Naselja brončanog i željeznog doba na položaju Osijek – Ciglana i Zeleno polje

Krmpotić, Marijana; Trbojević Vukičević, Tajana; Essert, Sara

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Fax ++385(0)1 60 55 806
e-mail: urednistvo.prilozi@iarh.hr
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MARIJANA KRMPOTIĆ
Hrvatski restauratorski zavod
Služba za arheološku baštinu
Odjel za kopnenu arheologiju
Nike Grškovića 23
HR–10000 Zagreb
mkrmpotic@hrz.hr

TAJANA TRBOJEVIĆ VUKIČEVIĆ
Veterinarski fakultet Sveučilišta u Zagrebu
Zavod za anatomiju, histologiju i embriologiju
Heinzelova 55
HR–10000 Zagreb
tajana@vef.hr

SARA ESSERT
Sveučilište u Zagrebu
Prirodoslovno-matematički fakultet
Odsjek za biologiju, Odjel za botaniku
Marulićev trg 20/II
HR–10000 Zagreb
sara.essert@biol.pmf.hr

Arheološkim istraživanjima na lokalitetu Osijek – Ciglana i Zeleno polje utvrđeni su ostaci naselja iz brončanoga i željeznoga doba. Najstarije naselje, osnovano tijekom srednjega brončanog doba, kontinuirano je živjelo do starije faze kasnoga brončanog doba. Nakon dužega hijatusa, položaj je ponovno naseljen u mlađoj fazi starijega željeznog doba te zatim ponovno u kasnolatenskome razdoblju. Istraženost veće površine omogućila je praćenje promjena u strukturi i organizaciji naselja, dok provedene arheozoološke i arheobotaničke analize svjedoče o privredi stanovništva naseljenoga na istome prostoru tijekom dužega vremenskog razdoblja. Na brončanodobnom naselju najveće su promjene primjetne na prijelazu starije u mlađu srednjobrončanodobnu fazu, što se poklapa s nestankom inkrustirane keramike srednjega brončanog doba te nešto češćom pojavom materijala kakav se pripisuje kulturi grobnih humaka. Rezultati arheozooloških i arheobotaničkih analiza pokazuju kako se, bez obzira na promjene arheoloških kultura i razdoblja, privreda stanovništva naseljenoga na istome mjestu nije bitno mijenjala.

KLJUČNE RIJEČI: brončano doba, željezno doba, naselje, arheozoološka analiza, arheobotanička analiza, Osijek

Archaeological research at the site of Osijek – Ciglana and Zeleno polje revealed remains of a Bronze and Iron Age settlement. The earliest settlement was established during the Middle Bronze Age and was continually settled till the early phase of the Late Bronze Age. After a long hiatus, the site was settled again in the late phase of the Early Iron Age and in the Late La Tène period. Excavation of a larger area enabled researchers to track changes in the structure and organization of the settlement, while the conducted archaeozoological and archaeobotanical analyses testified to the economy of a population settled in the same area over a longer period of time. In the Bronze Age settlement, the most significant changes are noticeable at the turn of the early to the late phase of the Middle Bronze Age, which corresponds to the disappearance of encrusted pottery of the Middle Bronze Age and somewhat more common appearance of material assigned to the Tumulus culture. The results of archaeozoological and archaeobotanical analyses show that, regardless of the changes of archaeological cultures and periods, the economy of the population settled in the same area did not significantly alter.

KEY WORDS: Bronze Age, Iron Age, settlement, archaeozoological analysis, archaeobotanical analysis, Osijek

UVOD

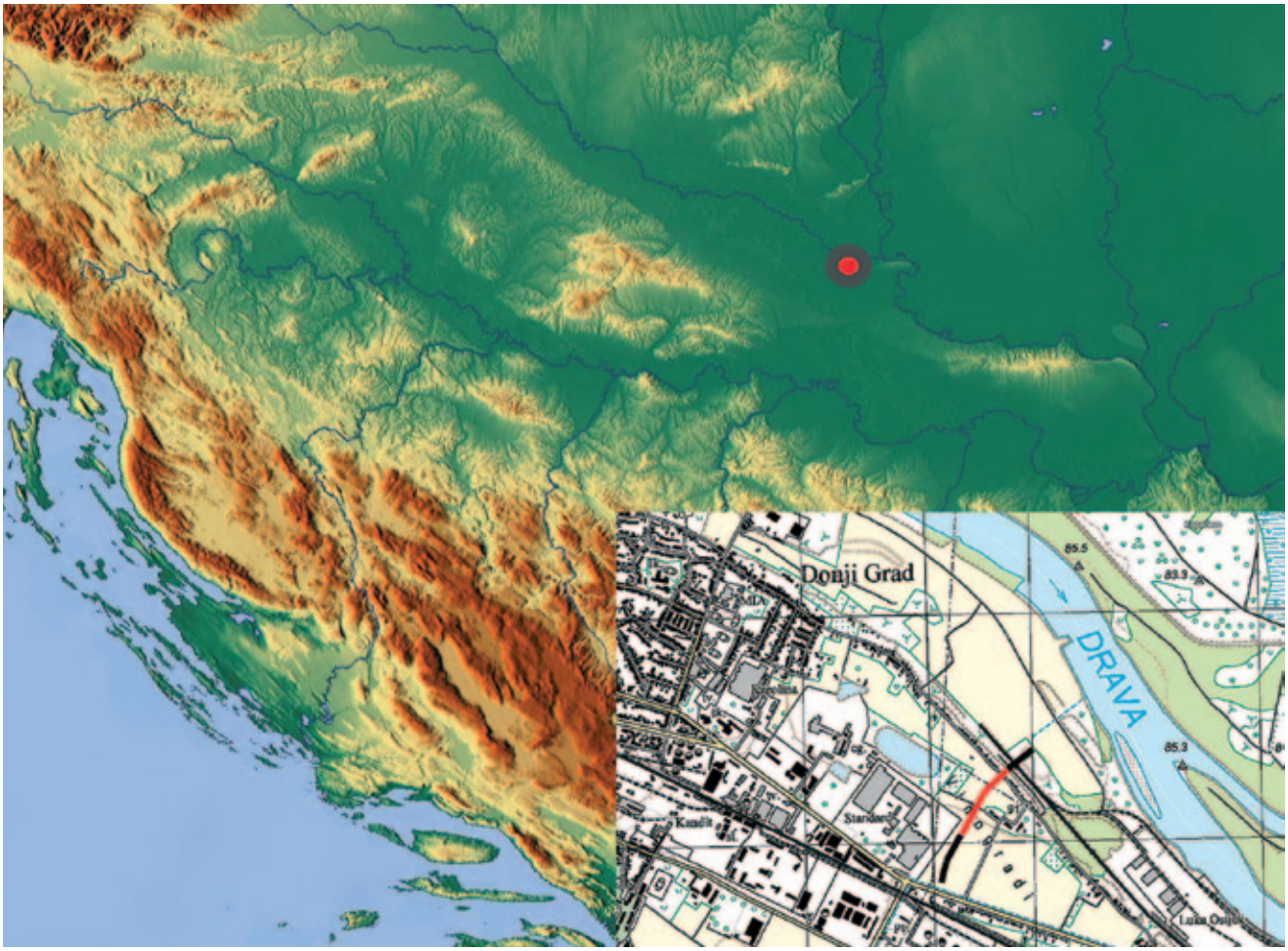
Prilikom zaštitinih arheoloških istraživanja 2015. godine na lokalitetu Osijek – Ciglana i Zeleno polje, vezanih uz gradnju cjevovoda za KKE Osijek, utvrđeni su ostaci naselja iz srednjega i kasnoga brončanog doba te naselja starijega i mlađega željeznog doba.[1] Istraživanjima je obuhvaćena trasa smjera sjeveroistok – jugozapad širine 10 m te je ukupno istražena površina od 7150 m². Trasa cjevovoda se proteže od plavne zone rijeke Drave na sjeveru do Vukovarske ulice na jugu te je presjekla prirodnu gredu uz desnu obalu rijeke Drave. Ostaci prapovijesnih naselja utvrđeni su na potezu od stare obale Drave, smještene između Vinogradske ulice i željezničke pruge za Luku Osijek, preko najvišega dijela grede (92 m n.v.) i njezine južne padine do dijela nizine podno grede (89 m n.v.) (karta 1). Najstarije naselje osnovano je tijekom srednjega brončanog doba, a kontinuirani život ovoga naselja može se pratiti do starije faze kasnoga brončanog doba. Na osnovi stratigrafskih pokazatelja i pokretnoga arheološkog materijala, bilo je moguće izdvojiti tri faze njegovoga života, od kojih dvije pripadaju srednjem,

1 Pri kronološkoj podjeli brončanoga, odnosno željeznoga doba koristi se terminologija uobičajena u hrvatskoj stručnoj literaturi.

INTRODUCTION

During the rescue excavation of the site of Osijek – Ciglana and Zeleno polje in 2015 related to the construction of the Osijek CHP power plant pipeline, remains of a settlement from the Middle and Late Bronze Age and settlements from the Early and Late Iron Age were identified.[1] The excavation encompassed a 10 m wide route in the direction of northeast – southwest; a total area of 7150 m² was explored. The pipeline route stretches from the flood zone of the Drava River in the north, all the way to Vukovarska Street in the south, cutting the natural ridge along the right bank of the Drava River. The remains of prehistoric settlements were ascertained in the area from the old bank of the Drava River, situated between Vinogradska Street and the railway leading to the Port Osijek, over the highest part of the ridge (92 m a.s.l.) and its southern slope to the part of the plain at the foot of the ridge (89 m a.s.l.) (Map 1). The earliest settlement was established during the Middle Bronze Age, and the continuous life cycle of the settlement can be tracked till the early phase of the Late Bronze Age. Stratigraphic indicators and movable archaeological finds enabled the identification of

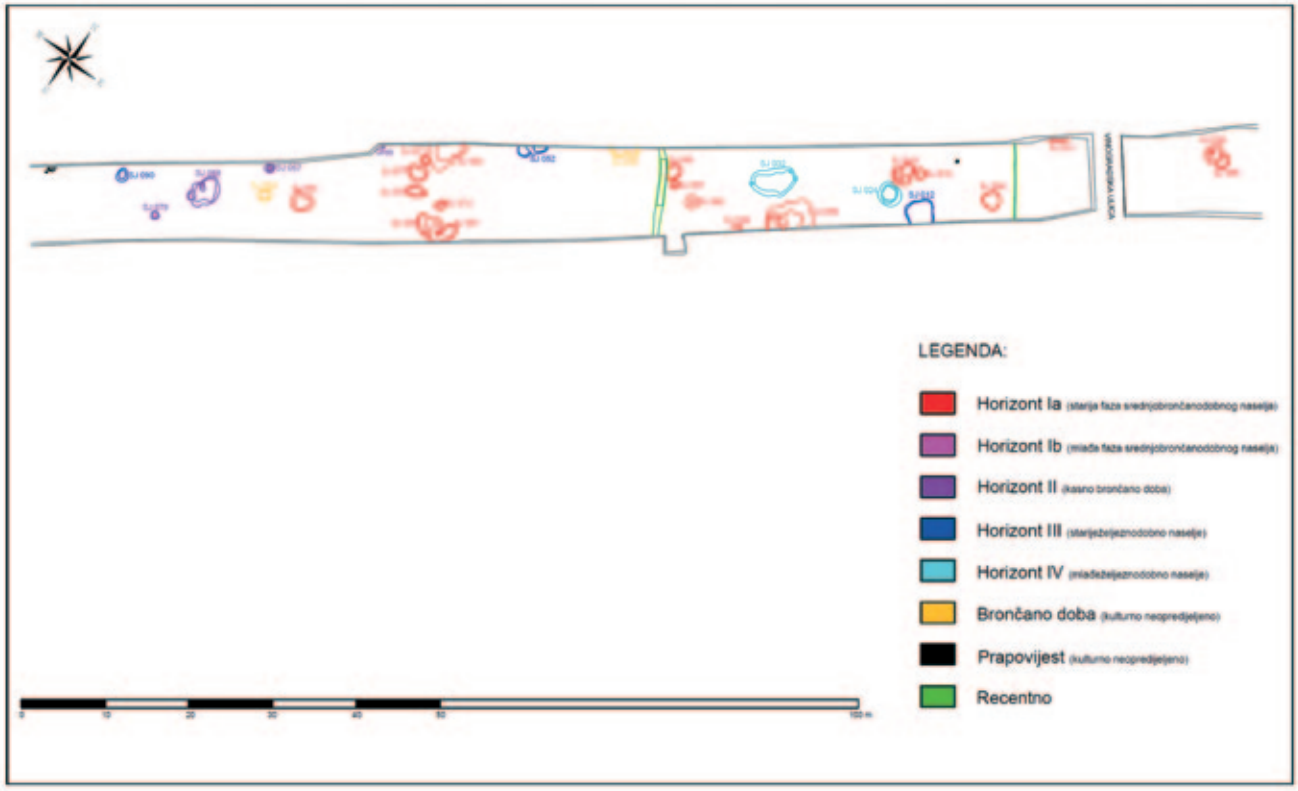
1 Regarding the chronological divison of the Bronze and Iron Ages, the terminology common in the Croatian literature is used.



Karta 1 — Položaj nalazišta (reljefna karta: https://maps-for-free.com/; topografska karta 1 : 25 000 Geoportal DGU; izradila: M. Krmpotić)
Map 1 — Position of the site (physical map: https://maps-for-free.com/; topographic map 1:25,000, Geoportal SGA; made by: M. Krmpotić)

a posljednja kasnome brončanom dobu. Ove faze označene su kao horizonti Ia–b (srednje brončano doba) i II (kasno brončano doba). Nakon završetka života brončanodobnoga naselja, sudeći prema evidentiranim nalazima, položaj je napušten, da bi bio ponovno naseljen u mlađoj fazi starijega željeznog doba (horizont III). Najmlađe prapovijesno naselje datira iz mlađega željeznog doba (horizont IV), međutim kontinuitet naseljavanja nije dokazan, budući da su evidentirani nalazi iz kasnolatenskoga razdoblja.

three phases of the settlement's existence, two of which belong to the Middle, while the last phase belongs to the Late Bronze Age. These phases were identified as horizons Ia-b (Middle Bronze Age) and II (Late Bronze Age). The recorded finds suggest the area was abandoned after the Bronze Age and settled again in the late phase of the Early Iron Age (horizon III). The latest prehistoric settlement dates to the Late Iron Age (horizon IV), however, the continuity of settlement was not proven, since the recoded finds are from the Late La Tène period.



Sl. 1 — Plan sjevernoga dijela nalazišta (izradile: L. Čataj, M. Krmpotić)
Fig. 1 — Ground plan of the northern part of the site (made by: L. Čataj, M. Krmpotić)

Sl. 2 — Plan južnoga dijela nalazišta (izradile: L. Čataj, M. Krmpotić)
Fig. 2 — Ground plan of the southern part of the site (made by: L. Čataj, M. Krmpotić)

OPIS NEPOKRETNIH ARHEOLOŠKIH NALAZA

Starija faza srednjobrončanodobnoga naselja – horizont Ia

Tijekom svoje najstarije faze naselje je zauzimalo najveću površinu na istraženoj trasi. Protezalo se od stare obale Drave na sjeveru do dijela nizine podno grede na jugu, u dužini od 270 m (sl. 1–2). Ovom horizontu pripada najveći broj evidentiranih pokretnih i nepokretnih arheoloških nalaza.

Najveća gustoća objekata zabilježena je na vrhu i južnoj padini grede, pri čemu se može primijetiti njihovo organiziranje u skupine. Pojedinu skupinu čini jedan veći objekt okružen s nekoliko manjih. Dužina trase na kojoj se prostire pojedina skupina iznosi između 23 i 30 m, obuhvaćajući tako površinu od 250 – 300 m^2, pri čemu se ukupna površina objekata unutar skupine kreće između 28 i 30 m^2. Pod pretpostavkom da su skupine objekata bile otprilike kružnoga tlocrta, površina koju je zauzimala pojedina skupina može se procijeniti na 500 – 700 m^2. Udaljenost između skupina iznosi 25 m na sjevernome dijelu naselja i 40 m na južnome, što ukazuje na gušću naseljenost pri vrhu grede.

Najsjevernije, na vrhu grede, nalazi se skupina oko objekta SJ 029/030. Budući da je ovaj objekt ulazio pod istočni profil, istražen je djelomično, u dimenzijama 5,7 x 3,2 m (14,9 m^2), dok mu je najveća relativna dubina oko 1 m. Uz južni rub objekta nalazila se pristupna stepenica, dok su ostaci ognjišta evidentirani u središnjem dijelu istražene površine. U zapuni su nađene velike količine kućnoga lijepa koje ukazuju na postojanje nadzemne konstrukcije, kao i brojni ulomci keramičkih posuda, životinjske kosti i ljušture školjaka. Oko navedenoga poluzemuničnog objekta evidentirano je šest manjih objekata udaljenih od njega između 3 i 10 m (SJ 015/016, 017/018, 035/036, 041/042, 060/061 i 039/040). Većinom je riječ o manjim jamama kružnoga do ovalnoga tlocrta, prosječnoga promjera od 1,5 m i relativne dubine oko 0,5 m, u čijim je zapunama nađena manja količina ulomaka keramičkih posuda, komadića kućnoga lijepa, životinjskih kostiju i ljuštura školjaka. Jedini veći objekt predstavlja SJ 017/018, dimenzija 3 x 2,3 m i relativne dubine do 0,5 m, izdužen u smjeru sjever – jug, u čijoj su zapuni također evidentirani ulomci keramič-

DESCRIPTION OF IMMOVABLE ARCHAEOLOGICAL FINDS

Early phase of the Middle Bronze Age settlement – horizon Ia

During its earliest phase, the settlement spanned across the largest area of the excavated route. It extended from the old bank of the Drava River in the north to the part of the plain at the foot of the ridge in the south; it was 270 m long (Figs. 1–2). This horizon includes most of the recorded movable and immovable archaeological finds.

The highest density of structures was recorded at the top and on the southern slope of the ridge. It can be noted that they are organized in groups. Every group consists of one larger structure surrounded by several smaller ones. A group spans across between 23 and 30 m of the route, encompassing an area of 250–300 m^2. The total surface area of structures within a group varies between 28 and 30 m^2. Assuming that the groups of structures had roughly circular ground plans, we can estimate that one group's surface area is 500–700 m^2. The distance between groups is 25 m in the northern part of the settlement and 40 m in its southern part, pointing to a higher concentration of population near the top of the ridge.

On the northernmost part of the settlement, near the top of the ridge, there is a group situated around structure SU 029/030. Since this structure goes under the eastern profile, it was excavated only partially, 5.7 x 3.2 m (14.9 m^2) in dimensions, while its lowest relative depth is around 1 m. There was a step allowing access along the southern edge of the structure, while the remains of a hearth were recorded in the central part of the excavated area. The fill revealed large quantities of daub, indicating the existence of an above-ground construction, as well as numerous fragments of ceramic vessels, animal bones, and shells. Six smaller structures (SU 015/016, 017/018, 035/036, 041/042, 060/061, and 039/040) were recorded around the semi-sunken featured building at a distance between 3 and 10 m. They are mostly smaller circular to oval pits, 1.5 m of average diameter, and around 0.5 m of relative depth. Their fills revealed a smaller amount of fragments of ceramic vessels, pieces of daub, animal bones, and shells. The only larger structure is SU 017/018, 3 x 2.3 m in dimensions and up to 0.5 m of relative depth, elongated in north – south direction, with the fill containing

kih posuda, kućnoga lijepa, ljušture školjaka, kao i manje količine rasutoga ugljena.

Sljedeća skupina nalazi se 25 m jugozapadno, također pri vrhu grede, ukopana oko većega objekta SJ 033/034. Objekt je također izlazio izvan gabarita trase te je djelomično istražen, u dimenzijama 4,5 x 3,2 m (9,8 m²), a relativna mu dubina iznosi do 0,9 m. Stijenke su mu strme, bez pristupnih stepenica, a u istraženome dijelu nije nađeno ognjište te je upitno radi li se o ostacima zemunice. U zapuni objekta zabilježene su veće količine ulomaka keramičkih posuda, kući lijep, životinjske kosti, ljušture školjaka te manja količina rasutoga ugljena. U blizini je smješteno sedam manjih objekata (SJ 070/071, 076/077, 074/075, 211/212, 056/057, 058/059 i 062/063), čije su zapune sadržavale male količine ulomaka keramičkih posuda, komadića kućnoga lijepa, nerijetko životinjske kosti i ljušture školjaka, a ponekad i male količine rasutoga ugljena. U zapuni SJ 076 nađene su i karbonizirane žitarice, a u SJ 062 sjemenke leće.

fragments of ceramic vessels, daub, shells, as well as smaller amounts of bulk charcoal.

The next group is situated 25 m to the southwest, also near the top of the ridge, dug around larger structure SU 033/034. The structure also exceeded the limits of the route and was researched partially, 4.5 x 3.2 (9.8 m²) in dimensions, with 0.9 m of relative depth. Its walls are steep, without access steps. The excavated area did not contain a hearth, so the question of whether these are the remains of sunken featured building remains. The fill of the structure revealed larger amounts of fragments of ceramic vessels, daub, animal bones, shells, and a smaller amount of bulk charcoal. Seven smaller structures (SU 070/071, 076/077, 074/075, 211/212, 056/057, 058/059, and 062/063) were situated in the vicinity. Their fills contained smaller amounts of fragments of ceramic vessels, pieces of daub, often animal bones and shells, and sometimes smaller amounts of bulk charcoal. The fill SU 076 revealed carbonized cereals and the fill SU 062 lentil seeds.

Sl. 3 — Ukop poluzemunice SJ 093 (snimio: T. Zojčeski 2015, arhiva Hrvatskog restauratorskog zavoda; obradila: M. Krmpotić)
Fig. 3 — Semi-sunken pit-dwelling SU 093 (photo by: T. Zojčeski 2015, Croatian Conservation Institute Archives; edited by: M. Krmpotić)

Skupina oko poluzemuničnoga objekta SJ 092/093 leži 45 m jugozapadno od opisane. Objekt SJ 092/093 nalazio se gotovo čitav u gabaritima trase, tek mu je manji dio ulazio pod istočni profil (sl. 3). Istražen je u dužini od 8,3 m i širini od 6,5 m, a istražena mu površina iznosi 44,5 m^2, pri čemu je najveća relativna dubina oko 1 m. Nepravilnoga je tlocrta, izdužen u smjeru zapad – istok. U zapadnome dijelu nađena je rupa od stupa koji je vjerojatno služio kao oslonac za nadzemnu konstrukciju. Objekt je razveden i sastoji se od dva veća prostora. Pristupne stepenice smještene su na uzdužnim stranama objekta (sjevernoj i južnoj), pri čemu su uz sjevernu stepenicu evidentirani ostaci ognjišta. U zapuni objekta nađene su velike količine kućnoga lijepa, a također i brojni ulomci keramičkih posuda, životinjske kosti i ljušture školjaka te ulomci brončanih predmeta i kamenoga oruđa, kao i skromni ostaci žitarica. U njegovoj blizini nalazilo se više manjih objekata, od kojih se ovoj fazi naseljavanja mogu pripisati samo dva (SJ 112/113 i 100/101), zapunjena zemljom s malobrojnim ulomcima keramičkih posuda i kućnoga lijepa te životinjskih kostiju.

Preostali objekti ovoga horizonta smješteni su na krajnjem sjevernome, odnosno južnome dijelu naselja. Na sjevernome dijelu, na samoj staroj obali Drave, zabilježene su dvije, međusobno presječene jame (SJ 087/088 i 098/099). Premda međusobno presječene, jame su pripisane istome horizontu na osnovi pokretnih nalaza evidentiranih u njihovim zapunama. U zapuni starije jame (SJ 087) zabilježen je prosloj paljevine te su nađeni ulomci keramičkih posuda, životinjske kosti, ljušture školjaka i plod žira. Mlađa jama SJ 098/099, prilično duboka (1,8 m relativne dubine), sadržavala je nekoliko ulomaka keramičkih posuda, životinjske kosti, ljušture školjaka i komadiće ugljena koji moguće potječu iz starije jame. Jugozapadno od nje istražen je mali dio vjerojatno većega objekta koji gotovo u potpunosti ulazi pod zapadni profil (SJ 230/231), a nešto južnije i jedna manja jama (SJ 005/006).

Na nizini južno od grede, oko 80 m udaljen od najbližeg stambenoga objekta, evidentiran je niz manjih jama ukopanih u liniji smjera sjever – jug (SJ 127/128, 129/130, 131/132, 133/134, 141/142, 143/144 i 147/148) (sl. 4). Jame su kružnoga do ovalnoga tlocrta, promjera oko 1 m i relativno plitke (do 0,3 m). Bile su zapunjene rahlom smeđom zemljom s po nekoliko manjih ulomaka keramičkih posuda, rijetko

The group around semi-sunken featured building SU 092/093 lies 45 m southwest from the above-depicted group. Structure SU 092/093 was almost entirely situated within the route limits; only a smaller portion went under the eastern profile (Fig. 3). It was excavated 8.3 m in length and 6.5 m in width. The researched surface area amounts to 44.5 m^2, while its lowest relative depth is around 1 m. Its ground plan is irregular and elongated in the west – east direction. A post hole was found in the western part, which probably served as a support for the above-ground construction. The structure has a split ground plan and consists of two larger areas. The access steps are situated at the longitudinal sides of the structure (northern and southern) and the remains of a hearth were recorded alongside the northern step. The fill of the structure revealed large amounts of daub, as well as numerous fragments of ceramic vessels, animal bones and shells, fragments of bronze objects and stone tools, and very small amounts of cereals' remains. There were multiple smaller structures in its vicinity, only two of which (SU 112/113 and 100/101) can be assigned to this phase of settlement. They were filled with soil with scarce fragments of ceramic vessels, daub, and animal bones.

The remaining structures from this horizon were situated at the northernmost, i.e., the southernmost part of the settlement. At the northern part, on the old Drava River bank itself, two overlaping pits (SU 087/088 and 098/099) were recorded. Although they cut into each other, the pits were assigned to the same horizon based on the movable finds recorded in their fills. The fill of the earlier pit (SU 087) revealed a thin charred layer and fragments of vessels, animal bones, shells, and an acorn. The later pit SU 098/099 is fairly deep (1.8 m of relative depth). It contained several fragments of ceramic vessels, animal bones, shells, and pieces of charcoal that could have originated from the earlier pit. A small portion of a probably larger structure was researched southwest of it. The structure almost completely goes under the western profile (SU 230/231). There is also one smaller pit (SU 005/006) somewhat more to the south.

In the plain, south of the ridge, around 80 m away from the nearest residential structure, a sequence of smaller pits dug in the direction of north – south was recorded (SU 127/128, 129/130, 131/132, 133/134, 141/142, 143/144, and 147/148) (Fig. 4). The pits have a circular to oval ground plan, 1 m in diameter, and they are relatively

Sl. 4 — Niz jama dužine 15 m na južnome rubu srednjobrončanodobnoga naselja, pogled sa sjevera (snimio: A. Janeš 2015, arhiva Hrvatskog restauratorskog zavoda)
Fig. 4 — Sequence of pits, 15 m long, on the southern edge of the Middle Bronze Age settlement, view from the north (photo by: A. Janeš 2015, Croatian Conservation Institute Archives)

pokojom životinjskom kosti, ili su bile bez ikakvih arheoloških nalaza. Zbog sličnosti u njihovim dimenzijama, obliku i zapuni te s obzirom na njihov međusobni položaj, sve su pripisane istoj fazi. Niti u jednoj nisu nađeni ostaci drveta ili ugljen. Između dviju od spomenutih jama evidentirana je rupa od kolca SJ 137/138, dok objekt SJ 135/136, ukopan otprilike u istoj liniji, pripada mlađoj fazi naselja. Funkcija ovih jama nije jasna uzevši u obzir vrlo skromne nalaze iz zapuna, relativno veliku udaljenost od najbližih objekata i malu relativnu dubinu ukopa. Postoji mogućnosti kako se radi o tragovima obrambenoga sistema naselja u vidu palisade. Ukoliko je uistinu riječ o tragovima drvene palisade, nedostatak ostataka drveta u zapunama može se protumačiti njezinim uklanjanjem ili prirodnim propadanjem. S obzirom na veličinu jama, trebalo bi pretpostaviti kako je bila sagrađena od masivnih trupaca velikoga promjera. Promjer trupaca može se procijeniti na osnovi promjera dna jama na oko 0,5 m, pretpostavljajući da je vanjski perimetar jama rezultat njihovoga zatrpavanja zemljom iz iskopa. Rupa od kolca SJ 137/138, nađena između dviju jama, mogla bi biti trag podbočavanja trupaca manjim kolci-

shallow (up to 0.3 m). They were filled with loose brown soil with several smaller fragments of ceramic vessels, scarce animal bones, or were without any archaeological finds. Due to the similarity in their dimensions, shape and fills, and given their relative positions, all were assigned to the same phase. Remains of wood or charcoal were not discovered in any of them. A hole made by wooden pole SU 137/138 was recorded between the two of the aforementioned pits, while structure SU 135/136, dug in approximately the same direction, belongs to the later phase of the settlement. The function of these pits is not clear due to the very scarce finds from the fills, relatively long distance from the nearest structures, and their relatively low depth. It is possible that these are remains of the settlement's fortification system in the form of a palisade. If these are indeed the remains of a wooden palisade, the lack of wood in the fills can be interpreted by the removal or by the natural decay of the palisade. Given the side of the pits, it should be assumed that the palisade was constructed from massive logs of large diameter. The log diameter can be estimated on the basis of the diameter of the bottom of the pits at around 0.5 m, assuming that the outer perimeter of the pits was the result

ma. Mala relativna dubina navedenih jama može se protumačiti erozijom i obradom zemlje u kasnijim razdobljima.

Mlađa faza srednjobrončanodobnoga naselja – horizont Ib

Početak mlađega srednjobrončanodobnog horizonta obilježavaju promjene u veličini i strukturi naselja. Smanjuje se intenzitet naseljenosti na istraženome dijelu nalazišta, napušta se viši, sjeverni dio grede, a naselje se pomiče prema jugu. Veliki objekti prethodnoga horizonta su napušteni, a dužina naselja se s 270 m iz prethodnoga horizonta smanjuje na 115 m (sl. 1–2). Postoji mogućnost kako je došlo do izmicanja naselja duž grede te bi u tom slučaju ovakav zaključak, dobiven na osnovi ograničene površine istraživanja, bio pogrešan.

Kao i u prethodnome horizontu, i u ovome se može zapaziti grupiranje objekata, pri čemu

of them being filled with the soil from the pit. The hole made by wooden pole SU 137/138, discovered between the two pits, could be a trace of propping the logs with smaller poles. The low relative depth of the mentioned pits can be explained by erosion and ground cultivation in later periods.

Later phase of the Middle Bronze Age settlement – horizon Ib

The beginning of the Late Middle Bronze Age horizon is marked by changes in the size and the structure of the settlement. Population density decreases at the researched part of the site, the higher, northern part of the ridge is abandoned, the settlement shifts to the south. Large structures of the previous horizon had been abandoned, and the length of the settlement dropped from 270 m to 115 m (Figs. 1–2). There is a possibility that the settlement was shifted along the ridge, which would make the conclusion based on the limited area of research erroneous.

Sl. 5 — Ukopi mlađe faze srednjega brončanog doba na površini starije zemunice SJ 092/093 (snimio: A. Janeš 2015, arhiva Hrvatskog restauratorskog zavoda; obradila: M. Krmpotić)
Fig. 5 — Later phase of the Middle Bronze Age features on the surface of an earlier pit-dwelling SU 092/093 (photo by: A. Janeš 2015, Croatian Conservation Institute Archives; edited by: M. Krmpotić)

međusobna udaljenost između skupina iznosi oko 40 m. Međutim, veliki stambeni objekti ove faze nisu ustanovljeni, već je riječ isključivo o skupinama manjih objekata. Na prostoru oko poluzemunice SJ 092/093 iz starijega horizonta, u ovoj su fazi ukopani novi objekti. Samu poluzemunicu SJ 092/093 presjeklo je nekoliko manjih objekata (sl. 5), od kojih se na osnovi pokretnih nalaza horizontu Ib sa sigurnošću mogu pripisati SJ 217/218, 220/221 i 222/223. U njihovim zapunama nađeni su ulomci keramičkih posuda, komadi kućnoga lijepa, životinjske kosti, odnosno i ljušture školjaka. Jamu SJ 112/113 presjekle su dvije manje (SJ 110/111 i 234/235), u čijim su zapunama zabilježeni tek skromni ulomci keramičkih posuda i manji komadi kućnoga lijepa, dok su na području objekta SJ 100/110 u ovoj fazi ukopane dvije manje jame ovalnoga tlocrta (SJ 108/109 i 125/126), zapunjene zemljom s malom količinom ulomaka keramičkih posuda, komadića kućnoga lijepa, životinjskih kostiju i ljuštura školjaka, pri čemu su u zapuni SJ 125 nađene i skromne količine karboniziranih žitarica.

Oko 40 m jugozapadno evidentirana su još dva objekta ovoga horizonta, smještena jedan uz drugi. Veći od njih, SJ 151/152, nepravilnoga je tlocrta te se moguće radi o dvije spojene jame, a uz njega se nalazi manja jama SJ 153/154. Zapune su im bile vrlo slične, a sadržavale su ulomke keramičkih posuda, komade kućnoga lijepa, životinjske kosti i ljušture školjaka te malo rasutoga ugljena.

Na položaju niza jama na južnome rubu naselja, datiranih u prethodni horizont, ukopan je veći objekt SJ 135/136. Svojim se dimenzijama i zapunom znatno razlikuje od spomenutih jama te je, na osnovi nalaza iz zapune, pripisan mlađoj fazi srednjobrončanodobnoga naselja. Objekt je nepravilnoga ovalnog tlocrta, dimenzija 2,5 x 2,4 m i relativne dubine do 0,4 m. U njegovoj su zapuni nađeni brojni ulomci keramičkih posuda, manja količina kućnoga lijepa, životinjske kosti, ljušture školjaka, malo rasutoga ugljena te nešto karboniziranih žitarica.

Naselje kasnoga brončanog doba – horizont II

Kasnobrončanodobno naselje prostire se na južnoj padini grede te na dijelu nizine podno nje. Njegova dužina od 115 m identična je onoj mlađeg srednjobrončanodobnog naselja, s time što se naselje pomiče za 50–tak m prema

As well as in the previous horizon, we can note groups of structures; the relative distance between groups is around 40 m. However, large residential structures have not been recorded in this phase; the groups consist purely of smaller structures. In the area around sunken featured building SU 092/093 from the earlier horizon, new structures were dug in during this phase. Sunken featured building itself SU 092/093 was cut by several smaller structures (Fig. 5). Based on movable finds, structures SU 217/218, 220/221, and 222/223, cutting into SU 092/093, can be assigned to horizon Ib with certainty. Their fills revealed fragments of ceramic vessels, pieces of daub, animal bones, and shells. Pit SU 112/113 was cut by two smaller pits (SU 110/111 and 234/235), their fills containing only scarce fragments of ceramic vessels and smaller pieces of daub, while two smaller pits with oval ground plans (SU 108/109 and 125/126) were dug in during this phase in the area of structure SU 100/110. They were filled with soil with a small number of fragments of ceramic vessels, pieces of daub, animal bones, and shells, with scarce amounts of carbonized cereals, also discovered in fill SU 125.

Around 40 m southwest, two more structures from this horizon situated next to each other were recorded. The larger structure, SU 151/152, has an irregular ground plan and there is a possibility that in fact, those are two connected pits, while smaller pit SU 153/154 is situated next to it. Their fills were very similar, containing fragments of ceramic vessels, pieces of daub, animal bones, shells, and a small amount of bulk charcoal.

At the site of a sequence of pits at the southern edge of the settlement, dated to the previous horizon, a larger structure SU 135/136 was dug in. Its dimension and fill differ significantly from the aforementioned pits, and, based on the finds from the fill, it was assigned to the later phase of the settlement from the Middle Bronze Age. The structure has an irregular oval ground plan, 2.5 x 2.4 m in dimension, and relative depth up to 0.4 m. Its fill contained numerous fragments of ceramic vessels, a smaller amount of daub, animal bones, shells, a small amount of bulk charcoal, and some carbonized cereals.

Late Bronze Age settlement – horizon II

The Late Bronze Age settlement extends on the southern slope of the ridge and a part of the plain beneath it. Its length of 115 m is identical to the length of the late Middle Bronze Age settlement.

sjeveru, odnosno vrhu grede (sl. 1–2). Međutim, ovakva slika može biti samo rezultat uske površine trase koja je bila istražena.

Osim na sjevernome dijelu naselja, oko objekta SJ 068/069, nije primjetno grupiranje objekata kakvo se moglo zapaziti tijekom srednjobrončanodobnih faza. Međusobna udaljenost između objekata, odnosno i spomenute skupine, iznosi oko 45 m, dakle otprilike je jednaka onoj u prethodnoj fazi. Najsjevernije je smješten objekt SJ 068/069, izduženoga nepravilnog tlocrta, orijentiran u smjeru sjever – jug, dimenzija 4,3 x 3 m (9,5 m²) i relativne dubine do 0,8 m. U njegovoj je zapuni nađena veća količina ulomaka keramičkih posuda, komadi kućnoga lijepa te ulomak brončane pločice. U blizini objekta ukopane su dvije manje jame (SJ 066/067 i 078/079), zapunjene zemljom s ulomcima keramičkih posuda, komadićima kućnoga lijepa i ljušturama školjaka.

Sl. 6 — Ukop kasnobrončanodobnoga objekta SJ 165 (snimila: M. Krmpotić 2015, arhiva Hrvatskog restauratorskog zavoda)
Fig. 6 — Late Bronze Age structure SU 165 (photo by: M. Krmpotić 2015, Croatian Conservation Institute Archives)

The settlement shifted around 50 m to the north, i.e., to the top of the ridge (Figs. 1– 2). However, this portrayal may only be the result of the narrow surface area of the excavated route.

Aside from the northern part of the settlement, around structure SU 068/069, there is no noticeable grouping of structures as it was recorded during the Middle Bronze Age phases. The relative distance between structures, i.e., between the aforementioned group, is 45 m; therefore, it is approximately equivalent to the distance between structures in the previous phase. The northernmost structure is SU 068/069 with elongated, irregular ground plan, orientation north – south, 4.3 x 3 m (9,5 m²) in dimensions, and 0.8 m of relative depth. Its fill revealed a larger amount of ceramic vessel fragments, pieces of daub, and a fragment of a bronze plate. Two smaller pits (SU 066/067 and 078/079) were dug in in the vicinity of the structure, filled with soil with fragments of ceramic vessels, pieces of daub, and shells.

Structure SU 094/095 is situated 45 m southwest of the described group. Given that it went under the eastern profile, it was not completely excavated. It was excavated 3.3 x 1.5 m in dimensions, and its relative depth is up to 1.2 m, with a noticeable drop of the bottom near the profile. Its fill revealed numerous fragments of ceramic vessels and pieces of daub, and near the bottom,

Sl. 7 — Kasnobrončanodobni grob (snimio: A. Janeš 2015, arhiva Hrvatskog restauratorskog zavoda)
Fig. 7 — Late Bronze Age burial (photo by: A. Janeš 2015, Croatian Conservation Institute Archives)

Objekt SJ 094/095 nalazi se 45 m jugozapadno od opisane skupine. S obzirom na to da je ulazio pod istočni profil, nije u potpunosti istražen. Istražen je u dimenzijama 3,3 x 1,5 m, a relativna mu dubina iznosi do 1,2 m, pri čemu je primjetan pad dna ukopa prema profilu. U njegovoj su zapuni nađeni brojni ulomci keramičkih posuda i komadi kućnoga lijepa, a pri dnu ostaci urušene podnice od zapečene zemlje te je moguće riječ o ostacima nekoga većeg stambenog objekta. Drugi objekti iz istoga razdoblja nisu zabilježeni u njegovoj blizini.

Na nizini podno grede, oko 45 m dalje prema jugozapadu, nađen je objekt SJ 164/165, također samo djelomično istražen, budući da je izlazio van gabarita trase (sl. 6). Istražen je u dimenzijama 3,5 x 1,7 m, a relativna mu dubina iznosi do 0,9 m. Sa sjeverozapadne strane objekta, uz njegov su rub, evidentirane tri rupe od stupova (SJ 168/169, 170/171 i 172/173) koji su nosili nadzemnu konstrukciju. U zapuni objekta nađeni su brojni ulomci keramičkih posuda, velike količine kućnoga lijepa i životinjske kosti. Također su utvrđeni ostaci konstrukcije od zapečene zemlje temeljene na posloženim ulomcima keramičkih posuda, uz koju su evidentirane relativno brojne karbonizirane sjemenke, što ukazuje kako se vjerojatno radi o mjestu na kojem je pripremana hrana.

O kraju života brončanodobnoga naselja svjedoči ukop paljevinskoga groba na istome položaju (sl. 7). Grob je sadržavao spaljene kosti pokojnika pokrivene zdjelom zaravnjenoga oboda okrenutom dnom prema gore. Drugi nalazi koji bi se mogli pripisati navedenoj kulturnoj grupi nisu ustanovljeni na nalazištu. Također nije jasno je li riječ o usamljenome ukopu ili dijelu groblja, budući da je grob pronađen uz sam zapadni rub trase.

Naselje starijega željeznog doba – horizont III

Stariježeljeznodobno naselje osnovano je na ovome položaju nakon hijatusa od najmanje 600 godina. Evidentirana su tek tri objekta ovoga horizonta raštrkana na potezu dužine 100 m od vrha grede na sjeveru, duž njezine južne padine, međusobno udaljeni 40 – 45 m (sl. 1–2).

Veći objekt SJ 011/012 smješten je na vrhu grede, a s obzirom na to da je izlazio van gabarita trase, istražen je samo djelomično, u dimenzijama 3,3 x 3 m (8,5 m²), dok mu je najveća relativna dubina 0,7 m (sl. 8). Stijenke su

remains of a collapsed floor made of burnt earth. Therefore, these are possible remains of a larger residential structure. No other structures from the same period were recorded in its vicinity.

On the plain beneath the ridge, around 45 m to the south-west, structure SU 164/165 was discovered and also only partially excavated, since it exceeded the limits of the route (Fig. 6). The researched dimensions are 3.5 x 1.7 m and relative depth is 0.9 m. Three holes (SU 168/169, 170/171, and 172/173) from the posts propping its above-ground construction were recorded on the structure's northern side, along its edge. The fill of the structure revealed numerous fragments of ceramic vessels, large quantities of daub, and animal bones. Remains of a construction made of burnt earth based on fragments of ceramic vessels were also identified, along with relatively numerous carbonized seeds, suggesting that this probably was a place where food was prepared.

The cremation burial (Fig. 7) at the same site testifies to the end of the Bronze Age settlement. The grave contained cremated bones of the deceased individual covered with a flattened rim bowl, its bottom facing up. No other finds which could be assigned to this cultural group were recorded at the site. Moreover, it is not clear whether this is an isolated burial or a part of a cemetery since the grave was discovered along the far western edge of the route.

Early Iron Age settlement – horizon III

The Early Iron Age settlement was established at this site after a hiatus lasting at least 600 years. Only three structures from this horizon were recorded, scattered along the 100 m line from the top of the ridge in the north, along its southern slope, with 40–45 m of relative distance between them (Figs. 1–2).

The larger structure SU 011/012 was situated at the top of the ridge. Given that it exceeded the limits of the route, it was only partially excavated, 3.3 x 3m (8.5 m²) in dimensions, while its lowest relative depth was 0.7 m (Fig. 8). Its walls are steep, and at its bottom, a layer of burnt earth, around 0.3 m thick and incompact, was recorded. The fill, alongside fragments of ceramic vessels, animal bones, and charcoal, revealed four ceramic spindle-whorls, a fragment of a whetstone, and a ceramic vessel for metal casting; therefore, we can assume that this structure had a workshop function.

Around 40 m south-west, a part of another structure (SU 051/052) from the Early Iron Age

Sl. 8 — Stariježeljeznodobni objekt SJ 011/012 (snimila: J. Caričić 2015, arhiva Hrvatskog restauratorskog zavoda)
Fig. 8 — Early Iron Age structure SU 011/012 (photo by: J. Caričić 2015, Croatian Conservation Institute Archives)

mu strme, a pri dnu ukopa evidentiran je prosloj zapečene zemlje debljine oko 0,3 m koji nije bio kompaktan. U zapuni su, uz ulomke keramičkih posuda, životinjske kosti i ugljen, nađena i četiri keramička pršljena, ulomak kamenoga brusa i keramička posuda za lijevanje metala te se može pretpostaviti kako je objekt imao radnu namjenu.

Oko 40 m jugozapadno istražen je dio još jednoga objekta starijega željeznog doba, SJ 051/052, koji je također ulazio pod profil. U njegovoj su zapuni evidentirane skromne količine ulomaka keramičkih posuda, kućnoga lijepa te životinjske kosti i ljušture školjaka. Najjužniji objekt ovoga horizonta predstavlja manja jama SJ 066/067, zapunjena vrlo tamnom zemljom s dosta gara, u kojoj su nađeni ulomci keramičkih posuda, nekoliko komadića kućnoga lijepa, životinjske kosti i ljušture školjaka.

Dio istovremenoga naselja bio je obuhvaćen ranijim zaštitnim istraživanjima na trasi magistralnoga plinovoda, pri čemu je bio pronađen samo jedan objekt ovoga razdoblja (Skelac, Vodička 2007).

was excavated. It also went under the profile. Its fill revealed scarce amounts of fragments of ceramic vessels, daub, animal bones, and shells. The southernmost structure of this horizon is smaller pit SU 066/067, filled by very dark soil with a significant amount of soot. In it, fragments of ceramic vessels, several pieces of daub, animal bones, and shells were discovered.

A part of a contemporaneous settlement was researched during earlier rescue excavations on the route of the major gas pipeline, with only one structure pertaining to this period discovered (Skelac, Vodička 2007).

Late Iron Age settlement – horizon IV

Horizon IV represents the part of a Late La Tène settlement stretching further to the north and which was also partly included in the excavation at the route of the major gas pipeline (Skelac, Vodička 2007; Drnić, Skelac 2008). During 2015, only two new structures of this settlement were recorded, SU 023/024 and 031/032. The structures were situated at the top of the ridge, with a relative distance of 10 m (Figs. 1–2). Structure SU 031/032 represents the remains of an above-

Naselje mlađega željeznog doba – horizont IV

Horizont IV predstavlja dio kasnolatenskoga naselja koje se prostiralo dalje prema sjeveru te je također bilo djelomično obuhvaćeno istraživanjima na trasi magistralnoga plinovoda (Skelac, Vodička 2007; Drnić, Skelac 2008). Tijekom 2015. godine evidentirana su samo dva objekta ovoga naselja, SJ 023/024 i 031/032. Objekti su smješteni na vrhu grede, udaljeni međusobno 10 m (sl. 1–2). Objekt SJ 031/032 predstavlja ostatak nadzemne kuće s konstrukcijom koju su nosila dva stupa na kraćim stranama objekta (sl. 9). Ovlanoga je tlocrta, izdužen u smjeru sjeveroistok – jugozapad, dimenzija 5,7 x 3,3 m (14,7 m²) i relativne dubine ukopa do 0,5 m. U njegovoj su zapuni, uz komade kućnoga lijepa, zabilježeni ulomci kasnolatenskih keramičkih posuda te jedan keramički pršljen (T. 5).

Objekt SJ 023/024 nalazi se sjeverno od kuće. Kružnoga je tlocrta, gotovo okomitih stijenki, promjera oko 3 m i relativne dubine 1,5 m te se moguće radi o bunaru. U zapuni je nađena mala količina ulomaka keramičkih posuda i životinjskih kostiju, kao i karbonizirane žitarice i sjemenke leće.

ground structure with construction supported by two posts at the shorter sides of the structure (Fig. 9). It has an oval ground plan, elongated in the northeast – southwest direction, 5.7 x 3.3 m (14.7 m²) in dimensions, and 0.5 m of relative depth. Its fill, alongside pieces of daub, revealed fragments of Late La Tène ceramic vessels and one ceramic spindle whorl (Pl. 5).

Structure SU 023/024 is situated north of the house. It has a circular ground plan, almost vertical walls, 3 m in diameter and 1.5 m in relative depth. It is possible that this was a well. The fill revealed a small number of fragments of ceramic vessels and animal bones, as well as carbonized cereals and lentil seeds.

Sl. 9 — Kasnolatenski objekt SJ 031/032 (snimila: L. Čataj 2015, arhiva Hrvatskog restauratorskog zavoda; obradila: M. Krmpotić)
Fig. 9 — Late La Tène structure SU 031/032 (photo by: L. Čataj 2015, Croatian Conservation Institute Archives; edited by: M. Krmpotić)

ARCHAEOZOOLOGICAL ANALYSIS

Archaeozoological analysis was conducted at the Department of Anatomy, Histology, and Embryology of the Faculty of Veterinary Medicine of the University of Zagreb. Animal bones, teeth, and horns were washed by students of integrated undergraduate and graduate programs of veterinary medicine as part of their elective module "Archaeozoology" sessions. After they dried, skeletal and

ARHEOZOOLOŠKA ANALIZA

Arheozoološka analiza obavljena je pri Zavodu za anatomiju, histologiju i embriologiju Veterinarskoga fakulteta Sveučilišta u Zagrebu. Kosti, zube i rogove životinja oprali su studenti integriranoga preddiplomskog i diplomskog studija veterinarske medicine tijekom nastave izbornoga predmeta „Arheozoologija". Nakon sušenja, obavljena je kosturna i taksonomska determinacija (Schmid 1972; Prummel, Frisch 1986: 567–577; Hillson 1986; 1992; Hildesrand 1955; König, Liebich 2009) uz pomoć poredbene zbirke recentnih životinja Zavoda za anatomiju, histologiju i embriologiju Veterinarskoga fakulteta Sveučilišta u Zagrebu. Nazivi kostiju usklađeni su s *Nomina Anatomica Veterinaria* (2005). Uz broj identificiranih uzoraka (NISP – „Number of Identified Specimen") po razdobljima, ovisno o očuvanosti uzorka, procijenjeni su dob i spol (Hillson 1986; Schmid 1972; König, Liebich 2009) te su opisane tafonomske (Rackham 1994; Lyman 1994) i patološke promjene (Baker, Brothwell 1980). Izračunat je i najmanji broj jedinki (MNI) koji je dobiven razdjeljivanjem najbrojnijega koštanog elementa neke vrste na lijeve i desne komponente te uzimanjem najvećega broja kao jedinice izračuna (White 1953: 396–398).

Ostaci kostiju, riba, školjaka i puževa potječu iz 35 stratigrafskih jedinica koje su datirane u tri faze: srednje brončano (starija i mlađa faza), kasno brončano i željezno doba (starija i mlađa faza). Od približno 2060 obrađenih fragmenata, kosturno i taksonomski identificirana su 522 fragmenta (25,34 %). Na fragmente ljuštura školjaka[2] otpada 30,58 %, na kućice puževa 0,14 %, a na fragmente riba[3] 0,05 %. Preostalih 43,86 % su fragmenti rebara, kralježaka ili plosnatih kostiju kojima se nije mogla odrediti taksonomska pripadnost i fragmenti dugih kostiju kojima se nije mogla odrediti ni približna kosturna, a time ni taksonomska pripadnost. Determinirani koštani ostaci sisavaca prikazani su u tablicama 1–3.

taxonomic identification was conducted (Schmid 1972; Prummel, Frisch 1986: 567–577; Hillson 1986; 1992; Hildesrand 1955; König, Liebich 2009) with the help of comparative collection of extant species of the Department of Anatomy, Histology, and Embryology at the Faculty of Veterinary Medicine of the University of Zagreb. Terminology was synchronized with *Nomina Anatomica Veterinaria* (2005). Along with the number of identified specimens (NISP) in certain periods, depending on the degree of preservation of the specimen, age and sex were also assessed (Hillson 1986; Schmid 1972; König, Liebich 2009), taphonomic (Rackham 1994; Lyman 1994), and pathological changes (Baker, Brothwell 1980) were identified. The minimum number of individuals (MNI) was estimated by dividing the most numerous skeletal elements of a species into left and right components, and using the highest number as a unit for calculating (White 1953: 396–398).

Remains of bones of fish, shells, and gastropods originate from 35 stratigraphic units dated to three phases: the Middle Bronze Age (early and late phase), Late Bronze, and Iron Age (early and late phase). Out of approximately 2060 analysed fragments, 522 fragments (25.34%) were skeletally and taxonomically identified. Fragments of shells[2] make up 30.58%, gastropod shells 0.14%, fish fragments[3] 0.05%. The remaining 43.86% are fragments of ribs, vertebrae, or flat bones that could not be taxonomically identified, as well as fragments of other long bones which could not be even remotely skeletally, and therefore, also taxonomically identified. Determined skeletal remains of mammals are shown in Tables 1–3.

Head (*cranium*) bones are included together, aside from horns (*cornua*) in deer, i.e., cornual processes (*processus cornualis*) in bovid animals. Upper jaws (*maxilla*), lower jaws (*mandibula*), and individual teeth (*dentes*) were also identified. All parts of hip bone (*os coxae*): illium (*os ilium*), ischium (*os ischi*), and pubic bone (*os pubis*), as well as the cotyloid cavity (*acetabulum*) were also included together. Metapodials include those skeletal remains in which, due to damage, it could not be determined whether they belong to the front (*ossa metacarpalia*) or back (*ossa metatarsalia*) leg. All metacarpal bones (*ossa*

2 Analizu ljuštura školjaka i kućica puževa proveo je prof. dr. sc. Đuro Huber sa Zavoda za veterinarsku biologiju Veterinarskoga fakulteta Sveučilišta u Zagrebu.

3 Analizu ribljih kostiju provela je prof. dr. sc. Snježana Kužir sa Zavoda za anatomiju, histologiju i embriologiju Veterinarskoga fakulteta Sveučilišta u Zagrebu.

2 Remains of shells and gastropod shells were analyzed by Prof. Đuro Hubera, Phd, Department of veterinary Biology, Faculty of Veterinary Medicine, University of Zagreb.

3 Fish bones were analyzed by Prof. Snježana Kužir, Phd, Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine, University of Zagreb.

Horizont / Horizon Ia	Govedo / Cattle	Ovca / Sheep	Koza / Goat	Mali Preživač / Small ruminant	Svinja / Pig	Konj / Horse	Jelen Obični / Red deer	Srna / Roe deer	Pas / Dog	Zec / Rabbit	UKUPNO / TOTAL
Cranium	6	1		3	6				2		18
Proc. cornualis/ cornua	2						1				3
Maxilla	2			4	7			1	2		16
Mandibula	11	5	2	2	13				9	2	44
Dens I	1			4	4						9
Dens C					5 (1)				1		7
Dens PM	6			1	2						9
Dens M	22	1		7	7	1					38
Atlas	3				1				1		5
Axis	1				1				1		3
Vertebra cervicalis	5								8		13
Vertebra thoracica	6			2					3		11
Vertebra lumbalis				1					4		5
Vertebra caudalis									1		1
Scapula	4	2			9	1			4		20
Humerus	3	2		1	4 (2)				4		16
Radius	6			2	3				2		13
Ulna	3			1	1				4		9
MTC	9	2		1	1		1		10		24
Os coxae	2			3	2				8		15
Os femoris	2	3	1	1					3		10
Tibia	2		1		1				5	1	10
Fibula					1						1
Calcaneus	3		2		1						6
Talus	2				2						4
MTT	9	2		1	1		2		7		22
metapodium									2		2
Phalanx proximalis	8		1		2	1	1		2		15
Phalanx media	1					1					2
Phalanx distalis	1										1
NISP	**120**	**18**	**7**	**34**	**74 (3)**	**4**	**5**	**1**	**83**	**3**	**352**
MNI	**8**	**4**	**2**	**3**	**6 (2)**	**1**	**1**	**1**	**5**	**2**	**35**

Tab. 1 — Broj identificiranih uzoraka (NISP) i najmanji broj jedinki (MNI) sisavaca starije faze srednjega brončanog doba (horizont Ia) (izradila: T. Trbojević Vukičević)
Legenda: Dens I-incisiv; Dens C-canin; Dens PM-premolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. U skupini Svinja Sp. u zagradi su označene divlje svinje
Tab. 1 — Number of identified samples (NISP) and minimum number of individuals of mammals from the early phase of the Middle Bronze Age (horizon Ia) (made by: T. Trbojević Vukičević)
Legend: Dens I-incisiv; Dens C-canin; Dens PM-premolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. In the Pig Sp. group, wild boars are noted in parenthesis

Horizont / Horizon Ib	Govedo / Cattle	Ovca / Sheep	Svinja / Pig	Konj / Horse	Jelen Obični / Red deer	Srna / Roe deer	Pas / Dog	Zec / Rabbit	UKUPNO / TOTAL
Cranium	2		1						3
Maxilla			1						1
Mandibula	3	2	4		1				10
Dens I			3					1	4
Dens M	2		2						4
Atlas							1		1
Humerus			(1)						1
Radius			1			1			2
Ulna	1								1
Ossa carpi	1								1
MTC	1		2	1					4
Os coxae	1		1						2
Tibia					1				1
Fibula			2						2
Calcaneus	1								1
Talus	1								1
MTT	3						1		4
Phalanx prox.	2	1	1						4
Phalanx media	1		1						2
NISP	**19**	**3**	**19 (1)**	**1**	**2**	**1**	**2**	**1**	**48**
MNI	**2**	**2**	**2 (1)**	**1**	**1**	**1**	**1**	**1**	**12**

Tab. 2 — Broj identificiranih uzoraka (NISP) i najmanji broj jedinki (MNI) sisavaca mlađe faze srednjega brončanog doba (horizont Ib) (izradila: T. Trbojević Vukičević)
Legenda: Dens I-incisiv; Dens C-canin; Dens PM-premolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. U skupini Svinja Sp. u zagradi su označene divlje svinje
Tab. 2 — Number of identified samples (NISP) and minimum number of individuals (MNI) of mammals from the late phase of the Middle Bronze Age (horizon Ib) (made by: T. Trbojević Vukičević)
Legend: Dens I-incisiv; Dens C-canin; Dens PM- remolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. In the Pig Sp. group, wild boars are noted in parenthesis

Zajedno su uvrštene kosti glave (*cranium*), osim rogova (*cornua*) kod punorožaca, odnosno rožnih izdanaka (*processus cornualis*) kod šupljorožaca. Također su izdvojene gornje čeljusti (*maxilla*), donje čeljusti (*mandibula*) i pojedinačni zubi (*dentes*). Svi dijelovi bočne kosti (*os coxae*) koji podrazumijevaju crijevnu (*os ilium*), sjednu (*os ischi*) i stidnu kost (*os pubis*), kao i zglobnu čašicu kuka (*acetabulum*) također su uvršteni zajedno. U metapodije su pobrojani oni koštani ostaci kod kojih se zbog oštećenosti nije moglo utvrditi pripadaju li prednjoj (*ossa metacarpalia*) ili stražnjoj (*ossa metatarsalia*) nozi. Sve kosti zapešća (*ossa carpi*) pobrojane su u jednu skupinu, dok su kod kostiju zastopal-carpi) were included in one group, while in tarsals (*ossa tarsi*), the heel bone (*calcaneus*) and ankle bone (*talus*) were separated. The high degree of sample fragmentation, especially of long bones of mammals, made precise identification of certain species significantly more difficult and made biometric analysis completely impossible. Due to that, sheep (*Ovis aries* L.) and goat (*Capra hircus* L.) skeletal elements, which could not be more precisely determined in the terms of species due to the lack of important anatomic elements, were included in the same group of small ruminants. Alongside domestic pig (*Sus domesticus* L.), the swine group included skeletal remains of wild boar (*Sus scrofa* L.). Wild boars were identified

	Govedo / Cattle			Mali Preživač / Small ruminant		Svinja / Pig			Konj / Horse	Jelen Obični / Red deer			Pas / Dog		Dabar / Beaver	UKUPNO / TOTAL
Horizont / Horizon	II	III	IV	II	IV	II	III	IV	II	II	III	IV	II	III	III	
Cranium						1										1
Proc. cornualis/ cornua											5					5
Maxilla						1									1	2
Mandibula	2		1			1	1					2	1			8
Dens I							1	1								2
Dens C						1										1
Dens M	1				1				1		1					4
Vertebra thoracica						1										1
Vertebra lumbalis												1				1
Scapula			1			1						2				4
Humerus						1					1	1				3
Radius						1										1
Ulna						1										1
Ossa carpi		1														1
Os femoris		1														1
Tibia	1			1			1									3
Fibula						1										1
Calcaneus							1			1		1				3
MTT												1				1
Phalanx prox,											1	1		1		3
Phalanx distalis							1									1
NISP	**4**	**2**	**2**	**1**	**1**	**10**	**5**	**1**	**1**	**1**	**8**	**9**	**1**	**1**	**1**	**48**
MNI	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	

Tab. 3 — Broj identificiranih uzoraka (NISP) i najmanji broj jedinki (MNI) sisavaca kasnoga brončanog (horizont II), starijega željeznog (horizont III) i mlađega željeznog doba (horizont IV) (izradila: T. Trbojević Vukičević)
Legenda: Dens I-incisiv; Dens C-canin; Dens PM-premolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. U skupini Svinja Sp. u zagradi su označene divlje svinje
Tab. 3 — Number of identified samples (NISP) and minimum number of individuals (MNI) of mammals from the Late Bronze (horizon II), Early Iron (horizon III), and Late Iron Age (horizon IV) (made by: T. Trbojević Vukičević)
Legend: Dens I-incisiv; Dens C-canin; Dens PM-premolar; Dens M-molar; MTC-ossa metacarpalia; MTT-ossa metatarsalia. In the Pig Sp. group, wild boars are noted in parenthesis

ja (*ossa tarsi*) izdvojene petna kost (*calcaneus*) i gležnjača (*talus*). Velika fragmentiranost uzoraka, posebice dugih kostiju sisavaca, bitno je otežala točnije razlikovanje pojedinih vrsta i u potpunosti onemogućila biometrijsku analizu. Stoga su koštani elementi ovaca (*Ovis aries* L.) i koza (*Capra hircus* L.), kojima se zbog nedostatka bitnih anatomskih elemenata nije mogla odrediti preciznija pripadnost vrsti, uvršteni u zajedničku skupinu malih preživača. U skupinu only on the basis of *foramena supratrochleare* in the humerus and lower jaw (Babić et al. 2002: 14; Popović 1977: 89–99), as well as cuspids (tusks) of lower jaw (Hillson 1986), and are noted in the Table in parenthesis.

Table 1 shows that 352 skeletal, teeth, and horn fragments of domestic and wild mammals were skeletally and taxonomically identified. They originate from 15 stratigraphic units of the early phase of the Middle Bronze Age settlement (ho-

svinja ubrojeni su uz domaću (*Sus domesticus* L.) i koštani ostaci divlje svinje (*Sus scrofa* L.). Divlje su svinje determinirane samo na osnovi *foramena supratrochleare* nadlaktičnih kostiju i donje čeljusti (Babić et al. 2002: 14; Popović 1977: 89–99) te očnjaka (kljova) donje čeljusti (Hillson 1986) i u tablici su navedeni u zagradi.

Iz tablice 1 vidljivo je da su kosturno i taksonomski determinirana 352 fragmenta kostiju, zuba i rogova domaćih i divljih sisavaca, a potječu iz 15 stratigrafskih jedinica starije faze srednjobrončanodobnoga naselja (horizont Ia). Po broju identificiranih uzoraka, najviše je ostataka goveda (*Bos taurus* L.), a najmanji broj jedinki (MNI) iznosi osam. Za jednu je jedinku procijenjeno da je u trenutku uginuća bila u dobi oko 1,5 – 2 godine, dok su ostale bile starije od 3 – 4 godine. Po brojnosti koštanih ostataka slijede psi: NISP je 83, ali MNI je pet, sve su jedinke bili adulti. Ukupan broj koštanih ostataka za male preživače iznosi 59. Najmanji broj jedinki ovaca je četiri, pri čemu su dvije jedinke bile u dobi od oko 3,5 godine, a dvije starije od 3 – 4 godine. MNI za koze je dva; jedna je bila starija od 1 – 1,5 godine, a jedna u dobi od oko 2,5 – 3 godine. U skupini malih preživača kojima se nije mogla detaljnije odrediti taksonomska pripadnost, najmanji broj jedinki je tri i sve su bile su starije od 3 – 4 godine. U skupini svinja determinirane su dvije divlje svinje, jedna je bila vepar stariji od 1,5 godine. Kod domaćih svinja MNI je šest, a procijenjene su različite dobne kategorije: jedna je jedinka bila u dobi od 6 – 9 mjeseci, četiri su bile u dobi od oko godinu dana, a samo jedna starija od 1,5 – 2 godine. Iako je broj identificiranih uzoraka konja četiri, najmanji broj jedinki je jedan i pripada životinji starijoj od 15 mjeseci. Jedna je jedinka srne (*Capreolus capreolus* L.) koja je bila starija od 2 godine. Od ukupno pet uzoraka jelena običnog (*Cervus elaphus* L.), broj jedinki iznosi jedan i radi se o adultnoj životinji. Tri koštana fragmenta zeca (*Lepus europaeus*) pripadaju dvjema jedinkama i također se radi o odraslim životinjama. Na jednoj palčanoj kosti i članku prsta goveda vidljivi su tragovi zuba mesoždera. U tablici nije navedeno 10 koštanih ostataka štakora jer puno svjetlijom bojom odudaraju od ostatka uzorka i za pretpostaviti je da pripadaju recentnim životinjama. U SJ 29 determinirana je preoperkularna kost koja pripada porodici ciprinidnih, odnosno šaranskih riba. U ovome je horizontu izbrojano i oko 550 više ili manje fragmentiranih ljuštura školjaka iz roda *Anodonta*.

rizon Ia). The number of identified samples reveals that cattle (*Bos taurus* L.) remains are the most numerous, while the minimum number of individuals (MNI) is eight. One animal was around 1.5–2 years old at the time of death, while others were more than 3–4 years old. The next species by the number of skeletal remains are dogs; NISP is 83, but MNI is five, all adults. The total number of skeletal remains of small ruminants is 59. There are at least four sheep, two of them at the age of around 3.5, and two more than 3–4 years old. MNI for goats is two; one older than 1–1.5, and one at the age of around 2.5–3 years old. In the group of small ruminants that could not have been taxonomically identified, there are at least three individuals, all of them more than 3–4 years old. Two wild boars were identified in the swine group. One of them was a boar more than 1.5 years old. In domestic pigs, MNI is six, in various age categories: one individual was 6–9 months old, four were around one year old, and only one of them was more than 1.5–2 years old. Although the number of identified samples of horses is four, the minimum number of individuals is one, more than 15 months old. There is one roe deer (*Capreolus capreolus* L.) more than 2 years old. Out of five samples of red deer (*Cervus elaphus* L.) altogether, the number of individuals is one, adult. Three skeletal fragments of hare (*Lepus europaeus*) belong to two individuals, also adults. One cattle radial bone and phalange exhibit traces of carnivore teeth. Table does not include 10 skeletal remains of rats, because their light colour stands out from the rest of the samples and it can be assumed that they belong to extant animals. Preoperculum belonging to fish from the genus Cyprinus (carp) was identified in SU 29. This horizon includes around 550 more or less fragmented shells from the genus *Anodonta*. This is swan mussel, freshwater mussel without "teeth" that lives in stagnant waters or slowly moving waters of Central Europe, with its foot dug in sand or mud. One snail shell, probably great pond snail (*Lymnaea stagnalis*), was also discovered.

From the late phase of the Middle Bronze Age settlement (horizon Ib), 48 skeletal remains of animals from eight stratigraphic units were skeletally and taxonomically identified. According to Table 2, most of the skeletal remains belong to cattle, but MNI is two and both of the individuals are adults (more than 3.5 years old). Out of small ruminants' remains, three skeletal samples of sheep were identified. MNI is two, and the individuals are around 3 years old. In the swine group,

Radi se o barskoj školjci bezupki, slatkovodnom školjkašu bez zubaca koji živi u stajačicama ili sporim tekućicama srednje Europe, stopalom zarivenim u pijesak ili mulj. Pronađena je i jedna kućica puža najvjerojatnije običnog barnjaka (*Lymnaea stagnalis*).

Iz mlađe faze srednjobrončanodobnoga naselja (horizont Ib) kosturno je i taksonomski determinirano 48 koštanih ostataka životinja koji potječu izosam stratigrafskih jedinica. Prema tablici 2, najveći je broj koštanih goveda, ali MNI je dva i obje su jedinke adultne (starije od 3,5 godine). Od malih preživača identificirana su tri koštana uzorka ovce za koje MNI iznosi dva, a radi se o jedinkama dobi od oko 3 godine. U skupini svinja jedna je divlja (mlađa od 1,5 godine), a preostalih 19 fragmenata pripada dvjema domaćim svinjama starijima od 1,5 godine. Sa svega nekoliko koštanih ostataka i najmanjim brojem jedinki jedan, identificirani su konj, pas, jelen obični, srna i zec. Pronađene su i dvije kosti štakora, koje su također recentni. Od ostalih nalaza, izbrojano je 12 fragmenata ljuštura barske školjke i jedna kućica puža običnoga barnjaka.

Koštani ostaci iz kasnobrončanodobnoga naselja (horizont II) potječu iz četiri stratigrafske jedinice i ukupno ih je 18. U tablici 3 vidljivo je da su s 10 fragmenta najzastupljenije svinje, ali MNI iznosi jedan. Radi se o mužjaku starijem od 1,5 godine. Sa svega četiri fragmenta zastupljena su goveda, MNI iznosi dva, a obje su jedinke bile starije od 3 godine. U uzorku su još zastupljeni ostaci maloga preživača, konja, psa i jelena običnog, a MNI za svaku navedenu vrstu iznosi jedan. Tragovi zuba mesoždera vidljivi su na jednoj gležanjskoj kosti jelena običnog. Broj ljuštura barske školjke je 60, a također je pronađena i jedna kućica običnog barnjaka.

U horizontu stariježeljeznodobnoga naselja (horizont III) determinirano je 17 koštanih fragmenata životinja (tab. 3) koji potječu iz tri stratigrafske jedinice. Najviše je uzoraka jelena običnog i to njihovih rogova. Na rogovima je vidljivo da su otpiljeni ili odrezani te da su bili u procesu obrade kosti (sl. 10). Stoga je teško izračunati MNI, ali s obzirom na veličinu rogova, za pretpostaviti je da se radi o najmanje dvije odrasle jedinke. Govedo, svinja i pas zastupljeni su sa svega nekoliko koštanih fragmenata. Kod goveda je riječ o jednoj jedinki starijoj od 3,5 godine, a MNI za svinju je također jedan i jedinka je starija od 2,5 godine. U ovome horizontu nisu pronađeni koštani ostaci malih pre-one of them is wild boar (less than 1.5 years old), and the other 19 fragments belong to two domestic pigs more than 1.5 years old. With only several skeletal remains and the lowest number of individuals – one – a horse, dog, red deer, roe deer, and hare were identified. Two rat bones were also discovered, also extant. The rest of the finds include 12 fragments of swan mussel shell and one great pond snail shell.

Skeletal remains from the Late Bronze Age settlement (horizon II) originate from four stratigraphic units and there are 18 of them in total. Table 3 shows that pigs are the most numerous ones with 10 fragments, but MNI is one. The individual is male, more than 1.5 years old. Only four fragments represent cattle, MNI is two, and both individuals were more than 3 years old. This sample also includes remains of a small ruminant, horse, dog, and red deer, and MNI for every species is one. Traces of carnivore's teeth are visible on the red deer's ankle bone. The number of swan mussel shells is 60, and one great pond snail shell was also discovered.

In the Early Iron Age horizon (horizon III), 17 fragments of skeletal remains of animals were identified (Tab. 3). They originate from three stratigraphic units. Samples of red deer, i.e., their antlers, are the most numerous. The antlers have visible traces of sawing or cutting, as well as processing (Fig. 10). Therefore, MNI is difficult to determine, but given the size of the antlers, we can assume that there were at least two adult individuals. A bovid, pig, and dog are represented by only a couple of skeletal fragments. The bovid is more than 3.5 years old, and MNI for the pig is also one and the animal was more than 2.5 years old. This horizon did not reveal skeletal remains of small ruminants but an upper jaw of a beaver (*Castor fiber*) was identified. Only one swan mussel shell was identified.

From the Late Iron Age horizon (horizon IV), only 13 animal's skeletal remains from two stratigraphic units were identified (Tab. 3). Samples of red deer bones, belonging to two adult individuals, are most numerous in this horizon as well. There was one cattle specimen (more than 3 years old), a small ruminant, and a pig (adult male), as well as five swan mussel shells. A similar ratio and purpose of domestic animals, i.e. older cattle primarily for secondary purposes, pigs aged 1–2 years primarily for meat consumption and small ruminants equally for both purposes, have been proven at the site Stari vinogradi in Čurug (Радишић 2016: 83–84). Among domestic animals, horses

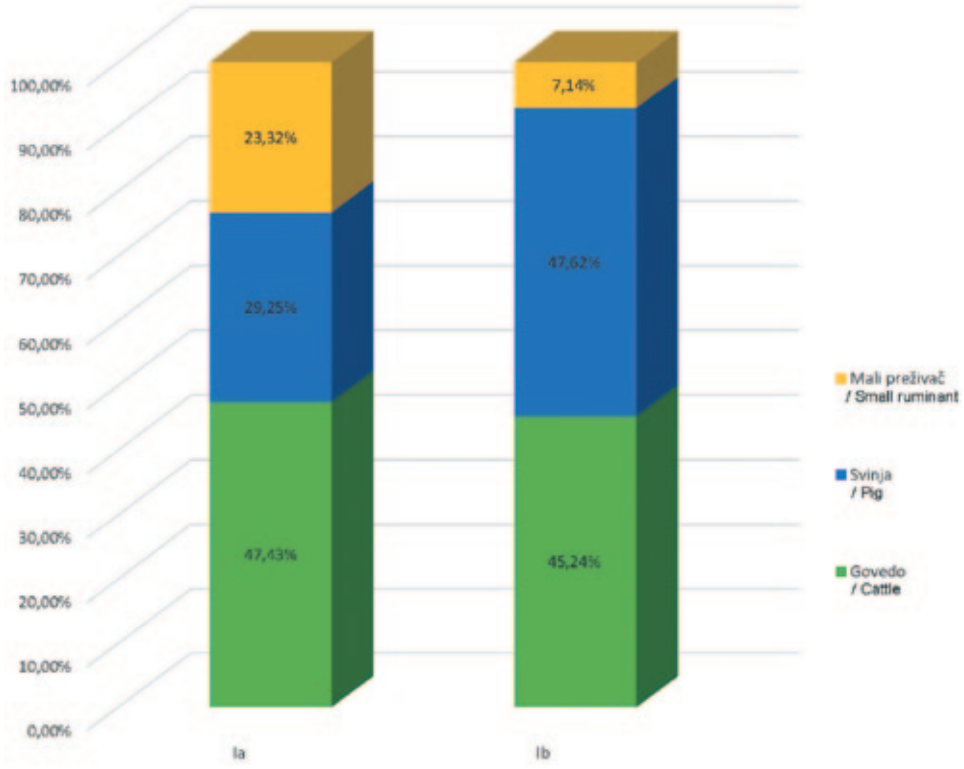
Sl. 10 — Duboki urezi nastali oštrim predmetom na rogu jelena običnog (*Cervus elaphus*) iz starijega željeznog doba, SJ 089 (snimila: T. Trbojević Vukičević)
Fig. 10 — Deep incisions made by a sharp object on a red deer (*Cervus elaphus*) antler from the Early Iron Age, SU 089 (made by: T. Trbojević Vukičević)

živača, ali je identificirana gornja čeljust dabra (*Castor fiber*). Pronađena je samo jedna ljuštura barske bezupke.

Iz horizonta mlađega željeznog doba (horizont IV) identificirano je svega 13 koštanih fragmenata životinja (tab. 3) iz dvije stratigrafske jedinice. I u ovome su horizontu najbrojniji uzorci kostiju jelena običnog koji pripadaju dvjema odraslim jedinkama. S po jednom jedinkom zastupljeni su govedo (starije od 3 godine), mali preživač i svinja (odrasli mužjak), a ljuštura barske bezupke je pet. Sličan omjer i namjena domaćih životinja, odnosno starija goveda primarno za sekundarne svrhe, svinje dobi 1–2 godine prvenstveno za mesnu ishranu i mali preživači podjednako za obje svrhe, dokazani su na lokalitetu Stari vinogradi u Čurugu (Радишић 2016: 83–84). Od domaćih životinja zastupljeni su još konji i psi, a uz divlje sisavce (divlja svinja, jelen, lisica, zec) pronađeni su i ostaci ptica, riba i školjaka. Međutim, nalazi s lokaliteta Židovar u Banatu ukazuju na brojčanu prevlast divljih životinja, prvenstveno jelena, dok su domaće životinje zastupljene svinjama, govedima i malim preživačima (Radišić, Ljuština 2020: 293–333).

and dogs were also represented, and in addition to wild mammals (wild boar, deer, fox, hare), the remains of birds, fish and shells were also found. However, findings from the Židovar site in Banat indicate the numerical predominance of wild animals, primarily deer, while domestic animals are represented by pigs, cattle and small ruminants (Radišić, Ljuština 2020: 293–333).

Graph 1 shows the parallel percentage of most numerous species of domestic animals (cattle, small ruminants, and pigs) from both phases of the Middle Bronze Age. Cattle percentage in both phases is 45–47%. The percentage of small ruminants compared to pigs in the early phase is lower by around 6%, while in the late phase, there are 40% more pigs than small ruminants. The statistical calculation for other phases was not conducted due to an extremely low number of animal bone specimens (MNI is one). These findings coincide with the results of archaeozoological analysis of the Middle Bronze Age horizon from the Josipovac Punitovački – Veliko polje I site (Trbojević Vukičević 2009: 283–284), where beef meat is also dominant in the diet, although the use of cattle for secondary purposes has been proven. Pigs and small ruminants follow them, with a smaller percentage of deer's and roe deer's remnants.



Grafikon 1 — Usporedni postotni udio goveda (zeleno), svinja (plavo) i malih preživača (žuto) kroz stariju (horizont Ia) i mlađu (horizont Ib) fazu srednjega brončanog doba (izradila: T. Trbojević Vukičević)
Graph 1 — Parallel percentage of cattle (green), pigs (blue), and small ruminants (yellow) in the early (horizon Ia) and the late (horizon Ib) phase of the Middle Bronze Age (made by: T. Trbojević Vukičević)

U grafikonu 1 prikazan je usporedni postotni odnos najbrojnijih vrsta domaćih životinja (govedo, mali preživači i svinje) kroz obje faze srednjega brončanog doba. Postotni udio goveda je u obje faze oko 45 – 47 %. Udio malih preživača u odnosu na svinje u starijoj fazi je manji za oko 6 %, dok je u mlađoj fazi svinja 40 % više nego malih preživača. Statistički izračuni za ostale faze nisu rađeni zbog izrazito malog broja uzoraka životinjskih kostiju (MNI iznosi jedan). Ovi se nalazi podudaraju s rezultatima arheozoološke analize srednjobrončanodobnoga horizonta s lokaliteta Josipovac Punitovački – Veliko polje I (Trbojević Vukičević 2009: 281–285), gdje od domaćih životinja u prehrani također dominira meso goveda, iako je dokazano korištenje goveda i za sekundarne svrhe. Slijede svinje i mali preživači, a od divljih životinja u manjem postotku jelen i srna.

Obrađene kosti jelena običnog pronađene u SJ 011 (starije željezno doba) potvrđuju da je objekt imao radnu namjenu i da su rogovi ili početak obrade ili odbačeni komadi. Na ljušture

Processed red deer bones discovered in SU 011 (the Early Iron Age) confirm that the structure had a workshop function and that the antlers were at the initial stage of processing or the pieces were discarded. Swan mussel shells also do not contain any incisions but since the shell does not have a hinge ("teeth"), no great force is needed to open it. We can assume that this mussel's flesh was also used for food since there were so many fragments of it discovered. An interesting fact is that due to their pungent smell, today's fishermen often use them as bate for carp fishing. Given that the sample contained a carp bone as well, it is possible that this mussel's flesh was used in a similar or the same way during fishing.

ARCHAEOBOTANICAL ANALYSIS

Archaeobotanical analysis was conducted at the Division of Botany of the Department of Biology at the Faculty of Science in Zagreb. Altogether 12 samples were analysed; nine of them revealed carpological plant macrofossils. The acquired samples were first subjected to flotation.

rama barske bezupke također nema ureza, ali to je školjka bez brave (zubaca), pa nije neophodna velika ili oštra sila za njeno otvaranje. Za pretpostaviti je da je zbog brojnosti pronađenih fragmenata meso ove školjke također participiralo u ishrani. Također je zanimljiv podatak da ih zbog snažnoga oporog mirisa u današnje vrijeme ribiči često koriste kao mamac pri ribolovu šarana, a obzirom da je u uzorku pronađena i kost šaranske ribe, moguće je da se meso ove školjke koristilo na sličan ili isti način tijekom ribolova.

ARHEOBOTANIČKA ANALIZA

Arheobotanička analiza učinjena je na Botaničkome zavodu Biološkoga odsjeka Prirodoslovno–matematičkoga fakulteta u Zagrebu. Analizirano je ukupno 12 uzoraka, a u njih devet nađeni su biljni karpološki makrofosili. Dobiveni uzorci prethodno su flotirani, a biljni su nalazi iz uzoraka izolirani i potom determinirani pod lupom povećanja 7–45 X. Za determinaciju su korišteni determinacijski atlasi (Cappers et al. 2006; Neef et al. 2012) i komparativna karpološka zbirka u nastajanju Botaničkoga zavoda PMF-a. Nomenklatura determiniranih svojti je usklađena prema *Flora Croatica database* (Nikolić 2021). Svi su biljni ostaci karbonizirani i prilično oštećeni.

Uzorci potječu iz devet stratigrafskih jedinica koje su datirane u stariju i mlađu fazu srednjega brončanog doba, kasno brončano doba te mlađe željezno doba. Rezultati arheobotaničke analize prikazani su u tablici 4.

Ukupno su izolirana 93 biljna ostatka, od čega je 41 nalaz determiniran do razine vrste (od čega su četiri cf. nalaza). Do nivoa roda je determinirano 12 nalaza (od čega je jedan cf.), a do nivoa porodice njih dva. U skupinu *Cerealia* (žitarice) stavljeno je 38 ostataka žitarica velikoga zrna za koje zbog loše uščuvanosti nije bilo moguće odrediti o kojoj se točno vrsti ili rodu radi. Najveći broj ostataka (62) nađen je u uzorku iz kasnoga brončanog doba, a najmanji (3) u sloju mlađe faze srednjega brončanog doba. Radi lakše interpretacije rezultata svi su biljni ostaci podijeljeni u jednu od ekološko-etnoloških skupina: žitarice, mahunarke, korovi i ruderalne biljke te drvenaste samonikle korisne vrste. Tablica 5 prikazuje postotke funkcionalnih biljnih kategorija po razdobljima i u konačnome broju svih pronađenih biljnih makrofosila. U svim je razdobljima skupina žitarica bila najbrojnija, a slijedila ju je skupina mahunarki. Korova i ruderalnih biljaka, kao

The plant finds from the samples were isolated and then identified with a magnifier under 7–45 X magnification. Identification was conducted using plant identification atlases (Cappers et al. 2006; Neef et al. 2012) and the emerging comparative carpological collection at the Division of Botany of the Department of Biology at the Faculty of Science in Zagreb. The nomenclature of identified taxa was coordinated with *Flora Croatica Database* (Nikolić 2021). All plant remains were carbonized and severely damaged. The samples originate from nine stratigraphic units dated to the early and late phase of the Middle Bronze Age, i.e., Late Bronze Age and Late Iron Age. The results of the archaeobotanical analysis are shown in Table 4.

Altogether 93 plant remains were identified, 41 of them by species (four of them cf.). Twelve finds were identified by genus (one of them cf.) and two by family. Altogether 38 remains of large grain cereals were placed under the group of *Cerealia* (cereals). Due to a poor degree of preservation, it was not possible to determine which species or genus exactly they belong to. The most numerous remains (62) were discovered in the sample from the Late Bronze Age, and the least numerous (3) were in the layer of the late phase of the Middle Bronze Age. For the purpose of easier result interpretation, all plant remains were divided into one of these eco-ethnological groups: cereals, legumes, weeds and ruderal plants, and useful trees. Table 5 shows the percentages of eco-ethnological groups in certain periods and in the total number of all found plant macrofossils. Cereal plants were the most numerous in all periods, the legumes following it. Weeds and ruderal plants, as well as beneficial wild woody plants, were much scarcer.

Cereals are cultivated annual grasses and were the main source of calories in most civilizations. Wheat is the most common cereal, appearing with three different species (*Triticum monoccocum, T. dicoccon*, and *T. aestivum/durum*). Alongside wheat, barley (*Hordeum vulgare*) was also found in the Late Bronze Age, and several finds of broomcorn millet (*Panicum milliaceum*), a small grain cereal, were found in the early and late phase of the Middle Bronze Age. These finds are absolutely expected and common for the period in question. Bronze and Iron Age archaeobotanical reports from Croatia (Mareković et al. 2015; Reed 2020; Reed et al. 2021) and surrounding countries (e.g., Srbija: Kroll, Borojević 1988; Medović 2002; 2012; Slovenia: Culiberg, Šercelj 1995; Italy: Mercuri 2006; Austria:

				Starija faza srednjeg brončanog doba / Later phase of the Middle Bronze Age					Mlađa faza srednjeg brončanog doba / Early phase of the Middle Bronze Age			Kasno brončano doba / Late Bronze Age		Mlađe željezno doba / Early Iron Age			Sva razdoblja / All Ages
Latinski naziv / Scientific name	Hrvatski naziv / Common name	Vrsta MF / Type of MF	Ekološko-etnološka grupa / Eco-ethnological group	PU	PU	PU	PU	Σ	PU	PU	Σ	PU	Σ	PU	PU	Σ	Σ
				8	30	33	41		14	40		37		22	23		
Stratigrafska jedinica / Stratigraphic unit				87	76	62	92		125	135		164		23	23		
Brassicaceae	krstašice / mustard family		?									1	1				1
Cf. Cerastium sp.	rožac / mouse-ear chickweed	sjemenka / seed	korovi i ruderalne biljke / weeds and ruderal plants									1	1				1
Cerealia	žitarice / cereals	pšeno / grain	žitarice / cereals		2		1	3				34	34	1		1	38
Hordeum vulgare L.	ječam / barley	pšeno / grain	žitarice / cereals									4	4				4
Lens culinaris Medik.	leća / lentil	sjemenka / seed	mahunarke / legumes			6		6				7	7	2	6	8	21
Cf. Panicum miliaceum L.	proso / broomcorn millet	pšeno / grain	žitarice / cereals		2			2		1	1						3
Poaceae	trava / grass	pšeno / grain	korovi i ruderalne biljke / weeds and ruderal plants									1	1				1
Sambucus cf. *ebulus*	abdovina / danewort	koštica / seed	drvenaste samonikle korisne biljke / useful trees									1	1				1
Quercus sp.	hrast / oak	polovica žira / half acorn	drvenaste samonikle korisne biljke / useful trees	1				1									1
Triticum aestivum/ durum L.	obična pšenica / bread wheat	pšeno / grain	žitarice / cereals				1	1				1	1				2
Triticum dicoccon (Schrank) Schübl.	dvozrni pir / emmer	pšeno / grain	žitarice / cereals		1			1	1		1				1	1	3
Triticum monococcum L.	jednozrna pšenica / einkorn	pšeno / grain	žitarice / cereals		3			3				4	4				7
Triticum sp.	pšenica / wheat	pšeno / grain	žitarice / cereals					0	1		1	8	8		1	1	10
Σ				1	8	6	2	17	2	1	3	62	62	3	8	11	93

Tab. 4 — **Rezultati arheobotaničke analize (izradila: S. Essart)**
Tab. 4 — Archaeobotanical results (made by: S. Essert)

	Starija faza srednjeg brončanog doba / Later phase of the Middle Bronze Age	Mlađa faza srednjeg brončanog doba / Early phase of the Middle Bronze Age	Kasno brončano doba / Late Bronze Age	Mlađe željezno doba / Early Iron Age	Sva razdoblja / All ages
Žitarice / Cereals	58,9 %	100 %	82,3 %	27,3 %	72 %
Mahunarke / Legumes	35,3 %	-	11,3 %	72,7 %	22,6 %
Drvenaste samonikle korisne biljke / Useful trees	5,9 %	-	1,6 %	-	2,2 %
Korovi i ruderalne biljke / Weeds and ruderal plants	-	-	3,2 %	-	2,2 %
Nepoznato / Unknown	-	-	1,6 %	-	1,1 %

Tab. 5 — Prikaz postotka pojedine ekološko-etnološke skupine po pojedinom razdoblju te u ukupnome broju svih pronađenih biljnih makrofosila (izradila: S. Essart)
Tab. 5 — Presentation of percentages of eco-ethnological groups by individual preiod and in the total number of all found plant macrofossils (made by: S. Essert)

i drvenastih samoniklih korisnih vrsta bilo je znatno manje.

Žitarice su jednogodišnje kultivirane trave i bile su glavni izvor kalorija u većini civilizacija. Od žitarica je najzastupljenija pšenica koja se pojavljuje s 3 različite vrste (*Triticum monoccocum, T. dicoccon* i *T. aestivum/durum*). Uz pšenicu je u kasnome brončanom dobu pronađen i ječam (*Hordeum vulgare*), a u starijoj i mlađoj fazi srednjega brončanog doba pojavljuje se nekoliko nalaza sitnozrnate žitarice prosa (*Panicum miliaceum*). Ovi nalazi potpuno su očekivani i česti za istraživano razdoblje. Brončanodobni i željeznodobni arheobotanički izvještaji iz Hrvatske (Mareković et al. 2015; Reed 2020; Reed et al. 2021) i okolnih zemalja (npr. Srbija: Kroll, Borojević 1988; Medović 2002; 2012; Slovenija: Culiberg, Šercelj 1995; Italija: Mercuri 2006 Austrija: Kohler-Schneider 2001; Heiss 2008; Mađarska: Gyulai 2010; Filatova et al. 2018) redovito spominju pojavljivanje nabrojanih vrsta žitarica. Druga najzastupljenija skupina su mahunarke. Kultivirane mahunarke su jednogodišnje biljke iz porodice *Fabaceae* i u većini regija su se od davnina uzgajale zajedno sa žitaricama. Mahunarke su cijenjene zbog svog proteinima bogatoga sjemenja kao i zbog simbiotskih bakterija u nodulima koje imaju sposobnost fiksiranja dušika iz zraka te time obogaćuju tlo (Zohary, Hopf 2000). U svim razdobljima, osim iz mlađe Kohler-Schneider 2001; Heiss 2008; Hungary: Gyulai 2010, Filatova et al. 2018) regularly note the appearance of the abovementioned types of cereals. The second most represented group is the legume family. Cultivated members of the legumes are annual plants from the *Fabaceae* family and in most regions have been cultivated alongside cereals since ancient times. The legume family is appreciated due to its protein-rich seeds, as well as symbiotic bacteria in nodules that have the ability of nitrogen fixation and soil enrichment (Zohary, Hopf 2000). Lentil, one of the most desirable legumes of the Old World due to its protein percentage (25%), was discovered in all periods, aside from the late phase of the Middle Bronze Age. Lentil finds are also characteristic of (the Neolithic and) Bronze and Iron Ages in the wider area of South-Eastern Europe and beyond (Croatia: Mareković et al. 2015; Reed et al. 2021; Serbia: Kroll, Borojević 1988; Medović 2002; 2012; Slovenia: Culiberg, Šercelj 1995; Italy: Giachi et al. 2010; Austria: Kohler-Schneider 2001; Heiss 2008; Hungary: Gyulai 2010; Filatova et al. 2018). Out of useful trees, remains of oak acorn (*Quercus* sp.) were discovered, and a probable find of danewort seed (*Sambucus* cf. *ebulus*). Finds of oak acorns in Europe appear for the first time in early Neolithic sites in Greece (Renfrew 1973). All discovered acorns are considered to be harvested in nature because there is no evidence of oak cultivation. It is assumed that that is the case because

faze srednjega brončanog doba, pronađena je leća koja spada u najcjenjenije mahunarke Staroga svijeta zbog postotka proteina od čak 25 %. Nalazi leće također su karakteristični za (neolitik te) brončano i željezno doba u širem području jugoistočne Europe i šire (Hrvatska: Mareković et al. 2015; Reed et al. 2021; Srbija: Kroll, Borojević 1988; Medović 2002; 2012; Slovenija: Culiberg, Šercelj 1995; Italija: Giachi et al. 2010; Austrija: Kohler-Schneider 2001; Heiss 2008; Mađarska: Gyulai 2010; Filatova et al. 2018). Od drvenastih samoniklih korisnih vrsta pronađeni su ostaci žira hrasta (*Quercus* sp.) i vjerojatni nalaz koštice abdovine (*Sambucus* cf. *ebulus*). Nalazi žirova hrasta u Europi se pojavljuju prvi puta na ranim neolitičkim lokalitetima u Grčkoj (Renfrew 1973). Svi nađeni žirovi smatraju se u prirodi skupljeni jer ne postoje dokazi kultiviranja hrastova. Pretpostavlja se da je tome tako jer se hrastovi ne mogu lako i brzo vegetativno razmnožavati, pa je stanovnicima bilo lakše iz divljine skupljati plodove. Žirovi su se skupljali prvenstveno kao dodatak prehrani, no u godinama kad bi žitarice loše rodile ljudi su žirovima hranili sebe i stoku. Pretpostavlja se da su se žirovi koristili i za dobivanje boje i štavljenje kože (Zohary, Hopf 1988; Renfrew 1973). U Hrvatskoj je za sada nalazak žirova objavljen za kasnobrončano/željeznodobni lokalitet Nova Bukovica – Sjenjak (Šoštarić 2001), za kasnobrončanodobni lokalitet Kalnik – Igrišče (Mareković et al. 2015; Reed et al. 2021) te za željeznodobno naselje u Sisku (Reed 2020). Poznati su sporadični prapovijesni nalazi žira i u drugim europskim državama (Deforce et al. 2009; Kroll, Borojević 1988; Mercuri 2006 i dr.).

Abdovina (*Sambucus ebulus*) je vrsta istoga roda kao na arheološkim nalazištima češće pronalažena vrsta – crna bazga (*Sambucus nigra*). Bobice abdovine koristile su se za bojanje tkanina (Zohary, Hopf 1988). U pregledanim uzorcima broj korovnih i ruderalnih vrsta je relativno malen (2,2 %), što ne čudi s obzirom na porijeklo nalaza. Korovne i ruderalne vrste vjerojatno su se na podnici trajnog ognjišta iz kasnoga brončanog doba našle sasvim slučajno, donešene zajedno sa žitaricama koje su se spremale za konzumaciju ili ih je možda dopuhao vjetar ili donio neki stanovnik na odjeći ili sl.

Može se zaključiti kako su žitarice najzastupljenija biljna skupina na nalazištu kroz sva četiri horizonta naseljavanja, a na lokalitetu ih je pronađeno pet vrsta: obična pšenica, jednozrnati oaks do not have quick and easy vegetative reproduction, so it was easier for the inhabitants of the settlement to harvest fruits from the wild. Acorns were primarily harvested as dietary supplements, but in years when cereal harvest was poor, acorns were used for human and livestock food as well. It is assumed that acorns were also used for obtaining colour and leather tanning (Zohary, Hopf 1988; Renfrew 1973). In Croatia, the find of oak acorns was for now recorded at the site from the Late Bronze/Iron Age Nova Bukovica – Sjenjak (Šoštarić 2001), Late Bronze Age site Kalnik – Igrišče (Mareković et al. 2015; Reed et al. 2021) and Iron Age settlement in Sisak (Reed 2020). Sporadic prehistoric acorn finds are also known in other European countries (Deforce et al. 2009; Kroll, Borojević 1988; Mercuri 2006 etc.).

Danewort (*Sambucus ebulus*) is a species from the same genus as a more common species at archaeological sites – elderberry (*Sambucus nigra*). Danewort berries were used for dying fabrics (Zohary, Hopf 1988). The number of weed and ruderal plants in the analysed samples is relatively low (2.2%), which is expected due to the origin of the finds. Weed and ruderal species probably ended up on the permanent hearth's floor from the Late Bronze Age by accident. They were brought there with the cereals prepared for consummation, carried with the wind or brought on someone's clothes, etc.

We can conclude that cereal plants were the most numerous group of plants at the site throughout all four horizons of settlement. Five cereal species were discovered at the site: common wheat, einkorn, emmer, broomcorn millet and barley. Legumes are the second most common group; lentil appears in all excavated periods, aside from the later phase of the Middle Bronze Age. Remains of two beneficial wild woody plants were found: oak acorn and (cf.) find of a danewort seed. A small number (2.2% out of the total number of plant macrofossils) of weed and ruderal plants was discovered.

DISCUSSION

Bronze Age settlement

The conducted archaeological research provided the most data for the Bronze Age settlement. However, given the narrow excavated area transverse to the direction of the spread of the ridge, we can draw only preliminary conclusions on the size and the structure of this settlement.

na pšenica, dvozrni pir, proso i ječam. Mahunarke su druga najzastupljenija skupina, a leća se pojavljuje u svim istraživanim razdobljima, osim u mlađoj fazi srednjega brončanog doba. Pronađeni su ostaci dvije drvenaste samonikle korisne vrste: žir hrasta i (cf.) nalaz koštice abdovine. Na nalazištu je pronađen mali broj (svega 2,2 % od ukupnog broja biljnih makrofosila) korovnih i ruderalnih biljaka.

RASPRAVA

Naselje brončanoga doba

Provedena arheološka istraživanja pružila su najviše podataka za brončanodobno naselje. Međutim, s obzirom na usku istraženu površinu poprečnu na smjer pružanja grede, o veličini i strukturi ovoga naselja mogu se donijeti samo preliminarni zaključci. Sjevernu granicu pružanja naselja duž grede određuje nalaz srednjobrončanodobnih paljevinskih grobova oko 300 m prema sjeverozapadu, kao i nedostatak naseobinskih brončanodobnih nalaza na tom dijelu lokaliteta (Skelac, Vodička 2007: 20), dok za utvrđivanje njegove južne granice nema nikakvih podataka. Širina naselja tijekom njegove najstarije faze od 270 m, veličina stambenih objekata, gustoća naseljenosti, a moguće i postojanje obrambene konstrukcije, govore u prilog većega naselja. Poznati podaci, koji upućuju na tri stambena objekta na površini od oko 3000 m^2, omogućuju procjenu od okvirno 9 – 10 objekata po 1 ha u horizontu Ia. Usporedi li se ova procjena s kategorizacijom naselja koju predlaže Artusson (2010: 101), naselje na lokalitetu Ciglana i Zeleno polje u svojoj najstarijoj fazi spadalo bi svakako u kategoriju velikih naselja. Sudeći prema poznatim podacima, početkom horizonta Ib smanjuje se veličina naseljene površine, a otprilike istu površinu naselje zauzima i tijekom kasnoga brončanog doba.

Naselje Ia horizonta bilo je organizirano na način da je oko jednoga većeg objekta, stambene ili stambeno-radne namjene, bio ukopan niz manjih. Budući da su ovi manji objekti gotovo redovito zatrpani otpadom, teško je donijeti zaključke o njihovoj primarnoj funkciji. S obzirom na pretpostavljeni bliski odnos između organizacije naselja i domaćinstva kao osnovnoga elementa brončanodobnoga društva koji podrazumijeva skupinu ljudi koji većinu vremena žive zajedno i među sobom dijele aktivnosti potrebne za osiguranje egzistencije

The northern border of the settlement along the ridge is marked by the find of the Middle Bronze Age cremation burials around 300 m to the northwest, as well as by the absence of Bronze Age finds typical for settlements at that part of the site (Skelac, Vodička 2007: 20), while there are no data that would enable us to establish its southern border. The width of the settlement during its earliest phase (270 m), the size of residential structures, population density, and possible fortification support the idea that it was a larger settlement. Known data, pointing to three residential structures in the area of around 3000 m^2, enable us to estimate that there were around 9–10 structures per 1 ha during horizon Ia. If compared this estimate to the classification of settlements by Artursson (2010: 101), the settlement at the site of Ciglana and Zeleno polje in its earliest phase would definitely belong to the large settlements category. Judging by the known data, the size of the settled area decreases during horizon Ib, and during the Late Bronze Age, the settlement covers approximately the same surface area.

The settlement from horizon Ia was organized around one larger structure of residential or residential and workshop function, with a series of smaller structures dug in around it. Since the smaller structures are almost regularly filled with waste, their primary function is difficult to establish. Given the assumed close relations between the organization of the settlement and the household as the basic component of the Bronze Age society, assuming a group of people who live together most of the time and share activities necessary for ensuring subsistence (Stig-Sørensen 2010: 123), certain groups of structures in the settlement can be linked to certain households. The size of a household in the context of prehistoric settlements is difficult to determine precisely, since it depends on various factors such as family structure and size, population density, etc. One of the ways to estimate the number of members of a household is on the basis of the size of the covered area, with the assumed 5–10 m^2 per person (Stig-Sørensen 2010: 125). Judging by the size of the mostly excavated sunken featured building SU 092/093, the number of household members during the early phase of the Middle Bronze Age settlement was a minimum of 4–9 people. If we assume the appearance of the whole sunken featured building estimating that its eastern portion went around 2 m under the profile, around 10 m^2 can be added to its surface area. That equals around 55 m^2 in surface area, which would

(Stig-Sørensen 2010: 123), grupacije objekata evidentirane u naselju mogu se dovesti u vezu s pojedinim domaćinstvima. Veličinu domaćinstava u kontekstu prapovijesnih naselja teško je precizno odrediti, budući da ovisi o raznim faktorima poput strukture i veličine obitelji, gustoće naseljavanja i dr. Jedan od načina procjene broja članova domaćinstva jest na osnovi veličine natkrivenoga prostora, pri čemu se pretpostavlja površina 5–10 m² po osobi (Stig-Sørensen 2010: 125). Sudeći prema površini najvećim dijelom istražene poluzemunice SJ 092/093, broj članova domaćinstva tijekom starije faze srednjobrončanodobnoga naselja iznosio je minimalno 4 – 9 osoba. Ukoliko se pretpostavi izgled cijele poluzemunice procijenivši kako je njen istočni dio ulazio za oko 2 m pod profilom, površina joj se može uvećati za oko 10 m². Time se dobiva površina od oko 55 m², što bi odgovaralo broju 6 – 11 članova domaćinstva. Iz horizonta Ib nije poznat niti jedan objekt koji je mogao imati stambenu namjenu te za ovu fazu nije moguće procijeniti veličinu domaćinstva. Na osnovi površine jedinoga većeg u cjelosti istraženog kasnobrončanodobnoga objekta SJ 017/018, može se zaključiti kako su u ovome horizontu domaćinstva bila znatno manja. U ovome je razdoblju također primjetno stanovito „razbijanje" skupina u pojedinačne raštrkane objekte.

Problem kulturološke pripadnosti srednjobrončanodobnoga naselja

U zapunama objekata najstarijega horizonta naseljavanja (horizont Ia) redovito se zajedno pojavljuje keramički materijal inkrustirane keramike srednjega brončanog doba i onaj starije faze Belegiš kulture (T. 1).[4] Karakteristične oblike inkrustirane keramike srednjega brončanog doba predstavljaju ulomci etažno profiliranih lonaca i bikoničnih zdjela ljevkasto oblikovanog vrata i izvučenoga oboda. Ovi oblici, dekorirani specifičnim inkrustiranim motivima, na području Hrvatske pripisuju se daljsko-bjelobrdskoj kulturnoj skupini (Majnarić-Pandžić 1984: 82–85, sl. 13; Šimić 2000: 65, 67, 69–71, 73, T. 6.2.; 6.3., sl. 6.3.–6.5.; 2001: 26–27, sl. 5; 6: 1–2, 4–6; 2012: 72, 125, 160, 251, sl. 51; 101–102; 125; 182). Materijal istih karakteristi-

4 Prikazani su samo karakteristični nalazi keramičkoga posuđa kao ilustracija tipičnoga pokretnog materijala za svaki pojedini horizont naseljavanja. Detaljna obrada i analiza pokretnih nalaza, radi njihove brojnosti i heterogenosti, predmet su drugoga rada koji je u pripremi.

match the number of 6–11 household members. There is no known structure from horizon Ib that could have a residential function, and the size of a household cannot be determined for this phase. Based on the surface area of the only larger completely excavated Late Bronze Age structure SU 017/018, we can conclude that households were significantly smaller in this horizon. There is also a noticeable "splitting" of groups into single scattered structures.

The problem of cultural affiliation of the Middle Bronze Age settlement

In the fillings of the oldest settlement horizon (horizon Ia), the ceramic material of the Middle Bronze Age encrusted pottery and that of the older phase of the Belegiš culture regularly appear together (Pl. 1).[4] Characteristic forms of the Middle Bronze Age encrusted pottery are represented by fragments of the pots with divided body (so-called swollen-bellied pots) and biconical bowls with the funnel-shaped neck and everted rim. These forms, decorated with specific encrusted motifs, in Croatia are attributed to the Dalj-Bijelo Brdo group (Majnarić-Pandžić 1984: 82–85, Fig. 13; Šimić 2000: 65, 67, 69–71, 73, Pl. 6.2.; 6.3., Fig. 6.3.–6.5.; 2001: 26–27, Fig. 5; 6: 1–2, 4–6; 2012: 72, 125, 160, 251, Fig. 51; 101–102; 125; 182). Finds of the same characteristics can be found in the wider area of the middle and lower Danube (e.g. Wosinsky 1904: Pl. LXXXIII–LXXXV; XCI; XCVI; Medović 2007: 32–33, 36, 39, Fig. 27: 2; 32; 34: 2, Pl. XIV: 3; XV: 2–3; XVI: 3–4; Gumă 1997: Pl. LXXV: 5–6; LXXVI: 6, 9, 11; LXXVII: 4, 6–7; Reich 2006: 39–40, Fig. 27; 197, 204, Map 2; 15). Ceramic pottery of the older phase of the Belegiš culture is represented by fragments of the pots with high cylindrical neck, in this case decorated mostly with incised linear motifs, which in cemeteries of this culture often have the function of urns (e.g. Todorović 1977: graves 52, 77, 85, 87–89, 101, 118, 120, 124, 136, 140, 157, 168, 202, 205, 208–209, 215, 235–237, 240, 243–244, 247, 249–250, 253–254, 257–259, 261–262, 265–266, 268, 275–278, 290, 296; Вранић 2002: 74–77, 123, 126, 128–129, 134, 136, 143, 146, 150–151, 154, 161; cat. 34, 44, 48, 53, 67–68, 73, 101, 112, 122, 126, 137, 158; Петровић 2006: 27–32, 55–57, 59, 112–113, Pl. X: 1–2; XI: 1; XII:

4 Only the characteristic ceramic pottery finds are presented as an illustration of the typical finds for each settlement horizon. Detailed analysis of the finds, due to their number and heterogenity, is subject of another paper.

ka moguće je pratiti i na širem području srednjega i donjega Podunavlja (npr. Wosinsky 1904: T. LXXXIII–LXXXV; XCI; XCVI; Medović 2007: 32–33, 36, 39, sl. 27: 2; 32; 34: 2, T. XIV: 3; XV: 2–3; XVI: 3–4; Gumă 1997: Pl. LXXV: 5–6; LXXVI: 6, 9, 11; LXXVII: 4, 6–7; Reich 2006: 39–40, Abb. 27; 197, 204, Karte 2; 15). Keramičko posuđe starije faze Belegiš kulture predstavljaju ulomci lonaca s visokim cilindričnim vratom, u ovome slučaju ukrašeni uglavnom snopovima urezanih linija kakvi se na grobljima ove kulture često nalaze u funkciji urni (npr. Todorović 1977: grobovi 52, 77, 85, 87–89, 101, 118, 120, 124, 136, 140, 157, 168, 202, 205, 208–209, 215, 235–237, 240, 243–244, 247, 249–250, 253–254, 257–259, 261–262, 265–266, 268, 275–278, 290, 296; Вранић 2002: 74–77, 123, 126, 128–129, 134, 136, 143, 146, 150–151, 154, 161; kat. 34, 44, 48, 53, 67–68, 73, 101, 112, 122, 126, 137, 158; Петровић 2006: 27–32, 55–57, 59, 112–113, T. X: 1–2; XI: 1; XII: 1; XIV: 1, 3; Medović 2007: 45–46, sl. 40; 41: 1, T. XVIII: 4–5). Isti tip posuda pojavljuje se i na istovremenim naseljima (npr. Šimić 1987: 29, T. 4: 3, 8; Falkenstein 1998: T. 19: 18; 20: 5; 24: 21). Za keramički inventar horizonta Ia karakteristične su i manje amfore s ručkama tipa *ansa voluta* i *ansa cornuta* te zdjele niskoga cilindričnog vrata ukrašene jednostavnim urezanim linearnim motivima sličnim onima na spomenutim loncima (npr. Majnarić-Pandžić 1984: 66, 68–69, 71–72, sl. 2: 2; 4: 1; 5: 1–3; 7–8; Šimić 1987: 35, T. 4: 4; 9: 9; 10: 1, 3; Reich 2006: 53–54, Abb. 33; Krmpotić 2009: 192–193, sl. 28–31, T. 1: 1, 3; 2: 3; 5: 2; 10: 2–3; 13: 1–2; 15: 5; 19: 1–4). Postotna zastupljenost keramičkih nalaza inkrustirane keramike i one Belegiš I tipa razlikuje se po pojedinim zapunama, pri čemu je nalaze keramike grube fakture nemoguće kulturno opredijeliti.

Sljedeći horizont (Ib) u pokretnome materijalu obilježava potpuni izostanak inkrustirane keramike, dok se u zapunama objekata i dalje nailazi na keramički inventar starije faze Belegiš kulture te rjeđe i na posude kakve se pripisuju kulturi grobnih humaka (T. 2), poput vrčeva zaobljenoga trbuha i cilindrično do blago ljevkasto oblikovanoga vrata, s plastičnim izbočinama na najširem dijelu trbuha i trakastom ručkom koja spaja obod s ramenom posude (npr. Kovacs 1975: Pl. 1: 3/2; 2: 11/1; 4: 44/2, 46/1; 7: 80/2; 11: 127/2, 130/1, 132/1; 17: 172/2; 20: 206/1; 21: 213/2; 22: 226/2; 24: 248/1, 251/1; 25: 267/1; 27: 284/13; 31: 338/2; 32: 345/1; 33: 354/6; 34: D/6; Ilon 2012: 27–28, 51–52, Fig. 12: 5; 13: 2–3; 1; XIV: 1, 3; Medović 2007: 45–46, Fig. 40; 41: 1, Pl. XVIII: 4–5). The same type of vessel occurs at the settlements (e.g. Šimić 1987: 29, Pl. 4: 3, 8; Falkenstein 1998: Pl. 19: 18; 20: 5; 24: 21). Amphorae with *ansa voluta* and *ansa cornuta* handles and bowls with the low cylindrical neck, decorated with simple incised linear motifs similar to those on the pots, are also characteristic for the inventory of the Ia horizon (e.g. Majnarić-Pandžić 1984: 66, 68–69, 71–72, Fig. 2: 2; 4: 1; 5: 1–3; 7–8; Šimić 1987: 35, Pl. 4: 4; 9: 9; 10: 1, 3; Reich 2006: 53–54, Fig. 33; Krmpotić 2009: 192–193, Figs. 28–31, Pl. 1: 1, 3; 2: 3; 5: 2; 10: 2–3; 13: 1–2; 15: 5; 19: 1–4). The percentage of encrusted pottery and that of the Belegiš I type in different fills varies, while the finds of coarse pottery cannot be culturally defined.

The next horizon (Ib) marks the complete absence of the encrusted pottery, while the pottery of the older phase of the Belegiš culture can still be found in fills. Less often, the vessels attributed to the Tumulus culture were also found (Pl. 2), such as jugs with rounded belly and cylindrical to slightly funnel-shaped neck, with plastic protrusions on the widest part of the body and a strap handle between the rim and the shoulder of the vessel (e.g. Kovacs 1975: Pl. 1: 3/2; 2: 11/1; 4: 44/2, 46/1; 7: 80/2; 11: 127/2, 130/1, 132/1; 17: 172/2; 20: 206/1; 21: 213/2; 22: 226/2; 24: 248/1, 251/1; 25: 267/1; 27: 284/13; 31: 338/2; 32: 345/1; 33: 354/6; 34: D/6; Ilon 2012: 27–28, 51–52, Fig. 12: 5; 13: 2–3; Szilas 2017: 214, 217, 230, 233, 235, Fig. 4: 24; 17: 5). Given the continuity of settlement and the discovered movable finds of the early and late Belegiš culture in later horizons, assigning the settlement to the carriers of this cultural phenomenon would be logical. However, at the same site in the vicinity of the settlement, cremation burials of the so-called Dalj-Bijelo Brdo group were recorded, not showing any of the Belegiš culture elements (Skelac, Vodička 2007: 20). The lingering question is whether they could be somewhat earlier, i.e., from the Br B stage, and whether they should be linked to some still not located earlier settlement.

One of the problems is the questionable identification of cultural phenomena in settlements only on the basis of the inventory of pottery, without the understanding of other segments of life, such as the funerary rite. At the settlements of the north-eastern Slavonia, the joint occurrence of Belegiš I pottery and encrusted pottery attributed to the Dalj-Bijelo Brdo group, is common (Purić 1902: 185–186; Minichreiter 1984b: 74, 76,

Szilas 2017: 214, 217, 230, 233, 235, Fig. 4: 24; 17: 5). S obzirom na kontinuitet naseljavanja i pronađeni pokretni materijal starije i mlađe faze Belegiš kulture u kasnijim horizontima naseljavanja, bilo bi logično pripisati naselje nositeljima ove kulturne pojave. Međutim, nedaleko naselja na istome su lokalitetu utvrđeni paljevinski grobovi tzv. daljsko-bjelobrdske kulturne skupine koji ne pokazuju nikakvih elemenata Belegiš kulture (Skelac, Vodička 2007: 20). Za sada ostaje otvoreno pitanje bi li oni mogli biti nešto stariji, tj. iz razdoblja Br B stupnja te treba li ih možda vezati uz neko još neubicirano starije naselje.

Jedan od problema predstavlja i upitno izdvajanje kulturnih pojava na naseljima isključivo na osnovi keramičkoga inventara bez poznavanja drugih segmenata života poput pogrebnoga rituala. Na naseljima sjeveroistočne Slavonije uobičajena je zajednička pojava Belegiš I keramike i inkrustirane keramike kakva se pripisuje daljsko-bijelobrdskoj grupi (Purić 1902: 185–186; Minichreiter 1984b: 74, 76, sl. 3; Šimić 1987: 15, 29–30, 32–35, T. 4: 1, 3–4; 5: 1–2; 7: 1–2; 8: 2–10; 9: 1–2, 6–9; 10: 1–4; 2012: 132, 138–140, sl. 117–118; 124–125, 156–157; 162; 174; 177; 179–182), a međusobni importi materijala primjetni su na znatno širem prostoru srednjega Podunavlja i Banata (Szentmiklosi 2006). Međutim, na čitavome području istočne Slavonije i zapadnoga Srijema, koji se smatraju područjem rasprostranjenosti Belegiš kulture, nije do sada pronađen niti jedan grob starije faze ove kulture. Istovremeno su grobni ukopi tzv. daljsko-bjelobrdske grupe zabilježeni na više lokacija u sjeveroistočnoj Slavoniji (Vinski-Gasparini 1973: 29, T. 1: 1–8; 1983a: 500–501, T. LXXI: 18; LXXII: 1–2; Majnarić-Pandžić 1984: 82–83, sl. 13; Šimić 1993: 133, sl. 6: 1, 3; 7: 2; 2000: 112, 121). Ovakva situacija ukazivala bi na pripisivanje spomenute regije ovoj kulturnoj grupi. Međutim, po nestanku inkrustirane keramike s naselja Osijek – Ciglana i Zeleno polje očigledno je da ono i dalje egzistira u okvirima razvoja Belegiš kulture.

Premda se život na naselju ne prekida, istovremeno s nestankom inkrustirane keramike dolazi do stanovitih promjena u veličini i strukturi naselja koje označavaju početak mlađega srednjobrončanodobnog horizonta. Ove promjene obuhvaćaju smanjenje njegove površine napuštanjem dijela naselja, prestanak života u velikim poluzemnicama, a nešto kasnije i ras-

Fig. 3; Šimić 1987: 15, 29–30, 32–35, Pl. 4: 1, 3–4; 5: 1–2; 7: 1–2; 8: 2–10; 9: 1–2, 6–9; 10: 1–4; 2012: 132, 138–140, Fig. 117–118; 124–125, 156–157; 162; 174; 177; 179–182), and mutual imports are noticeable in the much wider area of the middle Danube and Banat (Szentmiklosi 2006). However, the fact is that in that entire area, as well as in the wider area of eastern Slavonia and western Syrmia, considered to be the territory of the Belegiš culture, no grave of the early phase of this culture was discovered so far. At the same time, grave burials of the so-called Dalj-Bijelo Brdo group were recorded at several locations in north-eastern Slavonia (Vinski-Gasparini 1973: 29, Pl. 1: 1–8; 1983a: 500–501, Pl. LXXI: 18; LXXII: 1–2; Majnarić-Pandžić 1984: 82–83, Fig. 13; Šimić 1993: 133, Fig. 6: 1, 3; 7: 2; 2000: 112, 121). This situation would point to assigning the mentioned region to this cultural group. However, it is obvious that, after the disappearance of encrusted pottery from the settlement of Osijek – Ciglana and Zeleno polje, this settlement still existed in the later periods of the Belegiš culture.

Although the life in the settlement is uninterrupted, simultaneously with the disappearance of encrusted pottery certain changes in the size and the structure of the settlement started, marking the beginning of the late Middle Bronze Age horizon. These changes include the reduction in its size due to the abandonment of a part of the settlement, the end of life in large semi-sunken featured buildings, and, somewhat later, the dissolution of groups of structures linked to certain households into scattered isolated structures. Around the same time, the existence of Middle Bronze Age Belegiš group settlement at the site of Josipovac Punitovački – Veliko polje I, situated around 30 km south-west from Osijek ceased (Krmpotić 2009: 196–197, Tab. 1). The cause of these changes, which coincide with the disappearance of encrusted pottery in the Osijek area, for now, remains inconclusive. It is also questionable whether these changes can be linked to the changes recorded at the sites situated in Hungarian Transdanubia, dated around 1500 BC. At that time, abandonment of settlements occurs, i.e., the transformation of proto-urban tells into several scattered settlements, mostly consisting of scattered dug-in structures (Csanyi 2003; Artusson 2010: 110; Santa 2011; Fischl et al. 2013: 359–362, 366). The image provided by the results of the research at the site of Osijek – Ciglana and Zeleno polje shows that the most significant

formiranje grupacija objekata vezanih za pojedina domaćinstva u raštrkane pojedinačne objekte. Otprilike istovremeno prestaje i život srednjobrončanodobnoga naselja Belegiš kulture na položaju Josipovac Punitovački – Veliko polje I, smještenoga oko 30 km jugozapadno od Osijeka (Krmpotić 2009: 196–197, tab. 1). Uzroci ovih promjena, koje se na osječkome nalazištu podudaraju s nestankom inkrustirane keramike, za sada ostaju nerazjašnjeni. Također je upitno mogu li se ove promjene dovesti u vezu s promjenama ustanovljenim na naseljima smještenima u mađarskoj Transdanubiji, datiranim oko 1500. g. pr. Kr. Naime, u to vrijeme na transdanubijskome području također dolazi do napuštanja naselja, odnosno transformiranja proto-urbanih tel naselja u više raspršenih koja čine uglavnom raštrkani ukopani objekti (Csanyi 2003; Artusson 2010: 110; Santa 2011; Fischl et al. 2013: 359–362, 366). Slika koju pružaju rezultati istraživanja na položaju Osijek – Ciglana i Zeleno polje pokazuje kako su se najveće promjene na brončanodobnome naselju zbile tijekom srednjega brončanog doba, otprilike u vrijeme prijelaza stupnja Br C1 u Br C2 stupanj, što je omogućilo izdvajanje dvaju srednjobrončanodobnih horizonata. Za razliku od toga, od Br C2 stupnja pratimo kontinuirani prijelaz starije u mlađu fazu Belegiš kulture (horizonti Ib i II), bez većih promjena u veličini i organizaciji naselja.

Naselje i grob kasnoga brončanog doba

Pokretni nalazi iz zapuna objekata kasnobrončanodobnoga naselja omogućuju njegovo pripisivanje mlađoj fazi Belegiš kulture (T. 3). Karakteristične nalaze ovoga horizonta predstavljaju lonci oštro profiliranoga bikoničnog trbuha i stožasto oblikovanoga vrata te izrazito izvučenoga oboda koji može biti fazetiran s unutarnje strane, oštro profilirane zdjele također s izvučenim obodom, kao i posude zaobljenoga trbuha i cilindričnoga do konično oblikovanoga vrata, pri čemu je dominantna tehnika ukrašavanja kaneliranje. Analogije ovim nalazima mogu se pronaći na čitavome području rasprostiranja Belegiš kulture u njezinoj mlađoj fazi (npr. Tasić 1983: 98–101, sl. 59–60; Forenbaher 1991; 1994: 54–57, 59, Fig. 5–7, Tab. 1; Šimić 1994: 203–205, Pl. 1–3; Gumă 1997: 136–138, 257–258, Pl. LXXXIII: 1, 7; LXXXIV: 3). O kraju života naselja tijekom changes in the Bronze Age settlement occurred during the Middle Bronze Age, around the time of the turn of the Br C1 into Br C2 stage, enabling the identification of two Middle Bronze Age horizons. Unlike that period, we can trace the ongoing turn of the early to the late phase of the Belegiš culture (horizon Ib and II) from the Br C2 stage, without any significant changes in the size and organization of the settlement.

Late Bronze Age settlement and grave

Movable finds form the fills of the Late Bronze Age settlement enable its attribution to the younger phase of the Belegiš culture (Pl. 3). Characteristic finds of this horizon are pots with sharply profiled biconical belly, conical neck and distinctly everted rim that can be faceted on the inside, sharply profiled bowls with everted rim, as well as vessels with rounded belly and cylindrical to conical neck, while the dominant decorating technique is channelling. Analogies to these finds can be found in the entire area of the Belegiš culture in its younger phase (e.g. Tasić 1983: 98–101, Fig. 59–60; Forenbaher 1991; 1994: 54–57, 59, Fig. 5–7, Tab. 1; Šimić 1994: 203–205, Pl. 1–3; Gumă 1997: 136–138, 257–258, Pl. LXXXIII: 1, 7; LXXXIV: 3). Cremation burial that can be linked to the Barice-Gređani group (Fig. 7) testifies to the end of the existence of the settlement during the early phase of the Late Bronze Age. Since cemeteries are regularly separated from the settlements in Barice-Gređani group and the later phase of the Belegiš culture (grupa Barice-Gređani: Lozuk 1993: 33; Čović 2010: 279–281; Kalafatić 2011: 45; Belegiš kultura: Tasić 2002: 190–192; Петровић 2006: 183–184; Medović 2007: 5–6), we can probably assume that this burial means that the settlement was previously abandoned. Since the two cultural phenomena are contemporaneous (Ložnjak Dizdar 2011a: 245; 2011b: 13; 2014: 235, 239–240, Fig. 2), the end of settlement's existence and later burial of the deceased at the same site can loosely be dated to the period of stages Br D–Ha A1. Besides the fact that it dates the end of life in the settlement, the burial with funerary rite specific for the Barice-Gređani group at the site of the settlement of the younger phase of the Belegiš culture opens the questions about the relations of the two neighbouring cultural phenomena. In its late phase, the Belegiš culture in Croatia is situated in north-eastern Slavonia and Syrmia, while the

starije faze kasnoga brončanog doba svjedoči paljevinski grob koji se može vezati uz grupu Barice-Gređani (sl. 7). Budući da su kod grupe Barice-Gređani i mlađe faze Belegiš kulture groblja redovito odvojena od naselja (grupa Barice-Gređani: Lozuk 1993: 33; Čović 2010: 279–281; Kalafatić 2011: 45; Belegiš kultura: Tasić 2002: 190–192; Петровић 2006: 183–184; Medović 2007: 5–6), vjerojatna je pretpostavka kako ovaj grobni ukop znači da je naselje prethodno bilo napušteno. Kako su ove dvije kulturne pojave istovremene (Ložnjak Dizdar 2011a: 245; 2011b: 13; 2014: 235, 239–240, Fig. 2), kraj života naselja i kasnija sahrana pokojnika na istome položaju mogu se okvirno datirati u razdoblje stupnjeva Br D – Ha A1. Osim što datira kraj života na naselju, ukop groba s pogrebim ritualom specifičnim za grupu Barice-Gređani na položaju naselja mlađe faze Belegiš kulture otvara i pitanja vezana uz odnos ovih dviju susjednih kulturnih pojava. U svojoj mlađoj fazi Belegiš kultura u Hrvatskoj zauzima prostor sjeveroistočne Slavonije i Srijema, dok se grupa Barice-Gređani rasprostire uz Posavinu, dopirući prema sjeveru do Požeške kotline, a prema istoku do okolice Županje. Područje između Osijeka i ušća Vuke predstavljalo je zonu ispreplitanja Belegiš II kulture i grupe Barice-Gređani, za što se u literaturi kao dokaz spominju nalazi iz grobova u Vukovaru (lokalitet Desna bara), Sotinu i Nemetinu te nalazi s naselja Osijek, Sarvaš i Erdut (Vinski-Gasparini 1973: 178–187, T. 16: 6–7; 17: 1–5, 10–11; 18: 2–5; Šimić 2001: 30; Ložnjak Dizdar 2005: 35, karta 1; 2011b: 28). U novije su vrijeme nalazišta grupe Barice-Gređani zabilježena i na području Đakovačkoga ravnjaka. Na nalazištu Grabrovac istražno je 18 paljevinskih grobova u kojima su spaljene kosti pokojnika bile prekrivene zdjelom okrenutom dnom prema gore. Dio grobova bio je bez priloga, a među tipovima zdjela kojima su prekriveni ostaci pokojnika česte su one zaravnjenoga oboda poput primjerka iz osječkoga groba (Hršak 2010: 22; 2011a: 29; 2011b). Na lokalitetu Štrosmajerovac – Pustara istraženo je 39 paljevinskih grobova koji ukazuju na isti karakterističan pogrebni ritual. Na istome su nalazištu utvrđeni ostaci kasnobrončanodobnoga naselja pripisanoga virovitičkoj grupi (Hršak, Bojčić 2008: 42). I na ovome su groblju u nekoliko grobova bile priložene posude, dok su ostali grobovi bili bez ikakvih priloga, a metalni dijelovi nošnje zabilježeni su tek u malome broju grobova. U nekim grobovima za pokrivanje ostataka pokojnika također su bile upotrijeblje-

Barice-Gređani Group extends along Sava River valley, reaching the Požega Valley in the north, and Županja region in the east. The area between Osijek and the mouth of the Vuka River represented the zone of mixing of the Belegiš II culture and Barice-Gređani group, as supported in the literature by the evidence from graves in Vukovar (the site of Desna bara), Sotin and Nemetin, and the finds from the settlements of Osijek, Sarvaš, and Erdut (Vinski-Gasparini 1973: 178–187, Pl. 16: 6–7; 17: 1–5, 10–11; 18: 2–5; Šimić 2001: 30; Ložnjak Dizdar 2005: 35, Map 1; 2011b: 28). In recent times, sites of the Barice-Gređani group were recorded in the area of Đakovo loess plateau as well. Eighteen cremation burials were excavated at the site of Grabrovac, in which the cremated bones of the deceased individuals were covered with a vessel with the bottom facing up. Some graves contained no grave goods, and the types of vessels covering the remains of the deceased individual often include the ones with flattened rims, such as the one from Osijek grave (Hršak 2010: 22; 2011a: 29; 2011b). Thirty-nine cremation burials pointing to the same characteristic funerary rite were excavated at the site of Štrosmajerovac – Pustara. Remains of a Late Bronze Age settlement assigned to the Virovitica group were recorded at the same site (Hršak, Bojčić 2008: 42). Several graves at this cemetery contained vessels as well, while other graves were without grave goods, and the metal parts of the costume were recorded only in a small number of graves. Vessels with flatted rims were also used for covering the remains of the deceased individuals in some graves (Hršak 2011c). One cremation burial of the Barice-Gređani group was recently discovered around Našice, at the site of Malinovac. Given that the researched route of the gas pipeline is 5 m wide, it was not possible to conclude whether this was an isolated burial or the grave was part of a cemetery. In any case, this is currently the northernmost grave of a deceased individual buried in the way specific for the Barice-Gređani cultural group. Alongside the vessel the remains of the deceased individual were covered with, the grave also revealed fragments of a ceramic pot and a cup, as well as fragments of a bronze pin with a flattened spherical head decorated with horizontal incisions, characteristic of the period of Br D–Ha A1 stages (Maurin 2011; Vrkić, Maurin 2012). Somewhat north of the grave, the remains of a Late Bronze Age settlement were discovered. The results of the excavation were published only preliminary, and the discovered ceramic material from the settlement was

ne zdjele zaravnjenoga oboda (Hršak 2011c). Jedan paljevinski grob grupe Barice-Gređani nedavno je pronađen u okolici Našica, na lokalitetu Malinovac. S obzirom na to da je istraživana trasa plinovoda širine 5 m, nije bilo moguće ustanoviti je li riječ o usamljenome grobu, ili je on dio groblja. U svakome slučaju, ovo je za sada najsjeverniji grob pokojnika ukopanoga na način specifičan za kulturnu grupu Barice-Gređani. Uz posudu kojom su bili poklopljeni ostaci pokojnika, u grobu su nađeni i ulomci keramičkoga lonca i šalice, kao i fragment brončane igle sa spljoštenom kuglastom glavom ukrašenom horizontalnim urezima, karakteristične za razdoblje stupnjeva Br D – Ha A1 (Maurin 2011; Vrkić, Maurin 2012). Nešto sjevernije od groba pronađeni su ostaci kasnobrončanodobnoga naselja. Rezultati istraživanja samo su preliminarno objavljeni, pri čemu je pronađeni keramički materijal s naselja pripisan virovitičkoj grupi rane kulture polja sa žarama (Nodilo 2011). U literaturi se kao moguća groblja grupe Barice-Gređani također spominju lokaliteti Nova Bukovica i Aleksandrovac u sjevernoj Slavoniji, koji međutim nisu nikada arheološki istraživani (Minichreiter 1984a: 91–92, sl. 1).

Izneseni podaci ukazuju na prakticiranje pogrebnoga rituala karakterističnog za grupu Barice-Gređani i u dijelovima Slavonije oko Đakova i Našica. Dok su u okolici Đakova nađena groblja s po nekoliko desetaka ukopa u kojima su svi pokojnici sahranjeni na način specifičan za ovu kulturnu pojavu, u okolici Našica zabilježen je samo jedan paljevinski grob, premda se ne može isključiti mogućnost kako ih je na lokalitetu Malinovac bilo još van trase istraživanja. Kasnobrončanodobna naselja nađena u blizini na lokalitetima Štrosmajerovac i Malinovac sadržavala su materijal karakterističan za stariju fazu kulture polja sa žarama. Granicu Belegiš kulture prema jugu označavaju nalazi s Đakovačkoga ravnjaka, koji je dio područja druge kulturne skupine. Prostor povišene grede uz Dravu u dijelu oko Osijeka od Đakovačkoga ravnjaka je odvojen često plavljenom nizinom uz rijeku Vuku koja je u ovoj fazi brončanoga doba vjerojatno predstavljala prirodnu granicu, ali ne nepremostivu. Nalaz paljevinskoga groba iz Osijeka kod kojeg je prakticiran pogrebni ritual kakav se pojavljuje na ravnjaku dokaz je međusobnih kontakata. Također bi ukop spomenutoga groba mogao ukazivati na nešto duži život kulturne grupe Barice-Gređani u odnosu na Belegiš kulturu na osječkome području.

assigned to the Virovitica group of the early Urnfield culture (Nodilo 2011). Literature also mentions the sites of Nova Bukovica and Aleksandrovac in northern Slavonia as possible cemeteries of the Barice-Gređani group, but they have never been archaeologically researched (Minichreiter 1984a: 91–92, Fig. 1).

The presented data points to the practice of funerary rite characteristic for the Barice-Gređani group even in parts of Slavonia around Đakovo and Našice. While around Đakovo, cemeteries with several dozens of burials in which all the deceased individuals were buried in the way specific for this cultural phenomenon were discovered, only one cremation burial was recorded in Našice area. It is possible that there were more of them at the site of Malinovac, outside of the excavation route. Late Bronze Age settlements discovered in the vicinity, at the sites of Štrosmajerovac and Malinovac, contained the material characteristic of the early phase of the Urnfield culture. The border of the Belegiš culture to the south is marked by finds from the Đakovo loess plateau, which was part of the territory of another cultural group. The area of the elevated ridge along the Drava River around Osijek is separated from Đakovo loess plateau by the often flooded valley along the Vuka River, which probably represented a natural but not insurmountable boundary in this phase of the Bronze Age. The find of the cremation burial in Osijek, with a funerary rite that appears at the plateau, is the proof of mutual contacts. The burial of the mentioned grave could also point to a somewhat longer existence of Barice-Gređani cultural group in the Osijek area, in comparison to the Belegiš culture.

Early Iron Age settlement

Scarce remains of the Early Iron Age settlement point to a low population density at the excavated portion of the site. During the excavation on the route of the major gas pipeline, only one structure from this period was discovered as well (Skelac, Vodička 2007). Based on the known data, we can conclude that the settlement extended along the top of the ridge and was at least 300 m long. Given that rare structures were recorded during previous excavations, there is a possibility that only peripheral parts of the settlement were included in both cases, and that its central part is situated on the part of the ridge between the excavated routes of the gas and water pipelines. Movable finds, all belonging to the same phase

Naselje starijega željeznog doba

Skromni ostaci stariježeljeznodobnoga naselja ukazuju na malu gustoću naseljenosti na istraženome dijelu lokaliteta. Također je i prilikom istraživanja na trasi magistralnoga plinovoda evidentiran samo jedan objekt ovoga razdoblja (Skelac, Vodička 2007). Na osnovi poznatih podataka može se zaključiti kako se naselje pružalo duž vrha grede, u dužini od najmanje 300 m. S obzirom na to da su prilikom dosadašnjih istraživanja evidentirani rijetki objekti, postoji mogućnost kako su u oba slučaja istraživanjima bili obuhvaćeni periferni dijelovi naselja te da se njegov centralni dio nalazi na dijelu grede između istraženih trasa plinovoda i cjevovoda. Pokretni nalazi koji svi pripadaju istoj fazi starijega željeznog doba ukazuju na relativno kratkotrajno naselje nositelja mlađe faze daljske grupe na ovome položaju. Karakteristični su nalazi zdjela uvučenoga oboda, vrčeva s konično oblikovanim vratom i trakastom ručkom koja spaja obod s trbuhom posude te šalica s niskim cilindričnim vratom i jednostavnim ili izvučenim obodom, pri čemu je kaneliranje osnovna tehnika ukrašavanja (T. 4). Materijal ovakvih obilježja može se pronaći na nalazištima mlađe faze daljske grupe (npr. Vinski-Gasparini 1973: 160–162, T. 116: 2–12; 117: 11; 121: 1, 9; 122: 1, 7, 9–11; 123: 2, 4, 7–8; 1983b: 613–614, sl. 38: 9–10, 17, 22, T. XCI: 6, 16), odnosno horizonta IIIa-b prema C. Metzner-Nebelsick (Metzner-Nebelsick 2002: 169, 171–175, Abb. 74: 6, 9–10, 12; 75: 8–10, 12–13). Sporadični nalazi keramičkih posuda mlađe faze daljske grupe s ovoga položaja poznati su već od ranije, međutim bili su nađeni u nejasnim okolnostima na latenskoj nekropoli (Spajić 1962: 49–50; Šimić 2001: 30–31, sl. 12). Na području osječkoga Donjeg grada nađeni su predmeti koji ukazuju na postojanje još jednoga naselja daljske grupe istočno od Kliničke bolnice (Šimić 2001: 36), dok je žarno groblje istovremeno naselju na položaju Ciglana i Zeleno polje evidentirano na položaju same bolnice, oko 3 km zapadno od Zelenoga polja. Nalazi daljske grupe zabilježeni na brojnim lokacijama na području Osijeka svjedoče o njezinome kontinuiranom razvoju na ovome prostoru od njezinih početaka do kraja starijega željeznog doba (Šimić 2001: 34, 36).

Prilikom arheoloških istraživanja na trasi cjevovoda za KKE Osijek nađena su svega tri objekta stariježeljeznodobnoga naselja, od kojih niti jedan nije imao stambenu funkciju, pa se stoga of the Early Iron Age, point to a relatively short-lived settlement of the carriers of the late phase of the Dalj group at this site. Bowls with inward rim, jugs with conically shaped neck and strap handle that connects the rim with the belly of the vessel, cups with a low cylindrical neck and simple or everted rim are characteristic, with channelling being the basic decorative technique (Pl. 4). Pottery with such features can be found at the sites of the younger phase of the Dalj group (e.g. Vinski-Gasparini 1973: 160–162, Pl. 116: 2–12; 117: 11; 121: 1, 9; 122: 1, 7, 9–11; 123: 2, 4, 7–8; 1983b: 613–614, Fig. 38: 9–10, 17, 22, Pl. XCI: 6, 16), that is the horizon IIIa-b according to C. Metzner-Nebelsick (Metzner-Nebelsick 2002: 169, 171–175, Fig. 74: 6, 9–10, 12; 75: 8–10, 12–13). Sporadic finds of ceramic vessels of the younger phase of the Dalj group from this site have been known earlier, however, they were discovered under ambiguous circumstances at La Tène necropolis (Spajić 1962: 49–50; Šimić 2001: 30–31, Fig. 12). Objects pointing to the existence of another settlement of the Dalj group eastern of the Clinical hospital were discovered in the area of Osijek Donji grad (Šimić 2001: 36), while an urn cemetery contemporaneous to the settlement at the site of Ciglana and Zeleno polje was recorded at the site of the hospital itself, around 3 km west of Zeleno polje. Finds of the Dalj group recorded at numerous locations in the Osijek area testify to its continuous development in this area, from its beginnings to the end of the Early Iron Age (Šimić 2001: 34, 36).

During archaeological excavation on the route of the gas pipeline for the Osijek CHP power plant, only three structures from the Early Iron Age settlement were discovered, none of them having a residential function. Therefore, no conclusions can be made on the organization of this settlement and the life of its inhabitants.

Late Iron Age settlement

During excavation in 2015, only two structures of the larger Late La Tène Scordiscan settlement were discovered. The settlement extended along the ridge next to the Drava River. Two structures of the same settlement, dated to the Lt D1 period, were excavated in 2006 on the route of the major gas pipeline (Skelac, Vodička 2007; Drnić, Skelac 2008), pointing to the width of the settlement along the highest part of the ridge. Each excavation recorded one residential structure, with above-ground constructions made of wattle and

ne mogu donijeti zaključci o organizaciji ovoga naselja i načinu života njegovih stanovnika.

Naselje mlađega željeznog doba

Prilikom istraživanja 2015. godine pronađena su svega dva objekta većega kasnolatenskog naselja Skordiska koje se protezalo duž grede uz rijeku Dravu. Dva objekta istoga naselja, datirana u razdoblje Lt D1, bila su istražena 2006. godine na trasi magistralnoga plinovoda (Skelac, Vodička 2007; Drnić, Skelac 2008), ukazujući na širinu prostiranja naselja duž najvišega dijela grede. U oba navrata registriran je po jedan stambeni objekt čiju su nadzemnu konstrukciju od pruća oblijepljenoga zemljom nosila po dva stupa na kraćim stranama objekta. Kuća nađena na trasi plinovoda bila je četvrtastoga tlocrta s podnicom od nabijene zemlje, a u njezinoj je blizini ukopan objekt, prvotno vjerojatno radne namjene, kasnije zatrpan otpadom (Drnić, Skelac 2008: 388–391, sl. 3–6). Kuća na trasi cjevovoda za KKE Osijek bila je pak ovalnoga tlocrta, plitko ukopana, s istovrsnom nadzemnom konstrukcijom, a na udaljenosti 10 m od nje nađeni su ostaci duboko ukopanoga objekta, vjerojatno bunara. Pokretni materijal nađen u ovome naselju ukazuje na njegov relativno kratkotrajan život u kasnolatenskome razdoblju (T. 5). Ostaci većega utvrđenog naselja, koje se razvilo tijekom mlađe faze srednjega latena, zabilježeni su na području Donjega grada oko 2 km prema zapadu (Bulat 1977: 17–30; Majnarić-Pandžić 1996: 258–259; Šimić, Filipović 1997: 23–25). Pronađeni nalazi pokazuju kako je donjogradsko naselje bilo veće i značajnije, dok se na Zelenom polju nalazilo manje naselje tijekom kasne faze mlađega željeznog doba. Latenska nekropola nađena u blizini naselja na položaju Ciglana i Zeleno polje je starija (Majnarić-Pandžić 1970: 38; 2007: 119; Božić 1981: 317–318; Drnić, Skelac 2008: 399) te se, na osnovi dosadašnjih saznanja, ne može vezati uz naselje smješteno na istoj lokaciji.

APSOLUTNA I RELATIVNA KRONOLOGIJA

Radiokarbonskom analizom[5] uzoraka ugljena iz zapuna objekata različitih definiranih horizonata naseljavanja dobiven je vremenski okvir

5 Radiokarbonska analiza provedena je u Centro di Fisica applicata, Datazione e Diagnostica (CEDAD), Università del Salento.

daub and supported by two posts at the shorter sides of the structure. The house discovered at the gas pipeline route had a square ground plan with a floor made of packed soil. In its vicinity, there was a dug-in structure, probably used as a workshop, later filled in with waste (Drnić, Skelac 2008: 388–391, Figs. 3–6). The hose on the route of Osijek CHP power plant pipeline had an oval ground plan, it was shallowly dug in, with the same above-ground construction. Ten meters away, remains of a deep dug-in structure were discovered, probably a well. Movable material discovered at this settlement points to its relatively short existence in the Late La Tène period (Pl. 5). Remains of a larger fortified settlement, that evolved during the late phase of the Middle La Tène, were recorded in the area of Donji grad, around 2 km to the west (Bulat 1977: 17–30; Majnarić-Pandžić 1996: 258–259; Šimić, Filipović 1997: 23–25). The discovered finds show that the Donji grad settlement was larger and more significant, while during the late phase of the Late Iron Age, there was a smaller settlement at Zeleno polje. La Tène necropolis discovered in the vicinity of the settlement at the site of Ciglana and Zeleno polje is earlier (Majnarić-Pandžić 1970; 38; 2007: 119; Božić 1981: 317–318; Drnić, Skelac 2008: 399), and, based on current findings, it cannot be linked to the settlement situated in the same location.

ABSOLUTE AND RELATIVE CHRONOLOGY

Radiocarbon dating[5] of charcoal samples from the fills of structures from various horizons of settlement provided a time frame of the existence of the settlement (Tab.6).[6] The results of the analysis confirm the two horizons of the Middle Bronze Age settlement. This is confirmed by stratigraphic indicators and the differences in the pottery finds.

The sample from the fill of Late Bronze Age structure SU 164 resulted in a Middle Bronze Age date, unsurprisingly, since sporadic earlier finds were also discovered in the structure. The dates were subsequently calibrated by Calib 61.1 calibration program (Stuiver, Reimer 1993) to further narrow the time frame (Tab. 7).

Horizon Ia was dated based on the analysis of

5 Radiocarbon dating was conducted at Centro di Fisica applicata, Datazione e Diagnostica (CEDAD), Università del Salento.

6 Since only one sample was analyzed for each of the horizons, the absolute dating obtained should be taken with caution. As these are charcoal samples, the possibility of an old-wood effect should not be overlooked.

života naselja (tab. 6).[6] Rezultati ovih analiza ukazuju na mogućnost izdvajanja dvaju horizonata srednjobrončanodobnoga naselja. Ovo izdvajanje potvrđeno je stratigrafskim pokazateljima i razlikama u pokretnome materijalu.

Uzorak iz zapune kasnobrončanodobnoga objekta SJ 164 dao je srednjobrončanodobni datum, što ne iznenađuje budući da su u objektu nađeni i sporadični stariji nalazi. Datumi su naknadno kalibrirani u programu Calib 6.11 (Stuiver, Reimer 1993), ne bi li se raspon dodatno suzio (tab. 7).

Horizont Ia datiran je na osnovi analize uzorka ugljena iz zapune SJ 033 u razdoblje između početka i druge polovice 15. st. pr. Kr. S ovim datumom u potpunosti se poklapa onaj dobiven za uzorak iz kasnobrončanodobnoga objekta SJ 164. Uzorak iz zapune SJ 135 datira mlađi srednjobrončanodobni horizont Ib između druge polovice 15. st. pr. Kr. i sredine 13. st. pr. Kr., s većom vjerojatnošću (70 %) između druge polovice 15. st. pr. Kr. i prve polovice 14. st. pr. Kr. Mlađa faza Belegiš kulture razvija se tijekom 13. st. pr. Kr., da bi se tijekom 12. st. pr. Kr. postepeno gasila (Ložnjak Dizdar 2005: 34, 41; 2011b: 31–33), što daje okvir za datiranje horizonta II. Kraj života naselja datira kasnobrončanodobni paljevinski grob. Na osnovi pogrebnoga rituala može se vezati uz kulturnu grupu Barice-Gređani koja je otprilike istovremena mlađoj fazi Belegiš kulture te se apsolutno datira u 13. i 12. st. pr. Kr. (Ložnjak Dizdar 2011a: 245; 2011b: 13; 2014: 235, 239–240, Fig. 2). Može se pretpostaviti kako je ovo brončanodobno naselje

the charcoal sample from fill SU 033 to the period between the start and the second half of the 15th century BC. This date completely corresponds to the result obtained for the sample from Late Bronze Age structure SU 164. The sample from fill SU 135 dates the late Middle Bronze Age horizon Ib between the second half of the 15th century BC and the mid-13th century BC, more likely (70%) to the period between the second half of the 15th century BC and the first half of the 14th century BC. The later phase of the Belegiš culture developed during the 13th century BC and gradually disappeared during the 12th century BC (Ložnjak Dizdar 2005: 34, 41; 2011b: 31–33), proving the time frame for the dating of horizon II. The end of the settlement's existence is dated by the Late Bronze Age cremation burial. On the basis of the funerary rite, it can be linked to the Barice-Gređani group, approximately contemporaneous to the later phase of the Belegiš culture, and absolutely dated to the 13th and 12th centuries BC (Ložnjak Dizdar 2011a: 245; 2011b: 13; 2014: 235, 239–240, Fig. 2). Therefore, it can be assumed that this Bronze Age settlement existed for around 300 years, i.e., from stage Br C1 to stage Br D or even all the way to Ha A1.

Early Iron Age horizon III was absolutely dated on the basis of radiocarbon analysis of the sample from the fill of structure SU 011. The obtained date points to the period between the second half of the 6th and the end of the 5th century BC.

It is possible to date the Late Iron Age settlement, i.e., horizon IV, on the basis of movable ar-

Uzorak / Sample	SJ / SU	BP	1 Sigma (68.2%)	2 Sigma (95.4%)	Calib 611 1 Sigma
LTL15843A	033	3178±45	1500-1410 BC	1600-1580 BC (1.3%) 1550-1370 BC (88.8%) 1350-1300 BC (5.3%)	1495-1420 BC (100%)
LTL15844A	135	3110±45	1440-1370 BC (36.1%) 1360-1300 BC (32.1%)	1500-1470 BC (2.7%) 1460-1250 BC (92.7%)	1434-1370 BC (70.5%) 1349-1313 BC (29.5%)
LTL15845A	164	3181±45	1500-1410 BC	1610-1580 (1.7%) 1550-1370 BC (89.3%) 1350-1300 BC (4.4%)	1496-1421 BC (100%)
LTL15842A	011	2413±45	730-690 BC (6%) 540-400 BC (62,2%)	760-680 BC (17,5%) 670-610 BC (8,4%) 600-390 BC (69,5%)	539-404 BC (89,2%)

Tab. 6 — Rezultati radiokarbonske analize uzoraka ugljena iz zapuna objekata (izradila: M. Krmpotić)
Tab. 6 — Results of the radiocarbon dating of charcoal samples from the structure fills (made by: M. Krmpotić)

6 S obzirom da je za svaki od horizonata radiokarbonski analiziran samo po jedan uzorak, dobivenu apsolutnu dataciju potrebno je uzeti s oprezom. Kako se radi o uzorcima ugljena, ne treba zanemariti niti mogućnost da se radi o starijem drvetu (*old-wood effect*).

Horizont / Horizon	Razdoblje / Period	Kultura / Culture	Apsolutna datacija / Apsolute datation	Reinecke
Ia	Srednje brončano doba – starija faza naselja / Middle Bronze Age – older phase of settlement	Belegiš I i daljsko-bjelobrdska grupa / Belegiš I and Dalj-Bijelo Brdo group	15. st. pr. Kr. / 15th century BC	Br C1
Ib	Srednje brončano doba – mlađa faza naselja / Middle Bronze Age – younger phase of settlement	Belegiš I	druga polovica 15. – 14. st. pr. Kr. / second half of the 15th – 14th century BC	Br C2
II	Kasno brončano doba / Late Bronze Age	Belegiš II	13. – 12. st. pr. Kr. / 13th – 12th century BC	Br D – Ha A1
III	Starije željezno doba / Early Iron Age	Daljska grupa / Dalj group	druga polovica 6. – 5. st. pr. Kr. / second half of the 6th – 5th century BC	Ha D2/3
IV	Mlađe željezno doba / Late Iron Age	Kasni laten Skordiska / Late La Tène of the Scordisci	druga polovica 2. – 1. st. pr. Kr. / second half of the 2nd – 1st century BC	Lt D

Tab. 7 — Horizonti naseljavanja na lokalitetu Osijek – Ciglana i Zeleno polje (izradila: M. Krmpotić)
Tab. 7 — Settlement horizons at the site of Osijek – Ciglana and Zeleno polje (made by: M. Krmpotić)

živjelo oko 300 godina, odnosno od stupnja Br C1 do Br D stupnja, moguće sve do u Ha A1.

Stariježeljeznodobni horizont III apsolutno je datiran na osnovi rezultata radiokarbonske analize uzorka iz zapune objekta SJ 011. Dobiveni datum ukazuje na razdoblje između druge polovice 6. i kraja 5. st. pr. Kr.

Datiranje mlađeželjeznodobnoga naselja, tj. horizonta IV, moguće je na osnovi pokretnoga arheološkog materijala te analognih nalaza s istoga lokaliteta (Drnić, Skelac 2008). Horizont se može pripisati kasnolatenskome razdoblju, tj. stupnju Lt D te apsolutno datirati u razdoblje između druge polovice 2. i 1. st. pr. Kr.

ZAKLJUČAK

Istraživanja na položaju Ciglana i Zeleno polje u Osijeku omogućila su praćenje života brončanodobnoga naselja od srednjega do starije faze kasnoga brončanog doba, a u manjoj mjeri i naselja starijega i mlađega željeznog doba. Na brončanodobnome naselju najveće su promjene primjetne na prijelazu starije u mlađu srednjobrončanodobnu fazu, što se poklapa s nestankom inkrutirane keramike srednjega brončanog doba te nešto češćom pojavom materijala kakav se pripisuje kulturi grobnih humaka. Zabilježene promjene mogu se prema chaeological material and analogue finds from the same site (Drnić, Skelac 2008). Horizon can be assigned to the Late La Tène period, i.e., stage Lt D, and dated absolutely to the period between the second half of the 2nd and the 1st century BC.

CONCLUSION

The excavations at the site of Ciglana and Zeleno polje in Osijek enabled the tracking of the life cycle of a Bronze Age settlement from the middle to the early phase of the Late Bronze Age, and, to a lesser extent, of the settlements from the Early and Late Iron Age. In the Bronze Age settlement, the most significant changes are noticeable at the turn of the early to the late phase of the Middle Bronze Age, which corresponds to the disappearance of encrusted pottery of the Middle Bronze Age and somewhat more common appearance of material assigned to the Tumulus culture. The recorded changes, according to the results of radiocarbon dating, can be roughly placed into the second half of the 15th century BC. Future excavations will show whether these changes in the Osijek settlement were a reflection of some wider events in the area of Eastern Slavonia, as suggested by the contemporaneous end of the settlement at Josipovac Punitovački. From the late Middle Bronze Age horizon, the settlement develops within the Belegiš culture and it is possible

rezultatima radiokarbonske analize datirati otprilike u drugu polovicu 15. st. pr. Kr. Buduća istraživanja pokazat će jesu li ove promjene na osječkome naselju odraz nekih širih zbivanja na prostoru istočne Slavonije, na što bi ukazivao istovremeni kraj naselja na Josipovcu Punitovačkom. Od mlađega srednjobrončanodobnog horizonta naselje se razvija u okvirima Belegiš kulture te je moguće pratiti kontinuirani razvoj njene starije u mlađu fazu. Na kraj života ovoga naselja ukazuje paljevinski ukop na samome prostoru naselja koji se, prema pogrebnome ritualu, može vezati uz kulturnu skupinu Barice-Gređani. Nakon dužega hijatusa tijekom mlađe faze kasnoga brončanog i ranijega dijela starijega željeznog doba, naseljavanje istoga položaja može se pratiti tek u okvirima mlađe faze daljske grupe. Sudeći prema zabilježenim pokretnim nalazima, ovo je bilo kratkotrajno naselje te je potom položaj ponovno bio napušten na neko vrijeme, da bi bio ponovno naseljen tek u kasnolatenskome razdoblju.

Naseljenost istoga položaja tijekom dugoga vremenskog perioda omogućila je praćenje privrede stanovništva naseljenoga na istome mjestu tijekom više prapovijesnih razdoblja. Arheozoološki ostaci ne ukazuju na značajnije promjene u privredi. U svim je horizontima naseljavanja govedo bilo najzastupljenija životinjska vrsta, a potom slijede svinje i mali preživači. Kako procijenjena dob životinja ukazuje uglavnom na odrasle jedinke te s obzirom da na kostima nisu nađeni tragovi, može se pretpostaviti kako su domaće skupine životinja korištene i u sekundarne svrhe, tj. za dobivanje mlijeka, vune i dr. Međutim, ne može se sigurno potvrditi da su ove životinje bile upotrebljavane i za rad jer na kostima nisu utvrđene uobičajene patološke promjene. Kosti divljih životinja zabilježene su u svim horizontima naseljavanja te svjedoče o lovu. Također su u svim fazama ustanovljene i brojne ljušture školjaka te se može pretpostaviti kako su i one participirale u ishrani. Arheobotanički nalazi pokazuju da su u svim razdobljima žitarice bile najzastupljenija biljna skupina, a iza njih slijede mahunarke, čiji je postotak povećan u mlađem željeznom dobu, dok su samonikle korisne biljke rijetke. Rezultati ovih analiza pokazuju kako se, bez obzira na promjene arheoloških kultura i razdoblja, privreda stanovništva naseljenoga na istome mjestu nije bitno mijenjala.

to track the continuous development of its early phase into the late phase. Cremation burial within the settlement itself points to the end of the existence of this settlement, with the funerary rite which can be linked to the Barice-Gređani cultural group. After a long hiatus during the late phase of the Late Bronze and early phase of the Early Iron Age, settlement of the site can be tracked exclusively in connection to the late phase of the Dalj group. Judging by the recorded movable finds, this was a short-lived settlement after which the site was abandoned again, and was re-settled only in the Late La Tène period.

The same site being settled for a long time period enabled the tracking of the economy of the population settled in the same area during several prehistoric periods. Archaeozoological remains do not point to significant changes in the economy. Cattle were the most common animal species in all horizons of settlement, followed by pigs and small ruminants. Since the estimated age of animals mostly points to adult individuals and given that no traces were discovered on the bones, we can assume that the domestic groups of animals were also used for secondary purposes, i.e., for obtaining milk, wool, etc. However, it cannot be ascertained whether these animals were also used as working animals because no usual pathological change was recorded on their bones. Wild animal bones were recorded in all horizons and testify of hunting. Numerous shells were also recorded in all phases, supporting the assumption that they were also used as food. Archaeobotanical finds show that cereals were the most represented plant group in all periods, followed by legumes, a percentage of which increased in the Late Iron Age, while beneficial wild woody plants were rare. The results of these analyses show that, regardless of the changes of archaeological cultures and periods, the economy of the population settled in the same area did not significantly alter.

Prijevod Translation **KRISTINA DESKAR**
Lektura Proofreading **MARKO MARAS**

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Geoportal DGU – https://geoportal.dgu.hr/

Maps for free – Hans Braxmeier, Donaustrasse 13, 89231 Neu-Ulm, mail@braxmeier.de, https://maps-for-free.com/

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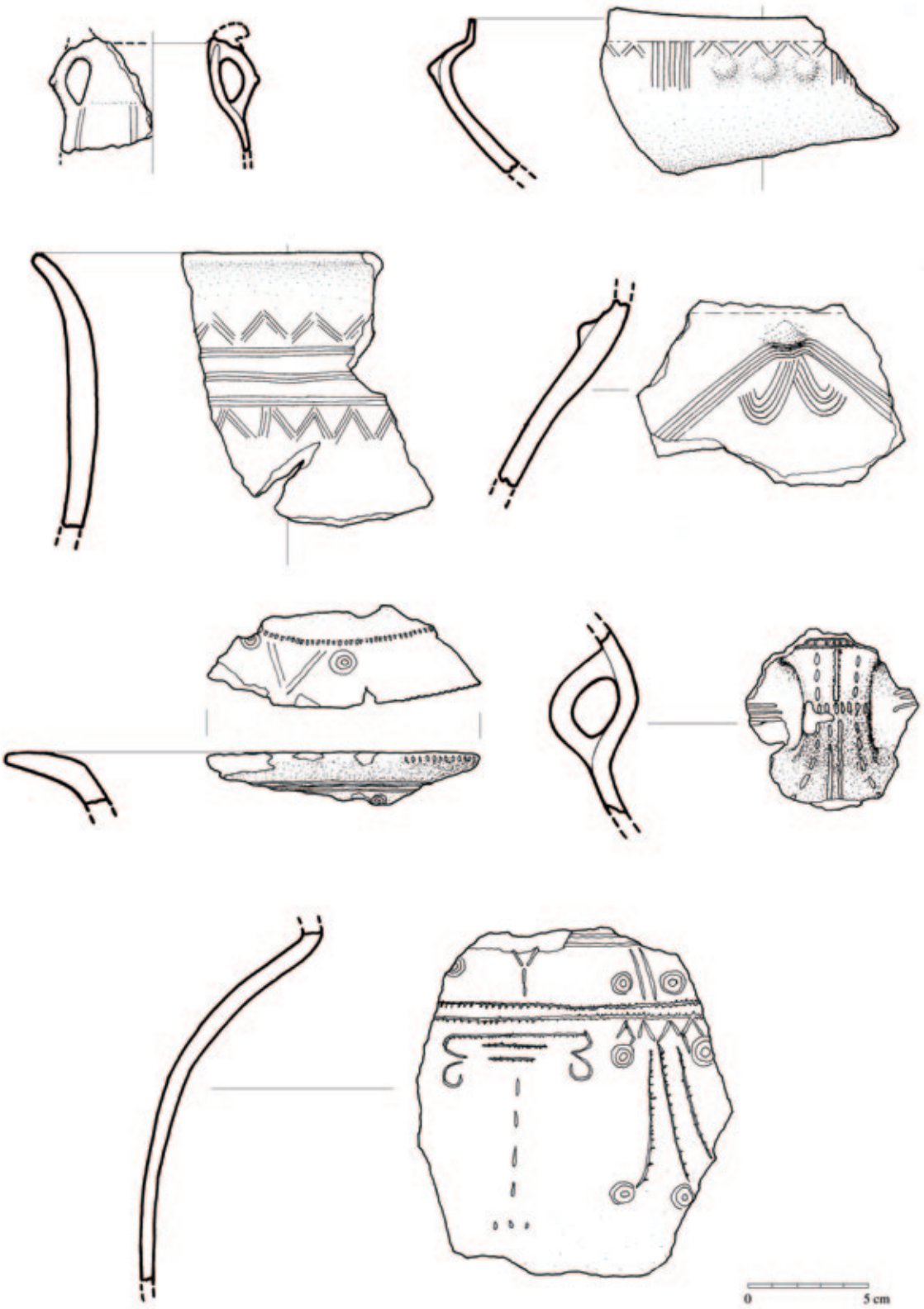
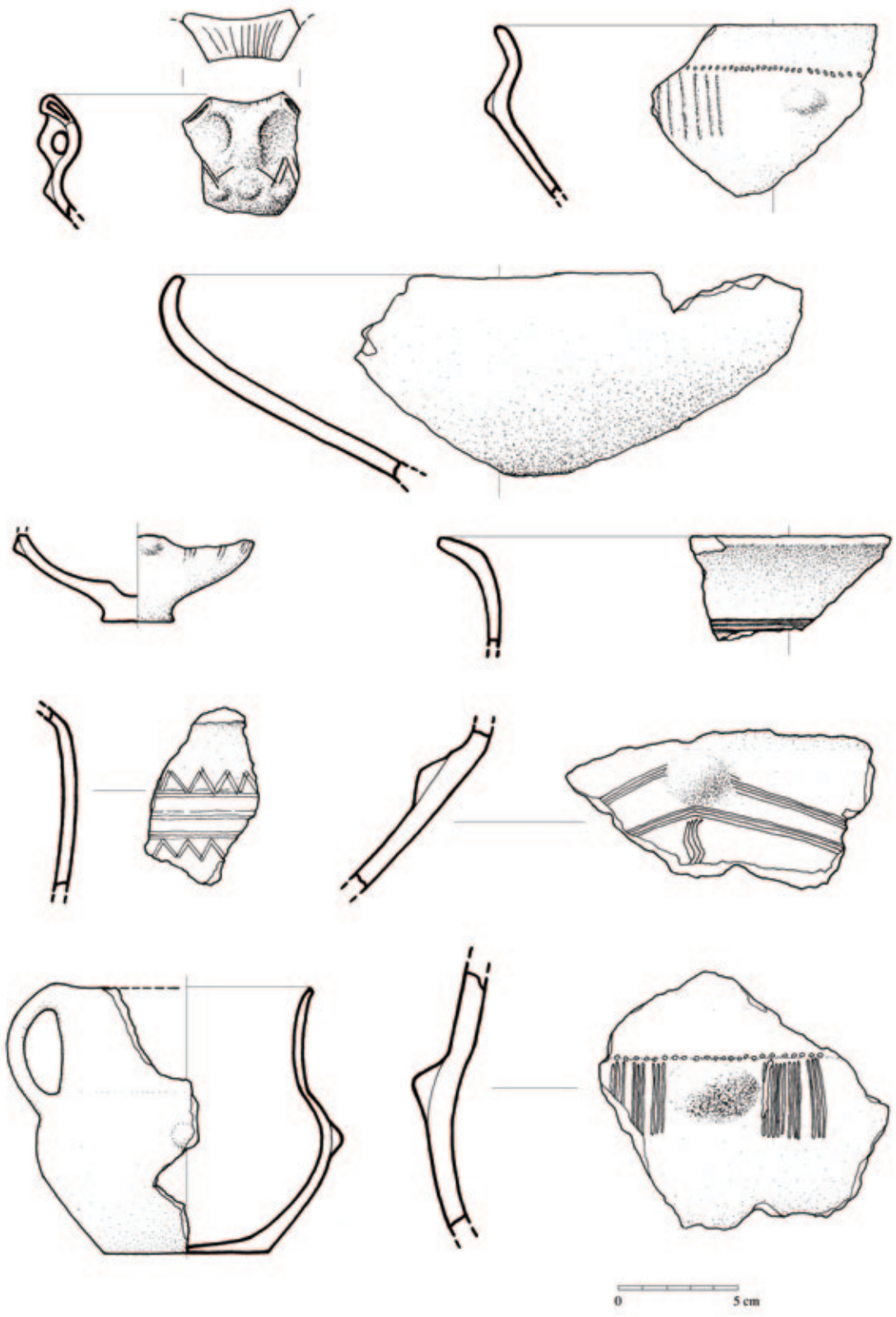


T. 1 — Keramički nalazi horizonta Ia (crtež: M. Krmpotić)
Pl. 1 — Ceramic finds from horizon Ia (drawing by: M. Krmpotić)



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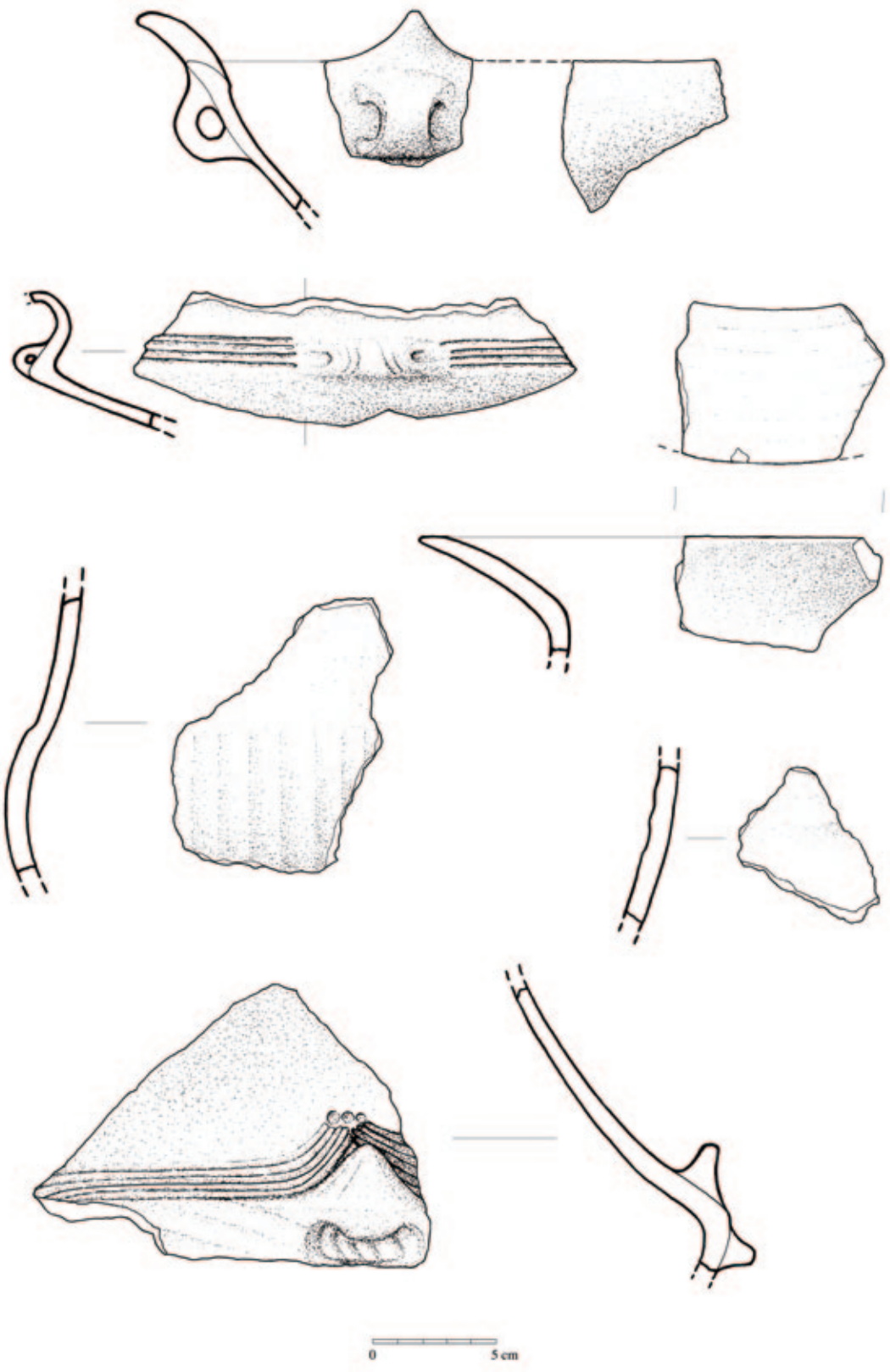

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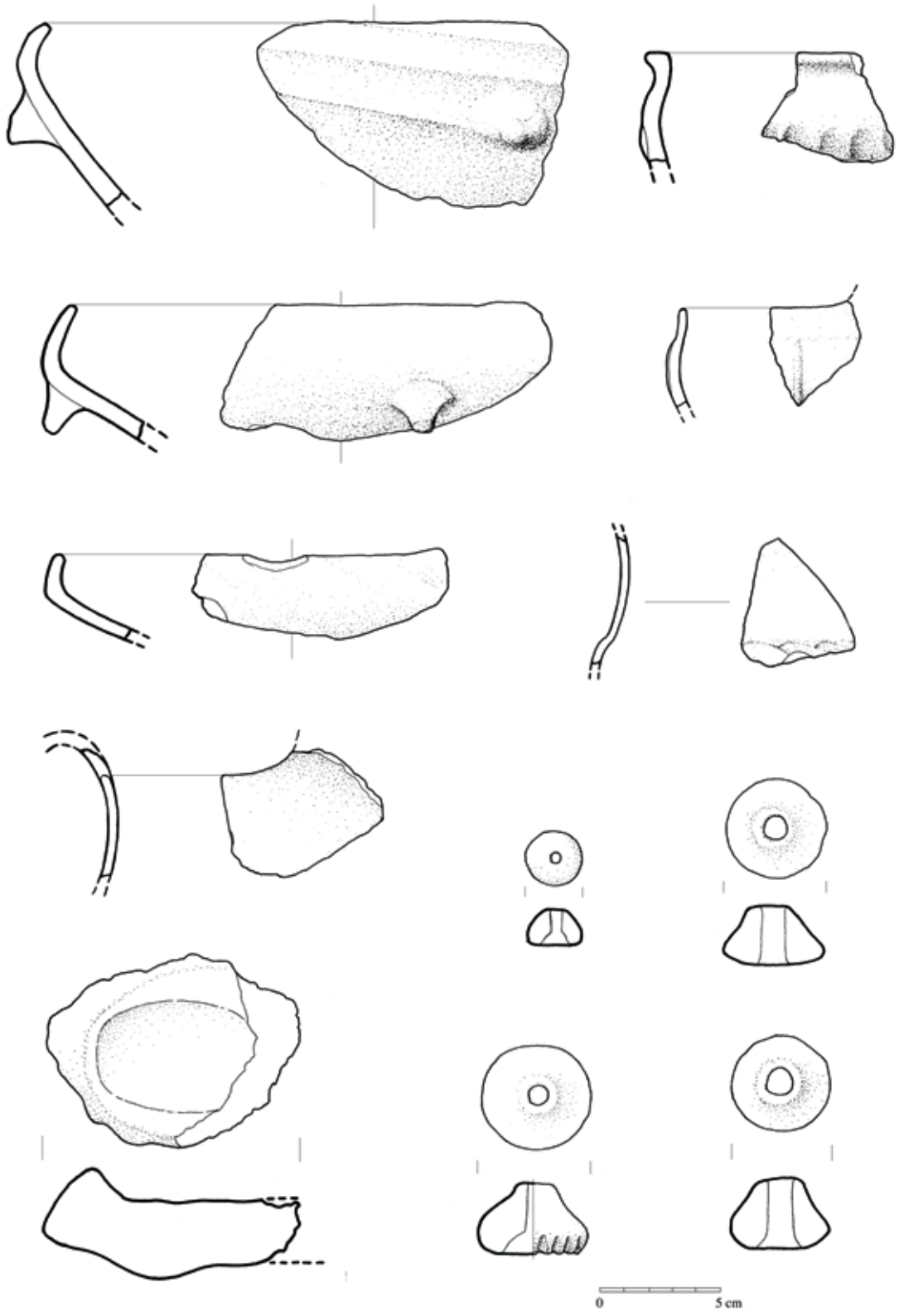
Pl. 3 — Ceramic finds from horizon II (drawing by: J. Caričić)



T. 4 — Keramički nalazi horizonta III (crtež: J. Caričić)
Pl. 4 — Ceramic finds from horizon III (drawing by: J. Caričić)

T. 5 — Keramički nalazi horizonta IV (crtež: D. Bergant, T. Marketin)
Pl. 5 — Ceramic finds from horizon IV (drawing by: D. Bergant, T. Marketin)