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Neolitička naselja (6./5. tisućljeće pr. Kr.) okružena opkopom rasprostiru se širom Europe, pa i na prostoru istočne Hrvatske o čemu postoji opsežna bibliografija. Istraživanja provedena posljednjih nekoliko godina utvrdila su postojanje do sada nezabilježenoga načina formiranja i organizacije takvih naselja na području istočne Hrvatske – naselja u parovima. Novi tip naselja utvrđen je daljinskim istraživanjima snimanjem iz aviona kao i drona, u kombinaciji sa serijama satelitskih i avionskih vertikalnih snimaka, a rezultati terenskih pregleda tako otkrivenih nalazišta potvrdili su kako su navedena naselja uglavnom višeslojna, dugotrajna te pripadaju sopotskoj kulturi, pri čemu se okvirno mogu datirati u 5. tisućljeće pr. Kr.

Ključne riječi: prapovijesna utvrđenja, neolitik, sopotska kultura, daljinska interpretacija, telovi, krajolik

Neolithic settlements (6th/5th millennium BC) encircled by moats were widespread throughout Europe, including eastern Croatia, on which there is an extensive bibliography. Excavations conducted over the last several years have confirmed the existence of thus far unrecorded methods for the formation and organization of such settlements in eastern Croatia – twin settlements. This new type of settlement was ascertained by means of remote sensing from aircraft and by means of drones, in combination with a series of satellite and aerial vertical photographs, while the results of field surveys of the sites so discovered have confirmed that they were generally multi-layered, long-term and attributed to the Sopot culture, so that they may be generally dated to the 5th millennium BC.

Key words: prehistoric enclosures, Neolithic, Sopot culture, remote sensing, tells, landscape

UVOD

Ove godine navršava se pedeset godina od publiciranja prve monografije o neolitičkoj sopotskoj kulturi koju je objavio njezin najvažniji istraživač Stojan Dimitrijević (1968). Sopotsku kulturu S. Dimitrijević definirao je kao neolitičku pojavu i „spojnu kariku između sjevernog Balkana i srednje Europe" (Dimitrijević 1968: 90). Također je sintezno obradio sve najvažnije dotadašnje spoznaje o toj neolitičkoj kulturnoj pojavi poput geneze, kronologije, rasprostiranja i interne kronološke podjele. U kronologiji i pregledu lokaliteta kulture, donosi i detaljna terenska opažanja o postojanju opkopa oko pojedinih sopotskih naselja koji su vidljivi i danas (npr. sl. 12, voda u opkopu bila je vidljiva i tijekom ljetnih mjeseci prigodom snimanja iz zraka). Zahvaljujući svome talentu za vizualnu umjetnost, ostavio je brojne crteže vezane uz arheološka istraživanja, pa tako i rekonstrukciju izgleda naselja Sopot s opkopom u akvarelu (Težak Gregl 1998: 82–83).

INTRODUCTION

This year marks the fiftieth anniversary of the publication of the first monograph on the Neolithic Sopot culture which was written by its most important researcher, Stojan Dimitrijević (1968). The Sopot culture was defined by S. Dimitrijević as a Neolithic phenomenon and the "link between the northern Balkans and Central Europe" (Dimitrijević 1968: 90). He also synthesized all of the most important previous knowledge of this Neolithic cultural phenomenon, such as its genesis, chronology, extent and internal chronological divisions. In his chronology and overview of the culture's sites, he also provided detailed field observations on the existence of moats around individual Sopot settlements that are visible to this day (e.g., Fig. 12, the water in the moat was visible to aerial photography even during the summer months). Thanks to his talent for visual art, he left behind numerous drawings from his archaeological research, and even water-colour painting of a reconstruction of the appearance of a Sopot settlement with a moat (Težak Gregl 1998: 82–83).

U ediciji *Praistorija jugoslavenskih zemalja* S. Dimitrijević piše o naseljima ovalnoga oblika utvrđenima palisadom i opkopom smještenima u nizinama Bosuta (Sopot, Orolik, Privlaka, Otok), Vuke (Gaboš, Ostrovo) i Drave (Hermanov vinograd) (Dimitrijević 1979: 270). S. Dimitrijević koristi termin "Wasserburg" za ovaj tip naselja. Pretpostavljao je kako su utvrđena naselja s opkopom karakteristična za treći stupanj sopotske kulture u istočnoj Hrvatskoj i da se prema zapadu takav tip naselja javlja samo iznimno (Dimitrijević 1979: 272). Danas se vjeruje kako su opkopi oko naselja prisutni također i u dosta ranim fazama osnutka naselja koja se mogu datirati u ranije stupnjeve sopotske kulture (Krznarić Škrivanko 2003).[1] Današnji uvid u neolitičke obrasce naseljavanja u zapadnoj Slavoniji potvrđuje korištenje opkopa u formiranju naselja na sopotskim lokalitetima Vidovci – Glogovi, Ravnjaš (Mihaljević 2013) i Kukunjevac – Brod (Ivanković 2013; 2014). Zaključak kako se u sopotskoj kulturi pojavljuju prva nizinska utvrđena naselja u ovome dijelu Europe (Težak Gregl 1998: 88) vjerojatno će se moći nadopuniti s nešto ranijim utvrđenim/ograđenim naseljima starčevačke kulture otkrivenima također daljinskom interpretacijom (Šiljeg, Kalafatić 2016: 215). Jedan dio ovdje predstavljenih lokaliteta već su poznati kao nalazišta sopotske kulture, ali nisu prepoznati kao dio jedne binarne pojave u organizaciji naselja i prostora – krugova parnjaka.[2]

Funkcija jaraka i okopa u neolitiku

Funkcija raznih tipova jaraka i palisada oko neolitičkih naselja uvijek je bila, a i danas je također predmet velikoga znanstvenog interesa i rasprave. Oni se interpretiraju na najrazličitije načine – najčešće kao obrambeni, ali i kao ekonomski, kao vodoopskrbni, kao odvodni itd. B. Marijanović (2017) u svojoj objavi lokaliteta Pokrovnik donosi i najnoviji pregled interpretacija funkcije ograda i opkopa u neolitičkim naseljima. Pregled interpretacije opkopa i ograda u naseljima na mediteranskome prostoru donosi i J. Robb (2007: 93). Njihova je uloga istovremeno mogla biti i simbolična, budući da označavaju granicu zajednice prema okolini te razvijaju osjećaj pripadnosti zajednici (Borić et al. 2018: 345). Simbolična uloga po D. Boriću (2018) nije u opreci s obrambenom ulogom jaraka i palisada. Izgradnja jarka istodobno je simbolički i društveni podvig s obzirom da zahtjeva ogromne napore cijele zajednice (Borić et al. 2018: 345).

Daljinska interpretacija

Daljinska interpretacija arheoloških struktura počiva na načelu poremećenosti tla antropogenom aktivnošću koja

1 Zanimljivost je da se jarci na lokalitetu Sopot ne vide na suvremenim satelitskim i avionskim snimkama što je vjerojatno posljedica dobre prakse izuzeća prostora lokaliteta od poljoprivredne obrade. Zasluga za taj uspjeh pripada istraživačkom timu na čelu s Majom Krznarić Škrivanko iz Gradskoga muzeja Vinkovci.

2 Termin krugovi parnjaci odabran je da istakne njihov vrlo pravilan jednostavniji kružni tlocrt koji ih razlikuje od pojava poznatih kao rondeli koji se javljaju u lenđelskoj kulturi te prirodu njihovoga nastanka u parovima.

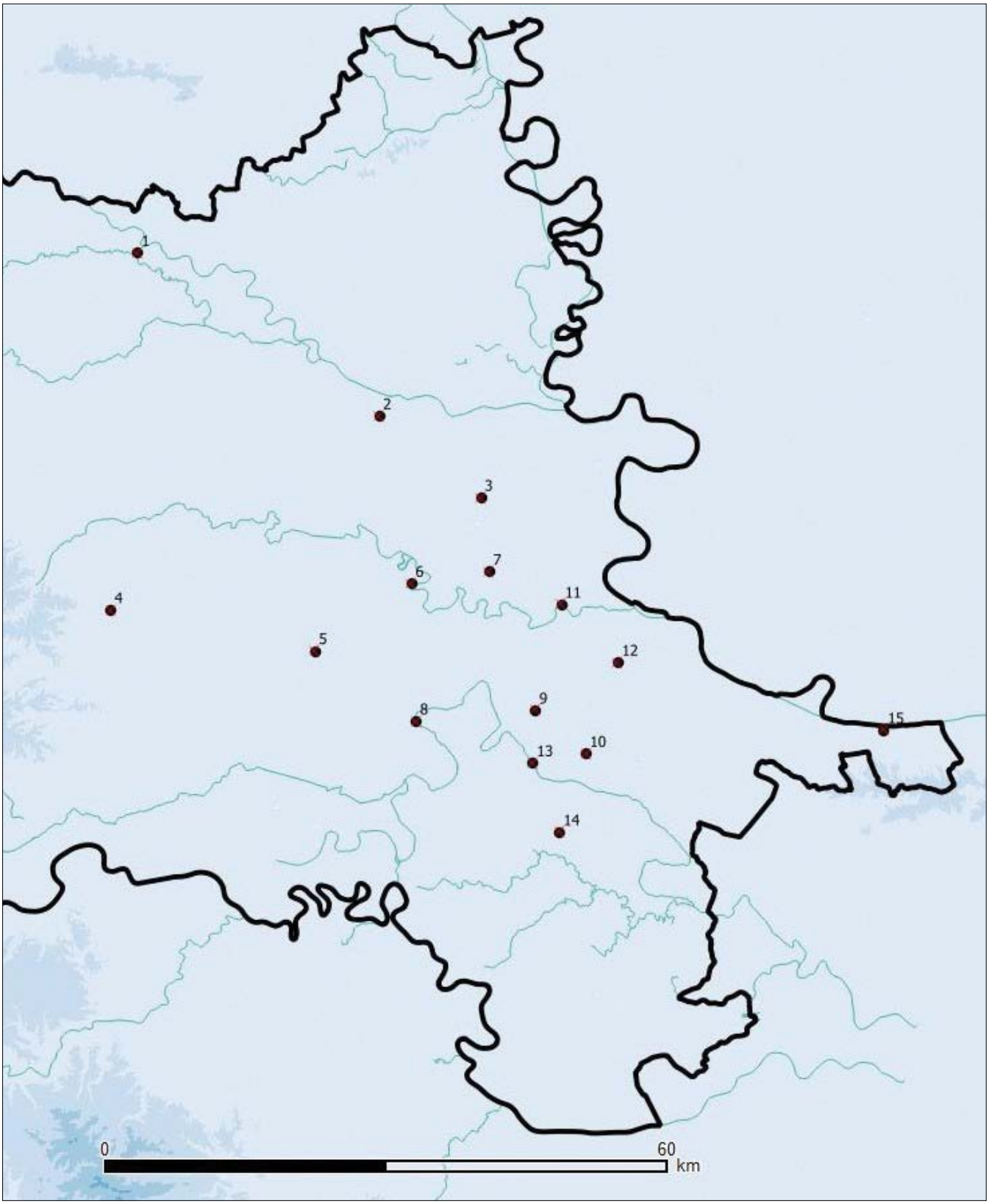
In the book *Praistorija jugoslavenskih zemalja* (Prehistory of the Yugoslav Territories), S. Dimitrijević wrote about oval settlements fortified by palisades and a moat, situated in the lowlands surrounding the rivers Bosut (Sopot, Orolik, Privlaka, Otok), Vuka (Gaboš, Ostrovo) and Drava (Herman's vineyard) (Dimitrijević 1979: 270). He used the term "Wasserburg" for this settlement type. He assumed that enclosed settlements with moats were typical of the third phase of the Sopot culture in eastern Croatia and that such settlements only appeared exceptionally farther west (Dimitrijević 1979: 272). Today, it is believed that moats encircling settlements had also been present even in the rather early stages of establishing settlements, which may be dated to the earlier phases of the Sopot culture (Krznarić Škrivanko 2003).[1] Current insight into Neolithic settlement patterns in western Slavonia confirm the use of moats in the formation of settlements at the Sopot sites of Vidovci – Glogovi, Ravnjaš (Mihaljević 2013) and Kukunjevac – Brod (Ivanković 2013; 2014). The conclusion that the first enclosed lowland settlements appeared in this part of Europe during the Sopot culture (Težak Gregl 1998: 88) will probably be supplemented with the somewhat earlier enclosed/fenced settlements of the Starčevo culture, also uncovered by remote sensing (Šiljeg, Kalafatić 2016: 215). Some of the sites presented here are already known as Sopot culture sites, but they had not been previously recognized as a part of a binary phenomenon in the organization of settlements and physical space – the twin circles.[2]

The function of ditches and moats in the Neolithic

The function of various types of ditches and palisades around Neolithic settlements has always been and still is today the subject of considerable scholarly interest and debate. They have been interpreted in the most diverse ways – most often as defensive structures, but also as serving economic ends, or to supply or drain water, etc. B. Marijanović (2017), in his publication of the Pokrovnik site, provided the newest overview of interpretations of the function of fences and moats in Neolithic settlements. Another overview of interpretations of moats and fences in settlements in the Mediterranean zone was compiled by J. Robb (2007: 93). Their role may have simultaneously been symbolic, since they designate a community's boundary in relation to its environment and foster a sense of belonging to the community (Borić et al. 2018: 345). According to D. Borić (2018), the symbolic role does not counter the defensive role of ditches and palisades. The construction of ditches was simultaneously a symbolic and social feat given the need for great effort by the entire community (Borić et al. 2018: 345).

1 It is interesting that ditches at Sopot sites cannot be seen on modern satellite and aerial photographs, which is probably a result of the sound practice of excluding the settlement areas from agricultural cultivation. Credit for this success goes to the research team headed by Maja Krznarić Škrivanko from the Municipal Museum Vinkovci.

2 The term twin circles was chosen to underscore their very orderly, simpler circular layout, which distinguishes them from the phenomenon known as rondels that appeared in the Lengyel culture, as well as their appearance in pairs.



Karta 1 Istočna Slavonija, krugovi parnjaci

1 Gat – Svetošnice; 2 Osijek – Hermanov Vinograd; 3 Klisa – Groblje i Brdo; 4 Preslatinci – Ugljara; 5 Vrbica – Drake i Baićev bostan; 6 Antin – Baćino; 7 Tordinci – Vinogradarska Mlaka; 8 Andrijaševci – Gornje njive; 9 Mirkovci – Malat; 10 Slakovci – Gradina; 11 Bršadin – Pašnjak pod selom; 12 Vukovar – Gladovo; 13 Privlaka – Gradina; 14 Otok – Gradina; 15 Ilok – Sofija

Map 1 Eastern Slavonia, twins enclosure

1 Gat – Svetošnice; 2 Osijek – Hermanov Vinograd; 3 Klisa – Groblje and Brdo; 4 Preslatinci – Ugljara; 5 Vrbica – Drake and Baićev bostan; 6 Antin – Baćino; 7 Tordinci – Vinogradarska Mlaka; 8 Andrijaševci – Gornje njive; 9 Mirkovci – Malat; 10 Slakovci – Gradina; 11 Bršadin – Pašnjak pod selom; 12 Vukovar – Gladovo; 13 Privlaka – Gradina; 14 Otok – Gradina; 15 Ilok – Sofija

ostavlja vidljiv trag u tlu ili se manifestira kao trag kroz različiti rast biljaka na poremećenom tlu. Što je veća antropogena struktura i što je tlo više poremećeno, to je ona i vidljivija prilikom daljinske interpretacije. Jarci i opkopi svake vrste i po svome postanku i po svojem prestanku postojanja uzrokuju velike poremećaje u strukturi slojeva tla što rezultira njihovom vidljivošću i par milenija poslije njihovoga zatrpavanja. Na njihovu (ne)vidljivost utječu (bez)brojni faktori od kojih su bitniji vlažnost tla, preko intenzivnosti poljoprivredne obrade do godišnjega doba kad se snima ili promatra određeni prostor.

Razvoj tehnika daljinske interpretacije i njihova sve lakša dostupnost, kao i političke promjene u 90-im godinama 20. stoljeća te skidanje embarga na zračno snimanje i upotrebu topografskih karata, omogućile su daljinska istraživanja i u Hrvatskoj. Susjedne zemlje također imaju uzlazni trend razvoja daljinske interpretacije i značajne rezultate (Bertók, Gáti 2014; Szabó 2016).

STRUKTURA KRUŽNIH NASELJA

Već od prve faze daljinskih istraživanja prapovijesnoga krajolika istočne Hrvatske, uočen je fenomen velikih neolitičkih telova[3] okruženih jarkom i smještenih u neposrednoj blizini jedan drugoga. O fenomenu je kao o jednoj ekscesnoj pojavi preliminarno izvješteno već 2015. godine (Šiljeg, Kalafatić 2015a; 2015b; 2016; Šiljeg et al. 2015: 358). Daljnji tok istraživanja kroz godine i veći broj novootkrivenih pojava istoga karaktera pokazali su kako nije riječ o iznimkama u pozicioniranju i rasporedu neolitičkih naselja, već da je više riječ o pravilu. Usporedo s rastom broja novootkrivenih prapovijesnih, i pogotovo, neolitičkih naselja, rastao je među njima i broj kružnih naselja u parovima. U radu se donosi 15 takvih parova neolitičkih naselja od kojih su većina telovi.

Veći broj novootkrivenih telova bio bi važan podatak sam po sebi, ali kada se tome pridoda otkriće da se telovi često javljaju u paru, dopunjuje se spoznaja o organizaciji neolitičkih zajednica.

Procjene širine opkopa dobivene daljinskom interpretacijom mogu se razlikovati od stvarnih dimenzija opkopa. Zato je poučno proučiti sve dosad istražene opkope sopotskih naselja, a pogotovo i dosad najbolje istraženi eponimni lokalitet Sopot. Na njemu je istražen jarak širine skoro 6 metara te je bio 3 metra ukopan u zdravicu, a završava na relativnoj dubini od 6 metara. Jarak smjera sjever – jug „teče" prema Bosutu, a s vanjske i unutarnje strane prate ga kanali i rupe od stupova koji su vjerojatno dio fortifikacijskoga zida koji je prstenasto obrubljivao naselje (Krznarić Škrivanko 2003: 63). Naselje se brzo proširilo, pa istraživači vjeruju kako je jarak bio zatrpan već u ranijim fazama i preko njega su

3 Većina ovdje predstavljenih lokaliteta nije iskopavana, ali visina kojom nadvisuju okolni prostor i krajolik ukazuje da je riječ o višeslojnom naseljima. Lokaliteti koji jesu iskopavani (Bršadin, Privlaka, Otok, Hermanov vinograd) imaju veliki kulturni sloj i sve ostale karakteristike telova. Za detaljnu raspravu o telovima i telu sličnim naseljima upućujemo na T. Kienlin (2015) i svu tamo navedenu literaturu.

Remote sensing

Remote sensing of archaeological structures rests on the principle of soil disturbance due to anthropogenic activity which left visible traces on the ground or manifested itself as traces through differentiated plant growth on the disturbed soil. The larger the anthropogenic structure and the greater the soil disturbance, the more visible it is to remote sensing. Ditches and moats of all types, in terms of their appearance and then disappearance, cause great disturbances in the structure of soil layers, resulting in their visibility even several millennia after they are filled. Their (in)visibility is influenced by numerous (or indeed, innumerable) factors, of which the more important include soil dampness, intensity of agricultural works and the season when a given area is recorded or observed.

The development of the remote sensing techniques and their increasingly easy availability, as well as political changes in the 1990s and the lifting of the ban on aerial photography and the use of topographic maps have opened the way for remote sensing in Croatia as well. Neighbouring countries have also seen a rising trend in remote sensing and the associated significant results (Bertók, Gáti 2014; Szabó 2016).

STRUCTURE OF CIRCULAR SETTLEMENTS

Already in the first phase of remote sensing of the prehistoric landscape of eastern Croatia, an observed phenomenon was the immense Neolithic tells[3] encircled by ditches, situated close to one another. A preliminary report on the phenomenon as an excessive aspect was already released in 2015 (Šiljeg, Kalafatić 2015a; 2015b; 2016; Šiljeg et al. 2015: 358). The further course of research over the years and the high number of newly-discovered phenomena of the same type indicated that these were not exceptions in the location and distribution of Neolithic settlements, but rather more of a rule. Parallel to the growth in the number of newly-discovered prehistoric – and Neolithic in particular – settlements, the number of paired circular settlements also grew. A total of 15 such paired Neolithic settlements, of which most are tells, is published in the study.

A higher number of newly-discovered tells would have been a vital piece of data on its own, but when the discovery that these tells often appeared in pairs is added to this, it enhances insight into the organization of Neolithic communities.

Estimates of the width of moats obtained by remote sensing may differ from their actual dimensions. This is why it is instructive to study all previously excavated Sopot settlement moats, and particularly the thus far best examined, eponymous Sopot site. There a ditch was excavated that was almost 6 meters wide and dug 3 meters into the sub soil, ending at a relative depth of 6 meters. The north – south ditch "flowed" toward the River Bosut, and from the

3 Most of the sites presented herein were not excavated, but the altitude from which they oversee the surrounding areas and the landscape indicates that they are multi-layered settlements. The sites that were excavated (Bršadin, Privlaka, Otok, Herman's vineyard) have large cultural layers and all other features of tells. For further discussion of tells and settlements resembling tells, see T. Kienlin (2015) and all of the literature cited therein.

izgrađene kuće (Krznarić Škrivanko 2003: 63). Čini se da time naselje nije ostalo bez zaštite jer su geofizička istraživanja dokazala postojanje još jednoga iskopanog jarka s vanjske strane naselja koji obuhvaća veću površinu naselja i za koji se vjeruje da je mlađi (Krznarić Škrivanko 2015: 381–382). Od takvoga proširenja vjerojatno dolazi i do ovalnoga oblika naselja Sopot, pa i S. Dimitrijević (1979: 270) zaključuje kako je riječ o ovalnim naseljima. Velike serije zračnih i satelitskih snimaka, kao i snimanje iz drona, pokazuju kako je ipak uglavnom riječ o naseljima pravilnoga kružnog tlocrta kojima tek dogradnje u obliku podgrađa/suburbija daju ovalni oblik. Smjer obrade zemlje i oblik poljoprivredne čestice određuju današnji oblik tela u prostoru, ali položaj opkopa, unatoč reljefnim promjenama, ostaje nepromijenjen što i vertikalne slike također potvrđuju (vidi sl. 1–45). Tvrdnju da se naselja s opkopima javljaju samo u nizinama i močvarnim krajevima (Dimitrijević 1979: 272) treba nadopuniti rezultatima recentnih istraživanja koja pokazuju drugačiju sliku. Opkopi se javljaju podjednako i u nizinskim naseljima kao i naseljima na uzvisinama poput Ivandvora, Štrbinaca i Ravnjaša (Balen et al. 2009: 28; Migotti, Leleković 2012: 16; Mihaljević 2013). Prilikom izgradnje fortifikacijskih sustava korištene su prednosti terena i prirodne barijere, pa je tako naselje na Sopotu vjerojatno iskoristilo jedan rukavac Bosuta kao dio obrambenoga sustava.

Središnji prostor

Na cijelom nizu krugova parnjaka uočava se i manji krug u središtu naselja ili tamnija kružna površina (Mirkovci, Klisa, Slakovci, Tordinci…) čiji karakter i svrhu je u ovome trenutku teško procjenjivati i pobliže odrediti. Možda nam u rasvjetljavanju svrhe ovoga središnjeg izdvojenog prostora mogu ovdje pomoći i opažanja S. Dimitrijevića. Naime, rezultati iskopavanja na lokalitetima Sopot i Otok pokazuju nepostojanje ostataka kućnih podova u gornjim horizontima na središnjem dijelu naselja, pa S. Dimitrijević zaključuje kako je centralni dio naselja imao funkciju trga (Dimitrijević 1968: 47).

Osim izdvojenih prostora u središtu lokaliteta, određeni broj ovdje predstavljenih lokaliteta ima dvostruke, koncentrične, blisko položene jarke (Klisa, Vrbica, Gladovo, Andrijaševci), slično kao što je to dokazano geofizičkim istraživanjima i na lokalitetu Sopot (Krznarić Škrivanko 2015: 381–382).

Okolni prostor

Potreba za dodatnom zaštitom, izdvajanjem i(li) kontrolom prostora oko krugova parnjaka posebno se očituje na lokalitetima Gat, Privlaka i Klisa gdje su naselja okružena opkopom dodatno zaštićena/ograđena još jednim, puno većim, vanjskim opkopom. Značajan broj neolitičkih lokaliteta koji nisu predmet ovoga rada ima vanjski opkop (Korođvar, Vučevci, Markušica…) i vrlo vjerojatno će se s protekom vremena taj broj povećavati, jer je sadašnji broj takvih lokalite-

external and internal sides it was accompanied by trenches and post holes that were probably part of the fortification wall that encircled the settlement (Krznarić Škrivanko 2003: 63). The settlement rapidly expanded, so researchers believe that the ditch was filled in already in the earlier phases and then houses were built over it (Krznarić Škrivanko 2003: 63). It would appear that the settlement was not left without protection as a result, because geophysical excavations have shown the existence of another ditch dug out from the outside of the settlement which encompassed the settlement's larger surface area and which is believed to be more recent (Krznarić Škrivanko 2015: 381–382). Such an expansion was probably what led to the Sopot settlement's oval shape, so S. Dimitrijević (1979: 270) concluded that this was an oval settlement. An extensive series of aerial and satellite photographs, as well as drone footage, show that these were nonetheless generally settlements with a standard circular layout that only acquired an oval shape with the addition of suburbs. The direction of land cultivation and the shape of the agricultural land plots determine the current shape of the tells in physical space, but the position of the moats, despite changes in the relief, remains unaltered, which even the vertical images confirm (see Figs. 1–45). The assertion that settlements with moats appeared only in lowlands and wetlands (Dimitrijević 1979: 272) should be supplemented with the results of recent research, which shows a different picture. Moats appeared equally in both lowland settlements and in settlements at elevated points, such as Ivandvor, Štrbinci and Ravnjaš (Balen et al. 2009: 28; Migotti, Leleković 2012: 16; Mihaljević 2013). During construction of fortification systems, the advantages of the terrain and natural barriers were used, so the settlement at Sopot probably made use of a branch of the Bosut as part of its defensive system.

Central area

In an entire series of twin circles, smaller circles in the centre of settlements or darker circular surfaces have been observed (Mirkovci, Klisa, Slakovci, Tordinci…), and their character and purpose is rather difficult to assess and more precisely ascertain at this point. Perhaps some observations made by S. Dimitrijević may help us shed light on the purpose of this central, separate area. Namely, the results of excavations at the Sopot and Otok sites show the absence of the remains of house floors in the upper horizons in the central parts of the settlements, so S. Dimitrijević concluded that the central part of the settlement had the function of a public square (Dimitrijević 1968: 47).

Besides the separate spaces in the centre of the sites, a certain number of sites presented herein have double, concentric, closely set ditches (Klisa, Vrbica, Gladovo, Andrijaševci), similar to what has been proven by geophysical research at the Sopot site as well (Krznarić Škrivanko 2015: 381–382).

Surrounding area

The need for additional protection, separation and/or oversight of the areas around the twin circles is particularly apparent at the Gat, Privlaka and Klis sites, where the settlements surrounded by moats were additionally protected/fenced by another much larger, external moat. A considera-

ta više odraz praznine u istraživanju nego stvarnoga stanja. Primjeri diljem srednje Europe od Mađarske s lokalitetima Polgár – Csőszhalom, Belvárdgyula, Szemely I i II, do Njemačke i lokaliteta poput Kothingeichendorf i Schmiedorf I–II, da spomenemo samo najpoznatije, pokazuju kako to nije neobična pojava (Literski, Nebelsick 2003: 439, 454, 482; Bertók, Gáti 2014: 88–89).

Od predstavljenih petnaest parova lokaliteta, samo je lokalitet Privlaka poznat kao „osmičasta" gradina, odnosno S. Dimitrijević spominje tri ovalne gradine od kojih su dvije iskorištene za izgradnju keltskoga opiduma. Posebno naglašava nejasan odnos između odvojenih sopotskih naselja i razlog kompozicije u obliku vijenca. Kao mogući razlog takvoj organizaciji naselja navodi društvene parametre (različite rodovske grupacije) (Dimitrijević 1979: 72). Daljinskom interpretacijom danas su uočljiva dva uzvišenja s dodatnim vanjskim opkopom (sl. 37–39). Mnogo puta potvrđena preciznost terenskih opažanja S. Dimitrijevića daje nam za pravo da vjerujemo kako postoji (ili je postojalo) treće uzvišenje koje danas, zbog različitih promjena u okolišu, nije jasno vidljivo. Rezultati dosadašnjih daljinskih istraživanja u istočnoj Hrvatskoj također potvrđuju postojanje više od dva neolitička tela u neposrednoj blizini.[4] To ne znači nužno da su svi obližnji telovi egzistirali istovremeno. Primjera višestrukih obližnjih telova ima i na prostoru potiske kulture u Mađarskoj, npr. na lokalitetu Ocsöd – Kováshalom. Na njemu postoji nekoliko jezgri naselja koje prerastaju u telove (Link 2006: 112).

Dalje na istok možemo pratiti sličnu pojavu na turskom lokalitetu Çatal Hüyük, poznatom i važnom naselju tel tipa koje se sastoji od dvije uzvisine. Dosadašnje spoznaje govorile su o kronološkoj prednosti istočnoga humka u odnosu na naselje na manjem, zapadnome humku. Smatralo se kako na prostoru istočnoga humka prestaje život i da stanovništvo migrira na zapadni humak zbog više mogućih razloga. Rezultati najnovijih radiokarbonskih analiza na prostoru mlađega, zapadnog humka, pokazuju da je život tekao usporedo na oba tela određeni vremenski period koji se zasad ne može točno odrediti (Orton et al. 2018).

Datiranje

Radiokarbonske analize provedene su na većem broju tel naselja i jednoslojnih naselja sopotske kulture u istočnoj i zapadnoj Slavoniji. Najveća serija radiokarbonskih datuma napravljena je na eponimnome lokalitetu Sopot istraživačkim naporima tima pod vodstvom M. Krznarić Škrivanko (2006; 2011). Rezultati datiranja pokazuju trajanje naselja Sopot kroz cijelo 5. tis. pr. Kr., s dijelom datuma koji ulaze u 6. i 4. tis. pr. Kr. Ovdje treba naglasiti kako je dio datuma dobiven na starijim analizama koje nisu uključivale AMS pa imaju veći raspon i manji stupanj pouzdanosti.

Najpotpuniji pregled svih objavljenih radiokarbonskih

4 Objava tih rezultata je u pripremi.

ble number of Neolithic sites that are not the subject of this paper have external moats (Korođvar, Vučevci, Markušica…) and it is very likely that this number will increase with the passage of time, because the current number of such sites is more a reflection of state of research. Examples throughout Central Europe, from Hungary, with its Polgár – Csőszhalom, Belvárdgyula, and Szemely I and II sties, to Germany and sites such as Kothingeichendorf and Schmiedorf I–II, to name just the best known, show that this is not an unusual phenomenon (Literski, Nebelsick 2003: 439, 454, 482; Bertók, Gáti 2014: 88–89).

Out of the fifteen presented paired sites, only the Privlaka site is known as an "octagonal" hillfort, as S. Dimitrijević noted three oval hillforts, of which two were used to build a Celtic oppidum. He particularly stressed the ambiguous relationship between the separated Sopot settlements and the reason for their composition in shapes resembling wreaths. He specified social parameters (different kinship groups) as a possible reason for such an organization (Dimitrijević 1979: 72). Based on remote sensing, today two hillocks with additional external moats (Figs. 37–39) may be observed. The oft-confirmed precision of S. Dimitrijević's field observations justifies our belief that there is (or was) a third hillock which is today no longer visible due to various changes in the environment. The results of previous remote sensing in eastern Croatia also confirm the existence of more than two Neolithic tells in the immediate vicinity.[4] This does not necessarily mean that all of the nearby tells existed at the same time. Examples of multiple proximate tells can also be found in the territory of the Tisza culture in Hungary, at the Ocsöd – Kováshalom site, for example. At it, there are several settlement cores which grew into tells (Link 2006: 112).

Farther east, we can observe a similar phenomenon at the Çatal Hüyük site in Turkey, a well-known and important tell-type settlement that consists of two hillocks. Previous findings indicated a chronological priority for the eastern mound over the smaller, western mound. It was believed that life ceased in the area of the eastern mound and that the population migrated to the western mound due to a number of possible reasons. The results of the most recent radiocarbon analysis in the area of the more recent, western mound show that life proceeded simultaneously on both tells for a certain period that thus far cannot be precisely ascertained (Orton et al. 2018).

Dating

Radiocarbon analyses have been conducted at a high number of tell settlements and single-layer Sopot culture settlements in eastern and western Slavonia. The largest series of radiocarbon dates were made precisely at the eponymous Sopot site thanks to the research efforts invested by the team under the leadership of M. Krznarić Škrivanko (2006; 2011). The results of dating show the duration of the Sopot settlement throughout the 5th millennium BC, with some dates passing over into the 6th and also 4th millennia BC. Here it should be stressed that some of the dates obtained in older analyses did not include AMS, so they

4 The publication of these results is being prepared.

datuma sopotske kulture donosi K. Botić u svojoj doktorskoj disertaciji (Botić 2017c: 223–234). Uvidom u sve tamo sakupljene i predstavljene datume, nastanak naselja s opkopima sopotske kulture može se datirati u prvu polovicu 5. tis. pr. Kr. i ona traju kroz cijelo 5. tis. pr. Kr. Prestanak života na telovima vjerojatno se dogodio najkasnije oko 4200. god. pr. Kr.

ZAKLJUČAK

Vjerujemo kako će ovih petnaest parova lokaliteta napraviti pomak u proučavanju neolitičkih telova. Detaljnije podatke o početku naseljavanja i trajanju telova otkriti će tek višegodišnja (višedesetljetna) istraživanja koja predstoje. Pred njima je da odgovore i na mnoga druga pitanja poput istovremenosti trajanja susjednih telova, kao i o mogućem sukcesivnom trajanju istih. U sadašnjoj fazi istraživanja možemo sumirati nekoliko spoznaja. Tako se krugovi parnjaci uvijek javljaju u neposrednoj blizini i nikad se ne presjecaju. Odmaknuti su samo u slučajevima kad između sebe imaju prirodnu prepreku kao što je slučaj na lokalitetu Vukovar – Gladovo (sl. 34–36) gdje između krugova postoji vodotok. Neolitička utvrđena naselja u ostatku Europe koja se znaju pojavljivati u skupinama uvijek se pojavljaju na većem međusobnom razmaku i različitih su dimenzija. Poprilično ujednačeni promjeri krugova koji variraju od 120 do 180 metara pokazuju da je riječ o sustavu i obrascu koji se ponavlja. Jedina iznimka u veličini je lokalitet Antin – Baćino koji ima krugove manjih dimenzija promjera oko 90 metara. Na pojedinim lokalitetima (Preslatinci – Ugljara i Tordinci – Vinogradarska Mlaka) primjećuju se dogradnje na primarne krugove. Vjerojatno je riječ o podgrađima/suburbijama nastalim naknadno uz glavno naselje. Široki opkopi koji okružuju puno širi prostor oko krugova parnjaka sugeriraju i veća ravna naselja oko njih. Krugovi parnjaci javljaju se na brežuljkastom krajoliku kao i na vodoplavnom/močvarnom prostoru što sugerira da osiguravanje dotoka vode ili odvodnja nisu primarna funkcija jaraka oko naselja.

Ovdje predstavljene spoznaje o planiranju i organizaciji naselja sopotske kulture ukazuju da pred sobom imamo tragove jednoga puno kompleksnijeg i vibrantnijeg sustava o kojem svakoga dana otkrivamo sve više.

PREGLED NALAZIŠTA

1. Gat – Svetošnice 1–2 (sl. 1–3)

Položaj: Lokalitet se nalazi SI od centra naselja Gat na lijevoj obali rijeke Karašice, a udaljeno je oko 600 m od današnjega toka Drave. Koordinate:[5] E = 643498.32, N = 5064697.04; Gat – Svetošnice 1 n/v (nadmorska visina) 94,4 m, Gat – Svetošnice 2 n/v 93,85 m.

Prospekcija: Krug Gat – Svetošnice 1 uočen je na Geoportalu na snimkama iz 2014./2016., kasnije i na snimkama

5 Sva mjerenja vezna su na službeni referentni koordinatni sustav HTRS96/TM.

have a greater range and a lesser degree of correspondence. The most complete overview of all published radiocarbon dates of the Sopot culture was compiled by K. Botić in his doctoral dissertation (Botić 2017c: 223–234). Based on a review of all of the dates compiled and presented there, the emergence of Sopot culture settlements with moats may be dated to the first half of the 5th millennium BC, and they endured throughout that millennium. The end of habitation on tells probably occurred at around 4200 BC at the latest.

CONCLUSION

We believe that these fifteen pairs of sites will mark a step forward in the study of Neolithic tells. More exhaustive data on the beginning of habitation and the duration of tells will be revealed by many years (even decades) of excavations in the future. They must furthermore provide answers to many other questions, such as the simultaneous habitation of neighbouring tells, as well as their possible successive duration. At the current phase of research, we can summarize several insights. Thus, twin circles always appeared in close proximity and never overlapped. They were only farther apart in cases when they had some natural barrier between them, as is the case at the Vukovar – Gladovo site (Figs. 34–36), where a waterstream ran between them. Neolithic fortified settlements in the remainder of Europe, which sometimes appear in groups, always stood at greater distances from one another and had different sizes. The rather uniform diameters of the circles, which vary from 120 to 180 meters, show that this was a system and pattern that were repeated. The only exception in size is the Antin – Baćino site, which had smaller circles with diameters of approximately 90 meters. Additional construction at the primary circles has been noted at individual sites (Preslatinci – Ugljara and Tordinci – Vinogradarska Mlaka). These were probably suburbs that arose after the main settlement. The wide moats that encircle the much wider space around the twin circles suggest larger flat settlements around them. Twin circles appeared in hilly landscapes and in flood plains/wetlands, which suggests that water supply and drainage were not the primary function of the ditches around the settlement.

The insights on the planning and organization of Sopot culture settlements presented herein indicate that what we have before us are the traces of a far more complex and vibrant system about which we are discovering more and more every day.

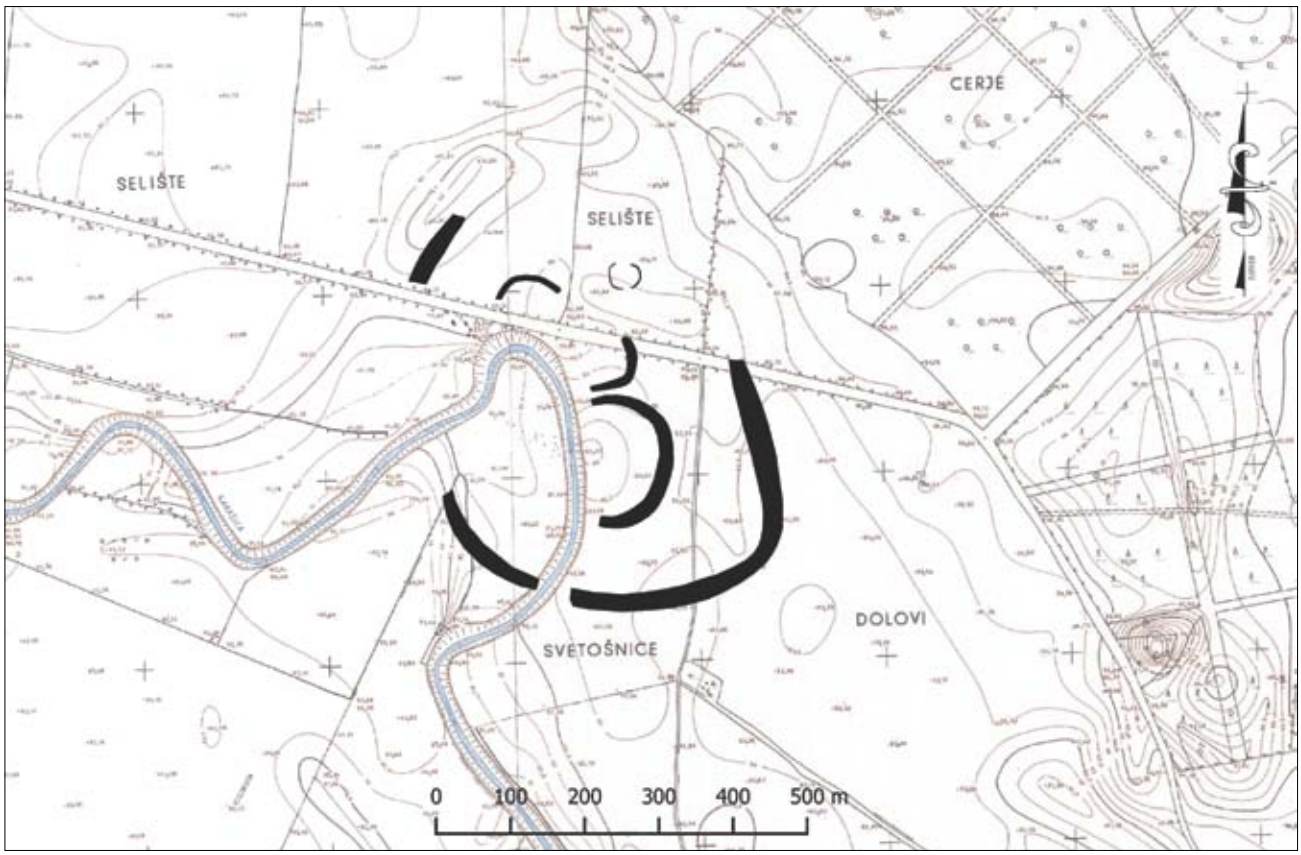
LIST OF SITES

1. Gat – Svetošnice 1–2 (Figs. 1–3)

Position: The site is situated NE of the Gat village on the left bank of the Karašica River, and is about 600 m away from today's Drava River flow. Coordinates:[5] E = 643498.32, N = 5064697.04; Gat – Svetošnice 1, alt. (altitude) 94.4 m, Gat – Svetošnice 2, alt. 93.85 m.

Prospection: The Gat – Svetošnice 1 enclosure was noted on Geoportal, shots from 2014/2016 and later also on

5 All measurements are expressed in the HTRS96/TM official reference coordinate system.



Sl. 1 Gat – Svetošnice, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 1 Gat – Svetošnice, plan based on aerial images (made by: K. Turkalj)

Sl. 2 Gat – Svetošnice, Google Earth snimak 03. 12. 2015.
Fig. 2 Gat – Svetošnice, Google Earth image December 3, 2015

Sl. 3 Gat – Svetošnice, snimak dronom (snimio: K. Šobat, 16. 05. 2016.)
Fig. 3 Gat – Svetošnice, dron image (photo: K. Šobat, May 16th, 2016)

iz 2017. Pojedini dijelovi lokaliteta vidljivi su na snimkama Google Earth te ARKOD (pregled 07. 05. 2018). Snimke dronom na dane 16. 05. 2016. i 16. 06. 2016. potvrdile su postojanje krugova.

Opis: Gat – Svetošnice 1, južni jednostruki krug (tel). Dimenzije kruga su 180 x 130 m. Površina koju pokriva iznosi 1,7 ha. Jarak je 18 m širok. Središnji dio je relativne visine 1,5 m. Zapadni dio kruga uništen je erozijom toka Karašice.

Gat – Svetošnice 2, sjeverni jednostruki krug (tel). Dimenzije kruga su 214 x 80 m. Površina koju pokriva iznosi 1,6 ha. Širina jarka je 14 m. Središnji dio je relativne visine 1 m. Južni dio kruga uništen je erozijom toka Karašice.

Na zračnim snimkama uočava se vanjski opkop površine oko 22 ha koji okružuje oba kruga.

Nalazi: keramika, litika, glačano oruđe sopotske kulture, sjeverno od krugova nalazi srednjovjekovne keramike.

Literatura: Kalafatić, Šiljeg 2017: 126–132.

2. Osijek – Hermanov vinograd 1–2 (sl. 4–6)

Položaj: Lokalitet se nalazi JZ od centra grada Osijeka na sjecištu držane ceste D2 i željezničke pruge Osijek – Đakovo. Od Drave je udaljen 2,2 km. Na povijesnome katastru (Habsburg Empire – Cadastral Maps XIX century) zabilježen je toponim Filipovica. Toponim s pojavljuje i na kartama iz 20. stojeća, pa se vjerojatno zbog toga lokalitet pojavljuje pod nazivom Filipovica (Hermanov vinograd) (Šimić 1989; 1998; 1999; 2000: 223–230; 2006; 2007; 2008a; 2008b; 2009; Hršak, Los: 2014). Povijesne karte su zabilježile močvarno

shots from 2017. Some parts of the site are visible on Google Earth and ARKOD images (visited on May 7, 2018). Drone images taken on May 16 and June 16, 2016 confirm the existence of enclosures.

Description: Gat – Svetošnice 1, southern single enclosure (tell). The enclosure measures 180 x 130 m. The surface area it occupies is 1.7 ha. The ditch is 18 m wide. The central part measures 1.5 m in height. The western part of the enclosure has been destroyed by the Karašica River.

Gat – Svetošnice 2, northern single enclosure (tell). The enclosure measures 214 x 80 m. The surface area it occupies is 1.6 ha. The ditch is 14 m wide. The central part measures 1 m in relative height. The southern part of the enclosure was destroyed by the Karašica River.

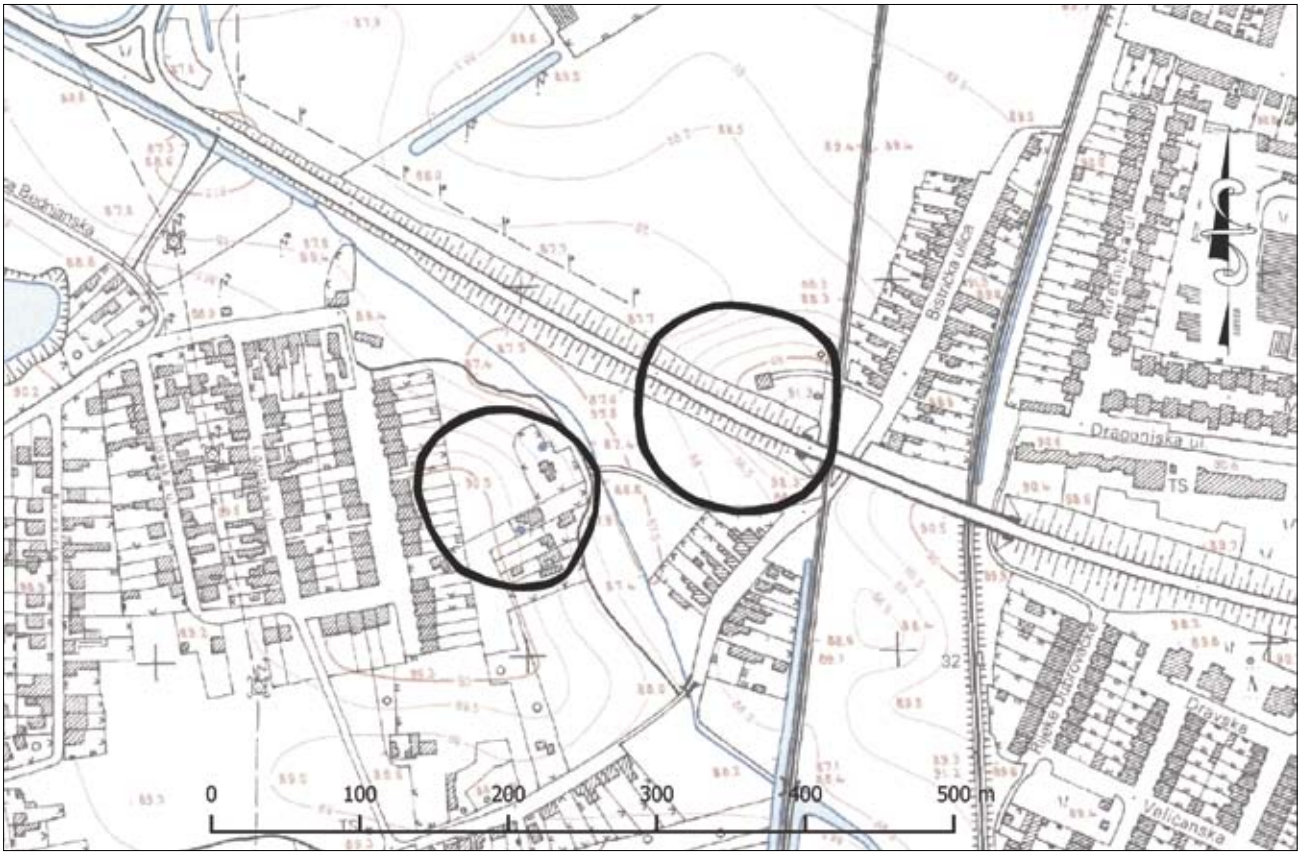
The aerial photographs reveal an outer enclosure, measuring about 22 ha, that encompasses both enclosures.

Finds: pottery, chipped stone, polished tools of the Sopot culture, north of the enclosures–finds of Medieval pottery.

Bibliography: Kalafatić, Šiljeg 2017: 126–132.

2. Osijek – Hermanov vinograd 1–2 (Figs. 4–6)

Position: The site is situated SW of the center of the city of Osijek, at the crossroads of state D2 road and the Osijek – Đakovo railway tracks. It is 2.2 km away from the Drava River. The historical cadaster (Habsburg Empire – Cadastral Maps XIX century) records the toponym of Filipovica. The toponym also appears on 20th-century maps, which is probably why the site is sometimes called Filipovica (Hermanov vinograd) (Šimić 1989; 1998; 1999; 2000: 223–230; 2006; 2007; 2008a; 2008b; 2009; Hršak, Los: 2014). Historical maps recorded marshes between two elevated positions. Coor-



Sl. 4 Osijek – Hermanov vinograd, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 4 Osijek – Hermanov vinograd, plan based on aerial images (made by: K. Turkalj)

Sl. 5 Osijek– Hermanov vinograd, katastarski plan Habsburškog carstva – XIX. stoljeće (mapire.eu)
Fig. 5 Osijek – Hermanov vinograd, Cadastral maps of Habsburg Empire – XIX Century (mapire.eu)

Sl. 6 Osijek – Hermanov vinograd, vertikalni ortofoto snimak, prije 15. 02. 1968.
Fig. 6 Osijek – Hermanov vinograd, vertical orthophoto image, before February 15, 1968

tlo između dva uzvišenja. Koordinate: E = 669290.29, N = 5047214.37; Osijek – Hermanov vinograd 1 n/v 91,3 m; Osijek – Hermanov vinograd 2 n/v 90,5 m.

Prospekcija: Krugovi Osijek – Hermanov vinograd 1 i 2 uočeni su na mrežnim stranicama ispu.mgipu.hr na snimkama nastalima prije 1968. godine gdje se na neizgrađenome području jasno uočavaju oba kruga. Pojedini dijelovi lokaliteta vidljivi su na snimkama Google Earth, Geoportal te ARKOD (pregled 07. 05. 2018). Povijesne karte i katastar ukazuju na postojanje uzvišenja (mapire.eu).

Opis: Osijek – Hermanov vinograd 1, istočni jednostruki krug (tel) poznat kao lokalitet od kraja 19. stoljeća (Celestin 1896/1897). Dimenzije kruga su 144 x 138 m. Površina koju pokriva iznosi 1,6 ha. Jarak je 5 m širok. Relativna visina središnjega dijela je 4 m. Njegov istočni dio uništen je krajem 19. stoljeća izgradnjom željezničke pruge, a južni dio lokaliteta uništen je izgradnjom južne osječke obilaznice 1974. godine (Hršak, Los: 2014: 38–39).

Osijek – Hermanov vinograd 2, zapadni jednostruki krug (tel). Dimenzije kruga su 125 x 127 m. Površina koju pokriva iznosi 1,2 ha. Širina jarka je 5 m. Relativna visina središnjega dijela je 3,1 m. Ugrožen je izgradnjom stambenih objekata.

Nalazi: keramika, litika, glačano oruđe, koštani artefakti

dinates: E = 669290.29, N = 5047214.37; Osijek – Hermanov vinograd 1, alt. 91.3 m; Osijek – Hermanov vinograd 2, alt. 90.5 m.

Prospection: The Osijek – Hermanov vinograd 1 and 2 enclosures were recorded on the ispu.mgipu.hr web pages, on images taken before 1968, where both enclosures are clearly visible on areas where nothing was constructed. Certain parts of the site are visible on Google Earth, Geoportal and ARKOD images (visited on May 7, 2018). Historical maps and cadaster indicate the existence of elevations (mapire.eu).

Description: Osijek – Hermanov vinograd 1, eastern single enclosure (tell) known to be a site since the end of the 19th century (Celestin 1896/1897). The enclosure measures 144 x 138 m. The surface area it occupies is 1.6 ha. The ditch is 5 m wide. The central part measures 4 m in relative height. Its eastern part was destroyed at the end of the 19th century when the railroad was constructed, and its southern part was destroyed when the southern bypass in Osijek was constructed in 1974 (Hršak, Los: 2014: 38–39).

Osijek – Hermanov vinograd 2, western single enclosure (tell). The enclosure measures 125 x 127 m. The surface area it occupies is 1.2 ha. The ditch is 5 m wide. The central part measures 3.1 m in relative height. The site is endangered due to the construction of residential buildings.

Finds: pottery, chipped stone, polished tools, bone artifacts and jewelry made of shells, all ascribed to the Sopot culture.

te nakit od školjaka, sve pripisano sopotskoj kulturi.

Literatura: Celestin 1896/1897: 67, 104; Dimitrijević 1968: 27, 40; 1979; Šimić 1989; 1998; 1999; 2006; 2007; 2008a; 2008b; 2009; Los 2013: 27–34; Hršak, Los 2014: 38–42.

3. Klisa – Groblje i Brdo 1–2 (sl. 7–9)

Položaj: Lokalitet se nalazi na granici dviju županija (Osječko-baranjske i Vukovarsko-srijemske) te granici triju naselja Tenja, Klisa i Bobota. Kako su toponimi vezani za Klisu, tako ćemo položaj odrediti prema položaju današnje Klise od koje je udaljen 2,6 km u pravcu J-JZ. Koordinate: E = 680304.87, N = 5038402.45; Klisa – Brdo n/v 89,50 m, Klisa – Groblje n/v 89,50 m.

Prospekcija: Uočen je na najranijim satelitskim snimkama na Google Earth 24. 03. 2006., te je vidljiv na gotovo svim zračnim snimkama na internetu Geoportal, ARKOD. Najbolje se vidi na ispu.mgipu.hr crno bijelim snimkama nastalim prije 1968. godine tj. prije izgradnje zračne luke Osijek. Naime, uzletno-sletna staza uništila je sjeverni dio lokaliteta, a vjerojatno su i uzvišenja bar malo snižena.

Opis: Klisa – Brdo, istočni trostruki krug (tel). Vidljiva površina koju zauzima vanjski krug je 12 ha. Vidljiva dužina vanjskoga kruga je 400 m. Širina jarka iznosi 13,5 m. Središnji krug je skoro vidljiv u cijelosti promjera 218 m, te površine

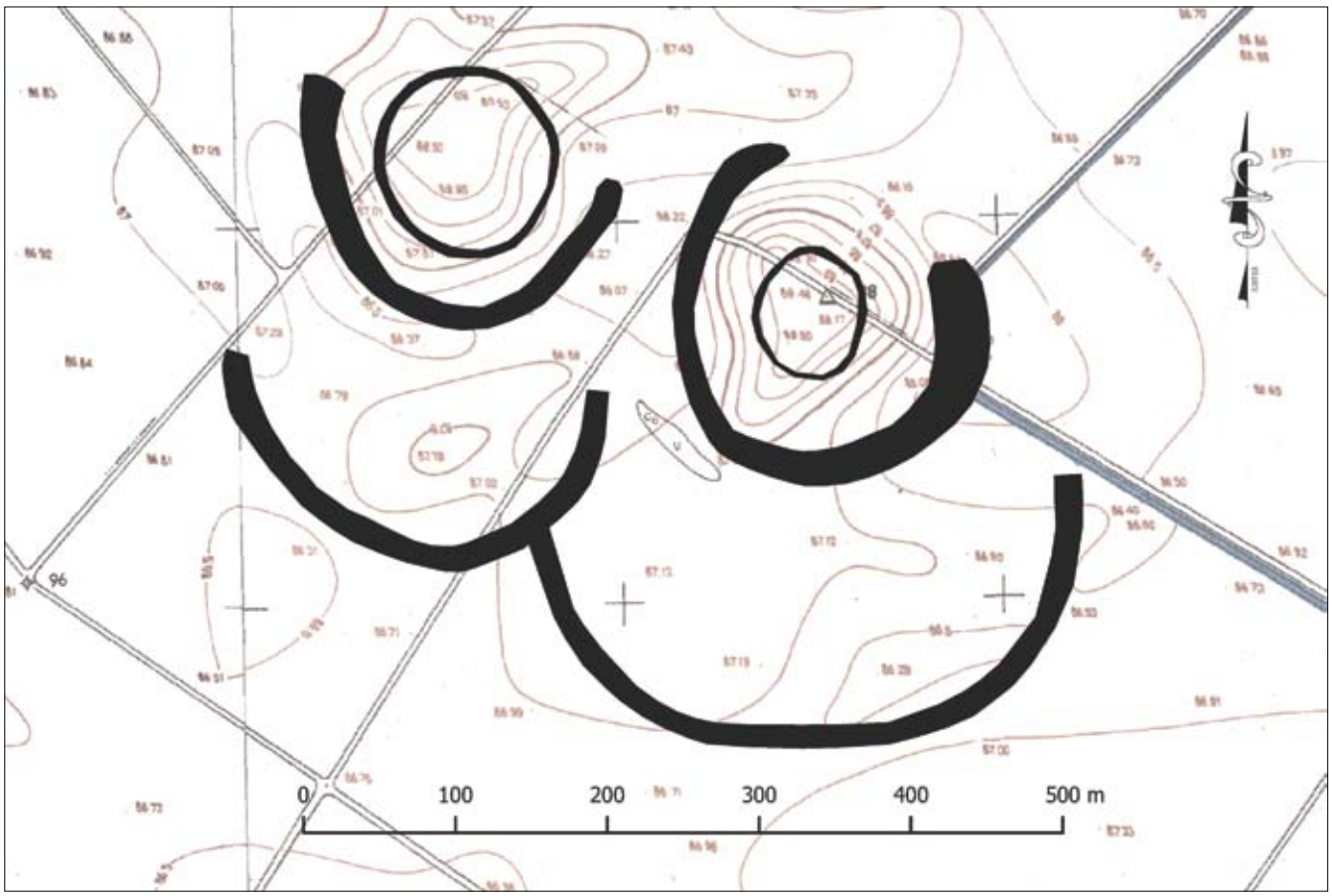
Bibliography: Celestin 1896/1897: 67, 104; Dimitrijević 1968: 27, 40; 1979; Šimić 1989; 1998; 1999; 2006; 2007; 2008a; 2008b; 2009; Los 2013: 27–34; Hršak, Los 2014: 38–42.

3. Klisa – Groblje and Brdo 1–2 (Figs. 7–9)

Position: The site is situated at the border of two Counties (Osječko-baranjska and Vukovarsko-srijemska), and on the border of three settlements – Tenja, Klisa and Bobota. Seeing as the toponyms are connected to Klisa, the position of the site is determined in relation to that settlement. It is situated 2.6 km S-SE of the village. Coordinates: E = 680304.87, N = 5038402.45; Klisa – Brdo, alt. 89.50 m, Klisa – Groblje, alt. 89.50 m.

Prospection: The site was noted on the earliest satellite images on Google Earth, March 24, 2006, and is visible on almost all aerial photographs on the internet – Geoportal, ARKOD. It is most visible at ispu.mgipu.hr, on black and white images made before the Osijek airport was built in 1968. Namely, the runway destroyed the northern part of the site, and the elevations were also probably reduced to some extent.

Description: Klisa – Brdo, eastern triple enclosure (tell). The visible surface occupied by the outer enclosure is 12 ha. The visible length of the outer circle is 400 m. The ditch is 13.5 m wide. The central enclosure is almost entirely visible and measures 218 m in diameter, covering an area of 3.6



Sl. 7 Klisa – Groblje i Brdo, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 7 Klisa – Groblje and Brdo, plan based on aerial images (made by: K. Turkalj)

Sl. 8 Klisa – Groblje i Brdo, vertikalni ortofoto snimak prije 15. 02. 1968.
Fig. 8 Klisa – Groblje and Brdo, vertical orthophoto image before February 15, 1968

Sl. 9 Klisa – Groblje i Brdo, Google Earth snimak 24. 04. 2006.
Fig. 9 Klisa – Groblje and Brdo, Google Earth image April 24, 2006

3,6 ha. Širina jarka iznosi 35 m. Dimenzije unutarnjega kruga su 89 x 75 m, a pokriva površinu od 0,5 ha. Jarak unutarnjega kruga je 3,5 m širine. Vanjski krug sa zapadne strane na nekim snimkama izgleda kao presječen vanjskim krugom Klisa – Groblje. Relativna visina središnjega dijela je 3,3 m.

Klisa – Groblje, zapadni trostruki krug (tel). Vidljiva dužina opkopa vanjskog kruga je 330 m Procijenjena površina koju pokriva je 9 ha. Jarak je 16,5 m širok. Središnji krug je vidljiv u južnoj polovici, promjera 224 m te je površine ok 4,2 ha. Širina jarka iznosi 24 m. Unutarnji krug je dimenzija 124 x 122 m. Pokriva površinu od 1,2 ha. Širina unutarnjega jarka iznosi 8 m. Relativna visina središnjega dijela je 3,3 m.

Nalazi: grobovi, crkva, keramika (sopotska kultura, antika i srednji vijek).

Literatura: Dorn 1978; Šimić 2012: 175; Kalafatić, Šiljeg 2016: 113–114; Šiljeg, Kalafatić 2015a: 135–136, sl. 1; 2016: 213, 222, sl. 15; Šiljeg et al. 2015: 358.

4. Preslatinci (Drenje) – Ugljara 1–2 (sl. 10–12)

Položaj: Lokalitet se nalazi 600 m Z od centra naselja Preslatinci na putu prema naselju Pridvorje. Od potoka Kaznice udaljen je 0,6 km. Na povijesnome katastru (Habsburg Empire – Cadastral Maps XIX century) zabilježen je toponim Grac točno na mjestu krugova. Dočim je toponim Ugljara nešto sjevernije od lokaliteta. Na udaljenosti od oko 700 m nalazi se više izvora. Danas su presječeni kanalima i poljskim putem. Koordinate: E = 640650.49, N = 5026480.69; Preslatinci – Ugljara 1 n/v 135,4 m, Preslatinci – Ugljara 2 n/v 138,4 m.

Prospekcija: Uočen je na najranijim satelitskim snimkama na Google Earth 29. 03. 2007., te je vidljiv na gotovo svim zračnim snimkama na internetu Geoportal, ARKOD. Zračnim snimanjem potvrdili smo pretpostavku o dva kruga i „podgrađem" kruga 1. Linija koja je vidljiva ispod krugova ostatak je puta koji se vidi na povijesnim kartama, ali i na snimci iz 60-tih godina prošloga stoljeća kad je još bio u upotrebi.

Opis: Preslatinci – Ugljara 1, istočni dvostruki krug (tel). Dimenzije koju pokriva krug i „podgrađe" su 169 x 228 m. Površina iznosi 3,1 ha. Širina jarka je 6 m. Krug bez "podgrađa" je površine 1,7 ha. Dimenzije kruga su 143 x 154 m. Širina unutarnjega jarka je 8 m. Relativna visina središnjega dijela je 1,4 m.

Preslatinci – Ugljara 2, zapadni jednostruki krug (tel). Dimenzije kruga su 178 x 179 m. Površina iznosi 2,5 ha. Širina jarka je 9 m. Relativna visina središnjega dijela je 3,1 m.

Nalazi: keramika, glačano oruđe, litika sopotske kulture.

Literatura: Marković 1985: 12; 1994: 85, T. 13: 1–3; 2012: 62; Kalafatić, Šiljeg 2016: 113, 115–116; Šiljeg, Kalafatić 2015a: 135, 139, sl. 7; Šiljeg et al. 2015: 358.

ha. The ditch is 35 m wide. The inner enclosure measures 89 x 75 m, and covers an area of 0.5 ha. The ditch of the inner enclosure is 3.5 m wide. On some images, it looks like the western part of the outer enclosure is cut by the outer enclosure of the Klisa – Groblje. The central part measures 3.3 m in relative height.

Klisa – Groblje, western triple enclosure (tell). The visible length of the ditch of the outside enclosure is 330 m. The estimated surface area is 9 ha. The ditch is 16.5 m wide. The southern half of the central enclosure is visible, measures 224 m in diameter and covers an area of about 4.2 ha. The ditch is 24 m wide. The inner enclosure measures 124 x 122 m. It covers an area of 1.2 ha. The inner ditch is 8 m wide. The central part measures 3.3 m in relative height.

Finds: graves, church, pottery (the Sopot culture, Classical Antiquity and the Middle Ages).

Bibliography: Dorn 1978; Šimić 2012: 175; Kalafatić, Šiljeg 2016: 113–114; Šiljeg, Kalafatić 2015a: 135–136, Fig. 1; 2016: 213, 222, Fig. 15; Šiljeg et al. 2015: 358.

4. Preslatinci (Drenje) – Ugljara 1–2 (Figs. 10–12)

Position: The site is situated 600 m W of the center of the Preslatinci village, on the road to Pridvorje. It is 0.6 km away from the Kaznica stream. The historical cadaster (Habsburg Empire – Cadastral Maps XIX century) records the Grac toponym right at the location of the enclosures. The Ugljara toponym is somewhat more to the north of the site. There are several springs about 700 m away from the site, and are now cut off by canals and a field road. Coordinates: E = 640650.49, N = 5026480.69; Preslatinci – Ugljara 1, alt. 135.4 m, Preslatinci – Ugljara 2, alt. 138.4 m.

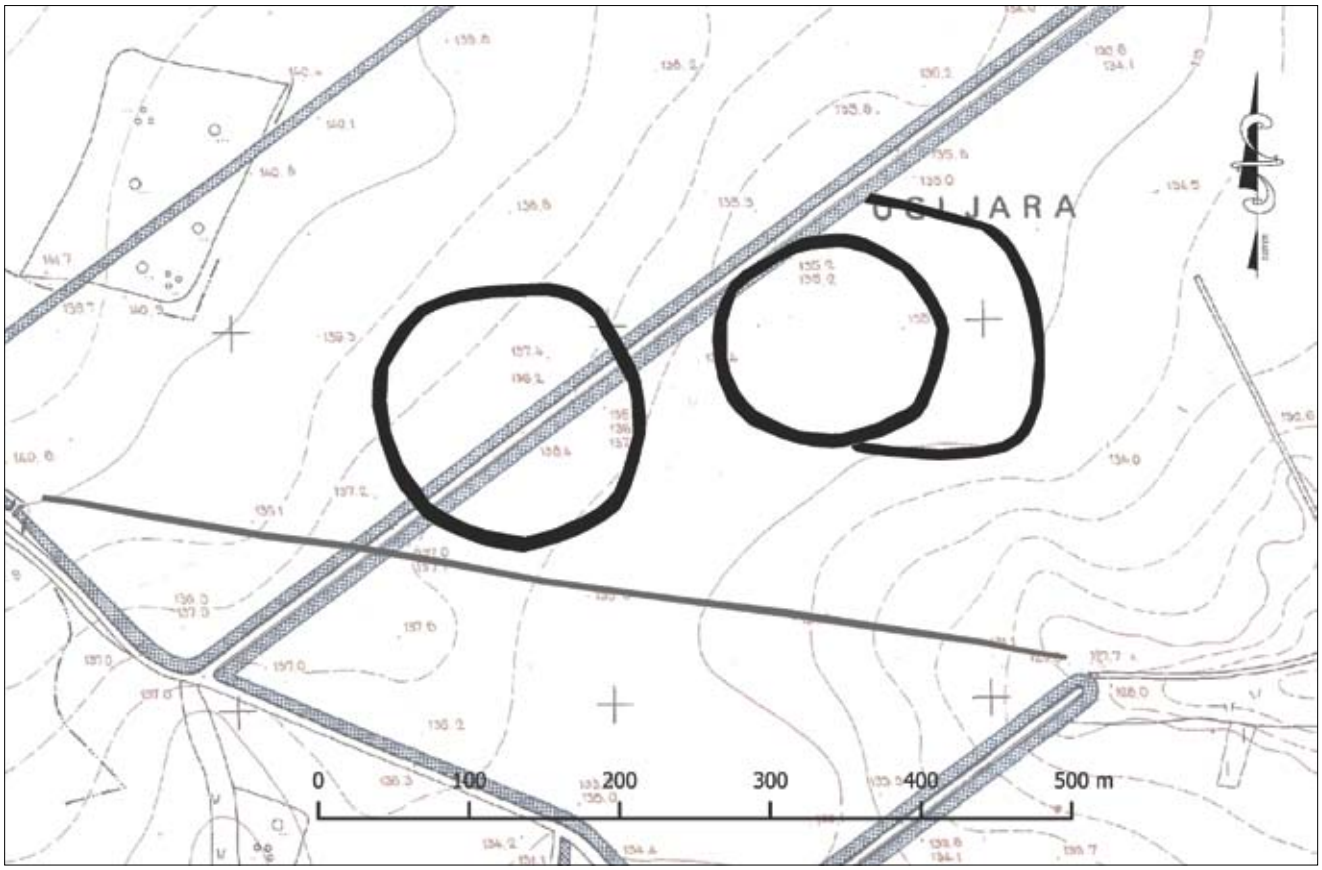
Prospection: The site was noted on the earliest satellite images on Google Earth, March 29, 2007, and is visible on almost all aerial photographs on the internet – Geoportal, ARKOD. Aerial photographs helped confirm the assumption about the existence of two enclosures and the "outskirts" of enclosure 1. The line that can be seen under the enclosures presents the remains of a path that is visible on historical maps and pictures from the 1960s when it was still in use.

Description: Preslatinci – Ugljara 1, eastern double enclosure (tell). The dimensions of the enclosure and the "outskirts" measure 169 x 228 m. The surface area is 3.1 ha. The ditch is 6 m wide. The enclosure without the "outskirts" covers an area of 1.7 ha. The enclosure measures 143 x 154 m. The width of the inner ditch is 8 m. The central part measures 1.4 m in relative height.

Preslatinci – Ugljara 2, western single enclosure (tell). The enclosure measures 178 x 179 m. The surface area is 2.5 ha. The ditch is 9 m wide. The central part measures 3.1 m in relative height.

Finds: pottery, polished tools, chipped stone tools of the Sopot culture.

Bibliography: Marković 1985: 12; 1994: 85, Pl. 13: 1–3; 2012: 62; Kalafatić, Šiljeg 2016: 113, 115–116; Šiljeg, Kalafatić 2015a: 135, 139, Fig. 7; Šiljeg et al. 2015: 358.



Sl. 10 Preslatinci – Ugljara, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 10 Preslatinci – Ugljara, plan based on aerial images (made by: K. Turkalj)

Sl. 11 Preslatinci – Ugljara, Google Earth snimak 05. 08. 2013.
Fig. 11 Preslatinci – Ugljara, Google Earth image August 5, 2013

Sl. 12 Preslatinci – Ugljara, kosi snimak (snimio: H. Kalafatić, 10. 06. 2015.)
Fig. 12 Preslatinci – Ugljara, oblique image (photo: H. Kalafatić, June 10, 2015)

5. Vrbica – Drake i Baričev bostan (sl. 13–15)

Položaj: Lokalitet se nalazi 1,8 km I od centra naselja Vrbica, a sjeverno od puta prema naselju Mrzović. Južno od lokaliteta protječe manji vodotok koji se u Mrzoviću ulijeva u Mlinski potok. Kanal između krugova novijeg je datuma. Koordinate: E = 662447.80, N = 5022102.92; Vrbica – Drake n/v 117 m, Vrbica – Baričev bostan n/v 115,8 m.

Prospekcija: Uočeni su na najranijim satelitskim snimkama na mrežnim stranicama Microsoft Terraserver iz 1999. godine, a vidljiv je na gotovo svim zračnim snimkama na internetu Google Earth, Geoportal, ARKOD. Zračnim snimanjem potvrdili smo pretpostavku o dva kruga.

Opis: Vrbica – Drake, istočni dvostruki krug (tel). Dimenzije kruga su 173 x 176 m. Površina koju zauzima vanjski krug iznosi 2,4 ha. Širina jarka je 11 m. Dimenzije unutarnjega kruga su 111 x 106 m. Površina kruga je 0,9 ha. Širina unutarnjega jarka iznosi 7,3 m. Relativna visina središnjega dijela je 2,2 m.

Vrbica – Baričev bostan, zapadni dvostruki krug. Dimenzije kruga su 160 x 165 m. Površina vanjskoga kruga iznosi 2 ha. Jarak je širok 7 m. Dimenzije unutarnjega kruga su 124 x 134 m. Površina kruga iznosi 1,3 ha. Širina unutarnjega kruga je 9 m. S istočne strane unutarnjega kruga vidljiv je ulaz na središnji plato. Relativna visina središnjega dijela je 0,5 m.

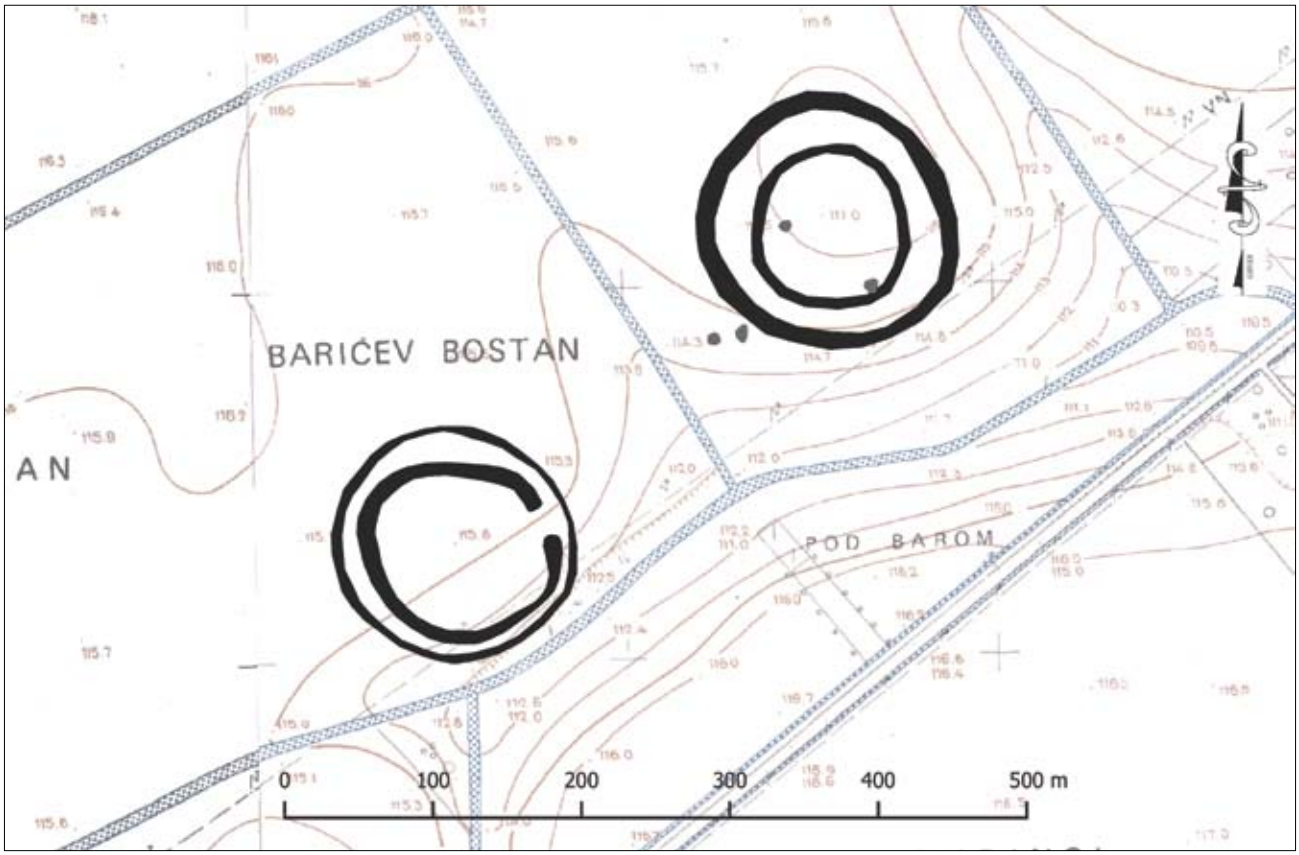
5. Vrbica – Drake and Baričev bostan (Figs. 13–15)

Position: The site is situated 1.8 km E of the center of Vrbica, and north of the road that leads to Mrzović. A small stream flows south of the site and into the Mlinski potok stream in Mrazović. The canal situated between the enclosures is more recent. Coordinates: E = 662447.80, N = 5022102.92; Vrbica – Drake, alt. 117 m, Vrbica – Baričev bostan, alt. 115.8 m.

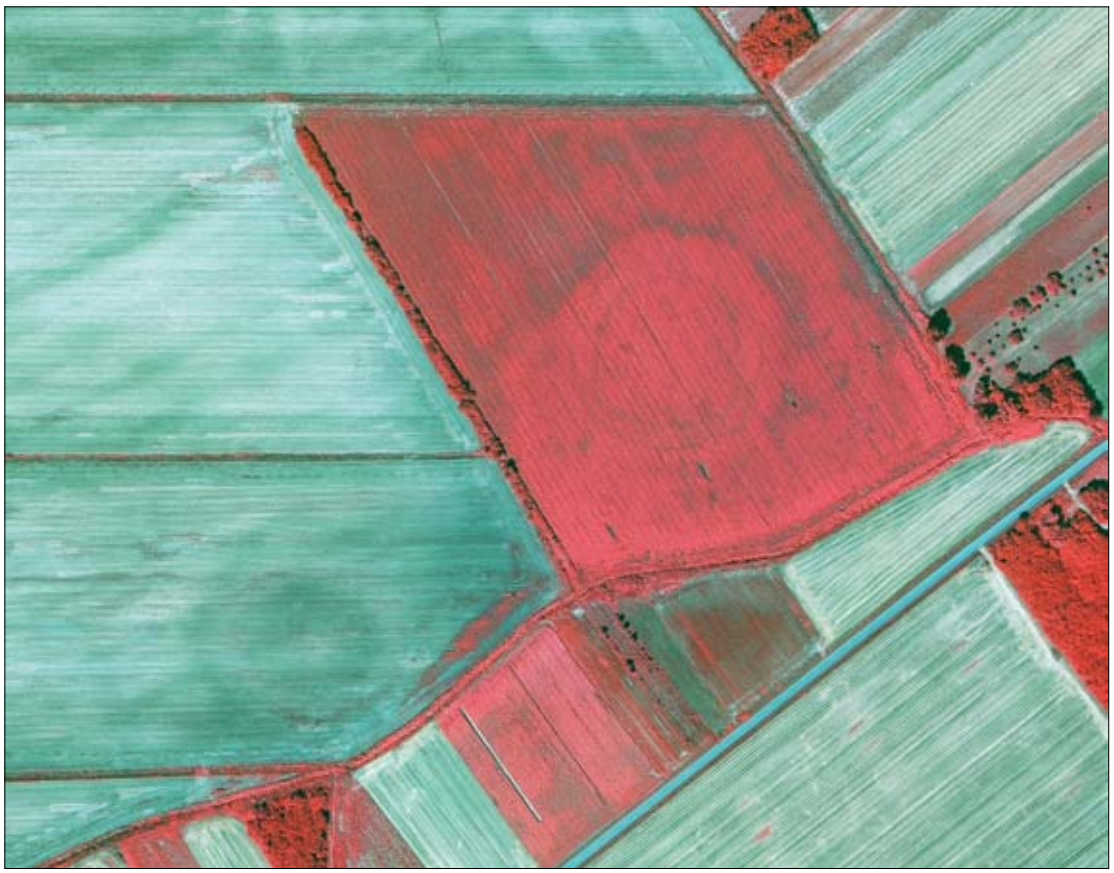
Prospection: The enclosures were noted on the earliest satellite images from 1999 on the Microsoft TerraServer pages, and are visible on almost all aerial photographs on the internet – Google Earth, Geoportal, ARKOD. Aerial photographs helped confirm the assumption about the existence of two enclosures.

Description: Vrbica – Drake, eastern double enclosure (tell). The enclosure measures 173 x 176 m. The surface covered by the outer enclosure is 2.4 ha. The ditch is 11 m wide. The inner enclosure measures 111 x 106 m. The surface of the enclosure is 0.9 ha. The width of the inner ditch is 7.3 m. The central part measures 2.2 m in relative height.

Vrbica – Baričev bostan, western double enclosure. The enclosure measures 160 x 165 m. The surface of the outer enclosure is 2 ha. The ditch is 7 m wide. The inner enclosure measures 124 x 134 m. The surface of the enclosure is 1.3 ha. The inner enclosure is 9 m wide. The entrance to the central plateau is visible on the eastern side of the inner enclosure. The central part measures 0.5 m in relative height.



Sl. 13 Vrbica – Drake i Baićev bostan, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 13 Vrbica – Drake and Baićev bostan, plan based on aerial images (made by: K. Turkalj)



Sl. 14 Vrbica – Drake i Baićev bostan, vertikalni near-infrared snimak Državne geodetske uprave RH
Fig. 14 Vrbica – Drake and Baićev bostan, vertical near-infrared image of State Geodetic Administration of the Republic of Croatia

Sl. 15 Vrbica – Drake i Baićev bostan, snimak dronom (snimio: K. Šobat, 10. 06. 2015.)
Fig. 15 Vrbica – Drake and Baićev bostan, dron image (photo: K. Šobat, June 10, 2015)

Nalazi: keramika, glačano oruđe, litika sopotske kulture, keramika srednjega vijeka.

Literatura: Šiljeg, Kalafatić 2015a: 135, 137, 139; Šiljeg et al. 2015: 358.

6. Antin – Baćino 1–2 (sl. 16–18)

Položaj: Lokalitet se nalazi na lijevoj obali Vuke 3,5 km Z od naselja Antin, a 0,8 km Sl od naselja Markušica. Koordinate: E = 672812.14, N = 5029309.67; Antin – Baćino 1 n/v 90,50 m, Antin – Baćino 2 n/v 87,50 m.

Prospekcija: Krug 1 je uočena na snimku Google Earth 24. 03. 2006. Krug 2 smo uočili na kosim snimkama snimljenima iz zrakoplova 10. 06. 2015. Oba ili pojedini krugovi vidljivi su na gotovo svim snimcima Google Eartha, zatim na ispu.mgipu.hr crno bijelim snimkama nastalim prije 1968. godine, Geoportal, ARKOD (pregled 15. 04. 2017).

Opis: Antin – Baćino 1 nalazi se na lijevoj obali Vuke. Dimenzije sjeverozapadnoga jednostrukog kruga su 93 x 80 m. Površine je 0,57 ha, a jarak je širine 12 m. Opkop gradišta je spojen s Vukom iz koje je dobivao vodu. Pretpostavlja se kako je gradište na mjestu sopotskoga kruga jer nalazi upu-

Finds: pottery, polished tools, chipped stone tools of the Sopot culture, medieval pottery.

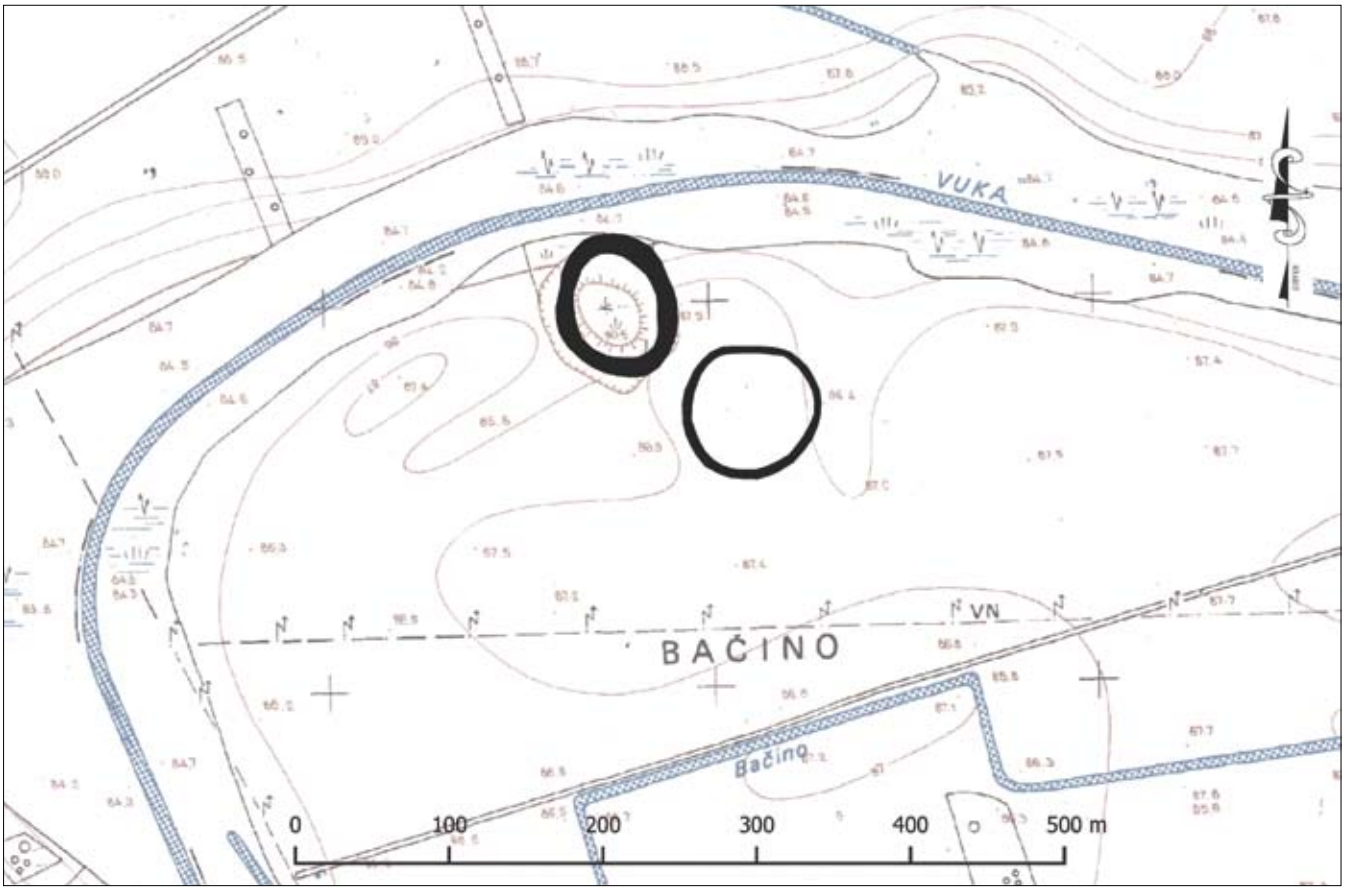
Bibliography: Šiljeg, Kalafatić 2015a: 135, 137, 139; Šiljeg et al. 2015: 358.

6. Antin – Baćino 1–2 (Figs. 16–18)

Position: The site is situated on the left bank of the Vuka River, 3.5 km W of the Antin village, and 0.8 km NE of the Markušica village. Coordinates: E = 672812.14, N = 5029309.67; Antin – Baćino 1, alt. 90.50 m, Antin – Baćino 2, alt. 87.50 m.

Prospection: Enclosure 1 was noted on Google Earth, March 24, 2006. Enclosure 2 was noted on slanted images taken from an airplane on June 10, 2015. Both or individual enclosures are visible on almost all Google Earth shots, on black and white photographs taken before 1968 at ispu.mgipu.hr, on Geoportal and ARKOD (visited on April 15, 2017).

Description: Antin – Baćino 1 is situated on the left bank of the Vuka River. The northwestern single enclosure measures 93 x 80 m. Its surface area is 0.57 ha, and the ditch is 12 m wide. The moat of the hillfort is connected to the Vuka River that supplied it with water. Based on the finds, it was assumed that the hillfort is on the same location as enclo-



Sl. 16 Antin – Baćino, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 16 Antin – Baćino, plan based on aerial images (made by: K. Turkalj)

Sl. 17 Antin – Baćino, Google Earth snimak 19. 05. 2015.
Fig. 17 Antin – Baćino, Google Earth image May 19, 2015

Sl. 18 Antin – Baćino, kosi snimak (snimio: H. Kalafatić, 10. 06. 2015.)
Fig. 18 Antin – Baćino, oblique image (photo: H. Kalafatić, June 10, 2015)

ćuju na takav zaključak. Relativna visina središnjega dijela je 4,8 m. Po izvorima se smatra da je Baćino krajem 13. st. (iza 1267. godine) kraljevskom donacijom dobio ban Martin – rodonačelnik baćinske grane Szente Magocsa (Petković 2005: 170–172; 2006: 151) te je navedeni posjed Bathyai Bagya postao matični posjed ovoga roda (Andrić 2007: 46).

Antin – Baćino 2 je jugoistočni jednostruki krug. Dimenzije kruga iznose 87 x 91 m. Površina je 0,6 ha. Jarak je širine 6 m. Relativna visina središnjega dijela je 1,1 m.

Nalazi: keramika i litika sopotske kulture.

Literatura: Andrić 2007: 46; Petković 2005: 170–172; 2006: 151; Krznarić Škrivanko 2012: 33; Rapan Papeša 2010: 329–331.

7. Tordinci – Vinogradarska Mlaka 1–2 (sl. 19–21)

Položaj: Lokalitet se nalazi sa zapadne strane današnjega poljskog puta Tordinci – Bobota udaljen 2,7 km od Tordinaca. Odvojeni su kanalom Rodovac kojim je reguliran prirodni vodotok/baruština. Koordinate: E = 681065.49, N = 5030583.89; Tordinci – Vinogradaska Mlaka 1 n/v 88,90 m, Tordinci – Vinogradarska Mlaka 2 n/v 89,50 m.

Prospekcija: Krugovi su uočeni na snimkama Google Earth 24. 03. 2006. Na snimkama iz 2011. s Geoportala uočeni su „podgrađe", a na snimkama iz 2014./2016. vidi se manji

sures ascribed to the Sopot culture. The central part measures 4.8 m in relative height. Written documents indicate that Baćino was, at the end of the 13th century (after 1267) royally donated to duke Martin –the founder of the Baćino branch of the Szent Magocs family (Petković 2005: 170–172; 2006: 151), and that the estate of Bathyai Bagy became the family's main home (Andrić 2007: 46).

Antin – Baćino 2, southeastern single enclosure. The enclosure measures 87 x 91 m. Its surface area is 0.6 ha. The ditch is 6 m wide. The central part measures 1.1 m in relative height.

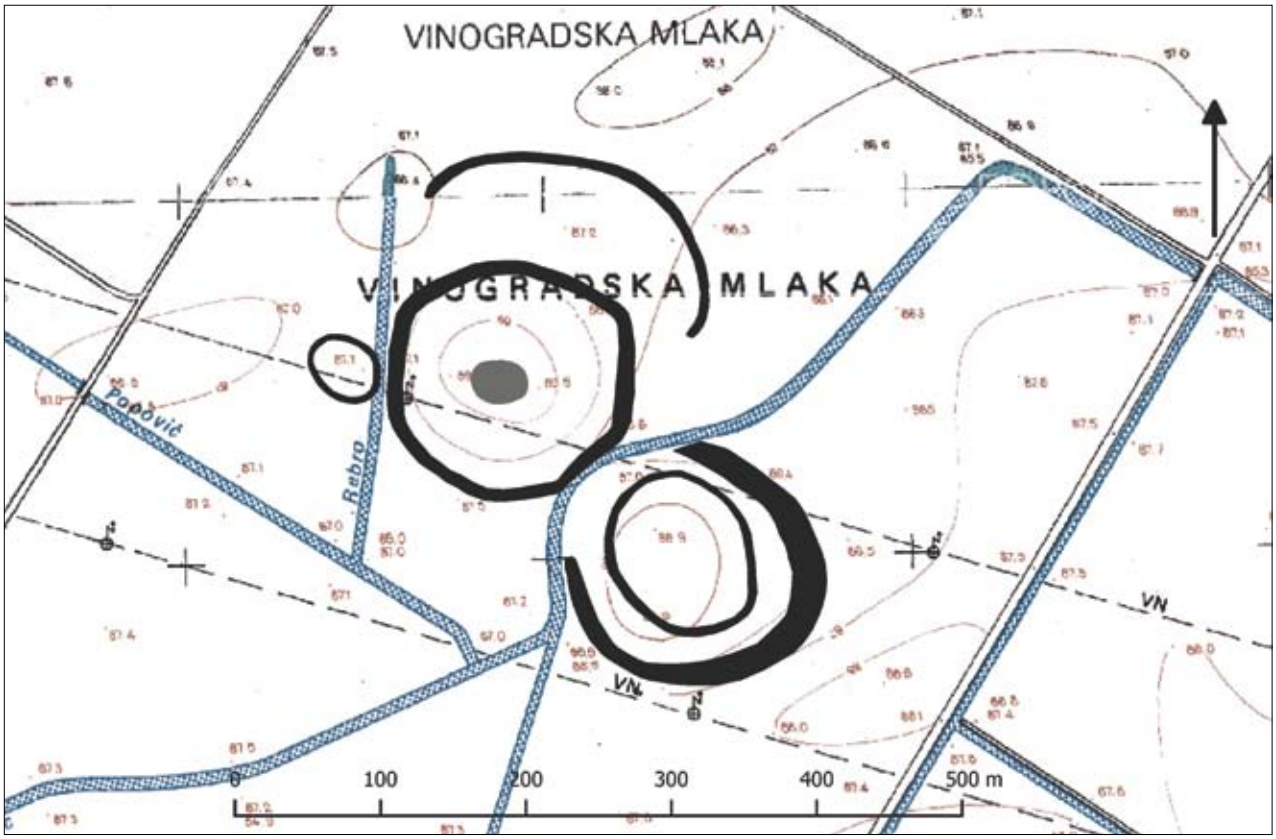
Finds: pottery i chipped stone tools of the Sopot culture.

Bibliography: Andrić 2007: 46; Petković 2005: 170–172; 2006: 151; Krznarić Škrivanko 2012: 33; Rapan Papeša 2010: 329–331.

7. Tordinci – Vinogradarska Mlaka 1–2 (Figs. 19–21)

Position: The site is situated on the western side of today's field path between Tordinci and Bobota, 2.7 km away from Tordinci. The enclosures are separated by the Rodovac canal used to regulate the natural water flow/morass. Coordinates: E = 681065.49, N = 5030583.89; Tordinci – Vinogradaska Mlaka 1, alt. 88.90 m, Tordinci – Vinogradarska Mlaka 2, alt. 89.50 m.

Prospection: The enclosures were noted on Google Earth, March 24, 2006. The 2011 images from Geoportal revealed the "outskirts", and the 2014/2016 image also show



Sl. 19 Tordinci – Vinogradarska mlaka, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 19 Tordinci – Vinogradarska mlaka, plan based on aerial images (made by: K. Turkalj)

Sl. 20 Tordinci – Vinogradarska mlaka, Google Earth snimak 19. 05. 2015.
Fig. 20 Tordinci – Vinogradarska mlaka, Google Earth image May 19, 2015

Sl. 21 Tordinci – Vinogradarska mlaka, snimak dronom (snimio: K. Šobat, 02. 06. 2016.)
Fig. 21 Tordinci – Vinogradarska mlaka, dron image (photo: K. Šobat, June 2, 2016)

krug zapadno od kruga 2, što je potvrđeno snimkama drona 02. 06. 2016., a kasnije i na Googel Earth snimku na dan 22. 05. 2016.

Opis: Tordinci – Vinogradarska Mlaka 1, jugoistočni dvostruki krug (tel). Dimenzije vanjskoga kruga su 181 x 170 m. Površina vanjskoga kruga je 2,2 ha. Širina jarka je 18 m. Dimenzije unutarnjega kruga su 120 x 98 m. Površina unutarnjega kruga je 0,9 ha, a širina jarka 5,8 m. Relativna visina središnjega dijela je 2,5 m.

Tordinci – Vinogradarska Mlaka 2, sjeverozapadni jednostruki krug (tel). Dimenzije vanjskoga kruga su 168 x 166 m. Površina vanjskoga kruga je 2,2 ha. Širina jarka iznosi 11 m. Relativna visina središnjega dijela je 3,2 m. Po sredini uzvišenja vidi se tamna mrlja koja je vidljiva na nizu sličnih lokaliteta (Slakovci – Gradina itd.). Dimenzije su 30 x 40 m, a površina iznosi 0,1 ha.

Nalazi: keramika, glačano oruđe, litika sopotske kulture, kasnosrednjovjekovna keramika.

Literatura: Krznarić Škrivanko 2012: 35, 40; Šiljeg, Kalafatić 2017: 168–170.

8. Andrijaševci – Gornje njive 1–2 (sl. 22–24)

Položaj: Lokalitet je udaljen od centra sela 3,7 km prema SZ. Nalazi se na lijevoj obali Bosuta na SI padini manjega uzvišenja. Koordinate: E = 673270.35, N = 5014617.62; Andrijaševci – Gornje njive 1 n /v 84,80–84 m, Andrijaševci – Gornje njive 2 n /v 84 m.

Prospekcija: Lokalitet je uočen na snimku s Geoportala iz

a smaller enclosure west of enclosure 2, as do the images taken by drone on June 02, 2016, and Google Earth images taken on May 22, 2016.

Description: Tordinci – Vinogradarska Mlaka 1, southeastern double enclosure (tell). The outer enclosure measures 181 x 170 m. The surface of the outer enclosure is 2.2 ha. The ditch is 18 m wide. The inner enclosure measures 120 x 98 m. The surface of the inner enclosure is 0.9 ha, and the ditch is 5.8 m wide. The central part measures 2.5 m in relative height.

Tordinci – Vinogradarska Mlaka 2, northwestern single enclosure (tell). The outer enclosure measures 168 x 166 m. The surface of the outer enclosure is 2.2 ha. The ditch is 11 m wide. The central part measures 3.2 m in relative height. There is a dark stain in the center of the elevation, and analogous ones were recorded at many similar sites (Slakovci – Gradina, etc.). It measures 30 x 40 m, and the surface is 0.1 ha

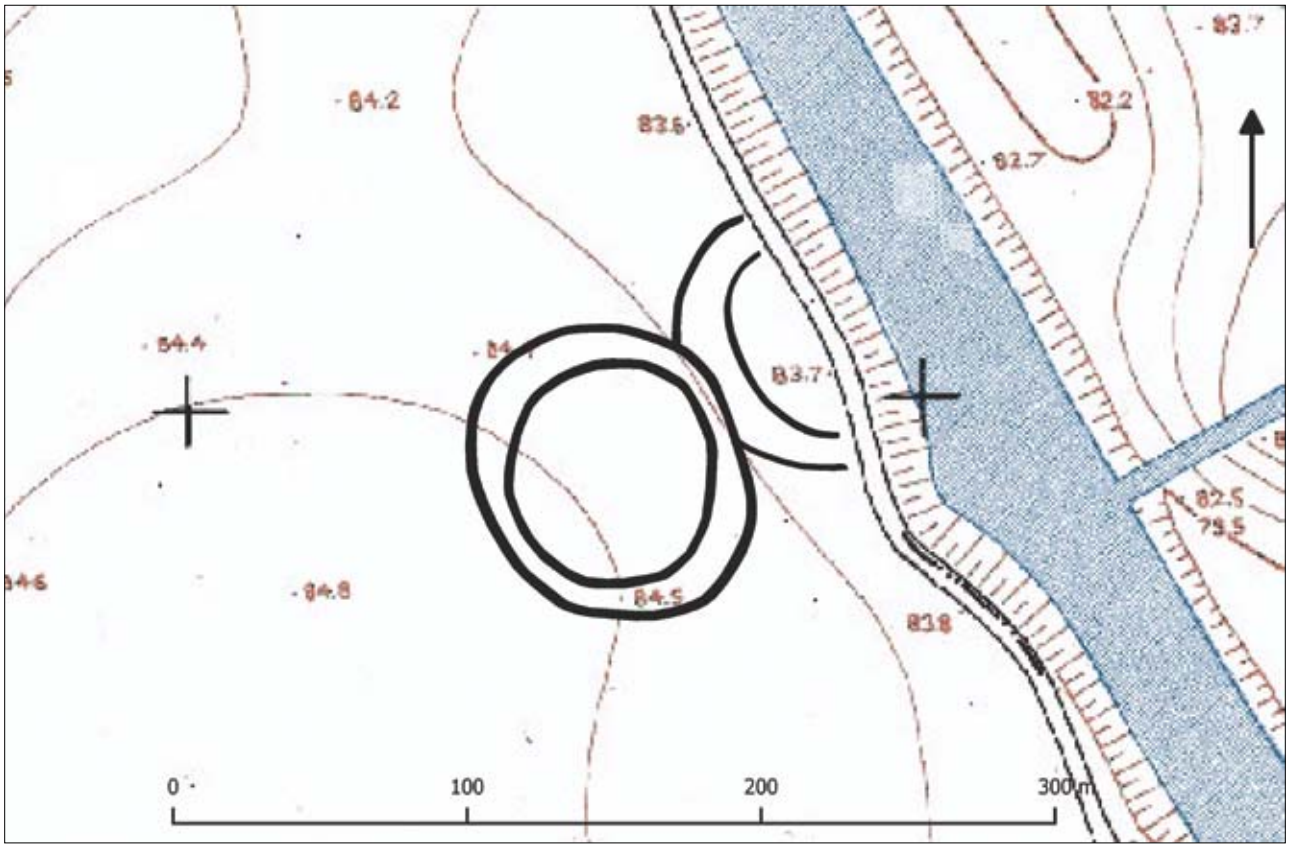
Finds: pottery, polished tools, chipped stone tools of the Sopot culture, late medieval pottery.

Bibliography: Krznarić Škrivanko 2012: 35, 40; Šiljeg, Kalafatić 2017: 168–170.

8. Andrijaševci – Gornje njive 1–2 (Figs. 22–24)

Position: The site is situated 3.7 km NW of the village center. It is on the left side of the Bosut River, on the NE slopes of a small elevated position. Coordinates: E = 673270.35, N = 5014617.62; Andrijaševci – Gornje njive 1, alt. 84.80–84 m, Andrijaševci – Gornje njive 2, alt. 84 m.

Prospection: The site was noted on Geoportal images from 2011 and, later, 2017. Both enclosures are visible on Google Earth satellite images taken on July 18, 2017, and



Sl. 22 Andrijaševci – Gornje njive, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 22 Andrijaševci – Gornje njive, plan based on aerial images (made by: K. Turkalj)

Sl. 23 Andrijaševci – Gornje njive, Google Earth snimak 18. 07. 2017.
Fig. 23 Andrijaševci – Gornje njive, Google Earth image July 18, 2017

Sl. 24 Andrijaševci – Gornje njive, Geoportal snimak 2017.
Fig. 24 Andrijaševci – Gornje njive, Geoportal image 2017

2011., pa kasnije iz 2017. Oba kruga su vidljiva na satelitskoj snimci Google Earth 18. 07. 2017., a krug 1 i na snimkama od 16. 03. 2017., 22. 05. 2016. te 24. 03. 2006.

Opis: Andrijaševci – Gornje njive 1, zapadni dvostruki krug. Dimenzije vanjskoga kruga su 108 x 91 m, površina je 0,75 ha, a širina jarka 3 m. Dimenzije unutarnjega kruga su 79 x 73 m, površina unutarnjeg kruga je 0,45 ha, a širina jarka 3 m. Relativna visina središnjega dijela je 0,5 m.

Andrijaševci – Gornje njive 2, istočni dvostruki krug. Dimenzije vidljivoga dijela kruga su 95 x 43 m, površina je 0,27 ha, a širina jarka iznosi 3 m. Dimenzije vidljivoga unutarnjeg kruga su 69 x 23 m, a površina unutarnjeg kruga je 0,45 ha, dok širina jarka iznosi 3 m. Relativna visina središnjega dijela je 0,5 m. Dio kruga uništen je promjenom toka Bosuta te izgradnjom ceste i kanala uz rijeku.

Nalazi: keramika, glačano oruđe, litika sopotske kulture, kasnolatenska/rimska keramika.

Literatura: neobjavljeno.

9. Mirkovci – Malat 1–2 (sl. 25–27)

Položaj: Lokalitet se nalazi 2 km JI od centra Mirkovaca. Leži na blagoj padini koja se spušta prema vodotoku/kanalu Vidor udaljenom 700 m. Od Bosuta, u koji se ulijeva Vidor, udaljen je 3,4 km. Koordinate: E = 685995.29, N =

enclosure 1 also on images taken on March 16, 2017, May 22, 2016, and March 24, 2006.

Description: Andrijaševci – Gornje njive 1, western double enclosure. The outer enclosure measures 108 x 91 m. Its surface area is 0.75 ha, and the ditch is 3 m wide. The inner enclosure measures 79 x 73 m, the surface of the inner enclosure is 0.45 ha, and the ditch is 3 m wide. The central part measures 0.5 m in relative height.

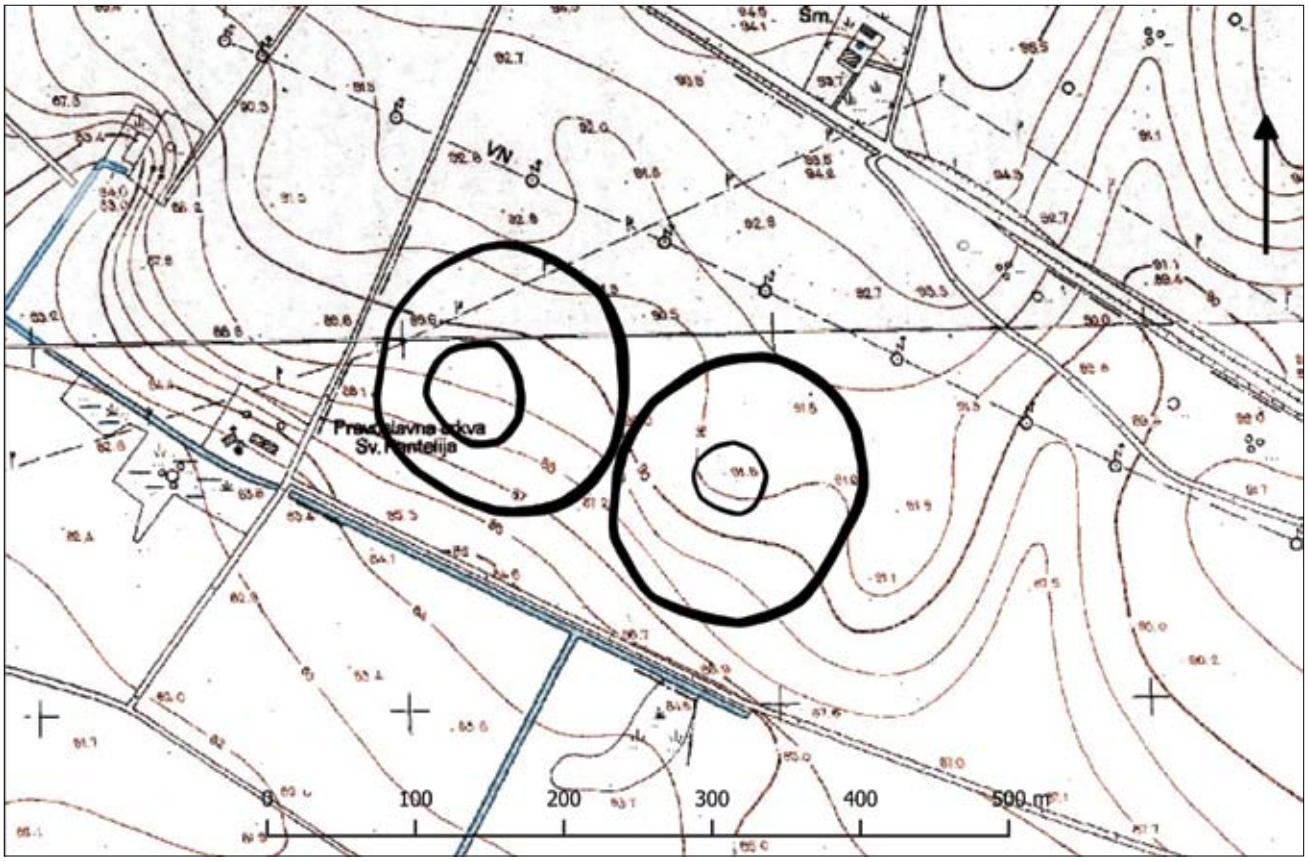
Andrijaševci – Gornje njive 2, eastern double enclosure. The visible part of the enclosure measures 95 x 43 m. Its surface area is 0.27 ha, and the ditch is 3 m wide. The visible part of the inner enclosure measures 69 x 23 m, and the surface of the inner enclosure is 0.45 ha, while the ditch is 3 m wide. The central part measures 0.5 m in relative height. A part of the enclosure was destroyed by the change made to the flow of the Bosut River, and the construction of the road and canal that go along the river.

Finds: pottery, polished tools, chipped stone tools of the Sopot culture, Late La Tène/Roman pottery.

Bibliography: unpublished.

9. Mirkovci – Malat 1–2 (Figs. 25–27)

Position: The site is situated 2 km SE from the center of Mirkovci. It lies on the mild slope that comes down towards the Vidor water flow/canal that is 700 m away. It is 3.4 km away from Bosut into which the Vidor canal flows. Coordi-



Sl. 25 Mirkovci – Malat, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 25 Mirkovci – Malat, plan based on aerial images (made by: K. Turkalj)

Sl. 26 Mirkovci – Malat, Geoportal snimak 2014/2016
Fig. 26 Mirkovci – Malat, Geoportal image 2014/2016

Sl. 27 Mirkovci – Malat, Geoportal snimak 2017.
Fig. 27 Mirkovci – Malat, Geoportal image 2017

5015784.42; Mirkovci – Malat 1 n/v 89,60 m, Mirkovci – Malat 2 n/v 91,8 m.

Prospekcija: Krug 1 uočen je na snimkama DGU iz 2009., međutim oba kruga su dobro vidljiva i na Geoportal snimci iz 2014./2016. i 2017. Vidljivi su i na Google Earth snimkama od 31. 07. 2013. te 22. 03. 2017., 15. 03. 2018., ali ne tako dobro kao na Geoportalu.

Opis: Mirkovci – Malat 1, dvostruki sjeverozapadni krug (tel). Dimenzije vanjskog kruga su 185 x 170 m. Površina iznosi 2,5 ha, dok je širina jarka 8 m. Dimenzije unutarnjega kruga su 73 x 68 m. Površina iznosi 0,38 ha, a jarak je širine 6 m. Relativna visina središnjega dijela je 3,5 m.

Mirkovci – Malat 2, dvostruki jugoistočni krug (tel). Dimenzije vanjskog kruga su 189 x 165 m. Površina iznosi 2,5 ha, dok je širina jarka 6,7 m. Dimenzije unutarnjega kruga su 50 x 52 m. Površina iznosi 0,2 ha, a jarak je širine 6 m. Relativna visina središnjega dijela je 4,8 m.

Nalazi: keramika, glačano oruđe, litika sopotske kulture.

Literatura: Krznarić Škrivanko 2012: 25, 32–33, 37, 39.

10. Slakovci – Gradina 1–2 (sl. 28–30)

Koordinate: Lokalitet se nalazi 1 km JZ od centra Slakovaca gdje blaga padina završava u nizini koja je u prošlosti bila močvara (2. vojna izmjera Habsburškoga carstva). Koordinate: E = 691421.37, N = 5011163.97; Slakovci – Gradina 1 n /v 85,1 m, Slakovci – Gradina 2 n /v 84,8 m.

nates: E = 685995.29, N = 5015784.42; Mirkovci – Malat 1, alt. 89.60 m, Mirkovci – Malat 2, alt. 91.8 m.

Prospection: Enclosure 1 was recorded on DGU images from 2009. However, both enclosures are clearly visible on Geoportal images from 2014/2016 and 2017. They are also visible on Google Earth images taken on July 31, 2013, March 22, 2017 and March 15, 2018, but not as clearly as on the shots available on Geoportal.

Description: Mirkovci – Malat 1, double northwestern enclosure (tell). The outer enclosure measures 185 x 170 m. The surface area is 2.5 ha, while the ditch is 8 m wide. The inner enclosure measures 73 x 68 m. The surface area is 0.38 ha, and the ditch is 6 m wide. The central part measures 3.5 m in relative height.

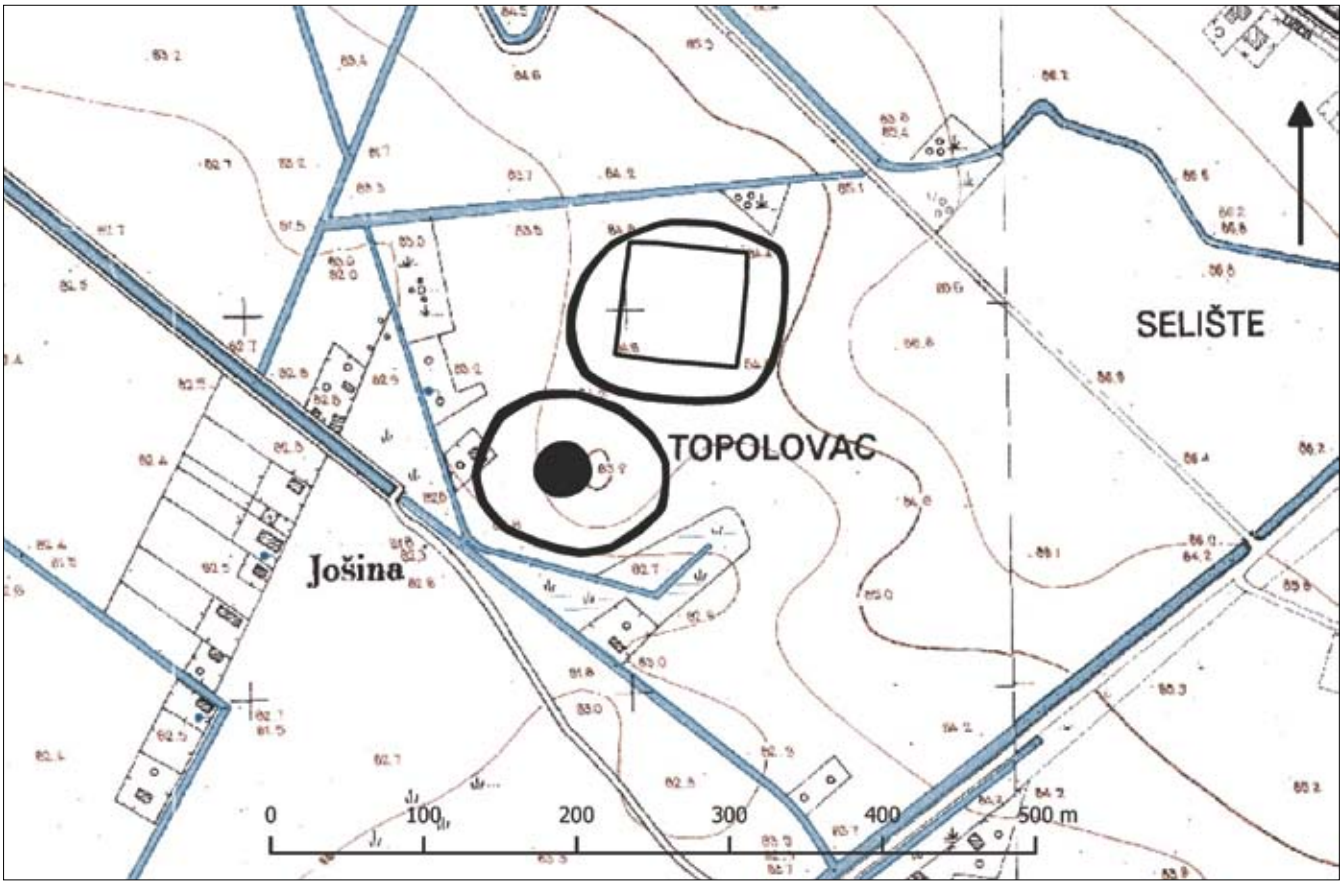
Mirkovci – Malat 2, double southeastern enclosure (tell). The outer enclosure measures 189 x 165 m. The surface area is 2.5 ha, while the ditch is 6.7 m wide. The inner enclosure measures 50 x 52 m. The surface area is 0.2 ha, and the ditch is 6 m wide. The central part measures 4.8 m in relative height.

Finds: pottery, polished tools, chipped stone tools of the Sopot culture.

Bibliography: Krznarić Škrivanko 2012: 25, 32–33, 37, 39.

10. Slakovci – Gradina 1–2 (Figs. 28–30)

Coordinates: The site is situated 1 km SW from the center of Slakovci, where a slight slope lowers into a valley that was once a swamp (2nd military survey of the Habsburg Empire). Coordinates: E = 691421.37, N = 5011163.97; Slakovci – Gradina 1, alt. 85.1 m, Slakovci – Gradina 2, alt. 84.8 m.



Sl. 28 Slakovci – Gradina, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 28 Slakovci – Gradina, plan based on aerial images (made by: K. Turkalj)

Sl. 29 Slakovci – Gradina, Google Earth snimak 29. 10. 2013.
Fig. 29 Slakovci – Gradina, Google Earth image October 29, 2013

Sl. 30 Slakovci – Gradina, Google Earth snimak 22. 03. 2017.
Fig. 30 Slakovci – Gradina, Google Earth image March 22, 2017

Prospekcija: Oba su kruga dobro vidljiva na Google Earth snimkama od 31. 07. 2013., ali i na kasnijim na dane 22. 05. 2016., 22. 03. 2017., 15. 03. 2018. Oba kruga vidljiva su na Geoportal snimci iz 2014/2016. Srednjovjekovno utvrđenje unutar sopotskoga kruga ucrtano je na povijesnim kartama i katastru (mapire.eu).

Opis: Slakovci – Gradina 1, južni dvostruki krug (tel). Dimenzije vanjskoga kruga su 154 x 128 m. Površina iznosi 1,1 ha, a jarak je 6 m širok. Dimenzije unutarnjega kruga su 37 x 38 m. Krug zauzima površinu od 0,1 ha. Relativna visina središnjega dijela je 2,4 m.

Slakovci – Gradina 2, sjeverni jednostruki krug (tel). Dimenzije kruga su 154 x 127 m. Površina je 1,4 ha, a jarak je širok 5 m. Unutar kruga je pravokutna građevina dimenzija 76 x 80 m. Površina je 0,6 ha. Relativna visina središnjega dijela je 1,5 m.

Literatura: Dimitrijević 1968: 21; 1979: 270; Gale 2003: 333; Krznarić Škrivanko 2002: 203–204, 213; 2012: 17, 19–20, 27–28, 37, 39.

11. Bršadin – Pašnjak pod selom 1–2 (sl. 31–33)

Položaj: Lokalitet se nalazi južno od sela između staroga i novog (južnog) toka Vuke. Novi tok je uništio južni dio krugova. Koordinate: E = 688771.41, N = 5027082.18; Bršadin – Pašnjak pod selom 1 n/v 84,1 m, Bršadin – Pašnjak pod selom 2 n/v 84,2 m.

Prospection: Both enclosures are clearly visible on Google Earth images taken on July 31, 2013, as well as those taken on May 22, 2016, March 22, 2017, and March 15, 2018. Both enclosures are visible on Geoportal images from 2014/2016. The medieval fortification seen within the enclosure of the Sopot culture is shown on historical maps and cadaster (mapire.eu).

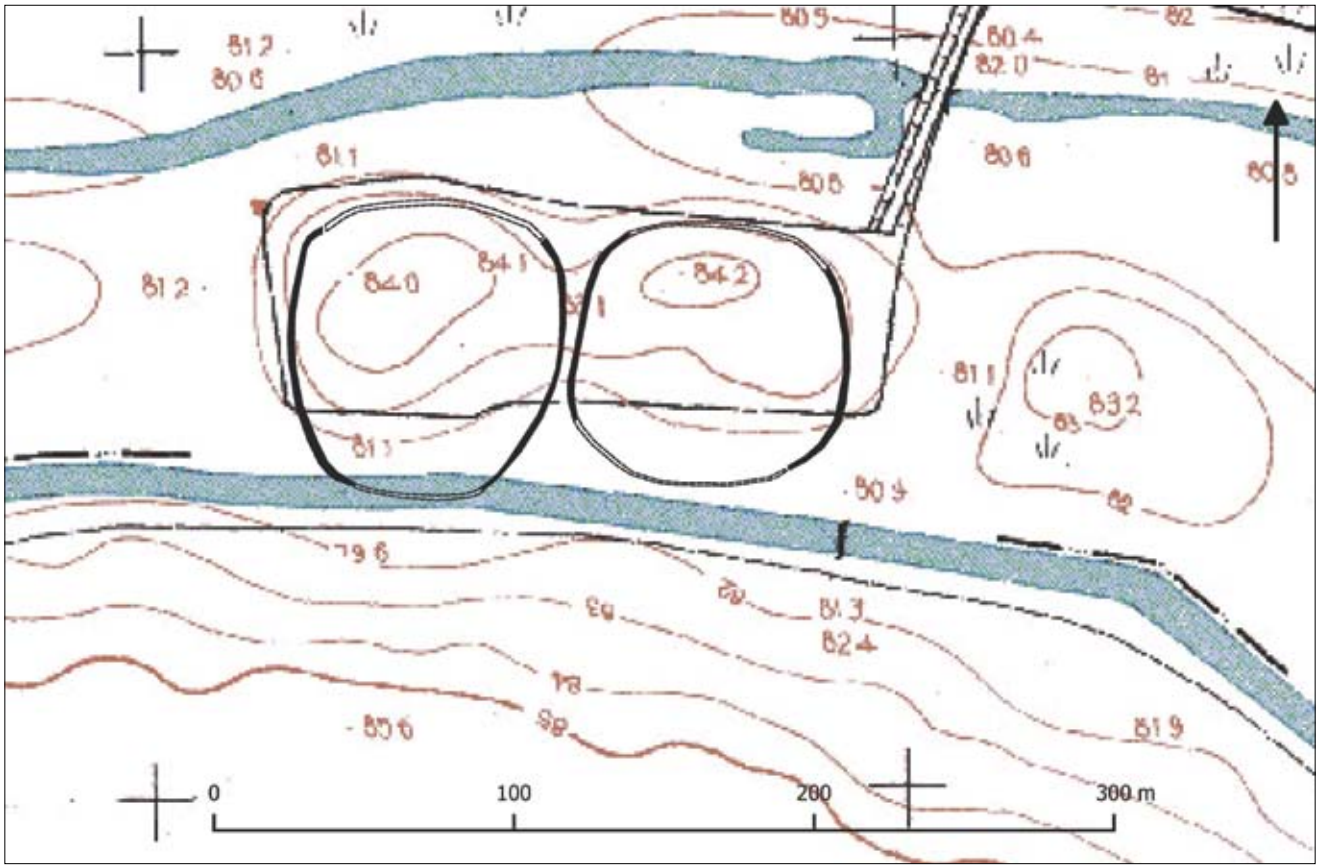
Description: Slakovci – Gradina 1, southern double enclosure (tell). The outer enclosure measures 154 x 128 m. The surface area is 1.1 ha, and the ditch is 6 m wide. The inner enclosure measures 37 x 38 m. The surface of the enclosure is 0.1 ha. The central part measures 2.4 m in relative height.

Slakovci – Gradina 2, northern single enclosure (tell). The enclosure measures 154 x 127 m. Its surface area is 1.4 ha, and the ditch is 5 m wide. There is a rectangular structure within the enclosure, measuring 76 x 80 m. Its surface area is 0.6 ha. The central part measures 1.5 m in relative height.

Bibliography: Dimitrijević 1968: 21; 1979: 270; Gale 2003: 333; Krznarić Škrivanko 2002: 203–204, 213; 2012: 17, 19–20, 27–28, 37, 39.

11. Bršadin – Pašnjak pod selom 1–2 (Figs. 31–33)

Position: The site is situated south of the village, between the old and the new (southern) flow of the Vuka River. The new flow destroyed the southern part of the enclosure. Coordinates: E = 688771.41, N = 5027082.18; Bršadin – Pašnjak pod selom 1, alt. 84.1 m, Bršadin – Pašnjak pod selom 2, alt. 84.2 m.



Sl. 31 Bršadin – Pašnjak pod selom, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 31 Bršadin – Pašnjak pod selom, plan based on aerial images (made by: K. Turkalj)

Sl. 32 Bršadin – Pašnjak pod selom, Geoportal snimak 2011.
Fig. 32 Bršadin – Pašnjak pod selom, Geoportal image 2011

Sl. 33 Bršadin – Pašnjak pod selom, kosi snimak (snimio: H. Kalafatić, 06. 06. 2017.)
Fig. 33 Bršadin – Pašnjak pod selom, oblique image (photo: H. Kalafatić, June 6, 2017)

Prospekcija: Rano je uočen već na najranijim snimkama Google Eartha od 24. 04. 2006., ali nismo bili sigurni u to sve do potvrde u istraživanjima provedenim 2016. godine (Botić 2017a) i saznanja kako je današnji južni tok Vuke produbljen u 20. stoljeću te tako pretvoren u glavi tok.

Opis: Bršadin – Pašnjak pod selom 1, zapadni krug (tel). Dimenzije vanjskoga kruga su 101 x 96 m. Površina iznosi 0,75 ha, a jarak je 3 m širok. Relativna visina središnjega dijela je 3 m.

Bršadin – Pašnjak pod selom 2, istočni jednostruki krug (tel). Dimenzije kruga su 91 x 90 m. Površina koju prekriva iznosi 0,66 ha. Širina jarka je 2,5 m. Relativna visina središnjega dijela je 3 m.

Nalazi: keramika, glačano oruđe, litika sopotske kulture.

Literatura: Botić 2017a: 34–39; 2017b: 141–142, 146.

12. Vukovar – Gladovo 1–2 (sl. 34–36)

Položaj: Lokalitet se nalazi 6 km J od Vukovara iznad udoline kojom teče povremeni potok Sramotin. Krugovi su se smjestili s obje strane udoline na manjim uzvišenjima. Koordinate: E = 694825.57, N = 5020889.56; Vukovar – Gladovo 1 n/v 109,6 m, Vukovar –Gladovo 2 n/v 108,4 m.

Prospection: The site was spotted early on, on Google Earth images taken on April 24, 2006, but their existence was fully confirmed during the 2016 excavations (Botić 2017a), and after learning that today's southern flow of the Vuka River was deepened in the 20th century, making it the main flow.

Description: Bršadin – Pašnjak pod selom 1, western enclosure (tell). The outer enclosure measures 101 x 96 m. The surface area is 0.75 ha, and the ditch is 3 m wide. The central part measures 3 m in relative height.

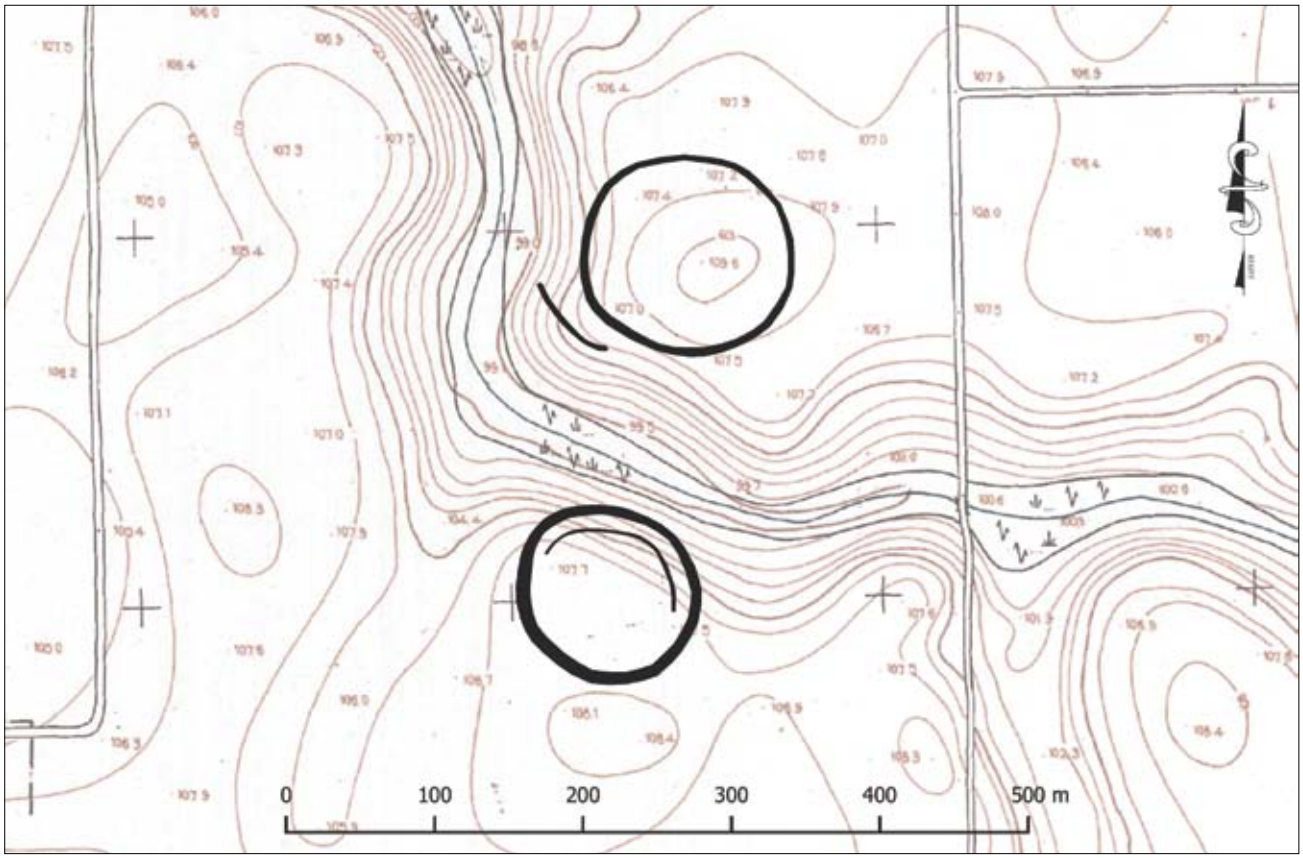
Bršadin – Pašnjak pod selom 2, eastern single enclosure (tell). The enclosure measures 91 x 90 m. Its surface area is 0.66 ha. The ditch is 2.5 m wide. The central part measures 3 m in relative height.

Finds: pottery, polished tools, chipped stone tools of the Sopot culture.

Bibliography: Botić 2017a: 34–39; 2017b: 141–142, 146.

12. Vukovar – Gladovo 1–2 (Figs. 34–36)

Position: The site is situated 6 km S of Vukovar, above a valley where the intermittent Sramotin stream flows. The enclosures are situated on both sides of the valley, on slightly elevated positions. Coordinates: E = 694825.57, N = 5020889.56; Vukovar – Gladovo 1, alt. 109.6 m, Vukovar – Gladovo 2, alt. 108.4 m.



Sl. 34 Vukovar – Gladovo, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 34 Vukovar – Gladovo, plan based on aerial images (made by: K. Turkalj)

Sl. 35 Vukovar – Gladovo, vertikalni ortofoto snimak, prije 15. 02. 1968.
Fig. 35 Vukovar – Gladovo, vertical orthophoto image, before February 15, 1968

Sl. 36 Vukovar – Gladovo, kosi snimak (snimio: H. Kalafatić, 21. 06. 2016.)
Fig. 36 Vukovar – Gladovo, oblique image (photo: H. Kalafatić, June 21, 2016)

Prospekcija: Uočni su na snimkama Google Eartha od 29. 10. 2013., a kasnije su osobito dobro vidljivi na snimku nastalom od prije 1968. na portalu ispu.mgipu.hr. Uspjeli smo snimiti i dobre kose snimke iz zrakoplova 06. 06. 2017. i drona.

Opis: Vukovar – Gladovo 1, sjeverni krug (tel). Površina kruga iznosi 1,6 ha. Dimenzije su 143 x 136 m. Širina jarka je 6,5 m. Relativna visina središnjega dijela je 3 m. U sredini je vidljiva tamna mrlja karakteristična za brojne sopotske krugove (sl. 35). Na jugozapadnoj strani vidljiv je ostatak većega rova.

Vukovar – Gladovo 2, dvostruki južni krug (tel). Dimenzije kruga su 128 x 118 m. Površina koju zauzima vanjski krug iznosi 1,2 ha. Širina jarka je 9 m. Vidljiva dimenzije unutarnjega kruga/palisade su 126 m. Širina jarka iznosi 2,7 m. Relativna visina središnjega dijela je 1 m. U središtu se naslućuje mogući unutarnji krug/jarak (sl. 35).

Nalazi: keramika, litika sopotske kulture, kostolačka keramika na krugu 2.

Literatura: neobjavljeno.

13. Privlaka – Gradina 1–2 (sl. 37–39)

Položaj: Lokalitet se nalazi na lijevoj obali Bosuta 2,5 km SI od centra Privlake. Koordinate: E = 685761.12, N = 5010128.01; Privlaka – Gradina 1 n/v 84,4 m, Privlaka – Gradina 2 n/v 85,8 m.

Prospection: The enclosures were noted on Google Earth images taken on October 29, 2013, and they are especially visible on the photograph taken before 1968, available on the ispu.mgipu.hr portal. It was possible to take good slanted images from an airplane June 06, 2017 and by drone on.

Description: Vukovar – Gladovo 1, northern enclosure (tell). The surface of the enclosure is 1.6 ha. It measures 143 x 136 m. The ditch is 6.5 m wide. The central part measures 3 m in relative height. There is a dark stain in the center that is characteristic of many sites of the Sopot culture (Fig. 35). There are visible traces of a larger ditch on the southwestern side of the enclosure.

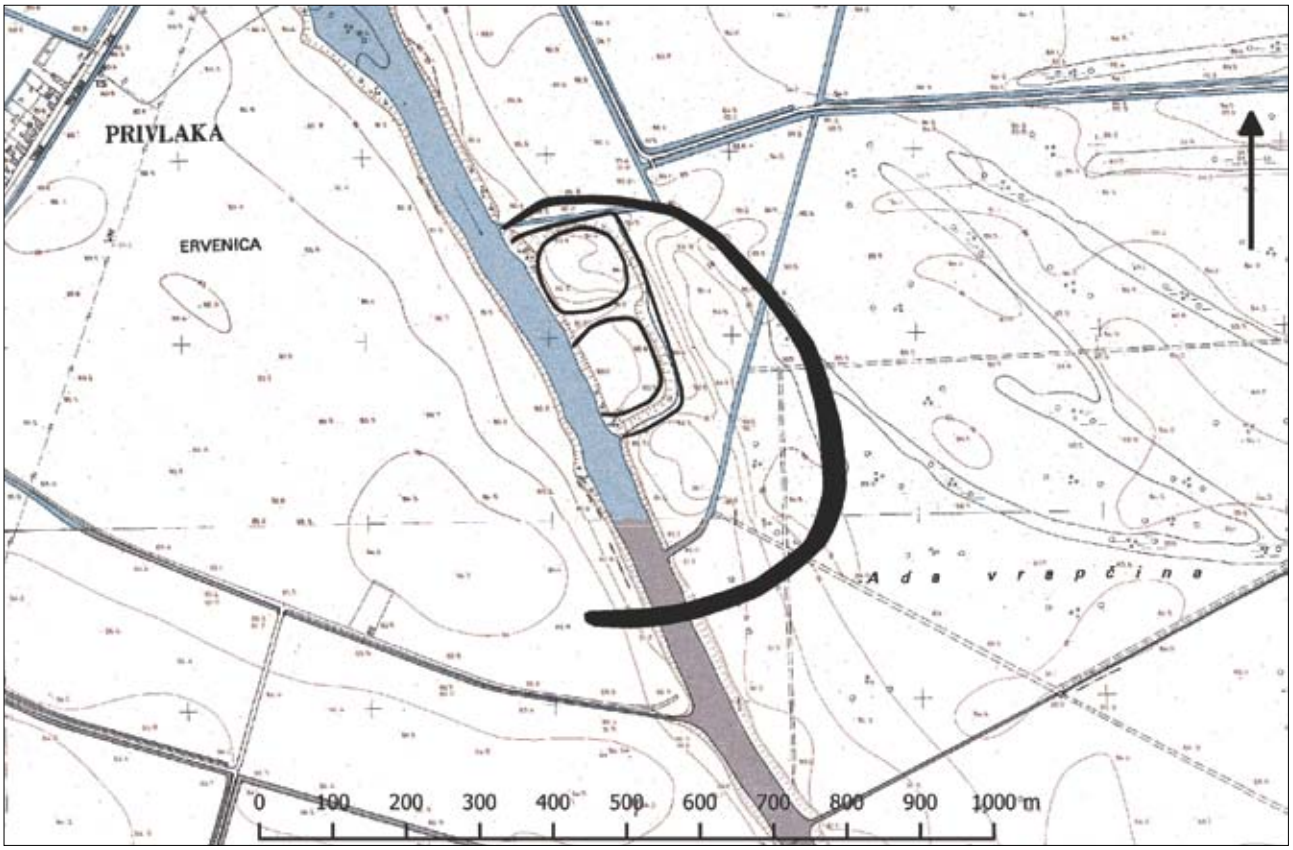
Vukovar – Gladovo 2, double southern enclosure (tell). The enclosure measures 128 x 118 m. The surface of the outer enclosure is 1.2 ha. The ditch is 9 m wide. The visible parts of the inner enclosure/palisade measure 126 m. The ditch is 2.7 m wide. The central part measures 1 m in relative height. There are slightly visible traces of a possible inner enclosure/ditch at the center (Fig. 35).

Finds: pottery, chipped stone tools of the Sopot culture, pottery of the Kostolac culture at enclosure 2.

Bibliography: unpublished.

13. Privlaka – Gradina 1–2 (Figs. 37–39)

Position: The site is situated on the left bank of the Bosut River, 2.5 km NE of the center of Privlaka. Coordinates: E = 685761.12, N = 5010128.01; Privlaka – Gradina 1, alt. 84.4 m,



Sl. 37 Privlaka – Gradina, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 37 Privlaka – Gradina, plan based on aerial images (made by: K. Turkalj)

Sl. 38 Privlaka – Gradina, Geoportal snimak 2014/2016
Fig. 38 Privlaka – Gradina, Geoportal image 2014/2016

Sl. 39 Privlaka – Gradina, snimak dronom (snimio: K. Šobat 02. 03. 2017.)
Fig. 39 Privlaka – Gradina, dron image (photo: K. Šobat March 2, 2017.)

Prospekcija: Lokalitet je dobro poznat u arheološkoj literaturi, a proučavanjem zračnih snimaka uspjeli smo potvrditi pojedine pretpostavke istraživača. Dakle, na snimkama vidimo ostatke dva sopotska kruga te jarak i bedem latenskoga utvrđenja. Dodatno je vidljiv vanjski krug koji je karakterističan za kružna naselja/utvrđenja srednjega i kasnog neolitika u Europi.

Opis: Privlaka – Gradina 1, sjeverni krug (tel). Dimenzije su 118 x 115 m. Površina kruga iznosi 1,2 ha. Širina jarka je 6 m. Relativna visina središnjega dijela je 4,4 m. Zapadna strana dijelom je uništena podlokavanjem Bosuta. Oba kruga su oštećena kasnijim latenskim utvrđenjem koje je spojilo oba kruga u jedno.

Privlaka – Gradina 2, južni krug (tel). Dimenzije kruga su 130 x 95 m. Površina koju zauzima krug iznosi 1,2 ha. Širina jarka je 6 m. Relativna visina središnjega dijela je 5,8 m.

Vidljive dimenzije vanjskoga kruga su 600 x 400 m. Širina jarka iznosi 31 m.

Nalazi: keramika i litika sopotske kulture.

Literatura: Dimitrijević 1979: 272; Majnarić Pandžić 1980: 45–48; Krznarić Škrivanko 2002: 203; 2012: 15–16, 22, 37.

Privlaka – Gradina 2, alt. 85.8 m.

Prospection: The site is well known in archaeological publications, and the study of aerial photographs confirmed certain assumptions made by researchers. The images reveal the remains of two enclosures of the Sopot culture, as well as a La Tène ditch and rampart. An additional outer enclosure is also visible, and is characteristic of circular settlements/fortifications dated to the Middle and Late Neolithic in Europe.

Description: Privlaka – Gradina 1, northern enclosure (tell). It measures 118 x 115 m. The surface of the enclosure is 1.2 ha. The ditch is 6 m wide. The central part measures 4.4 m in relative height. The western side is partially destroyed by the flow of the Bosut River. Both enclosures were damaged by the La Tène fortification that merged the two enclosures into one.

Privlaka – Gradina 2, southern enclosure (tell). The enclosure measures 130 x 95 m. The surface of the enclosure is 1.2 ha. The ditch is 6 m wide. The central part measures 5.8 m in relative height. The visible part of the outer enclosure measures 600 x 400 m. The ditch is 31 m wide.

Finds: pottery and chipped stone tools of the Sopot culture.

Bibliography: Dimitrijević 1979: 272; Majnarić Pandžić 1980: 45–48; Krznarić Škrivanko 2002: 203; 2012 15–16, 22, 37.

14. Otok – Gradina (Mandekov vinograd) 1–2 (sl. 40–42)

Položaj: Lokalitet u Otoku nalazi se 1,4 km jugoistočno od središta sela. Nalazi se na padini uzvišenja na n/v 90 m koja se nalazi između Bosuta i Spačve. Koordinate: E = 688609.78, N = 5002756.43; Otok – Gradina 1 n/v 89,5 m, Otok – Gradina 2 n/v 87,4 m.

Prospekcija: Krugovi su uočeni na snimku Google Earth 13. 08. 2013. uz još nekakve jarke, a oba su vidljiva i na snimku od 07. 04. 2016. Kosi snimak od 21. 06. 2016. pokazuje istaknuto uzvišenje kruga 1 dobro poznatoga kroz istraživanja provedena u drugoj polovici 20 stoljeća. Krug 2 je novootkriven, a isto tako jarci istočno i zapadno od krugova. Ovakvi kompleksi zemljanih građevina inače su svojstveni neolitiku, ali do punoga izražaja dolaze nakon geofizičkih istraživanja.

Opis: Otok – Gradina 1, jednostruki južni krug (tel). Dimenzije su 137 x 127 m. Vidljiva površina koju pokriva vanjski krug iznosi 1,3 ha. Širina jarka iznosi 4 m. Relativna visina središnjega dijela je 4 m. Na jugoistoku kruga vidljiv je ostatak većega opkopa.

Otok – Gradina 2, jednostruki sjeverni krug. Površina koju pokriva iznosi 1,3 ha. Dimenzije kruga su 129 x 130 m. Širina jarka iznosi 12 m. Relativna visina središnjega dijela je 1,9 m.

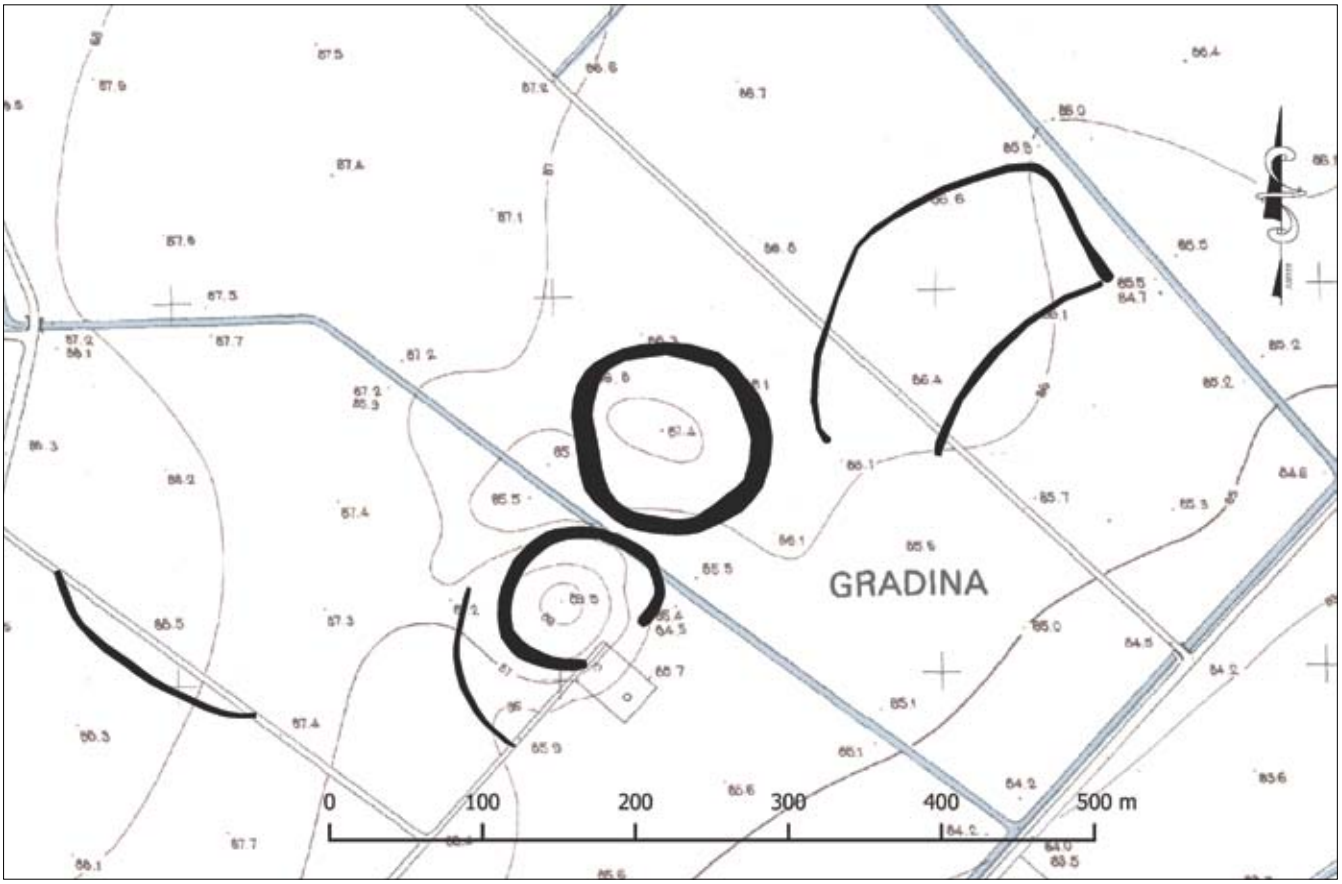
14. Otok – Gradina (Mandekov vinograd) 1–2 (Figs. 40–42)

Position: The site in Otok is situated 1.4 km southeast of the village center. It is on the slopes of an elevated position, at an altitude of 90 m, between the Bosut River and Spačva. Coordinates: E = 688609.78, N = 5002756.43; Otok – Gradina 1, alt. 89.5 m, Otok – Gradina 2, alt. 87.4 m.

Prospection: The enclosures were recorded on Google Earth images taken on August 13, 2013, along with other ditches. Both are visible on the image taken on April 07, 2016. The slanted image taken on June 21, 2016 revealed a prominent elevation within enclosure 1 that is known from the excavations conducted during the second half of the 20th century. Enclosure 2 was newly discovered, as were the ditches situated east and west of the enclosure. Complexes of such earthen constructions are usually characteristic of the Neolithic, but their full potential is only revealed through geophysical research.

Description: Otok – Gradina 1, single southern enclosure (tell). It measures 137 x 127 m. The visible part of the outer enclosure covers an area of 1.3 ha. The ditch is 4 m wide. The central part measures 4 m in relative height. The remains of a larger moat are visible on the southeastern side of the enclosure.

Otok – Gradina 2, single northern enclosure. The surface area it occupies is 1.3 ha. The enclosure measures 129 x 130 m. The ditch is 12 m wide. The central part measures 1.9 m



Sl. 40 Otok – Gradina, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 40 Otok – Gradina, plan based on aerial images (made by: K. Turkalj)

Sl. 41 Otok – Gradina, Google Earth snimak 07. 04. 2016.
Fig. 41 Otok – Gradina, Google Earth image April 7, 2016

Sl. 42 Otok – Gradina, kosi snimak (snimio: H. Kalafatić, 21. 06. 2016.)
Fig. 42 Otok – Gradina, oblique image (photo: H. Kalafatić, June 21, 2016)

U neposrednoj blizini krugova vidljivi su ostaci zemljanih građevina. Sjeveroistočno je nepravilan objekt dimenzija 224 x 92 m. Površina koju pokriva iznosi 2,2 ha, a širina jarka je 4,5 m. Zapadno je vidljiv jarak u dužini od 163 m. Ovo ukazuje na kompleksniji arheološki lokalitet na toponimu Gradina u Otoku (sl. 40).

Nalazi: krug 1, neolitičke kuće te pokretni materijal sopotske kulture; krug 2 keramika i litika sopotske kulture.

Literatura: Dimitrijević 1957: 22, sl. 1; 1966: 36; 1968: 21–22; Krznarić Škrivanko 2002: 203; 2012: 16, 39; Botić 2016: 16.

15. Ilok – Sofija 1–2 (sl. 43–45)

Položaj: Lokalitet se nalazi 2,4 km zapadno od središta Iloka. Na rubu platoa između Dunava i surduka Mala Lovka. Podlokavanjem je nestao veći dio lokaliteta. Koordinate: E = 723225.86, N = 5013655.92; Ilok – Sofija 1 n/v 124 m, Ilok – Sofija 2 n/v 128 m.

Prospekcija: Uočen je već na najranijim snimkama Google Eartha 26. 11. 2006., a kasnije i na snimkama nastalim prije 1968. s portala ispu.mgipu.hr.

Opis: Ilok – Sofija 1, sjeverozapadni jednostruki krug. Površina na kojoj je vidljiv iznosi 0,65 ha. Dimenzije su 189 x 61 m, a jarak je 12 m širok.

Ilok – Sofija 2, jugoistočni jednostruki krug. Površina na

in relative height.

There are visible remains of earthen structures in the immediate vicinity of the enclosure. Northeast of it, there is an irregular structure, measuring 224 x 92 m. The surface area it occupies is 2.2 ha, and the ditch is 4.5 m wide. West of it, there is a visible ditch measuring 163 m in length. All of this information points to the existence of a complex archaeological site at the Gradina toponym in Otok (Fig. 40).

Finds: enclosure 1, neolithic houses and movable material of the Sopot culture; enclosure 2, pottery and chipped stone tools of the Sopot culture.

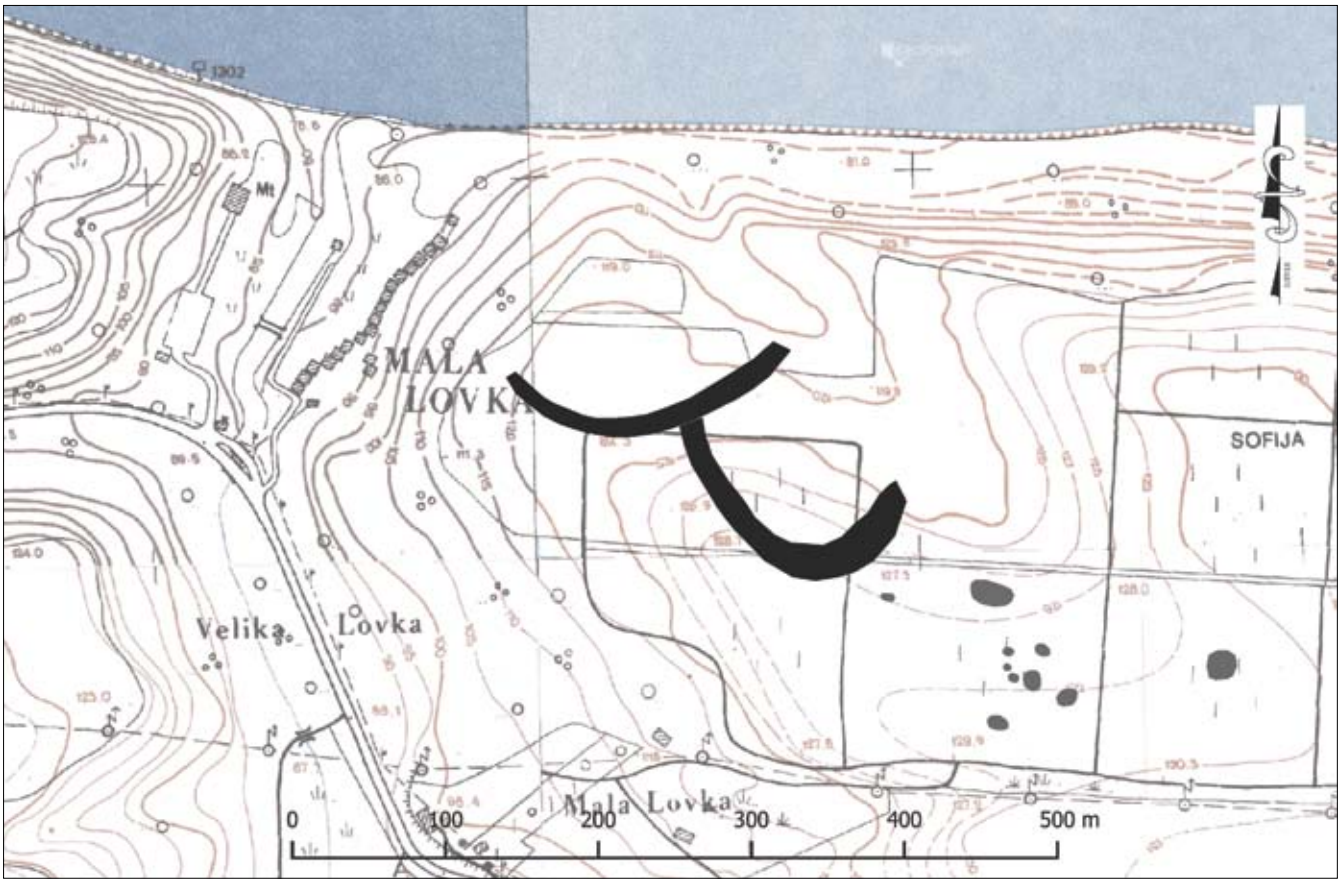
Bibliography: Dimitrijević 1957: 22, Fig. 1; 1966: 36; 1968: 21–22; Krznarić Škrivanko 2002: 203; 2012: 16, 39; Botić 2016: 16.

15. Ilok – Sofija 1–2 (Figs. 43–45)

Position: The site is situated 2.4 km west of the center of Ilok, on the edge of the plateau between the Danube and the Mala Lovka pass. A large portion of the site was destroyed by scouring. Coordinates: E = 723225.86, N = 5013655.92; Ilok – Sofija 1, alt. 124 m, Ilok – Sofija 2, alt. 128 m.

Prospection: The enclosure was noted on Google Earth images taken on November 26, 2006, and on images taken before 1968 that are available at the ispu.mgipu.hr portal.

Description: Ilok – Sofija 1, northwestern single enclosure. The visible parts of the enclosure cover an area of 0.65 ha. It measures 189 x 61 m, and the ditch is 12 m wide.



Sl. 43 Ilok – Sofija, tlocrt prema zračnim snimcima (izradila: K. Turkalj)
Fig. 43 Ilok – Sofija, plan based on aerial images (made by: K. Turkalj)

Sl. 44 Ilok – Sofija, vertikalni ortofoto snimak, prije 15. 02. 1968.
Fig. 44 Ilok – Sofija, vertical orthophoto image, before February 15, 1968

Sl. 45 Ilok – Sofija, Google Earth snimak 26. 11. 2006.
Fig. 45 Ilok – Sofija, Google Earth image November 26, 2006

kojoj je vidljiv iznosi 0,68 ha. Dimenzije su 156 x 129 m. Širina jarka je 14 m.

Nalazi: keramika i litika sopotske kulture.

Literatura: Ložnjak Dizdar et al. 2004: 45–50.

Ilok – Sofija 2, southeastern single enclosure. The visible parts of the enclosure cover an area of 0.68 ha. It measures 156 x 129 m. The ditch is 14 m wide.

Finds: pottery and chipped stone tools of the Sopot culture.

Bibliography: Ložnjak Dizdar et al. 2004: 45–50.

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