two additional bones. The second grave was discovered at a depth of 1.30 m and contained as an inventory a bone dagger and a clump of red paint (most probably ochre). The third grave contained a badly preserved flexed skeleton. The inventory consisted of a bone dagger, two clods of red paint, two bone rings located on its left hand (the middle and the ring fingers), a harpoon, and a carved fragment of deer's antler. The fourth grave, discovered at a depth of 0.80 m, contained a poorly preserved skeleton, the upper arms and skull of which were painted in red. The inventory of the grave included a bone tool, the upper part of a vessel, and an almond-shaped object (Banner 1960: 24). A grave belonging to the Tisa Culture was attested at Tiszasziget – Templom domb (Ószentiván III). The deceased was deposited in a crouched position, and its inventory consisted of 8 bracelets made of *Spondylus* shell (Horváth 1986: 93; Banner 1928: Fig. 70).

At Novi Kneževac – Širine, a skeleton with two bracelets (one made of spondylus and the other of serpentine) located on one of its legs was discovered in 1891 (Reizner 1892: 90-91). In the report, the position of the skeleton is not mentioned, nor its stratigraphic position, or whether other finds existed within the grave. For this reason, the burial is of uncertain dating; however, as the site displays Late Neolithic occupation, and the *Spondylus* bracelets often occur within burials of the Tisa Culture (Kalicz 2013: 376) it is possible that the grave belongs to it.

The analysis of the graves from Čoka – Kremejak shows that the grave goods were unequally distributed. This unequal distribution is better evidenced at Tápé – Lebő, which is located in the immediate vicinity of the study region, at the confluence of the Rivers Mureș and Tisa. The investigations there revealed 33 intramural late Tisa burials (Kalicz 2013). 7 of them contained prestigious offerings such as bracelets and necklaces made of marine shell,

malachite, or copper beads, in some cases also accompanied by a ceramic vessel. 12 graves contained only a vessel, or a tool made of flint or bone, and 14 graves contained no inventory at all. These differences in the inventory clearly indicate that the community did not treat all deceased equally. The lack of anthropological investigation, however, does not permit the determination as to whether this discrimination was based upon gender, age, or some other criteria. Another case of unequal distribution of the grave goods in the wider region was attested at Békés – Povád, where two graves were investigated (Gulyás, Turcsányi 2009). The fist grave contained the skeleton of a child and lacked an inventory, while the second was a well-equipped adult burial. Its inventory consisted of two vessels, one obsidian and two chert blades, 23 Spondylus beads, a dog cockle, and a broken mace head fashioned from basalt. The fact that the community accorded more attention to the adult suggests that he had acquired some social status, while the child was still too young to attain such standing.

To the south, in the area of the Foeni Group, only two burials have been investigated as of yet, and both were intramural. The first burial was discovered within the central trench of Parța – Tell 2 at a depth of 0.80 m. The inhumed was disposed in a contracted position on its right side with the head pointing east (Fig. 54, a). No grave margins could be identified, and no inventory was found (Drașovean 2006a: 130). The anthropological analysis shows that the buried was a young female aged 20-21 with a height of ca. 1.53 m (Muntean, Vermeșan 1994). The second grave was found in the northeastern outskirts of the site of Foeni – Cimitirul orthodoxm at a depth of 0.6 m. The skeleton was disposed in a flexed to the right side position with the head pointing south (Fig. 54, b). The margins of the grave could not be established, and no grave goods were found (Drașovean 2006a: 129-130). According to anthropological analysis, the deceased was a female aged ca. 30 with a height of ca. 1.50 m (Muntean et al. 1996).

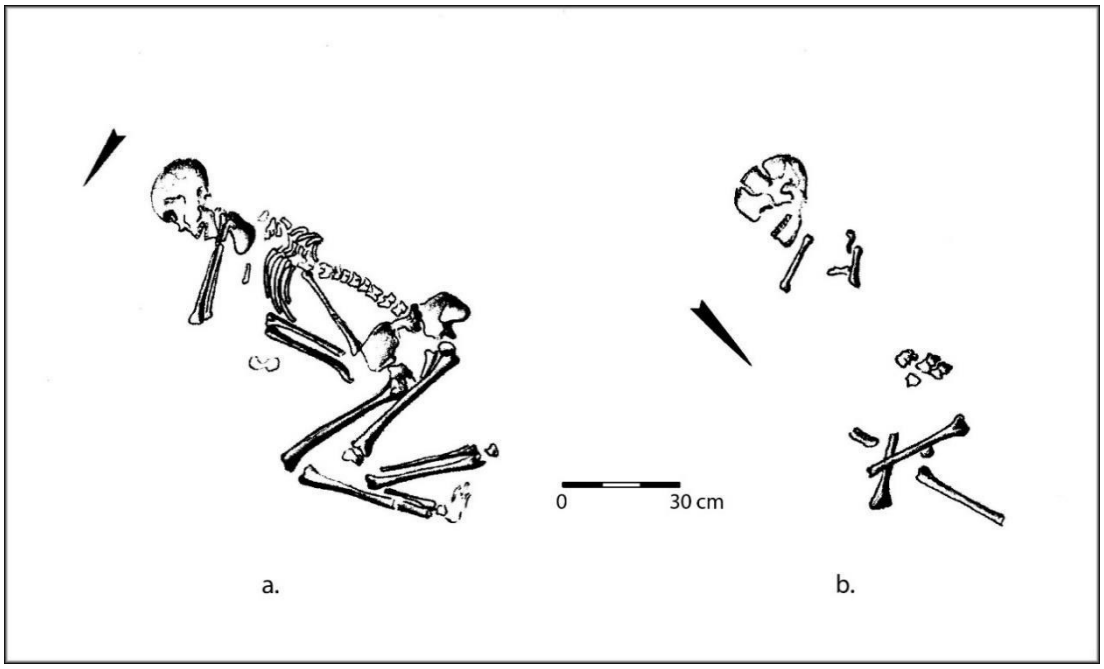

Fig. 54. Burials of the Foeni Group at Parța – Tell 2 (a) and Foeni – Cimitirul ortodox (b) (after Drașovean 2006a: Figs. 1-2).

4. Early Eneolithic

During this period, both intramural single graves and extramural necropolises existed in the study region. Those located within the settlements, however, were seldom in occurrence. As of yet, such graves were only found in two settlements. These graves were not in direct relation to architectural structures or in their immediate vicinity and it is likely they were placed in empty (abandoned) parts of the settlement, as is attested for the broader region (Bognár-Kutzián 1972: 158).

During the 1943 investigation campaign at Crna Bara – Prkos, a child grave was discovered within the settlement. The grave was found at a depth of 1.20 m, being stratigraphically linked to the youngest Early Eneolithic building phase. The skeleton was disposed in a contracted position on its right side and was east-southeast by west-northwest oriented. The inventory consisted of five Tiszapolgár type vessels placed next to its head (Гарашанин, Гарашанин 1957: 202).

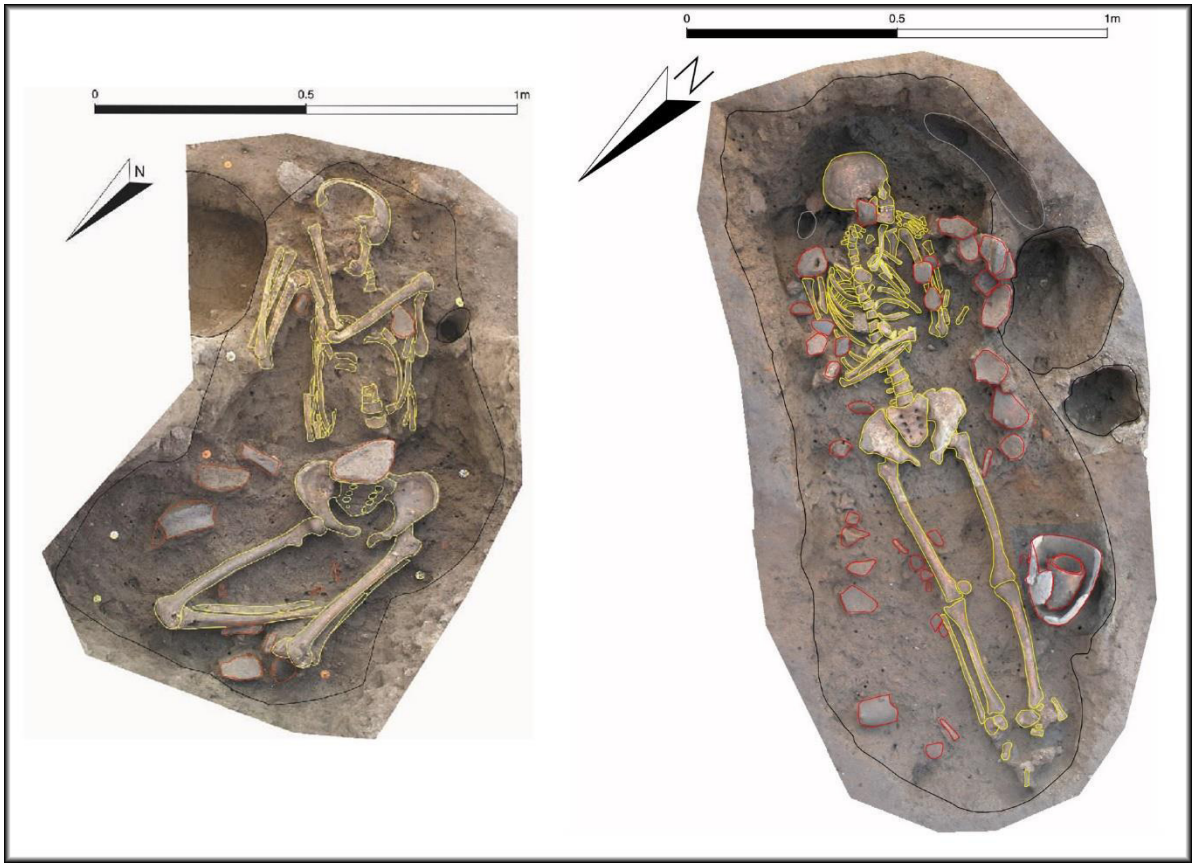

Fig. 55. Burial 1 (left) and Burial 2 (right) at Uivar – Gomilă (after Schier 2013: Figs. 3, 5).

At Uivar – Gomilă, four graves were discovered – two on the tell and other two in its periphery (Schier 2013: 573; Schier 2016: 84). Of those in the periphery, only one is published. The grave contained a badly preserved skeleton of a child which was east-west oriented. The margins of the grave could not be identified. The inventory consisted of two complete vessels, fragments of another two, and two chipped stone tools (Schier, Drașovean 2004: 168). The other two graves were located not far from each other, on the western part of the tell, and in the vicinity of the ruins of a Vinča C house most probably still visible in the Eneolithic (Schier 2013). Stratigraphically, the graves were dug from the Tiszapolgár occupation layer into the Vinča C layer, and since the excavated soil was reused their infill layers contains Vinča C potsherds in secondary context. An AMS date was obtained from

each skeleton, dating them to somewhere within the second half of the 44th or the first half of the 43rd century cal BC. The first grave had an oval shape and contained a skeleton laying in a position flexed to the right side with the legs strongly contracted and the head pointing southeast (Fig. 55). No grave goods were found. According to the anthropological analysis, the skeleton was of a male aged 41-50, who was ca. 1.60 m tall. He suffered from *spondylosis deformans* and *arthrosis* of the left knee and the shoulder and hip joints. In addition, the right ankle was affected by *cystic arthritis*, which impeded the man in walking properly. The second grave consisted of a shallow elongated pit within which a woman was deposited in extended supine position (Fig. 55). On each side of her knees, a large paraboloid beaker had been deposited. The one beside her left knee contained another two vessels – a beaker and a bowl. As the vessels were not placed in upright positions, it is unlikely that they contained food, and therefore the vessels themselves must have been the offerings. In addition, numerous Vinča C sherds were disposed in a line around the upper part of the body and one sherd lay on the lower jaw of the woman. This indicates that the sherds were deliberately arranged by the group of mourners in the course of the burial ritual, and that, by the time of the funeral, these already several centuries-old sherds would have possessed symbolic meaning. The anthropological examination revealed that the skeleton was of an 1.53-1.56 m high early adult female (20-25 years). In her youth she suffered a fracture of the first vertebra, which had been survived and had thereafter healed, but the mobility of her head remained very limited. Worth noting is that the young women was well-equipped with burial goods, while the lame man lacked any.

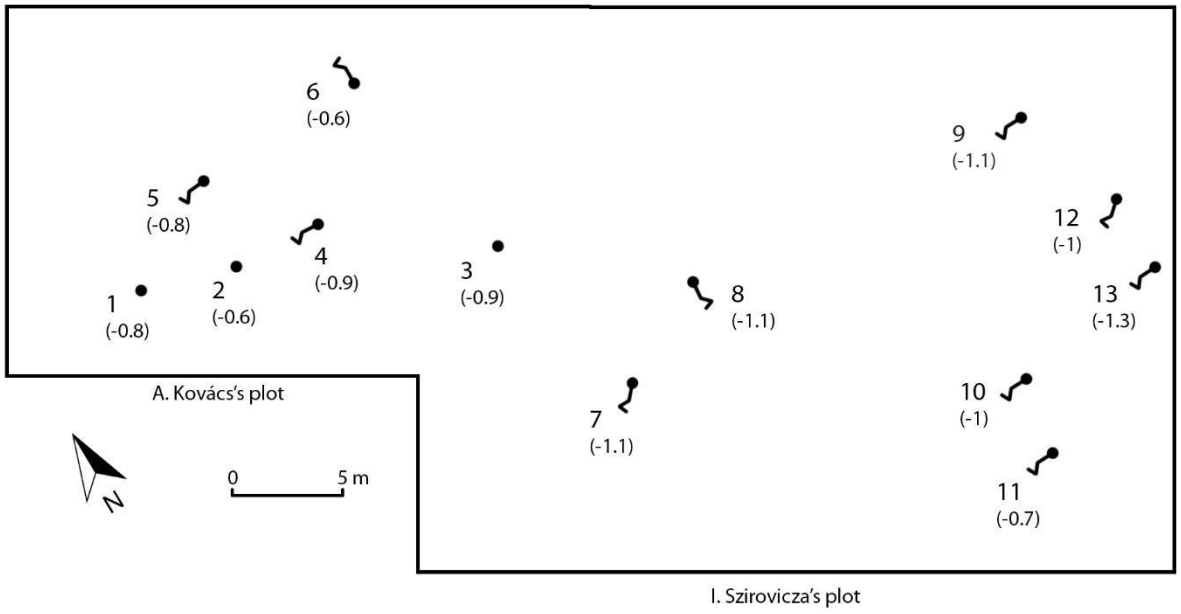

Fig. 56. Distribution of the Early Eneolithic burials at Deszk – A and their depth (adapted after Bognár-Kutzián 1972: Fig. 34).

Unlike the single graves, the necropolises were more common, and several have been investigated in the study region. During the two investigative campaigns conducted by Ferenc Móra at Deszk – A, 83 prehistoric graves were uncovered, of which 13 are certainly to be dated to the Early Eneolithic (Fig. 56) (Foltiny 1941). Most of the remaining graves are dated to the Early Bronze Age, a few to Late Classical Antiquity and the Modern period, while 13 remained undated due to the lack of any inventory. This lack was either because the graves

did not contain such goods, or because the grave was affected by later activity. The undated graves with determined positions were in a position contracted to the side, demonstrating that they are prehistoric. Therefore, some of the undated burials could also be from the Early Eneolithic. The burials have a less detailed description as the investigator, Ferenc Móra, put emphasis primarily on inventories. In our study, we present the graves using the numbers assigned to them by Ida Bognár-Kutzián (1972: 23-27).

Grave 1, found at a depth of 0.80 m below the modern surface, contained a skeleton contracted to the side facing westwards. Its inventory consisted of two cups located on both sides of its skull and a few beads in the chest region. Grave 2, discovered at a depth of 0.60 m, contained a skeleton of a child, whose face was pointing east. The inventory consisted of two cups disposed on both sides of the head. Grave 3, unearthed at a depth of 0.90 m, contained a skeleton deposited in a flexed position on its left side. The inventory included five vessels deposited in front of its face, and bones from half of a pig located next to its knee. Grave 4 was uncovered at a depth of 0.90 m. The skeleton was crouched on the left side with the head pointing eastwards. The inventory consisted of a fragment of a copper ring placed above the skull, two copper rings made of spirally bent wire located on the ring finger of the right hand, 20 small copper mineral beads, two large cylindrical limestone beads disposed on the pelvis, 60 disk-shaped limestone beads situated below the skull, three large disc-shaped and two cylindrical limestone beads, a fragment of ground stone axe located next to the knee, and a jar deposited beside the skull. Grave 5, found at a depth of 0.80 m, contained a skeleton disposed in a position contracted on the left side with the head pointing eastwards. The lower part of the skeleton was missing as the grave had been cut by a younger pit. The inventory consisted of 110 disk-shaped limestone beads placed around the skull, a perforated shell disk located on the skull, and a chipped stone blade and a cup deposited behind the skull. Grave 6 was discovered at a depth of 0.60 m. The skeleton was crouched on the left side with the head pointing north. The inventory included a cup placed besides its face, a jar next to its knee, and three jars behind its back. Grave 7 was attested at a depth of 1.10 m. The skeleton lay on its right side with the head pointing northeastwards. The inventory consisted of six vessels and cattle bones placed near the skull. Grave 8 lay at a depth of 1.10 m below the modern surface. The deceased was buried in a contracted position on its left side, with the head pointing north. The inventory consisted of disk-shaped limestone beads found in the pelvis and the knee area, two copper mineral beads, and seven vessels. The vessels were disposed as follows: three beside the face, one behind the back, two near the arms, and one next to the heel. Grave 9 was discovered at a depth of 1.10 m. The deceased was buried contracted on the left side with the head pointing east. The inventory included disk-shaped limestone beads, a perforated bone object, a copper ring made of wire found in the pelvis area, two vessels situated beside the head, and animal ribs placed on the legs. Grave 10 was found at a depth of 1 m. The buried individual was laid in a crouched position on its left side, with the head pointing east. The inventory consisted of seven vessels with one next to the face and three behind the skull; the location of the remaining examples is unknown. Grave 11, uncovered at a depth of 0.70 m, contained a skeleton contracted on the left side with the skull pointing east. The inventory encompassed seven vessels – one on the skull and three around it, while the location of the others is not mentioned. Grave 12 was attested at a depth of 1 m. The deceased was contracted on the right side, with the head pointing northeastwards. The inventory comprised of three vessels deposited beside the skull. Grave 13 lay at a depth of 1.30 m. The skeleton was placed (crouched?) on its left side with

the head pointing eastward. The inventory consisted of three vessels located in front of the skeleton, and two behind the skull.

Ca. 3.4 km east of Deszk – A, another necropolis was investigated by Ferenc Móra, termed by him Deszk – B. Later, this cemetery together with a neighboring Early Neolithic settlement were taken as a single archaeological site called Deszk – B, C, D (Bognár-Kutzián 1972: 27-34; Paluch 2012: 298). As has been seen for the necropolis previously mentioned, Ferenc Móra's description is often incomplete, and focusses mainly on inventories. Grave 1, uncovered at a depth of 1 m below the modern surface, contained a skeleton in a crouched position on its right side with the head pointing south. The inventory consisted of three jars and a hollow-pedestalled ceramic vessel deposited around the head, and a bowl beside the knee. In addition, several Tiszapolgár potsherds were found in the infill of the grave, which could have been either deliberately deposited as part of the funeral ritual, or, indeed, unintentionally (in a secondary context). Grave 2 discovered at a depth of 0.50 m, contained a skeleton of child, position or orientation of which seems to have been erroneously documented. According to the museum record, the skeleton had a north-south orientation, and was placed on its left side facing southwards. The inventory encompassed disk-shaped and cylindrical limestone beads found in the pelvis area, a copper ring located on the temple, and five vessels disposed around the head. Grave 3 was unearthed at a depth of 0.60 m. The deceased was placed in contracted right-hand side position with the head pointing west. The inventory included a bone tool and six vessels situated in front of the skeleton, one of which was found within a larger vessel. Grave 4 was discovered at a depth of 0.50 m. The inhumed was placed in a contracted right-hand side position with the head pointing towards east. The inventory consisted of two copper bracelets located on the left lower arm and two pedestalled vessels, disposed one above the skull and the other behind the back. Grave 5, unearthed at a depth of 0.60 m, contained a skeleton lying on its left side (contracted?) with an east-west orientation. The inventory comprised disk-shaped limestone beads deposited below the skull and nine vessels arranged around the upper part of the skeleton. Grave 6, attested at a depth of 0.80 m, was destroyed in the past, and only the lower legs of the skeleton were preserved. Within the grave were found three vessels. Grave 7, uncovered at depth of 0.40 m, was affected by the excavation of a pit in the past, and only the skull and scapula were preserved. On the basis of the skull's position, it was established that the skeleton lay on its left side and was oriented east-west. The inventory consisted of eight entire vessels and a fragment of another one. Grave 8, discovered at a depth of 1.20 m, contained a flexed skeleton lying on its right side with the head pointing eastwards. The inventory included two copper bracelets located on the right lower arm, three blades of dark greyish-brown flint found next to the skull, pig (?) bones placed around the skull, as well as four entire vessels and fragments of several others. Grave 9, found at 0.30 m, contained grave goods, but no human bones were found. The investigator assumes that the lack of skeleton was the result of agricultural activity affecting the grave, while Ida Bognár-Kutzián speculates that the burial could have been a symbolic one (cenotaph). The finds consist of a stone axe fragment, disc-shaped beads, a conical weight, two bone tools, four entire vessels, and fragments of another two. Grave 10, attested at a depth of 0.30 m, was severely affected by modern agricultural activity and only the skull and the sacral bones were preserved. On the basis of this, it was established that the deceased was disposed on its right side and possessed an east-west orientation. The inventory consisted of seven vessels, and a fragment of another vessel placed beside the skull. Grave 11 was discovered at a depth of 1.10 m. The skeleton lay in a contracted position on its the right side, and was east-west oriented. The inventory consisted of a copper bracelet and

eight ceramic vessels, one of which contained pig (?) bones. Grave 12 was affected by agricultural activity. The skeleton was disposed on its left side and was oriented east-west. The inventory included eleven small disc-shaped limestone beads, and two ceramic vessels, one of which was found beside the legs. Grave 13, found at a depth of 0.40 m, was also affected by agricultural activity. Two vessels and fragments of another three were recovered from the grave. Grave 14, found at a depth of 0.40 m, contained a crouched skeleton on its right side with north-south orientation. The inventory consisted of seven ceramic vessels. Grave 15 was most probably destroyed, since no information regarding the deceased was recorded. The inventory consists of one hollow-pedestalled jar.

Fig. 57. Early Eneolithic graves at Srpski Krstur – Bajir (left) and Podlokanj – Bašte (right) (after Надлачки 1933: Сл. 1; Грчки-Станимиров, Станимиров-Грчки 1997: Сл. 2).

In 1928, at Srpski Krstur – Bajir, three graves were discovered in a crouched position on their sides (Надлачки 1929); however, as the publication lacks illustrations of the finds, only the third grave can be attributed with certainty to the Early Eneolithic on the basis of the pottery description. The skeleton was placed in a flexed position on the left side with the head pointing north. Under the skull were deposited two chipped stone tools, while east of it 8 ceramic vessels were placed (Надлачки 1929: 17-19). In 1931, during the strengthening of a dike, workmen unearthed two additional graves containing Tiszapolgár ceramic vessels. While graves remained undocumented, the recovered vessels together with those discovered in 1928 were donated to the National Museum of Belgrade (Надлачки 1933: 4; Надлачки 1929: 5) and later published (Vulić and Grbić 1938: Pl.17-18). In 1932, Luka Nadlački investigated another grave at Srpski Krstur – Bajir (Надлачки 1933). The deceased was disposed in position flexed on the right side with the head pointing eastwards (Fig. 57, left). Underneath and next to the skull, two chipped stone tools and a small polished stone tool were discovered, while above the skull ten Tiszapolgár type vessels and articulated animal

bones (ribs and a limb) were found. The articulated bones suggest that meat was deposited as an offering.

From 1996 to 2000, over 50 graves dated to the Early and the Middle Eneolithic were investigated at Podlokanj – Bašte (Грчки-Станимиров 2001; Borić 2015: 178); yet, with one exception (Grave 7), these remained unpublished. This grave was 0,26 m deep and had an irregular form. The skeleton was placed in a strikingly contracted position on the right side with the head pointing towards the northeast (Fig. 57, right). The inventory consisted of five Tiszapolgár type ceramic vessels, sheep bones (vertebra, ribs and bones of the limbs), and a tool (knife) of agate (Грчки-Станимиров, Станимиров-Грчки 1997: 92).

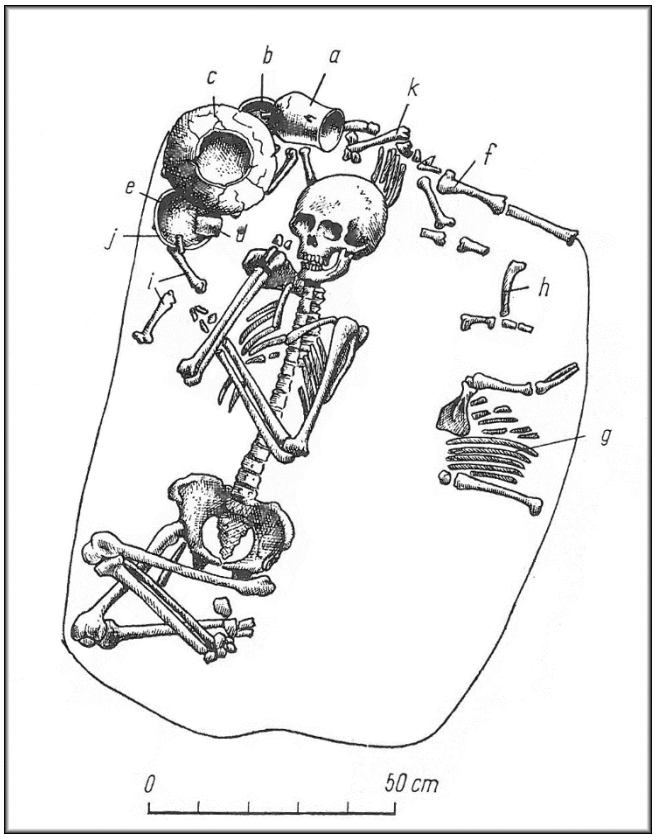

Fig. 58. Grave 3 at Tiszasziget – Andróé-alja (after Bognár-Kutzián 1972: 1968, fig. 12).

At Tiszasziget – Andróé-alja (Ószentiván VIII), three graves were investigated. Within the first grave a skeleton was discovered disposed in a crouched position on its right side with a northeast-southwest orientation. The inventory consisted of a deep bowl located next to its knees. Within the second grave, a skeleton was found in crouched on the left side position with an east-northeast by west-southwest orientation. The inventory included two bowls placed next to its head (Tóth 1942: 145; Bognár-Kutzián 1972: 67-69). The third grave contained a skeleton disposed a in crouched position on its right side with a northeast-southwest orientation (Fig. 58). As its inventory, four vessels were found located next to the head as well as several calf, sheep, and piglet bones (mainly limbs) situated around the upper part of the skeleton (Bognár-Kutzián 1972: 67-69). At Tiszasziget – Vedresháza, two graves were discovered. The skeleton from the first grave was in a contracted position facing south, and contained three vessels as inventory. The skeleton from the second grave was in a contracted position facing north and possessed as its inventory three pots deposited next to its head. Several other Tiszapolgár vessels originate from this site, and they probably also

belonged to graves (Bognár-Kutzián 1972: 69-70). At Tiszasziget – Agyagbánya, a grave was discovered with the skeleton disposed in a contracted position on its right side with a northeast-southwest orientation. The inventory consisted of few pots deposited in front of its face (Simon 1980: 12). During the road construction at Beba Veche – Drumul Kiszomborului in 1902 and the subsequent rescue excavations in 1904, a total of 26 graves flexed to one side were unearthed, about half of which contained inventories (Reizner 1904: 82-88; Tömörkény 1905). The examination of the grave goods revealed that one of the graves contained a Tiszapolgár type vessel and therefore might be dated to the Early Eneolithic, while the remaining graves with inventories are dated to the Bronze Age (Banner 1937: 236; Bognár-Kutzián 1972: 114). By the time of the examination of the grave goods, however, it could not be deduced as to in which grave the Tiszapolgár type vessel was found. Since there were also graves with no inventory it can be speculated that some of them may also be from the Early Eneolithic.

5) Middle Eneolithic

The Middle Eneolithic burial practices in the study region are inadequately researched and, as of yet, evidence only exists for the first part of this period. In 1963, at Sânpetru German – Fântâna Vacilor, a grave was discovered with a poorly preserved skeleton, the position and orientation of which, however, were not recorded. The skeleton was accompanied by five Bodrogkeresztúr type vessels. Renewed investigation in 1965 lead to the discovery of another group of vessels, and, although no bones were reported, it is very probable that these vessels constituted the inventory of another grave (Dörner 1970: 451-455; Sava 2015a: 77). As previously mentioned, the investigations at Podlokanj – Bašte revealed a continuity from the Early to the Middle Eneolithic in the use of the necropolis. Unfortunately, none of the Middle Eneolithic burials investigated were published. In the wider area, the continuity in the use of a cemetery during these two periods is common phenomenon (Bognár-Kutzián 1963).

Due to the limited amount of evidence in the study region, we will briefly describe the burial customs from the wider area, although we acknowledge that phenomena in the neighboring regions hardly provide a full account for the study region. In the Middle Eneolithic, a good continuity from the Early Eneolithic in mortuary practices existed. The extramural necropolises were the main manifestations of funerary activity, with the individual graves within the settlements being less frequent (Luca 1999: 15). Inhumation was the most common burial practice, but incineration was also practiced in very rare cases. The deceased were disposed in a contracted position to the side and their usual orientation was east-west. Another regularity was that men lay on their right side, and woman on their left, although exceptions to this also existed. The most frequent grave goods included vessels, food (as indicated by the presence bones of domestic animals), adornments, and tools. The adornments were more common in the female graves, the tools in the male ones (Kalicz 1998a: 334).

6) Late Eneolithic

In this period, a new type of mortuary practice appeared, namely the tumulus, which has its origin in the North Pontic steppes, and is believed to have been introduced in Southeastern Europe by the nomadic Yamnaya Culture (Ecsedy 1979: 35). A tumulus is an earthen mound constructed over one or more burials, referred to as primary or central burials. Often, after the construction of the tumulus, other burials are dug into its mantle. These are referred to as secondary burials. The funerary rituals practiced were either inhumations or cremations. In the following, we present the tumuli according to the funerary ritual of their main burials.

The tumuli with primary burials consisting of inhumation graves were more numerous. The first such tumulus investigated was Sânnicolau Mare – Hunca Mare. The excavated long trench cutting through its middle revealed the central grave. The deceased lay in a supine position with the legs bent up at the knees and the head pointing westwards. Red ochre had been sprinkled over the whole grave (Kisléghi 2015: 149-152). Since the investigations did not comprise of the whole surface of the mound, one cannot rule out the possibility that secondary burials also existed.

Archaeological investigation of the small tumulus of Novi Kneževac – Japina Koliba revealed a primary grave located in the central part of the mound and a secondary grave, situated six meters north of the central one. The primary grave had a rectangular shape (1.60 x 1.50 m). Within it was found a skeleton disposed on its back with the legs bent up in the knees and slightly inclined on the right side. Its orientation was west-east. In each of the grave's corners was located a post with a diameter of 15 cm. These posts, some of which were preserved up to a height of 15-20 cm, supported a cover made of ca. 5 cm thick wooden planks. Remains of a brownish organic matter were discovered on the bottom of the pit, indicating that beneath the deceased was placed an organic matting. Around the skeleton, traces of red ochre and white limy material were attested. The secondary grave contained the skeleton of a child, which had east-west orientation. Within the grave were also found traces of wooden structure (Girić 1994: 8-10). The construction layer of the mound contained numerous ceramic sherds characteristic of the Baden cultural complex (Грчки-Станимиров, Станимиров-Грчки 2003: 69-70).

The large tumulus at Padej – Barnahat was constructed in two phases; for its construction, soil from the cultural sediments of a Baden settlement located in its vicinity was used. In the first phase, a 1.1 m high mound was constructed over a grave with a west-east orientation. The skeleton was disposed in supine position with the legs bent up in the knees, which later fell on opposite sides forming a rhombus. A limy substance was sprinkled within the grave, while a matting of reeds (2.08 x 0.76 m) was placed underneath the skeleton. In addition, traces of brown and red organic matter indicate that the skeleton was covered by a wooden or leather cover. The inventory consisted of a small vitreous amphora-like object with a length of 1.2 cm. In the second phase, a grave was dug in the first layer of the first mound, over which was constructed the second layer of the mound. The grave was rectangular with dimensions of 2.30 x 0.82 m and oriented west-east. Traces of wood indicate that the grave was covered by planks, some of which were 140 cm long, 15 cm wide, and up to 8 cm thick, while thin planks were laid on the bottom of the grave. Within the grave, a badly preserved skeleton and traces of ochre were found. The skeleton was in a stretched out supine position with the legs bent up at the knees forming a rhombus. A radiocarbon date from the wooden cover of the second grave provided a date of 3090-2870 cal BC (Girić 1987: 72-73; Girić 1994: 10).

The investigations of the tumulus Sânnicolau Mare – Bucova Pusta IV, located only some 0.9 km north of the aforementioned Hunca Mare, revealed its central burial and a few secondary burials. In the beginning of the 20th century, Gyula Kisléghi excavated a large trench (22 x 22 m) in the center of the tumulus, where, besides the medieval graves and Early Neolithic features, he found four cremation burials. The first burial was located 5 m northwest of the center of the trench, and consisted of cremated bones covered by three upside-down vessels resting one on top of the other. The second one was situated 7 m northeast of the trench's center, and consisted of cremated bones covered by one upside-down bowl. The third and

fourth burials were disposed in the southern part of the trench and each consisted of cremated bones covered by an upside-down vessel (Kisléghi 1907: 277). Kisléghi erroneously assumed that the burned bones were of animal origin and somehow related to the medieval graves. His description of the vessels, the published upper part of one of them, and the funeral practices suggest that these burials hail from the Late Eneolithic.

During recent research, a trench (O) was excavated on the top of the mound, in the middle of Kisléghi's trench, discovering the central grave of the mound. This grave was buried deeper than the medieval graves, and it remained unreached by Kisléghi's excavation (Krauß et al. 2016: 300). The grave had a slightly trapezoidal shape with curvy long sides. Within the grave was found a skeleton of an elderly woman laid out in extended position with the head pointing westwards (Fig. 59). Her legs were bent up in the knees and slightly inclined to the left due to the pressure of the soil. On the bottom of the pit, a dark matter was attested, suggesting that the body was laid on organic matting, while the existence of a wooden structure probably covering the grave is evidenced by few post-holes discovered in the area of the ankles and the head. Next to the head had been deposited a lump of red ochre. According to a radiometric date, the grave might be dated to the end of the Late Eneolithic. In another trench (L) located in the southern part of the tumulus, outside Kisléghi's excavation, a cremation burial was discovered. The burial consists of the burnt remains of a young women covered by a Baden type bowl (Fig. 60), buried into the tumulus' mantle (Krauß et al. 2016: 301; Diaconescu et al. 2014: 42). This burial, as well as those discovered by Gyula Kisléghi, are secondary in nature.

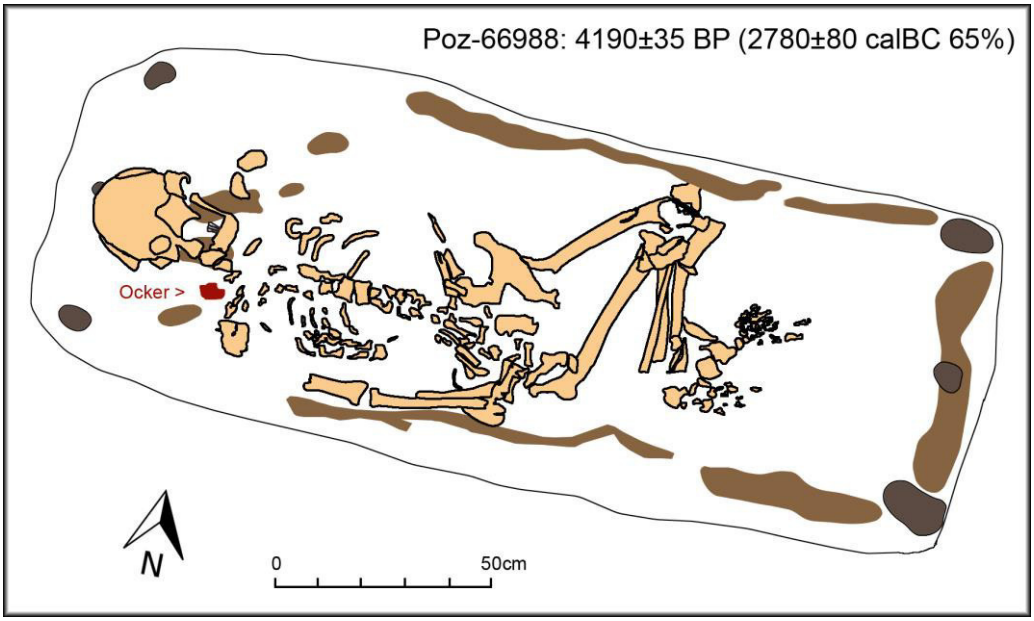

Fig. 59. The central grave at Sânnicolau Mare – Bucova Pusta IV (after Krauß et al. 2016: Abb. 6).

In the study region, two tumuli with cremations as primary burials were investigated. At Mokrin – Arađanska humka, a primary and a secondary burial were attested. The primary one was situated in the center of the mound, within the heaped layer, and consisted of an urn with cremated human remains covered by a bowl. Both vessels are dated to the late Classical Baden period. The secondary burial was located in the western side of the mound. It was an inhumation grave with a skeleton disposed in a crouched position on its right side with a west-east orientation (Girić 1994: 8). The second tumulus is Srpski Krstur – Slatinska humka.

In its center, at a depth of 6.4 m, the archaeological investigations yielded an urn with cremated human remains. The urn is a cord-decorated beaker (Надлачки 1950) characteristic of the Corded Ware Culture of Northern and Northeastern Europe.

Dike consolidation works in the vicinity of the mound of Šurjan – Govedareva humka revealed five inhumations and a few cremation burials (Јанкулов 1937: 99-101). Since the excavation works did not reach the central part of the tumulus, all these burials are to be regarded as secondary graves. During these excavation works, however, no archaeologist was there to record the discovery, and three inhumation graves remained undocumented, while for the other two only a little information could be obtained from the workmen's observations. Within one of them a skeleton was found in an extended position and an inventory dated to Classical Antiquity, while, within the second one, a skeleton in a contracted position on its side and a Baden style vessel were discovered. The cremation burials consisted of burnt human remains covered by vessels (urns). These vessels remained unpublished and the burials cannot be dated with certainty; however, the burial practice suggest that they might also be from the Late Eneolithic.

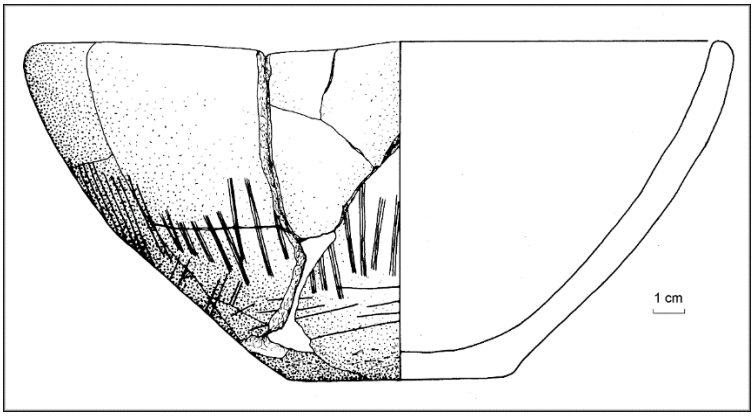

Fig. 60. Urn that covered cremated human remains at Sânnicolau Mare – Bucova Pusta IV (after Krauß et al. 2016: Abb. 8).

In 1880, during the construction of a church in Čestereg, a tumulus was destroyed, and several burials of humans and horses were discovered. Excepting that there were no metal or glass finds, the report does not give other details (Milleker 1897: 31). For this reason, it is uncertain whether the graves are Late Eneolithic or not. At Tiszasziget – Andróé-alja, an animal burial believed to be from the Late Eneolithic was attested (Banner, Párducz 1946-1948:36; Banner 1956: 75; 207). Burials of domestic animals were quite common in the Baden Culture (Banner 1956: 206-207).

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According to the current evidence, Early Neolithic funerary practice consisted of single inhumation graves located within settlements. The deceased were disposed in contracted positions on their sides, and grave goods were rarely extant.

The scarcity of graves, also a phenomenon present in the larger area, the deposition of skulls separately, and the presence of human bones scattered within the occupation layer, however, suggests that there could have been other forms of mortuary practice which are not archaeologically detectable (Lichter 2003: 135).

The few Middle Neolithic burials discovered in the study region indicate that the tradition of burying the deceased in single graves located within the village continued. The deceased were disposed in a crouched position on their sides and rarely contained any inventory.

The evidence from the neighboring region, however, indicates that changes also occurred, especially in the second part of this period. The most significant changes were the appearance of grave clusters within the settlements, and cemeteries located outside the settlements. They could be the result of increased sedentarism and demographic growth, which are characteristic for the second part of the Middle Neolithic (see Chapter IV). In addition, the grave goods became more common and were unequally distributed. Most of the grave goods, and especially the prestigious ones, were deposited within female graves, which indicates the presence of gender differentiation.

Evidence of the Late Neolithic mortuary customs exists only from the second part of this period. A high degree of continuity from the Szakálhát into the Tisa Culture may be witnessed. The number of intramural burials continued to increase, and were more often grouped into unused parts of the settlements. The deceased were placed in positions contracted to one side and, according to evidence from the wider region, their main orientation was east-west (Kalicz 1998c: 311). Red ochre continued to play important role in the funerary ritual, being often used for painting the body parts of the deceased, or being deposited in clumps within the graves. Grave goods became more common, and adornments continued to be favored, while the ceramic vessels and tools remained less preferred. The use of prestigious materials for the manufacture of the adornments tended to increase and they continued to be unequally distributed, as evidenced at Čoka – Kremejak and in the neighboring regions. Due to the lack of anthropological investigation, however, it is difficult to assess whether the differentiation was gender based, as was the case in the Middle Neolithic. Research within the wider region indicates that age-based discrimination existed. The graves of adult individuals contained far more grave goods than those of children, which were still too young to acquire social status at the time of their death.

The current evidence for the Foeni Group indicates that the tradition of burying within settlements continued. The low number of burials investigated, however, does not permit further conclusions to be drawn.

During the Early Eneolithic, unlike the previous periods, burying the dead in necropolises located outside the settlements became a widespread funeral custom, while burial within settlements became rare. The burial customs in the necropolises did not differ from those in the settlements. The characteristic funeral practice for the Deszk Group of the Tiszapolgár Culture, which includes the study region, was inhumation, while cremation, which appears in the northern areas of this culture (Bognár-Kutzián 1972: 151-152) was not attested. The graves had rectangular, oval, or irregular pits, which in the case of burials with many grave goods were much larger than the size of the deceased. The common position of the deceased was contracted resting on one side, while the extended position appeared as exception. Most often, the deceased were disposed on their right side, but the left side predominated in the necropolis Deszk – A. In the wider area of the culture, a tendency was observed of burying males on the right side and females on the left (Bognár-Kutzián 1972: 153), however, in the study region this cannot be verified because anthropological gender determination was only carried out in two cases. The specific orientation was east-west with the head pointing east, or

with some deviation to northeast or southeast. The few exceptions include burials with the head pointing towards the south, north, or west.

The deposition of grave goods continued to be a common practice, and their uneven distribution among the graves also persisted. The most common grave goods, by far, were ceramic vessels, and in some graves their number was remarkably large – within Grave 5 at Deszk – A, B, C 9 vessels were found, while 10 vessels were discovered within one of the graves at Srpski Krstur – Bajir. Also frequent were the adornments made of limestone beads and the deposition of food (parts of domestic animal carcasses). Blades of high quality flint and adornments made of copper were less common offerings. These materials must have been prestigious (highly valued) because high quality flint had to be brought from long distance, while the copper artefacts required a complex manufacturing process. In addition, the graves with prestigious offerings also contained other grave goods such as limestone beads or vessels, and therefore they can be regarded as richly furnished graves. On the other extreme are the graves without inventory. Currently, only one such grave is known from the study period, however, as already mentioned, in the multi-period cemeteries, these graves often remain undated, and therefore it is highly likely that they were more numerous.

This variation in the quantity and value of the grave goods indicates that some differentiation existed among the members of the community. The deficiency of anthropological investigation, however, hinders the undertaking of a comprehensive interpretation. The sole anthropological study, at Uivar – Gomilă, suggests that the differences in the inventory were based upon social status. The young woman who survived a dangerous accident was admired and appreciated within society and received many offerings at her funeral. The child, however, at its death was still too young to attain a social role and received less offerings, while the old and handicapped men did not receive any grave goods.

In the Middle Eneolithic, a strong continuity from the previous period existed. The extramural cemeteries continued to be numerous, while the single graves within the settlements were sparse. Inhumation in a crouched position was the common burial practice, and grave goods continued to be frequent.

In the Late Eneolithic, several sharp changes in the mortuary practices occurred. Firstly, the practice of burial within a tumulus replaced the local tradition of burying in a necropolis. Secondly, the extended supine position with the legs bent up in the knees replaced the contracted position resting on one side. Thirdly, cremation appeared as an alternative burial practice. Finally, the tradition of depositing diverse and often numerous grave goods was interrupted. Instead, ochre was sprinkled within the graves, and limy material or ochre was deposited in clods; the graves also had an organic matting and a wooden construction. Inventory within the graves very rarely existed. It consisted of small objects such as the miniature amphora-like object at Padej – Barnahat, or personal adornments, such as silver earrings attested in the wider region. These new customs were not locally developed, but rather introduced from the North Pontic steppes. Burial customs are one of the most conservative features of a culture, and the appearance of such a sharp and radical change can be explained by little else other than population movement.

The new burial practices reflect changes in the social structure. If the burials within a necropolis did not differ much from one another in terms of location, a large difference existed between the primary burials and the secondary burials within a tumulus. The primary burials lay underneath the tumulus and were the reason for its construction, while the

secondary ones were buried into its mantle, reusing the already extant tumulus. The construction of a tumulus required a substantial amount of labor, and the whole community would probably have been involved in its construction. In addition, the tumulus formed a monument very much visible in the landscape. These aspects clearly indicate that that the individuals buried in the center of the mound possessed a lofty role within society. On the other hand, the individuals buried in secondary burials received far less attention. They were simply buried into the existing mound, probably after certain amount of time had passed since its construction.

Both inhumation and cremation were attested in the primary and secondary burials, and currently it is uncertain as to which reasons might have underpinned the choice of one or the other burial practice. Chronological difference between the two practices is also a viable possibility.

VI. Resources

Within the *Collaborative Research Center 1070*, resources are defined as tangible and intangible media, used by protagonists to create, sustain or vary social relations, units, and identities. This definition excludes the previous division between "natural" and "cultural" resources because even resources from nature are culturally connoted – they acquire specific meanings and their use is regulated through cultural norms. Therefore, something cannot be a resource by means of its nature, but rather only by way of its function within a sociocultural context. Within such a context, resources are sensitive to sociocultural changes as they may alter the way resources are perceived. On the other hand, the use of resources can also stimulate further sociocultural transformations. This entangled relationship between society and its resources is of great significance to the understanding of relevant sociocultural dynamics.

In this chapter, we investigate diachronically the use of resources, aiming to identify changes in their use and the ensuing sociocultural implications. Relatively numerous resources used during the study period are archaeologically identifiable; however, due to poor preservation and methodological limitations, the majority cannot be quantified, and therefore cannot be diachronically assessed. In the current study, we focus on the following quantifiable resources: flora, soils, fauna, lithic materials for chipped stone tools, and metals.

Resources do not appear individually, but instead a combination of objects, persons, organization, knowledge, networks of communication, and practices are involved in their use. This combination is called ResourceComplex. In the following, before discussing the diachronic use of resources, we will attempt to identify the constitutive elements of their ResourceComplexes.

1. Floral resources

The Neolithic and Eneolithic communities used different plants available in their environment for: nutrition, clothing, matting[35], construction materials, fodder, tool making, medicinal purposes, and probably for entheogenic experiences. In this subchapter, we focus mainly on plants used for food, since they may be detected well by macro-archaeobotanical analyses.

Edible plants provided a good deal of the nutritional resources for the communities and two ResourceComplexes may be identified in their use:

1) Cultivation of crops. This included several species of cereals and legumes domesticated in Southwestern Asia, the majority of which were introduced in the study region at the very beginning of the Early Neolithic, although few of them were later brought hither. Cultivation comprised of a sequence of activities taking place in the warm seasons with the purpose of producing food. These included tilling, sowing, weeding, harvest, and storage. In the case of cereals, the harvest took place in the late summer or autumn and the spikes or panicles reaped had to undergo threshing and winnowing before storage (Zohari et al. 2012: 21). Cultivation necessitated a substantial expenditure of labor and most probably was collectively undertaken, involving a large part of the community.

[35] Impressions of matting on the bottom of ceramic vessels were discovered at Parța – Tell 1 (Miloia 1931: 173), Uivar – Gomilă (Scharl, Suhrbier 2005: Abb. 50), and Foeni – Cimitirul ortodox (Aghițoaie, Drașovean 2004).

2) Gathering of wild plants. Edible stems, leaves, roots, inflorescences, fruits, and nuts of a wide range of plants were gathered during the period under study. Of these, however, only the latter two are identifiable by means of analysis of charred macro-remains. Although gathering is characteristic for foraging communities, it is also practiced by farming communities to supplement their diet. This activity would have taken place primarily during the warm seasons when the fruits and nuts of different plants were ripe. It required less labor than cultivation, and it can be assumed that only one part of the community was involved. Ethnographic studies on modern foragers indicate that usually gathering is performed by women and children (Sillitoe 2002: 50; Lee 2009).

a) Early Neolithic

Evidence for the use of plants during the Early Neolithic exist from three archaeological sites, which are here presented chronologically. At Foeni – Sălaș, archaeobotanical analyses were conducted on the basis of macrofloral carbonized remains recovered by flotation during three archaeological seasons (Jezik 1998: 2). Even though floatation samples were systematically taken from around and within every feature as well as from the layers (Jezik 1998: 116), only a few charred seed remains were found (Jezik 1998: 121; Greenfield, Jongsma 2008: 124). Most of them were discovered within the pit-houses, while others were found within the Early Neolithic layer. Of the five pit-houses, charred remains existed only in three (Pit-house 7, Pit-house 23, and Pit-house 24) and the largest amount of remains was found within the largest one (Pit-house 23).

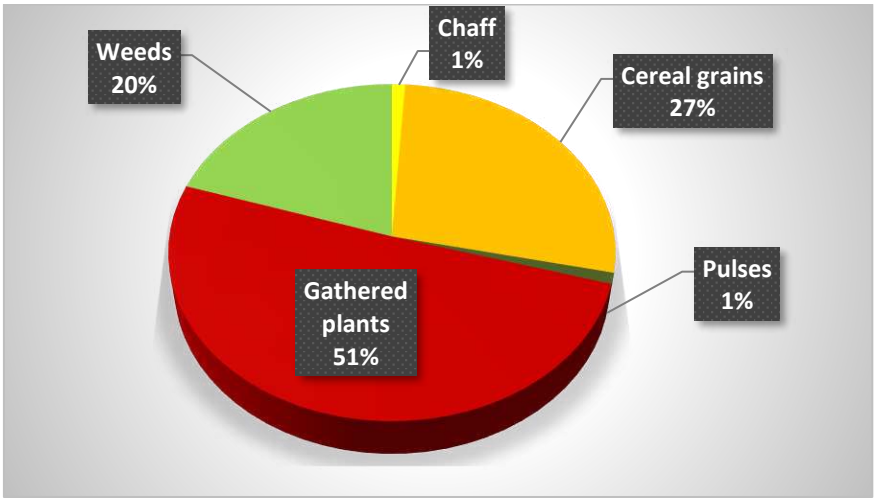

Fig. 61. Frequency expressed in percentage proportions of the main categories of plants at Foeni – Sălaș.

The archaeobotanical assemblage includes 17 species and 4 unidentifiable seeds (Tab. 10). Of the identified species, most numerous are the gathered plants (Fig. 61). They encompass cornelian cherries (*Cornus mas*), black elderberries (*Sambucus nigra*), and acorns (*Quercus*), of which the latter are by far the most common. Acorns were widely available throughout the study region, and it is highly likely that they were consumed by the prehistoric communities. Ethnographic studies indicate that parched acorns were consumed across Europe until recent times, especially in famine periods (Ayerdi et al. 2016). All acorns (whole and fragments), however, were discovered within the largest structure (Pit-house 23) of the settlement, scattered into both its infill, and its basal layer (Jezik 1998: 128). This might be a clue that acorns may have not been equally preferred by the all members of the community.

The remains of crops recovered include cereals and pulses. Excepting a rachis, the remains of cereals are grains. They were found scattered throughout the layers of the pit-houses and no pattern indicating specific crop processing stages was identified (Jezik 1998: 156). The lack of chaff indicates either that the processing took part in the surroundings of the site, which is more likely, or that the products were brought from elsewhere (Jezik 1998: 154). The grains include einkorn wheat (*Triticum monococcum*), emmer wheat (*Triticum dicoccum*), barley (*Hordeum vulgare*), oat (*Avena*), and broomcorn millet (*Panicum miliaceum*), of which the former is most frequent. The pulses are represented only by a single lentil seed (*Lens culinaris*). The charred seeds of weeds are quite numerous, and some of them, like those of goosefoots (*Chenopodium*), are edible; however, it is less likely that they were consumed (Jezik 1998: 143-144). The majority of them commonly grow in cereal fields (Jezik 1998: 154) and most probably were accidentally harvested together with the cereals. On the basis of these seeds, it could be inferred that harvesting took place in late summer and early fall (Jezik 1998: 155).

The analysis shows that the inhabitants of Foeni – Sălaș possessed the main crops domesticated in Southwestern Asia; this notwithstanding, they relied relatively little on agriculture, while foraging appears to have been an important supplement to their diet. The low reliance on agriculture at the beginning of the Early Neolithic was also characteristic for the wider region, for instance at Blagotin (Jezik 1998: 120-123), and may be explained by the necessity of the newly introduced crops to adapt to the temperate climate (Greenfield 1993: 111; Tringham 1971: 71).

At Dudeștii Vechi – Movila lui Deciov, phytolith analysis were carried out during the 2001 field campaign. The soil samples were collected from the profile of the trench, at depths of 0.85-2.10 m below the surface, corresponding to the two Early Neolithic cultural layers (Moravetz 2003: 35). The research revealed the presence of 16 types of aggregate phytoliths, of which five were identified: one type of barley (2), three types of wheat (5, 7 and 9) and possibly one type of straw (10). Types 2, 5 and 9 have higher frequency in the lower layer, while Type 7 has higher frequency in the upper layer (Moravetz 2003: 35-37). These phytoliths indicate that at least two types of cereals were cultivated in the surroundings of the site. During the archaeological investigations, charred macro remains of plants were attested, but they were not systematically collected by sieving or flotation. Within the lowest layer of the site, a few charred acorns were unearthed (Moravetz 2003: 38) indicating that gathering was taking place in the surroundings of the settlement. Remains of charred wheat were also found, among which glume wheat (*Triticum* cf. *timopheevii*) was identified (Fischer, Rösch 2004: 218); however the context in which it was found is not mentioned, making the dating of this type of wheat uncertain. The results show that both agriculture and gathering were practiced by the inhabitants of the settlement; nevertheless, a systematic archaeobotanical investigation is required to understand the role of each of these subsistence activities.

At Sânnicolau Mare – Bucova Pusta IV, 20 samples for flotation were collected from the Early Neolithic features in the period 2013-2014 (Krauß et al. 2018: 167). Slightly over half of them yielded numerous enough carbonized remains of plants to warrant study. The 319 recovered remains (Tab. 11) had middling to bad states of preservation and increased fragmentation. The assemblage is dominated by chaff and grains of cereals (Fig. 62), of which the latter are slightly more numerous. The most common chaff is that of einkorn (*Triticum monococcum*) and the same would be valid for the grains, but due to fragmentation

many einkorn grains are classified as einkorn/emmer (*Triticum monococcum/dicoccum*), and for this reason the grains of barley (*Hordeum vulgare*) appear to be more frequent than those of einkorn. Emmer (*Triticum dicoccum*) has lower frequency than einkorn and barley. The lack of oat and broomcorn millet, which were attested at Foeni – Sălaș, is remarkable. The pulses represented by lentil (*Lens culinaris*) and Farbaceae are very rare. This rarity is also characteristic for the wider region.

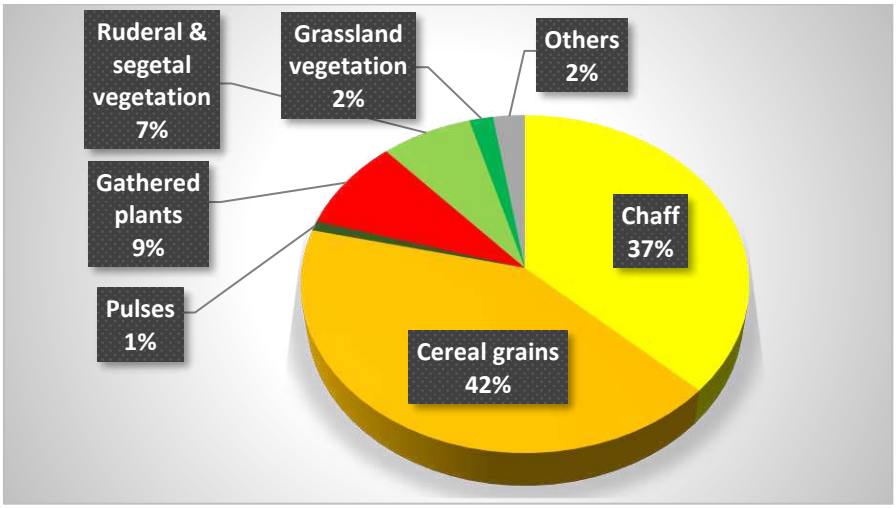

Fig. 62. Frequency expressed in percentage proportions of the main categories of plants at Sânnicolau Mare – Bucova Pusta IV.

The remains of gathered nuts and fruits include water caltrops (*Trapa natans*), cornelian cherries (*Cornus mas*), hazelnuts (Corylus avellana), bladder cherries (*Physalis alkekengi*), plums (*Prunus*) and acorns (*Quercus*). All burned remains of acorns and one water caltrop were found within an Early Neolithic oven (Feature K12), and it is highly probable that they were part of larger portions that were roasted there (Krauß et al. 2018: 170). By roasting acorns, the tannin, which has a bitter taste and is slightly toxic is removed (Ayerdi et al. 2016). The archaeobotanical results from Sânnicolau Mare – Bucova Pusta IV indicate that crop agriculture was of major importance to the economy but that foraging also represented a consistent supplement to the diet.

b) Middle Neolithic

Archaeobotanical analyses were carried out only at one site from this period, namely Parța – Tell 1. The analyses were made on the basis of 15 samples (Tab. 12) of charred macro-remains, which, however, were selectively collected from stocks of cereal grains found within burned houses during the archaeological expeditions in the late 1980's (Monah 1994; Lazarovici et al. 2001: 108, 141). For this reason, the analyses are biased towards cereal crops. The results of the first 5 collected samples were provided in percentages (Cârciumaru 1991: 63), which makes their assessment less precise. The first two samples contain only barley (*Hordeum vulgare* var. *nudum*), while the third, fourth and fifth samples comprise mixed einkorn (*Triticum monococcum*) and emmer (*Triticum dicoccum*), of which the former occurs in a larger quantity. Within the fourth and fifth samples, small amounts of barley are also attested. These results indicate that barley was mostly sown solely, while einkorn and emmer were sown together, with the former prevailing in the mixture.

The remaining 10 samples contain a total of 2225 charred seeds, of which all but one are cereal seeds (Monah 1994). The size of the samples greatly varies – from 17 to 872 seeds per sample. Overall, barley has the largest number of seeds, but its numerosity to some degree is influenced by the fact that the largest sample (G11) contains only barley. Samples G13 and G14, except for two grains of wheat in G 13, also contain only barley. On the other hand, Samples G2, G4, G9, and G10, except for four grains of barley in G4, contain einkorn, emmer and bread wheat (*Triticum aestivum*), while Samples G1, G3 and G6 contain emmer and bread wheat. In three samples, the bread wheat dominates, while in the remaining four the emmer prevails. These facts again indicate that barley was separately sown, whilst the three types of wheat were sown together. Einkorn, however, was less common than the remaining two types of wheat. The bread wheat was not attested in the Early Neolithic archaeobotanical assemblages, and probably it was introduced in the region under study during the Middle Neolithic. This type of wheat was obtained somewhat later than the others from the hybridization of emmer and Tausch's goatgrass, and was more resistant to continental winters and humid summers (Zohari et al. 2012: 47-49), which may be the reason why it became widely used. The implied methodology of sampling does not permit the ratio between cultivated and gathered plants to be determined. Nevertheless, the multiple discovery of substantial stocks of cereals within the houses, as well as the presence of compartments for cereals within most of the houses (Lazarovici et al. 2001: 15) indicated that cereal based agriculture was practiced on a large-scale.

c) Late Neolithic

Archaeobotanical analyses were carried out at two Late Neolithic sites. At Uivar – Gomilă, the analyses were based on charred botanical macro-remains recovered through flotation. The flotation samples consisted of 10 l cultural deposits taken from all datable features during the period 1999-2002 (Fischer, Rösch 2004: 210). In the current study, only the contexts with a certain Vinča C dating are included (Tab. 13, Contexts 1-5). The largest concentration of charred floral remains was found within the inner ditch, while the lowest concentration was discovered within the cultural layer.

The archaeobotanical assemblage is overwhelmingly dominated by cereal chaff, which constituted 97,66 % of the total (Fig. 63). Chaff was obtained by threshing and winnowing the harvested cereals, and was used as temper for construction clay and as fire fuel. A large amount of chaff and a perforated kiln floor were discovered within the inner ditch, which indicates that chaff could have been used for producing the reducing atmosphere necessary for the pottery production (Schier 2008:56). The chaff of einkorn (*Triticum monococcum*), glume wheat (*Triticum* cf. *timopheevii*), and emmer (*Triticum dicoccum*) is most common, while surprisingly low frequency has the chaff of bread wheat (*Triticum aestivum/durum*). The barley chaff (*Hordeum vulgare*) is also very scarce; however, this is due to the predominance of the hulless (naked) barley (*Hordeum vulgare* var. *nudum*) (Fischer, Rösch 2004: 213). The second largest type of charred remains are the cereal grains. When the chaff is not taken into account, they represent 89.94% of the assemblage. In general, the frequency of species is similar to that of the chaff, with the differences that barley is not misrepresented, and that emmer and glume wheat are counted together as their caryopses cannot be differentiated. Barley grains are as frequent as the bread wheat grains. Within the exterior ditches, two additional cereal taxa, broomcorn millet (*Panicum miliaceum*) and rye (*Secale cereale*), were found in a very low frequency and it is debatable as to whether they were

deliberately cultivated or rather existed as an unwanted mixture/impurity of the remaining cereals (Fischer, Rösch 2004: 215).

The remains of pulses are seldom and include three taxa: lentil (*Lens culinaris*), pea (*Pisum sativum*), and bitter vetch (*Vicia ervilia*). The oil and fiber plants are also scarce, and only the common flax (*Linum usitatissimum*) can be considered as certainly cultivated, while, in the case of the poppy, it cannot be determined whether it is domestic (*Papaver somniferum*) or wild (*Papaver rhoeas/dubium*) due to the low preservation of its seeds. In general, the seeds of poppy are rare in archaeological contexts because the necessary time and temperature intervals for becoming charred are very narrow (Fischer, Rösch 2004: 215-216).

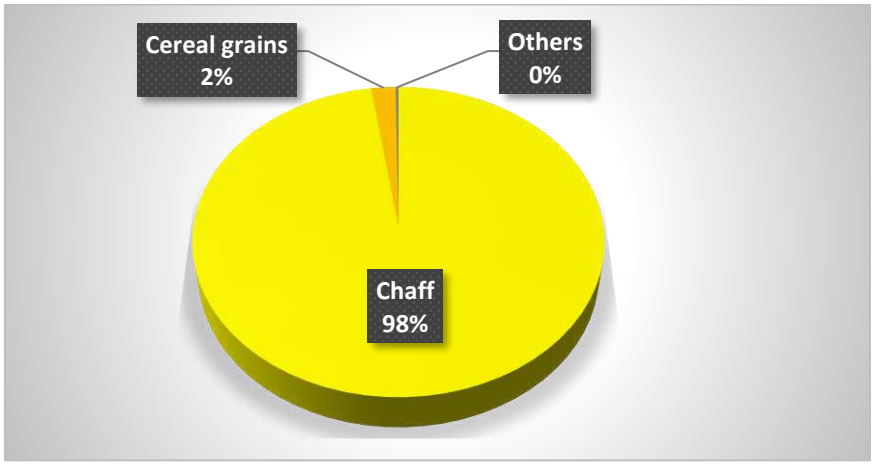

Fig. 63. Frequency expressed in percentage proportions of the main categories of plants in the Late Neolithic layers of Uivar – Gomilă.

The fruits and nuts gathered are represented by a quite large diversity of species; however, they occur in a low frequency. Cornelian cherries (*Cornus mas*) and hazelnuts (*Corylus avellana*) are more common, while plums (*Prunus spinosa* and *Prunus insititia*), strawberries (*Fragaria*), bladder cherries (*Physalis alkekengi*), dwarf elder berries (*Sambucus ebulus*), water caltrops (*Trapa natans*), and dewberries (*Rubus caesius*) are less common. The researchers stress that although the frequency of gathered plants is low, their role should not be underestimated because investigations of wetland settlements revealed that the remains of gathered plants appear in much lower quantity within burned layers than within unburned detritus (Fischer, Rösch 2004: 217). The field weeds are also represented by a large variety of species, which have a low frequency. This low frequency, however, is surprising since the large assemblage is dominated by chaff which usually is mixed with small seeds of field weeds (Fischer, Rösch 2004: 217). The results of the archaeobotanical analysis indicate that crop cultivation played a very significant role for the economy of the settlement Uivar – Gomilă, while gathering was a supplement to the diet.

Archaeobotanical analyses were conducted on food residue found within a ceramic vessel during the rescue excavation at Tiszasziget – Agyagbánya in 2008 (Pető et al. 2013). The vessel was discovered together with two other complete vessels and a grinding stone fragment within an unusually large central post foundation pit of a long house. The enlargement of the pit and the deposition of vessels and grinding stone fragment are interpreted as a building offering (Pető et al. 2013: 68).

Macro-archaeobotanical analysis revealed that the compacted organic matter on the bottom of the vessel was a paste made of finely ground cereal flour (up to 0.1 mm grains). Traces of

incomplete charring indicate that the paste was heated, while the presence of air bubbles suggests that it fermented before being decomposed. Micro-archaeobotanical analysis led to the identification of phytoliths, starches, and pollen. The phytoliths are of Gramineae leaves and inflorescences, which belong to both grasses and cereals. It is estimated that 21.83% of the organic material was of weed flora. Five starches of cereals were identified, which are most likely of wheat. Of the 30 recovered pollen grains, one is of Gramineae while the remaining are of high-spine *Asteraceae*. Morphometric measurements on three multi-cell silicified Gramineae units revealed that two belong to *Avena* genus and one to *Triticum* genus, most probably einkorn (*Triticum monococcum*). In addition, ion exchange column chromatography analysis identified 16 free amino acids, which also indicate that the organic matter had cereal origin (Pető et al. 2013: 63-68).

The results of the research at Tiszasziget – Agyagbánya demonstrate undoubtedly that cereals were used in the preparation of food; however, the traces of leaf, chaff and, wild plants discovered suggest that the flour used contained impurities. Since the food was intended for ritual acts, it might be assumed that a good flour was used, and, therefore, it is likely that separating the impurities was not an easy task in this period.

d) Early Eneolithic

Evidence for the use of plants during the Early Eneolithic exist from Uivar – Gomilă (Fischer, Rösch 2004: 217-218). The archaeological investigations revealed, however, only few Tiszapolgár features, and, for this reason, the floral remains recovered by flotation are fewer (Tab. 12, Contexts 8-10) than those from the Vinča C features. Most of them were discovered within the ditch. As in the previous period, chaff dominates the archaeobotanical assemblage, constituting 82.16 % of it (Fig. 64). Most frequent is the chaff of einkorn (*Triticum monococcum*), second in frequency is that of glume wheat (*Triticum* cf. *timopheevii*) and less frequent is that of emmer (*Triticum dicoccum*). The cereal grains are also quite numerous. Most common are those of einkorn and glume wheat, while those of bread wheat (*Triticum aestivum/durum*) and barley (*Hordeum vulgare*) are less frequent.

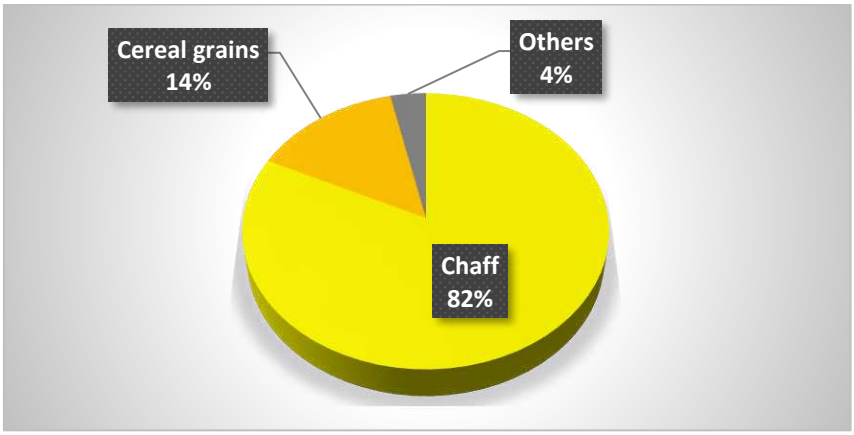

Fig. 64. Frequency expressed in percentage proportions of the main categories of plants in the Early Eneolithic layers of Uivar – Gomilă.

The charred remains of the remaining groups of plants are seldom. The pulses include lentil (*Lens culinaris*) and pea (*Pisum sativum*), while the fruits and nuts gathered are represented by cornelian cherries (*Cornus mas*), hazelnuts (*Corylus avellana*), plums (*Prunus*) and bladder cherries (*Physalis alkekengi*). Besides the charred remains, a mineralized seed of

grape was also found. Most probably, this seed is of the wild grape. The archaeobotanical analysis indicates that cereal cultivation continued to play an important role in the economy of Uivar – Gomilă, but was less intensive than in the previous period. Gathering also continued to supplement the diet.

For the remaining two Eneolithic periods, currently no evidence regarding the use of floral resources exists.

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Archaeobotanical research in the study region was only carried out in the last few decades, and the number of investigated sites remains low. The currently available evidence, however, permits the identification of the main trends in the use of plants for most of the period studied.

In the beginning of the Early Neolithic, the incoming farmers introduced in the study region the main crops domesticated in Southwestern Asia. These included einkorn, emmer, barley, oat, broomcorn millet, lentil, and probably other pulses. In the first half of the Early Neolithic, however, they played a relatively limited role within the economy. The reason for this may be the continental climatic conditions to which the plants had to be adapted. During this period, the gathering of fruits and nuts contributed substantially to the diet. In the second part of the Early Neolithic, gathering continued to be practiced, but the cultivation of einkorn, emmer and barley was substantially intensified, leading to the development of a cereal based economy. Pulses, however, continued to be seldom in their occurrence. Together with the intensification in the exploitation of cereals the "wheat ear" ornamental composition on the pottery became very common suggesting that besides economic value the cereals also acquired a symbolic one.

Currently, no research on the use of flora during the first part of the Middle Neolithic was conducted. In the second part of the period, the communities began to cultivate cereals on a much larger scale, and a new type of wheat, namely bread wheat, which is more resistant to continental climate conditions, was introduced. No investigations were carried out on the wild flora; nevertheless, it is likely that gathering continued to be practiced.

In the first half of the Late Neolithic, cereal cultivation was further increased, reaching its zenith. It is likely that during this period glume wheat was introduced in the study region, becoming the second most frequent after the einkorn. The very large quantities of cereal charred remains found within the cultural deposits indicate that vast swaths in the vicinity of the settlements were cultivated. Analyses carried out on food residue found within a vessel, deposited as building offering give some clues as to Late Neolithic cuisine. The food was a pastry prepared from a finely ground flour which was heated. The flour was made from a mix wheat and oat, but also contained many organic impurities including wild plants. Besides the plants cultivated for consumption, flax was cultivated for its fibers. Foraging also was practiced, and the variety of the collected fruits and nuts was large.

In the Early Eneolithic, cereals continued to be the most common crops; however, they were not cultivated on such a large scale like in the previous period. Pulses remained seldom, and the plants gathered also contributed to the diet.

2. Faunal resources

During the study period, several faunal species were exploited for their meat, bones, antlers, hide, fur, feathers, and company. In this subchapter, we focus primarily on the species used for nutrition. The evidence for the use of animal resources comes primarily from analyses on macrofaunal faunal remains recovered through hand-collection, while sieving for micro-faunal remains was applied only at Foeni – Sălaș and Sânnicolau Mare – Bucova Pusta IV. For this reason, in most cases the smaller fauna such as fish, birds, and reptiles are misrepresented. In the use of faunal resources, four ResourceComplexes can be identified:

1) Raising livestock. It was based on four domestic species, namely cattle, sheep, goat, and pig introduced within the study region from Southwestern Asia during the period of neolithisation. Throughout the study period, these species were raised primarily for their meat, but they also served other purposes. Their bones and horns were used as a raw material for different tools, their hides for clothing, and their dung as fertilizer. In addition, the domestic animals (especially the bull) played important role in the community's ideological sphere as indicated by zoomorphic figurines and zoomorphic architectural decorations. Furthermore, during the Late Eneolithic, cattle were used as draught animals. The fifth domestic animal that the Neolithic and Eneolithic communities possessed, namely the dog, was used to provide aid in herding and protect the livestock.

Raising livestock included several activities, the main of which was herding, that is one or several persons keeping together a group of animals (herd), moving it from place to place for grazing and protecting it from predators. The other activities included assisted breeding (selection), culling, and processing and storing the meat. Storing could comprise preservation techniques such as meat smoking. Unlike plant cultivation, herding did not require a large number of individuals to be involved in activities and therefore a small number of persons could produce the necessary meat for the whole community.

It is likely that the domestic animals when not supervised (during the night) were kept in enclosures (pens). The outer ditches at Uivar – Gomilă (see Chapter IV) are believed to have served such a function (see Chapter IV). It is also possible that during the winter the animals were kept in shelter (barn) along with water and additional fodder (cereals and hay), provided because cattle and sheep (unlike the horse) cannot push aside ice-encrusted snow to graze, and cannot break ice to drink water (Anthony 2007: 200). As of yet, no traces of shelters have been found within the study region, but this may be due to the fact that excavations are rarely carried out in the outskirts or immediate vicinity of the settlements, and that the light constructions present little to no archaeologically detectable traces.

2) Hunting and trapping. Though these two activities are undertaken differently, they have the same purpose nonetheless, that is, the capture of a wild animal. Hunting cannot be differentiated archaeologically from trapping, and it is uncertain which of both was more common. In general, most hunted or trapped animals were the mammals and birds, but, in certain cases, reptiles such as turtles were also targeted.

Certain evidence that hunting was practiced are the projectile points[36] and sling bullets[37] often found within the settlements. The projectile points were exclusively made of bone,

[36] Sajan – Domboš (Girić 1972: T. I-II), Tiszasziget – Andróé-alja (Banner, Parducz 1946-1948: Fig. XI. 1-3, 6-8), Aradac – Kameniti vinogradi (Карапанцић 1922: Таб. VI.15-20), Parța – Tell 1 (Lazarovici et al. 2001b: Fig. 3. 2-5) and Čoka – Kremenjak (Banner 1960: Pl. XXLIII. 1, 10, 14-18).
[37] Parța – Tell 1 (Lazarovici et al. 2001b, Pl. 5.2; Lazarovici et al 2006: Fig. 48), Hodoni – Pocioroane (Moga, Radu 1979: Pl. II) and Uivar – Gomilă (Kuhn, Beigel 2005: Abb. 43).

which may be due to the lack of stone in the region, and presumably were primarily used for hunting large game. On the other hand, the sling bullets were made of fired clay and most probably were used for hunting small game such as birds. Trapping in general is a practice that does not leave archaeologically detectable traces, and therefore the kinds of traps used remain presently unknown to us.

Hunting could have been undertaken individually and in groups; nevertheless, the hunting of large game required team work, planning, and coordination. The previously stereotypical idea that hunting in pre-modern societies was performed exclusively by men is increasingly being challenged (Tilley 2003: 60; Owen 2005), and it is more likely that adolescents and adults of both genders participated in hunt parties; however, the hunt of large game (aurochs, wild horse, red deer) and predators (bear, wolf), which required more strength most probably was performed primarily by men. It is also likely that the dogs also participated in hunt parties.

3) Fishing. The large rivers and oxbow lakes in the low plain accommodated a large variety of fish, and some species could grow to a considerable size. The communities settled in proximity to the rivers and oxbow lakes exploited this resource. Fish could have been captured in a variety of ways, yet the preserved evidence indicating the techniques applied is quite limited. The discovery of large harpoons[38] made of antlers and fishing hooks[39] made of bone within few sites indicate that spearing and angling was practiced. Netting may have also been practiced and this is suggested by the large ovoid ceramic objects perforated in their center often discovered [40] that are interpreted as weights for fishing net. Other techniques that may have been applied but are not archaeologically identifiable are capturing by hand and trapping. Akin to hunting, fishing could have been carried out individually or in groups, by adolescents and adults of both genders, but the capturing of large prey such as catfish required teamwork.

4) Mollusk gathering. In the study period, snails and bivalves were gathered for consumption. Terrestrial snails were available throughout the study region, and could easily be collected in the warm seasons, especially in spring and autumn when they are most active. On the other hand, the freshwater snails and bivalves were consumed primarily by communities settled in proximity to rivers and oxbow lakes. Most probably, the groups gathering wild plants also gathered mollusks and, as previously mentioned, ethnographic studies on modern hunter-gatherer communities indicate that mostly women and children gathered (Sillitoe 2002: 50; Lee 2009).

1. Early Neolithic

Archaeozoological investigations were carried out at four Early Neolithic sites. The earliest of them, Foeni – Sălaș, has a faunal assemblage (Tab. 14) dominated by remains of terrestrial gastropods (Fig. 65) of which the most common are those of the escargot snail (*Helix pomatia*). The investigators Haskel Greenfield and Tina Jongsma (2008: 124), however, regard all snails as intrusive into the archaeological sediments. This assumption is based on

[38] Parța – Tell 1 (Miloia 1931: Fig. 7; Lazarovici et al. 2001b: Fig. 40.3), Srpski Krstur – Bajir (Milleker 1893a: Fig. 8; Надлачки 1929: 9) and Čoka – Kremenjak (Banner 1960: Pl. XXLVI.15-46).
[39] Uivar – Gomilă (Kuhn, Beigel 2005: Abb 44) and Parța – Tell 1 (Lazarovici et al. 1995: Fig. 13.10).
[40] Sajan – Domboš (Girić 1972: T. I), Dudeștii Vechi – Movila lui Deciov (Nagy Kisléghi 1911: T. VI. 4-7), Srpski Krstur – Bajir (Milleker 1893a: Fig. 14, 17), Iđoš – Gradište (Гирић 1957: 221), Novi Bečej – Matejski Brod (Рашајски 1952: 113), Parța – Tell 1 (Lazarovici et al. 2001b: Pl. 95.2), Uivar – Gomilă (Kuhn, Beigel 2005: Abb 44) and Hodoni – Pocioroane (Moga, Radu 1979: 231).

the fact that most of the recovered snail shells are intact, which they interpret as indication of not being consumed. The intactness of the shells, however is a weak argument because the body of a cooked snail can easily be extracted from the shell with a stick without leaving the slightest trace. On the contrary, the fact that the snail shells are often found collectively, forming layers within the Early Neolithic features, indicates that they were collected for consumption and later their shells were discarded into the pits. Furthermore, at Sânnicolau Mare – Bucova Pusta IV, we might notice that shells of terrestrial snails occur together with shells of aquatic snails and mussels, forming layers within the features, and the aquatic mollusks can by no means be regarded as intrusive. At Sânnicolau Mare – Bucova Pusta IV, intrusive snails have also been attested (usually *Cepaea* sp.); however, they have never been found collectively forming layers. In addition, on the basis of their appearance, the intrusive snails could be easily be separated from the consumed ones, as the former still possessed brightly colored shell (Krauß et al. 2018: 165). Therefore, since evidence exists that snails were consumed in the remaining Early Neolithic sites, there is no reason to assume that they were not consumed at Foeni – Sălaș. Moreover, in the oral tradition of the inhabitants of the village of Foeni, accounts exist that snails were consumed during crop failures up to modern times (Greenfield and Jongsma 2008: 124). The shells of aquatic mollusks are quite seldom in contrast to the terrestrial examples. They include the great pond snail, great ramshorn, and the painter's mussel.

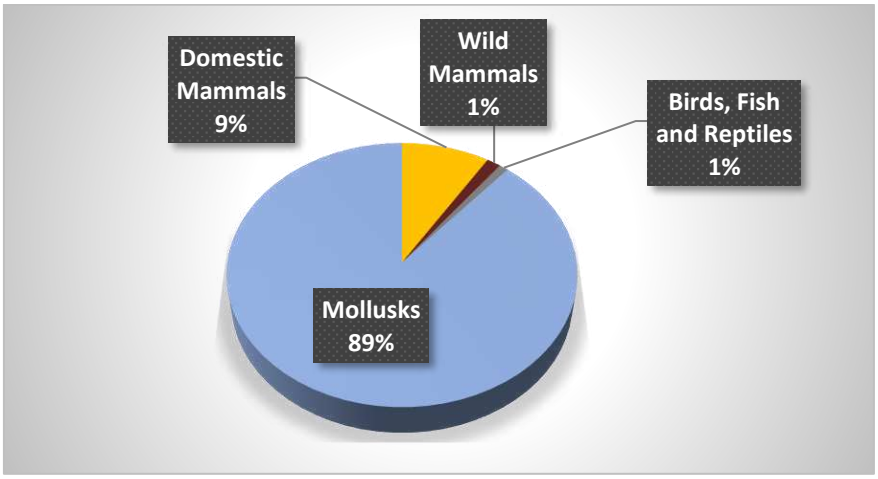

Fig. 65. Frequency expressed in percentage proportions of the main categories of animals at Foeni – Sălaș.

The quantity of domestic animal remains compared to the extent of the excavated area is quite large. The bones of sheep/goat (*Ovis/Capra*) have the highest frequency, being followed by those of cattle (*Bos taurus*) and, in third place, pig remains (*Sus scrofa* dom.). The bones of sheep and goat often cannot be distinguished from each other due to their similarity and are counted together. However, on the basis of those that could be distinguished, it was established that the ratio of sheep to goat is 3:1. Therefore, cattle were most common, while sheep and goat were ranked second and third respectively. The importance of cattle is also indicated by a zoomorphic figurine of a bull found at the site (Ciobotaru 1998: Pl. I. 9-10). Of the domestic animals, least common was the dog (*Canis familiaris*). Unlike the Mesolithic, when consumption of dog meat was not uncommon (Bonsall 2008: 262; Dimitrievi ć 2008:127), the scarcity of dog remains and the lack of cutting marks on them suggest that dogs were not part of the communities' diet.

The bones of wild animals are few, indicating that hunting was not a major activity. Red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*) were the most hunted. Aurochs (*Bos primigenius*), wild boar (*Sus scrofa* fer.), and hare (*Lepus europaeus*) were less often hunted, while the wolf (*Canis lupus*), bear (*Ursus arctos*), and wild horse (*Equus* sp.) were only occasionally hunted. Surprisingly low is the frequency of fish, which cannot be put down to the sampling strategy since sieving and flotation were applied. Before interpreting the results, it has to be mentioned that although the remains of mollusks are more numerous than the remains of domestic animals, it should be kept in mind that the meat on an average mammal bone renders more energy than the body of an average mollusk. On the basis of the archaeozoological analysis, it can be inferred that the community relied on livestock rearing and mollusk gathering, while hunting and fishing played a minor role in the community's diet.

The archaeozoological assemblage recovered during the 1998-2001 archaeological campaigns at Foeni – Gaz (El Susi 2001) is considerably smaller than that from Foeni – Sălaş, but the distribution of species is very similar (Tab. 15). The mollusks dominate the assemblage (Fig. 66), of which the most common is the escargot snail. The remains of domestic animals are four times more numerous than those of hunted animals. Of the remains of domestic mammals, those of sheep and goat are the most numerous, but were they not counted together, then the remains of cattle would rank first. Bones of pigs are seldom. The hunted animals include the following species listed in order of decreasing frequency: red deer, aurochs, roe deer, wild boar, beaver, and wild cat. The last two species most probably were hunted primarily for their fur.

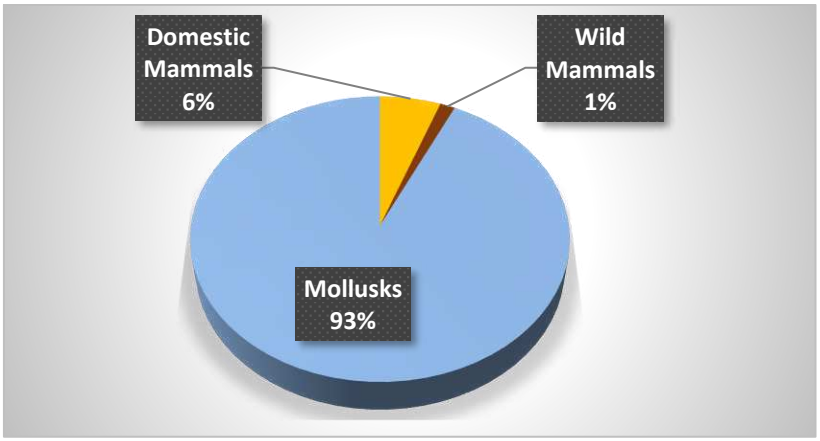

Fig. 66. Frequency expressed in percentage proportions of the main categories of animals at Foeni – Gaz.

Preliminary results of the archaeozoological analysis carried out at Sânnicolau Mare – Bucova Pusta IV are currently available (Krauß et al. 2018: 162-167). The archaeozoological assemblage (Tab. 16) is dominated by mollusk shells, of which most common are those of freshwater gastropods (Fig. 67). They include the river snail (*Viviparus acerosus*), great pond snail (*Lymnea stagnalis*), and the great ramshorn (*Planorbarius corneus*). These snail species are edible, and their shells are regarded as consumption refuse. An indication in this sense is the discovery of a concentration of shells of these snail near a large oven (Feature G7). The group of freshwater bivalves ranks second in frequency, and includes the painter's mussel (*Unio pictorum*) and the swollen river mussel (*Unio tumidus*). The least common mollusks in the assemblage are the group of terrestrial gastropods. These comprise the large edible

escargot (*Helix lutescens*) and the small snail *Cepaea*. As previously mentioned, due to their discolored appearance and collective occurrence (Feature G12), the escargot shells are regarded as consumption refuse, while the *Cepaea* are considered intrusive into the archaeological deposits because of their brightly colored appearance (Krauß et al. 2018: 165).

The domestic mammals constitute about a third of the faunistic assemblage. The remains of sheep/goat are the most common, and they are more than twice as frequent as those of cattle. It was also determined that the ratio of sheep to goat is 7:1, which indicates that the sheep rank first, cattle second and the goats third. The importance of sheep is indicated by a relief representation of a billy-goat on a ceramic vessel found at Sânnicolau Mare – Bucova Pusta VI (Kisléghi 1907: 275, Fig. I.2), located ca. 0.6 km south of Bucova Pusta IV. Some of the remains identified as *Sus scrofa* may be of domestic pig, however, there is no clear evidence for this. This uncertainty indicates that either the Early Neolithic community did not possess domestic pigs, or, if they had, the number of pigs was extremely low. The remains of wild mammals are seldom. They comprise the following species listed in order of decreasing frequency: red deer, wild boar, roe deer, hare, and aurochs. Remains of rodents were also recovered, but they are not included in the analysis since are considered to be intrusive.

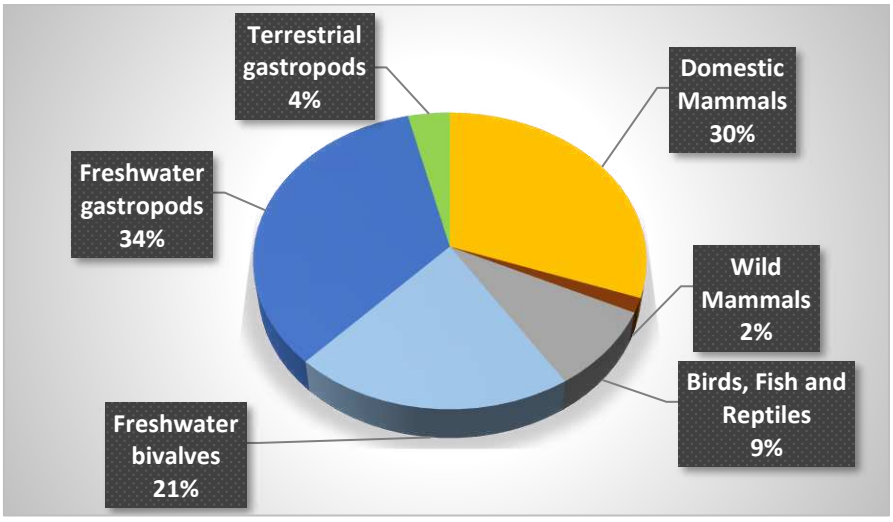

Fig. 67. Frequency expressed in percentage proportions of the main categories of animals at Sânnicolau Mare – Bucova Pusta IV.

Birds and fish are underrepresented in the faunistic assemblage, but their large diversity of species is remarkable. Among the hand-collected faunal remains, four/five fish taxa have been identified: sturgeon (*Acipenser* sp.), wild carp (*Cyprinus carpio*)/unidentified cyprinids (Cyprinidae), pike (*Esox lucius*), and catfish (*Silurus glanis*). The remains of cyprinids and pike are mainly of medium-sized fishes (standard length of 20-40 cm), while the catfish remains are from both medium and large individuals, with lengths of up 170 cm. Within the sieved samples few more fish taxa were found: roach (*Rutilus* sp), common bream (*Abramis brama*), loaches (*Cobitidae*), and zander (*Stizostedion lucioperca*). The size of their remains indicate that small-sized fishes (with a standard length of 10-20 cm) were also targeted for consumption, and that without sieving the sediments they would not have been collected (Krauß et al. 2018: 165). The birds include swan (*Cygnus* sp.), mallard (*Anas platyrhychos*), common pochard (*Aythya ferina*), black grouse (*Lyrurus tetrix*), and little bustard (*Tetrax tetrax*). Reptiles are represented by few carapace fragments of pond turtle (*Emys orbicularis*). The results of the archaeozoological analysis indicate that the inhabitants of Bucova Pusta IV

relied on herding (with a focus on sheep) and mollusk gathering, while hunting played a minor role in their economy. Unlike the situation at the two sites near Foeni, where the majority of the gathered mollusks were terrestrial, at Bucova Pusta IV the aquatic component dominated. Since all three sites were located in proximity to water courses, the two strategies employed may be the result of different preferences.

Of the archaeozoological analyses carried out at Parța – Tell 2, currently only the mammal assemblage is published (Tab. 17). This assemblage is dominated by remains of domestic animals, which include the following species listed in order of decreasing frequency: sheep/goat, cattle, and pig. Cattle remains are more than half of the sheep/goat remains, and it may be presumed that sheep, as in other Early Neolithic sites, is far more common than goat. Therefore, it is likely that sheep ranks first in frequency, cattle rank second, goat ranks third and pig ranks fourth. Of the wild mammals, red deer is most common, roe deer and wild boar rank second with equal values, and aurochs ranks third. Although it is difficult to assess the role of the fauna since the analysis was conducted only on mammals, it becomes clear that the domestic species represented an important food resource for the community, while the wild animals played a less significant role in subsistence.

Archaeozoological evidence from Dudeștii Vechi – Movila lui Decoiv also exists (Tab. 18); however, the faunal remains were analyzed as a bulk sample and not by occupational layers, and, as the tell settlement was occupied in different periods, these results are of little value. For this reason they are not included in our study.

2. Middle Neolithic

Evidence for the use of fauna during the first part of this period exists only from Tiszasziget – Agyagbánya. 529 bones recovered from Vinča A pits during the rescue excavations were investigated by Alexander Bököny, but were only summarily published (Trogmayer 1978-1979: 298). He identified 423 domestic animal bones, of which 355 are of cattle, and 62 of sheep/goat. The remaining 106 bones most probably are of wild animals. Shells of mollusks were not collected for analysis; however, it is reported that during the excavations many shells of mussels were evinced (Trogmayer 1978-1979: 297). The results of the investigation indicate that domestic animals played an important role for the economy, and that foraging was practiced. Cattle became again the most common domestic animals, but the large disparity between the frequency of their remains and those of sheep/goat seems to be exaggerated, perhaps due to a collection strategy bias with emphasis upon the larger bones.

Archaeozoological evidence for the second part of the Middle Neolithic exists from three sites. The site of Parța – Tell 1 has the lowest three layers dated to the second part of this period, permitting the tracing of changes in the use of faunal resources (Tab. 19). Before discussing the changes, we will present the general characteristics for all three layers. The faunal assemblage is dominated by mammal remains (Fig. 68), and those of domestic mammals are less numerous than the wild ones. Of the domestic animals cattle have the highest frequency, far exceeding the other taxa, especially in Layer 7b-c, where they constitute 63.01%. Pig is second in frequency, sheep ranks third, goat ranks fourth, and dog ranks fifth. The large predominance of the cattle is unsurprising since the bull was venerated and had a central place in the iconography of the site. The central statue and the two pseudo-columns in Sanctuary 2 were topped with a bull's head made of clay (Lazarovici et al. 2001a: 222, 233), skulls of bull were found within Sanctuary 1 (Lazarovici et al. 2001a: 211) and House P43 (Lazarovici et al. 2001a: 144), and a zoomorphic figurine representing a bull was

found within the site (Drașovean, Topolovcici 1989). It is likely that sheep and goat were also charged with symbolic meaning, since skulls of these animals were found within the two Sanctuaries (Lazarovici et al. 2001a: 209; Lazarovici et al. 2001a: 230), and a zoomorphic figurine depicting a sheep was found within the site (Drașovean, Ciobotaru 2001: Fig. 4).

Of the hunted mammals, the remains of red deer, roe dear and wild boar are abundant, while the remaining species, which include bear, wolf, fox, hare, beaver, wild cat, and pine marten have very low frequencies. Most probably, the latter were hunted primarily for their fur. The remains of fish and birds are seldom, but their quantity would be larger if sieving was applied, and, since the site is located on the riverbank, it is likely that fishing was an important subsistence strategy. The mollusks have a low frequency, which suggests that they played little role in the diet. The discovery of a bowl with shells of mussels in the vicinity of a fireplace is an indication for their consumption (Lazarovici et al. 2001: 30). By analyzing diachronically the frequency of the species, two tendencies may be noted. Firstly, the ratio of domestic pig increases over time, a process which may also be witnessed in the following periods (see below), and secondly, the frequency of sheep/goat, roe deer, and mussels decreases over time. The analysis indicates that, during the Middle Neolithic, the inhabitants of Parța – Tell 1 relied on husbandry with an emphasis on cattle as well as hunting of wild game. Fishing probably also played an important role within the economy, but the recovery strategy (no screening) does not permit its assessment. On the other hand, mollusk gathering contributed very little to the diet.

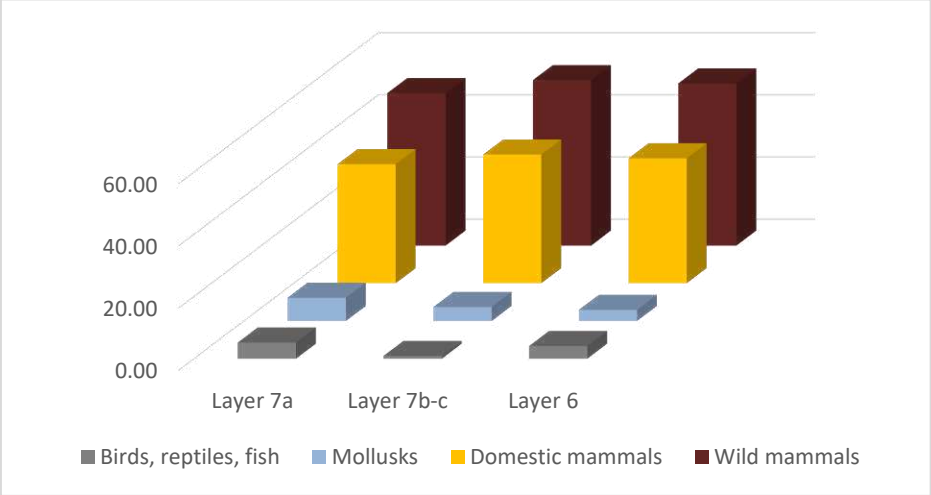

Fig. 68. Frequency expressed in percentage proportions of the main categories of animals in the Middle Neolithic layers of Parța – Tell 1.

The faunal remains recovered from the Middle Neolithic layer of the site Sânandrei – Ocsaplatz are seldom, and all but one are of mammals (Tab. 20). According to the archaeozoological investigators, the scarcity of small-sized remains is accounted for by the recovery methodology (Jongsma, Greenfield 1996: 297). The domestic animal remains are more numerous than the wild ones, but the difference between them is not very large. Of the domestic species, cattle are by far the most common, sheep/goat rank second, and pig ranks third. Of the hunted game, the wild boar has the highest ratio, red deer ranks second, and roe deer occupies third position. A single wolf bone was also attested, suggesting that it was only occasionally hunted. The archaeozoological analysis indicates that the inhabitants of Sânandrei – Ocsaplatz had a subsistence based upon stock rearing with a focus on cattle as

well as hunting wild game. Due to the recovery methodology, it cannot be established as to whether fishing also contributed to the diet.

At Uivar – Gomilă, faunal remains for zooarchaeological investigations were separately collected from each building phase, excepting the last two, which were taken together (Tab. 21). This collection by phase permits the tracing of changes in the use of fauna occurring within the period. Currently, however, only the results of the analysis on mammals are available (El Susi 2017a; El Susi 2017b).

In all five phases, the remains of domestic mammals prevail over those of wild mammals (Fig. 69). In the earlier phases, the disparity between them is larger, but it decreases in the later phases, indicating that in the later phases hunting becomes increasingly practiced. Of the domestic taxa, cattle are by far the most frequent. In the first three phases (5, 4b, 4a), second most abundant are the remains of sheep/goat, while in the last two phases (3c, 3d) are the those of pig. This indicates that the preference for pigs increased over time. Of the wild mammals, the red deer, roe deer, and wild boar predominate in all phases; however, in the earliest three phases (5, 4b, 4a), either the red deer or the roe deer rank first in frequency, while in the last two phases (3c, 3d) the wild boar ranks first. This shows that, together with the increasing interest in the domestic pig, the interest in the wild boar also increased. The results of the analysis indicate that, during the Middle Neolithic, the inhabitants of Uivar – Gomilă depended upon husbandry with an emphasis upon cattle, and, towards the end of the period, hunting also became an important subsistence activity.

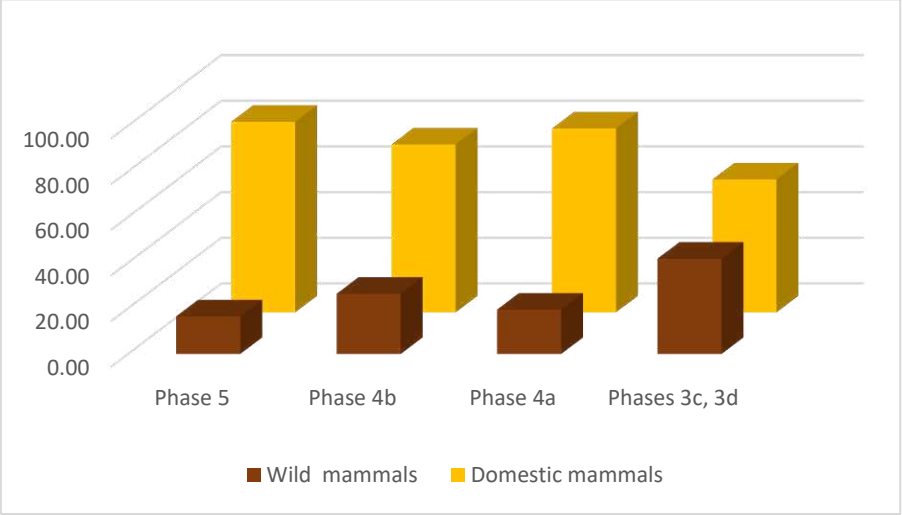

Fig. 69. Frequency expressed in percentage proportions of the main categories of animals in the Middle Neolithic layers of Uivar – Gomilă.

3. Late Neolithic

Archaeozoological research was carried out at six Late Neolithic sites, three of which were occupied in both the first and in the second parts of the period. Uivar – Gomilă is one of the sites inhabited in both parts of the Late Neolithic; however, only faunal remains of mammals recovered from the layers dated to the first part of the period have been published as of yet. These remains from two different locations were collected from the area of the tell (Tab. 22) and the defensive ditches that encircle it respectively (Tab. 23). In the former location, the stratigraphic setting made possible the collection of the samples according to phases (Vinča C1 and Vinča C2). This recovery strategy, on the one hand, permits changes in the

exploitation of the faunal resources to be traced on the phase level, and on the other hand allows the examination of the distribution of faunal remains inside and outside the settlement.

On the tell (Trenches I-III), the remains of domestic mammals prevail over the wild ones in both phases but, if in Phase Vinča C1 the ratio of domestic to wild is about 2:1, in the following phase the difference between them is less pronounced (Fig. 70). In Phase Vinča C1, the remains of sheep/goat rank first, those of pig rank second and the remains of cattle rank third. The ratio of sheep to goat, however, is unknown, which makes difficult the assessment of the frequency order of species. It is likely that both pigs and cattle were more abundant than goats, and probably that the pigs also exceeded the sheep. In Phase Vinča C2, the remains of cattle rank firstmost, those of sheep/goat rank second, and the remains of pig rank third. Since the values of the last two are close, it is very likely that the order of species in decreasing frequency was the following: cattle, pigs, sheep, and goats. A diachronic comparison indicates that the ratio of cattle increases over time, while that of pig and sheep/goat decreases. Most probably, remains of domestic dog were also recovered during the archaeological excavations, but were not included in the report. Of the wild mammal species, the report includes only the four most frequent ones. In Phase Vinča C1, red deer ranks first in frequency, roe deer ranks second, wild boar third and aurochs fourth. In the following phase, the first two species maintain their frequency order, but the last two are inversed. In addition, the ratio of red deer increases.

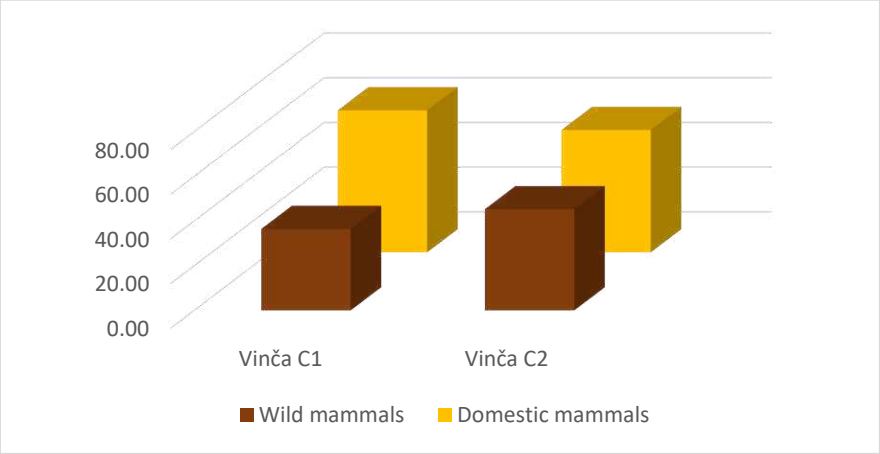

Fig. 70. Frequency expressed in percentage proportions of the main categories of animals in the Late Neolithic layers of Uivar – Gomilă.

The faunal remains found within the defensive ditches (Trench IV) could only broadly be dated to Phase Vinča C. The bones of cattle have far higher frequency within the ditches than on the tell, suggesting that their deposition was to some degree selective: the smaller bones were discarded not far from the consumption area, while the larger bones were discarded outside the inhabited area, in the ditches. Second in frequency are the pig and sheep/goat, which have equal amounts of remains, while in the third position is dog. The remains of wild animals have the following order of decreasing frequency: red deer, wild boar, roe dear, aurochs, hare, fox, and wolf. The last three species are represented by a very low number of bones, which indicates that they were occasionally hunted, most probably mainly for their fur. The large quantity of mammalian remains indicate that in the first part of the Late Neolithic at Uivar – Gomilă, animal husbandry and game hunting were major subsistence practices. Future publication of the analysis on the remaining animal classes will reveal

whether fishing, fowling, and mollusk gathering also played an important role in the economy. An indication that mussels were also consumed is the discovery of a pit filled with the shells of ca. 1000 mussels (Kuhn, Beigel 2005: Abb 45). It can be noticed that the reliability on cattle increased over time and that hunting increasingly played an important role. In this period, the bull continued to possess symbolic value as indicated by zoomorphic figurines depicting bull at Chișoda – Gomilă (Radu 1978: Pl. III. 13-16).

Parța – Tell 1 has a thin occupation layer from the first part of the Late Neolithic, from which relatively few faunal remains were recovered (Tab. 24). The archaeozoological assemblage consists only of mammal remains. The domestic mammal remains are slightly more numerous than the wild ones. Of the domestic species cattle rank first in frequency, sheep/goat rank second, pig ranks third and dog ranks fourth. The wild fauna with the exception of one bone of wolf is represented only by remains of species hunted primarily for their meat. These species have the following order of decreasing frequency: red deer, wild boar, roe deer and aurochs. Mollusk shells were not attested. Although the faunal assemblage is small, it still indicates that during the Late Neolithic the inhabitants of Parța – Tell 1 depended primarily on herding, and to a lesser degree on hunting, while gathering of mollusks was either not practiced or only occasionally practiced.

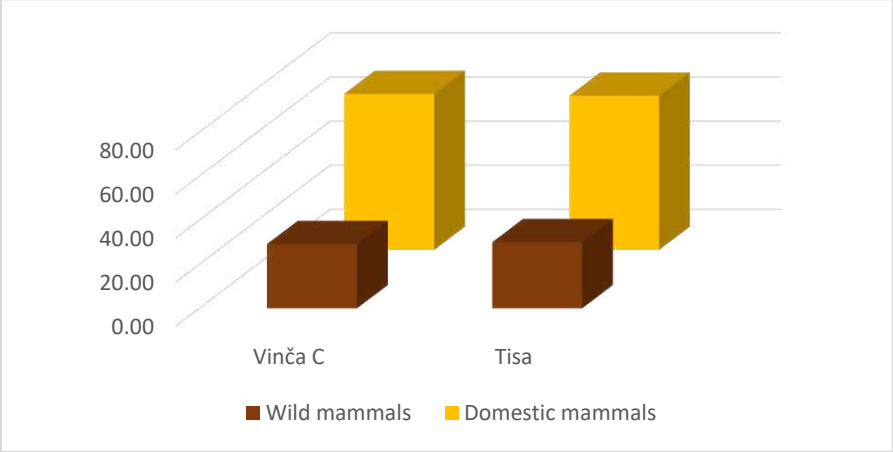

Fig. 71. Frequency expressed in percentage proportions of the main categories of animals in the Late Neolithic layers of Sânandrei – Ocsaplatz.

Sânandrei – Ocsaplatz is the second archaeozoologically investigated site with occupations from both parts of the Late Neolithic (Vinča C and Tisa). This stratigraphic situation permits studying transformations in use of faunal resources between the two parts of the period within the same site (Fig. 71; Tab. 20). The recovered faunal remains, like these from the Middle Neolithic layer, belong almost entirely to mammals, while the remaining animal classes are misrepresented, primarily due to the recovery strategy implemented (Jongsma, Greenfield 1996: 297). The Vinča C faunal assemblage is dominated by remains of domestic mammals, which are twice the number of those of wild mammals. The remains of cattle are most frequent and by far exceed the remains of other domestic species. Pig ranks second in frequency, while sheep/goat rank third. The wild mammals are represented by the following species, listed in order of decreasing frequency: red deer, roe deer, wild boar and aurochs. Worth noticing is that the ratio of red deer remains has increased compared to that from the Middle Neolithic layer. A bird bone was also attested.

In the Tisa layer, the ratio of domestic to wild mammals and the frequency order of species characteristic for the Vinča C occupation are maintained, albeit with two differences. Firstly, the remains of wild boar and aurochs are more frequent than that of roe deer. Secondly, the remains of cattle and red deer by far exceed the remains of the other species. The zooarchaeological analysis indicates that, in both Late Neolithic occupations, the inhabitants of Sânandrei – Ocsaplatz relied primarily on stock raising, and to a lesser degree on hunting. The preference for the larger species constantly increased from the second part of the Middle Neolithic onwards, reaching its zenith in the second part of the Late Neolithic, when the farmers became specialized on cattle rearing, while the hunters on red deer hunting.

Parța – Tell 2 also has occupations from both parts of the Late Neolithic, but unlike Sânandrei – Ocsaplatz, it was occupied by the Foeni Group in the second part of the period (Fig. 72; Tab. 17). The faunal assemblage from the first part of the Late Neolithic (Vinča C) is dominated by remains of domestic animals, which are more than twice as numerous as the wild ones. Of the domestic animals, the bones of cattle are the most frequent, by far exceeding those of the other species. Sheep/goat rank second in frequency, pig ranks third and the dog ranks fourth. Of the wild mammals the remains of red deer are the most numerous, by far exceeding those of the other taxa. Second, third and fourth in frequency are the bones of wild boar, roe deer, and aurochs. A few remains of hare, beaver, wild cat, pine marten, and fox were also attested. Most probably they were primarily hunted for their fur. The remains of fish and mollusks constitute only a small percentage of the faunal assemblage, while no remains of birds were found. It is likely that the results for fish and birds are biased by the recovery methodology; however, this can hardly be the case for the mollusks. Their low value indicates that gathering did not play an important role to the economy.

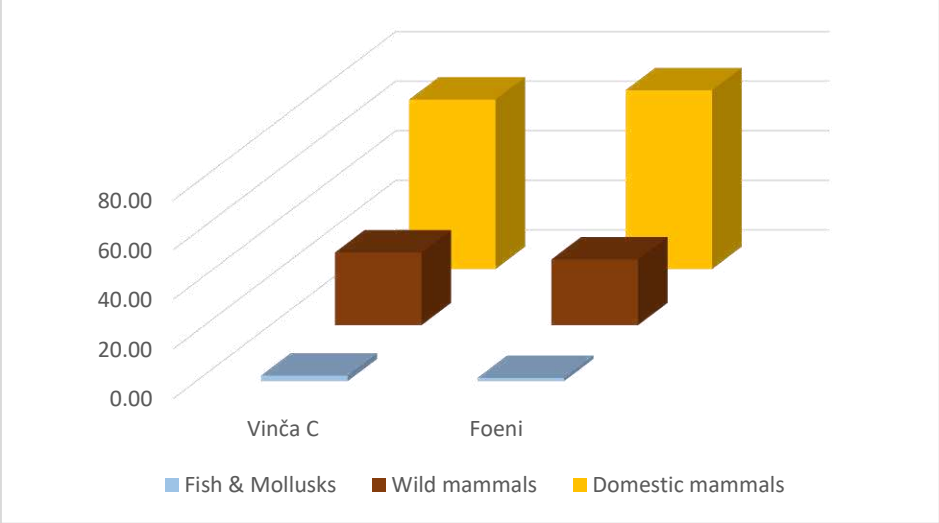

Fig. 72. Frequency expressed in percentage proportions of the main categories of animals in the Late Neolithic layers of Parța – Tell 2.

In the layer of the Foeni Group, the remains of domestic animals continue to be more than double the number of the wild ones, and the cattle continue to have the most frequent remains of the domestic species, but their ratio compared to that from the earlier occupation has significantly increased. The pig and sheep/goat have almost equal quantities of remains, which indicates that pigs were more numerous than sheep and goats. Dog has the lowest

frequency of remains. The remains of red deer continue to be most frequent, far exceeding those of the other wild mammal species. Compared to the previous occupation, red deer has a slight increase in its ratio. The wild boar continues to be second in frequency, but the roe dear became less frequent than the aurochs. One badger bone and another from a pine marten were also attested, indicating that these species were occasionally hunted. The remains of fish and mollusks collected are few, but, for the former, this may account on the recovery method. During both occupations, the inhabitants of Parța – Tell 2 relied primarily on livestock raising, and to a lesser degree on game hunting. Already in the Vinča C occupation, the farmers and hunters were specialized in cattle herding and red deer hunting respectively, and this preference for larger species becomes even more pronounced during the Foeni occupation. It is unknown as to what extent fishing and fowling contributed to the diet, but mollusk gathering with certainty contributed very little.

At Moșnița Veche – Dealul Sălaş, zooarchaeological investigations were carried out on faunal remains recovered from four Foeni Group pits, two of these interpreted as pit-houses. These remains are quite uniformly distributed among the four pits (Tab. 25). The faunal assemblage is dominated by mammalian remains, of which domestic examples predominate, but their amount is less than double the amount of the wild mammals. Of the domestic species, cattle have by far the largest number of remains, pig ranks second in frequency, and sheep/goat third. Of the wild mammals, red deer has the highest frequency of remains, exceeding by far that of the other species. Second in frequency are the remains of aurochs, followed by those of roe deer and wild boar. The mussels are represented by two mussel shells. The analysis indicates that the inhabitants of Moșnița Veche – Dealul Sălaş relied on livestock rearing, with an emphasis on cattle, and game hunting with a focus on red deer and aurochs. Gathering of mussels contributed very little to the diet, while the role of fishing and fowling cannot be assessed.

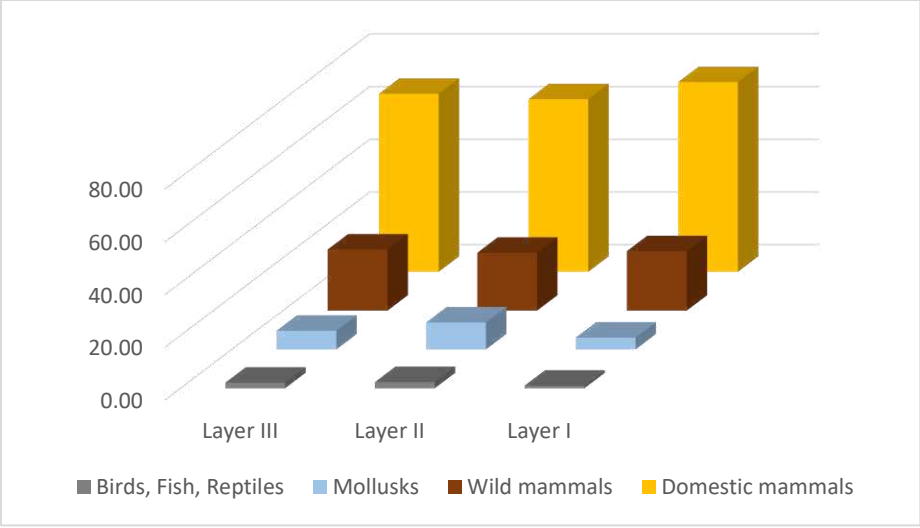

Fig. 73. Frequency expressed in percentage proportions of the main categories of animals at Foeni – Cimitirul ortodox.

Foeni – Cimitirul ortodox has three consecutive building phases dated to second part of the Late Neolithic which were archaeozoologically investigated (Tab. 26). This situation permits the tracing of tendencies in the use of faunal resources within the second part of the period. The recovered faunal assemblage is large, rendering increased reliability to the results. In all

phases, the remains of domestic mammals are more than twice the number of the wild ones (Fig. 73). Of the domestic species, the cattle remains are by far the most frequent, and their ratio increases over time. In Phases III (the earliest) and I (the latest), the remains of sheep/goat are second in frequency, and those of pig third, while in Phase II these species have opposite frequencies. Although the ratio of sheep to goat was not established, it is likely that sheep were more numerous than pigs in Phases III and I. In all phases, the remains of red deer are far more frequent that those of the remaining wild mammals. Overall, their ratio increases over time, although a small decrease took place in Phase II, which, however, may also be influenced by the low number of remains in this phase.

In Phases III and II, wild boar ranks second, roe deer ranks third, and aurochs rank fourth, while in Phase I aurochs rank second, wild boar ranks third, and roe deer ranks fourth. This shift in the frequency of species in the last phase indicates that a preference in targeting the largest species appeared. Few remains of hare, bear, wolf, lynx, fox, badger, beaver, wild cat, or pine marten were found, indicating that these species were only occasionally hunted and primarily for their fur. Birds and fishes also have a very low frequency, but this is due to the recovery methodology. Reptiles also have very low ratio, and some of them may be intrusive. It is remarkable that mollusks are quite numerous, especially in Phase II where they represent 30 % of the wild fauna. The analysis indicates that the inhabitants of Foeni – Cimitirul orthodox depended primarily on livestock raising and secondarily on hunting. Already in the earliest occupation of the settlement, the farmers and hunters were specialized in cattle rearing and red deer hunting. The exploitation of the large species was increased over time, and, in the last phase, aurochs also became targeted. Mollusk gathering was also practiced, and made a quite substantial contribution to the diet.

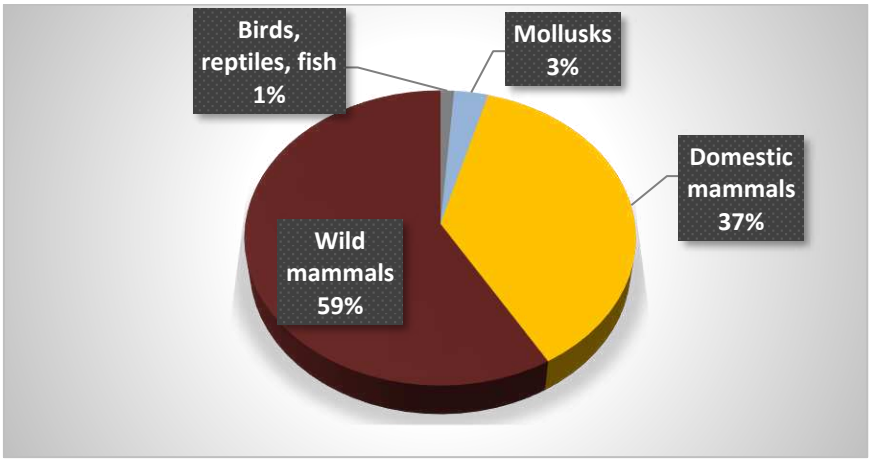

Fig. 74. Frequency expressed in percentage proportions of the main categories of animals in the Early Eneolithic layer of Parța – Tell 1.

4. Early Eneolithic

Evidence for the use of fauna during this period exists only from Parța – Tell 1, the Early Eneolithic deposits (Layer 4) of which are thin and the recovered faunal remains few (Tab. 24). The faunal assemblage is dominated by remains of mammals and the wild examples are more numerous than the domestic (Fig. 74). These results, however, are to be cautiously treated until other analyses become available, because they can be biased by the limited quantity of collected remains. Of the domestic species, cattle rank first in frequency, pig ranks second, and sheep/goat third. It is remarkable that, unlike in the previous period, the

difference in the ratio of the species is not large. Of the wild mammals, red deer and wild boar are first and second in frequency and the difference of their ratios is small. In third and fourth position of frequency are roe deer and aurochs. Remains of mussels, turtles, carnivores (including bear), birds and fish were found in small quantity. The analysis indicates that, during the Early Eneolithic, the inhabitants of Parța – Tell 1 relied on livestock husbandry and hunting. Mollusk gathering had an insignificant role within the economy, while the role of fishing and fowling cannot be evaluated due to the applied methodology of recovery.

5. Middle Eneolithic

Thus far, no archaeozoological investigation was conducted on Middle Eneolithic sites within the study region.

In the first third of the 4th Millennium BC within the Cucuteni-Tripolye Culture, zoomorphic figurines with horizontal perforations on the lower part of their legs appeared, indicating that they have been on wheels (Гусев 1998; Maran 2004). These figurines testify to the fact that the rotation principle of the wheel was known, which suggests that the wheeled vehicle might have also been known. The latter, however, is currently merely a probability because wheeled figurines also existed in Central America prior to European contact, but the wheeled vehicle was not developed (Burmeister 2004: 14-15).

6. Late Eneolithic

Evidence for the exploitation of fauna during this period exists from two sites. At Timișoara – Freidorf IV, zooarchaeological analysis (El Susi 2011) was carried out on faunal remains recovered from three pits, two of which are interpreted as pit-houses. The faunal assemblage (Tab. 27) is small in size (67 determinable faunal remains) rendering the results of the analysis less accurate. The assemblage is dominated by the remains of domestic animals, of which most common are those of cattle. Sheep/goat are second in frequency, pig is third, and dog is fourth. The wild animals are represented only by remains of red deer and roe deer, of which the former are more common. The analysis indicates that the inhabitants of Timișoara – Freidorf IV relied on livestock husbandry, and, to a lesser degree, on hunting.

The second analyzed site, Foeni – Gaz, has even less archaeozoological remains (El Susi 2013). Only two bones are assigned with certainty to the Late Eneolithic: one cattle tibia and another from a red deer. 65 additional faunal remains were found within Feature 2, which is dated to the Late Eneolithic but contains Early Bronze Age intrusions. The faunal remains belong to cattle, pig, sheep, goat, horse, and red deer. Of interest are the remains of domestic horse; however, it is not certain as to whether this provenances from the Late Eneolithic. The very few faunal remains and their uncertain dating does not permit an assessment of the use of faunal resources at the site.

The horse was domesticated in the period prior to 3700 BC in the Pontic-Caspian steppes, and after this date it was spread to the neighboring regions. In the period 3500-3000 BC, domestic horses appeared in the Carpathian Basin; nevertheless, the remains found within the settlements are scarce, and it is only after 3000 BC that their number began to increase (Anthony 2007: 221). Therefore, it is possible that during the Late Eneolithic domestic horses appeared within the study region; this notwithstanding, they would have had minimal role to the economy.

Evidence such as the discovery of a cart-track underneath a megalithic barrow at Flintbeck (Zich 2006), wagon pictograms on a vessel of the Funnel Beaker Culture at Bronocice

(Milisauskas, Kruk 1982), wagon pictograms on clay tablets as well as miniature wheels made of chalk or clay in Southwestern Asia (Bakker et al. 1999: 778-783), and a ceramic vessel with two protomes resembling a wagon draught by oxen at Radošina (Němejcová-Pavúková, Bárta 1977) indicate that in the middle of the 4th Millennium four-wheeled vehicles pulled by oxen had appeared over a wide territory stretching from Northern Europe to Mesopotamia. This invention had considerable implications on transport, trade, and the movement of people.

The evidence from the last third of the 4th and the first third of the 3rd Millennium BC (classical and late Baden Culture) regarding the use of draught vehicles is far more numerous and comes from a region stretching from Western Europe to Central Asia. It includes numerous ceramic wagon models (some resembling modern mine-cars), miniature ceramic wheels, a figurine portraying oxen yoked, a wooden axle and wheels, and rock engravings depicting wheeled vehicles (Bondár 2012). This indicates that the wheeled vehicles pulled by oxen became more common and that the invention was spread over a larger territory.

Although currently no evidence indicating the use of wagon was found within the study region, due to its location in the Carpathian Basin where most of the ceramic wagon models were found, it is reasonable to presume that cattle were also used as draught animals in the study territory.

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In the beginning of the Early Neolithic, four species of livestock domesticated in Southwestern Asia, namely cattle, sheep, goat and pig, were introduced into the study region. The dog is the fifth domestic species, which existed in the broader region before the Neolithization; however, it is likely that the incoming farmers would have also brought their own dogs. Throughout the study period, they were not consumed, but were rather used for herding, hunting, guarding livestock, and companionship. The newly introduced four domestic species were raised primarily for meat, but their hide, bones and antler were also used for clothing and tool production. The preference for some species varied over time.

In the first part of the Early Neolithic, livestock rising and mollusk gathering were the two most important subsistence activities, while hunting and fishing were less common. The semi-mobile communities raised predominantly cattle and sheep of which the former were slightly more common, while goat and pig were less preferred. Of the gathered mollusks, the terrestrial snails predominated by far. In the second part of the period, the economy continued to be based on animal husbandry and mollusks gathering, while fishing and hunting had little contribution. Cattle and sheep also continued to be the preferred domestic animals; however the latter became slightly more common. At Sânnicolau Mare – Bucova Pusta IV, aquatic examples of the mollusks gathered generally prevailed, rather in contrast to the sites from the first part of the Early Neolithic. Currently, it is unclear whether this difference is chronological or it merely represents a local preference.

The extant archaeozoological evidence for the first part of the Middle Neolithic does not permit an assessment of the use of faunal resources, yet it indicates that cattle became again more common than sheep. In the second part of the period, livestock herding and hunting (or trapping) became the main subsistence activities, mollusk gathering was rarely practiced, while the role of fishing and fowling cannot be assessed. The hunted mammals were almost as numerous as the domestic with the exception of Parța – Tell 1, where they were even more

frequent than the domestic animals. This exception, however, may be related to the ritual activities that took place at the site. The farmers became specialized on cattle breeding as indicated by the far superior number of cattle compared to the other domestic species. Another transformation in the use of faunal resources is that pig breeding surpassed that of sheep and goat. The most hunted species were red deer and wild boar, the frequency of which was quite similar. In third position was the roe deer.

In the Late Neolithic, the communities used the faunal resources in the same way as in the Middle Neolithic with the difference that their reliance on the large species increased. The specialization in cattle rearing that started in the previous period continued to increase throughout the period, and a specialization in red deer hunting appeared. In addition, the preference for aurochs has also increased and, in the second part of the Late Neolithic, they became the third most hunted species, surpassing the roe deer. It is reasonable to assume that the selective hunting of large animals may have been stimulated by the larger yield of meat, but hunting large and dangerous species such as aurochs may also have been a prestigious activity conferring upon the hunters a higher social status. Worth mentioning is that no significant difference in the use of faunal resources existed between the Tisa Culture and the Foeni Group.

What little evidence there is for the Early Eneolithic indicates that raising livestock and hunting continued to be the main subsistence activities, and that the order of species according to frequency remained the same; however, reliance upon the large species was less pronounced. Currently, it is unknown as to how faunal resources were used in the Middle Eneolithic. The scarce Late Eneolithic evidence indicates that the economy was based on animal husbandry and hunting, and it seems that the large species were not as prevalent as in the Middle and Late Neolithic.

3. Soil resources

Soils constituted essential resources for those Neolithic and Eneolithic communities practicing agriculture and stock breeding. Crop size and the growth of grass suitable for pasturing depended to a great extent on the quality of the soil within which the plants were growing, and, for this reason, the soil quality must have been an important factor when choosing a place to settle. Therefore, by assessing diachronically the distribution of settlements on soil types, it can be determined as to whether certain soils were preferred or disfavored over time.

To accomplish this, spatial analyses were performed with the software Q GIS 2.10.1 on the base of the harmonized pedologic map (see Chapter 1) and the database of sites (see Chapter 3), with only those settlements dated to the period level with precise and approximate location being included. The cemeteries and the tumuli were excluded from the analysis because the soil quality is not necessarily a factor influencing their location. The settlements with approximate location are included because the 0.5 km margin of error does not significantly influence the results. The distribution of settlements on soil types analysis is carried out in two modes: on the spot, and by analyzing the 1 km catchment area of the settlements. In the first case, the analysis reveals the soil upon which the settlements are located, while the second analysis includes the soils within 1 km range around the center of the settlement. The soils in this range are considered to have been the most exploited.

Before discussing the results, the deficiencies of this analysis must be mentioned. Soils gradually change in time, and, since the past distribution of soils is unknown, the analysis was carried out on the basis of the current distribution of soil types. In general, it is likely that the current distribution of soils reflects their distribution during the study period, but some changes may have occurred. Fluvisols are relatively young soils and they may have been distributed differently during the study period. In addition, since the potential natural vegetation cover of northwestern Banat is forest steppe (see Chapter 1) one may expect that Cambisol had a wider distribution in the past than today. A second limitation is that the map used for the analysis is constructed by correlating three different pedologic maps, the soils of which match to differing extents (see Chapter 1). A third factor influencing to some degree the results of this study is the fact that the region under study has not been equally archaeologically investigated and some soils may be underrepresented. This is especially true for the central part of the region which is the less investigated. In addition, the settlements from the Middle Eneolithic discovered are very few in number and the results for this period should hence be treated with caution. Due to these deficiencies, the results of this analysis are relevant only when discussing the whole sites from a period together, which would indicate the main tendencies. For this reason discussing individual sites is avoided.

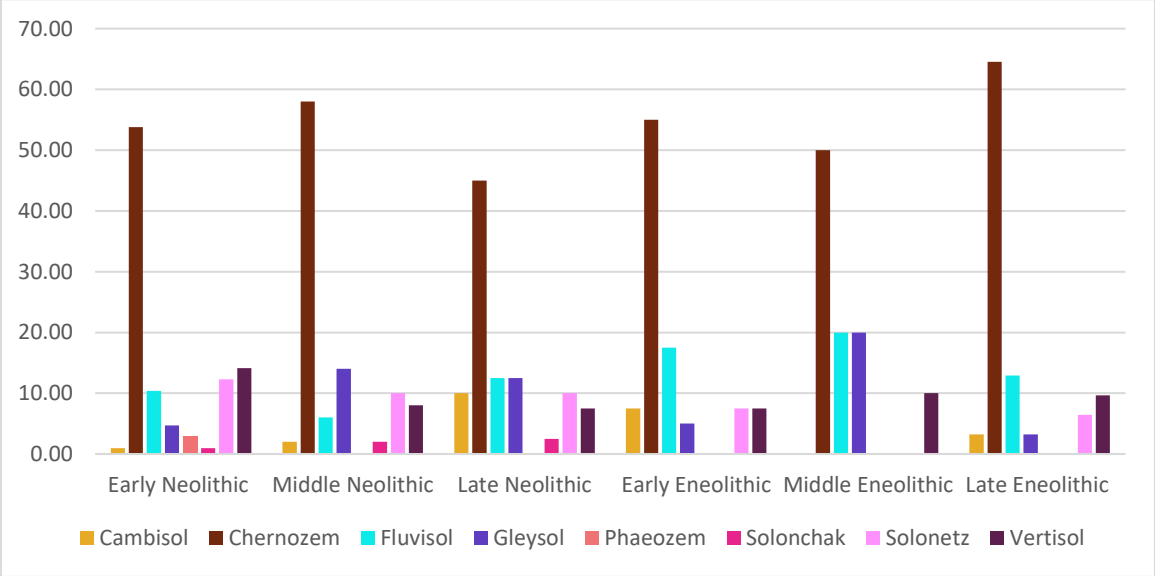

Fig. 75. Frequency expressed in percentage proportions of the distribution of settlements on soil types (analyzed on spot).

The results of the two analyses are very similar (Figs. 75-76; Tabs. 28-29). As expected in all six periods, most of the settlements were located on chernozem, which is the most widely distributed soil type within the study region. It is remarkable that numerous sites are also distributed on Fluvisol and Solonetz, which are less frequent soil types. Fluvisol has high agricultural potential, and may have been suitable for the primitive agriculture; however, Solonetz is a less productive soil and it is likely that it was used for pasture.

The diachronic assessment indicates that Cambisol was only little used in the Early Neolithic, then, in the following three periods, its exploitation increased, and since the Middle Eneolithic it was again of little relevance. An increase in the use of Gleysol took also place in the Middle and Late Neolithic. These two soil types have medium agricultural potential and that they were used when higher quality soils were available may indicate that, due to the

demographic growth in the aforementioned periods areas, with lower quality soils also had to be settled.

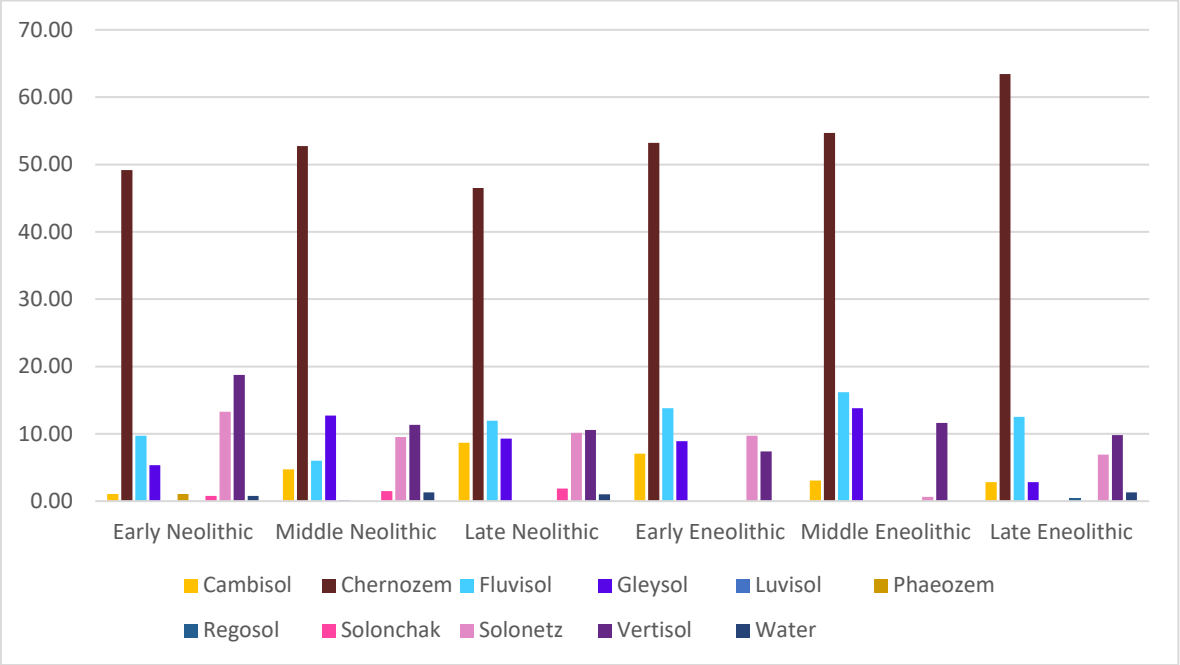

Fig. 76. Frequency expressed in percentage proportions of the settlement catchment of soil types.

4. Lithic resources for knapping

with a contribution from Laura Drașovean[41]

The study region is devoid of local lithic resources. This is because the bedrock lies below a few kilometers of fine alluvial sediments (see Chapter 1), and because the rivers due to the low gradient of the plain transport primarily sand and only in the most eastern part of the region small-sized granular gravel. Therefore, stones had to be imported from other regions, and, for this reason, the Neolithic and Eneolithic communities used them almost exclusively for tool production which included two different techniques: knapping and grinding. In the current subchapter we investigate the changes in the use of raw material for the production of knapped stone tools.

Suitable for knapping are the conchoidal fracturing rocks. Such rocks were imported from the neighboring Apuseni, Poiana Ruscă and Banatului Mountains to the east, but also from more remote regions. In the neighboring mountains, a large variety of regular and low quality materials exist, the most important of which are the chert from the Anina Mountains, the sandstone from the Almăj Mountains, the two types of jasper from the Metaliferi Mountains, the quartzous sandstone (known as Banat "flint") from the Poiana Ruscă Mountains, the siliceous sandstone found along the Strei River, and the sinter from the Brad area (Crandell 2012; Comșa 1971). The distance to these sources from the eastern part of the study region is ca. 80 km, and ca. 180 km from its western part. In this study, we regard them as medium distance sources.

[41] This study is based on the chipped stone assemblages of seven sites analyzed by the author (Sânnicolau Mare – Bucova Pusta IV, Moșnița Nouă – 7 & 8, Moșnița Veche – Dealul Sălaș) and Laura Drașovean (Sânandrei – Ocsaplatz, Chișoda – Gomilă, Hodoni – Pocioroane, Foeni – Cimitirul ortodox).

From the more remote areas, only high quality knappable lithics were imported, including obsidian, Balkan flint, Moldavian flint, and radiolarite. Outcrops of Carpathian obsidian exist at several locations in southern Slovakia and northern Hungary. Provenance studies indicate that, within the study region, obsidian was imported only from a single Slovakian source, namely Čejkov (Biagy et al. 2007: Tab. 2; Glascock et al. 2015). Outcrops of Balkan flint, also known as Moesian flint, exist in three large areas in Northern Bulgaria, the most exploited of which was the Pleven-Nikopol area (Gurova et al. 2016). Sources of Moldavian flint, also called Prut, Dniester, Volhynian or Miorcani flint, occur along the Rivers Prut and Dniester, and at various locations between the two rivers (Crandell 2012:71-73). Radiolarite outcrops exist in the Transdanubian Mid-Mountain Range (Szentgál and Úrkút Eplény) and the Mecsek mountains (Biró 1998: 30). These are referred to as long distance sources.

The raw material from the medium distance sources could have been introduced in the study region either through exchange with communities inhabiting the mountainous region, or expedition groups from the study region could have exploited the sources. On the other hand, there is no doubt that the high quality materials were subject to interregional exchange.

a) Early Neolithic

Evidence for the raw materials used for knapping during the Early Neolithic exist from Sânnicolau Mare – Bucova Pusta IV (Tab. 30). Considering the size of the investigated area of the site, the quantity of recovered chipped stone tools is low. Moreover, most of the implements have are small in size and the majority are in final stages of reduction, indicating that the availability of raw materials was low. Over 80% of the chipped stone tools were made from high quality raw materials, which include Balkan flint (63.64 %) (Fig. 77), obsidian (15.91 %), and Moldavian flint (2.27 %). It is noteworthy that, with one exception, the obsidian tools are very small in size. The remaining tools were made from jasper, chalcedony, and agate, available in the mountainous region to the east.

Fig. 77. Knapped stone tools made from Balkan flint at Sânnicolau Mare – Bucova Pusta IV.

b) Middle Neolithic

For the first part of the Middle Eneolithic, evidence exists from Moșnița Nouă – 7 & 8 (Tab. 31). The recovered knapped stone tools during the single excavation campaign are very few, and, for this reason, these ratios should be regarded with caution. The high quality lithic materials (Balkan flint, Moldavian flint, obsidian) continued to be used, but were fewer than the regular quality materials, namely jasper and opal. Hence, an increase in the use of the medium distance sources may be expected, but additional evidence is needed to confirm this.

Within the Banat Culture layers at Sânandrei – Ocsaplatz the chipped stone tools are rather common and over 90% of them are made from regular quality materials (Tab. 32). These materials include Banat "flint", Jasper, Breccia, Chert, Opal, Radiolarite, and Rhyolite, of which the first two are most frequent. The remaining implements are made from Balkan flint (6.21 %) and Moldavian flint (0.69 %).

c) Late Neolithic

Evidence for the use of the stone resources during the first part of the Middle Neolithic exist from three sites. Within the Vinča C layer of Sânandrei – Ocsaplatz, the artefacts of regular quality materials are by far the most common (Tab. 33). They constitute 90.35 % of the assemblage and the majority are made from Banat "flint" (58.48 %) and radiolarite (16.67 %). The long distance materials include Balkan flint and Mecsek radiolarite. The chipped stone tool assemblage from Chișoda – Gomilă comprises (with one exception) artefacts made from regular quality lithic materials (Tab. 34), the most common of which are the Banat "flint" (47.37 %) and the radiolarite (17.54 %). The assemblage from the Vinča C2 layer at Hodoni – Pocioroane is dominated by tools made from medium distance lithic materials, which represent 94.86% of the assemblage (Tab. 35). The artefacts made of Banat "flint" rank first (57.0 1%), these of jasper rank second (15.89 %) and those of radiolarite rank third (13.08 %). The long distance materials are represented by very few artefacts of Balkan flint, Moldavian flint, and Mecsek radiolarite.

Fig. 78. Knapped stone tools made from Banat "flint" at Moșnița Veche – Dealul Sălaș.

Evidence of the lithic resources used in the second part of the Late Neolithic exist also from three sites. At Hodoni – Pocioroane, the assemblage from the Tisa layer comprises (with two exceptions) chipped stone tools made from regular quality materials (Tab. 36), most numerous of which are the implements made of Banat "flint" (66.04 %) and jasper (11.32 %).

At Foeni – Cimitirul ortodox, belonging to the homonymous cultural group, the tools made of high quality distant materials are also very rare (Tab. 37). The most used material for knapping is the Banat "flint" (47.37 %) (Fig. 78), second in frequency is the radiolarite (17.54 %), and third is the breccia (13.16 %). The fact that breccia is on the third position attests well to the scarcity of qualitative knapping materials. Over 95 % of the chipped stone tools at Moșnița Veche – Dealul Sălaș are made from Banat "flint", while the remaining are made from opal, Moldavian flint, and obsidian (Tab. 38).

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In the Early Neolithic, most of the chipped tools were made of high quality lithic materials imported from distant regions, while the regular and low quality materials from the nearby mountains were rarely used and some sources, i.e. those of Banat "flint" may have not yet been discovered. The interregional exchange, however, could not provide enough raw materials, and thus tools were scarce, and most of these were used until they were worn out.

In the first part of the Middle Neolithic, it appears that the imported high quality materials continued to be extensively used, but an increase in the use of medium distance sources may be expected. In the second part of the period, the communities began exploiting the Banat "flint" and jasper from the Poiana Ruscă and Metaliferi Mountains. Chipped stone tools hence became more common and larger in size, while the ratio of imported high quality materials substantially decreased.

In the first part of the Late Neolithic, the exploitation of Banat "flint" had increased, and it became the raw material of half of the manufactured tools, while those materials imported from long distances continued to be few in number. It seems that communities began importing Mecsek radiolarite during this period. In the second part of the period, the lithic resources continued to be employed in the same manner, with the difference that the use of Banat "flint" had further increased.

4. Metallic resources

Both Neolithic and Eneolithic societies used metallic minerals and metals for producing pigments and a variety of objects. In the use of metallic resources, two ResourceComplexes can be identified:

1) Cold processing. Long before hot metallurgy was developed, pigments, adornments, and small tools were produced from different metallic minerals by cold processing, which included grinding, carving, cutting or hammering. Minerals like malachite, azurite, or nephrite were of interest because of their aesthetic qualities (bright coloring) while native metals were used for their physical properties (malleability). In the case of native copper, heat-treating on low temperatures (annealing) was also applied so as to render it less brittle; however, this heating produced only physical transformations, and is considered to be a Neolithic tradition, akin to the heating of flint for improving its knapping properties (Radivojević et al. 2010b: 2776).

As early as the 11th millennium BC, different communities in Southwestern Asia began to produce pigments and beads from malachite and azurite, while by the end of the 9th millennium BC, the inhabitants of Çayönü Tepesi in addition to copper minerals also used minerals rich in lead. Furthermore, from native copper, they manufactured by means of cold hammering annealing numerous small objects including awls and a fishhook (Esin 1995; Radivojević et al. 2010b: 2776; Roberts et al. 2009: 1013). In the millennia that followed, these innovations became widespread throughout Southwestern Asia (Szentmiklosi, Drașovean 2004: 12; Birch et al. 2013), and by the end of the 7th millennium with the coming of Neolithization, a new fashion of body decoration was introduced within Southeastern Europe, and with it the tradition of cold working copper minerals (Borić 2011: 180).

2) Hot processing. Hot processing, or de facto metallurgy, is based upon two main processes requiring high temperatures, namely melting and smelting. The former process consists of heating a metal to the point it becomes liquefied, while the latter consists of extracting metal from ores by subjecting them to strong heat and reducing atmosphere. In nature, metals most often occur as metallic compounds (chemically bounded to other elements) and less often in pure state (or alloy), i.e. native metals. The latter can be directly melted and can be cast into objects, while ores of compounds first have to undergo smelting and then the metal obtained can be melted. Casting consists of pouring the melted metal into a mold, which imparts a certain shape on the metal as it solidifies.

The first metal to be used in metallurgical production was copper. This metal is one of the most common metals on Earth, and is one of the few that occurs in a pure state (native copper). Copper melts on temperatures over 1080℃, while temperatures exceeding 700℃ are required for smelting copper ores. Smelting and melting may also occur as a single process (Radivojević et al. 2010b: 2777). The current evidence indicates that hot processing of copper appeared almost simultaneously in the Central Balkans and the Iranian plateau during the early 5th millennium BC (Pigott, Lechtman 2003; Radivojević et al. 2010b). The direct premises for the development of metallurgy in the Central Balkans were the cold processing of copper minerals, which, as formerly mentioned, was introduced with the Neolithization, and the pyrotechnological innovations needed for the production of qualitative dark-burnished pottery, which were developed by the Vinča Culture (Borić 2009: 238), while indirect premises were the economic, sociocultural and demographic transformations, which stimulated technological innovation (Bartelheim, Krauß 2012: 89).

The earliest evidence of extractive metallurgy in the Central Balkans was attested at the site of Belovode (Šljivar 2006: 98; Radivojević et al. 2010b) located in the foothills of the Serbian Carpathians and inhabited between ca. 5350-4650 cal BC. Cold processing of copper minerals was practiced at the site from the earliest occupation until its abandonment. This is indicated by the numerous beads, pendants, and unworked fragments of malachite found within all layers of the site, the grooved stone mallets discovered in household contexts, and the traces of copper mineral powder on ceramic sherds. The hot processing started in the very beginning of the 5th millennium, and continued until the site was abandoned, as suggested by the discovery of a half mold for chisels, a droplet of molten copper, and a few pieces of slag, the earliest of which dates to ca. 5000 BC. Microanalyses carried out on slags demonstrate that they derive from ore smelting, while the results of lead-isotope provenance analysis testify that several copper sources supplied the site, and that the raw materials for cold and hot processing differed. The minerals for beads most probably came from Majdanpek, while the ores for smelting were brought from an unidentified source. In this context, the mine of

Rudna Glava located in the Serbian Carpathians also warrants mention. It consist of ca. 40 mining shafts for malachite extraction, some reaching up to 20 m in depth, in the infilling of which were attested Vinča finds. Two radiocarbon dates indicate that mining may have started there in the Early Neolithic, while several other dates demonstrate that the mine was used from the middle of the sixth millennium until ca. 4650 cal BC with an intensification in first centuries of the fifth millennium (Borić 2009: 194-206). This mine was often invoked as evidence for early metallurgic production (Jovanović 1982; Jovanović 1995), however, lead isotope analysis on numerous copper artefacts from the Central Balkans revealed that none of them match with the signature of the mine (Pernicka et al. 1993). This suggests that either the exploited malachite was not used for smelting, or the artefacts produced from it were not analyzed. The fact that the mine was used several centuries before metallurgy was developed indicates unambiguously that initially the malachite was extracted for cold processing. Whether in the beginning of the fourth millennium BC, when the exploitation of the mine was intensified, the malachite was also used for smelting remains an open question.

By the third and fourth century of the fifth millennium BC, knowledge of metallurgy was spread over a wider area in Southeastern Europe (Šljivar 2006: 94; Borić 2009: 209-227), also reaching the study region as evidenced at Foeni – Cimitirul ortodox (see below). In addition, the metallurgy was already intensively practiced within some sites in the Central Balkans, which is well evidenced at the site of Pločnik. There, besides traces of metallurgic processing, several "hoards" of copper objects, including hammer-axes, chisels, and bracelets, the total weight of which is over 16 kg, were found within the layer dated to the Gradac Phase of the Vinča Culture (Šljivar 2006: 101-103; Borić 2009: 209-212).

Somewhere in the first half of the fifth millennium, metallurgy also appeared in the Eastern Balkans. This is well evidenced at the mine of Ai Bunar and the settlement of Akladi cheiri (Leshtakov 2013; Rehren et al. 2016). The latter is located on the western Black Sea coast and has four occupation phases, dated from the Late Neolithic to the Early Bronze Age according to the eastern Balkan chronology. Within the lowest layer, dated to the Late Neolithic, were identified small fragments of malachite and other copper minerals, which are believed to have been used for making adornments, since such were found at the synchronous site of Budzhaka. The earliest evidence of hot processing appears in the Early Eneolithic layer (ca. 5000/4900-4500 BC) and it consists of copper ore, secondarily burned ceramic sherds with malachite particles stuck to their surface, two copper awls, and an installation made of trampled clay with traces of high temperature burning, interpreted as ore smelting structure (furnace). In the third occupation phase, dated to the Late Eneolithic (ca. 4500-4000/3900 BC), the metallurgic production at the site continued. Within one pit were attested ore pieces (with a total weight of 3-4 kg), slags, fragments of a ceramic crucible, numerous ceramic sherds with traces of a secondary firing, and slags stuck on their surfaces, as well as an installation of clay for smelting copper ore, as indicated by the greenish traces on its bottom.

Slightly before the middle of the fifth millennium, the communities in the western Pontic region began also to process gold (Todorova, Vajsov 2001: 55) in addition to copper, and in the following centuries gold metallurgy spread throughout Southeastern Europe. In the second half of the fourth millennium BC, the first silver objects (Ecsedy 1979: 43) were introduced with the appearance of tumuli in Southeastern Europe. They consisted of small adornments belonging to those buried in the tumuli.

a) Metallic resources in northwestern Banat

As of yet, no evidence exists in northwestern Banat for the use of metallic resources during the Early Neolithic, and the first half of the Middle Neolithic; however, such evidence was found in the neighboring regions to the east, suggesting that these resources may also have been used in the study region. Pendants made of malachite were found at Lepenski Vir and Padina (Antonović 2008: 22), and copper awls were discovered at Balomir, Dubova – Cuina Turcului, Gornea, and Liubcova (Vlassa 1967: Fig. 6; Szentmiklosi, Drașovean 2004: 15). Although none of the needles have been microscopically analyzed, it is almost certain that they were made in the cold working technique (Drașovean 2015: 129).

The earliest metallic item found within the study region is a fragment of awl unearthed at Parța – Tell 1 within the layer dated to the Banat Culture IIC (Lazarovici et al. 1995: 11). By this time, the production of beads from copper minerals became popular within the Szakálhát Culture, as evidenced at sites located north of Mureș (Hegedűs 1982-1983: 25).

In the beginning of the Late Neolithic, hot metallurgic production emerged in the Central Balkans; however, no evidence of metallurgical activity was found within the study region, which is located only at ca. 100 km north of Belovode, although some Vinča C sites were extensively investigated. This indicates that the knowledge of hot processing was transmitted with a delay, and reached the study region only in the second part of the Late Neolithic. Evidence of metallurgic activity was attested at two sites from the second part of the period. At the site of Timişoara – Ronaţ, Triaj, fragments of a crucible were attested (Suciu et al. 2016), while, at Foeni – Cimitirul ortodox (Drașovean 2015), malachite clods, slags, copper items, and secondarily burned ceramic fragments with copper oxides on them were discovered. All this testifies that copper had been obtained by smelting malachite ore. The recovered copper items comprise of an awl and an unidentified object (Catalogue 2. 1-2).

It is remarkable that while the hot metallurgy was transmitted to the Foeni Group, it did not appear within the Tisa Culture, wherein only cold processing was practiced. 14 malachite beads were found within a Tisa pit at the tell settlement of Čoka – Kremenjak (Banner 1960: 18), and adornments made of native copper were attested within graves in the neighboring region to the west (Horváth 1986: 46; Kalicz 2013).

In the Early Eneolithic, metallurgy became a widespread phenomenon in Southeastern Europe. Within the study region, copper artefacts produced by hot processing were attested at three sites, two of which, Deszk – A and Deszk – B, are necropolises, and one of which, Čoka – Kremenjak, is a tell settlement. The copper items recovered from the necropolises are adornments worn by the deceased. At Deszk – A, one fragment of a ring that may have served as earring (Catalogue 2. 3) and two finger rings made of spirally bent wire (Catalogue 2. 4) were found within Grave 4, while a ring made of wire (Bognar-Kutzián 1972: 25) was uncovered within Grave 9. At Deszk – B, an (ear)ring (Catalogue 2. 5) was discovered within Grave 2, two bracelets (Catalogue 2. 6-7) within Grave 4, two other bracelets (Catalogue 2. 8; Bognar-Kutzián 1972: 30) within Grave 8, and one bracelet (Catalogue 2. 9) within Grave 11. Four copper items were recovered during an old archaeological expedition at the Neolithic tell settlement of Čoka – Kremenjak (Catalogue 2. 10-13), but their stratigraphic context is uncertain. A hammer-axe can typologically be dated to the Early Eneolithic (Diaconescu 2009b: 193), while a pipe found together with the hammer-axe can be dated to the same period by association. The remaining two artefacts, a bracelet and a knife, cannot be dated with certainty (Banner 1960: 19, 35), but they may also be related to the first two. Apart from finite products, currently no other evidence indicating metallurgic production was found

within the study region; this is mainly due to the limited investigations carried out within settlements. Cold working of copper minerals also continued as indicated by the discovery of 20 copper mineral beads within Grave 4, and one bead Grave 8 at Deszk – A (Bognar-Kutzián 1972: XXXIII. 6, 24-25).

The relatively numerous copper items suggest that an increase in the hot metallurgic production took place during the Early Eneolithic, yet the majority of the manufactured items, like in the previous periods, were adornments, while the tools, and especially the heavy implements, were few.

During Phase B of the Tiszapolgár Culture, in the wider region, the first gold items appeared. They were very rare and consisted of small adornments such as amulets of thin gold plates and rings (Bognar-Kutzián 1972:145-146)

The evidence for metallurgic activity in the Middle Eneolithic consists also only of finite products. These are eight axe-adzes and two flat-axes (Catalogue 2. 14-23). Six of the axe adzes are Jászladány type, while the remaining two are Nógrádmarcal and Mezőkeresztes types, respectively. The two flat-axes are of the Cucuteni variant. Except for the flat-axe from Podlokanj – Bašte, discovered within a grave during archaeological excavations, all the other copper implements are stray finds, and are typologically dated to this period. The large number of heavy implements, which is also characteristic for the wider region (Sava 2014: 131), indicates that an increase in metallurgical production took place, and that copper was used primarily for the production of tools.

No evidence for the use of metallic resources during the Late Eneolithic exists within the study region. The reasons for this are the deficit of investigation of sites from this period, and the sharp decrease in the metallurgical production characteristic for the whole of Southeastern Europe. Within the wider region, the copper finds are scarce and small in size (Sava 2014: 117) and the first silver objects appear (Ecsedy 1979: 43).

b) Provenance analyses

Copper deposits abound within the Carpathian Mountains, and within other mountain ranges within Southeastern Europe, and the sources used for the production of the copper artefacts found within the study region can be identified by means of physicochemical analysis. The main way to do this is by corroborating the trace element patterns and the lead-isotope ratios in ores and artefacts (Begemann et al. 1995: 146).

In the second half of the 20th century, 13 Early and Middle Eneolithic copper artefacts from the study region were analyzed by optical emission spectroscopy (OEM) at the Württembergisches Landesmuseum in Stuttgart (Tab. 39).

In all Middle Eneolithic and one Early Eneolithic artefacts, almost no trace elements were detected, indicating that they were made of very pure copper, while, in the remaining Early Eneolithic artefacts, traces of several trace elements were detected. These two chemically distinct groups are also typologically different. The first group (with almost no trace elements detected) consists of heavy implements, while the second group comprises thin objects (a knife, a pipe and a ring). This means that either due to corrosion, the thin objects may have been contaminated with elements from the soil, or that, the copper used for heavy implements was different from that for the thin objects. The former possibility, however, is more likely to

be the case. Anyhow, at least for the heavy implements, very similar copper ores were used during the two periods.

In order to search for the copper ore sources, and to examine whether these continued to be used in the Late Eneolithic, X-ray fluorescence (XRF) and lead-isotope (LI) analyses on Middle and Late Eneolithic artefacts were carried out at the Curt-Engelhorn-Centre Archaeometry. Since only two artefacts (Catalogue 2. 15-16) from the study region were available for analysis, seven additional artefacts from southern Crișana and eastern Banat (Tab. 41; Catalogue 3; Fig. 79) have been included, assuming that the communities from the neighboring regions exploited the same copper sources.

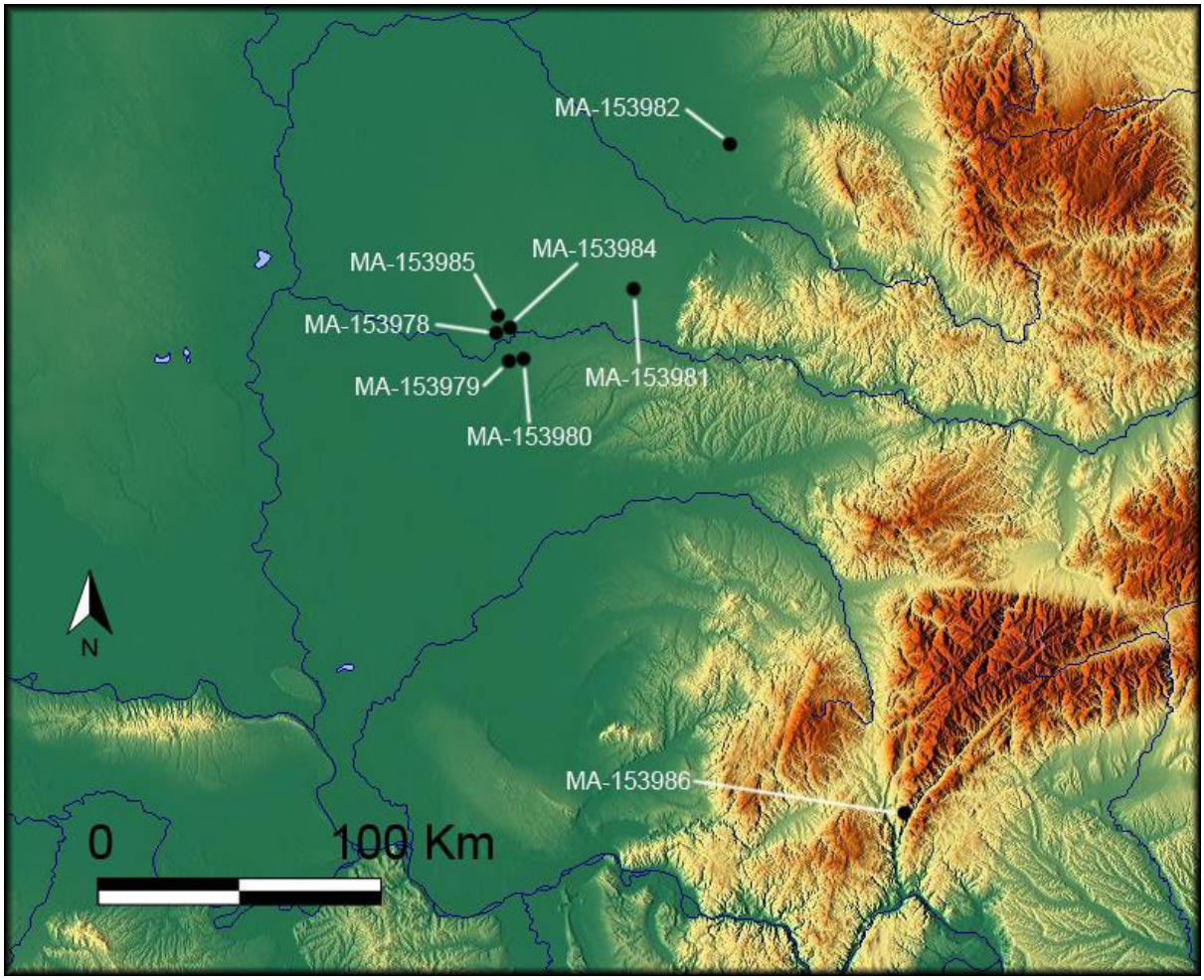

Fig. 79. Location of the copper artefacts analyzed in the present study. MA-153983 is not mapped as its discovery location is unknown.

The Middle Eneolithic artefacts analyzed comprise of 8 axe-adzes of Jászladány type, two of which were found within the lowest layers of the tell site of Pecica – Șanțul Mare. These layers are dated to the second part of the Middle Eneolithic (Hunyadihálom Culture). The remaining six axe-adzes are stray finds, and are typologically dated to the Middle Eneolithic (Sava 2011). Three of them have been previously analyzed by OEM at the Württembergisches Landesmuseum in Stuttgart (Tab. 40), which allows the corroboration of the XRF and the OEM results. The Late Eneolithic artefact analyzed is an awl discovered during the archaeological excavations at Peștera Oilor belonging to the Coțofeni Culture (Petrescu, Popescu 1990).

The XRF analysis revealed that the Middle Eneolithic artefacts were made of very pure copper (Tab. 42) minimal concentrations of trace elements such as 0.12 As, 0.02 Pb (MA-153984) and 0.02 As (MA-153981) being detected. The results of XRF and OEM analysis carried out on the same artefacts are very similar, but some trace elements detected by XRF were not detected by OEM (see MA-153984 vs 9192), indicating that the XRF method is more sensitive. Therefore, it can be stated with greater accuracy that the Middle Eneolithic artefacts were made from very pure copper. This suggests that the raw material may have been native copper (Pernicka et al. 1993: 37).

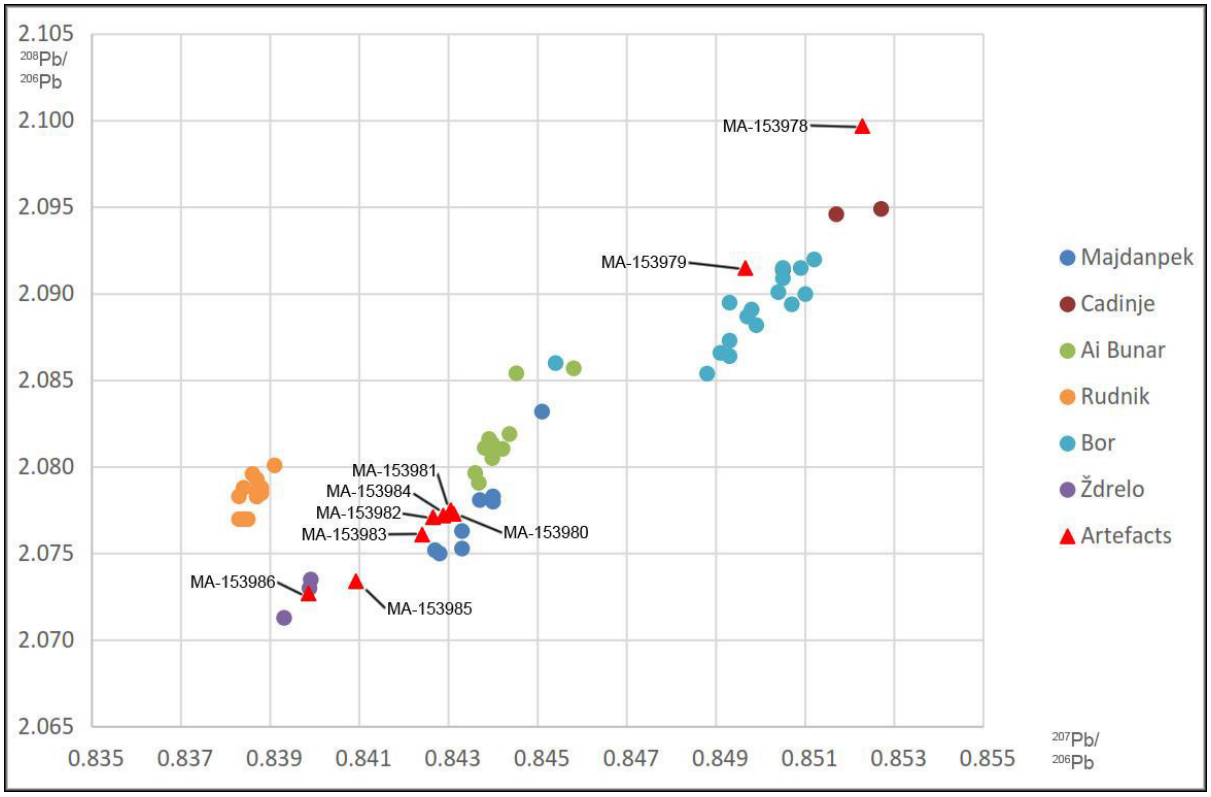

Fig. 80. Comparison of the (^{207}Pb/ ^{206}Pb and ^{208}Pb/^{206}Pb) lead isotopic ratios from the copper-based artefacts with those from the major copper deposits from the central and Eastern Balkans published by Pernicka et al. 1993: Tab. 8; Gale et al. 2000: Tab. 1; Radivojević et al. 2010: Tab. 5.

The XRF analysis of the Late Eneolithic awl (MA-153986) revealed that it is made from arsenical copper, containing the following concentrations of trace elements: 4.7 % As, 0.01 % Ag, 0.013 Sb and 0.16 Pb. This indicates that, in the Late Eneolithic, different sources of copper were exploited.

The lead isotope analysis revealed that five[42] of the eight Middle Eneolithic axe-adzes have similar ^{208}Pb/^{206}Pb (≈ 2.077) and ^{207}Pb/^{206}Pb (≈ 0.842) ratios (Tab. 43) suggesting that the copper derived from the same source. This isotopically homogenous group is in good agreement with ca. 75 % of the Middle Eneolithic analyzed artefacts from Serbia (Pernicka et al. 1993: Tab. 5) and is consistent with the isotopic signature of the Majdanpek copper deposit (Fig. 80). The axe-adze from Sânpetru German – La Islaz (MA-153979) has similar

[42] Sânpetru German – Hotarul Reck (MA-153980), Sânleani (MA-153981), Cermei (MA-153982), Jud. Arad (MA-153983) and Pecica – Șanțul Mare (MA-153984).

isotopic abundance, with two borers from Zlorska pečina (Pernicka et al. 1993: Tab. 5, HDM 1330 and HDM 1332), and falls within the isotopic cluster of the Bor copper ore deposit (Fig. 80). The remaining two Middle Eneolithic axe-adzes[43] do not match any of the copper deposits analyzed, while the Late Eneolithic awl from Peștera Oilor is in good agreement with the Ždrelo copper deposit (Fig. 80).

[43] Pecica – Șanțul Mare (MA-153978) and Pecica – Bojhos szöllö (MA-153985).

Conclusions

The present diachronic analysis reveals that the sociocultural development in the Neolithic and Eneolithic (ca. 6000-2700 BC) was very dynamic.

The beginning of the Early Neolithic is marked by the most severe sociocultural transformation which occurred during the study period, namely Neolithization. Following the development of farming in Southwestern Asia in the middle of the 7th millennium BC, farmers began to spread westwards, occupying Western Anatolia, the Aegean Islands, and mainland Greece, and, at the end of the 7th and beginning of the 6th millennia BC, after a standstill induced by the RCC and the Hudson Bay outflow events, most of Southeastern Europe including the study region were swiftly colonized. At the time of the farmers' arrival, Southeastern Europe was sparsely occupied by indigenous Mesolithic foragers which were assimilated after a period of intensive interaction. Within northwestern Banat, as of yet, no traces of Mesolithic people were attested; however, these were found in the neighboring regions, and therefore it is highly likely that the study region was also populated, albeit rarely, or at least a point of transit for mobile foraging groups. The incoming farmers had a very different way of life to that of the indigenous foragers. They were semi-sedentary or fully sedentary, had a food production economy based on domestic plants and animals, and knew how to produce pottery. Through Neolithization, the larger part of Southeastern Europe was settled by farmers whose material culture was very similar. This led to the formation of the Fingernail Impressed Pottery Complex which exited throughout the Early Neolithic with little changes in the pottery style.

The newly-settled farmers in northwestern Banat lived in flat settlements distributed along water courses and almost exclusively in the low plain. Most of their settlements were small, of ca. 0.5-2 ha, and only few reached up to 4 ha. Their settlements were briefly occupied, resulting in frequent relocation. In the first part of the Early Neolithic, the settlements tended to be smaller in size and with simple intra-settlement structure consisting of a few pit-houses, while, in the second part of the period, they inclined to be larger and comprised of several clusters of pit-houses. In addition, the settlements from the second part of the period tended to be longer occupied. The common type of dwelling throughout the period was the small pit-house occupied by a single family, while the surface house, although known, extremely rarely was employed. In the second part of the period, when settlements became larger and more agglomerated, transformations in social organization may have occurred. An indication in this regard is the appearance of clusters of pit-houses within which probably families bound by kinship probably dwelled. Funerary practice consisted of single inhumation graves located within settlements, with the deceased disposed in contracted positions on their side. Grave goods were rarely deposited.

In the first half of the Early Neolithic, the people mostly exploited the livestock and gathered shellfish, snails, fruits, and nuts, while crops played a secondary role within subsistence. Most probably, this is due to the fact that plants are more sensitive to changes in climate, and those crops newly introduced in the region required a phase of accommodation to the continental climate. Hunting and fishing also contributed rather little to the peoples' diet. The employment of this subsistence strategy appears to be responsible for the increased residential mobility from the first part of the period, since prolonged gathering in a certain area results in the exhaustion of its resources, while livestock constantly require fresh pasturage.

In the second part of the Early Neolithic, a considerable intensification in the use of cereals took place, while animal husbandry and gathering continued to play important role in the subsistence economy, and fishing and hunting continued to have limited one. This

intensification in the exploitation of cereals seems to be the main cause for the decrease in the people' mobility and for stimulating the demographic growth which led to an increase in the size of settlements and a change in their internal structure. Together with the growing economic role of the cereals, they acquired a symbolic dimension expressed in pottery ornamentation.

Chipped stone tools were scarce throughout the Early Neolithic and were used until worn out. The large majority of them, however, were made of high quality materials imported from remote regions, the most frequent of which was the Balkan flint from Northern Bulgaria, while the remaining tools were made of regular and low quality materials from the neighboring mountains to the east. Surprisingly, the Banat "flint", which is of the regular quality materials present in the Poiana Ruscă Mountains, was not exploited, suggesting that the outcrops were undiscovered at the time. The strategy employed in the use of lithic resources indicates a well-developed interregional exchange and strong connections to the south, which had probably formed with the Neolithization. Yet, the interregional exchange alone could not supply the required amount of raw materials, and, as the sources of Banat "flint" were yet unknown, the raw material available was insufficient.

The Middle Neolithic began with a significant changes in the pottery style, namely the appearance of the Vinča type pottery, and slightly before the end of the first part of the Middle Neolithic a pottery with combined linear and vinčaoid features (Banat Culture) appeared in the northern part of the region. The number of settlements continued to decrease, indicating that the process of sedentarization that had started in the Early Neolithic also continued. Strong continuity also existed in settlement structure, architecture, and burial customs. Therefore, excepting the changes in the pottery style, no other significant transformations took place in the first part of the Middle Neolithic. This situation neatly exemplifies the fact that changes in the pottery style do not necessarily correspond to substantial sociocultural transformations. Unfortunately, the presently existing data is not sufficient to permit an assessment of the use of resources; however, the use may be expected to be similar to that from the second part of the Early Neolithic.

The second part of the Middle Neolithic began with less significant changes in the pottery style. In the southern part of the study region, Vinča type pottery developed in Phase B, while, in the central and northern parts of the region, Banat Culture pottery developed in Phase II when the linear features became prevalent. These rather limited changes in pottery style, however, were accompanied by a wide range of more considerable transformations. The size of the settlements significantly increased, and settlements with an area of 3-4 ha became most common. Two new site types appeared, namely the tell settlement and the extramural necropolis, although the latter was attested only in close vicinity to the study region. In addition, the high plain was settled, but only with flat settlements. The considerable increase in the size of the settlements together with the appearance of extramural necropolises indicate that a demographic growth took place, while the appearance of tell settlements, the thick cultural deposits of which were formed by prolonged inhabitation, suggests that people had already become fully sedentary.

Substantial transformations also occurred in the intra-settlement structure and architecture. The settlements became densely constructed by surface houses with massive wooden structure, which gradually replaced the pit-houses. The streets were narrow, and the settlements often were encircled by a system of concentric ditches. If previously the size of the pit-houses within a settlement varied little, now there was a large disparity in the size of the surface houses. The smallest houses were single-roomed and had a surface of ca. 20 m^2, while the largest houses with two or three rooms had a surface of up to 60 m^2. Unlike the pit-

house, the large surface house could be inhabited by a large family of few generations or a few kin families, which would have modified forms of interaction, while the large discrepancy in the size of the houses within a settlement indicates that an incipient social stratification had emerged. In the neighboring region to the north, a gender-based unequal distribution of the grave goods was attested among deceased individuals, suggesting that a kind of gender differentiation existed. In addition to inhabited houses, structures reserved mainly for spiritual activities such as Sanctuary 2 at Parța – Tell 1 now appeared for the first time.

Significant transformations also occurred in the use of resources. Cereal cultivation began to be practiced on a much larger scale than before, hunting, which had previously played a minor role, became an important subsistence activity, while mollusk gathering came to be rarely practiced. Livestock herding continued to be one of the core subsistence activities, but, if previously the emphasis had been on breeding sheep, now farmers became specialized in cattle breeding. With the increasing economic role of cattle, veneration of the bull was intensified, as is indicated by its frequent depiction. The employment of extensive crop cultivation required a large portion of the inhabitants of a settlement to be involved in the agricultural activities taking place in the warm season. This fact, as well as the necessity of storing large quantities of yields in the autumn, significantly contributed to the full sedentarization of the people. In addition, the extensive plant cultivation, the specialization in cattle breeding, and the increase in hunting produced a large amount of food that was undoubtedly the driving force behind the demographic growth, which in turn led to an increase in the size of the settlements and emergence of incipient social stratification. Population growth and probably a more efficient cultivation strategy were responsible for the settlement of less productive areas previously avoided such as the high plain. The increase in the exploitation of Cambisol and Gleysol, soils with medium agricultural potential, also points in a similar direction. With the increase in the population and the formation of groups specialized in hunting, as indicated by the large amount of wild animal bones, raids to capture the livestock of neighboring settlements must have intensified. It is highly likely that this was the main cause for the construction of fortifications around the settlements, which often also encircle large uninhabited areas in its vicinity besides the settlement itself.

Substantial changes appeared also in the use of lithic materials for chipped stone tool production. The amount of tools significantly increased, and the large majority of them were manufactured from medium distance materials, while those made of long distance high-quality materials constituted less than 10 % of the assemblage. This indicates that the exploitation of the regional sources with materials of regular quality significantly increased, while the long-distance exchange was drastically reduced. These transformations may have been dictated by the discovery of Banat “flint” sources and by the decrease in the mobility of populations.

The Late Neolithic began with some manner of pronounced changes in the pottery style. In the first part of the period, however, many of the tell settlements from the Middle Neolithic continued to be inhabited, the proportion of site categories was maintained, and their distribution in the landscape was very similar to that from the previous period. Strong continuity with limited changes also existed within intra-settlement structure and architecture. The size of the settlements continued to increase, and their fortifications became more complex, but a small decrease in the average size of houses took place. The large discrepancy between the small and large houses within a settlement continued to exist, indicating that the social differentiation also persisted. Evidence from the neighboring regions indicate that a strong continuity in burial customs also existed. The subsistence economy continued to be based upon cereal cultivation, livestock rising, and hunting, but cereal cultivation, and

specializations in cattle rearing and red deer hunting were further intensified, with the former of these reaching its peak. The medium distance sources also continued to supply the lithic material required for the production of the large majority of chipped stone tools, but the ratio of Banat "flint" increased. Therefore, changes in the pottery style from the beginning of the Late Neolithic did not correspond to equally notable changes in the other spheres analyzed.

The second part of the Late Neolithic began with pronounced changes in pottery style. Yet, the fortified tell settlements continued to exist, and the houses were constructed in the same manner, but their size decreased. Currently, there is no evidence regarding the use of floral resources, however the evidence for the faunal ones show a strong continuity from the first part of the Late Neolithic, with further increase in the reliance upon cattle rearing and selective hunting of large animals. Continuity also existed in the use of lithic materials for knapping.

The technology of hot metallurgical processing was developed in the first part of the Late Neolithic within the Central Balkans and transmitted to the Foeni Group only in the second part of the period, but did not reach the Tisa Culture. This evidence demonstrates that the initial transmission of the metallurgical knowledge from the center of occurrence to the neighboring areas was quite slow. In the study region, copper was obtained by smelting malachite ore. The intensity of production was slow, and the objects produced were rather small.

In the Early Eneolithic, a new pottery style appeared, the number of tell settlements decreased, and the number of flat settlements increased. Settlements generally became smaller in size, were briefly occupied, and less densely constructed. The increase in the number of settlements and their shorter period of occupation suggest that the level of mobility also increased. Houses became smaller, primarily single-roomed, and inhabited by a single family. If, in the previous period, the extramural necropolis was rarely encountered, now this manifestation became generalized. On the other hand, numerous flat settlements from the previous period continued to be inhabited, and, although many tells were abandoned, some still continued to be occupied and their defensive systems were renewed. The deceased continued to be buried in a crouched position on their side, and the deposition of grave goods continued to be a common practice. Furthermore, the contrast between the richly furnished graves and those with few or no grave goods continued to increase, indicating growing social differentiation.

The subsistence economy continued to be based on livestock raising, hunting, and cereal cultivation, but the latter was employed less intensively, and the reliance upon the large animal species, although present, was less pronounced. The abandonment of numerous tell settlements seems to be related to the cultivation strategies employed in the Late Neolithic. The intensive and prolonged cultivation of the fields surrounding the densely populated tell settlements gradually exhausted the soil's potential, rendering crop agriculture less productive and ineffective in sustaining large concentrations of humans. On the other hand, the flat settlements with much lower population densities employed less intensive cultivation, which proved to be more sustainable, with many such settlements continuing their existences into the Early Eneolithic. Metallurgic production was substantially intensified, mostly adornments being produced while the heavy implements such as the hammer-axes were still few. The copper used was of an almost pure composition. By this time small adornments made of gold appeared in the broader region.

The first part of the Middle Eneolithic began with rather limited changes in the pottery style, but the overall number of sites drastically decreased, and the tell settlements ceased to exist. On the other hand, as in the previous period, the flat settlements were briefly occupied, and

the surface houses were small. There was also a strong continuity in the burial customs and in the use of necropolises – two of the three Middle Neolithic necropolises were first used in the Early Eneolithic. Inhumation in a crouched position remained the common burial practice, and the grave goods continued to be frequent. The substantial decrease in the number of sites, especially in settlements, and their short occupation span indicate that a sharp demographic plunge took place. Unfortunately, there is no evidence regarding the use of floral, faunal, or stone resources, which may otherwise shed light on the causes of these transformations.

Metallurgical production, however, was not affected by the drop in population; on the contrary, it had intensified, and previously scarce heavy implements including axe-adzes and flat-axes became frequent. Copper continued to be of high purity, and the provenance analyses indicate that most of it originated from the copper deposits at Majdanpek.

If the evidence for the first part of the Middle Eneolithic is scarce, no evidence at all has yet been found from the second part of the period. It is less likely that the study region was completely abandoned, and it is but a matter of time until initial evidence is uncovered. Nevertheless, this lack of evidence, considering that some areas were totally surveyed, indicates a further decrease in the number of sites, and in population size. The reasons for this are not yet clear. Did the 4000 – 3200 cal BC RCC event have a devastating impact upon the subsistence economy? Were the wheel and wagon already discovered, and nomadic people from the North Pontic steppe already massively migrating into the plains of Southeastern Europe, forcing the locals to retreat in the mountains? Was there an early epidemic disease of plague expanding over large areas in Europe, as Rascovan *et al. in print* claim? Was there a combination of all these factors listed? As of yet, these questions must remain unanswered.

The Late Eneolithic began with a change in pottery style embracing most of Southeastern Europe and beyond. In the study region, the number of sites increased, but they were distributed only in the low plain, as in the Early Neolithic. The settlements continued to be briefly occupied, and the surface houses were small in size and had less solid construction. The brief occupation of the settlements implies an increased mobility.

Considerable changes also took place in the funerary practices. The necropolises were replaced by tumuli, which were mounds erected over a primary grave; moreover, often other graves were buried in their mantles. Inhumation in an extended supine position with the legs bent up at the knees was the common burial practice, but cremation was also practiced. Often the inhumation graves had an organic matting, a wooden construction, and ochre was sprinkled within the grave. The grave inventory was scarce and relatively standardized. It consisted of personal adornments, small objects such as miniature vessels, and clods of ochre or limy material. This burial tradition has its origin in the Yamnaya nomadic culture from the North Pontic steppes, wherefrom it spread in the plains of Southeastern Europe. As burial customs are one of the most conservative cultural features, this sharp change can hardly be explained by anything other than population movement. Also in favor of this explanation is evidence of the introduction of wheeled vehicles pulled by oxen over a wide area in Eurasia at the beginning of this period. Currently, it is commonly accepted that all the tumuli belong to the Yamnaya newcomers; however, as the tumular tradition persisted throughout the Late Eneolithic, and no other form of burial practice was attested, it is highly likely that the local population also adopted this tradition. Tumular burial practice reflects aptly the hierarchically structure of Late Eneolithic society. The prominent place that a tumulus had in the flat landscape and the complex and laborious task of constructing it, involving much of the community, if not all, indicates that the individuals buried in the primary graves for whom the tumulus was erected possessed high social status. In contrast, the individuals secondarily

buried in the tumulus' mantle, for whom no tumulus was erected, must have been of lower status.

The subsistence economy continued to be based upon animal husbandry and hunting; however, the role played by the plant cultivation remains unknown at the current state of research. The decrease in the use of the Gleysol and Cambisol, as well as the lack of settlements in the high plain, may be an indication that agriculture played a secondary role in the economy, and that the communities comprised of mobile pastoralists. Metallurgical production suffered a dramatic drop. Tools made of copper became very seldom and small in size. The copper used was arsenical, indicating that new sources of copper were exploited. Objects made of gold also became very rare and silver objects appeared for the first time. These were small earrings usually found in the tumular graves. Many of the changes mentioned were induced by the incoming Yamnaya people, but whether there was a single migration or multiple migrations, how the incomers interacted with the local population, how long this interaction lasted, and to what degree the locals were acculturated are questions that remain to be answered.

To conclude, it might be stated that changes in the settlement size, intra-settlement structure, distribution of sites, burial customs, and social structure correspond to transformations in the use of resources, and often the changes in the latter are the reason for the changes in the former. The changes in the pottery style, however, are not necessarily related to other changes, and these alone must not be used for identifying sociocultural transformations.

Annexes

1. Catalogue of sites

This catalogue provides a brief description of the currently known Neolithic and Eneolithic sites from the northwestern Banat. The focus is put on four main aspects regarding the sites: location, history of research, results and dating. Each site has been assigned a number, which is also used throughout the dissertation and on the maps.

The name of the site is composed of two parts separated by a dash. The first part consists of the name of the closest modern locality, while the second part consists of the local toponym or a conventional number. Exceptions are made to the sites discovered within the "Arheološka Topografija Banata" project, whose first part constitute the name of the closest larger locality.

A. Sites from the Hungarian part of northwestern Banat

1. Deszk – 1 (Olajkút) is a flat settlement located ca. 3.1 km east of the center of the village of Deszk. It lies on a terrace and extends over an area of ca. 1 ha.

Rescue excavations were conducted by Ottó Trogmayer in 1966, revealing five pits and a burial dated to the Early Neolithic and another burial dated to the Middle Neolithic.

LITERATURE: Trogmayer 1967; Trogmayer 1968: 8; Horváth 2006a: 113-114; Paluch 2012: 298; Whittle et al. 2002: 115.

2. Deszk – A is located ca. 2.5 km east of the center of the village of Deszk. The site consists of a cemetery and a flat settlement situated on a ridge bordered on the northern and eastern sides by a former marshland produced by the overflow of the Mureș river. It extends over an area of at least 0.3 ha.

The cemetery was discovered during the excavation of military trenches in 1915 and rescue excavations were undertaken by Ferenc Móra in 1930 and 1931. The excavations yielded 83 graves, of which 13 are dated to the Early Eneolithic (Tiszapolgár A and B2). The rest of the burials are primarily from the Bronze Age, but some also from Late Classical Antiquity and the Modern period. In the southern part of the investigated area a cultural layer from the Late Eneolithic (Baden Culture) was identified.

LITERATURE: Foltiny 1941; Bognár-Kutzián 1972: 22-27; Banner 1956: 76; Diaconescu 2013; Sava 2015b: 98.

3. Deszk – B, C, E is located ca. 1.3 km southwest of the center of the village of Deszk, on a terrace. The site consists of a cemetery and a flat settlement.

Excavations carried out by Ferenc Móra in the period 1930-1931 revealed 15 Early Eneolithic graves (Tiszapolgár A and B2). In the same area a Migration period cemetery and an Early Neolithic settlement were also discovered.

LITERATURE: Bognár-Kutzián 1972: 27-34; Paluch 2012: 298; Diaconescu 2013; T. Paluch, pers. comm. 16.05.2017.

4. Deszk – G is a flat settlement located ca. 7.9 km southeast of the center of the village of Deszk. It lies on a terrace and occupies an area of ca. 1 ha.

Archaeolgical investigations were conducted by D. Csallány and J. Kotormány in 1932, 1933, 1937 and 1939 revealing an Early Neolithic occupation.

LITERATURE: Paluch 2012: 298.

5. Deszk – Grundstück des A. Barát. On the property of A. Barát was discovered a complete Late Eneolithic vessel (Baden style).

LITERATURE: Csalog 1949: 160; Banner 1956: 76.

6. Deszk – I (Okopi-dûlő) is a flat settlement located ca. 4.6 km northeast of the center of

the village of Deszk. It lies on a terrace and covers an area of ca. 1 ha.

Excavations were carried out by J. Czuci in 1933, yielding settlement remains of the Early Neolithic period.

LITERATURE: Paluch 2012: 298.

7 Deszk – Okapi is an Early Eneolithic flat settlement located in the vicinity of the river Tisa, which was first discovered during the construction of a building in 1932.

LITERATURE: Bognár-Kutzián 1972: 34.

8. Deszk – Ordos csatornánál is a flat settlement located ca. 4.7 km southeast of the center of the village of Deszk. It lies on a terrace and extends over an area of ca. 1 ha.

The site was first detected by Edit Matuz during a survey carried out in the 1970's. The recovered finds are dated to the Early Neolithic and Late Neolithic.

LITERATURE: Horváth 1986: 93; Paluch 2012: 299.

9. Deszk – Vénó is a flat settlement located east of the village of Deszk, on a former bank of the Mureș river.

A test excavation was conducted by Fernc Horváth in 1984 revealing occupation traces from the Early Eneolithic (Tiszapolgár A), the Early Bronze Age and Late Classical Antiquity. The Early Eneolithic occupation consists of a single layer.

LITERATURE: Horváth 1985; Horváth1986: 93; Diaconescu 2009b: 256.

10. Ferencszállás – Somogyi-dûlő is a flat settlement located ca. 0.8 km southwest of the center of the village of Ferencszállás. It lies on a terrace and covers an area of ca. 1 ha.

The site was discovered during a reconnaissance survey undertaken by Erwin Gál in the 1980's. The collected finds are dated to the Early Neolithic.

LITERATURE: Paluch 2012: 300.

11. Kiszombor – 65 is a flat settlement located ca. 3.7 km southwest of the village of Kiszombor. It is situated on a terrace and extends over an area of ca. 2 ha.

The site was discovered by M. Vízi during a survey carried out in the 1980's and the collected finds were dated to the Early Neolithic.

LITERATURE: Paluch 2012: 305-306.

12. Kiszombor – 80 is a flat settlement located ca. 2.7 km south of the village of Kiszombor. It lies on a terrace and occupies an area of ca. 2 ha.

It was discovered in the 1980's during a survey undertaken by M. Vízi. The collected finds are dated to the Early Neolithic.

LITERATURE: Paluch 2012: 306.

13. Kiszombor – D is a flat settlement located on a terrace somewhere in the surroundings of the village of Kiszombor.

Archaeological excavations were conducted by Ferecz Móra in 1930, yielding settlement remains from the Early Neolithic.

LITERATURE: Paluch 2012: 305.

14. Kiszombor – N is a Late Eneolithic flat settlement located somewhere in the administrative district of the village of Kiszombor, which was identified by Ferenc Móra.

LITEARTURE: Banner 1956: 76.

15. Klárafalva – Nagyérpart is a Late Eneolithic flat settlement located south of the village of Klárafalva in the vicinity of the road leading to the railway.

LITERATURE: Banner 1956: 76.

16. Klárafalva – Vasút utca also known as "Deszk – Kübekházi út job oldala" is a flat settlement located ca. 0.7 km southwest of the village of Klárafalva, on a terrace.

Early Neolithic and Bronze Age settlement remains were identified during the

investigation of a cemetery from Late Classical Antiquity conducted by Katalin Nagy in 1965.

LITERATURE: Nagy 1975; Paluch 2012: 306.

17. Klárafalva – Vasútállomás is a flat settlement located ca. 2 km southeast of the center of the village of Klárafalva, in the vicinity of the train station.

During the archaeological investigation of a Sarmatian cemetery conducted by Mihály Párducz remains of a Late Eneolithic settlement were also found.

LITERATURE: Banner 1956: 76.

18. Szeged – Szőreg, Aradi utca 58 is an Early Eneolithic flat settlement located ca. 4.80 km southeast of the center of the city of Szeged, in the former village of Szőreg (nowadays a district of Szeged) at Aradi street 58 (nowadays Barázda street).

LITERATURE: Trogmayer 1977: 55.

19. Szeged – Szőreg, Homokbánya is a flat settlement located in the vicinity of the train station of the former village of Szőreg. It was discovered during excavations in a sand quarry and the finds are dated to the Late Neolithic (Tisa Culture) and Early Eneolithic.

LITERATURE: Trogmayer 1977: 55.

20. Szeged – Szőreg, Téglagyár is a flat settlement located ca. 1.2 km southeast of the center of the village of Újszentiván and covers an area of ca. 2 ha.

Rescue excavations were conducted by Csánad Bálint and Borbalá Maláz in the 1970's, revealing Early Neolithic and Middle Eneolithic (Bodrogkeresztúr) occupation.

LITERATURE: Bálint, Maláz 1971; Trogmayer 1977: 53; Paluch 2012: 313.

21. Tiszasziget – Agyagbánya is a flat settlement located in the southwestern outskirts of the village of Tiszasziget, near to – and partially in – the garden of a house at Aradi street 46. It occupies an area of ca. 3.5 ha.

Sand extraction in the 1970's affected the site, which was discovered by Edit Matuz during a survey in 1976. During the same year, rescue investigations in the southern part of the site (déli gödör) began under the supervision of Ottó Trogmayer. In the five excavated trenches several Middle Neolithic (Vinča A) features and an Eneolithic grave were discovered. A systematic survey conducted by Dániel Pópity in the period 2004-2006 has provided a good insight into the long occupation of the site, as, besides Middle Neolithic finds, Early Neolithic, Late Neolithic (Tisa II) and Early Eneolithic finds were also discovered. It was also observed, however, that a large part of the site has already been destroyed by illegal mining activities. As the sand quarrying continued, rescue excavations in the northern part of the site (északi gödör) were carried out by Dániel Pópity in 2008, yielding several Late Neolithic features.

LITERATURE: Trogmayer 1978-1979; Simon 1980; Matuz, Béres 2000: 56; Pópity 2006: 108-110, site 31 and 32; Pópity 2008; Paluch 2012: 318; Pető et al. 2013.

22. Tiszasziget – Andróé-alja (Ószentiván VIII) is a tell settlement and a necropolis located in the northwestern outskirts of the village of Tiszasziget, in the vicinity of the railway. It occupies an area of ca. 4 ha.

Archaeological excavations were carried out in 1932 by Alajos Bálint and Mihály Párducz, in the period 1941-1942 by Gábor Tóth, in 1943 by József Korek and in 1960 by Ida Bognár-Kutzián. These investigations revealed settlement remains from the Early Neolithic, Middle Neolithic (Vinča A), Late Eneolithic (Baden Culture), Bronze Age, Classical Antiquity and Middle Ages. During the Early Eneolithic the mound was reused as a burial ground. The site was also surveyed by Edit Matuz in the period 1975-1976 and by Dániel Pópity in the period 2004-2006. Besides finds from the above-mentioned periods, the last survey yielded finds also dated to the Late Neolithic (Tisa Culture).

LITERATURE: Bálint, Párducz 1933-1934; Párducz 1941; Tóth 1942; Korek 1943; Banner, Párducz 1946-1948: 35-39; Banner 1956: 75; Kutzian 1961; Bognár-Kutzián 1972: 67-69; Matuz, Béres 2000: 55-56, 59, 61; Pópity 2006: 108-110, site 8; Paluch 2012: 318.

23. Tiszasziget – Bíró-föld is a flat settlement located ca. 3.40 km west of the center of the village of Tiszasziget. It lies on a terrace and covers an area of ca. 1 ha.

The site was first detected during a systematic reconnaissance survey conducted by Dániel Pópity in the period 2004-2006. The recovered finds are dated to the Middle Eneolithic (Bodrogkeresztúr).

LITERATURE: Pópity 2006: 110, site 24; D. Pópity, pers. comm., 27.02.2017.

24. Tiszasziget – Boján I is a flat settlement located 2.10 km southeast of the center of the village of Tiszasziget.

It was discovered during a systematic reconnaissance survey conducted by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Late Neolithic (Tisa Culture) and Early Eneolithic.

LITERATURE: Pópity 2006: 109-110, site 36; D. Pópity, pers. comm., 27.02.2017.

25. Tiszasziget – Csürü-föld I is a flat settlement located ca. 2.7 km northwest of the center of the village of Tiszasziget. It is situated on a terrace and occupies an area of ca. 1 ha.

The site was discovered during a survey carried out by Dániel Pópity in the period 2004-2006 and dated to the Early Neolithic.

LITERATURE: Pópity 2006: 108, site 12; Paluch 2012: 319.

26. Tiszasziget – Csürü-föld II is a flat settlement located ca. 2.3 km northwest of the center of the village of Tiszasziget. It lies on a terrace and extends over an area of ca. 1 ha.

The site was first recognized during a reconnaissance survey undertaken by Edit Matuz in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Early Neolithic.

LITERATURE: Pópity 2006: 108, site 12; Paluch 2012: 319.

27. Tiszasziget – Dögtemető (Ószentiván V) is a flat settlement located ca. 1.5 km south of the center of the village of Tiszasziget.

The site, already affected by a clay quarry, was discovered by János Banner during a survey in 1932 and dated in the Late Eneolithic (Baden Culture). The site was surveyed again by Edit Matuz in the period 1975-1976 and by Dániel Pópity in the period 2004-2006.

LITERATURE: Banner 1937b: 238-239; Banner, Párducz 1946-1948: 35, Banner 1956: 74-75; Matuz, Béres 2000: 61; Pópity 2006: 110, site 5.

28. Tiszasziget – Jató II is a flat settlement located ca. 1.9 km southeast of the center of the village of Tiszasziget. It lies on a terrace and occupies an area of ca. 1 ha.

The site was discovered during a reconnaissance survey performed by Edit Matuz in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Early Neolithic.

LITERATURE: Matuz, Béres 2000: 55; Pópity 2006: 108, site 35; Paluch 2012: 320.

29. Tiszasziget – Kónya-tanya is a flat settlement located ca. 4.1 km northwest of the center of the village of Tiszasziget. It lies on a terrace and occupies an area of ca. 3 ha.

The site was found by Edit Matuz during a reconnaissance survey carried out in the period 1975-1976 and in the period 2004-2006 it was surveyed again by Dániel Pópity. The collected finds are dated to the Early Neolithic and the Middle Neolithic (Vinča A).

LITERATURE: Pópity 2006: 108, site 20; Paluch 2012: 319.

30. Tiszasziget – Papok földje is a flat settlement located ca. 3 km northwest of the center of the village of Tiszasziget. It is situated on a terrace and extends over an area of ca. 6 ha.

The site was discovered during a reconnaissance survey undertaken by Edit Matuz in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The recovered finds are dated to the Early Neolithic, Early Eneolithic and Late Eneolithic (Baden-Kostolac).

LITERATURE: Pópity 2006: 108-110, site 13; Paluch 2012: 319.

31. Tiszasziget – Szécsi-tanya is a flat settlement located ca. 4.1 km northwest of the center of the village of Tiszasziget. It lies on a terrace and occupies an area of ca. 1 ha.

The site was discovered during a reconnaissance survey performed by Edit Matuz in the period 1975-1976 and it was surveyed again by Dániel Pópity in the period 2004-2006 it. The collected finds are dated in the Early Neolithic.

LITERATURE: Paluch 2012: 319.

32. Tiszasziget – Szélmalom domb (Ószentiván I & II) is flat settlement located ca. 0.5 km north of the center of the village of Tiszasziget in the vicinity of a windmill. It occupies an area of ca. 14 ha.

Archaeological excavations were conducted in the period 1926-1928 by János Banner and in 1960 by Ida Bognár-Kutzián. The discovered finds are dated to the Early Neolithic, Middle Neolithic (Vinča Culture), Early Eneolithic, Late Eneolithic (Baden-Kostolac), Bronze Age and Middle Ages. Between 1975-1976, the site was surveyed by Edit Matuz and in the period 2004-2006 it was surveyed again by Dániel Pópity.

LITERATURE: Banner 1928: 148-160, 177-217, 221-237; Banner 1929b: 70-78; Banner, Párducz 1946-1948: 35; Banner 1956: 74; Bognár-Kutzián 1972: 67; Horváth 2006a: 114-115; Matuz, Béres 2000: 55-56, 59, 61; Pópity 2006: 110, site 2; Paluch 2012: 319.

33. Tiszasziget – Sziget-alja is a flat settlement located in the southern outskirts of the village of Tiszasziget. It lies on a terrace and covers an area of ca. 1 ha.

The site was identified during a reconnaissance survey performed by Edit Matuz in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Early Neolithic.

LITERATURE: Pópity 2006: 108, site 33; Paluch 2012: 320.

34. Tiszasziget – Szüget-tető is a flat settlement located ca. 2.3 km south of the center of the village of Tiszasziget. It is situated on a terrace and occupies an area of ca. 3 ha.

The site was detected during a reconnaissance survey conducted by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Early Neolithic.

LITERATURE: Pópity 2006; Paluch 2012: 319.

35. Tiszasziget – Templom domb (Ószentiván III) is a flat settlement located in the western outskirts of the village of Tiszasziget. It lies on a terrace and extends over an area of ca. 10 ha.

Archaeological investigations were carried out by János Banner in the period 1926-1929 and by József Korek in 1943, yielding settlement remains from the Early Neolithic, Late Neolithic (Tisa Culture) and Bronze Age. The site was surveyed by Edit Matuz in the period 1975-1976 and by Dániel Pópity in the period 2004-2006.

LITERATURE: Banner, Párducz 1946-1948: 35; Horváth 1986: 93; Matuz, Béres 2000: 59; Pópity 2006: 109, site 3; Paluch 2012: 319-320.

36. Tiszasziget – Térvár, Fehér-part I is a flat settlement located ca. 3.6 km southwest

of the center of the village of Tiszasziget and is situated on a high former river bank.

The site was found by Edit Matuz during a reconnaissance survey undertaken in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The collected finds are dated to the Middle Eneolithic.

LITERATURE: Pópity 2006: 110, site 54; D. Pópity, pers. comm., 27.02.2017.

37. Tiszasziget – Térvár, Fehér-part II is a flat settlement located ca. 3.6 km southwest of the center of the village of Tiszasziget. It lies on a terrace and occupies an area of ca. 2.5 ha.

The site was discovered by Edit Matuz during a reconnaissance survey performed in the period 1975-1976 and was surveyed again by Dániel Pópity in the period 2004-2006. The recovered finds are dated to the Early Neolithic.

LITERATURE: Pópity 2006: 108, site 55; Paluch 2012: 320.

38. Tiszasziget – Térvári-sziget is a flat settlement located ca. 3.4 km southwest of the center of the village of Tiszasziget. It covers an area of ca. 1 ha.

The site was identified by Dániel Pópity during the systematic reconnaissance survey undertaken in the period 2004-2006. The collected finds are dated to the Middle Neolithic.

LITERATURE: Pópity 2006: 108, site 42; D. Pópity, pers. comm., 27.02.2017.

39. Tiszasziget – Vedresháza is a flat settlement and necropolis located southwest of the village of Tiszasziget, on an elevated ridge.

The site was found by chance in 1932 during agricultural works and in the following year Ferenc Móra conducted archaeological excavations revealing a cemetery. The majority of the graves are from Late Classical Antiquity, but two are dated to the Early Eneolithic. The site was surveyed by Edit Matuz in the period 1975-1976 and by Dániel Pópity in the period 2004-2006, recovering evidence for Middle Neolithic, Late Neolithic (Tisa Culture) and Late Eneolithic (Baden Culture) occupation.

LITERATURE: Matuz, Béres 2000: 55, 60; Bognár-Kutzián 1972: 69; Pópity 2006: 108-110, site 19.

B. Sites from the Romanian part of northwestern Banat

40. Arad – Aradul Nou, Bufniți is a flat settlement located ca. 0.7 km west of the Aradul Nou district, lying on a high terrace south of the Mureș river.

The site was discovered by Eugen Pădureanu during a survey in 1970 and was surveyed again by him in 1972 and 1978 and by Peter Hügel in 1992. The collected finds are dated to the Early Neolithic, Early Eneolithic, Late Eneolithic (Baden Culture), Bronze Age, Late Classical Antiquity and Middle Ages. In addition, A. Mătiuț has found in 2007 a Late Neolithic vessel (Vinča C type) on the bank of the river.

LITERATURE: Pădureanu 1985: 28-29; Barbu et al. 1999: 37; Diaconescu 2009: 90; Luca 2010: 23; Sava, Matei 2013: 91-92; Sava 2015c: 156.

41. Arad – Aradul Nou, Gradina CAP is a flat settlement located in the western outskirts of the Aradul Nou district.

The site was discovered by Egon Dörner during a channel excavation in the garden of the former CAP[44] in 1970 and dated to the Late Eneolithic (Baden Culture). In 2010 during rescue excavations an Early Neolithic feature was investigated.

LITERATURE: Roman 1976: 31; Roman, Németi 1978: 12; Luca 2010: 22; Sava 2015c: 81.

42. Băile Călacea – Avicola is a settlement located ca. 4.5 km southwest of the center of the village of Călacea.

The site was discovered in 1986 during a systematic reconnaissance survey undertaken

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by Doina Benea, Florin Drașovean, Mircea Mare, Ion Davițoiu and Răzvan Găvan. The recovered finds are dated to the Middle Neolithic (Banat Culture I).

LITERATURE: Drașovean 1989: 37.

43. Băile Călacea – Stație is a settlement located in the eastern outskirts of the balneotherapeutic center Băile Călacea, in close proximity to a petrol station.

The site was discovered in 1986 during a systematic reconnaissance survey carried out by Doina Benea, Florin Drașovean, Mircea Mare, Ion Davițoiu and Răzvan Găvan. The collected finds are dated to the Middle Neolithic (Banat Culture I).

LITERATURE: Drașovean 1989: 37.

44. Beba Veche – Cărămidăria Baravine is a flat settlement located in the vicinity of the "Bara" stream, between the village of Beba Veche and the former village of Beba Mică (Kis Béba/Mali Beb).

It was discovered by chance during excavations in a clay quarry in 1878. The site has ca. 1 m cultural layer in which were attested hearths. In the Museum of Timișoara are deposited ceramic sherds coming from this site, which are dated in the Early, Middle and Late Eneolithic. In addition, it is likely that the seven Bodrogkeresztúr type vessels acquired by the Museum of Székesfehérvár in 1911 originate from this site.

LITERATURE: Milleker 1897: 15-17; Kisléghi 1912: 308; Marosi 1912: 15; Milleker 1938: 107; Patay 1961: 93-94, Tábla 34; Lazarovici 1975a: 20; Roman, Németi 1978: 11; Lazarovici 1979: 186; Luca 1999: 49; Sălceanu 2008: 33; Diaconescu 2009: 91; Luca 2010: 30, a; Sava 2015b: 19.

45. Beba Veche – Drumul Kiszomborului is a necropolis located ca. 3 km west of the village of Beba Veche.

In 1902, during the construction of the road between Beba Veche and Kiszombor, 10 graves were uncovered. The next archaeological rescue excavations were conducted by János Reizner and Aurel Török, who investigated 16 additional graves. About half of the graves had an inventory which were used for dating the site to the Bronze Age by János Banner. During a re-examination of the finds, however, Ida Bognár-Kutzián identified a Tiszapolgár type vessel which comes from one of the graves.

LITERATURE: Reizner 1904: 81-88; Tömörkény 1905: 255-257; Milleker 1906: 7-15; Kisléghi 1912: 308; Banner 1931: 25; Bognár-Kutzián 1972: 114; Diaconescu 2009: 91; Luca 2010: 30, b.

46. Becicherecu Mic – Dealul Crucii is a flat settlement located ca. 4.3 km of the center of the village of Becicherecu Mic. It lies on an elevated terrace, in the vicinity of an old river bed.

The site was discovered in 2006 during a systematic reconnaissance survey (eGISspat Timiș project) conducted by Liviu Măruia and Adrian Cîntar. The recovered finds indicate that the settlement was occupied in the Neolithic, Late Classical Antiquity and the Middle Ages.

LITEARTURE: Măruia et al. 2011: 60-67.

47. Biled. The settlement is located ca. 4.6 km northeast of the center of the village of Biled. It was discovered during a reconnaissance survey undertaken by Florin Drașovean, Mircea Mare and Ion Davițoiu. The collected finds are dated to the Middle Neolithic (Banat Culture I).

LITERATURE: Drașovean 1989: 37-38; Luca et al. 2010: 84.

48. Bodrogu Nou – Către Vale is a flat settlement located ca. 900 m northeast of the center of the village of Bodrogu Nou, on a former bank of the Mureș river.

The site was discovered in 1983 during a survey performed by Eugen Pădureanu. The recovered finds are dated to the Middle Neolithic (Banat Culture), Early Eneolithic, Bronze Age, Classical Antiquity and Middle Ages.

LITERATURE: Pădureanu 1985: 30-31; Pădureanu 1987-1988: 509; Luca 1985; Barbu et al. 1999: 45; Luca 2010: 44.

49. Bodrogu Nou – Pădure is a flat settlement discovered in 1966 by G. Máté and date to the Late Eneolithic (Baden Culture).

LITERATURE: Roman 1976: 32; Roman, Németi 1978: 12; Barbu et al. 1999: 45; Diaconescu 2009: 93; Luca 2010: 43-44.

50. Bucovăț – Cremeniș (Gruniul cu cremene) is a tell settlement located in the northeastern outskirts of the village of Bucovăț, in close proximity to an old branch of the Bega river. The mound currently rises ca. 4 m above the surrounding terrain and occupies an area of ca. 3 ha.

In 1972 the local teacher informed the Museum of Timișoara that the eastern part of the mound was affected by clay quarrying. Consequently, systematic archaeological excavations were conducted by Gheorghe Lazarovici during the following three years. They consisted of a large trench in the southeastern side of the mound and several smaller trenches on the opposite side.

The mound has 2.5 m thick cultural strata, in which were identified 10 building phases. The first 8 phases are dated to the Middle and Late Neolithic (Banat Culture), while the last two are from the Early Eneolithic and Bronze Age respectively.

LITERAURE: Lazarovici 1975a: 20; Lazarovici 1979: 188; Lazarovici 1991; Drașovean, Lazarovici 1991: 54-57; Diaconescu 2009: 94; Măruia et al. 2011: 70-78.

51. Carani – Selişte is a flat settlement located ca. 3.4 km northwest of the center of the village of Carani. It lies on a high terrace bordered on the east by a stream and occupies an area of ca. 2.5 ha.

The site was discovered in 2006 during a systematic reconnaissance survey undertaken by Dorel Micle, Liviu Măruia, Leonard Dorogostaisky and Adrian Cîntar. The collected finds are dated to the Late Neolithic (Vinča C), the Bronze Age and the Middle Ages.

LITERATURE: Micle et al. 2006-2007: 12, site 5; Rogozea 2016: 11-12.

52. Cenad – Belo Brdo is a settlement dated to the Early and Middle Eneolithic (Tiszapolgár B and Bodrogkeresztúr Cultures).

LITERATURE: Lazarovici 1975a: 20; Luca 1999: 50; Sălceanu 2008: 34-35; Diaconescu 2009: 129; Luca 2010: 65.

53. Cenei - 1 is a settlement located ca. 0.8 km south of the center of the village of Cenei.

The site was discovered by chance in 1894 during the excavation of a channel that encircled an agricultural field, and Endre Orosz has recovered numerous finds dated to the Early and Middle Neolithic.

LITERATURE: Orosz 1895: 68-69; Orosz 1897: 70; Milleker 1897: 28-29; Kisléghi 1912: 323-324; Milleker 1938: 114; Lazarovici 1979: 190; Luca 2010: 66.

54. Cherestur. A Tiszapolgár type vessel was discovered in the surroundings of the village.

LITERATURE: Lazarovici 1975a: 22; Lazarovici 1979: 190; Luca 1999: 55; Diaconescu 2009: 96; Luca 2010: 69.

55. Cherestur – 1 is a tell settlement located ca. 0.5 km west of the center of the village of Cherestur. It lies on an elevated terrace and covers an area of ca. 6 ha.

The site was discovered in the 1990's by Constantin Kalcsov and Francisc Mirciov and was surveyed by Octavian-Cristian Rogozea, Francisc Mirciov and Gheorghe Drăgoi in 2016. The discovered finds are dated to the Late Neolithic (Tisa Culture) and Early Bronze Age.

LITERATURE: Rogozea, Rogozea 2016: 144-145; Rogozea 2016: 12-13.

56. Cherestur – 2 is a flat settlement located ca. 1.1 km northeast of the center of the village of Cherestur. It is situated on an

elevated terrace and extends over an area of ca. 3 ha.

The site was discovered in the 1990's by Constantin Kalcsov and Francisc Mirciov and was surveyed by Octavian-Cristian Rogozea, Francisc Mirciov and Gheorghe Drăgoi in 2016. The discovered finds are dated to the Early Neolithic.

LITERATURE: O.-C. Rogozea, pers. comm., 15.09.2016.

57. Chișoda – Gomilă is a tell settlement located ca. 1.5 km southwest of the center of the village of Chișoda, on naturally elevated ground. The mound rises ca. 3 m above the surrounding terrain and occupies an area of ca. 5 ha.

The site was discovered in 1976 during a reconnaissance survey performed by Ortansa Radu and in the following three years she conducted archaeological investigations, excavating six trenches. In 2006 the "eGISspat Timiș" team has undertaken detailed field and topographic surveys.

The stratigraphy of the site consists of three Late Neolithic layers (Vinča C and Foeni Group), whose total thickness is ca. 3 m. On the surface of the mound medieval finds also appeared, while Early Eneolithic materials were found within the vicinity of the tell.

LITERATURE: Radu 1978; Lazarovici 1979: 190; Oprinescu 1981: 45; Drașovean, Lazarovici 1991: 71-72; Drașovean 1996: 30; Drașovean 1997: 55; Luca 2010: 71; Măruia et al. 2011: 90-108.

58. Comloșu Mic. In the surroundings of the village of Comloșu Mic an Early Neolithic settlemet was discovered.

LITERATURE: Lazarovici 1969: 3, no. 8; Lazarovici 1979: 192; Luca 2010: 74.

59. Comloșu Mare – Millevafeld is a flat settlement located in the vicinity of the road that links Comloșul Mare with Nerău.

The site was discovered by chance in 1899 during the planting of a tree on the side of a newly constructed road. The same year Gyula Kisléghi conducted small-scale excavations uncovering a layer of burned daub fragments. According to the description and drawings of the pottery, the site can be dated to the Middle Neolithic (Vinča Culture).

LITERATURE: Kisléghi 1912: 318; Kisléghi 2015: 47-48.

60. Cornești – Dealu Cornet is a flat settlement located 1.7 km southwest of the center of the village of Cornești. It lies on a sloping terrace on the left bank of the stream Lac and occupies an area of ca. 1.6 ha.

The site was discovered in 1933 during a reconnaissance survey undertaken by Joachim Miloia and the same year he carried out archaeological investigations there. In 1969 it was affected by the excavation of irrigational channels and rescue excavations were conducted by Ortansa Radu in the period 1970-1974.

The stratigraphy of the site consists of three main layers, whose total thickness varies between 1 and 1.50 m. The lowest layer consists of settlement traces form the Early Eneolithic and the Middle Eneolithic (Bodrogkeresztúr), while the following two layers belong to the Bronze Age (Vatina culture). The upper layer also contained finds dated to the Iron Age and Late Classical Antiquity.

LITERATURE: Radu 1972a; Radu 1972b; Soroceanu, Radu 1975; Lazarovici 1975a: 22; Lazarovici 1979: 193; Medeleț 1993: 121-122; Luca: 1999: 51; Micle et al. 2006: 293; Sălceanu 2008: 35; Diaconescu 2009: 98.

61. Cornești – Iugosloveni is a flat settlement located west of the village of Cornești.

It was discovered in 1939 by Marius Moga during a reconnaissance survey and in the same year he conducted the excavation of a test trench.

The stratigraphy of the site consists of two cultural layers, whose total thickness varies between 0.50 and 1.10 m. The lower one

dates to the Late Neolithic, while the upper layer dates to the Middle Eneolithic.

LITERATURE: Lazarovici 1979: 193; Drașovean, Lazarovici 1991: 74-77; Medeleț 1993: 121; Drașovean 1996: 30-31; Diaconescu 2009: 98; Luca 2010: 76.

62. Cornești – Jicman is a flat settlement located ca. 3 km northeast of the center of the village of Cornești, on a terrace bordered to the south by the valley of the Lac stream.

The site was discovered in 1939 during excavations on the large Bronze Age fortification "Iarcuri" conducted by Marius Moga. His trench V, located on I. Jicman's land, north of the "Hodaia Bătrână" road, has revealed a 0.35 m thick cultural layer. The site was rediscovered in 2006 during a reconnaissance survey carried out by Adrian Bejan, Dorel Micle, Liviu Măruia and Leonard Dorogostaisky. Due to the lack of diagnostic finds, the site is dated widely to the Neolithic.

LITERATURE: Medeleț 1993: 134; Micle et al. 2006: 289.

63. Cornești – Reiter is a flat settlement located ca. 2.3 km northeast of the center of Cornești, within the second defense ring of the large Bronze Age fortification "Iarcuri". It occupies an area of ca. 3 ha.

The site was discovered in 1939 during Marius Moga's investigation of the Bronze Age fortification. His trench VI, disposed in Reiter's field, reached a 0.80 m thick Late Neolithic cultural layer. The pottery is characteristic for the Vinča and Tisa Cultures. In 2007, new investigations on the Bronze Age site began within the frame of an international project (Romanian, German and British). The extensive reconnaissance survey combined with geomagnetic investigations revealed a fortified Early Eneolithic settlement in the area of Marius Moga's trench VI.

LITERATURE: Lazarovici 1979: 193; Drașovean, Lazarovici 1991: 77; Medeleț 1993: 134; Drașovean 1996: 31; Heeb et al. 2008: 185; Szentmiklosi et al. 2011.

64. Cruceni – Malul Timișului is an Early Neolithic settlement located in the vicinity of the river Timiș. It was discovered by Marius Moga in the 1960's.

LITERATURE: Lazarovici 1969: 3; Lazarovici 1979: 194.

65. Cruceni – Strada Cimitirului is a flat settlement located in the northern outskirts of the village of Cruceni. It lies on a terrace bordered to the north by a former river branch that was channelled in modern times.

The site was discovered during a reconnaissance survey undertaken by Florin Drașovean, simultaneously with the ongoing excavations at Foeni.

In 2000, the site stratigraphy was exposed in the process of excavating a telecommunication cable ditch. The settlement has a 0.70 m thick cultural layer in which one building horizon was identified. The collected pottery is dated to the Early Neolithic, the Middle Neolithic (Vinča A2-A3), the Early Eneolithic and Classical Antiquity.

LITERATURE: Drașovean, Fota 2003; Diaconescu 2009: 99; Luca 2010: 83.

66. Diniaș – Casa Albă is a settlement located ca. 4 km northwest of the center of the village of Diniaș in the vicinity of the former dam-monitoring building called "Fehérház/Weissen Hause". The site location dominates the surrounding terrain at ca. 2 m in height.

The site was found by chance during the construction of the dam in 1895 and in the exposed profile a 1.5 m thick cultural layer was visible. Early Neolithic remains were among the discovered finds.

LITERATURE: Hampel 1896: 280-281; Milleker 1897: 34-35; Milleker 1906: 84; Kisléghi 1912: 324; Milleker 1938: 114; Lazarovici 1979: 195.

67. Diniaș – Gomilă is a tell settlement located 3.5 km north of the center of the village of Diniaș. It lies on the left bank of

river Bega and extends over an area of ca. 7 ha.

It was discovered by Florin Draşovean in the 1980's and was surveyed by Octavian-Cristian Rogozea in 2016. The recovered finds are dated to the Late Neolithic (Foeni Group), Early Eneolithic, Bronze Age, Late Classical Antiquity and the Middle Ages.

LITERATURE: Medeleţ, Bugilan 1987: 126; Bochiş 2004: 56, site 17a; Diaconescu 2009: 100; Luca 2010: 90; Rogozea 2016: 14-15.

68. Diniaș – Trei Sălcii (Trei Plopi) is an Early Eneolithic settlement located ca. 1.5 km northwest of the village of Diniaș.

LITERATURE: Bochiș 2004: 56, no. 17b; Diaconescu 2009: 100, no. 60; Luca 2010: 90.

69. Dudeştii Noi – 12 is a flat settlement located ca. 4 km southeast of the center of the village of Dudeştii Noi. It lies on a terrace bordered on the east by the stream Bega Veche and occupies an area of ca. 3 ha.

The site was discovered in 2015 during a survey undertaken by Octavian-Cristian Rogozea, Dorel Micle, Victor Bunoiu, Remus Dincă and Alexandru Ionescu. The collected finds are dated to the Middle Neolithic (early Vinča Culture).

LITERATURE: Rogozea 2016: 13.

70. Dudeştii Noi – 42 is a flat settlement located 1.9 km east of the center of the village of Dudeştii Noi. It is situated on a terrace bordered to the north and east by floodplains and covers an area of ca. 7 ha.

The site was discovered in 2015 during a survey carried out by Octavian-Cristian Rogozea, Alexandru Ionescu, Adrian Ardelean și Ruth Pospișil. The collected finds date to the Early Eneolithic and Bronze Age.

LITERATURE: Rogozea 2016: 13.

71. Dudeștii Vechi – Cociohatul Mic, Ferma 3 is a flat settlement located ca. 8.5 km west of the center of the village of Dudeștii Vechi in the area of a former farm called Cociohatul Mic.

The site was largely affected by bulldozing in the 2000's. In 2016 it was surveyed by Octavian-Cristian Rogozea, Gheorghe Drăgoi and Francisc Mirciov. The collected finds are dated to the Early Neolithic, Bronze Age and the Middle Ages.

LITERATURE: Rogozea, Rogozea 2016: 156.

72. Dudeștii Vechi – Cociohatul Mic, Mihoc is a flat settlement located ca. 9.7 km northwest of the center of the village of Dudeștii Vechi.

The site was discovered by Constantin Kalcsov during a reconnaissance survey and dated to the Early Neolithic, Middle Bronze Age and the Middle Ages. In recent years, the site was affected by bulldozing and rescue excavations were carried out by Călin Timoc, Dan Ciobotaru and Alexandru Flutur in 2016. The investigations revealed the presence of a horizontal stratigraphy, the Early Neolithic settlement being located west of the Bronze Age one.

LITERATURE: Ciocani, Jozsa 2015: 24, site 17; Rogozea, Rogozea 2016: 153-154.

73. Dudeștii Vechi – Drumul Cenadului is a flat settlement located ca. 3.2 km northeast of the center of the village of Dudeștii Vechi. It lies on an elevated terrace south of the "Țiganca" (Gornya Aranka) stream and occupies an area of ca. 0.3 ha.

The site was discovered in the 1990's by Constantin Kalcsov during a reconnaissance survey and was surveyed again in 2016 by the author. The recovered finds are dated to the Early Neolithic.

LITERATURE: Ciocani, Jozsa 2015: 26, site 21.

74. Dudeștii Vechi – Kalcsov 1 is a flat settlement located ca. 2.9 km northeast of the center of the village of Dudeștii Vechi. It lies on a natural elevation bordered on the northeast by an old river bed and occupies an area of ca. 1 ha.

The site was discovered in the 1990's by Constantin Kalcsov and a geomagnetic survey was carried out by Jean Michel Maillol, Dan Ciobotaru and Iosif Moravetz in 2005. Investigations, consisting of a test trench, under the leadership of Raiko Krauß and Dan Ciobotaru took place in 2015. They yielded an Iron Age dug-in structure, whose infilling contained a large quantity of Early Neolithic finds in a secondary context.

LITERATURE: Kalcsov 1999: 154, site 2; Kalcsov 2006: 42, site 2; Ciocani, Jozsa 2015: 19, site 1.

75. Dudeștii Vechi – Movila lui Dragomir is a flat settlement and a tumulus located ca. 2.2 km south from the center of the village of Dudeștii Vechi. The site lies on the southern high bank of a former river branch, which currently acts as a drainage channel.

It was discovered in the 1990's during a reconnaissance survey carried out by Constantin Kalcsov, with recovered finds dating to the Late Eneolithic to the Middle Ages. In the period 2000-2002 Adrian Bejan and Daniela Tănase conducted archaeological excavations in the eastern part of the site, revealing settlement remains from the Bronze Age, Iron Age, Late Classical Antiquity and the Middle Ages. In the last two mentioned periods the site was also used as cemetery. The author carried out a survey in 2017 noticing a concentration of Baden style pottery in the western part of the site.

LITERATURE: Kalcsov 1999: 155, no. 23; Tănase 2002-2003; Ciocani, Jozsa 2015: 22, no. 7.

76. Dudeștii Vechi – Movila lui Deciov is a tell settlement located ca. 2.4 km north of the center of the village of Dudeștii Vechi, on the left bank of a former course of the Țiganca stream (Gornya Aranka), which currently acts as a drainage channel. The flattened mound rises ca. 1.5 m above the surrounding plain and covers an area of ca. 2 ha.

Archaeological investigations were conducted by Gyula Kisléghi in 1906, 1907 and 1909, who excavated a large octagonal trench. After almost a century the site was rediscovered by Constantin Kalcsov and, between 2000-2004, new archaeological investigations were undertaken by a Romanian-Canadian joined team, coordinated by Dan Ciobotaru and Iosif Moravetz. The investigations included non-destructive methods (magnetometry, electromagnetic terrain conductivity and electrical resistivity) and conventional archaeological excavations, with six long trenches excavated.

The mound has a total thickness of the cultural strata between 2,5 and 3 m, in which could be identified three building horizons. The two lower horizons date to the Early Neolithic while the upper one dates to the Middle Eneolithic. A low number of early Vinča finds were also found indicating the existence of a probably short Middle Neolithic occupation. During the Iron Age, the mound was used as a burial ground.

LITERATURE: Kisléghi 1909; Kisléghi 1911; Kisléghi 1912: 315; Bognár-Kutzian 1972: 114; Lazarovici 1975a: 20; Kalcsov 1999: 158; Lazarovici, Ciobotaru 2001; Ciobotaru 2003; Moravetz 2003: 34-35; Lazarovici et al. 2004; Maillol et al. 2004; Kalcsov 2006: 35-36; Diaconescu 2009: 92; Kisléghi 2015: 138, 146, 159; Ciocani, Jozsa 2015: 24, site 19.

77. Dudeștii Vechi – Orezărie is a flat settlement located ca. 3.5 km northeast of the center of the village of Dudeștii Vechi. It lies on the northern bank of a former course of the "Țiganca" (Gornya Aranka) stream and occupies an area of ca. 1 ha.

The site was discovered in the 1990's during a reconnaissance survey conducted by Constantin Kalcsov and was surveyed again in 2015 by the author. The collected finds are dated to the Early Neolithic.

LITERATURE: Kalcsov 1999: 154, site 4; Kalcsov 2006: 42, site 4; Ciocani, Jozsa 2015: 20, site 2.

78. Dudeștii Vechi – Pescărie is a flat settlement located ca. 2 km north of the

center of the village of Dudeștii Vechi. It lies on the northern bank of a former course of the "Țiganca" (Gornya Aranka) stream and covers an area of ca. 0.3 ha.

The site was identified in the 1990's during a reconnaissance survey undertaken by Constantin Kalcsov and was surveyed again in 2014 and 2017 by the author. The recovered finds are dated to the Early Neolithic.

LITERATURE: Kalcsov 1999: 158, site 78; Ciocani, Jozsa 2015: 26, site 20.

79. Dudeștii Vechi – Toncivotu is located ca. 3.3 km northwest of the center of the village of Dudeștii Vechi. It lies in the vicinity of an old river bed and occupies an area of ca. 0.5 ha.

The site was found in the 1990's during a reconnaissance survey carried out by Constantin Kalcsov and was surveyed again in 2016 by the author. The collected finds are dated to the Early Neolithic.

LITERATURE: Kalcsov 1999: 157, site 50; Kalcsov 2006: 45, site 3; Ciocani, Jozsa 2015: 23, site 13.

80. Dumbrăvița – 3 is a settlement located ca. 2.2 km northwest of the center of the village of Dumbrăvița. It lies on a high terrace, which has developed on the right bank of the Beregsău stream.

The site was discovered during a systematic reconnaissance survey carried out along the planned line of a motorway by Dan Ciobotaru, Alexandru Szentmiklosi, Alexandru Flutur and Daniela Tănase and rescue excavations took place in 2004 under the direction of Florin Drașovean. The investigation revealed numerous features dated to Classical Antiquity and the Middle Ages as well as one pit (0.8 m wide and 0.75 m deep) dated to the Early Neolithic. This indicates that the Early Neolithic site should not be far from the excavated perimeter.

LITERATURE: Drașovean et al. 2004: 24.

81. Dumbrăvița – Valul Roman is flat settlement located within the perimeter of the village of Dumbrăvița, next to an ancient dyke (vallum).

The site was discovered at the beginning of the 1970's during a survey carried out by Florin Medeleț and Ioan Bugilan. The recovered finds date to the Neolithic, Classical Antiquity and the Middle Ages.

LITERATURE: Medeleț, Bugilan 1974: 87-88; Luca 2010: 103.

82. Foeni – Cimitirul Ortodox is a flat settlement located in the western outskirts of the village of Foeni, in the area of the cemetery. It lies on the left high bank of the Timișaţ stream and extends over an area of ca. 2 ha.

The site was first recognized in 1893 during the construction of a mausoleum in the cemetery and was rediscovered in 1976 during a reconnaissance survey undertaken by Florin Medeleț. Systematic archaeological excavations were conducted by Florin Drașovean between 1991-2013.

The settlement consists of two main layers, which together have a thickness of 1.60 m. The lowest layer, ca. 1.10 m thick, dates to the second part of the Late Neolithic (Foeni Group) and has 3 building horizons. The upper layer has mixed finds from the Early Eneolithic, Bronze Age and the Middle Ages. Graves dated to the Late Classical Antiquity were also discovered.

LITERATURE: Kisléghi 1912: 324; Lazarovici 1979: 201; Drașovean, Lazarovici 1991: 77-78; Drașovean 1997: 55-61; Bochiș 2004: 56, no. 20; Diaconescu 2009: 102; Luca 2010: 112; Drașovean 2015; Fl. Drașovean, pers. comm., 23.02.2016.

83. Foeni – Gaz is a flat settlement located ca. 2.4 km northwest of the center of the village of Foeni. It lies on a low terrace which has developed on the northern bank of an old river bed, which currently acts as a drainage channel.

The site was identified in 1990 during a reconnaissance survey undertaken by Florin Drașovean in advance of the construction of a gas station. Archaeological investigations

took place in the period 1998-2001 under the leadership of Dan Ciobotaru, who excavated five long trenches in the proximity of the gas station (east, south and west of it). The thin cultural layer (0.30 m) of the settlement is disturbed by modern agricultural activity and only the structures dug into the virgin soil can be identified. Several such structures, dated to the Early Neolithic and Bronze Age, were investigated. In 2009 the investigations were resumed by a German-Romanian cooperation project lead by Raiko Krauß and Dan Ciobotaru. The research consisted of a systematic surface survey, geomagnetic survey and the excavation of a test trench ca. 150 m east of the gas station. The surface survey revealed successive occupation of the site in the Early Neolithic, Late Eneolithic, Late Bronze Age, Iron Age and the Middle Ages, while the excavations yielded one Late Eneolithic structure affected by a Late Bronze Age well.

LITERATURE: Spataro 2003; Krauß, Ciobotaru 2013; Krauß 2014; Luca 2010: 113; D. Ciobotaru, pers. comm., 23.06.2015;

84. Foeni – Sălaș is a flat settlement located ca. 2.6 km north of the center of the village of Foeni. It lies on a natural elevation rising ca. 5 m above the surrounding plain, on the right bank of the Timișat stream and occupies an area of ca. 0.5 ha.

The site was discovered in 1992 during a reconnaissance survey conducted by Florin Drașovean, recovering finds dated to the Early Neolithic, Bronze Age, Iron Age and Late Classical Antiquity. During the same year, a Canadian-Romanian research project conducted by Haskel J. Greenfield and Florin Drașovean began, which continued until 1994. The excavations were focused on the southern side of the natural rise, where the traces of Early Neolithic occupation were most intense. The stratigraphy of the settlement consists of two main occupational layers and the modern plow horizon which together have a thickness of ca. 1 m. The earliest occupational layer (locus 02), dated to the Early Neolithic, is ca. 20 cm thick and from it several structures were dug into the virgin soil. The second layer (locus 04) is much thinner and contains mixed finds from the Eneolithic, Bronze Age, Iron Age and the Late Roman periods. It is interpreted as a plough zone from the Middle Ages, which has destroyed the earlier, being preserved only some pits.

LITERATURE: Greenfield, Drașovean 1994; Ciobotaru 1996; Drașovean 2007a; Greenfield, Jongsma 2008; Drașovean 2009a; Luca 2010: 113.

85. Folea – La Bruși is a flat settlement located ca. 3.5 km northwest of the center of the village of Folea. It lies on a high terrace situated on the right bank of the "Vana Sculii" stream and occupies an area of ca. 2 ha.

The site was discovered in 1986 during a reconnaissance survey undertaken by Florin Drașovean and was surveyed again by Cristian Floca in 2011. The collected finds are dated to the Late Neolithic (Foeni Group).

LITERATURE: Drașovean 1997: 62; Cristian Floca, pers. info., 24.02.2016.

86. Friteaz – Săliște is a flat settlement located ca. 2.8 km southwest of the center of the village of Friteaz. It lies on a terrace in the immediate proximity of a spring, which is tributary of the Valea Ardelenilor stream on its left-hand side.

The site was discovered in 2006 during a systematic reconnaissance survey carried out by Dorel Micle, Liviu Măruia, Leonard Dorogostaisky and Adrian Cîntar. The recovered finds date to the Neolithic and the Middle Ages. Finds from Late Classical Antiquity were also identified west of the site.

LITEARTURE: Micle et al. 2006-2007: 17, site 14.

87. Friteaz – Șodol is a settlement located ca. 2.6 km northwest of the center of the village of Friteaz.

It was discovered in 1983 during a survey undertaken by Sabin Adrian Luca. The

collected finds date to the Middle Neolithic (Banat Culture).

LITERATURE: Barbu et al. 1999: 69; Sava 2015c: 110.

88. Ghilad – 1 is a flat settlement located ca. 3 km northeast of the center of the village of Ghilad. It lies on a terrace which dominates the surrounding terrain with ca. 1 m and occupies an area of ca. 5 ha.

The site was discovered in the 1990's by the local teacher Sorin Onișor and was surveyed by Octavian-Cristian Rogozea and Bogdan Seculici in 2013. The recovered finds date to the Middle Neolithic (Vinča A3/B1), Iron Age and Late Classical Antiquity.

LITERATURE: Rogozea, Seculici 2014: 281-283; O.-C. Rogozea, pers. comm., 02.12.2016.

89. Giarmata – Dealu Saradu is a flat settlement located ca. 5 km northeast of the center of the village of Giarmata, on the right bank of the Unu stream.

It was discovered in 2006 during a reconnaissance survey carried out by Dorel Micle, Liviu Măruia, Leonard Dorogostaisky and Adrian Cîntar and dated to the Neolithic. The authors assume that it might has been enclosed by a defensive structure.

LITEARTURE: Micle et al. 2006-2007: 20, site 21.

90. Giarmata – Poiana Lungă is a flat settlement located ca. 6.3 km northeast of the center of the village of Giarmata. It lies on a terrace on the right bank of a spring, which is tributary of the Valea Bencecului stream and covers an area of ca. 8 ha.

It was discovered in 2006 during a systematic reconnaissance survey conducted by Dorel Micle and Adrian Cîntar. The recovered finds date to the Neolithic, Late Classical Antiquity and the Middle Ages. The presence of uneven terrain at the margins of the site was interpreted as a possible defensive system.

LITEARTURE: Micle et al. 2006-2007: 19, site 20; Măruia 2011: 1205-1210.

91. Giarmata – Satu Bătrân is a flat settlement located ca. 3.6 km southwest of the center of the village of Giarmata. It lies on a high terrace bordered on its eastern side by the deep valley of Nerad and occupies an area of ca. 2.5 ha.

The site was discovered in 2015 during a systematic reconnaissance survey undertaken by Cristian Floca, Adrian Ardelean, Andrea Pană, Alexandru Halbac, Constantin Boia, Alexandru Crăciunaș, Sofia Bertea and Darius Iorga. The collected finds date to the Neolithic, Late Bronze Age and the Early Iron Age.

LITERATURE: Floca, Micle 2015b.

92. Giarmata Vii – 3 is a flat settlement located ca. 1.4 km southeast of the center of the village of Giarmata Vii. It is situated on an elevated terrace, bordered to the south by a stream and extends over an area of ca. 3 ha.

The site was discovered in 2015 during a systematic survey conducted by Octavian-Cristian Rogozea and Bogdan Craiovean. The recovered finds are dated to the Middle Eneolithic (Bodrogkeresztúr) and the Middle Ages.

LITERATURE: Rogozea 2015b: 123-125; O.-C. Rogozea, pers. comm., 02.12.2016.

93. Giroc – La Pruni is a settlement located in the surroundings of the village of Giroc. It was discovered by Ortansa Radu and dated to the Middle Eneolithic (Vinča B/Banat Culture).

LITERATURE: Lazarovici 1979: 196; Luca 2010: 122.

94. Giulvăz – Cimitirul Ortodox is a flat settlement located in the western outskirts of the village of Giulvăz and superposed by the modern cemetery. It lies on an elevated terrace overlooking the surrounding plain and occupies an area of ca. 3 ha.

The site was discovered in 2016 during a survey undertaken by Octavian-Cristian Rogozea and Bogdan Craiovan. The discovered finds are dated to the Middle Neolithic (Vinča A3).

LITERATURE: Rogozea 2016: 15-16.

95. Giulvăz – Gara is a flat settlement located in the outskirts of the village of Giulvăz, in the vicinity of the train station. A test trench was excavated in 1959 by Marius Moga and M. Anogy, yielding a 0.40 m thick cultural layer dated to the Early Neolithic.

LITERATURE: Lazarovici 1969: 5; Lazarovici 1979: 196; Luca 2010: 122.

96. Hodoni – 3 is a flat settlement located ca. 2 km southeast of the center of the village of Hodoni. It lies on a terrace bordered to the east by a stream and covers an area of ca. 5 ha.

The site was discovered in 2014 during a reconnaissance survey conducted by Octavian-Cristian Rogozea, Remus Dinca, Victor Bunoiu and Bogdan Muscalu. The collected finds are dated to the Middle Neolithic (Banat Culture I) and the Early Eneolithic.

LITERATURE: Rogozea 2015b: 125-127; O.-C. Rogozea, pers. comm., 02.12.2016.

97. Hodoni – Pocioroane is a flat settlement located ca. 1 km south of the center of the village of Hodoni. It lies on a high terrace in the vicinity of a marshland formed by the confluence of Caran and Iericici streams and occupies an area of ca. 0.3 ha.

The site was discovered in 1959 during agricultural work. The same year and the following one archaeological investigations were undertaken by Marius Moga and Ortansa Radu, who excavated four trenches. Another trench, aiming to establish the southeastern extension of the site, was excavated by Ortansa Radu in 1976. Systematic archaeological investigations lead by Florin Drașovean took place in the period 1985-1991, where eleven further large trenches were excavated.

The site's 0.55 m thick stratigraphic profile consists of two Late Neolithic cultural layers and the modern agricultural horizon. The lower layer contains pottery characteristic of the Vinča Culture (Phase C2), while the upper one contains pottery characteristic of the late Tisa Culture (Gorzsa Group). This stratigraphic sequence is of great significance for understanding the succession of pottery styles in the Late Neolithic. In the agricultural horizon were found Early Eneolithic artefacts, indicating that the cultural layer from this period was destroyed by modern plowing. The site was also used as a cemetery in the Middle Ages.

LITERATURE: Moga, Radu 1979; Lazarovici 1979: 199; Drașovean, Lazarovici 1991: 73-74; Drașovean 1995; Drașovean 1996: 31; Drașovean et al. 1996; Diaconescu 2009: 104; Luca 2010: 133; Măruia et al. 2011: 215-227.

98. Hunedoara Timișană – Selište is a flat settlement located ca. 0.4 km west of the center of the village of Hunedoara Timișană. It lies north of the stream Valea Ardelenilor and occupies an area of ca. 8 ha.

The site was discovered in 2006 during a systematic reconnaissance survey undertaken by Dorel Micle, Liviu Măruia, Leonard Dorogostaisky and Adrian Cîntar. The collected finds are widely dated to the Neolithic.

LITEARTURE: Micle et al. 2006-2007: 19, site 18.

99. Igriș – Iarc is a flat settlement located ca. 2.1 km south of the center of the village of Igriș. It is situated on a high terrace, on the eastern bank of an old branch of the Mureș river and occupies an area of ca. 6 ha.

The site was discovered in 2012 during a systematic reconnaissance survey carried out by Alexandru Ionescu. The recovered finds are dated to the Early Neolithic, Early Eneolithic and Bronze Age.

LITERATURE: Ionescu 2015, site 30.

100. Igriș – Vaoș is a flat settlement located ca. 2 km southeast of the center of the village of Igriș. It lies on a high terrace, south of an old river bed and occupies an area of ca. 30 ha.

The site was identified in 2012 during a systematic reconnaissance survey conducted

by Alexandru Ionescu. The collected finds are dated to the Middle Neolithic (Banat Culture) and Late Classical Antiquity.

LITERATURE: Ionescu 2015, site 50.

101. Liebling – 62 is a flat settlement located ca. 6.5 km northeast of the village of Liebling. It lies on a terrace wrapped by an old river valley and covers an area of 0.5 ha.

The site was detected in 2010 during a systematic reconnaissance survey undertaken by Cristian Floca and Alina Lulariu. The recovered finds are dated to the Early Eneolithic.

LITEARTURE: Floca 2013: 102-104, anexe L. 62.

102. Liebling – Digul Tofaia is a flat settlement located 4.3 km southeast of the center of the village of Liebling. It lies on a terrace, on the left bank of the Tofaia stream and occupies an area of ca. 1 ha.

The site was discovered in 2010 during a systematic reconnaissance survey undertaken by Cristian Floca. The collected finds are dated to the Late Eneolithic (Baden Culture, Phase III) and Late Bronze Age.

LITEARTURE: Floca 2013: 104, site 56, anexe L. 56.

103. Liebling – Drumul Iclozii is a flat settlement located ca. 3.6 km northeast of the center of the village of Liebling, in the vicinity of the "Drumul Iclozii" road. It extends over an area of ca. 2.5 ha.

The site was discovered in 2010 during a systematic reconnaissance survey carried out by Cristian Floca and Alina Lulariu. The recovered finds are dated to the Late Eneolithic (Baden Culture, Phase III) and Late Classical Antiquity.

LITEARTURE: Floca 2013: 104, site 64, anexe L. 64.

104. Macedonia. A settlement located in the surroundings of the village of Macedonia, on the left shore of the river Timiș was discovered in 1899 during dam construction. The recovered finds, currently deposited in the Museum of Timișoara, are dated to the Late Neolithic (Vinča C).

LITERATURE: Milleker 1938: 114; Lazarovici 1979: 201; Drașovean 1996: 20; Luca 2010: 163.

105. Moșnița Nouă – 3 is a flat settlement located ca. 1.5 km northwest of the center of the village of Moșnița Nouă. It lies on a terrace, which dominates the surrounding terrain with ca. 1 m, and occupies an area of ca. 2 ha.

The site was discovered in 2010 during a systematic reconnaissance survey carried out by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcum and Cristian Floca. The recovered finds are widely dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 300-305.

106. Moșnița Nouă – 4 is a flat settlement located ca. 1.3 km northwest of the center of the village of Moșnița Nouă. It is situated on a terrace, bordered by two old river beds, and covers an area of ca. 2 ha.

The site was found in 2010 during a systematic reconnaissance survey conducted by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcu and Cristian Floca. The collected finds are widely dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 306-314.

107. Moșnița Nouă – 5 is a flat settlement located ca. 1.4 km northwest of the center of the village of Moșnița Nouă, on the northern bank on an old river valley. It occupies an area of ca. 0.5 ha.

The site was discovered in 2010 during a systematic reconnaissance survey undertaken by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcu and Cristian Floca. The recovered finds are dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 315-317.

108. Moșnița Nouă – 7 & 8 is a flat settlement located ca. 0.9 northwest of the center of the village of Moșnița Nouă. It lies

on an elevated terrace, bordered on the southeast by an old river bed, and occupies an area of ca. 4 ha.

The site was discovered by the local school teacher in the period 1970-1980, during the excavation of drainage channels and was rediscovered in 2010 during a systematic reconnaissance survey conducted by Liviu Măruia, Andrei Stavilă, Lavinia Bolcu, Cristian Floca and Ioan Vedrilă. The same year the site was affected by the excavations of a pipeline ditch (ca. 1.20 m deep), which exposed its stratigraphy. Rescue investigations were undertaken in 2015 by Cristian Floca, who excavated one trench. The investigations revealed a Middle Neolithic (Vinča A) occupation.

LITEARTURE: Măruia et al. 2012: 322-406; Floca, Timoc 2015; Rogozea, Seculici 2014: 283-285; Floca et al. 2016: 16-17, 26, 39, 50-57.

109. Moșnița Nouă – 17 is a flat settlement located ca. 1 km east of the center of the village of Moșnița Nouă. It lies on a naturally elevated area on the left bank of an old river bed and covers an area of ca. 1 ha.

The site was discovered in 2010 during a systematic reconnaissance survey carried out by Liviu Măruia, Lavinia Bolcu, Cristian Floca, Ioan Vedrilă, Ioana Clonţa, and Claudiu Toma. The recovered finds are dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 468-473.

110. Moșnița Veche – 1 is a flat settlement located ca. 0.8 km southwest of the center of the village of Moșnița Veche. It lies on a naturally elevated place, flanked on its southern and northern sides by old river valleys, and occupies an area of ca. 2 ha.

The site was detected in 2010 during a systematic reconnaissance survey undertaken by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcu and Cristian Floca. In addition, two small soundings (40 x 40 x 50 cm) were excavated with the purpose of defining the soil structure and texture. The collected finds are dated to the Middle Neolithic (Vinča A) and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 474-478.

111. Moșnița Veche – 2 is a flat settlement located ca. 1.6 km southwest of the center of the village of Moșnița Veche. It lies on a terrace gently sloping to the north and extends over an area of ca. 0.25 ha.

The site was discovered in 2010 during a systematic reconnaissance survey conducted by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcu and Cristian Floca. The recovered finds are dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 479-483.

112. Moșnița Veche – 3 is a flat settlement located 1.7 km southwest of the center of the village of Moșnița Veche. It is situated on an even surface and occupies an area of ca. 0.5 ha.

The site was discovered in 2010 during a systematic reconnaissance survey undertaken by Liviu Măruia, Ioan Vedrilă, Andrei Stavilă, Lavinia Bolcu and Cristian Floca. The recovered finds are dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 484-488.

113. Moșnița Veche – 14 is a flat settlement located ca. 1.7 km northwest of the center of the village of Moșnița Veche. It lies on the northeastern side of a naturally elevated place in the vicinity of an old river valley and occupies an area of ca. 3 ha.

The site was discovered in 2010 during a systematic reconnaissance survey carried out by Liviu Măruia, Andrei Stavilă, Lavinia Bolcu, Cristian Floca and Remus Dincă. The collected finds are dated to the Early Eneolithic, Iron Age and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 547-560.

114. Moșnița Veche – 25 is a flat settlement located ca. 2.6 km west of the center of the village of Moșnița Veche. It lies on a terrace that dominates the surrounding plain at ca. 2 m in height and whose eastern part is

bordered by an old river valley. The settlement occupies an area of ca. 2 ha.

It was identified in 2010 during a systematic reconnaissance survey conducted by Liviu Măruia, Andrei Stavilă, Lavinia Bolcu, Cristian Floca and Ioan Vedrilă. The discovered finds are dated to the Neolithic and Late Classical Antiquity.

LITEARTURE: Măruia et al. 2012: 722-727.

115. Moșnița Veche – 38 is a flat settlement located ca. 1.7 km north of the center of the village of Moșnița Veche. It lies in a low floodable area with vegetation specific for swamps, which is an unusual location. The settlement occupies an area of ca. 0.25 ha.

It was discovered in 2006 during a survey carried out by Liviu Măruia, Adrian Cîntar, Leonard Dorogostaisky, Oana Borlea and Cristina Băltăreţu and was surveyed again in 2010 by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă and Remus Dincă. The recovered finds are dated in the Neolithic and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 862-866.

116. Moșnița Veche – 42 is a flat settlement located ca. 2.8 km north of the center of the village of Moșnița Veche. It lies on a high terrace wrapped by a meander of the Bistra stream and covers an area of ca. 3 ha.

The site was discovered in 2010 during a systematic reconnaissance survey undertaken by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă and Remus Dincă. The collected finds are dated to the Neolithic, Iron Age, Classical Antiquity, Late Classical Antiquity and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 884-903.

117. Moșnița Veche – 49 is a flattened tumulus located ca. 1.1 km northeast of the center of the village of Moșnița Veche. The mound is ca. 1 m high and covers a surface of ca. 0.5 ha.

The eastern part of the mound was affected in the 1980's during a channel construction, which recovered a perforated axe. In 2010 the mound was surveyed by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă, Cristian Floca, Ioan Vedrilă and Alex Proteasa.

LITEARTURE: Măruia et al. 2012: 999-1003.

118. Moșnița Veche – 51 is a flat settlement located ca. 2.4 km northeast of the center of the village of Moșnița Veche. It lies in a flat area which to the south is often marshy and occupies an area of ca. 4 ha.

It was systematically surveyed in 2010 by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă, Cristian Floca and Ioan Vedrilă. The collected finds were dated to the Neolithic, Eneolithic, Classical Antiquity and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 1014-1020.

119. Moșnița Veche – 52 is a flat settlement located ca. 2.8 km northeast of the center of the village of Moșnița Veche. It is situated on a terrace, which – at 1.5 m in height – dominates the surrounding terrain and its northern and western sides are bordered by an old river bed. The settlement occupies an area of ca. 0.5 ha.

It was found in 2010 during a systematical surveyed carried out by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă, Cristian Floca and Ioan Vedrilă. Additionally, two small test soundings (0.40 x 0.40 x 0.50 m) were excavated for defining the texture of the soil. The collected finds are widely dated to the Neolithic.

LITEARTURE: Măruia et al. 2012: 1021-1024.

120. Moșnița Veche – 54 is a flat settlement located ca. 3 km northeast of the center of the village of Moșnița Veche. It lies on naturally elevated ground, surrounded by old river valleys. A drainage channel cuts through the site. The settlement covers an area of ca. 1 ha.

It was discovered in 2010 during a systematical survey conducted by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă, Cristian Floca and Ioan Vedrilă. The

recovered finds are dated to the Neolithic and Classical Antiquity.

LITEARTURE: Măruia et al. 2012: 1029-1032.

121. Moșnița Veche – 55 is a flat settlement located ca. 1 km north of the center of the village of Moșnița Veche. It is situated on a terrace, which in the past dominated the surrounding swamp (levelled in modern times). The settlement extends over an area of ca. 0.25 ha.

The site was surveyed by Liviu Măruia, Andrei Stavilă, Lavinia Bolcu, Cristian Floca and Ioan Vedrilă in the spring of 2010, but initially it could not be identified due to the 0.90 m thick artificial alluvial layer that covers it. Later on in the same year, a pipeline channel was excavated revealing a Neolithic cultural layer lying under the artificial deposit.

LITEARTURE: Măruia et al. 2012: 1033-1036.

122. Moșnița Veche – 57 is a a flat settlement located 1.1 km northeast of the center of the village of Moșnița Veche. It lies on an elevated terrace rising above the surrounding terrain and occupies an area of ca. 1 ha.

The site was discovered in 2010 during a systematic reconnaissance survey carried out by Liviu Măruia, Lavinia Bolcu, Cristian Floca, Andrei Stavilă and Ioan Vedrilă and was surveyed again in 2011 by Liviu Măruia, Lavinia Bolcu, Andrei Stavilă, Simona Kutasi and Marian Păun. The discovered finds are dated to the Neolithic, Classical Antiquity, Late Classical Antiquity and the Middle Ages.

LITEARTURE: Măruia et al. 2012: 1040-1050.

123. Moșnița Veche – Dealul Sălaş is a flat settlement located ca. 1.9 km west of the center of the village of Moșnița Veche. It is situated on a natural elevation (knoll) that rises ca. 3 m above the surrounding plain and extends over an area of ca. 5 ha.

The site was discovered in 2010 during a systematic reconnaissance survey conducted by Liviu Măruia, Andrei Stavilă, Lavinia Bolcu, Cristian Floca and Remus Dincă. In the following years construction works have endangered the site and rescue investigations were conducted by Cristian Floca and Andrei Stavilă in the period 2014-2015, who excavated one large and seven small trenches. The investigations revealed settlement remains from the Late Neolithic (Foeni Group), Bronze Age, Iron Age and the Migration Period, as well as a cemetery from the Middle Ages.

LITEARTURE: Măruia et al. 2012: 579, site 16; Floca, Micle 2015a; Floca et al. 2016: 18-19, 27, 58-93.

124. Nerău. In the surroundings of the village of Nerău, pottery dated to the Early Eneolithic and Late Eneolithic (Baden Culture) was discovered, indicating the existence of a site/ sites from these periods.

LITERATURE: Bognár-Kutzian 1972: 114; Lazarovic 1975a: 22; Roman 1976: 32; Roman, Németi 1978: 11; Lazarovici 1979: 202; Diaconescu 2009: 109; Luca 2010: 179.

125. Obad – 1 is a flat settlement located ca. 0.8 km southeast of the center of the village of Obad. It lies on a terrace formerly surrounded by a water course and occupies an area of ca. 18 ha.

The site was discovered in 2013 during a survey conducted by Octavian-Cristian Rogozea and Sergiu Enache. The collected finds are dated to the Early Eneolithic and the Middle Ages.

LITERATURE: Rogozea 2015b: 127-128; O.-C. Rogozea, pers. comm., 02.12.2016.

126. Orțișoara. In the administrative territory of the village of Orțișoara, a settlement dated to the Middle Eneolithic (Bodrogkeresztúr culture) was discovered by Florin Drașovean.

LITERATURE: Luca 1999: 53; Sălceanu 2008: 38.

127. Otelec – Drumul Sânmartinului is a flat settlement located ca. 1.6 km northeast of the center of the village of Otelec. It lies on slightly elevated ground, which in the past was bordered by watercourses and marshland and extends over an area of ca. 1.4 ha.

The site was discovered in 2015 during a systematic reconnaissance survey undertaken by Cristian Floca and Adrian Ardelean. The collected finds are dated to the Late Eneolithic (Baden Culture).

LITERATURE: Floca, Micle 2015c, site 1.

128. Parța – 3 is a flat settlement located ca. 1.1 km northwest of the center of the village of Parța. It lies on both banks of a former water course and occupies an area of ca. 6 ha.

The site was discovered during the excavation of drainage channels, which have sectioned the site in several places exposing its stratigraphy. The settlement consists of a ca. 1 m thick Late Neolithic (Vinča C) occupational layer.

LITERATURE: Lazarovici et al. 2001: 61-62, 79-80; Lazarovici, Lazarovici 2006: 487.

129. Parța – 5 is a flat settlement located ca. 2.2 km west of the center of the village of Parța.

The site was discovered by Sabin Adrian Luca during a survey and, in 1980, he conducted a test investigation through the opening of one trench. The excavation yielded occupation remains from the Early Neolithic, Late Neolithic, Early Eneolithic, Late Eneolithic, Classical Antiquity and the Middle Ages.

LITERATURE: Kalmar, Oprinescu 1986: 199; Lazarovici et al. 2001: 63-64, 80; Luca et al. 2010a: 114, no. 222; Luca 2010: 192.

130. Parța – 6 is a flat settlement located in the northeastern outskirts of the village of Parța, on the left bank of the river Timiș.

The site was found during a reconnaissance survey undertaken by Ionel Bot and David Samuel. The collected finds are dated to the Middle Eneolithic (Banat Culture IA), Eneolithic, as well as the Middle Ages.

LITERATURE: Lazarovici et al. 2001: 80; Luca et al. 2010a: 114, no. 223; Luca 2010: 192-193.

131. Parța – Sartășu is a flat settlement discovered in 1982 by Friederich Resch and in the following year was surveyed by Sabin Adrian Luca. The collected finds are dated to the Late Neolithic and the Bronze Age.

LITERATURE: Lazarovici et al. 2001: 80, site 7; Luca 2010: 193.

132. Parța – Șaitoș (La vaci) is a flat settlement located ca. 1.4 km west of the center of the village of Parța. The site was surveyed in the period 1982-1983 and dated to the Early Eneolithic.

LITERATURE: Lazarovici et al. 2001: 80, site 8.

133. Parța – Șurca Bara is a flat settlement located ca. 1.6 km southwest of the center of the village of Parța. It was discovered in 1983 during a reconnaissance survey conducted by Florin Drașovean. The collected finds belong to different epochs, among which Neolithic ones were also attested.

LITERATURE: Lazarovici et al. 2001: 81, site 9.

134. Parța – Tell 1 is a tell settlement located ca. 1.6 km west of the center of the village of Parța. It lies on the right bank of the Timiș river and extends over an area of ca. 2.5 ha.

The site, whose stratigraphy was exposed due to river erosion, was discovered in the 1860's by Ormos Zsigmond. In the following decades the repeated regularization and embankment of the river has further affected the site and numerous finds ended up in the Museum of Timișoara. In 1931, Joachim Miloia conducted the first rescue excavations, which consisted of 3 trenches. The research was resumed by Marius Moga in 1943, 1945, 1951 and together with Ortansa Radu in the period 1960-1963. The consolidation of the dikes in the 1960's once again has affected the site. These excavations were supervised by Friederich Resch and

Carol Germann, who collected material and carried out documentation work. In the period 1969-1971 they also excavated several small trenches. Systematic archaeological investigation took place in the periods 1978-1998 and 2004-2007 under the leadership of Gheorghe Lazarovici, who excavated several large trenches located mainly in the endangered parts of the site. The research also included non-destructive methods, such as a geomagnetic survey and an electric resistivity survey.

The stratigraphy of the mound consists of 7 main layers, which have a total thickness of ca. 2 m. The earliest two layers are from the second part of the Middle Neolithic (Banat Culture), when the site was intensively occupied. In these layers, four building horizons (7a, 7b, 7c and 6) with massive structures were identified. The following layer (5) is dated to the beginning of the Late Neolithic and contains Banat Culture IIIA and Vinča C style pottery. This layer is followed by a stratigraphic hiatus in which sporadically appear Late Neolithic finds. This hiatus corresponds with the abandonment of the site and the foundation of another one (Parța – Tell 2) only 0.25 km west of it. The mound was resettled in the Early Eneolithic, when a relatively thin cultural layer (4) was formed. Occupation traces from the Bronze Age, Iron Age and the Middle Ages were also attested.

LITERATURE: Milleker 1897: 88-89; Milleker 1906: 113-115; Berkeszi 1907; Miloia 1931; Јанкулов 1934: 49; Lazarovici 1972; Lazarovici 1979: 204; Germann, Resch 1981; Lazarovici et al. 1985; Drașovean, Lazarovici 1991: 50-54; Lazarovici et al. 1994; Lazarovici et al. 1995; Drașovean 1996: 32; Drașovean 1997: 62-63; Lazarovici et al. 2001; Lazarovici et al. 2005; Lazarovici et al. 2006; Drașovean 2007b; Diaconescu 2009: 111; Luca 2010: 191.

135. Parța – Tell 2 is a tell settlement located ca. 1.8 km west of the center of the village of Parța. The well-shaped mound lies on a naturally elevated place north of the Timiș river and occupies an area of ca. 1 ha.

The first archaeological excavations took place in 1962 under the leadership of Marius Moga and Ortansa Radu. In the period following these excavations (1966-1982) the amateur archaeologists Andrei Agotha, Friederich Resch and Carol Germann collected surface finds and supervised the excavation of the drainage channels which partly affected the site. Excavations were resumed by Gheorghe Lazarovici and Florin Drașovean in 1979, who excavated a trench of 10 x 2 m. Another trench was excavated by Florin Drașovean in 1981 and together with Dan Ciobotaru in the period 1992-2001 a large trench (20 x 20 m) was excavated in the center of the mound.

The stratigraphy of the mound consists of four main cultural layers and the modern plough horizon, which together have a thickness of ca. 2.50 m. The earliest layer, ca. 0.4 m thick, is dated in the Early Neolithic. This layer is superposed by an archaeological hiatus, which correlates with the occupation of Parța – Tell 1. The second layer, over 1 m thick, is dated to the first part of Late Neolithic (Vinča C), while the third layer, ca. 0.5 m thick, is dated to the second part of the Late Neolithic (Foeni Group). The plough horizon contains finds dated to the Early Eneolithic, Iron Age and the Middle Ages.

LITERATURE: Lazarovici 1975a: 22; Lazarovici 1979: 204; Drașovean, Lazarovici 1991: 67-70; Drașovean 1996: 32-33; Drașovean 1997: 63-65; Agotha, Resch 1997; Lazarovici et al. 2001: 58-59, 63; Lazarovici, Lazarovici 2006: 489; Luca 2010: 90; Dan Ciobotaru, pers. comm., 07.04.2016.

136. Pădureni – 22 is a flat settlement located ca. 1.3 km northwest of the center of the village of Pădureni, on an even terrace, bordered to the north by an old river bed. It occupies an area of ca. 1 ha.

The site was discovered in 2015 during a systematic reconnaissance survey undertaken by Cristian Floca, Andrea Pană, Alexandru Hegyi, Alexandru Halbac and Alexandru Ionescu. The collected finds are dated to the Early Neolithic.

LITERATURE: Floca, Micle 2015d.

137. Pădureni – Smithfield is a flat settlement located ca. 1.9 km west of the center of the village of Pădureni. It lies on a slightly elevated terrace, bordered to the north by an old river bed, and occupies an area of ca. 2.5 ha.

The site was discovered in 2015 during a systematic reconnaissance survey carried out by Cristian Floca, Andrea Pană, Alexandru Hegyi, Alexandru Halbac and Alexandru Ionescu. The collected finds are dated to the Early Neolithic, Late Eneolithic and the Middle Bronze Age.

LITERATURE: Floca, Micle 2015d, site 20.

138. Periam Port. In the surroundings of the village of Periam Port, finds dated to the Early Eneolithic were discovered.

LITERATURE: Lazarovici 1975a: 22; Diaconescu 2009: 112-103; Luca 2010: 197.

139. Pișchia – 1 is a flat settlement located ca. 1.6 km southeast of the center of Pișchia, on a high terrace, in the vicinity of the Beregsău stream. It occupies an area of ca. 10 ha.

The site was discovered in 2009 during a reconnaissance survey undertaken by Dorel Micle and Liviu Măruia. The recovered finds are dated in the Neolithic, Late Classical Antiquity and the Middle Ages.

LITERATURE: Măruia 2011: 1493.

140. Pișchia – 3 is a flat settlement located ca. 3.5 km northeast of the center of the village of Pișchia, on a terrace bordered on the east by the Băcin stream. It occupies an area of ca. 5 ha.

The site was found in 2009 during a reconnaissance survey carried out by Dorel Micle and Ioan Vedrilă. The collected finds are dated to the Neolithic, Late Classical Antiquity and the Early Middle Ages.

LITERATURE: Măruia 2011: 1500.

141. Pișchia – 4 is a flat settlement located ca. 3.5 km southeast of the center of the village of Pișchia, on a terrace with exposition to the west. The site occupies an area of ca. 5 ha.

The site was discovered in 2007 during a reconnaissance survey undertaken by Liviu Măruia, Mircea Ardelean, Lavinia Bolcu and Andrei Stavilă. The recovered finds are dated to the Neolithic.

LITERATURE: Măruia 2011: 1521.

142. Pișchia – 6 is a settlement located ca. 2.5 km east of the center of the village of Pișchia, on a well-shaped terrace which rises ca. 6-7 m above the valley of Beregsău stream. It covers an area of ca. 7 ha.

The site was identified in 2007 during a reconnaissance survey conducted by Liviu Măruia, Mircea Ardelean, Lavinia Bolcu and Andrei Stavilă and was surveyed again in 2009 by Dorel Micle and Ioan Vedrilă. The collected finds are dated to the Neolithic, Late Classical Antiquity and the Middle Ages.

LITERATURE: Măruia 2011: 1530.

143. Pișchia – 7 is a flat settlement located ca. 1.6 km southeast of the center of the village of Pișchia, on a promontory formed by the confluence of the Valea Dosul and Beregsău streams. It occupies an area of ca. 5 ha.

The site was discovered in 2007 during a reconnaissance survey carried out by Liviu Măruia, Mircea Ardelean, Lavinia Bolcu and Andrei Stavilă and was surveyed again in 2009 by Dorel Micle, Liviu Măruia, Andreea Gogoşanu, Elena Pîrpîliţă and Ioan Vedrilă. The recovered finds are dated to the Neolithic, Late Classical Antiquity and the Middle Ages.

LITERATURE: Măruia 2011: 1535.

144. Pișchia – 9 is a settlement located in the administrative district of the village of Pișchia. It was discovered by Florin Medeleț and dated to the Middle Neolithic (Banat Culture). The vague information in the literature regarding its location hampered a recent attempt to rediscover it.

LITERATURE: Lazarovici 1979: 205; Măruia 2011: 355.

145. Pustiniș – Hodaie is a flat settlement located ca. 1.5 km northwest of the center of the village of Pustiniș, on elevated ground.

The site was discovered by chance in 1893 during the construction of a railway, when it was sectioned, resulting in the discovery of a ca. 1 m thick cultural layer. Two years later the site was surveyed by Endre Orosz. The recovered finds are dated to the Early Neolithic and the Bronze Age.

LITERATURE: Orosz 1897: 71; Milleker 1897: 82-84; Kisléghi 1912: 324; Lazarovici 1979: 205; Luca 2010: 205.

146. Satchinez – IX is a flat settlement located ca. 1.5 km southwest of the village of Satchinez. It lies on a terrace that has developed on the left bank of the Pământ Alb stream.

The site, already affected by construction work, was discovered in 1987 during a reconnaissance survey conducted by the Museum of Timișoara. In the following two years the construction work continued to destroy the site and rescue investigations were undertaken by Florin Drașovean in 1989 and 1990, who excavated two trenches.

The stratigraphy of the site consists of two cultural layers, which have a total thickness ca. 0.80 m. The upper layer is dated to the Iron Age, while the lower one, with a thickness of 20-25 cm, is dated to the Middle Neolithic (Vinča A2 and A3). Together with the Vinča pottery, a few sherds characteristic of Alföld Linear Pottery and the Esztár Group were also discovered, indicating their contemporaneity.

BIBLIOGRAPHY: Lazarovici 1979: 206; Drașovean 1989, 36-37; Lazarovici et al. 1991: 24-26; Drașovean 1993; Luca 2010: 221; Horváth, Drașovean 2013.

147. Săcălaz. Neolithic finds were discovered in the surroundings of the village of Săcălaz.

LITERATURE: Lazarovici 1979: 206.

148. Sânandrei – 7 is a flat settlement located ca. 1.2 km southwest of the center of the village of Sânandrei, on a terrace, which lies on the right bank of the Bega Veche stream. It occupies an area of ca. 0.7 ha.

The site was discovered in 2013 during a reconnaissance survey undertaken by Liviu Măruia, Octavian-Cristian Rogozea, Cristian Floca and A. Gheorghe. The collected surface finds are dated to the Middle Eneolithc (Bodrogkeresztúr culture).

LITERATURE: Rogozea 2013: 121-122.

149. Sânandrei – Ocsaplatz (Oxenbrickel) is a tell settlement located ca. 1.5 km southeast of the village of Sânandrei. The mound lies on naturally elevated ground, which in the past was surrounded by the Bega Veche on three sides and extends over an area of ca. 3 ha.

The site was discovered in 1985 by Florin Drașovean and Marius Muntean. Systematic archaeological investigations were conducted by Florin Drașovean in the period 1992-2012, who excavated five large trenches.

The stratigraphy of the site consists of five main layers, which have a total thickness of ca. 2.40 m. The lowest layer (1) is dated to the Middle Neolithic, the following three layers (2, 3, 4) are dated to the Late Neolithic and the upper most layer (5) contains finds dated to the Late Neolithic (Tisa Culture), Iron Age and the Middle Ages.

LITERATURE: Lazarovici 1979: 207; Jongsma 1992; Drașovean 1996: 33; Luca 2010: 225; Rogozea 2013a; Rogozea 2015; Fl. Drașovean, pers. comm., 23.02.2016.

150. Sânmartinu Sârbesc – Grădiște is a settlement located ca. 1.6 km southwest of the center of the village of Sânmartinu Sârbesc, situated on a terrace, c. 2 m in height, that dominates the surrounding terrain. The site occupies an area of ca. 6 ha.

The site was discovered in 2009 during a survey undertaken by Liviu Maruia, Dorel Micle, Andrei Stavila and Lucian Vidra. The collected finds are dated to the Late Neolithic

(Vinča C), the Bronze Age, the Late Classical Antiquity and the Middle Ages.

LITERATURE: Rogozea 2015b: 128, site 9; Rogozea, Rogozea 2016: 163-164.

151. Sânmihaiu Român – Deal is a settlement located ca. 2 km southwest of the center of the village of Sânmihaiu Român. The site was discovered during a survey, with collected finds dating to the Early Neolithic, Late Neolithic (Foeni Group) and the Middle Ages.

LITERATURE: Luca 2010: 227; Luca et al. 2010: 119.

152. Sânnicolau Mare. In the surroundings of the town of Sânnicolau Mare, finds dated to the Late Neolithic (Tisa Culture) and the Early Eneolithic were discovered.

LITERATURE: Lazarovici 1979: 207; Diaconescu 2009: 117.

153. Sânnicolau Mare – Bucova Pusta III.1 is a flat settlement located in the western part of the Bucova field.

Archaeological excavations were conducted by Gyula Kisléghi in 1907, who excavated three trenches. The finds from these investigations, which are deposited in the museum of Timișoara, are dated to the Early Neolithic, Late Neolithic (Vinča C), Early Eneolithic and the Middle Eneolithic (Bodrogkeresztúr).

LITERATURE: Kisléghi 1912: 312; Lazarovici 1975a: 20; Drașovean 1996: Pl. CIV, CV.8; Luca 1999: 51; Sălceanu 2008: 36; Diaconescu 2009: 92; Kisléghi 2015: 148-149.

154. Sânnicolau Mare – Bucova Pusta IV is located ca. 6.7 km west of the center of the town of Sânnicolau Mare, on the left bank of the former course of the Gornya Aranka stream. The site consists of an Early Neolithic flat settlement overlapped on its eastern side by a tumulus, which was reused in the Middle Ages as cemetery. It occupies an area of ca. 2 ha.

The first archaeological investigations were carried out by Gyula Kisléghi in the period 1903-1904, who excavated a large trench (22 x 22 m) in the center of the tumulus. The excavations revealed 18 medieval graves and several Late Eneolithic cremated burials covered by vessels. In some parts of the trench, especially in its NW side, the Early Neolithic layer located underneath the tumulus was also reached. The site was rediscovered in the 1990's by Constantin Kalcsov and in 2005 geomagnetic investigations were conducted Jean Michel Maillol, Dan Ciobotaru and Iosif Moravetz. Investigations were resumed in the period 2009-2015 within a joined German-Romanian project lead by Raiko Krauß and Dan Ciobotaru. They consisted of systematic archaeological excavations and non-destructive methods, which were primarily focused on the Early Neolithic occupation. In addition, the central grave of the tumulus and one cremated grave from the Late Eneolithic were also investigated.

LITEARTURE: Kisléghi 1907; Kisléghi 1912: 312; Kalcsov 1999: 154, no. 5; Kalcsov 2006: 43, no. 4; Kisléghi 2015: 99-113; Diaconescu et al. 2014; Diaconescu et al. 2015; Ciocani, Jozsa 2015: 20, no. 4; Krauß et al. 2016: 300.

155. Sânnicolau Mare – Bucova Pusta VI & VII is a flat settlement located ca. 6.6 km west of the center of the town of Sânnicolau Mare, on a small elevation in the vicinity of a paleo-channel. The site appears as two gentle knolls, which were thought to be two mounds.

Archaeological excavations were carried out in 1905 by Gyula Kisléghi Nagy, who excavated two trenches. In the first trench, settlement remains from the Early Neolithic were found, while in the second one a prehistoric grave was revealed. The site was rediscovered by Constantin Kalcsov in the 1990's and geomagnetic investigations were carried out by Jean Michel Maillol, Dan Ciobotaru and Iosif Moravetz in 2005.

LITERATURE: Kisléghi 1912: 312; Kisléghi 2015: 129-130, 133-135; Ciocani, Jozsa 2015: 20, no. 3.

156. Sânnicolau Mare – Hunca Mare (Bucova Pusta IX) is a large tumulus located ca. 6.5 km west of the center of the town of Sânnicolau Mare. The mound is ca. 4.5 m high and covers a surface of 0.25 ha.

Archaeological excavations were undertaken by Gyula Kisléghi in 1907, who excavated a long trench. In the stratigraphic profile the he noticed two layers (probably construction phases) which together have a thickness of 5.5 m. At the bottom of the mound, a central grave dated in the Late Eneolithic was discovered, while in the upper layer a grave of a rider dated to the Migration period was found.

LITERATURE: Kisléghi 1912: 312-313; Јанкулов 1934: 49; Kisléghi 2015: 149-152; Ciocani, Jozsa 2015: 27, no. 24; Krauß et al. 2016: 301.

157. Sânnicolau Mare – La stuf is a flattened tell settlement located ca. 4.5 km west of the center of the town of Sânnicolau Mare. It rises with ca. 1.5 m above the surrounding terrain, to the west is bordered by an old river bed and extends over an area of ca. 3 ha.

The site was detected by Constantin Kalcsov during a reconnaissance survey in the 1990's and was surveyed again by the author in 2015 and 2017. The recovered finds are dated to the Late Neolithic (Tisa Culture).

LITERATURE: Kalcsov 1999: 155, no. 15; Kalcsov 2006: 41, no, 2; Ciocani, Jozsa 2015: 21, no. 5.

158. Sânnicolau Mare – Selişte is a flat settlement found by Iuliu Szöcs and dated to the Late Eneolithic (Cernavodă III-Boleráz Phase).

LITERATURE: Roman, Németi 1978: 11.

159. Sânpetru German – Cărămidărie is a flat settlement located in the northern outskirts of the village of Sânpetru German.

The site was discovered in 1967 during a survey undertaken by Anton Hamerak. At the time of its discovery it has already been affected by a clay quarry. The collected finds are dated to the Late Neolithic and the Late Eneolithic (Cernavodă III-Boleráz Phase).

LITERATURE: Nițu 1974; Roman 1976: 32; Roman, Németi 1978: 12; Barbu et al. 1999: 111; Luca 2010: 231; Sava 1915d: 126, 214.

160. Sânpetru German – Fântâna Vacilor is a flat settlement and necropolis located ca. 1 km southeast of the center of the village of Sânpetru German.

The site was discovered by chance in 1959 during sand extraction in a quarry. Rescue excavations were carried out by Egon Dörner and Liviu Mărghitan in 1963 and by Egon Dörner in 1965, who excavated four trenches. A survey conducted by Victor Sava and Florin Gogâltan in 2014 revealed that the site was already destroyed by the expanding quarry.

The investigations revealed a necropolis from the Middle Eneolithic (Bodrogkeresztúr culture) overlapped by a Late Eneolithic (Baden Culture) settlement. In Late Classical Antiquity, the site was used again as a cemetery.

LITERATURE: Dörner 1970: 451-455; Lazarovici 1975: 25; Roman, Németi 1978: 12; Luca 1999: 54; Barbu et al. 1999: 111; Sălceanu 2008: 41; Hügel et al. 2010: 16, 19; Luca 2010: 231; Sava 2015a; Sava 2015b: 26-30.

161. Sânpetru German – Malul Înalt is a flat settlement located ca. 2 km north of the center of the village of Sânpetru German. It was discovered by the teacher A. Giurasek and dated to the Middle Eneolithic (Bodrogkeresztúr), Late Eneolithic (Baden Culture) and the Iron Age.

LITERATURE: Roman, Németi 1978: 12; Luca 1999: 54; Barbu et al. 1999: 111; Luca 2010: 231; Sava 2015b: 26.

162. Şag – 2 is a settlement located on the perimeter of the village of Şag. It was discovered by Florin Medeleț and dated to the Early Eneolithic.

LITERATURE: Oprinescu 1981: 45; Diaconescu 2009: 119; Luca 2010: 241.

163. Șag – Gostat is a settlement located within the village of Șag, in the yard of a former canteen. It lies on a terrace bordered to the south by an old river valley of Timiș.

Rescue excavations were undertaken by Florin Medeleț in 1978 and the site was surveyed by Gheorghe Lazarovici and Sorin Petrescu in 1982. The investigations yielded Late Neolithic (Vinča C) settlement remains.

LITERATURE: Lazarovici 1979: 210; Drașovean, Lazarovici 1991: 77; Luca 2010: 241.

164. Timișoara – 3 is a flat settlement located ca. 9 km northwest of the center of the city of Timișoara. It lies on a slightly elevated terrace and occupies an area of ca. 1.2 ha.

The site was discovered in 2013 during a reconnaissance survey conducted by Liviu Măruia, Octavian-Cristian Rogozea, Cristian Floca and Alina Gheorghe. The collected pottery is dated to the Middle Neolithic (Banat Culture).

LITERATURE: Rogozea 2013: 119-121.

165. Timișoara – Fratelia, Fabrica de Cărămidă is a flat settlement located in the southern outskirts of the city of Timișoara, opposite the southern train station and in the vicinity of an old river bed.

The site was affected by a clay quarry and during the period 1965-1975 Andrei Agotha collected finds from the quarry. Later on, rescue excavations in a small area were conducted Friederich Resch and Carol Germann, yielding settlement remains from the Early Neolithic and the Middle Neolithic (Vinča A/Banat Culture IB). The site was affected again in 1978 during the construction of an industrial hall and rescue excavation were undertaken by Florin Medeleț. They revealed a Bronze Age necropolis, which partly overlaps the Early Neolithic settlement.

LITEARATURE: Lazarovici 1979: 196; Drașovean 1989: 9; Drașovean, Lazarovici 1991: 49; Drașovean 2001; Luca 2010: 250.

166. Timișoara – Freidorf I (Hladnic) is a flat settlement located ca. 9 km southwest of the center of Timișoara, in the vicinity of a former branch of the river Bega, currently a drainage channel. The central area of the prehistoric site is on slightly elevated ground ca. 2 m in height. The site occupies an area of ca. 0.5 ha.

The site was found in 1982 by Dan Pleșa and during the same year, together with Friederich Resch and Carol Germann, several surface surveys were conducted, which identified five areas with concentrations of different archaeological finds. The finds from area A are dated to the Middle Neolithic (Banat Culture IB), the finds from the area B are dated to Late Classical Antiquity, while the ones from areas C and D are dated to the Late Neolithic, Early Eneolithic, Iron Age and the Middle Ages. Later on, a second survey was conducted by Florin Drașovean and Marius Muntean, which was followed by a test excavation (one trench) carried out by Florin Drașovean in 1983. The investigation revealed a single layer of Middle Neolithic (Banat Culture) occupation.

LITERATURE: Lazarovici et al. 1983; Drașovean 1989, 33-34; Drașovean, Lazarovici 1991, 46-48; Bochiș 2004: 57, no. 40b.

167. Timișoara – Freidorf IV is a flat settlement located ca. 5.5 km southwest of the center of Timișoara, in the southern outskirts of the Freidorf district.

The site was discovered in 1984 by Friederich Resch during the excavation of a canal, which partly affected the site. The same year rescue excavations were carried out by Doina Benea and Florin Drașovean. In the periods 1986-1989, 1992-1998 and 2000-2002 systematic archaeological investigations were conducted by Doina Benea and Mircea Mare and preventive excavation took place in 2006 under the leadership of Mircea Mare.

The investigations revealed the presence of horizontal stratigraphy. The southern part of the site consists of a ca. 0.20 m thick Middle

Neolithic (Banat Culture IB) layer overlapped by ca. 0.50 m thick Late Eneolithic (last phase of Baden Culture) layer. In the northern part of the site the Late Eneolithic occupation is succeeded by a settlement and necropolis from Late Classical Antiquity.

LITERATURE: Ardeț 1988; Drașovean 1989, 34-36; Drașovean 1991b; Mare et al. 2011.

168. Timișoara – Mehala IV is a flat settlement located in the northwestern outskirts of the city of Timișoara, in the vicinity of an old river bed.

The site was identified at the beginning of the 1970's during a survey undertaken by Florin Medeleț and Ioan Bugilan. The collected finds are dated to the Early Eneolithic, Late Eneolithic (Baden-Coțofeni), Iron Age, Late Classical Antiquity and the Modern period.

LITERATURE: Medeleț, Bugilan 1974: 85-87; Bochiș 2004: 57, no. 40b; Diaconescu 2009: 122; Luca 2010: 249.

169. Timișoara – Ronaț, Triaj is a flat settlement located ca. 5 km northwest of the center of the city of Timișoara. It lies on a high terrace and occupies an area of ca. 3 ha.

The site was discovered in the 1970's by Gheorghe Lazarovici and was rediscovered in 2015 by Octavian Rogozea. During the same year Cosmin Suciu started rescue excavations which continue into the present. The investigations revealed a 0.80 m thick occupational layer dated to the Late Neolithic (Foeni Group).

LITERATURE: Suciu 2015; Rogozea 2016: 16-17; Suciu et al. 2016.

170. Uivar – Gomilă is a tell settlement located ca. 0.9 km southwest of the center of the village of Uivar. The site lies in the nowadays flat alluvial plain of the rivers Bega and Timiș, however, in the past it was situated on the margin of a slightly elevated river terrace surrounded by low meadow zone, crossed by numerous meandering river branches. The mound is relatively flattened and covers a surface of ca. 3 ha.

Archaeological investigations took place in the period 1998-2009 within a joint German-Romanian project under the leadership of Wolfram Schier and Florin Drașovean. They consisted of extensive surface surveys and core drillings (1998) and systematic archaeological excavations (1999-2009), with 18 trenches excavated. A large spectrum of interdisciplinary non-invasive methods was applied, among which of great relevance was the geomagnetic survey, which revealed the extent of the site and its enclosure.

The mound has a 4 m thick cultural deposit, which was accumulated primarily in the second part of the Middle Neolithic and the first part of the Late Neolithic. The investigations have revealed the following construction phases: five from the second part of the Middle Neolithic (Szakálhát Culture), four from the first part of the Late Neolithic (Vinča C), one from the second part of the Late Neolithic (Foeni Group), one from the Early Eneolithic, one from the Early Bronze Age and one from the Iron Age. In the Middle Ages and the Early Modern period, the site was a cemetery.

LITERATURE: Schier, Drașovean 2004; Schier 2006; Schier 2009; Dammers 2009; Diaconescu 2009: 123; Drașovean, Schier 2010; Luca 2010: 259; Dammers 2012; Schier 2013; Schier 2014a; Schier 2016.

171. Uliuc – Timiș is a flat settlement located ca. 1 km northeast of the village of Uliuc, on the bank the Timiș river.

The site was discovered in the 1980's during a survey carried out by the research team from Parța – Tell 1. In the summer of 2013, due to the low level of the river Timiș, the wooden structure of an Early Neolithic well was revealed and was noticed by a fisherman. During the same year rescue investigations were conducted by Dan Ciobotaru.

LITERATURE: Lazarovici, Sfetcu 1990: 50; Luca et al. 2010: 125, no. 304; Luca 2010: 260; D. Ciobotaru, pers. comm., 23.02.2016.

172. Unip – La vișini (Liebling 100) is a tell settlement located ca. 2 km southwest of the

village Unip, on the administrative border between Liebling and Sacoșu Turcesc. The mound has a circular form, rising ca. 1.5 m above the surrounding plain and occupying an area of ca. 2 ha.

The site was discovered in the late 1970's by a hunter during the excavation of a drainage channel that sectioned the site. In 1980 the amateur archaeologists Andrei Agotha, Friederich Resch and Carol Germann surveyed the site and recorded the 1.90 m deep channel profile, distinguishing 9 stratigraphic layers. The lower ones are dated to the Early Neolithic and the second part to the Late Neolithic (Foeni Group)[45], while the upper ones are dated to the Bronze Age. The site was surveyed again by Florin Drașovean in 1987 and by Cristian Floca in 2011.

LITEARTURE: Lazarovici et al. 1981; Drașovean 1996: 33; Drașovean 1997: 66-68; Luca 2010: 260; Floca 2013: 94-102, anexe L. 100.

173. Vinga – Izvor is a flat settlement located ca. 1 km south of center of the village of Vinga, in proximity to Valea Viilor stream.

The site was discovered in 1970 by Eugen Pădureanu and in 2015 it was surveyed again by Octavian-Cristian Rogozea. The collected finds are dated to the Middle Neolithic (Banat Culture), Early Eneolithic and the Bronze Age.

LITERATURE: Lazarovici 1979: 208; Pădureanu 1985: 41; Pădureanu 1987-1988: 514; Barbu et al. 1999: 133; Diaconescu 2009: 124; Luca 2010: 268; Rogozea, Rogozea 2016: 170-171.

174. Zădăreni – La vii is a flat settlement located in the western part of the village of Zădăreni. It was discovered in 1958 during a reconnaissance survey and dated to the Late Eneolithic (Baden Culture).

LITERATURE: Roman 1976: 32; Roman, Németi 1978: 12; Barbu et al. 1999: 138; Luca 2010: 274.

C. Sites from the Serbian part of northwestern Banat

175. Aradac – Kameniti vinogradi is a tell settlement situated ca. 1.5 km southeast of the center of the village of Aradac.

Archaeological investigations were conducted by D. Karapancić in 1921, who excavated a large trench. This yielded ca. 2 m thick cultural layer dated to the Middle Neolithic (Vinča A-B1). In 1942 the site was surveyed by B. Aleksić and Lazar Nikolić.

LITERATURE: Карапанцић 1922; Vulić, Grbić 1938: 6; Milleker: 1938: 107; Гарашанин, Гарашанин 1951: 102; Brukner 1968: 69; Brukner 1974a: 75; Маринковић 2002: 9-10.

176. Aradac – Leje is a flat settlement located ca. 6 km northwest of the village of Aradac. It lies on a terrace that has developed on the left bank of the Tisa river.

The site was found in 1951 during a reconnaissance survey undertaken by Šandor Nađ. During the construction of the motorway, in the period 1979-1980, Radovan Radišić conducted rescue archaeological investigations, consisting of the excavation of 21 small trenches. The investigations revealed occupation layers from the Early Neolithic, Iron Age and the Middle Ages, which have total thickness of ca. 1 m.

LITERATURE: Brukner 1968: 38, note 52; Маринковић 2004: 14-15; Marinković 2006b: 64-65.

177. Aradac – Orolja is a settlement located south of the village of Aradac in close proximity to the Orolja oxbow lake. Excavations took place in 1913 revealing a Neolithic occupation.

LITERATURE: Milleker 1938:107; Гарашанин, Гарашанин 1951: 102.

178. Aradac – Veliki siget is a flat settlement located north of the village of

[45] In the first publication (Lazarovici et al. 1981), this layer was erroneously attributed to the Vinča A period.

Aradac. It lies not far from the Tisa river, in the field of D. Srdin.

The site was identified in 1951 during a reconnaissance survey undertaken by Šandor Nađ. The recovered finds date to the Early Neolithic.

LITERATURE: Гарашанин, Гарашанин 1951: 102; Arandjelović-Garašanin 1954: 40, no. 26; Brukner 1968: 38, note 51; Маринковић 2004: 14; Marinković 2006b: 66.

179. Banatski Monoštor – Bašće is a flat settlement located in the southern outskirts of the village of Banatski Monoštor. It lies on a terrace in the vicinity of the Aranka stream.

The site was discovered in the 60's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic and the Iron Age.

LITERATURE: Girić 1972: 174, no. 17.

180. Banatski Monoštor – Humka is an Early Neolithic settlement discovered in 1944 by Lazar Nikolić.

LITERATURE: Гарашанин, Гарашанин 1951: 85; Arandjelović-Garašanin 1954: 40, no. 30; Girić 1972: 175, no. 18.

181. Banatski Monoštor – Road to Vălcani is a settlement located next to the road that links the villages Monoštor and Vălcani.

The site was discovered in 1880 by Ferenz Varga. The recovered finds have parallels in Čoka – Kremenjak, and therefore can be roughly dated to the Neolithic.

LITERATURE: Milleker 1897: 79; Kisléghi 1912: 317; Гарашанин, Гарашанин 1951: 84.

182. Banatsko Aranđelovo – 8 is a flat settlement located ca. 4 km north of the center of the village of Banatsko Aranđelovo. It lies in the northwestern part of a former island and covers an area of ca. 28 ha.

The site was found in the second half of the 2000's during a reconnaissance survey carried out within the "Arheološka Topografija Banata" project. The collected finds are dated in the Late Neolithic (early Tisa Culture), Early Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Brukner 1968:85; Трифуновић 2012: 262.

183. Banatsko Aranđelovo – 10 is a flat settlement located ca. 4.7 km southwest of the center of the village of Banatsko Aranđelovo, in the northern part of "Monoštor" area. It is situated on a naturally elevated terrace, formerly surrounded on three sides by a swamp and occupies an area of ca. 1 ha.

The site was identified in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Early Neolithic, Bronze Age and the Middle Ages

LITERATURE: Трифуновић 2012: 263-265.

184. Banatsko Aranđelovo – 17 is a flat settlement located ca. 3 km northwest of the center of the village of Banatsko Aranđelovo. It lies on the southern side of the "Veliki Siget" area, close to a former swamp and extends over an area of ca. 4 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic and the Middle Ages.

LITERATURE: Трифуновић 2012: 270.

185. Banatsko Aranđelovo – 20 is a flat settlement located ca. 2.2 km north of the center of the village of Banatsko Aranđelovo. It lies on a high terrace and occupies an area of ca. 2 ha.

The site was recognized in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Neolithic, Bronze-Iron Age, Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Трифуновић 2012: 271.

186. Banatsko Aranđelovo – 22 is a flat settlement located ca. 2 km northwest of the center of the village of Banatsko Aranđelovo. It lies on a high terrace and occupies an area of ca. 16 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic, Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 274-275.

187. Banatsko Aranđelovo – 38 is a flat settlement located ca. 6.6 km southeast of the center of the village of Banatsko Aranđelovo, in the southwestern part of the "Kočovat" area. It occupies an area of ca. 6 ha.

The site was identified in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated in the Neolithic and the Middle Ages.

LITERATURE: Трифуновић 2012: 285.

188. Banatsko Aranđelovo – 59 is a flat settlement located ca. 3.7 km south of the center of the village of Banatsko Aranđelovo. It lies along the eastern bank of an old river bed and extends over an area of ca. 28 ha.

The site was detected in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Early Neolithic, the Bronze Age and the Middle Ages.

LITERATURE: Трифуновић 2012: 306, 308.

189. Banatsko Aranđelovo – Brdo-zapad is a flat settlement located ca. 2.7 km south of the center of the village of Banatsko Aranđelovo. It lies on the eastern bank of an old river bed and occupies an area of ca. 6 ha.

The site was surveyed in the second half of the 2000's within the "Arheološka Topografija Banata" project and the collected finds are dated to the Early Neolithic, the Bronze Age and the Middle Ages.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 12; Трифуновић 2012: 305, site 56.

190. Banatsko Aranđelovo – Fazanerija is a flat settlement located ca. 2.4 km west of the center of the village of Banatsko Aranđelovo, in the southern part of the "Špar kasa" area. It covers an area of ca. 4 ha.

The site was surveyed in the second half of the 2000's within the "Arheološka Topografija Banata" project. The collected finds are dated to the Late Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 10; Трифуновић 2012: 293, site 44.

191. Banatsko Aranđelovo – Obala selešto is a flat settlement located ca. 2.2 km south of the center of the village of Banatsko Aranđelovo. It lies on the margin of a high terrace and occupies an area of ca. 15 ha.

The site was surveyed in the second half of the 2000's within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic, the Late Eneolithic, the Bronze Age and the Middle Ages.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 11; Трифуновић 2012: 297, no. 51.

192. Bašaid – Jeseni vinogradi (Jankova ciglana) is a flat settlement located ca. 2 km north of the center of the village of Bašaid, on the bank of a stream.

The site was discovered in the 1960's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Brukner 1968: 38, note 55; Girić 1972: 176, no. 24.

193. Bočar – Mala Odaja is a flat settlement located ca. 1 km northwest of the village of Bočar.

The site was identified in the 1959-1960 during a reconnaissance survey carried out by Milorad Girić and dated in the Early Neolithic, the Middle Neolithic (Vinča Culture) and the Late Eneolithic (Baden Culture).

LITERATURE: Tasić 1967: 16; Brukner 1968: 38, 70; Girić 1972: 172, no. 6; Mirković-Marić, Marić 2017: 18-19.

194. Bočar – Petrić Nenada is a flat settlement located in the northern outskirts of the village of Bočar, on the bank of a former river bed of Tisa.

The site was discovered in 1959-1960 during a survey conducted by Milorad Girić. The recovered finds are dated to the Early Neolithic.

LITERATURE: Brukner 1968: 38, note 56; Girić 1972: 172, no. 5.

195. Bočar – Staro Groblje is a flat settlement discovered during a reconnaissance survey carried out by Milorad Girić and dated to the Late Eneolithic.

LITERATURE: Tasić 1967: 16.

196. Crna Bara – Papir-Livade is a flat settlement located ca. 4.5 km northeast of the center of the village of Crna Bara, on the left bank of Aranka.

The site was discovered in the 1960's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 175, no. 23.

197. Crna Bara – Prkos is a tell settlement located ca. 1.3 km northwest of the village of Crna Bara, on a naturally elevated area.

Rescue archaeological investigations were conducted by Lazar Nikolić in 1943, who excavated three trenches – one in the northern part of the site (Prkos) and two in the southern part (Groblje). In the following year the investigations were continued by Milutin Garašanin, who excavated one trench in the northern part of the site.

The stratigraphy consists of six main layers, whose total thickness reaches up to 3.30 m. The upper layer (1) is dated to the Middle Eneolithic (Bodrogkeresztúr), the following four layers (2, 3, 4, 5a) are dated to the Early Eneolithic, while the lowest layer (5b) is dated to the Middle Neolithic and contains both Szakálhát and Vinča B style pottery, with the first one prevailing. The layers 1, 3 and 5b are construction horizons. In the Middle Ages the site was used as a cemetery. In addition, during a reconnaissance survey performed by Milorad Girić somewhere in the same area an Early Neolithic settlement was discovered.

LITERATURE: Гарашанин, Гарашанин 1951: 86; Гарашанин, Гарашанин 1957; Brukner 1968: 71; Girić 1972: 178, no. 30; Bognár-Kutzian 1972: 112; Brukner 1974a: 88; Brukner 1974b: 120, 132; Petrović, Girić 1974: 11; Маринковић 2013.

198. Crna Bara – Road to Vălcani is a settlement located in the vicinity of the road that links Vălcani and Crna Bara. The site was discovered in 1909 by Demeter Racsov, who supervised the construction of this road. The recovered finds have parallels in Movila lui Deciov.

LITERATURE: Kisléghi 1912: 316-317; Milleker 1938: 106; Arandjelović-Garašanin 1954: 40, no. 33; Kisléghi 2015: 161.

199. Čoka – Kremenjak was a tell mound, which raised 1.5 m above the surrounding terrain. It was located ca. 1.5 km west of the center of the village of Čoka, on the high bank of a former course of the Tisa, which nowadays is a swampy area. It occupied an area of ca. 1.5 ha.

The site was found in 1863 by T. Baranovački. In the following decades the site was affected by the dam consolidation and was surveyed by several archaeologists. In 1880 Jenő Szenkláray and Ferencz Varga carried out the first test excavations, followed by two additional test excavations undertaken

by Kálmán Gubitza in 1904 and Endre Orosz in 1906. In the period 1907-1913 Ferenc Móra conducted eight campaigns of systematic investigations, during which most of the mound was excavated. In 1933 Miodrag Grbić undertook new investigations and in 1970 Predrag Medović and Milorad Girić conducted the final archaeological investigations, which aimed to evaluate the preservation state of the site.

The settlement mound had ca. 2.5 m thick cultural strata, of which the largest part was accumulated during the second part of the Middle Neolithic (Vinča B) and the first part of the Late Neolithic (Tisa Culture). The occupational sequence cannot be precisely reconstructed due to the less accurate methodology of excavation. Judging on the burned layers noticed by Ferenc Móra, the settlement had had at least three construction phases. Few Eneolithic finds (Tiszapolgár type vessels and copper artefacts), buried into the Neolithic layer, were also found. Their context indicates that they were buried after the abandonment of the mound. Most probably these finds are related to the numerous Early and Middle Eneolithic vessels discovered in "the closest surrounding of Čoka" and purchased by the Belgrade National Museum[46], which have been found in graves. The tell was used in Late Classical Antiquity as a burial ground.

LITERATURE: Orosz 1897: 66-68; Milleker 1897: 29-31; Milleker 1906: 24-25; Gubitza 1906; Orosz 1912; Kisléghi 1912: 316; Móra 1925; Грбић 1930; Јанкулов 1934: 50-51; Vulić, Grbić 1938: 7; Грбић 1939: 54; Milleker 1939: 134-137; Гарашанин, Гарашанин 1951: 86-87; Banner 1960; Brukner 1968: 70, 77; Medović 1970a; Bognár-Kutzian 1972: 112; Brukner 1974a: 76, 91; Brukner 1974b: 121, 133; Srejović 1988: 59; Грчки-Станимиров, Станимиров-Грчки 2003: 56, 60.

[46] It is likely that these vessels were discovered in the surroundings of the Kremenjak site, from where earth was taken for consolidation of the dikes and road construction (Gubitza 1906: 446; Orosz 1912: 28).

200. Đala – 11 is a flat settlement located in the northeastern outskirts of the village of Đala. It lies on an elevated former bank of the Tisa river and occupies an area of ca. 1.5 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic, the Iron Age and the Modern period.

LITERATURE: Трифуновић 2012: 47-48.

201. Elemir – Mazgina humka is a flat settlement located ca. 4.10 km northwest of the center of the village of Elemir. It lies on a terrace surrounded by an old river bed of Tisa.

The site was discovered in 1951 during a reconnaissance survey carried out by Šandor Nađ. The recovered finds are dated to the Early Neolithic.

LITERATURE: Гарашанин, Гарашанин 1951: 67; Brukner 1968: 38; Маринковић 2004: 14; Marinković 2006b: 66.

202. Elemir – Zabran is a flat settlement located ca. 4 west of the village of Elemir. It has a 0.50 m thick cultural layer dated in the Early Neolithic.

LITERATURE: Маринковић 2004: 14; Marinković 2006b: 66.

203. Iđoš – Budžak-Livade is a flat settlement located ca. 7.4 km northeast of the center of the village of Iđoš. It lies on a terrace which dominates the surrounding plain.

The site was discovered in 1960 during a survey and dated to the Middle Neolithic (Vinča Culture). Deep plowing of the field in 1963 revealed the presence of a cemetery dated to the Bronze Age and the Iron Age. During the same year, and in 1965, rescue archaeological excavations focused on the cemetery were conducted by Milorad Girić.

LITERATURE: Girić 1965; Brukner 1968: 70; Brukner 1974a: 76.

204. Iđoš – Gradište is located ca. 6.8 km northeast of the center of Iđoš and lies on a promontory-like margin of terrace, bordered to the north by Berčula stream and to the south by Grčka stream, which today are channelized. The site consists of a Neolithic tell settlement situated on the westernmost part of the promontory-like terrace, a flat inhabitable area east of the tell and a Bronze Age earthen rampart further to the east. The Neolithic site covers an area of ca. 3 ha, of which 1 ha occupies the tell.

The first archaeological excavations were carried out in 1913 by Gyula Kisléghi Nagy, however they remained unpublished and the documentation was lost. The site was rediscovered in 1946 by Luka Nadlački, and thereafter in the period 1947-1948, Miodrag Grbić conducted extensive archaeological investigations on the Bronze Age enclosure. The research was continued by Luka Nadlački, who carried out excavations with a limited extent on the Bronze Age rampart in 1949 and on the tell in 1954. In 1972, Milorad Girić conducted rescue excavations on the tell, opening four trenches. Archaeological research was resumed in 2014 within a Serbian-British collaborative project led by Neda Mirković-Marić, Barry Molloy and Miroslav Marić that consists of interdisciplinary investigations and archaeological excavations.

The mound has two main cultural layers, which together have a thickness of 2.2 m. The first layer, ca. 0.80 m thick, is dated to the Early Neolithic, while the second one is dated to the Middle Neolithic (Szakálhát/Vinča B). The eastern part of the Neolithic settlement is superposed by the Late Bronze Age fortification, which was also used in the Early Iron Age. Sporadic finds on the surface also attest a Medieval occupation of the site.

LITERATURE: Milleker 1938: 106; Грбић 1950; Грбић 1951; Гарашанин, Гарашанин 1951: 81; Arandjelović-Garašanin 1954: 41, no. 38; Гирић 1957; Brukner 1968: 38; Girić 1972: 176, no. 24; Brukner 1974a: 76, 84-86; Srejović 1988: 57; N. Mirković-Marić, pers. comm., 22.11.2015.

205. Iđoš – Kečkeler is a settlement located ca. 6.3 km northwest of the center of the village of Iđoš, in the vicinity of a floodplain area called "Kečkeler".

The site was discovered in the 1960's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic, the Eneolithic and the Early Bronze Age.

LITERATURE: Girić 1972: 176, no. 26.

206. Iđoš – Livade is a flat settlement located ca. 6.4 km northwest of the center of the village of Iđoš, on the bank of a stream.

The site was identified in the 1963 during a survey undertaken by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Brukner 1968: 39, note 58; Girić 1972: 176, no. 25.

207. Majdan – 13 is a flat settlement located in the southern outskirts of the village of Rabe. It lies on both banks of a former small stream and occupies an area of ca. 9 ha.

The site was found in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Early Eneolitic and the Bronze Age.

LITERATURE: Трифуновић 2012: 215.

208. Majdan – 27 is a flat settlement located ca. 1.8 km northwest of the village of Majdan. It lies on a high terrace, north of a channelized stream, and covers an area of ca. 13 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 227, 229.

209. Majdan – 29 is a flat settlement located ca. 1 km northwest of the village of Majdan. It lies on a terrace surrounded from three sides by an old river valley and extends over an area of ca. 20 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Eneolithic, the Bronze Age, Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Трифуновић 2012: 229, 235.

210. Majdan – 39 is a flat settlement located ca. 2.6 km south of the center of the village of Majdan. It lies on a high terrace and occupies an area of ca. 11 ha.

The site was identified in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 243, 245.

211. Majdan – 43 is a flat settlement located ca. 3.5 km northwest of the center of the village of Majdan. It lies on an elevated terrace in the vicinity of the former swamp "Veliki siget" and occupies an area of ca. 60 ha.

The site was recognized in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 246-247.

212. Majdan – 46 is a flat settlement located within the perimeter of the village of Majdan. It lies on a high terrace surrounded by old river valleys and covers an area of ca. 18 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Late Eneolithic (Baden Culture).

LITERATURE: Трифуновић 2012: 249.

213. Mokrin – Arađanska humka was a tumulus with a diameter of 50 m and ca. 3 m in height, which was located in the eastern outskirts of the village of Mokrin.

The mound was destroyed. In the center of the mound cremated burials in Baden type urns were found, while in the western part of the mound an inhumation burial also dated to the Late Eneolithic was discovered. In the Middle Ages the mound was used as a cemetery.

LITERATURE: Tasić 1967: 16; Petrović, Girić 1974: 21; Girić 1982: 101; Girić 1987: 73-74; Girić 1994: 8.

214. Mokrin – Hegedišev vinograd is a flat settlement located northeast of the village of Mokrin. It lies on an elevated terrace, which overlooks the surrounding floodplain.

The site was identified in the interwar period by Johann Sasser. He also carried out a test excavation, revealing settlement remains from the Early Neolithic, the Middle Neolithic, the Late Eneolithic and a cemetery from the Bronze Age.

LITERATURE: Milleker 1938:116; Гарашанин, Гарашанин 1951: 81; Arandjelović-Garašanin 1954: 42, no. 41; Tasić 1967: 16; Brukner 1968: 39; Girić 1972: 175, no. 21.

215. Mokrin – Ritić is a flat Early Neolithic settlement located northwest of the village of Mokrin. It was found by chance during agricultural work.

LITERATURE: Brukner 1968: 39; Girić 1972: 175, no. 22.

216. Mokrin – Papir is a flat settlement located ca. 6.8 km west of the village of Mokrin, on the left elevated bank of the Aranka stream.

The site was discovered in the 1960's during a survey conducted by Milorad Girić. The

collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 175, no. 20.

217. Novi Bečej – Borđoš is a tell settlement located ca. 8 km south of the city of Novi Bečej, on a loess plateau that has developed on the left bank of the river Tisa. The mound rises 2.5 m above the surrounding terrain and occupies an area of ca. 7 ha.

The site was first identified in 1695 during a survey in search of Roman antiquities conducted by Luigi Ferdinando Marsigli and was rediscovered in 1875 by Jenő Szentkláray. The same year he carried out test excavations. In the period 1894-1895 the site was surveyed by Endre Orosz and excavations took place in the period 1903-1904 under the leadership of Endre Orosz and István Berkeszy. Investigations were resumed in 2014 within a joined German-Serbian project, which included non-invasive investigations (geophysical and geomorphological studies), surface surveys and excavations.

The mound has a 2-3 m thick cultural deposit, which was accumulated mainly in the Late Neolithic. The pottery from this period exhibits mixed Tisa and Vinča (Phases C and D) traits. In the southern vicinity of the Neolithic settlement, a Bronze Age settlement and necropolis are located.

LITERATURE: Marsili 1700: 16; Marsigli 1726: 58; Reizner 1899: 190; Milleker 1897:17-20; Orosz 1903; Milleker 1906: 15-19; Kisléghi 1912: 322; Јанкулов 1934: 51; Milleker 1938: 107; Гарашанин, Гарашанин 1951: 66; Brukner 1974a: 90; Medović et al. 2014; Stanković-Pešterac et al. 2014.

218. Novi Bečej – Matejski Brod is a tell settlement located ca. 6 km northeast of the city of Novi Bečej, on the high bank of an oxbow lake. The mound has elliptical shape, rises with ca. 6 m above the surrounding plain and extends over an area of ca. 2 ha.

The site was discovered in WW II, during the excavation of a trench for military purposes. As the western side of the tell was affected by erosion, rescue excavations were undertaken in the period 1949-1952 by Šandor Nađ and Rastko Rašajski. Another series of archaeological campaigns took place in the period 1962-1965 under the leadership of Radovan Radišić.

The mound, with a total thickness of the cultural strata of ca. 3 m, was inhabited in the Early Neolithic, the Middle Neolithic (Szakálhát/Vinča B), the Late Neolithic (Tisa Culture), the Late Bronze Age, the Iron Age and the Middle Ages.

LITERATURE: Рашајски, Нађ 1950; Рашајски 1952; Нађ1953; Radšić 1962; Radišić 1963; Radišić 1964; Radišić 1965; Brukner 1968: 38, 77; Brukner 1974a: 75, 87-88, 91; Srejović 1988: 61; Маринковић 2002: 11-13; Маринковић 2004: 16-17; Marinković 2006a; Marinković 2006b: 67.

219. Novi Bečej – Silošpart is a settlement located in the administrative district of Novi Bečej. It was discovered in 1936 by Šandor Nađ and dated to the Early Neolithic.

LITERATURE: Гарашанин, Гарашанин 1951: 67; Arandjelović-Garašanin 1954: 42, no. 42; Brukner 1968: 38, note 53.

220. Novi Kneževac – 2 is a flat settlement located ca. 3 km north of the center of the town of Novi Kneževac. It lies on an elevated terrace in the vicinity of the river Tisa and occupies an area of ca. 1.5 ha.

The site was found in the second half of the 2000's during a reconnaissance survey within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic and Classical Antiquity.

LITERATURE: Трифуновић 2012: 119-120.

221. Novi Kneževac – 9 is a flat settlement located ca. 3.6 km east of the center of the town of Novi Kneževac. It is situated on elevated ground, which dominates the surrounding terrain and covers an area of ca. 12 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey

within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic, the Middle Ages and the Modern period.

LITERATURE: Трифуновић 2012: 127-128.

222. Novi Kneževac – 11 is a flat settlement located ca. 4.4 km east of the center of the town of Novi Kneževac. It lies on an elevated bank of a former swamp and occupies an area of ca. 3 ha.

The site was identified in the second half of the 2000's during a reconnaissance survey conducted within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Neolithic, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 129-130.

223. Novi Kneževac – Brestik is a flat settlement located ca. 10 km southeast of the center of the town of Novi Kneževac. It lies on an elevated terrace near a former swamp and occupies an area of ca. 4 ha.

The site was surveyed in the second half of the 2000's within the "Arheološka Topografija Banata" project. The collected finds are dated to the Neolithic and Classical Antiquity.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 13; Трифуновић 2012: 165, site 49.

224. Novi Kneževac – Budžak majur is a flat settlement located ca. 8.3 km southeast of the center of the town of Novi Kneževac. It lies on a high terrace that dominates the floodplain.

The site was first recognized in 1892 by Karl Wagner and was surveyed in the 1960's by two teachers from Novi Kneževac. The recovered finds date to the Early Neolithic, the Early Eneolithic, the Late Eneolithic (Baden Culture) and the Early Bronze Age.

LITERATURE: Milleker 1893b: 445; Milleker 1897: 51; Girić 1972: 179, no. 36; Грчки-Станимиров, Станимиров-Грчки 2003: 64, 69; Трифуновић 2012: 202, site б[47].

225. Novi Kneževac – Budžak-slatina is a flat settlement located ca. 6.4 km east of the center of the town of Novi Kneževac, on the western side of an elevated terrace that was formerly surrounded by a swamp.

The site was discovered by Johann Sasser and in the period 1932-1933 he carried out archaeological excavations. Another survey was conducted in the 2000's within the "Arheološka Topografija Banata" project. The investigations revealed Early Neolithic settlement remains.

LITERATURE: Milleker 1937: 66; Milleker 1938: 106; Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 7; Трифуновић 2012: 199, site 98.

226. Novi Kneževac – Halaska Siget is located on an elevated place in the "Rit" area.

The site was discovered by Karl Wagner in 1890 during the excavation of a channel, which revealed an Early Bronze Age necropolis. Later on, the site was surveyed by Snežana Grčki-Stanimirov and Sava Stanimirov-Grčki, who recovered finds dated to the Early-Middle Eneolithic.

LITERATURE: Milleker 1897: 50-51; Milleker 1893b: 444; Грчки-Станимиров, Станимиров-Грчки 2003: 64; Трифуновић 2012: 202, б.

227. Novi Kneževac – Japina Koliba was a small tumulus located south of the town of Novi Kneževac, not far from the river Tisa.

Construction work in 1979 has seriously affected the mound and rescue excavations were conducted by Milorad Girić in 1981, revealing a central grave and a secondary child burial, both having wooden structures.

LITERATURE: Girić 1987: 73; Girić 1994: 8-10; Грчки-Станимиров, Станимиров-Грчки 2003: 69-70; Трифуновић 2012: 202.

[47] In this paragraph (б.) are discusses two sites: Novi Kneževac – Halaska siget and Novi Kneževac – Budžak.

228. Novi Kneževac – Kamara humka is a tell settlement located ca. 6.4 km northeast of the center of the town of Novi Kneževac, on elevated ground that dominates the surrounding terrain. The mound has ellipsoidal shape, 3 m in height and occupies an area of ca. 2 ha.

The tell was discovered in 1889-1890 during the excavation of a channel, which sectioned the mound through its center. Excavations were carried out by the amateur archaeologist Luka Nadlački in the period 1927-1934 and by Miodrag Grbić in 1928. The site was surveyed in the second half of the 2000's by the members of the "Arheološka Topografija Banata" project. The investigations revealed settlement remains from the Middle Neolithic (Szakálhát/Vinča B), the Late Neolithic (Tisa Classic) and the Middle Eneolithic (Bodrogkeresztúr).

LITERATURE: Надлачки 1929: 5; Milleker 1938: 106; Vulić, Grbić 1938: 7; Грбић 1939: 52-53; Гарашанин, Гарашанин 1951: 85; Brukner 1974a: 91; Грчки-Станимиров, Станимиров-Грчки 2003: 56, 60, 64; Трифуновић 2012: 191, site 87.

229. Novi Kneževac – Park is a flat settlement located in the center of the town of Novi Kneževac, on the elevated bank of the river Tisa. It was discovered in 1955 by Luka Nadlački and dated to the Early Neolithic.

LITERATURE: Girić 1972: 173, no. 9; Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 4; Трифуновић 2012: 195, site 93.

230. Novi Kneževac – Širine is a tell settlement located ca. 1.6 km east of the center of the town of Novi Kneževac. It lies on the bank of an old river bed, which in modern times was transformed into a fishpond.

The site was discovered in 1891 during the excavation of a channel and was affected again in 1964 during a road construction. These excavations revealed cultural strata from the Early Neolithic, the Middle Neolithic (Vinča Culture), the Late Neolithic (Tisa Culture), and the Late Eneolithic (Baden Culture), which have a total thickness of 2.2 m. In the second half of the 2000's the site was surveyed within the "Arheološka Topografija Banata" project.

LITERATURE: Reizner 1892; Milleker 1897: 48-59; Milleker 1938: 105; Girić 1972: 179, no. 37; Грчки-Станимиров, Станимиров-Грчки 2003: 56, 60, 69; Трифуновић 2012: 192, site 89.

231. Novi Kneževac – Širine-sever is a flat settlement located ca. 3 km northeast of the center of the town of Novi Kneževac. It lies on the elevated bank of an old river bed, currently a fishpond, and occupies an area of ca. 5 ha.

The site was surveyed in the second half of the 2000's decade by the team of the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic, the Bronze Age, the Middle Ages and the Modern period.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 3; Трифуновић 2012: 124, site 5.

232. Novo Miloševo – Akači grob is a flat settlement located ca. 6 km northwest of the village of Novo Miloševo. It lies on a high terrace that has developed on the bank of a former bed of the river Tisa.

The site was found in the 1960's during a reconnaissance survey carried out by Milorad Girić. The collected finds are dated to the Early Neolithic and the Middle Neolithic (Vinča Culture).

LITERATURE: Brukner 1968: 38; Girić 1972: 171-172, no. 3; Mirković-Marić, Marić 2017: 27.

233. Novo Miloševo – Mali Akač I is a flat settlement located west of the village of Novo Miloševo.

The site was discovered by chance during agricultural work and later was surveyed by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Brukner 1968: 38; Girić 1972: 171, no. 2.

234. Novo Miloševo – Mali Akač II is a flat settlement located ca. 4.5 km southwest of the village of Novo Miloševo, on the bank of a former river bed of Tisa.

The site was discovered in the late 1960's during a reconnaissance survey carried out by Milorad Girić. The recovered pottery is dated to the Early Neolithic, the Middle Neolithic (Szakálhát Culture) and the Late Neolithic (Tisa Culture).

LITERATURE: Brukner 1968: 38, 76; Girić 1972: 171, site 1; Brukner 1974a: 87; Mirković-Marić, Marić 2017: 19.

235. Novo Miloševo – Prečka is a flat settlement located ca. 8.5 km northwest of the village of Novo Miloševo, on the bank of a former bed of the river Tisa.

The site was identified in the 1960's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic and the Eneolithic.

LITERATURE: Girić 1972: 172, site 4.

236. Ostojićevo – Nad Markučevom kopovom is a flat settlement located ca. 10 km northeast of the village of Ostojićevo, on an elevated bank of the stream Aranka.

The site was found in the 1960's during a survey undertaken by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 174, site 16.

237. Ostojićevo – Taladj is a flat settlement located ca. 10 km northeast of the village of Ostojićevo on the elevated bank of the stream Aranka.

The site was discovered in the 1960's during a survey carried out by Milorad Girić. The recovered finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 174, site 15.

238. Padej – Barnahat is a flat settlement and a tumulus located ca. 5.3 km northeast of the center of the village of Padej, on a terrace in the vicinity of a floodplain. The mound has a diameter of ca. 60 m (0.15 ha) and a height of ca. 5 m.

Archaeological investigations on the tumulus were undertaken by Milorad Girić in 1978 revealing that it overlapped a Late Eneolithic settlement and was constructed in two phases, each with a central grave.

LITERATURE: Girić 1982: 102-103; Girić 1987: 72-73; Girić 1994: 10.

239. Padej – Ibelaj is a flat settlement located ca. 6.3 km east of the center of the village of Sajan, in the vicinity of a stream.

The site was found in the 1960's during a survey conducted by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 178, site 29.

240. Padej – Katahat is a flat settlement located ca. 5.5 km northeast of the center of Padej, on the left bank of Aranca stream.

The site was identified in 1959 during a reconnaissance survey undertaken by Milorad Girić and was surveyed again in 2013 within the "Arheološka Topografija Banata" project. The recovered finds are dated to the Early Neolithic and the Middle Neolithic (Vinča Culture).

LITERATURE: Brukner 1968: 70; Girić 1972: 173-174, site 12; Mirković-Marić, Marić 2017: 17-18.

241. Padej – Pesir is a flat settlement located ca. 4.2 km northwest of the center of the village of Padej, on a terrace which has developed on the left bank of the Tisa river.

The site was discovered in the 1960's during a reconnaissance survey carried out by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 172, site 7.

242. Podlokanj – Debelica is a flat settlement located ca. 2.3 km north of the village of Podlokanj, on the bank of a floodable area.

The site was found in the 1960's during a reconnaissance survey conducted by Milorad Girić. The recovered finds are dated in the Early Neolithic.

LITERATURE: Girić 1972: 180, site 40; Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 18.

243. Podlokanj – Južne Bašte is a flat settlement and necropolis located in the southwestern outskirts of the village of Podlokanj. It lies on a sloping high bank, which overlooks the surrounding floodplain and extends over an area of ca. 0.40 ha.

The western part of the site, which consists of Early Neolithic and Middle Neolithic (Szakálhát Culture) settlements, was discovered in the 1960's by Milorad Girić during a survey, while the eastern part, which comprises a cemetery used in the Early and Middle Eneolithic (Tiszapolgár and Bodrogkeresztúr Cultures), was found in 1990 during the planting of trees. Consequently, rescue archaeological excavations were carried out by Snežana Grčki-Stanimirov in the period 1996-2000, unearthing over 50 Eneolithic graves. The site was also inhabited in Classical Antiquity and the Middle Ages.

LITERATURE: Girić 1972: 180, site 41; Грчки-Станимиров, Станимиров-Грчки 1997; Грчки-Станимиров 1998; Грчки-Станимиров 2000; Грчки-Станимиров 2001; Грчки-Станимиров, Станимиров-Грчки 2003: 57; Трифуновић 2012: 311, 333, sites 70 and 93.

244. Podlokanj – Kočovat is a flat settlement located ca. 7.3 km southeast of the center of the village of Banatsko Aranđelovo. It covers an area of ca. 36 ha.

The site was identified in the 1960's during a reconnaissance survey undertaken by Milorad Girić and was surveyed again in the second half of the 2000's within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic and the Middle Ages.

LITERATURE: Girić 1972: 180, site 38; Грчки-Станимиров, Станимиров-Грчки 2003: 57, site 19; Трифуновић 2012: 330, site 87.

245. Podlokanj – Selo-jug is an Early Neolithic flat settlement located in the eastern outskirts of the village of Podlokanj.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 17; Трифуновић 2012: 333, site 93.

246. Podlokanj – Sirovičin Budžak-istok is a flat settlement located ca. 1.6 km southeast of the center of the village of Podlokanj. It lies on a high terrace and occupies an area of ca. 4 ha.

The site was detected in the 1960's during a reconnaissance survey carried out by Milorad Girić and was surveyed again in the second half of the 2000's within the "Arheološka Topografija Banata" project. The collected finds are dated to the Early Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Girić 1972: 180, site 42; Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 15; Трифуновић 2012: 281-284, sites 31, 32 and 33.

247. Podlokanj – Sirovičin Budžak-zapad is a flat settlement located ca. 2 km south of the center of the village of Podlokanj. It lies on a high terrace and occupies an area of ca. 6 ha.

The site was surveyed in the second half of the 2000's by the "Arheološka Topografija Banata" team. The collected finds are dated to the Early Neolithic and the Middle Neolithic (Szakálhát Culture). The northwestern part of the site was occupied in the Bronze Age, which is also the location of a mound (probably a tumulus).

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 15; Трифуновић 2012: 279, site 29.

248. Podlokanj – Velike Livade is a flat settlement located in the administrative district of the village of Podlokanj.

The site was found in the 1960's during a reconnaissance survey conducted by Milorad Girić. and dated to the Early Neolithic.

LITERATURE: Girić 1972: 180, site 39; Трифуновић 2012: 334, site a.

249. Rabe – Anka Siget is a settlement located 0.7 km southwest of the center of the village of Rabe. It lies on a natural elevation surrounded by an old river bed and extends over an area of ca. 18 ha.

The site was discovered by chance in the 1870's during agricultural work. Archaeological excavations were conducted in 1891 and 1901 by János Reizner, in 1908 by István Tömörkény and in 1950 by Luka Nadlački. They revealed a settlement occupied in the Bronze Age and in the Middle Ages as well as graves from both periods. Early Eneolithic finds with unknown contexts were also discovered.

LITERATURE: Reizner 1902; Reizner 1891a; Reizner 1891b; Milleker 1897: 94-97; Reizner 1899: 189; Milleker 1906: 121-122; Tömörkény 1908a; Kisléghi 1912: 307-308; Јанкулов 1934: 50; Гарашанин, Гарашанин 1951: 86; Bognár-Kutzián 1972: 115; Трифуновић 2012: 249, site 46.

250. Rabe – Šaširaš is a flat settlement located ca. 1.2 km southwest of the village of Rabe. It lies on a high terrace, in the vicinity of an old river bed and occupies an area of ca. 12 ha.

The site was recognized in 1901 during agricultural work and in the following year archaeological excavations were carried out by János Reizner, revealing settlement remains from the Early Neolithic, the Bronze Age and the Middle Ages. In the second half of the 2000's it was surveyed by the "Arheološka Topografija Banata" team.

LITERATURE: Reizner 1903: 43-45; Milleker 1906: 126; Girić 1972: 179, site 35; Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 8; Трифуновић 2012: 228, site 28.

251. Sajan – Domboš (Jaroš) is a flat settlement located ca. 1.7 km south of the center of the village of Sajan, on an elevated terrace in vicinity of a stream.

The site was discovered in the 1960's by Milorad Girić and in 1972 he conducted rescue excavations, yielding a 1.6 m thick cultural layer dated to the Early Neolithic.

LITERATURE: Brukner 1968: 38, note 57; Girić 1972: 178, site 28.

252. Sajan – Kasalo is a flat settlement located northwest of the village of Sajan.

The site was identified in the 1960's during a reconnaissance survey undertaken by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 174, site 14.

253. Sajan – Kremenjak is a flat settlement located ca. 2.2 km east of the center of the village of Sajan, on an elevated terrace overlooking the floodplain.

The site was discovered in 1932 by Johann Sasser and in the 1940's archaeological investigations were conducted by Luka Nadlački. During the excavation of a channel in 1970, rescue archaeological investigation was carried out by Predrag Medović, who excavated three trenches. The investigations revealed two building horizons dated to the Middle Neolithic (Szakálhát Culture). On the western side of the terrace Early Neolithic finds were also attested.

LITERATURE: Milleker 1938: 106; Гарашанин, Гарашанин 1951: 82; Medović 1970b; Girić 1972: 176, site 27; Brukner 1974a: 87; Srejović 1988: 59; Mirković-Marić, Marić 2017: 18.

254. Sajan – Nagy port is a flat settlement located northwest of the village of Sajan, on the elevated bank of a former stream.

The site was found in the 1960's during a reconnaissance survey carried out by Milorad Girić. The recovered finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 174, site 13.

255. Sanad – Sanadske livade is a flat settlement located ca. 9.5 km east of the village of Sanad.

The site was identified in the 1960's during a reconnaissance survey undertaken by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 178, site 32.

256. Sanad – Zlatan breg is a flat settlement located in the administrative district of the village of Sanad.

The site was detected in the 1960's during a reconnaissance survey carried out by Milorad Girić. The collected finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 178, site 31.

257. Siget – Jug sela is a settlement located in the southern outskirts of the village of Siget, on the southeastern side of the former island "Mali Siget".

The site was discovered by chance during excavations in a clay quarry, which revealed an Early Neolithic pit-house. In the second half of the 2000's it was surveyed by the "Arheološka Topografija Banata" team.

LITERATURE: Грчки-Станимиров, Станимиров-Грчки 2003: 59, site 9; Трифуновић 2012: 332, site 89.

258. Srpski Krstur – 1 is a flat settlement located 1.90 m northwest of the village of Srpski Krstur[48]. It lies on an elevated bank overlooking the floodplain of the Tisa river and extends over an area of ca. 15 ha.

The site was found in 1888 by Karl Wagner during the construction of the dam and was surveyed in the second half of the 2000's by the members of the "Arheološka Topografija Banata" team. The collected finds are dated to the Early Neolithic, Late Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Milleker 1893a; Трифуновић 2012: 57-59.

259. Srpski Krstur – 7 is a flat settlement located in the southern outskirts of the village of Srpski Krstur. It lies on the elevated bank of a former swamp. The site occupies an area of ca. 2 ha.

The site was discovered during a reconnaissance survey carried out in the second half of the 2000's by the "Arheološka Topografija Banata" team. The recovered finds are dated to the Middle Neolithic, the Bronze Age and the Middle Ages.

LITERATURE: Трифуновић 2012: 68.

260. Srpski Krstur – 10 is a flat settlement located ca. 1.7 km east of the center of the village of Srpski Krstur. It lies on a high terrace overlooking the floodplain and occupies an area of ca. 8 ha.

The site was identified during a reconnaissance survey undertaken in the second half of the 2000's by the "Arheološka Topografija Banata" team. The collected finds are dated to the Neolithic, the Bronze Age, Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Трифуновић 2012: 70.

261. Srpski Krstur – 11 & 12 is a flat settlement located ca. 2.5 km east of the center of the village of Srpski Krstur. It lies on the high bank of a former swamp created by the overflow of the river Tisa and covers an area of ca. 6 ha

The site was discovered during a reconnaissance survey conducted in the second half of the 2000's by the "Arheološka Topografija Banata" team. The collected finds are dated to the Early Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 70-74.

262. Srpski Krstur – 14 is a flat settlement located ca. 4 km southeast of the center of the village of Srpski Krstur. It lies along an elevated bank overlooking a former large swamp and occupies an area of ca. 21 ha.

[48] This site was erroneously identified by Stanko Trifunović (Трифуновић 2012: 57) with the site known as Bajir (see no. 268).

The site was found in the second half of the 2000's during a reconnaissance survey carried out by the "Arheološka Topografija Banata" team. The collected finds are dated to the Early Neolithic, the Bronze Age, the Iron Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 76-78.

263. Srpski Krstur – 20 is a flat settlement located ca. 5 km southeast of the center of the village of Srpski Krstur. It occupies an area of ca. 5 ha.

The site was detected in the second half of the 2000's during a reconnaissance survey undertaken by the "Arheološka Topografija Banata" team. The collected finds are dated to the Neolithic, the Bronze Age, Classical Antiquity and the Modern period.

LITERATURE: Трифуновић 2012: 84.

264. Srpski Krstur – 26 is a flat settlement located ca. 6.5 km southeast of the center of the village of Srpski Krstur. It lies on the elevated bank of an old river bed and covers an area of ca. 10 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey carried out by the "Arheološka Topografija Banata" team. The recovered finds are dated to the Neolithic.

LITERATURE: Трифуновић 2012: 87-89.

265. Srpski Krstur – 28 is a flat settlement located ca. 6 km southeast of the center of the village of Srpski Krstur. It is situated on the elevated bank of a paleo-river and occupies an area of ca. 16 ha.

The site was found in the second half of the 2000's during a reconnaissance survey conducted by the "Arheološka Topografija Banata" team. The collected finds are dated to the Neolithic, the Bronze Age, Classical Antiquity and the Middle Ages.

LITERATURE: Трифуновић 2012: 90-92.

266. Srpski Krstur – 34 is a flat settlement located ca. 8 km southeast of the center of the village of Srpski Krstur. It lies on a terrace in the vicinity of a former large swamp called "Veliki Siget" and occupies an area of ca. 15 ha.

The site was discovered in the second half of the 2000's during a reconnaissance survey undertaken by the "Arheološka Topografija Banata" team. The collected finds are dated to the Early Neolithic, the Bronze Age, and Classical Antiquity.

LITERATURE: Трифуновић 2012: 95-98.

267. Srpski Krstur – 42 is a flat settlement located ca. 8.5 km southeast of the center of the village of Srpski Krstur. It lies on an elevated bank of the former swamp "Veliki Siget" and occupies an area of ca. 20 ha.

The site was found in the second half of the 2000's during a reconnaissance survey carried out by the "Arheološka Topografija Banata" team. The collected finds are dated to the Neolithic, the Bronze Age, Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Трифуновић 2012: 107-110.

268. Srpski Krstur – Bajir is a flat settlement and necropolis located ca. 1.6 km west of the center of the village of Srpski Krstur[49], on a high bank of the Tisa river. It appears as two mounds next to each other, known as Bajir I and II.

[49] The site was located using the descriptions provided by Felix Milleker (1893a: 301) and Luka Nadlački (Надлачки 1929: 3; 1933: 3). These descriptions are in disagreement with the location proposed by Stanko Trifunović (Трифуновић 2012: 57). Milleker and Nadlački indicate that the two mounds, named Bajir I and Bajir II, are located ca. 1 km west of Srpski Krstur and 100 m away from the "New Tisa" channel [the current bed of Tisa] in the area where the edge of the terrace, with a dam constructed on it, turns [towards south]. In addition, the location of the two mounds are clearly illustrated on the map provided by Felix Milleker (1893a: áb. I) and one of the mounds appears on the First Habsburg Military Survey. According to this, Bajir I and II would correspond with the sites conventionally named by Trifunović as "Srpski Krstur 4" and "Srpski Krstur 5" and not with "Srpski Krstur 1" as he assumed.

The site was discovered in 1888 by Karl Wagner during by the construction of a dam and the finds were studied by Felix Milleker. Archaeological investigations were carried out by Luka Nadlački in the period 1927-1950 (with some interruptions), revealing settlement remains from the Middle Neolithic (Vinča B/ Szakálhát Culture), the Late Neolithic (early Tisa Culture) and the Late Eneolithic (Baden Culture), as well as graves from the Early Eneolithic. The total thickness of the cultural strata is 0.40-0.70 m. In the second half of the 2000's the site was surveyed by the "Arheološka Topografija Banata" team, which identified finds from the Middle Bronze Age, Classical Antiquity, the Middle Ages and the Modern period.

LITERATURE: Milleker 1893a; Milleker 1897: 61-69; Надлачки 1929; Надлачки 1933; Vulić, Grbić 1938: 7; Milleker 1939: 137-138; Гарашанин, Гарашанин 1951: 86; Brukner 1968: 71, 77; Bognár-Kutzian 1972: 116-117; Brukner 1974a: 76, 84, 91; Brukner 1974b: 122; Petrović, Girić 1974: 13; Грчки-Станимиров, Станимиров-Грчки 2003: 56, 69; Трифуновић 2012: 60-65, sites 4 and 5.

269. Srpski Krstur – Slatinska humka is a large tumulus located ca. 2.2 km northeast of the center of the village of Srpski Krstur, on a flat terrace which is bordered to the south by a swamp. It has a diameter of 80-90 m (0.1 ha) and a height of ca. 8 m.

Archaeological investigations were conducted by Luka Nadlački in the period 1928-1929, who excavated a 15.5 m long and 3.5 m wide trench. In the profile of the mound were identified several layers with ashes, animal bones and Tiszapolgár type pottery. The virgin soil was reached at a depth of 6.4 m in the central part of the mound. At the bottom of the mound a Late Eneolithic burial was discovered, which consisted of cremated bones deposited in an urn. In the second half of the 2000's decade the site was surveyed by the members of the "Arheološka Topografija Banata" project.

LITERATURE: Надлачки 1950; Gazdapustai 1965; Girić 1982: 100-101; Girić 1987: 74; Girić 1994: 8; Станимиров, Станимиров-Грчки 2003: 72; Трифуновић 2012: 110, site 43.

270. Šurjan – Govedarova humka is a tell settlement located west of the village of Šurjan. It lies on the bank of Timiş river, in the vicinity of a large meander called "Mundžerov Budžak".

The mound, which was eroded on one side by the river thus exposing artefacts on the bank, was discovered in 1933 by Borislav Jankulov during a survey. In the subsequent years he also carried out test excavations there. During the same decade, the mound was affected by the consolidation of the dike, which unearthed numerous ceramic sherds, bones, shells, ashes and burials. The pottery can be dated to the Early Neolithic, the Early Eneolithic, the Late Eneolithic and the Bronze Age.

LITERATURE: Јанкулов 1934: 54; Јанкулов 1937; Гарашанин, Гарашанин 1951: 79-80; Arandjelović-Garašanin 1954: 44, no. 56; Brukner 1968: 37, note 47; Маринковић 2004: 14; Marinković 2006b : 66[50].

271. Taraš – Selište is a tell settlement located ca. 4 km northwest of the center of the village of Taraš, on an elongated plateau that rises with 8 m above the surrounding floodplain. The mound covers an area of ca. 0.9 ha.

The site was discovered in 1947 during a reconnaissance survey conducted by Šandor Nađ and in 1951 he carried out diagnostic archaeological investigations by excavating three trenches. The stratigraphy of the site consists of two main layers, which have together a depth of ca. 2 m. The lower layer is dated to the Middle Neolithic (Vinča Culture), while the upper one to the Middle Ages.

[50] Snežana Marinković has confused Govedareva humka with Šibova humka, which is dated to the Bronze Age (Гарашанин, Гарашанин 1951: 80).

LITERATURE: Гарашанин, Гарашанин 1951: 68; Haђ 1952; Brukner 1968: 73; Mirković-Marić, Marić 2017: 25.

272. Vrbica – Škola is a flat settlement located in the school garden of the village of Vrbica. It lies on a terrace in the vicinity of a former stream.

The site was found in the 1960's during a reconnaissance survey undertaken by Milorad Girić. The recovered finds are dated to the Early Neolithic.

LITERATURE: Girić 1972: 178, site 33.

273. Zrenjanin – Fabrika piva is a flat settlement located in the center of the town of Zrenjanin, on the left bank of the Bega river.

The site was discovered by chance during construction works in the vicinity of the brewery and was dated to the Early Neolithic.

LITERATURE: Маринковић 2004: 13; Marinković 2006b: 65-66.

274. Zrenjanin – Maksim Gorki is a settlement located on the "Maksim Gorki" street in Zrenjanin. It was discovered in 1953 by Radovan Radišić and dated to the Early Neolithic.

LITERATURE: Brukner 1968: 37, note 49.

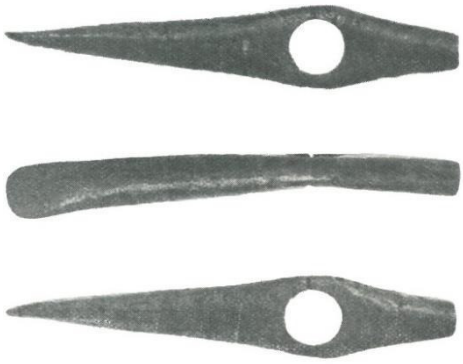
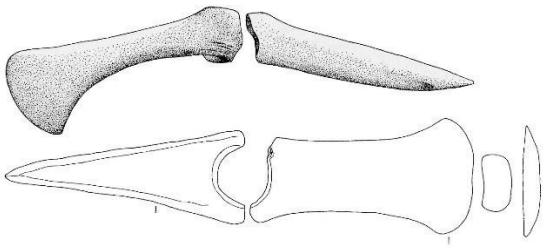
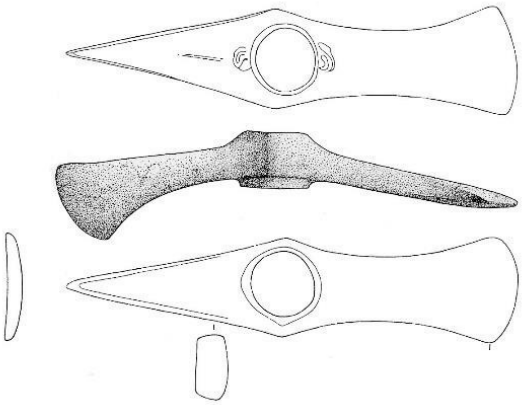
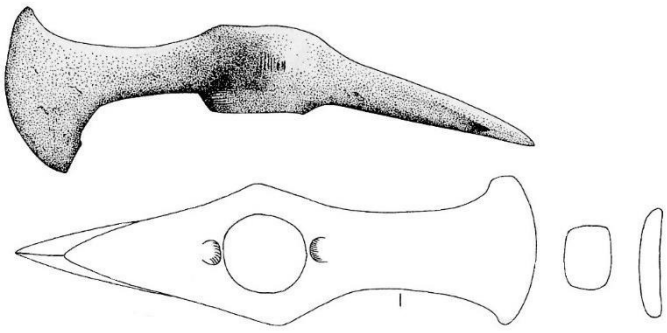
2. Catalogue of copper finds from northwestern Banat

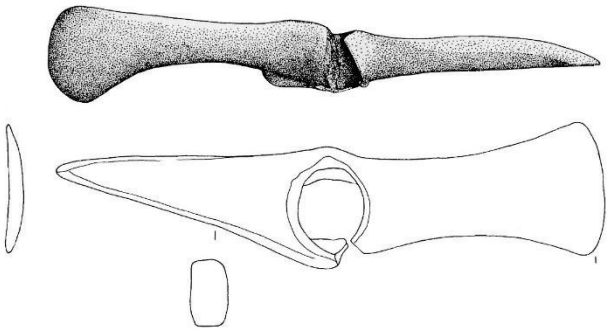
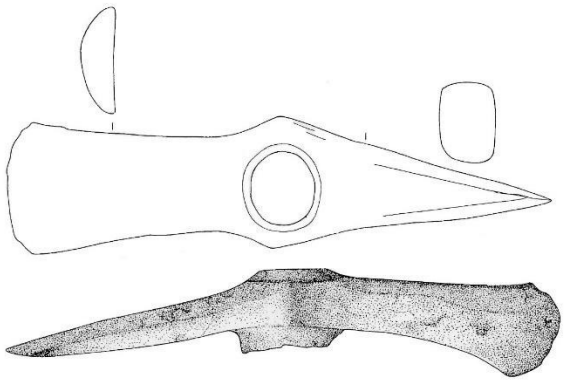
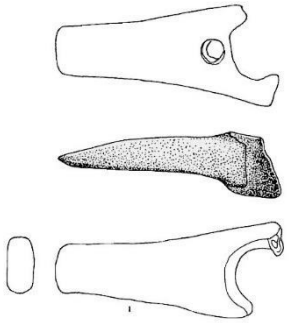
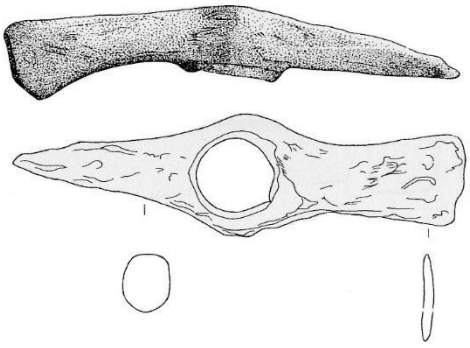
The catalogue includes the following data: a) object, b) place of discovery, c) storage location and inventory number, d) publication, e) analysis number.

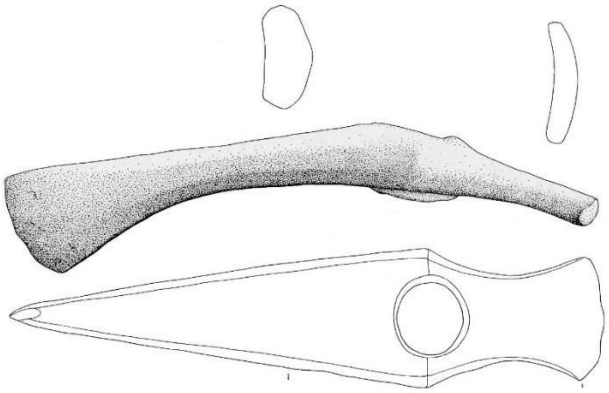
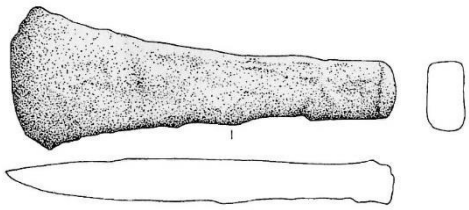
1. a) Awl b) Foeni – Cimitirul Ortodox c) Museum Timișoara d) Drașovean 2015: Fig. 2. 5 e) -	
2. a) Unidentified item b) Foeni – Cimitirul Ortodox c) Museum Timișoara d) Drașovean 2015: Fig. 2. 6 e) -	
3. a) (Ear)ring b) Deszk – A, Grave 4 c) Museum Szeged, 53.108.29 d) Bognar-Kutzián 1972: XXXIII/7 e) 13196	

4. a) Ring(s) b) Deszk – A, Grave 4 c) Museum Szeged, 53.108.30 d) Bognar-Kutzián 1972: XXXIII/8 e) 13197; 13198; 13199	
5. a) (Ear)ring b) Deszk – B, Grave 2 c) Museum Szeged, 53.109.7 d) Bognar-Kutzián 1972: XXXIII/9 e) -	
6. a) Bracelet b) Deszk – B, Grave 4 c) Museum Szeged d) Bognar-Kutzián 1972: XXXIV/1 e) -	
7. a) Bracelet b) Deszk – B, Grave 4 c) Museum Szeged d) Bognar-Kutzián 1972: XXXIV/3) e) -	
8. a) Bracelet b) Deszk – B, Grave 8 c) Museum Szeged d) Bognar-Kutzián 1972: XXXIV/4 e) -	

9. a) Bracelet b) Deszk – B, Grave 11 c) Museum Szeged d) Bognar-Kutzián 1972: XXXIV/5 e) -	
10. a) Bracelet b) Čoka – Kremenjak c) Museum Szeged d) Banner 1960: LVII/3 e) -	
11. a) Pipe b) Čoka – Kremenjak c) Museum Szeged, 53.124.2 d) Banner 1960: LVII/2 e) 13172	
12. a) Knife b) Čoka – Kremenjak c) Museum Szeged, 53.124.1 d) Banner 1960: LVII/18 e) 13171	

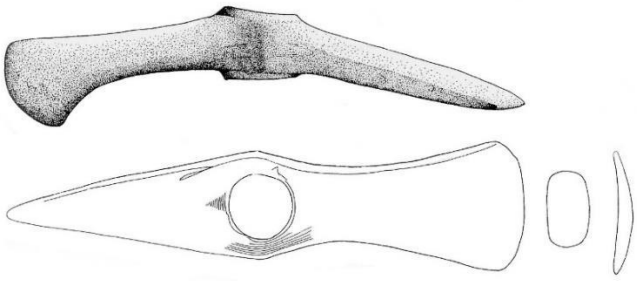
13. a) Hammer-axe, Čoka type b) Čoka – Kremanjak c) Museum Szeged, 17/1910-513 d) Bognár-Kutzian 1972: 112, Fig. 126 e) 13215	
14. a) Axe-adze, Jászladány type, Bradu variant b) Satchinez c) Museum Timișoara, 1914-1915 d) Berkeszi 1908: 139-140; Vulpe 1975: T27/194 e) 9170	
15. a) Axe-adze, Jászladány type, Bradu variant b) Sânpetru German – Hotarul Reck c) Museum Arad, 13767 d) Vulpe 1975: T26/190 e) MA-153980	
16. a) Axe-adze, Jászladány type, Bradu variant b) Sânpetru German – La Islaz c) Museum Arad, 14557 d) Vulpe 1975: T27/197 e) MA-153979	

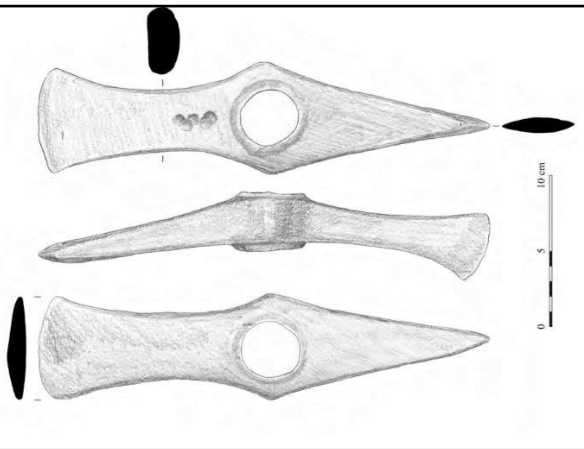
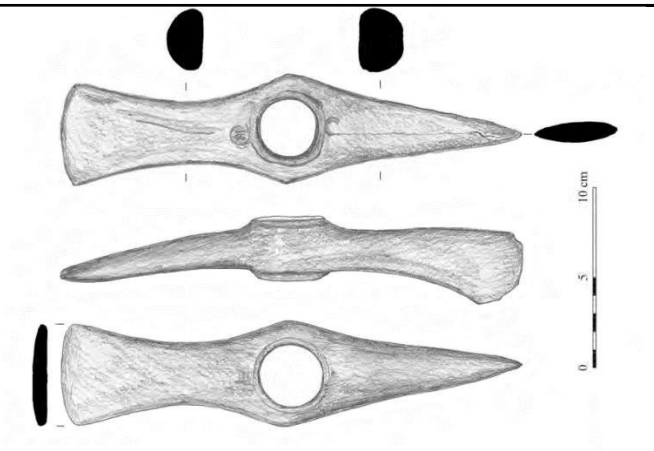
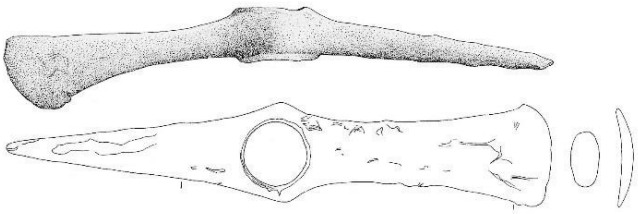
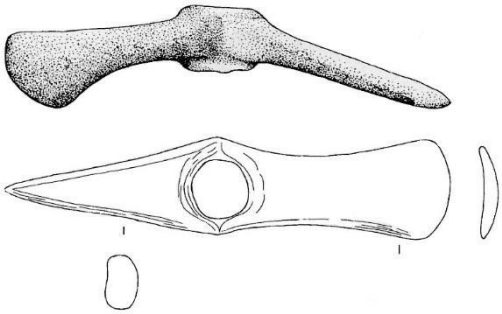
17. a) Axe-adze, Jászladány type, Bradu variant b) Timișoara c) Museum Timișoara, 1911 d) Milleker 1906: 137; Vulpe 1975: T26/189 e) 9165	
18. a) Axe-adze, Jászladány type, Orșova variant b) Ciacova c) Museum Timișoara, 1585 d) Vulpe 1975: T14/108 e) 9167	
19. a) Axe-adze, Jászladány type b) Satchinez c) Museum Timișoara, 1916 d) Berkeszi 1908: 139-140; Vulpe 1975: T29/215 e) 9161	
20. a) Axe-adze, Nógrádmarcal type b) Chișoda c) Museum Timișoara, 1588 d) Milleker 1906: 87; Vulpe 1975: T31/236 e) 9166	

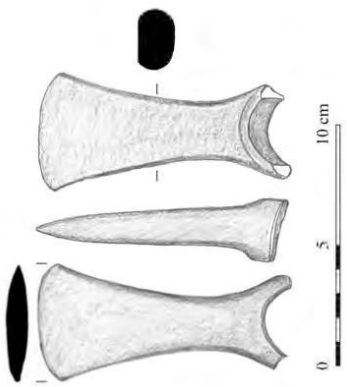
21. a) Axe-adze, Mezőkeresztes type b) Ciacova c) Museum Timișoara, 1909 d) Vulpe 1975: T9/63 e) -	
22. a) Flat-axe, Cucuteni variant b) Deta c) Museum Timișoara d) Berkeszi 1908: 139; Vulpe 1975: T33/268 e) 9159	
23. a) Flat-axe, Cucuteni variant b) Podlokanj – Bašte, grave c) - d) Грчки-Станимиров, Станимиров-Грчки 2000 e) -	

3. Catalogue of analyzed copper artefacts from the neighboring region

The catalogue includes the following data: a) object, b) place of discovery, c) storage location and inventory number, d) publication, e) analysis number.

1. a) Axe-adze, Jászladány type, Bradu variant b) Cermei c) Museum Arad, 12449 d) Vulpe 1975: T26/191 e) 9190; MA-153982	

2. a) Axe-adze, Jászladány type, Petrești variant b) Jud. Arad c) Museum Arad, - d) Sava 2011: Pl. IX/2 e) MA-153983	
3. a) Axe-adze, Jászladány type, Petrești variant b) Sânleani c) Museum Arad, 15002 d) Sava 2011: Pl. VII/3 e) MA-153981	
4. a) Axe-adze, Jászladány type, Șincai variant b) Pecica – Șanțul Mare c) Museum Arad, 887 d) Vulpe 1975: T19/142 e) 9192; MA-153984	
5. a) Axe-adze, Jászladány type, Șincai variant b) Pecica – Șanțul Mare c) Museum Arad, 888 d) Vulpe 1975: T19/144 e) 9193; MA-153978	

6. a) Axe-adze, Jászladány type b) Pecica – Bojhos szöllö c) Museum Arad, 14433 d) Sava 2011, Pl. VII/2 e) MA-153985	
7. a) Awl b) Peștera Oilor c) Museum Caransebeș, 676 d) Petrescu, Popescu 1990: Pl. XI. 1 e) MA-153986	

4. Tables

Table 1. Correlation of the Hungarian soil types present in the study region to the WRB (Krasilnikov et al. 2009: 171-175). For the harmonisation of the soil map are considered only those written in bold style.

HCS	WRB
Pseudomyceliar chernozem	**Chernozem**/Kastanozem
Meadow chernozem	**Chernozem**/Vertisol
Meadow solonetz turning into steppe	**Solonetz**/ Chernozem
Meadow soil	Phaeozems/**Chernozem**/Vertisol/Gleysol
Alluvial soil	**Fluvisol**

Table 2. Correlation of the Romanian soil types present in the study region to the WRB. For the harmonisation of the soil map are considered only these written in bold style.

Codes on map	SRCS 1980	SRTS 2012	WRB
AA	Alluvial Protosol	Alluviosol	**Fluvisol**
SA	Alluvial Soil		
CZ	Chernozem	Chernozem	**Chernozem**
CI	Argillo-illuvial Chernozem	Chernozem, Phaeozem	**Chernozem**, Phaeozem

CC	Cambic Chernozem		
ER	Erodisol	sub-type to Anthrosol	**Regosol**
BM	Eu-mesobasic Brown Soil	Eutricambosol	**Cambisol**
LC	Lacoveshte		
GC	Gleyic Soil	Gleyosol	**Gleysol**
BP	Luvic-Brown Soil	Luvosol	
BD	Argillo-illuvial Brown Soil		
BR	Reddish-Brown Soil	Preluvosol	**Luvisol**
SN	Solonetz	Solonetz	**Solonetz**
VS	Vertisol	Vertosol	**Vertisol**
AP	Water	Water	**Water**

Table 3. Correlation of the Serbian soil types present in the study region to the WRB (Vl. Ćirić, P. Benka, pers. comm.).

No.	Soil type	WRB 2015 RSG
5	Chernozem calcareous	
7	Chernozem with signs of swamping in the past	
8	Chernozem with signs of gley in loess	
11	Chernozem salinized or alkalized	
12	Chernozem on sand	Chernozem
13	Chernozem on alluvial deposits	
24	Chernozemlike calcareous Meadow soil	
26	Chernozemlike Meadow soil salinized or alkalized	
9	Chernozem limeless	
25	Chernozemlike limeless Meadow soil and sporadically brownized	Phaeozem
19	Pseudoglej - lessive	Planosol
20	Alluvial gravel-sandy soils	
21	Alluvial loam-clayish soils	
22	Alluvial salinized soils, sporadically alkalized or with spots of solodi soils	Fluvisol
27	Hydromorphic Black soils calcareous	
28	Hydromorphic Black soils limeless	
29	Hydromorphic Black soils salinized	
30	Hydromorphic black limeless soil with spots of solodi soil	Gleysol
33	Hydromorphic mineral gleyed soil, sporadically salinized	
31	Hydromorphic Smonitza soil	Vertisol

32	Hydromorphic Smonitza soil salinized or alkalized	
35	Solonchak soil	Solonchak
36	Solonetz soil, sporadically solonchakic	Solonetz
0	Lakes and Swamps	Water

Table 4. Surface area of the soil types in northwestern Banat

Soil type	Area	Percentage
Cambisol	268.92 km^2	2.95 %
Chernozem	4659.78 km^2	51.14 %
Fluvisol	638.0025 km^2	7.00 %
Gleysol	1529.93 km^2	16.79 %
Luvisol	186.2325 km^2	2.04 %
Phaeozem	147.2175 km^2	1.61 %
Regosol	16.6725 km^2	0.18 %
Solonchak	10.44 km^2	0.11 %
Solonetz	658.5575 km^2	7.22 %
Vertisol	983.885 km^2	10.79 %
Water	10.6375 km^2	0.11 %
Total	9110.275 km^2	100 %

Table 5. Coordinates (WGS 84 / UTM zone 33N), dating and typology of the sites. Abbreviations: Unkn. = Unknown, Approx. = Approximative, Neo. = Neolithic, Eneo. = Eneolithic, EN = Early Neolithic, MN = Middle Neolithic, LN = Late Neolithic, EE = Early Eneolithic, ME = Middle Eneolithic, LE = Late Eneolithic, Flat sett. = Flat settlement, Unspec. sett. = Unspecified settlement.

Site No.	Site name	x	y	Loca-tion	Epoch	Period	Site type
1	Deszk – 1 (Olajkút)	444507	5118246	Precise	Neo.	EN	Flat sett.
2a	Deszk – A	443509	5118684	Precise	Eneo.	EE	Necropolis
2b	Deszk – A	443509	5118684	Precise	Eneo.	LE	Flat sett.
3a	Deszk – B, C, E	440244	5117848	Precise	Neo.	EN	Flat sett.
3b	Deszk – B, C, E	440244	5117848	Precise	Eneo.	EE	Necropolis
4	Deszk – G	449044	5117265	Precise	Neo.	EN	Flat sett.
5	Deszk – Grundstück des A. Barát	-	-	Unkn.	Neo.	LE	Flat sett.
6	Deszk – I (Okopi-dûlő)	445424	5120400	Precise	Neo.	EN	Flat sett.
7	Deszk – Okapi	444274	5120344	Precise	Eneo.	EE	Flat sett.
8a	Deszk – Ordos csatornánál	445844	5117640	Precise	Neo.	EN	Flat sett.
8b	Deszk – Ordos csatornánál	445844	5117640	Precise	Neo.	LN	Flat sett.
9	Deszk – Vénó	445225	5119110	Approx.	Eneo.	EE	Flat sett.
10	Ferencszállás – Somogyi-dûlő	449599	5117828	Precise	Neo.	EN	Flat sett.
11	Kiszombor – 65	453703	5111936	Precise	Neo.	EN	Flat sett.

12	Kiszombor – 80	455596	5112258	Precise	Neo.	EN	Flat sett.
13	Kiszombor – D	-	-	Unkn.	Neo.	EN	Flat sett.
14	Kiszombor – N	-	-	Unkn.	Eneo.	LE	Flat sett.
15	Klárafalva – Nagyérpart	-	-	Unkn.	Eneo.	LE	Flat sett.
16	Klárafalva – Vasút utca	447702	5118299	Precise	Neo.	EN	Flat sett.
17	Klárafalva – Vasútállomás	447315	5116975	Precise	Eneo.	LE	Flat sett.
18	Szeged – Szőreg, Aradi utca 58	437529	5118750	Precise	Eneo.	EE	Flat sett.
19a	Szeged – Szőreg, Homokbánya	437075	5117708	Approx.	Neo.	LN	Flat sett.
19b	Szeged – Szőreg, Homokbánya	437075	5117708	Approx.	Eneo.	EE	Flat sett.
20a	Szeged – Szőreg, Téglagyár	438179	5114552	Precise	Neo.	EN	Flat sett.
20b	Szeged – Szőreg, Téglagyár	438179	5114552	Precise	Eneo.	ME	Flat sett.
021a	Tiszasziget – Agyagbánya	434803	5112828	Precise	Neo.	EN	Flat sett.
21b	Tiszasziget – Agyagbánya	434803	5112828	Precise	Neo.	MN	Flat sett.
21c	Tiszasziget – Agyagbánya	434803	5112828	Precise	Neo.	LN	Flat sett.
21d	Tiszasziget – Agyagbánya	434803	5112828	Precise	Neo.	EE	Flat sett.
22a	Tiszasziget – Andróé-alja (Ószentiván VIII)	434782	5114095	Precise	Neo.	EN	Flat sett.
22b	Tiszasziget – Andróé-alja (Ószentiván VIII)	434782	5114095	Precise	Neo.	MN	Flat sett.
22c	Tiszasziget – Andróé-alja (Ószentiván VIII)	434782	5114095	Precise	Neo.	LN	Tell sett.
22d	Tiszasziget – Andróé-alja (Ószentiván VIII)	434782	5114095	Precise	Eneo.	EE	Necropolis
22e	Tiszasziget – Andróé-alja (Ószentiván VIII)	434782	5114095	Precise	Eneo.	LE	Flat sett.
23	Tiszasziget – Bíró-föld	431925	5113632	Precise	Eneo.	ME	Flat sett.
24a	Tiszasziget – Boján I	437074	5112564	Precise	Neo.	LN	Flat sett.
24b	Tiszasziget – Boján I	437074	5112564	Precise	Eneo.	EE	Flat sett.
25	Tiszasziget – Csürü-föld I	432614	5114220	Precise	Neo.	EN	Flat sett.
26	Tiszasziget – Csürü-föld II	433099	5114346	Precise	Neo.	EN	Flat sett.
27	Tiszasziget – Dögtemető (Ószentiván V)	435352	5112310	Precise	Eneo.	LE	Flat sett.
28	Tiszasziget – Jató II	436129	5112134	Precise	Neo.	EN	Flat sett.
29a	Tiszasziget – Kónya-tanya	431280	5114770	Precise	Neo.	EN	Flat sett.
29b	Tiszasziget – Kónya-tanya	431280	5114770	Precise	Neo.	MN	Flat sett.
30a	Tiszasziget – Papok	432254	5114248	Precise	Neo.	EN	Flat sett.

	földje						
30b	Tiszasziget – Papok földje	432254	5114248	Precise	Eneo.	EE	Flat sett.
30c	Tiszasziget – Papok földje	432254	5114248	Precise	Eneo.	LE	Flat sett.
31	Tiszasziget – Szécsi–tanya	431299	5114481	Precise	Neo.	EN	Flat sett.
32a	Tiszasziget – Szélmalom domb (Ószentiván I & II)	435359	5114359	Precise	Neo.	EN	Flat sett.
32b	Tiszasziget – Szélmalom domb (Ószentiván I & II)	435359	5114359	Precise	Neo.	MN	Flat sett.
32c	Tiszasziget – Szélmalom domb (Ószentiván I & II)	435318	5114334	Precise	Eneo.	EE	Flat sett.
32d	Tiszasziget – Szélmalom domb (Ószentiván I & II)	435359	5114359	Precise	Eneo.	LE	Flat sett.
33	Tiszasziget – Sziget-alja	435062	5112634	Precise	Neo.	EN	Flat sett.
34	Tiszasziget – Szüget-tető	434756	5111615	Precise	Neo.	EN	Flat sett.
35a	Tiszasziget – Templom domb (Ószentiván III)	434986	5113810	Precise	Neo.	EN	Flat sett.
35b	Tiszasziget – Templom domb (Ószentiván III)	434986	5113810	Precise	Neo.	LN	Flat sett.
36	Tiszasziget – Térvár, Fehér-part I	434138	5110559	Precise	Eneo.	ME	Flat sett.
37	Tiszasziget – Térvár, Fehér-part II	433805	5110524	Precise	Neo.	EN	Flat sett.
38	Tiszasziget – Térvári-sziget	433608	5110955	Precise	Neo.	MN	Flat sett.
39a	Tiszasziget – Vedresháza	431251	5114050	Precise	Neo.	MN	Flat sett.
39b	Tiszasziget – Vedresháza	431251	5114050	Precise	Neo.	LN	Flat sett.
39c	Tiszasziget – Vedresháza	431251	5114050	Precise	Eneo.	EE	Necropolis
39d	Tiszasziget – Vedresháza	431251	5114050	Precise	Eneo.	LE	Flat sett.
40a	Arad – Aradul Nou, Bufniți	522063	5110737	Precise	Neo.	EN	Flat sett.
40b	Arad – Aradul Nou, Bufniți	522063	5110737	Precise	Neo.	LN	Flat sett.
40c	Arad – Aradul Nou, Bufniți	522063	5110737	Precise	Eneo.	EE	Flat sett.
40d	Arad – Aradul Nou, Bufniți	522063	5110737	Precise	Eneo.	LE	Flat sett.
41a	Arad – Aradul Nou, Grădina CAP	523528	5110367	Precise	Neo.	EN	Flat sett.
41b	Arad – Aradul Nou, Grădina CAP	523528	5110367	Precise	Eneo.	LE	Flat sett.

042	Băile Călacea – Avicola	507029	5086936	Approx.	Neo.	MN	Unspec. sett.
43	Băile Călacea – Stație	508303	5087776	Approx.	Neo.	MN	Unspec. sett.
44a	Beba Veche – Cărămidăria Baravine	445554	5110514	Approx.	Eneo.	EE	Flat sett.
44b	Beba Veche – Cărămidăria Baravine	445554	5110514	Approx.	Eneo.	ME	Flat sett.
44c	Beba Veche – Cărămidăria Baravine	445554	5110514	Approx.	Eneo.	LE	Flat sett.
45	Beba Veche – Drumul Kiszomborului	449124	5109632	Approx.	Eneo.	EE	Necropolis
46	Becicherecu Mic – Dealul Crucii	502248	5079594	Precise	Neo.	Unkn.	Flat sett.
47	Biled	498732	5085678	Approx.	Neo.	MN	Unspec. sett.
48a	Bodrogu Nou – Către Vale	515540	5109135	Precise	Neo.	MN	Flat sett.
48b	Bodrogu Nou – Către Vale	515540	5109135	Precise	Eneo.	EE	Flat sett.
49	Bodrogu Nou – Pădure	-	-	Unkn.	Eneo.	LE	Flat sett.
50a	Bucovăț – Cremeniș (Gruniul cu cremene)	530154	5067039	Precise	Neo.	MN	Tell sett.
50b	Bucovăț – Cremeniș (Gruniul cu cremene)	530154	5067039	Precise	Eneo.	EE	Tell sett.
51	Carani – Selişte	509677	5085472	Precise	Neo.	LN	Flat sett.
52a	Cenad – Belo Brdo	-	-	Unkn.	Eneo.	EE	Unspec. sett.
52b	Cenad – Belo Brdo	-	-	Unkn.	Eneo.	ME	Flat sett.
53a	Cenei – 1	492959	5061806	Precise	Neo.	EN	Flat sett.
53b	Cenei – 1	492959	5061806	Precise	Neo.	MN	Unspec. sett.
54	Cherestur	-	-	Unkn.	Eneo.	EE	Unspec. sett.
55	Cherestur – 1	451634	5108310	Precise	Neo.	LN	Tell sett.
56	Cherestur – 2	452918	5109087	Precise	Neo.	EN	Flat sett.
57a	Chișoda – Gomilă	515049	5060601	Precise	Neo.	LN	Tell sett.
57b	Chișoda – Gomilă	515049	5060601	Precise	Eneo.	EE	Tell sett.
58	Comloșu Mic	-	-	Unkn.	Neo.	EN	Flat sett.
59	Comloșu Mare – Millevafeld	-	-	Unkn.	Neo.	MN	Flat sett.
60a	Cornești – Dealu Cornet	516853	5082719	Precise	Eneo.	EE	Flat sett.
60b	Cornești – Dealu Cornet	516853	5082719	Precise	Eneo.	ME	Flat sett.
61a	Cornești – Iugosloveni	516510	5084394	Approx.	Neo.	LN	Flat sett.
61b	Cornești – Iugosloveni	516510	5084394	Approx.	Eneo.	EE	Flat sett.
62	Cornești – Jicman	518958	5087001	Precise	Neo.	Unkn.	Flat sett.
63a	Cornești – Reiter	518759	5086084	Precise	Neo.	LN	Flat sett.
63b	Cornești – Reiter	518685	5086085	Precise	Eneo.	EE	Unspec. sett.

64	Cruceni – Malul Timișului	-	-	Unkn.	Neo.	EN	Flat sett.
65a	Cruceni – Strada Cimitirului	490345	5036154	Precise	Neo.	EN	Flat sett.
65b	Cruceni – Strada Cimitirului	490345	5036154	Precise	Neo.	MN	Flat sett.
65c	Cruceni – Strada Cimitirului	490345	5036154	Precise	Eneo.	EE	Flat sett.
66	Diniaș – Casa Albă	496534	5056560	Precise	Neo.	EN	Flat sett.
67a	Diniaș – Gomilă	500622	5058633	Precise	Neo.	LN	Tell sett.
67b	Diniaș – Gomilă	500622	5058633	Precise	Eneo.	EE	Tell sett.
68	Diniaș – Trei Sălcii (Trei Plopi)	-	-	Unkn.	Eneo.	EE	Unspec. sett.
69	Dudeştii Noi – 12	508918	5072163	Precise	Neo.	MN	Flat sett.
70	Dudeștii Noi – 42	509477	5076111	Precise	Eneo.	EE	Flat sett.
71	Dudeștii Vechi – Cociohatul Mic, Ferma 3	451072	5100250	Precise	Neo.	EN	Flat sett.
72	Dudeștii Vechi – Cociohatul Mic, Mihoc	449287	5100305	Precise	Neo.	EN	Flat sett.
73	Dudeștii Vechi – Drumul Cenadului	461628	5101227	Precise	Neo.	EN	Flat sett.
74	Dudeștii Vechi – Kalcsov 1	462028	5100201	Precise	Neo.	EN	Flat sett.
75	Dudeștii Vechi – Movila lui Dragomir	459153	5096678	Precise	Eneo.	LE	Flat sett.
76a	Dudeștii Vechi – Movila lui Deciov	459568	5101252	Precise	Neo.	EN	Flat sett.
76b	Dudeștii Vechi – Movila lui Deciov	459568	5101252	Precise	Neo.	MN	Tell sett.
76c	Dudeștii Vechi – Movila lui Deciov	459568	5101252	Precise	Eneo.	EE	Tell sett.
77	Dudeștii Vechi – Orezărie	462105	5101109	Precise	Neo.	EN	Flat sett.
78	Dudeștii Vechi – Pescărie	459975	5100801	Precise	Neo.	EN	Flat sett.
79	Dudeștii Vechi – Toncivotu	456378	5099651	Precise	Neo.	EN	Flat sett.
80	Dumbrăvița – 3	517878	5073819	Precise	Neo.	EN	Flat sett.
81	Dumbrăvița – Valul Roman	518049	5071748	Precise	Neo.	Unkn.	Flat sett.
82a	Foeni – Cimitirul Ortodox	489604	5038044	Precise	Neo.	LN	Flat sett.
82b	Foeni – Cimitirul Ortodox	489604	5038044	Precise	Eneo.	EE	Flat sett.
83a	Foeni – Gas	487677	5039450	Precise	Neo.	EN	Flat sett.
83b	Foeni – Gas	487843	5039466	Precise	Eneo.	LE	Flat sett.
84	Foeni – Sălaș	489033	5040852	Precise	Neo.	EN	Flat sett.
85	Folea – La Bruși	520651	5040716	Precise	Neo.	LN	Flat sett.
86	Friteaz – Săliște	526127	5095174	Precise	Neo.	Unkn.	Flat sett.
87	Friteaz – Șodol	526704	5097955	Approx.	Neo.	MN	Unspec.

							sett.
88	Ghilad – 1	513043	5036574	Precise	Neo.	MN	Flat sett.
89	Giarmata – Dealu Saradu	527924	5079217	Precise	Neo.	Unkn.	Flat sett.
90	Giarmata – Poiana Lungă	529526	5079095	Precise	Neo.	Unkn.	Flat sett.
91	Giarmata – Satu Bătrân	520705	5074858	Precise	Neo.	Unkn.	Flat sett.
92	Giarmata Vii – 3	523019	5070254	Precise	Eneo.	ME	Flat sett.
93	Giroc – La Pruni	-	-	Unkn.	Neo.	MN	Unspec. sett.
94	Giulvăz – Cimitirul Ortodox	498308	5043681	Precise	Neo.	MN	Flat sett.
95	Giulvăz – Gara	499635	5043917	Approx.	Neo.	EN	Flat sett.
96a	Hodoni – 3	507465	5081511	Precise	Neo.	MN	Flat sett.
96b	Hodoni – 3	507465	5081511	Precise	Eneo.	EE	Flat sett.
97a	Hodoni – Pocioroane	507114	5082542	Precise	Neo.	LN	Flat sett.
97b	Hodoni – Pocioroane	507114	5082542	Precise	Eneo.	EE	Flat sett.
98	Hunedoara Timișană – Selište	525166	5097484	Precise	Neo.	Unkn.	Flat sett.
99a	Igriș – Iarc	483233	5104483	Precise	Neo.	EN	Flat sett.
99b	Igriș – Iarc	483233	5104483	Precise	Eneo.	EE	Flat sett.
100	Igriș – Vaoș	484372	5104755	Precise	Neo.	MN	Flat sett.
101	Liebling – 62	526084	5053920	Precise	Eneo.	EE	Flat sett.
102	Liebling – Digul Tofaia	525975	5043308	Precise	Eneo.	LE	Flat sett.
103	Liebling – Drumul Iclozii	525806	5050901	Precise	Eneo.	LE	Flat sett.
104	Macedonia	-	-	Unkn.	Neo.	LN	Unspec. sett.
105	Moșnița Nouă – 03	523785	5063538	Precise	Neo.	Unkn.	Flat sett.
106	Moșnița Nouă – 04	524026	5063675	Precise	Neo.	Unkn.	Flat sett.
107	Moșnița Nouă – 05	523994	5063766	Precise	Neo.	Unkn.	Flat sett.
108	Moșnița Nouă – 07 & 08	524539	5063641	Precise	Neo.	MN	Flat sett.
109	Moșnița Nouă – 17	526145	5063089	Precise	Neo.	Unkn.	Flat sett.
110	Moșnița Veche – 01	525422	5063832	Precise	Neo.	MN	Flat sett.
111	Moșnița Veche – 02	524500	5063828	Precise	Neo.	Unkn.	Flat sett.
112	Moșnița Veche – 03	524374	5063929	Precise	Neo.	Unkn.	Flat sett.
113	Moșnița Veche – 14	524259	5064754	Precise	Eneo.	EE	Flat sett.
114	Moșnița Veche – 25	523374	5064674	Precise	Neo.	Unkn.	Flat sett.
115	Moșnița Veche – 38	525814	5066141	Precise	Neo.	Unkn.	Flat sett.
116	Moșnița Veche – 42	526267	5067276	Precise	Neo.	Unkn.	Flat sett.
117	Moșnița Veche – 49	526280	5065627	Precise	Eneo.	LE	Tumulus
118a	Moșnița Veche – 51	527293	5066449	Precise	Neo.	Unkn.	Flat sett.
118b	Moșnița Veche – 51	527293	5066449	Precise	Eneo.	Unkn.	Flat sett.
119	Moșnița Veche – 52	527517	5066837	Precise	Neo.	Unkn.	Flat sett.
120	Moșnița Veche – 54	527837	5066901	Precise	Neo.	Unkn.	Flat sett.
121	Moșnița Veche – 55	525494	5065293	Precise	Neo.	Unkn.	Flat sett.

122	Moșnița Veche – 57	526930	5065046	Precise	Neo.	Unkn.	Flat sett.
123	Moșnița Veche – Dealul Sălaș	524086	5064516	Precise	Neo.	LN	Flat sett.
124a	Nerău	-	-	Unkn.	Eneo.	ME	Flat sett.
124b	Nerău	-	-	Unkn.	Eneo.	LE	Flat sett.
125	Obad – 1	512485	5042554	Precise	Eneo.	EE	Flat sett.
126	Orțișoara	-	-	Unkn.	Eneo.	ME	Flat sett.
127	Otelec – Drumul Sânmartinului	489785	5051664	Precise	Eneo.	LE	Flat sett.
128	Parța – 3	509574	5053199	Precise	Neo.	LN	Flat sett.
129a	Parța – 5	508538	5052359	Precise	Neo.	EN	Flat sett.
129b	Parța – 5	508538	5052359	Precise	Neo.	LN	Flat sett.
129c	Parța – 5	508538	5052359	Precise	Eneo.	EE	Flat sett.
129d	Parța – 5	508538	5052359	Precise	Eneo.	LE	Flat sett.
130a	Parța – 6	511250	5053662	Precise	Neo.	MN	Flat sett.
130b	Parța – 6	511250	5053662	Precise	Eneo.	Unkn.	Flat sett.
131	Parța – Sartășu	-	-	Unkn.	Neo.	LN	Flat sett.
132	Parța – Șaitoș (La vaci)	509340	5052512	Approx.	Eneo.	EE	Flat sett.
133	Parța – Șurca Bara	509322	5051991	Approx.	Neo.	Unkn.	Unspec. sett.
134a	Parța – Tell 1	509122	5052697	Precise	Neo.	MN	Tell sett.
134b	Parța – Tell 1	509122	5052697	Precise	Eneo.	EE	Tell sett.
135a	Parța – Tell 2	508872	5052729	Precise	Neo.	EN	Flat sett.
135b	Parța – Tell 2	508872	5052729	Precise	Neo.	LN	Tell sett.
136	Pădureni – 22	515744	5049658	Precise	Neo.	EN	Flat sett.
137a	Pădureni – Smithfield	515173	5049429	Precise	Neo.	EN	Flat sett.
137b	Pădureni – Smithfield	515173	5049429	Precise	Eneo.	LE	Flat sett.
138	Periam Port	-	-	Unkn.	Eneo.	EE	Unspec. sett.
139	Pișchia – 1	527704	5082816	Precise	Neo.	Unkn.	Flat sett.
140	Pișchia – 3	529728	5084455	Precise	Neo.	Unkn.	Flat sett.
141	Pișchia – 4	529310	5081564	Precise	Neo.	Unkn.	Flat sett.
142	Pișchia – 6	528907	5083742	Precise	Neo.	Unkn.	Unspec. sett.
143	Pișchia – 7	527986	5083157	Precise	Neo.	Unkn.	Flat sett.
144	Pișchia – 9	-	-	Unkn.	Neo.	MN	Unspec. sett.
145	Pustiniș – Hodaie	489798	5054535	Approx.	Neo.	EN	Flat sett.
146	Satchinez – IX	502793	5086254	Precise	Neo.	MN	Flat sett.
147	Săcălaz	-	-	Unkn.	Neo.	Unkn.	Unspec. sett.
148	Sânandrei – 7	512136	5077408	Precise	Eneo.	ME	Flat sett.
149a	Sânandrei – Ocsaplatz (Oxenbrickel)	513992	5077509	Precise	Neo.	MN	Tell sett.
149b	Sânandrei – Ocsaplatz (Oxenbrickel)	513992	5077509	Precise	Neo.	LN	Tell sett.
150	Sânmartinu Sârbesc – Grădiște	495344	5049357	Precise	Neo.	LN	Unspec. sett.

151a	Sânmihaiu Român – Deal	505533	5060117	Precise	Neo.	EN	Flat sett.
151b	Sânmihaiu Român – Deal	505533	5060117	Precise	Neo.	LN	Unspec. sett.
152a	Sânnicolau Mare	-	-	Unkn.	Neo.	LN	Unspec. sett.
152b	Sânnicolau Mare	-	-	Unkn.	Eneo.	EE	Unspec. sett.
153a	Sânnicolau Mare – Bucova Pusta III.1	-	-	Unkn.	Neo.	EN	Flat sett.
153b	Sânnicolau Mare – Bucova Pusta III.1	-	-	Unkn.	Neo.	LN	Flat sett.
153c	Sânnicolau Mare – Bucova Pusta III.1	-	-	Unkn.	Eneo.	EE	Flat sett.
153d	Sânnicolau Mare – Bucova Pusta III.1	-	-	Unkn.	Eneo.	ME	Flat sett.
154a	Sânnicolau Mare – Bucova Pusta IV	464194	5102275	Precise	Neo.	EN	Flat sett.
154b	Sânnicolau Mare – Bucova Pusta IV	464230	5102302	Precise	Eneo.	LE	Tumulus
155	Sânnicolau Mare – Bucova Pusta VI & VII	464335	5101667	Precise	Neo.	EN	Flat sett.
156	Sânnicolau Mare – Hunca Mare (Bucova Pusta IX)	464424	5101429	Precise	Eneo.	LE	Tumulus
157	Sânnicolau Mare – La stuf	466426	5102128	Precise	Neo.	LN	Tell sett.
158	Sânnicolau Mare – Seliște	473501	5101734	Approx.	Eneo.	LE	Flat sett.
159a	Sânpetru German – Cărămidărie	503974	5107375	Approx.	Neo.	LN	Flat sett.
159b	Sânpetru German – Cărămidărie	503974	5107375	Approx.	Eneo.	LE	Flat sett.
160a	Sânpetru German – Fântâna Vacilor	504695	5106479	Precise	Eneo.	ME	Necropolis
160b	Sânpetru German – Fântâna Vacilor	504695	5106479	Precise	Eneo.	LE	Flat sett.
161a	Sânpetru German – Malul Înalt	503309	5108690	Approx.	Eneo.	ME	Flat sett.
161b	Sânpetru German – Malul Înalt	503309	5108690	Approx.	Eneo.	LE	Flat sett.
162	Șag – 2	-	-	Unkn.	Eneo.	EE	Unspec. sett.
163	Șag – Gostat	512947	5055118	Precise	Neo.	LN	Unspec. sett.
164	Timișoara – 3	510327	5072025	Precise	Neo.	MN	Flat sett.
165a	Timișoara – Fratelia, Fabrica de Cărămidă	515615	5062519	Precise	Neo.	EN	Flat sett.
165b	Timișoara – Fratelia, Fabrica de Cărămidă	515615	5062519	Precise	Neo.	MN	Flat sett.
166a	Timișoara – Freidorf I (Hladnik)	512902	5059211	Precise	Neo.	MN	Flat sett.
166b	Timișoara – Freidorf I	512902	5059211	Precise	Neo.	LN	Flat sett.

	(Hladnik)						
166c	Timișoara – Freidorf I (Hladnik)	512902	5059211	Precise	Eneo.	EE	Flat sett.
167a	Timișoara – Freidorf IV	514281	5062760	Precise	Neo.	MN	Flat sett.
167b	Timișoara – Freidorf IV	514173	5063014	Precise	Eneo.	LE	Flat sett.
168a	Timișoara – Mehala IV	513617	5067892	Precise	Eneo.	EE	Flat sett.
168b	Timișoara – Mehala IV	513617	5067892	Precise	Eneo.	LE	Flat sett.
169	Timișoara – Ronaț, Triaj	513509	5069825	Precise	Neo.	LN	Flat sett.
170a	Uivar – Gomilă	492150	5055274	Precise	Neo.	MN	Tell sett.
170b	Uivar – Gomilă	492150	5055274	Precise	Neo.	LN	Tell sett.
170c	Uivar – Gomilă	492150	5055274	Precise	Eneo.	EE	Tell sett.
171	Uliuc – Timiș	528435	5059250	Precise	Neo.	EN	Flat sett.
172a	Unip – La Vișini (Liebling 100)	525273	5054034	Precise	Neo.	EN	Flat sett.
172b	Unip – La Vișini (Liebling 100)	525273	5054034	Precise	Neo.	LN	Tell sett.
173a	Vinga – Izvor	515387	5094086	Approx.	Neo.	MN	Flat sett.
173b	Vinga – Izvor	515262	5093871	Approx.	Eneo.	EE	Flat sett.
174	Zădăreni – La vii	-	-	Unkn.	Eneo.	LE	Flat sett.
175	Aradac – Kameniti vinogradi	446605	5024661	Approx.	Neo.	MN	Tell sett.
176	Aradac – Leje	442287	5026471	Precise	Neo.	EN	Flat sett.
177	Aradac – Orolja	-	-	Unkn.	Neo.	Unkn.	Unspec. sett.
178	Aradac – Veliki siget	-	-	Unkn.	Neo.	EN	Flat sett.
179	Banatski Monoštor – Bašće	444380	5089435	Approx.	Neo.	EN	Flat sett.
180	Banatski Monoštor – Humka	-	-	Unkn.	Neo.	EN	Flat sett.
181	Banatski Monoštor – Road to Vălcani	-	-	Unkn.	Neo.	LN	Unspec. sett.
182	Banatsko Aranđelovo – 08	440160	5105118	Precise	Neo.	LN	Flat sett.
183	Banatsko Aranđelovo – 10	441404	5096662	Precise	Neo.	EN	Flat sett.
184	Banatsko Aranđelovo – 17	438811	5103384	Precise	Neo.	EN	Flat sett.
185	Banatsko Aranđelovo – 20	439887	5103140	Precise	Neo.	Unkn.	Flat sett.
186	Banatsko Aranđelovo – 22	439169	5102007	Precise	Neo.	Unkn.	Flat sett.
187	Banatsko Aranđelovo – 38	447021	5098261	Precise	Neo.	Unkn.	Flat sett.
188	Banatsko Aranđelovo – 59	441854	5097633	Precise	Neo.	EN	Flat sett.
189	Banatsko Aranđelovo – Brdo zapad	441187	5098577	Precise	Neo.	EN	Flat sett.
190	Banatsko Aranđelovo – Fazanerija	443568	5101334	Precise	Neo.	LN	Flat sett.
191a	Banatsko Aranđelovo –	441121	5100088	Precise	Neo.	EN	Flat sett.

	Obala selešto						
191b	Banatsko Aranđelovo – Obala selešto	441121	5100088	Precise	Eneo.	LE	Flat sett.
192	Bašaid – Jeseni vinogradi (Jankova ciglana)	453908	5056342	Approx.	Neo.	EN	Flat sett.
193a	Bočar – Mala Odaja	443371	5068754	Precise	Neo.	EN	Flat sett.
193b	Bočar – Mala Odaja	443371	5068754	Precise	Neo.	MN	Flat sett.
193c	Bočar – Mala Odaja	443371	5068754	Precise	Eneo.	LE	Flat sett.
194	Bočar – Petrić Nenada	444256	5069126	Approx.	Neo.	EN	Flat sett.
195	Bočar – Staro groblje	-	-	Unkn.	Eneo.	LE	Flat sett.
196	Crna Bara – Papir-Livade	448054	5092675	Approx.	Neo.	EN	Flat sett.
197a	Crna Bara – Prkos	442700	5091904	Precise	Neo.	EN	Flat sett.
197b	Crna Bara – Prkos	442700	5091904	Precise	Neo.	MN	Tell sett.
197c	Crna Bara – Prkos	442700	5091904	Precise	Eneo.	EE	Tell sett.
197d	Crna Bara – Prkos	442700	5091904	Precise	Eneo.	ME	Flat sett.
198	Crna Bara – Road to Vălcani	-	-	Unkn.	Neo.	EN	Flat sett.
199a	Čoka – Kremenjak	432271	5087509	Precise	Neo.	MN	Tell sett.
199b	Čoka – Kremenjak	432271	5087509	Precise	Neo.	LN	Tell sett.
199c	Čoka – Kremenjak	432271	5087509	Approx.	Eneo.	EE	Necropolis
199d	Čoka – Kremenjak	432271	5087509	Approx.	Eneo.	ME	Necropolis
200	Đala – 11	431323	5111877	Precise	Neo.	Unkn.	Flat sett.
201	Elemir – Mazgina humka	442462	5035518	Precise	Neo.	EN	Flat sett.
202	Elemir – Zabran	-	-	Unkn.	Neo.	EN	Flat sett.
203	Iđoš – Budžak-Livade	453550	5077568	Precise	Neo.	MN	Flat sett.
204a	Iđoš – Gradište	452551	5077928	Precise	Neo.	EN	Flat sett.
204b	Iđoš – Gradište	452551	5077928	Precise	Neo.	MN	Tell sett.
205a	Iđoš – Kečkeler	450438	5079833	Approx.	Neo.	EN	Flat sett.
205b	Iđoš – Kečkeler	450438	5079833	Approx.	Eneo.	Unkn.	Unspec. sett.
206	Iđoš – Livade	451308	5078895	Approx.	Neo.	EN	Flat sett.
207	Majdan – 13	442420	5106124	Precise	Eneo.	EE	Flat sett.
208	Majdan – 27	441353	5105963	Precise	Neo.	Unkn.	Flat sett.
209	Majdan – 29	442007	5105751	Precise	Eneo.	EE	Flat sett.
210	Majdan – 39	443937	5102458	Precise	Neo.	EN	Flat sett.
211	Majdan – 43	439285	5105863	Precise	Neo.	Unkn.	Flat sett.
212	Majdan – 46	442347	5106763	Precise	Eneo.	LE	Flat sett.
213	Mokrin – Arađanska humka	455884	5086726	Approx.	Eneo.	LE	Tumulus
214a	Mokrin – Hegedišev vinograd	455613	5087147	Approx.	Neo.	EN	Flat sett.
214b	Mokrin – Hegedišev vinograd	455613	5087147	Approx.	Neo.	MN	Flat sett.
214c	Mokrin – Hegedišev vinograd	455613	5087147	Approx.	Eneo.	LE	Flat sett.

215	Mokrin – Ritić	-	-	Unkn.	Neo.	EN	Flat sett.
216	Mokrin – Papir	447462	5087844	Approx.	Neo.	EN	Flat sett.
217	Novi Bečej – Borđoš	430918	5042102	Precise	Neo.	LN	Tell sett.
218a	Novi Bečej – Matejski Brod	435928	5055442	Precise	Neo.	EN	Flat sett.
218b	Novi Bečej – Matejski Brod	435928	5055442	Precise	Neo.	MN	Tell sett.
218c	Novi Bečej – Matejski Brod	435928	5055442	Precise	Neo.	LN	Tell sett.
219	Novi Bečej – Silošpart	-	-	Unkn.	Neo.	EN	Flat sett.
220	Novi Kneževac – 02	429396	5101635	Precise	Neo.	Unkn.	Flat sett.
221	Novi Kneževac – 09	433435	5099770	Precise	Neo.	Unkn.	Flat sett.
222	Novi Kneževac – 11	434110	5100140	Precise	Neo.	Unkn.	Flat sett.
223	Novi Kneževac – Brestik	439059	5096073	Precise	Neo.	EN	Flat sett.
224a	Novi Kneževac – Budžak majur	437894	5098083	Precise	Neo.	EN	Flat sett.
224b	Novi Kneževac – Budžak majur	437894	5098083	Precise	Eneo.	EE	Flat sett.
224c	Novi Kneževac – Budžak majur	437894	5098083	Precise	Eneo.	LE	Flat sett.
225	Novi Kneževac – Budžak-slatina	436161	5099566	Precise	Neo.	EN	Flat sett.
226	Novi Kneževac – Halaska Siget	-	-	Unkn.	Eneo.	E/M_E	Unspec. sett.
227	Novi Kneževac – Japina Koliba	429713	5097239	Approx.	Eneo.	LE	Tumulus
228a	Novi Kneževac – Kamara humka	435048	5103074	Precise	Neo.	MN	Tell sett.
228b	Novi Kneževac – Kamara humka	435048	5103074	Precise	Neo.	LN	Tell sett.
228c	Novi Kneževac – Kamara humka	435048	5103074	Precise	Eneo.	ME	Flat sett.
229	Novi Kneževac – Park	429508	5099790	Precise	Neo.	EN	Flat sett.
230a	Novi Kneževac – Širine	431424	5099633	Precise	Neo.	EN	Flat sett.
230b	Novi Kneževac – Širine	431424	5099633	Precise	Neo.	MN	Tell sett.
230c	Novi Kneževac – Širine	431424	5099633	Precise	Neo.	LN	Tell sett.
230d	Novi Kneževac – Širine	431424	5099633	Precise	Eneo.	LE	Flat sett.
231	Novi Kneževac – Širine-sever	431591	5101839	Precise	Neo.	EN	Flat sett.
232	Novo Miloševo – Akači grob	439434	5065357	Precise	Neo.	EN	Flat sett.
233	Novo Miloševo – Mali Akač I	442299	5063763	Precise	Neo.	EN	Flat sett.
234a	Novo Miloševo – Mali Akač II	441091	5061524	Precise	Neo.	EN	Flat sett.
234b	Novo Miloševo – Mali Akač II	441091	5061524	Precise	Neo.	MN	Flat sett.
234c	Novo Miloševo – Mali Akač II	441091	5061524	Precise	Neo.	LN	Flat sett.
235a	Novo Miloševo –	439192	5068811	Approx.	Neo.	EN	Flat sett.

	Prečka						
235b	Novo Miloševo – Prečka	439192	5068811	Approx.	Eneo.	Unkn.	Flat sett.
236	Ostojićjevo – Nad Markučevom kopovom	442583	5088592	Approx.	Neo.	EN	Flat sett.
237	Ostojićjevo – Taladj	443223	5087929	Approx.	Neo.	EN	Flat sett.
238a	Padej – Barnahat	440118	5076310	Precise	Eneo.	LE	Flat sett.
238b	Padej – Barnahat	440118	5076310	Precise	Eneo.	LE	Tumulus
239	Padej – Ibelaj	441004	5074236	Approx.	Neo.	EN	Flat sett.
240a	Padej – Katahat	439838	5077811	Precise	Neo.	EN	Flat sett.
240b	Padej – Katahat	439838	5077811	Precise	Neo.	MN	Flat sett.
241	Padej – Pesir	432150	5078179	Approx.	Neo.	EN	Flat sett.
242	Podlokanj – Debelica	443978	5097635	Approx.	Neo.	EN	Flat sett.
243a	Podlokanj – Južne Bašte	443043	5096034	Precise	Neo.	EN	Flat sett.
243b	Podlokanj – Južne Bašte	443152	5096024	Precise	Neo.	MN	Flat sett.
243c	Podlokanj – Južne Bašte	443175	5096038	Precise	Eneo.	EE	Necropolis
243d	Podlokanj – Južne Bašte	443175	5096038	Precise	Eneo.	ME	Necropolis
244	Podlokanj – Kočovat	447921	5098955	Precise	Neo.	EN	Flat sett.
245	Podlokanj – Selo-jug	443963	5096169	Precise	Neo.	EN	Flat sett.
246	Podlokanj – Sirovičin Budžak-istok	442171	5095635	Precise	Neo.	EN	Flat sett.
247a	Podlokanj – Sirovičin Budžak-zapad	441661	5095812	Precise	Neo.	EN	Flat sett.
247b	Podlokanj – Sirovičin Budžak-zapad	441661	5095812	Precise	Neo.	MN	Flat sett.
248	Podlokanj – Velike Livade	-	-	Unkn.	Neo.	EN	Flat sett.
249	Rabe – Anka Siget	441776	5105963	Precise	Eneo.	EE	Unspec. sett.
250	Rabe – Šaširaš	441475	5105865	Precise	Neo.	EN	Flat sett.
251	Sajan – Domboš (Jaroš)	444106	5074944	Approx.	Neo.	EN	Flat sett.
252	Sajan – Kasalo	442994	5078130	Approx.	Neo.	EN	Flat sett.
253	Sajan – Kremenjak	446123	5076726	Precise	Neo.	MN	Flat sett.
254	Sajan – Nagy port	444057	5078101	Approx.	Neo.	EN	Flat sett.
255	Sanad – Sanadske livade	440493	5092409	Approx.	Neo.	EN	Flat sett.
256	Sanad – Zlatan breg	-	-	Unkn.	Neo.	EN	Flat sett.
257	Siget – Jug sela	440451	5102652	Precise	Neo.	EN	Flat sett.
258	Srpski Krstur – 01	429032	5110200	Precise	Neo.	EN	Flat sett.
259	Srpski Krstur – 07	430468	5108130	Precise	Neo.	MN	Flat sett.
260	Srpski Krstur – 10	431577	5108024	Precise	Neo.	Unkn.	Flat sett.
261	Srpski Krstur – 11 & 12	432437	5108185	Precise	Neo.	EN	Flat sett.
262	Srpski Krstur – 14	433935	5107310	Precise	Neo.	Unkn.	Flat sett.
263	Srpski Krstur – 20	433512	5105327	Precise	Neo.	Unkn.	Flat sett.
264	Srpski Krstur – 26	435587	5105778	Precise	Neo.	Unkn.	Flat sett.

265	Srpski Krstur – 28	435358	5106726	Precise	Neo.	Unkn.	Flat sett.
266	Srpski Krstur – 34	436790	5105107	Precise	Neo.	EN	Flat sett.
267	Srpski Krstur – 42	438150	5106521	Precise	Neo.	Unkn.	Flat sett.
268a	Srpski Krstur – Bajir	428316	5109026	Precise	Neo.	MN	Flat sett.
268b	Srpski Krstur – Bajir	428316	5109026	Precise	Neo.	LN	Flat sett.
268c	Srpski Krstur – Bajir	428316	5109026	Precise	Eneo.	EE	Necropolis
268d	Srpski Krstur – Bajir	428316	5109026	Precise	Eneo.	LE	Flat sett.
269	Srpski Krstur – Slatinska humka	431664	5109821	Precise	Eneo.	LE	Tumulus
270a	Šurjan – Govedareva humka	489461	5026742	Approx.	Neo.	EN	Flat sett.
270b	Šurjan – Govedareva humka	489461	5026742	Approx.	Eneo.	EE	Unspec. sett.
270c	Šurjan – Govedarova humka	489461	5026742	Approx.	Eneo.	LE	Flat sett.
271	Taraš – Selište	435137	5038709	Precise	Neo.	MN	Flat sett.
272	Vrbica – Škola	446646	5095408	Approx.	Neo.	EN	Flat sett.
273	Zrenjanin – Fabrika piva	452818	5025132	Approx.	Neo.	EN	Flat sett.
274	Zrenjanin – Maksim Gorki	-	-	Unkn.	Neo.	EN	Flat sett.

Table 6. Distribution of site categories per period. Abbreviations: EN = Early Neolithic, MN = Middle Neolithic, LN = Late Neolithic, EE = Early Eneolithic, ME = Middle Eneolithic, LE = Late Eneolithic.

Periods	Flat settlements	Tell settlements	Unspecified settlements	Necropolises	Tumuli (investigated)	Total sites
EN	119	0	0	0	0	119
MN	32	14	7	0	0	53
LN	25	16	6	0	0	47
EE	31	7	9	8	0	55
ME	14	0	0	3	0	17
LE	39	0	0	0	7	46

Table 7. Ditribution of settlements according to elevation groups of 10 masl. Abbreviations: EN = Early Neolithic, MN = Middle Neolithic, LN = Late Neolithic, EE = Early Eneolithic, ME = Middle Eneolithic, LE = Late Eneolithic.

Elevation	**EN**	**MN**	**LN**	**EE**	**ME**	**LE**
70-79	92	29	22	20	6	20
80-89	10	13	11	10	2	5
90-99	2	3	3	4	-	4
100-109	2	3	2	2	1	3
110-119	-	1	-	-	-	-

120-129	-	-	1	3	1	-
130-139	-	-	1	1	-	-
140-149	-	-	-	-	-	-
150-159	-	1	-	-	-	-
	106	**50**	**40**	**40**	**10**	**32**

Table 8. Area of the settlements. Abbreviations: EN = Early Neolithic, MN = Middle Neolithic, LN = Late Neolithic, EE = Early Eneolithic, ME = Middle Eneolithic, LE = Late Eneolithic.

Site no.	Site name	Area (ha)	Reliability	Epoch	Period
001	Deszk – 1 (Olajkút)	1	reliable	Neolithic	EN
004	Deszk – G	1	reliable	Neolithic	EN
006	Deszk – I (Okopi-dûlő)	1	reliable	Neolithic	EN
008a	Deszk – Ordos csatornánál	1	unreliable	Neolithic	EN
008b	Deszk – Ordos csatornánál	1	unreliable	Neolithic	LN
010	Ferencszállás – Somogyi-dûlő	1	reliable	Neolithic	EN
011	Kiszombor – 65	2	reliable	Neolithic	EN
012	Kiszombor – 80	2	reliable	Neolithic	EN
020a	Szeged – Szőreg, Téglagyár	2	unreliable	Neolithic	EN
020b	Szeged – Szőreg, Téglagyár	2	unreliable	Eneolithic	ME
021a	Tiszasziget – Agyagbánya	3.5	unreliable	Neolithic	EN
021b	Tiszasziget – Agyagbánya	3.5	unreliable	Neolithic	MN
021c	Tiszasziget – Agyagbánya	3.5	unreliable	Neolithic	LN
021d	Tiszasziget – Agyagbánya	3.5	unreliable	Neolithic	EE
022a	Tiszasziget – Andróé-alja (Ószentiván VIII)	4	unreliable	Neolithic	EN
022b	Tiszasziget – Andróé-alja (Ószentiván VIII)	4	unreliable	Neolithic	MN
022c	Tiszasziget – Andróé-alja (Ószentiván VIII)	4	unreliable	Neolithic	LN
022e	Tiszasziget – Andróé-alja (Ószentiván VIII)	4	unreliable	Eneolithic	LE
023	Tiszasziget – Bíró-föld	1	reliable	Eneolithic	ME
025	Tiszasziget – Csürü-föld I	1	unreliable	Neolithic	EN
026	Tiszasziget – Csürü-föld II	1	reliable	Neolithic	EN
028	Tiszasziget – Jató II	1	reliable	Neolithic	EN
029a	Tiszasziget – Kónya-tanya	3	unreliable	Neolithic	EN
029b	Tiszasziget – Kónya-tanya	3	unreliable	Neolithic	MN
030a	Tiszasziget – Papok földje	6	unreliable	Neolithic	EN
030b	Tiszasziget – Papok földje	6	unreliable	Eneolithic	EE
030c	Tiszasziget – Papok földje	6	unreliable	Eneolithic	LE
031	Tiszasziget – Szécsi–tanya	1	reliable	Neolithic	EN
032a	Tiszasziget – Szélmalom domb (Ószentiván I & II)	14	unreliable	Neolithic	EN
032b	Tiszasziget – Szélmalom domb (Ószentiván I & II)	14	unreliable	Neolithic	MN

032d	Tiszasziget – Szélmalom domb (Ószentiván I & II)	14	unreliable	Eneolithic	LE
033	Tiszasziget – Sziget-alja	1	reliable	Neolithic	EN
034	Tiszasziget – Szüget-tető	3	unreliable	Neolithic	EN
035a	Tiszasziget – Templom domb (Ószentiván III)	10	unreliable	Neolithic	EN
035b	Tiszasziget – Templom domb (Ószentiván III)	10	unreliable	Neolithic	LN
037	Tiszasziget – Térvár, Fehér-part II	2.5	unreliable	Neolithic	EN
038	Tiszasziget – Térvári-sziget	1	reliable	Neolithic	MN
050a	Bucovăț – Cremeniș (Gruniul cu cremene)	3	reliable	Neolithic	MN
051	Carani – Selişte	2.5	unreliable	Neolithic	LN
055	Cherestur – 1	6	unreliable	Neolithic	LN
056	Cherestur – 2	3	reliable	Neolithic	EN
057a	Chișoda – Gomilă	5	reliable	Neolithic	LN
060a	Cornești – Dealu Cornet	1.6	unreliable	Eneolithic	EE
060b	Cornești – Dealu Cornet	1.6	unreliable	Eneolithic	ME
063b	Cornești – Reiter	2.5	reliable	Eneolithic	EE
067a	Diniaș – Gomilă	7	unreliable	Neolithic	LN
067b	Diniaș – Gomilă	7	unreliable	Eneolithic	EE
069	Dudeştii Noi – 12	3	reliable	Neolithic	MN
070	Dudeştii Noi – 42	7	unreliable	Eneolithic	EE
073	Dudeștii Vechi – Drumul Cenadului	0.3	reliable	Neolithic	EN
074	Dudeștii Vechi – Kalcsov 1	1	reliable	Neolithic	EN
076a	Dudeștii Vechi – Movila lui Deciov	2	reliable	Neolithic	EN
077	Dudeștii Vechi – Orezărie	1	reliable	Neolithic	EN
078	Dudeștii Vechi – Pescărie	0.3	reliable	Neolithic	EN
079	Dudeștii Vechi – Toncivotu	0.5	reliable	Neolithic	EN
082a	Foeni – Cimitirul Ortodox	2	unreliable	Neolithic	LN
082b	Foeni – Cimitirul Ortodox	2	unreliable	Eneolithic	EE
084	Foeni – Sălaș	0.5	reliable	Neolithic	EN
085	Folea – La Bruși	2	reliable	Neolithic	LN
088	Ghilad – 1	5	unreliable	Neolithic	MN
090	Giarmata – Poiana Lungă	8	unreliable	Neolithic	Unknown
091	Giarmata – Satu Bătrân	2.5	unreliable	Neolithic	Unknown
092	Giarmata Vii – 3	3	reliable	Eneolithic	ME
094	Giulvăz – Cimitirul Ortodox	3	reliable	Neolithic	MN
096a	Hodoni – 3	5	unreliable	Neolithic	MN
096b	Hodoni – 3	5	unreliable	Eneolithic	EE
097a	Hodoni – Pocioroane	0.3	reliable	Neolithic	LN
097b	Hodoni – Pocioroane	0.3	reliable	Eneolithic	EE
098	Hunedoara Timișană – Selişte	8	unreliable	Neolithic	Unknown
099a	Igriș – Iarc	6	unreliable	Neolithic	EN
099b	Igriș – Iarc	6	unreliable	Eneolithic	EE
100	Igriș – Vaoș	30	unreliable	Neolithic	MN

101	Liebling – 62	0.5	reliable	Eneolithic	EE
102	Liebling – Digul Tofaia	1	unreliable	Eneolithic	LE
103	Liebling – Drumul Iclozii	2.5	unreliable	Eneolithic	LE
105	Moșnița Nouă – 03	2	reliable	Neolithic	Unknown
106	Moșnița Nouă – 04	2	reliable	Neolithic	Unknown
107	Moșnița Nouă – 05	0.5	reliable	Neolithic	Unknown
108	Moșnița Nouă – 07 & 08	4	reliable	Neolithic	MN
109	Moșnița Nouă – 17	1	reliable	Neolithic	Unknown
110	Moșnița Veche – 01	2	unreliable	Neolithic	MN
111	Moșnița Veche – 02	0.25	reliable	Neolithic	Unknown
112	Moșnița Veche – 03	0.5	reliable	Neolithic	Unknown
113	Moșnița Veche – 14	3	unreliable	Eneolithic	EE
114	Moșnița Veche – 25	2	unreliable	Neolithic	Unknown
115	Moșnița Veche – 38	0.25	unreliable	Neolithic	Unknown
116	Moșnița Veche – 42	3	unreliable	Neolithic	Unknown
118a	Moșnița Veche – 51	4	unreliable	Neolithic	Unknown
118b	Moșnița Veche – 51	4	unreliable	Eneolithic	Unknown
119	Moșnița Veche – 52	0.5	reliable	Neolithic	Unknown
120	Moșnița Veche – 54	1	unreliable	Neolithic	Unknown
121	Moșnița Veche – 55	0.25	reliable	Neolithic	Unknown
122	Moșnița Veche – 57	1	unreliable	Neolithic	Unknown
123	Moșnița Veche – Dealul Sălaș	5	unreliable	Neolithic	LN
125	Obad – 1	18	unreliable	Eneolithic	EE
127	Otelec – Drumul Sânmartinului	1.4	reliable	Eneolithic	LE
128	Parța – 3	6	reliable	Neolithic	LN
134a	Parța – Tell 1	2.5	reliable	Neolithic	MN
135b	Parța – Tell 2	1	reliable	Neolithic	LN
136	Pădureni – 22	1	reliable	Neolithic	EN
137a	Pădureni – Smithfield	2.5	unreliable	Neolithic	EN
137b	Pădureni – Smithfield	2.5	unreliable	Eneolithic	LE
139	Pișchia – 1	10	unreliable	Neolithic	Unknown
140	Pișchia – 3	5	unreliable	Neolithic	Unknown
141	Pișchia – 4	5	reliable	Neolithic	Unknown
142	Pișchia – 6	7	unreliable	Neolithic	Unknown
143	Pișchia – 7	5	unreliable	Neolithic	Unknown
148	Sânandrei – 7	0.7	reliable	Eneolithic	ME
149a	Sânandrei – Ocsaplatz (Oxenbrickel)	3	reliable	Neolithic	MN
149b	Sânandrei – Ocsaplatz (Oxenbrickel)	3	reliable	Neolithic	LN
150	Sânmartinu Sârbesc – Grădiște	6	unreliable	Neolithic	LN
154a	Sânnicolau Mare – Bucova Pusta IV	2	reliable	Neolithic	EN
157	Sânnicolau Mare – La stuf	3	reliable	Neolithic	LN
164	Timișoara – 3	1.2	reliable	Neolithic	MN
166a	Timișoara – Freidorf I (Hladnik)	0.5	reliable	Neolithic	MN
166b	Timișoara – Freidorf I (Hladnik)	0.5	reliable	Neolithic	LN
169	Timișoara – Ronaț, Triaj	3	reliable	Neolithic	LN

170a	Uivar – Gomilă	3	reliable	Neolithic	MN
170b	Uivar – Gomilă	3	reliable	Neolithic	LN
172a	Unip – La Vișini (Liebling 100)	2	unreliable	Neolithic	EN
172b	Unip – La Vișini (Liebling 100)	2	unreliable	Neolithic	LN
182	Banatsko Aranđelovo – 08	28	unreliable	Neolithic	LN
183	Banatsko Aranđelovo – 10	1	unreliable	Neolithic	EN
184	Banatsko Aranđelovo – 17	4	unreliable	Neolithic	EN
185	Banatsko Aranđelovo – 20	2	unreliable	Neolithic	Unknown
186	Banatsko Aranđelovo – 22	16	unreliable	Neolithic	Unknown
187	Banatsko Aranđelovo – 38	6	unreliable	Neolithic	Unknown
188	Banatsko Aranđelovo – 59	28	unreliable	Neolithic	EN
189	Banatsko Aranđelovo – Brdo zapad	6	unreliable	Neolithic	EN
190	Banatsko Aranđelovo – Fazanerija	4	unreliable	Neolithic	LN
191a	Banatsko Aranđelovo – Obala selešto	15	unreliable	Neolithic	EN
191b	Banatsko Aranđelovo – Obala selešto	15	unreliable	Eneolithic	LE
199a	Čoka – Kremenjak	1.5	reliable	Neolithic	MN
199b	Čoka – Kremenjak	1.5	reliable	Neolithic	LN
200	Đala – 11	1.5	unreliable	Neolithic	Unknown
204b	Iđoš – Gradište	3	reliable	Neolithic	MN
207	Majdan – 13	9	unreliable	Eneolithic	EE
208	Majdan – 27	13	unreliable	Neolithic	Unknown
209	Majdan – 29	20	unreliable	Eneolithic	EE
210	Majdan – 39	11	unreliable	Neolithic	EN
211	Majdan – 43	60	unreliable	Neolithic	Unknown
212	Majdan – 46	18	unreliable	Eneolithic	LE
217	Novi Bečej – Borđoš	7	reliable	Neolithic	LN
218b	Novi Bečej – Matejski Brod	2	reliable	Neolithic	MN
218c	Novi Bečej – Matejski Brod	2	reliable	Neolithic	LN
220	Novi Kneževac – 02	1.5	unreliable	Neolithic	Unknown
221	Novi Kneževac – 09	12	unreliable	Neolithic	Unknown
222	Novi Kneževac – 11	3	unreliable	Neolithic	Unknown
223	Novi Kneževac – Brestik	4	unreliable	Neolithic	EN
228a	Novi Kneževac – Kamara humka	2	reliable	Neolithic	MN
228b	Novi Kneževac – Kamara humka	2	reliable	Neolithic	LN
231	Novi Kneževac – Širine-sever	5	unreliable	Neolithic	EN
243a	Podlokanj – Južne Bašte	0.2	reliable	Neolithic	EN
244	Podlokanj – Kočovat	36	unreliable	Neolithic	EN
246	Podlokanj – Sirovičin Budžak-istok	4	unreliable	Neolithic	EN
247a	Podlokanj – Sirovičin Budžak-zapad	6	unreliable	Neolithic	EN
247b	Podlokanj – Sirovičin Budžak-zapad	6	unreliable	Neolithic	MN
249	Rabe – Anka Siget	18	unreliable	Eneolithic	EE
250	Rabe – Šaširaš	12	unreliable	Neolithic	EN
258	Srpski Krstur – 01	15	unreliable	Neolithic	EN
259	Srpski Krstur – 07	2	unreliable	Neolithic	MN
260	Srpski Krstur – 10	8	unreliable	Neolithic	Unknown

261	Srpski Krstur – 11 & 12	6	unreliable	Neolithic	EN
262	Srpski Krstur – 14	21	unreliable	Neolithic	Unknown
263	Srpski Krstur – 20	5	unreliable	Neolithic	Unknown
264	Srpski Krstur – 26	10	reliable	Neolithic	Unknown
265	Srpski Krstur – 28	16	unreliable	Neolithic	Unknown
266	Srpski Krstur – 34	15	unreliable	Neolithic	EN
267	Srpski Krstur – 42	20	unreliable	Neolithic	Unknown
271	Taraš – Selište	0.9	reliable	Neolithic	MN

Table 9. Distribution of settlements by area groups of 10 ha.

Area (ha)	**Early Neolithic**	**Middle Neolithic**	**Late Neolithic**	**Early Eneolithic**	**Middle Eneolithic**	**Late Eneolithic**
0-0,9	5	2	2	2	1	-
1-1,9	11	3	2	-	1	1
2-2,9	4	3	3	0	-	-
3-3,9	1	6	4	1	1	-
4-4,9	-	1	-	-	-	-
5-5,9	-	-	1	-	-	-
6-6,9	-	-	1	-	-	-
7-7,9	-	-	1	-	-	-
Total	**21**	**15**	**14**	**3**	**3**	**1**

Table 10. Archaeobotanical remains from Foeni – Sălaș (Jezik 1998).

	Taxa	**Whole**	**Fragments**	**Total**
Cereal chaff	*Triticum monococcum*	1 (rachis)	-	1
Cereal grains	*Triticum monococcum*	6	3	9
	Triticum dicoccum	2	-	2
	Hordeum vulgare	-	1	1
	Avena sp.	1	-	1
	Panicum miliaceum	1	-	1
	cf. *Panicum* sp.	1	1	2
	Gramineae	6	4	10
Pulses	*Lens culinaris*	1	-	1
Gathered plants	*Cornus mas*	2	3	5
	Quercus sp.	17	24*	41
	Sambucus nigra	2	-	2
Weeds	*Sonchus asper*	1	-	1
	Malva/Galium	-	1	1
	Chenopodium sp.	3	-	3

	Papaver sp.	2	-	2
	Silene sp.	3	-	3
	Poa/Phragmites	1	1	2
	Prunella vulgaris	1	-	1
	Galium palustre	2	-	2
	Unknown 1	-	1	1
	Unknown 2	-	1	1
	Unknown 3	-	1	1
	Unknown 4	-	1	1

*The total number of discovered fragments was 118. This number, however, is influenced by increased fragmentation and does it not reflect the real quantity of acorns. In order to obtain a more realistic quantity the number of fragments was multiplied by a correction factor of 0.2 (E. Marinova, pers. comm., 23.03.2016).

Table 11. Archaeobotanical remains from Sânnicolau Mare – Bucova Pusta IV (Krauß et al. 2018).

	Plant taxa	**Rest type**	**Preservation**	**Absolute no.**
Cereal chaff	*Hordeum vulgare* undiff.	rachis	charred	1
	Triticum monococcum	glume base	charred	32
	Triticum monococcum/dicoccum	glume base	charred	85
Cereal grains	*Hordeum vulgare* undiff.	seed/fruit	charred	20
	Triticum dicoccum	seed/fruit	charred	1
	Triticum monococcum	seed/fruit	charred	15
	Triticum monococcum/dicoccum	seed/fruit	charred	21
	Cerealia indet.	seed/fruit	charred	76
Pulses	*Lens culinaris*	seed/fruit	charred	1
	Fabaceae (cultivated)	seed/fruit	charred	2
Gathered plants	*Trapa natans*	seed/fruit	charred	5
	Cornus mas	seed/fruit	charred	5
	Corylus avellana	seed/fruit	charred	2
	Physalis alkekengi	seed/fruit	charred	6
	Prunus spec.	seed/fruit	charred	4
	Quercus spec.	seed/fruit	charred	6
Field weeds	*Bromus* spec.	seed/fruit	charred	4
	Galium spurium	seed/fruit	charred	1
	Galium cf. *spurium*	seed/fruit	charred	1
	Polygonum convolvulus	seed/fruit	charred	4
	Vicia hirsuta/tetrasperma	seed/fruit	charred	4
Ruderal vegetation	*Chenopodium* cf. *rubrum*	seed/fruit	charred	1
Ruderals/segetals undiff.	*Chenopodium album*	seed/fruit	charred	2

	Chenopodium spec.	seed/fruit	charred	5
	Malva spec.	seed/fruit	charred	1
Grassland vegetation	*Stellaria* spec.	seed/fruit	charred	1
	Stipa spec.	seed/fruit	charred	1
	Stipa spec.	awn	charred	3
	Trifolium spec.	seed/fruit	charred	1
Others	Poaceae	seed/fruit	charred	3
	Polygonum/Rumex	seed/fruit	charred	1
	Solanaceae	seed/fruit	charred	1
	Indeterminata	seed/fruit	charred	3

Table 12. Archaeobotanical remains from Parța – Tell 1 (Cârciumaru 1991: 63; Monah 1994). Values expressed in percentages (samples 1-5) and absolute numbers.

Sample	*Triticum monococcum*	*Triticum dicoccum*	*Triticum aestivum*	*Hordeum vulgare*	*Setaria viridis*	Context
1	-	-	-	100%	-	unknown
2	-	-	-	100%	-	unknown
3	55%	27.20%	-	17.80%	-	unknown
4	83.10%	13.40%	-	3.50%	-	unknown
5	57.10%	42.90%	-	-	-	unknown
G1	-	4	400	-	-	house 17
G2	57	169	33	-	-	house 17
G3	-	5	37	-	-	house 17
G4	9	110	23	4	-	house 18
C6	-	59	6	-	-	house 40
G9	10	160	86	-	-	house 40
G10	4	3	72	-	1	house 40
G11	-	-	-	872	-	house 41
G13	-	2	-	82	-	unknown
G14	-	-	-	17	-	unknown

Table 13. Distribution of the archaeobotanical remains at Uivar – Gomilă (Fischer, Rösch 2004) by contexts: 1. Vinča C pits; 2. Vinča C houses; 3. Vinča C exterior ditches; 4. Vinča C interior ditch (feature 1043); 5. Vinča C cultural layer; 8. Tiszapolgár; 9. Tiszapolgár hauses; 10. Tiszapolgár pits.

Context	1	2	3	4	5	8	9	10
Cereal chaff								
T. monococcum	148	1659	22200	200000	147	86	1	587
T. cf. *timopheevii*	81	841	5300	59000	55	9	-	298
T. dicoccum	4	406	460	20000	1	8	-	36
T. dicoccum/cf. *timopheevii*	-	513	14800	123000	62	45	4	341
T. dicoccum/*monococcum*/cf. *timopeevii*	225	1359	22400	165000	66	57	-	325
T. aestivum/durum	-	6	2	70	1	-	-	-

Hordeum vulgare	-	2	-	9	-	-	-	-
Cerialia undiff.	-	-	-	1	4	-	-	-
Cerialia undiff. straw fragments	-	5	1	2	-	-	-	-
Cereal grains								
T. monococcum	5	53	7	251	2	9	-	20
T. dicoccum/cf. *timopheevii*	5	128	67	192	1	5	-	15
T. aestivum/durum	-	9	9	23	-	-	-	2
Hordeum vulgare	-	6	16	32	-	1	-	4
Panicum miliaceum	-	-	4	-	-	-	-	-
Secale cereale	-	-	1	-	-	-	-	-
Cerialia undiff.	1	38	1	118	6	3	1	5
Cerialia undiff. fragments	38	1090	1869	9700	43	81		169
Pulses								
Lens culinaris	3	8	23	22	-	2	-	7
Pisum sativum	16	8	6	7	-	5	-	1
Fabaceae undiff. large	-	3	7	4	-	-	-	1
Vicia ervilia	-	1	-	-	-	-	-	-
Oil and fibre plants								
Linum usitatissimum	-	1	39	65	-	1	-	-
Papaver	-	-	3	1	-	-	-	-
Gathered plants								
Corylus avellana, fragments	1	6	12	70	-	6	-	1
Cornus mas, mainly fragments	7	54	129	87	1	7		7
Prunus spinosa, mainly fragments	-	11	2	16	-	1	-	-
Prunus undiff., fragments	-	3	1	16	-	-	-	
Physalis alkekengi	-	4	7	4	-	-	-	1
Trapa natans, fragments	-	-	2	3	-	-	-	-
Fragaria	-	-	2	18	-	-	-	-
Prunus insititia, fragments	-	-	3	6	-	-	-	-
Sambucus undiff.	-	-	2	3	-	-	-	-
Sambucus ebulus	-	-	3	5	-	-	-	
Rubus caesius	-	-	1	-	-	-	-	-
Field weeds								
Galinum spurium type	1	10	1	17	-	2	-	-
Polygonum convolvulus	1	5	17	42	1	-	-	3
Chenopodium album	1	5	56	28	-	-	-	1
Solanum nigrum	-	1	12	28	-	-	-	-
Galium aparine/tricornutum	-	2	-	-	-	1	-	-
Polygonum aviculare/convolvulus	-	1	2	10	-	-	-	-
Agrostemma githago	-	-	1	-	-	-	-	1
cf. *Stachys annua*	-	-	1	-	-	-	-	-
Setaria verticilata/viridis	-	-	1	2	-	-		-
Veronica hederifolia	-	-	1	-	-	1	-	1
Brassica/Sinapis	-	-	-	1	-	-	-	-
Scleranthus	-	4	4	-	-	-	-	-

Viola tricolor type	-	-	-	3	-	-	-	-
Chenopodium hybridum	-	-	1	-	-	-	-	-
cf. *Brassica nigra*	-	-	1	-	-	-	-	-
Atriplex	-	-	2	-	-	-	-	-
Bromus cf. *arvensis*	-	-	-	2	-	-	-	-
Echinochloa crus-galli	-	-	-	2	-	-	-	-
Chenopodium polyspermum	-	-	1	-	-	-	-	-
Riparian								
Poligonum aviculare	-	1	2	-	-	-	-	-
Poligonum minus	-	-	1	-	-	-	-	-
Polygonum lapatifolium	-	-	1	1	-	-	-	-
Potentilla cf. *reptans*	-	-	-	1	-	-	-	-
Ranunculus cf. *repens*	-	-	-	1	-	-	-	-
Ruderal								
Melilotus alba type	-	4	-	-	-	-	-	-
Rumex sanguineus type	-	-	2	-	-	-	-	-
Carex muricata type	-	1	-	-	-	-	-	-
Grassland								
Trifolium campestre type	-	25	1	2	-	-	-	-
Rumex acetosella	-	-	1	1	-	-	-	1
Trifolium repens type	-	87	-	1	-	-	-	-
Teucrium	-	-	-	18	-	-	-	-
Medicago lupulina	-	-	-	1	-	-	-	-
Plantago lanceolata	-	-	2	-	-	-	-	-
Carex flacca type	-	1	-	-	-	-	-	-
cf. *Agrimonia*	-	-	-	1	-	-	-	-
Wetland								
Scirpus lacustris	-	-	-	-	-	1	-	-
Potamogeton pusillus type	-	-	-	1	-	-	-	-
Carex distans type	-	1	-	1	-	-	-	-
Sparganium	-	-	3	-	-	-	-	-
Others								
Chenopodium undiff.	2	11	51	62	-	1	-	4
Galium unfiff.	1	11	6	50	-	1	-	-
Viciae undiff.	-	7	1	3	1	2	-	1
Bromus div. spec.	-	3	3	39	-	1	-	1
Poaceae undiff.	-	4	9	14	-	1	-	2
Poaceae, awn fragment	1	2	-	4	-	5	-	-
Solanaceae undiff.	-	3	7	38	-	-	-	2
Malva undiff.	-	1	-	-	-	-	-	-
Farbaceae undiff.	2	1	6	4	-	-	-	-
Panicoideae undiff.	-	1	1	2	-	-	-	-
Hordeum/Lolium	-	-	2	11	-	-	-	1
Vicia tenuissima type	-	2	1	-	-	-	-	-
Potentilla undiff.	-	24	2	-	-	-	-	1

Carex undiff.	-	1	-	-	-	-	-	-
Polygonaceae undiff.	-	1	-	1	-	-	-	-
Mentha	-	-	1	-	-	-	-	-
Trifoliae undiff.	-	-	-	3	-	-	-	-
cf. *Asteraceae*	-	-	-	1	-	-	-	-
cf. *Brassicaceae*	-	-	1	-	-	-	-	-
cf. *Alopecurus*	-	-	1	-	-	-	-	-
Festuca	-	-	-	5	-	-	-	-

Table 14. Archaeozoological remains from Foeni – Sălaș (after Greenfield, Jongsma 2008: Tabs. 2, 3).

Taxa	**NISP**	**Percentage**
Bos taurus	895	44.15%
Sus s. domesticus	99	4.88%
Ovis aries	270	13.32%
Capra hircus	77	3.80%
Ovis/Capra	668	32.96%
Canis familiaris	18	0.89%
Total domestic	**2027**	100.00%
Bos primigenius	63	0.30%
Equus sp.	1	0.00%
Cervus elaphus	113	0.54%
Sus s.ferus	39	0.19%
Capreolus capreolus	87	0.42%
Lepus europaeus	10	0.05%
Ursus arctos	2	0.01%
Canis lupus	7	0.03%
Unio pictorum	6	0.03%
Planorbis corneus	558	2.69%
Limnae stagnalis	223	1.07%
Helix pomatia	18955	91.34%
Helix aspersa	480	2.31%
Aves	48	0.23%
Pisces	139	0.67%
Emys orbicularis	21	0.10%
Total wild	**20752**	100.00%
Homo sapiens	11	
Cepea nemoralis	430	
Spalax sp.	39	
Amphibia	3	
Rodentia	102	
Reptilia	2	
Total not applicable	**587**	
Bos/Cervus	14	

Ovis/Capra/Capreolus	9
Sus scrofa	7
Mammal - Large	2129
Mammal - Medium	2436
Mammal - Small	6
Mammal - Large/Medium	1
Unknown	4069
Total unidentified	**8671**

Table 15. Distribution of archaeozoological remains (NISP) at Foeni – Gaz (after El Susi 2001: Tab. 1).

Taxa	Pit-houses	Layer	Total	Percentage
Bos taurus	113	60	173	42.93%
Ovis/Capra	116	61	177	43.92%
Ovis aries	8	7	15	3.72%
Capra hircus	4	7	11	2.73%
Sus domesticus	11	15	26	6.45%
Canis familiaris	-	1	1	0.25%
Total domestic	**252**	**151**	**403**	100.00%
Bos primigenius	17	8	25	0.37%
Cervus elaphus	7	30	37	0.55%
Sus scrofa ferrus	5	9	14	0.21%
Capreolus capreolus	6	15	21	0.31%
Castor fiber	-	1	1	0.01%
Felis silvestris	-	1	1	0.01%
Unio sp.	141	171	312	4.66%
Planorbis sp.	28	17	45	0.67%
Helix sp.	3901	2342	6243	93.19%
Total wild	**4105**	**2594**	**6699**	100.00%
Bos/Cervus	21	63	84	
Ovis/Capra/Capreolus	11	16	27	
Mammals	442	519	961	
Splinters	123	225	348	
Total unidentified	**597**	**823**	**1420**	

Table 16. Archaeozoological remains from Sânnicolau Mare – Bucova Pusta IV (after Krauß et al. 2018).

Taxa	NISP	Percentage
Bos taurus	339	29.89%
Sus scrofa	8	0.71%
Ovis aries	96	8.47%
Capra hircus	13	1.15%

Ovis/Capra	683	60.23%
Canis familiaris	3	0.26%
Total Domestic	**1134**	100.00%
Bos primigenius	3	0.12%
Cervus elaphus	17	0.66%
Capreolus capreolus	12	0.46%
Cervidae	3	0.12%
Sus scrofa ferus	15	0.58%
Lepus europaeus	9	0.35%
Cygnus sp.	1	0.04%
Anas platyrhychos	1	0.04%
cf. *Anas platyrhychos*	1	0.04%
cf. *Aythya ferina*	2	0.08%
Anatinae	1	0.04%
Lyrurus tetrix	2	0.08%
Tetrax tetrax	1	0.04%
Aves	11	0.42%
Emys orbicularis	11	0.42%
Acipenser sp.	2	0.08%
Silurus glanis	67	2.58%
Esox lucius	74	2.85%
Cyprinidae	80	3.09%
Cyprinus carpio	16	0.62%
Pisces	58	2.24%
Unio pictorum	445	17.17%
Unio tumidus	309	11.92%
Unio sp.	31	1.20%
Viviparus acerosus	1015	39.16%
Lymnea stagnalis	156	6.02%
Planorbarius corneus	101	3.90%
Helix lutescens	92	3.55%
Bradybaenidae (cf. *Fruticicola*)	4	0.15%
Mollusca	44	1.70%
Total Wild	2592	100.00%
Cricetus cricetus	6	
Spalax/Nannospalax	5	
Rodentia	8	
Anura	1	
Cepaea sp.	248	
Cepaea/Bradybaenidae	2	
Total not applicable	**270**	
Mammalia indet	2280	
Total unidentified	**2280**	

Table 17. Archaeozoological remains from Parța – Tell 2 (after El Susi 2010: Tab. 1; El Susi 1998: Tab. 3).

	Starčevo-Criș		**Vinča C**		**Foeni**	
Taxa	Frag.	%	Frag.	%	Frag.	%
Bos taurus	158	33.29%	868	61.65%	223	81.99%
Sus domesticus	61	12.80%	204	14.49%	24	8.82%
Ovis/Capra	256	53.91%	318	22.59%	23	8.46%
Canis familiaris	-	0.00%	18	1.28%	2	0.74%
Total Domestic	**475**	100.00%	**1408**	100.00%	**272**	100.00%
Bos primigenius	3	3.20%	23	3.53%	6	5.71%
Cervus elaphus	34	39.03%	380	58.37%	63	60.00%
Sus s. ferrus	25	28.79%	110	16.90%	25	23.81%
Capreolus capreolus	25	28.79%	75	11.52%	4	3.81%
Lepus sp.	-	0.00%	5	0.77%	-	0.00%
Castor fiber	-	0.00%	4	0.61%	-	0.00%
Vulpes vulpes	-	0.00%	1	0.15%	-	0.00%
Meles meles	-	0.00%	-	0.00%	1	0.95%
Felis silvestris	-	0.00%	4	0.61%	-	0.00%
Martes martes	-	0.00%	2	0.31%	1	0.95%
Pisces	?	0.00%	10	1.54%	1	0.95%
Mollusca	?	0.00%	37	5.68%	4	3.81%
Total Wild	**88**	100.00%	**651**	100.00%	**105**	100.00%
Bos/cervus	?		147		12	
Ovic./Capreol.	?		103		5	
Sus sp.	?		68			
Splinters	?		416		98	
Worked bones	?		61		7	
Total unidentified	**?**		**795**		**122**	

Table 18. Archaeozoological remains from Dudeștii Vechi – Movila lui Deciov (after El Susi 2001: Tab. 4).

Taxa	**NISP**	**Percentage**
Bos taurus	96	31.89%
Sus domesticus	32	10.63%
Ovis aries	15	4.98%
Capra hircus	19	6.31%
Ovis/Capra	131	43.52%
Canis familiaris	8	2.66%
Total domestic	**301**	100.00%
Bos primigenius	18	2.35%
Cervus elaphus	100	13.07%
Sus scrofa ferrus	42	5.49%
Capreolus capreolus	83	10.85%

Lepus	9	1.18%
Castor fiber	2	0.26%
Meles meles	6	0.78%
Lutra lutra	1	0.13%
Martes martes	2	0.26%
Aves	36	4.71%
Reptilia	138	18.04%
Pisces	131	17.12%
Unio sp.	130	16.99%
Viviparus	17	2.22%
Lymnaea	19	2.48%
Planorbis	11	1.44%
Helix sp.	20	2.61%
Total wild	**765**	100.00%
Bos/Cervus	33	
Bos sp.	15	
Ovis/Capra/Capreolus	20	
Splinters	282	
Total unidentified	**350**	

Table 19. Archaeozoological remains from the Middle Neolithic layers of Parța – Tell 1 (after Bolomey 1988: Tab. 1; El Susi 1995: Tab. 1; Bindea 2005: Tab. 1).

	Layer 7a		**Layer 7b-c**		**Layer 6**	
Taxa	**NISP**	**Percentage**	**NISP**	**Percentage**	**NISP**	**Percentage**
Bos taurus	232	43.61%	644	63.01%	191	41.34%
Sus s. Domesticus	112	21.05%	191	18.69%	170	36.80%
Ovis aries	19	3.57%	12	1.17%	6	1.30%
Capra hircus	11	2.07%	8	0.78%	4	0.87%
Ovis/Capra	158	29.70%	161	15.75%	89	19.26%
Canis familiaris	-	0.00%	6	0.59%	2	0.43%
Total domestic	**532**	100.00%	**1022**	100.00%	**462**	100.00%
Bos primigenius	48	5.60%	35	2.42%	91	13.25%
Cervus elaphus	219	25.55%	748	51.73%	171	24.89%
Sus s. ferus	262	30.57%	389	26.90%	266	38.72%
Capreolus capreolus	135	15.75%	135	9.34%	58	8.44%
Lepus sp.	1	0.12%	3	0.21%	1	0.15%
Ursus arctos	1	0.12%	-	0.00%	2	0.29%
Canis lupus	-	0.00%	1	0.07%	1	0.15%
Castor fiber	1	0.12%	1	0.07%	-	0.00%
Vulpes vulpes	1	0.12%	-	0.00%	1	0.15%
Felis silvestris	-	0.00%	1	0.07%	1	0.15%
Martes martes	6	0.70%	-	0.00%	3	0.44%
Carnivora	7	0.82%	-	0.00%	4	0.58%

Aves	7	0.82%	7	0.48%	2	0.29%
Emys orbicularis	2	0.23%	2	0.14%	-	0.00%
Pisces	63	7.35%	13	0.90%	45	6.55%
Unio crassus	92	10.74%	24	1.66%	8	1.16%
Bivalves	-	0.00%	1	0.07%	25	3.64%
Gasteropods	6	0.70%	2	0.14%	3	0.44%
Molluscs	6	0.70%	84	5.81%	5	0.73%
Total Wild	**857**	100.00%	**1446**	100.00%	**687**	100.00%

Table 20. Archaeozoological remains from Sânandrei – Ocsaplatz (after Jongsma, Greenfield 1996: Tab. 2; El Susi 1999-2000: Tab. 1).

	Banat Culture		**Vinca C**		**Tisa**	
Taxa	**NISP**	**%**	**NISP**	**%**	**NISP**	**%**
Bos taurus	53	60.23%	81	75.70%	971	81.46%
Sus s. domesticus	14	15.91%	14	13.08%	110	9.23%
Ovis aries	3	3.41%	-	0.00%	-	0.00%
Capra hircus	-	0.00%	2	1.87%	-	0.00%
Ovis/Capra	16	18.18%	10	9.35%	101	8.47%
Canis familiaris	2	2.27%	-	0.00%	10	0.84%
Total domestic	**88**	100.00%	**107**	100.00%	**1192**	100.00%
Bos primigenius	-	0.00%	1	2.22%	49	9.57%
Cervus elaphus	23	36.51%	20	44.44%	348	67.97%
Sus s. ferrus	29	46.03%	10	22.22%	72	14.06%
Capreolus capreolus	9	14.29%	13	28.89%	35	6.84%
Lepus sp.	-	0.00%	-	0.00%	4	0.78%
Ursus actos	-	0.00%	-	0.00%	1	0.20%
Canis lupus	1	1.59%	-	0.00%	-	0.00%
Vulpes vulpes	-	0.00%	-	0.00%	1	0.20%
Martes martes	-	0.00%	-	0.00%	1	0.20%
Aves	1	1.59%	1	2.22%	1	0.20%
Total wild	**63**	100.00%	**45**	100.00%	**512**	100.00%
Homo sapiens	-		3		-	
Total not applicable	**-**		**3**		**-**	
Small mammal	3		3		-	
Medium mamal	43		17		-	
Medium/large mammal	7		9		-	
Large mammal	47		76		-	
Capreolus/ovis/capra	-		-		-	
Sus sp.	-		-		4	
Bos/Cervus	-		-		127	
Bos sp.	-		-		9	
Unknown	25		12		-	
Total unidentified	**125**		**117**		**140**	

Table 21. Archaeozoological remains from the Middle Neolithic construction phases at Uivar – Gomilă (after El Susi 2017a: Tabs. 5, 10).

	Phase 5		**Phase 4b**		**Phase 4a**		**Phases 3c, 3d**	
Taxa	**NISP**	**%**	**NISP**	**%**	**NISP**	**%**	**NISP**	**%**
Bos taurus	333	69.81%	46	56.79%	39	72.22%	352	44.96%
Sus s. domesticus	64	13.42%	14	17.28%	5	9.26%	244	31.16%
Ovis/Capra	77	16.14%	20	24.69%	10	18.52%	183	23.37%
Canis familiaris	3	0.63%	1	1.23%	-	0.00%	4	0.51%
Total Domestic	**477**	**100.00%**	**81**	**100.00%**	**54**	**100.00%**	**783**	**100.00%**
Bos primigenius	2	2.13%	-	0.00%	-	0.00%	59	10.52%
Cervus elaphus	52	55.32%	9	31.03%	5	38.46%	176	31.37%
Sus s. ferus	4	4.26%	6	20.69%	1	7.69%	212	37.79%
Capreolus c.	28	29.79%	12	41.38%	2	15.38%	94	16.76%
Lepus europaeus	8	8.51%	1	3.45%	5	38.46%	6	1.07%
Canis lupus	-	0.00%	1	3.45%	-	0.00%	-	0.00%
Vulpes vulpes	-	0.00%	-	0.00%	-	0.00%	6	1.07%
Meles meles	-	0.00%	-	0.00%	-	0.00%	1	0.18%
Lutra lutra	-	0.00%	-	0.00%	-	0.00%	1	0.18%
Felis silvestris	-	0.00%	-	0.00%	-	0.00%	3	0.53%
Martes martes	-	0.00%	-	0.00%	-	0.00%	3	0.53%
Total Wild	**94**	**100.00%**	**29**	**100.00%**	**13**	**100.00%**	**561**	**100.00%**
Bos sp.	-		-		-		11	
Bos/Cervus	109		21		13		80	
Ovis/Capreolus	-		-		-		20	
Sus sp.	4		-		-		24	
Ribs	-		-		-		217	
Splinters	286		30		40		581	
Total unidentified	**399**		**51**		**53**		**933**	

Table 22. Archaeozoological remains from the Late Neolithic features and layers of Uivar – Gomilă (after El Susi 2017a: Tab. 12).

	Vinča C1		**Vinča C2**	
Taxa	**NISP**	**Percentage**	**NISP**	**Percentage**
Bos taurus	580	28.52%	980	46.34%
Sus s. domesticus	650	31.96%	500	23.64%
Ovis/Capra	804	39.53%	635	30.02%
Total Domestic	**2034**	**100.00%**	**2115**	**100.00%**
Bos primigenius	53	4.55%	68	3.89%
Cervus elaphus	428	36.74%	939	53.72%
Sus s. ferus	304	26.09%	374	21.40%
Capreolus c.	380	32.62%	367	21.00%

Total Wild	**1165**	**100.00%**	**1748**	**100.00%**

Table 23. Archaeozoological remains from the Late Neolithic ditches (trench IV) of Uivar – Gomilă (after El Susi 2017b: Tab. 1).

	Vinča C	
Taxa	**NISP**	**Percentage**
Bos taurus	736	60.23%
Sus s. domesticus	221	18.09%
Ovis/Capra	221	18.09%
Canis familiaris	44	3.60%
Total Domestic	**1222**	100.00%
Bos primigenius	65	5.66%
Cervus elaphus	703	61.24%
Sus s. ferus	218	18.99%
Capreolus c.	152	13.24%
Lepus sp.	6	0.52%
Canis lupus	1	0.09%
Vulpes vulpes	3	0.26%
Total Wild	**1148**	100.00%
Bos/Cervus	129	
Horn *cervus*	26	
Ovis/Capreolus	46	
Ribs	181	
Sus sp.	5	
Splinters	509	
Total unidentified	**896**	

Table 24. Archaeozoological remains from the Late Neolithic (Layer 5) and Early Eneolithic (Layer 4) occupations at Parța – Tell 1, (after Bolomey 1988: Tab. 1; El Susi 1995: Tabs. 1, 2).

	Layer 5		**Layer 4**	
Taxa	**NISP**	**Percentage**	**NISP**	**Percentage**
Bos taurus	88	38.60%	48	39.67%
Sus s. Domesticus	58	25.44%	37	30.58%
Ovis aries	-	0.00%	1	0.83%
Capra hircus	-	0.00%	3	2.48%
Ovis/Capra	80	35.09%	32	26.45%
Canis familiaris	2	0.88%	-	0.00%
Total domestic	**228**	100.00%	**121**	100.00%
Bos primigenius	32	15.09%	10	4.90%
Cervus elaphus	70	33.02%	73	35.78%
Sus s. ferus	57	26.89%	67	32.84%
Capreolus capreolus	52	24.53%	35	17.16%

Lepus sp.	-	0.00%	-	0.00%
Ursus arctos	-	0.00%	2	0.98%
Canis lupus	1	0.47%	-	0.00%
Castor fiber	-	0.00%	-	0.00%
Vulpes vulpes	-	0.00%	-	0.00%
Felis silvestris	-	0.00%	-	0.00%
Martes martes	-	0.00%	-	0.00%
Carnivora	-	0.00%	3	1.47%
Aves	-	0.00%	1	0.49%
Emys orbicularis	-	0.00%	1	0.49%
Pisces	-	0.00%	2	0.98%
Unio crassus	-	0.00%	10	4.90%
Bivalves	-	0.00%	-	0.00%
Gasteropods	-	0.00%	-	0.00%
Molluscs	-	0.00%	-	0.00%
Total Wild	**212**	100.00%	**204**	100.00%

Table 25. Distribution of archaeozoological remains (NISP) at Moșnița Veche – Dealul Sălaș (after Oprean 2016: Tab. 1).

Taxa	**Pit-house 42**	**Pit-house 47**	**Pit 46**	**Pit 52**	**TOTAL**	**Percentage**
Bos taurus	104	108	56	18	286	62.17%
Sus domesticus	43	58	36	-	137	29.78%
Ovis/Capra	9	13	15	-	37	8.04%
Total Domestic	**156**	**179**	**107**	**18**	**460**	100.00%
Bos primigenius	27	20	15	1	63	21.00%
Cervus elaphus	66	71	22	7	166	55.33%
Sus scrofa attila	11	18	5	-	34	11.33%
Capreolus capreolus	9	20	-	6	35	11.67%
Unio sp.	-	-	-	2	2	0.67%
Total Wild	**113**	**129**	**42**	**16**	**300**	100.00%
Total Unidentified	**37**	**42**	**17**	**-**	**96**	

Table 26. Archaeozoological remains from Foeni – Cimitirul Ortodox (after El Susi 2002-2003: Tab. 1; Chiu 2003: Tab. 1).

	Phase III		**Phase II**		**Phase I**	
Taxa	**NISP**	**Percentage**	**NISP**	**Percentage**	**NISP**	**Percentage**
Bos taurus	1419	51.28%	684	52.09%	4972	59.90%
Sus s. domesticus	430	15.54%	350	26.66%	1363	16.42%
Ovis/Capra	844	30.50%	249	18.96%	1828	22.02%
Canis familiaris	74	2.67%	30	2.28%	138	1.66%
Total Domestic	**2767**	100.00%	**1313**	100.00%	**8301**	100.00%

Bos primigenius	102	7.68%	44	6.36%	436	13.49%
Cervus elaphus	602	45.33%	293	42.34%	1573	48.67%
Capreolus capreolus	59	4.44%	20	2.89%	213	6.59%
Sus s. ferrus	157	11.82%	67	9.68%	309	9.56%
Lepus sp.	9	0.68%	7	1.01%	49	1.52%
Ursus arctos	-	0.00%	-	0.00%	1	0.03%
Canis lupus	1	0.08%	-	0.00%	2	0.06%
Lynx lynx	-	0.00%	-	0.00%	1	0.03%
Vulpes vulpes	3	0.23%	3	0.43%	5	0.15%
Meles meles	4	0.30%	1	0.14%	4	0.12%
Castor fiber	9	0.68%	-	0.00%	1	0.03%
Felis silvestris	1	0.08%	1	0.14%	2	0.06%
Martes martes	2	0.15%	1	0.14%	5	0.15%
Carnivora	1	0.08%	3	0.43%	2	0.06%
Aves	8	0.60%	3	0.43%	13	0.40%
Reptilia	10	0.75%	29	4.19%	22	0.68%
Pisces	69	5.20%	15	2.17%	76	2.35%
Mollusca	291	21.91%	205	29.62%	518	16.03%
Total Wild	**1328**	100.00%	**692**	100.00%	**3232**	100.00%
Bos sp.	113		25		151	
Bos/Cervus	277		63		1454	
Sus sp.	95		58		112	
Ovis/Capra/Capreol.	68		135		59	
Splinters	1051		483		2148	
Total Unidentified	**1604**		**764**		**3924**	

Table 27. Archaeozoological remains (NISP) from the Late Eneolithic features at Timișoara – Freidorf (El Susi 2011: Tab. 1).

Taxa	Pit-house 14	Pit-house 30	Pit 41	Total	Percentage
Bos taurus	6	4	13	23	41.82%
Sus s. domesticus	2	2	2	6	10.91%
Ovis/Capra	5	2	14	21	38.18%
Canis familiaris	-	-	5	5	9.09%
Total Domestic	**13**	**8**	**34**	**55**	100.00%
Cervus elaphus	-	4	3	7	58.33%
Capreolus capreolus	-	-	5	5	41.67%
Total Wild	**-**	**4**	**8**	**12**	100.00%
Bos/Cervus	-	-	3	3	
Unknown	1	2	6	9	

Table 28. Distribution of settlements on soil types (analysis on spot).

Soil types	EN	MN	LN	EE	ME	LE
Cambisol	1	1	4	3	0	1
Chernozem	57	29	18	22	5	20
Fluvisol	11	3	5	7	2	4
Gleysol	5	7	5	2	2	1
Phaeozem	3	0	0	0	0	0
Solonchak	1	1	1	0	0	0
Solonetz	13	5	4	3	0	2
Vertisol	15	4	3	3	1	3

Table 29. Settlement catchment of soil types by periods (values in km^2).

Soil types	EN	MN	LN	EE	ME	LE
Cambisol	3.08	6.99	10.23	8.00	0.96	2.60
Chernozem	140.31	77.99	55.02	60.38	17.17	58.55
Fluvisol	27.76	8.90	14.15	15.65	5.09	11.57
Gleysol	15.19	18.82	11.01	10.10	4.34	2.60
Luvisol	0.00	0.14	0.00	0.00	0.00	0.00
Phaeozem	3.05	0.05	0.00	0.00	0.00	0.00
Regosol	0.00	0.00	0.00	0.00	0.00	0.35
Solonchak	2.19	2.19	2.19	0.00	0.00	0.00
Solonetz	37.88	14.06	11.99	11.03	0.19	6.38
Vertisol	53.53	16.79	12.50	8.36	3.65	9.08
Water	2.23	1.95	1.22	0.00	0.00	1.20

Table 30. Raw materials of the chipped stone tools at Sânnicolau Mare – Bucova Pusta IV.

Raw materials	**No. Artefacts**	**Percentage**
Agate	1	2.27
Chalcedony	2	4.55
Jasper	2	4.55
Total regional	**5**	**11.36**
Balkan flint	28	63.64
Moldavian flint	1	2.27
Obsidian	7	15.91
Total interregional	**36**	**81.82**
Undetermined	3	6.82
Grand total	**44**	**100.00**

Table 31. Raw materials of the chipped stone tools at Moșnița Nouă – 7 & 8.

Raw materials	**No. Artefacts**	**Percentage**
Jasper	6	37.50
Opal	3	18.75

Total regional	**9**	**56.25**
Balkan flint	2	12.50
Moldavian flint	1	6.25
Obsidian	2	12.50
Total interregional	**5**	**31.25**
Undetermined	2	12.50
Grand total	**16**	100.00

Table 32. Raw materials of the chipped stone tools from the Banat Culture layers at Sânandrei – Ocsaplatz (Oxenbrickel).

Raw materials	No. Artefacts	Percentage
Banat "flint"	53	36.55
Breccia	14	9.66
Chert	1	0.69
Jasper	44	30.34
Opal	4	2.76
Radiolarite	15	10.34
Rhyolite	1	0.69
Total regional	**132**	**91.03**
Balkan flint	9	6.21
Moldavian flint	1	0.69
Total interregional	**10**	**6.90**
Undetermined	3	2.07
Grand total	**145**	**100.00**

Table 33. Raw materials of the chipped stone tools from the Vinča C layers at Sânandrei – Ocsaplatz (Oxenbrickel).

Raw materials	No. Artefacts	Percentage
Banat "flint"	200	58.48
Breccia	25	7.31
Chalcedony	1	0.29
Chert	1	0.29
Jasper	1	0.29
Opal	6	1.75
Quartz	3	0.88
Quartzite	14	4.09
Radiolarite	57	16.67
Rhyolite	1	0.29
Total regional	**309**	**90.35**
Balkan flint	17	4.97
Mecsek radiolarite	5	1.46
Total interregional	**22**	**6.43**
Undetermined	11	3.22

Grand total	**342**	**100.00**

Table 34. Raw materials of the chipped stone tools from Chișoda – Gomilă.

Raw materials	No. Artefacts	Percentage
Banat "flint"	54	47.37
Breccia	15	13.16
Chalcedony	3	2.63
Jasper	13	11.40
Quartz	1	0.88
Quartzite	1	0.88
Radiolarite	20	17.54
Rhyolite	4	3.51
Total regional	**111**	**97.37**
Balkan flint	1	0.88
Total interregional	**1**	**0.88**
Undetermined	2	1.75
Grand total	**114**	**100.00**

Table 35. Raw materials of the chipped stone tools from the Vinča C2 layer at Hodoni – Pocioroane.

Raw materials	No. Artefacts	Percentage
Banat "flint"	122	57.01
Breccia	5	2.34
Chalcedony	5	2.34
Chert	4	1.87
Jasper	34	15.89
Opal	3	1.40
Radiolarite	28	13.08
Rhyolite	2	0.93
Total regional	**203**	**94.86**
Balkan flint	1	0.47
Moldavian flint	2	0.93
Mecsek radiolarite	5	2.34
Total interregional	**8**	**3.74**
Undetermined	3	1.40
Grand total	**214**	**100.00**

Table 36. Raw materials of the chipped stone tools from the Tisa layer at Hodoni – Pocioroane.

Raw materials	No. Artefacts	Percentage
Banat "flint"	70	66.04
Breccia	2	1.89
Chalcedony	1	0.94

Chert	1	0.94
Jasper	12	11.32
Opal	4	3.77
Quartzite	3	2.83
Radiolarite	10	9.43
Total regional	**103**	**97.17**
Moldavian flint	1	0.94
Mecsek radiolarite	1	0.94
Total interregional	**2**	**1.89**
Undetermined	1	0.94
Grand total	**106**	**100.00**

Table 37. Raw materials of the chipped stone tools at Foeni – Cimitirul ortodox.

Raw materials	No. Artefacts	Percentage
Banat "flint"	54	47.37
Breccia	15	13.16
Chalcedony	3	2.63
Jasper	13	11.40
Quartz	1	0.88
Quartzite	1	0.88
Radiolarite	20	17.54
Rhyolite	4	3.51
Total regional	**111**	**97.37**
Balkan flint	1	0.88
Total interregional	**1**	**0.88**
Undetermined	2	1.75
Grand total	**114**	**100.00**

Table 38. Raw materials of the chipped stone tools at Moșnița Veche - Dealul Sălaș.

Raw materials	No. Artefacts	Percentage
Banat "flint"	117	95.90
Opal	1	0.82
Total regional	**118**	**96.72**
Moldavian flint	2	1.64
Obsidian	1	0.82
Total interregional	**3**	**2.46**
Undetermined	1	0.82
Grand total	122	100.00

Table 39. Chemical composition of Eneolithic copper-based artefacts from north-western Banat (after Junghans et al. 1968; Junghans et al. 1974).

Lab. No.	Location	Object	Context	Museum	Inv. No.	Sn	Pb	As	Sb	Ag	Ni	Bi	Au	Zn	Co	Fe
2019	Foeni	Axe-adze		Zrenjanin	664	0	0	0	0	0	0	0	0	0	0	0
2021	Sutjeska	Hammer-axe		Zrenjanin	656	0	0	0	0	0	0	0	0	0	0	0
9159	Deta	Flat-axe		Timișoara	-	0	0	0	0	tr.	tr.	0	0	0	0	0
9161	Satchinez	Axe-adze, frag.		Timișoara	1916	0	0	0	0	tr.	0	0	0	0	0	0
9165	Timișoara	Axe-adze		Timișoara	1911	0	0	0	0	tr.	0	0	0	0	0	0
9166	Chișoda	Axe-adze		Timișoara	1588	0	0	0	0	tr.	<0.01	0	0	0	0	0
9167	Ciacova	Axe-adze		Timișoara	1909	0	0	0	0	tr.	tr.	0	0	0	0	0
9170	Satchinez	Axe-adze, frag.		Timișoara	1914	0	0	0	0	tr.	0	0	0	0	0	0
9190	Cermei	Axe-adze		Arad	12449	0	0	0	0	tr.	0	0	0	0	0	0
9192	Pecica - Șanțul Mare	Axe-adze		Arad	887	0	0	0	0	tr.	0	0	0	0	0	0
9193	Pecica - Șanțul Mare	Axe-adze		Arad	888	0	0	0	0	0	0	0	0	0	0	tr.
13171	Čoka – Kremenjak	Knife		Szeged	53.124.1	0	0	0	tr.	<0.01	0	tr.	0	0	0	tr.
13172	Čoka – Kremenjak	Pipe		Szeged	53.124.2	tr.	0	tr.	tr.	tr.	0	0	0	0	0	tr.
13196	Deszk – A	Ring	Grave 4	Szeged	53.108.29	0	0	0	tr.	tr.	tr.	0	0	tr.	0	(+)
13197	Deszk – A	Ring	Grave 4	Szeged	53.108.30	0	tr.	tr.	tr.	tr.	tr.	tr.	0	0	0	(+)
13198	Deszk – A	Ring	Grave 4	Szeged	53.108.30	0	tr.	0	tr.	tr.	tr.	0	0	0	0	(+)
13199	Deszk – A	Ring	Grave 4	Szeged	53.108.30	4	2	0	0	0.2	0.79	0	0	0	0	0
13215	Čoka – Kremenjak	Axe-adze		Szeged	17/1910-513	0	0	0	0	0	0	0	0	0	0	0

Table 40. Chemical composition of Eneolithic copper-based artefacts from southern Crișana (after Junghans et al. 1968).

Lab. No.	Location	Object	Context	Museum	Inv. No.	Sn	Pb	As	Sb	Ag	Ni	Bi	Au	Zn	Co	Fe
9190	Cermei	Axe-adze		Arad	12449	0	0	0	0	tr.	0	0	0	0	0	0
9192	Pecica - Șanțul Mare	Axe-adze		Arad	887	0	0	0	0	tr.	0	0	0	0	0	0
9193	Pecica - Șanțul Mare	Axe-adze		Arad	888	0	0	0	0	0	0	0	0	0	0	tr.

Table 41. Copper-based Eneolithic artefacts from Banat and southern Crișana used for provenance analyses.

Lab. No.	Site	Museum	Inventory No.	Description
MA-153978	Pecica – Șanțul Mare	Arad	888	axe-adze
MA-153979	Sânpetru German – La Islaz	Arad	14557	axe-adze
MA-153980	Sânpetru German – Hotarul Reck	Arad	13767	axe-adze
MA-153981	Sânleani	Arad	15002	axe-adze
MA-153982	Cermei	Arad	12449	axe-adze
MA-153983	Jud. Arad	Arad	-	axe-adze
MA-153984	Pecica – Șanțul Mare	Arad	887	axe-adze
MA-153985	Pecica – Bojhos szöllö	Arad	14433	axe-adze
MA-153986	Peștera Oilor	Caransebeș	676	awl

Table 42. Chemical composition of copper-based Eneolithic artefacts from Banat and southern Crișana as determined by X-ray fluorescence.

Lab. No.	Cu	Mn	Fe	Co	Ni	Zn	As	Se	Ag	Cd	Sn	Sb	Te	Pb	Bi
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
MA-153978	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
MA-153979	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	0.004	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
MA-153980	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	0.004	<0.005	<0.005	<0.005	<0.005	0.02	<0.01
MA-153981	100	<0.01	<0.05	<0.01	<0.01	<0.1	0.02	<0.01	0.003	<0.005	<0.005	<0.005	<0.005	0.01	<0.01
MA-153982	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
MA-153983	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
MA-153984	100	<0.01	<0.05	<0.01	<0.01	<0.1	0.12	<0.01	0.006	<0.005	<0.005	<0.005	<0.005	0.02	<0.01
MA-153985	100	<0.01	<0.05	<0.01	<0.01	<0.1	<0.01	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
MA-153986	95	<0.01	<0.05	<0.01	<0.01	<0.1	4.7	<0.01	0.010	<0.005	<0.005	0.013	<0.005	0.16	0.05

Table 43. Lead isotope abundance ratios in coper-based Eneolithic metal artefacts from Banat and southern Crișana.

Lab. No.	$^{208}Pb/^{206}Pb$ mean	$^{208}Pb/^{206}Pb$ 2σ	$^{207}Pb/^{206}Pb$ mean	$^{207}Pb/^{206}Pb$ 2σ	$^{208}Pb/^{204}Pb$ mean	$^{208}Pb/^{204}Pb$ 2σ	$^{207}Pb/^{204}Pb$ calc mean	$^{207}Pb/^{204}Pb$ calc 2σ	$^{206}Pb/^{204}Pb$ calc mean	$^{206}Pb/^{204}Pb$ calc 2σ
MA-153978	2.0997	0.0001	0.85228	0.00002	38.625	0.008	15.678	0.001	18.396	0.001
MA-153979	2.0915	0.0001	0.84966	0.00004	38.488	0.010	15.635	0.001	18.402	0.001
MA-153980	2.0773	0.0001	0.84312	0.00002	38.416	0.007	15.592	0.001	18.493	0.001
MA-153981	2.0775	0.0001	0.84305	0.00001	38.439	0.005	15.599	0.001	18.503	0.001
MA-153982	2.0771	0.0001	0.84265	0.00002	38.461	0.006	15.603	0.001	18.517	0.001
MA-153983	2.0761	0.0001	0.84241	0.00001	38.444	0.003	15.599	0.001	18.517	0.001
MA-153984	2.0772	0.0001	0.84288	0.00003	38.440	0.005	15.598	0.001	18.506	0.001
MA-153985	2.0734	0.0001	0.84092	0.00001	38.472	0.003	15.603	0.001	18.555	0.001
MA-153986	2.0727	0.0001	0.83986	0.00002	38.586	0.005	15.635	0.001	18.616	0.001

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