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SADRŽAJ

CONTENTS

Izvorni znanstveni radovi

5

RENATA ŠOŠTARIĆ
JOSIPA GRBIN
HRVOJE POTREBICA

Smrt i slava: Halštatski pogrebni običaji iz arheobotaničke perspektive nekropola u Kaptolu (Hrvatska)

Original scientific papers

RENATA ŠOŠTARIĆ
JOSIPA GRBIN
HRVOJE POTREBICA

Death and glory: Hallstatt burial customs from the archaeobotanical perspective of the necropolises at Kaptol (Croatia)

53

MIHAJLO N. DŽAMTOVSKI
The first recorded monument dedicated to *Terra Mater* in *Sirmium* with a unique *pro salute vicorum* phrase

MIHAJLO N. DŽAMTOVSKI
Prvi zabeleženi spomenik posvećen Teri Mater u Sirmijumu sa jedinstvenom frazom *pro salute vicorum*

75

PETRA JERŠEK
Rekonstrukcija lanca operacija u oblikovanju keramičkog posuđa s ranosrednjovjekovnog groblja Razbojine kod Kašića

PETRA JERŠEK
Reconstruction of the *chaînes opératoires* in the shaping of ceramic vessels from the early medieval cemetery of Razbojine near Kašić

Prethodno priopćenje

107

MATEJA HULINA
HRVOJE KALAFATIĆ
CYNTHIANNE SPITERI

Žlica variva: prehrambene navike pripadnika lasinjske kulture u istočnoj Hrvatskoj kroz analizu organskih ostataka na žlicama iz Čepinskih Martinaca

Preliminary report

MATEJA HULINA
HRVOJE KALAFATIĆ
CYNTHIANNE SPITERI

A spoonful of stew: dietary practices of the Lasinja culture population in Eastern Croatia revealed by organic residue analysis of ceramic spoons from Čepinski Martinci

	Pregledni rad	Report
131	IGOR KULENOVIĆ Povijesna karakterizacija krajolika obrovačkog područja	IGOR KULENOVIĆ Historic landscape characterization of the Obrovac area
159	Upute autorima	Guidelines for contributors

SMRT I SLAVA: HALŠTATSKI POGREBNI OBIČAJI IZ ARHEOBOTANIČKE PERSPEKTIVE NEKROPOLA U KAPTOLU (HRVATSKA) DEATH AND GLORY: HALLSTATT BURIAL CUSTOMS FROM THE ARCHAEOBOTANICAL PERSPECTIVE OF THE NECROPOLISES AT KAPTOL (CROATIA)

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Arheobotanička analiza 17 kaptolskih tumula rezultirala je s 46 829 identificiranih karboniziranih botaničkih ostataka. U obrađenom materijalu uvjerljivo dominiraju žitarice, a nalazimo još voće, mahunarke i korove koji su vjerojatno standardna primjesa žitarica. Svi nalazi obrađeni u ovom radu dolaze iz grobnih konteksta, ali nisu grobni prilozi nego su u grobove dospjeli tijekom posipanja površine grobne komore spaljenim ostacima s lomače ili uz ostatke pokojnika u urnama. Ta činjenica upućuje na puno veći značaj ritualne kremacije u pogrebnom ritualu nego što se do sada pretpostavljalo jer znamo da su se uz tijelo pokojnika na lomači našli i mnogi vrijedni prilozi koji su katkad uključivali i najcjenjeniju među žitaricama – pšenicu. Analiza količine i vrste botaničkih nalaza u grobovima pokazala je i značajnu korelaciju sa spolom. Naime, iako muški grobovi u broju botaničkih nalaza općenito nadmašuju ženske, najuočljivija razlika je velika količina žitarica u muškim u odnosu na neznatni broj nalaza u ženskim. Još jedna zanimljivost je da jedini grob (tumul 13 na nekropoli Gradca) koji se preliminarnom antropološkom analizom pripisuje djetetu uopće ne sadrži žitarice, ali zato ima značajnu količinu voća i orašastih plodova.

KLJUČNE RIJEČI: tumuli, muški i ženski grobovi, žitarice, voće i orašasti plodovi, Gradca, Čemernica



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Open Access Ovaj rad dijeli se prema odredbama i uvjetima licence Creative Commons Attribution 4.0 International license (<https://creativecommons.org/licenses/by/4.0/>), koja dopušta neograničenu ponovnu upotrebu, dijeljenje i reprodukciju u bilo kojem mediju, pod uvjetom da je izvorno djelo ispravno citirano.

Archaeobotanical analysis of 17 Kaptol tumuli has resulted in 46,829 identified carbonized botanical remains. Cereals are convincingly dominant in the processed material, and we also find fruits, legumes and weeds, which are probably a standard admixture of cereals. All the finds processed in this paper come from grave contexts, but they are not grave goods, but rather arrived in the graves during the sprinkling of the surface of the burial chamber with burnt remains from the pyre or with the remains of the deceased in urns. This fact indicates a much greater importance of ritual cremation in the funeral ritual than previously assumed, because we know that many valuable contributions were found with the body of the deceased on the pyre, sometimes including the most valued among cereals: wheat. Analysis of the quantity and type of botanical finds in the graves also showed a significant correlation with gender. That is, although male graves generally outnumber female graves in terms of the number of botanical finds, the most noticeable difference is the large quantity of cereals in male graves in comparison with the insignificant number of finds in female graves. Another interesting fact is that the only grave (tumulus 13 at the Gradca necropolis) attributed to a child by preliminary anthropological analysis does not contain any cereals at all, but does have a significant quantity of fruit and nuts.

KEY WORDS: tumuli, male and female graves, cereals, fruits and nuts, Gradca, Čemernica

UVOD

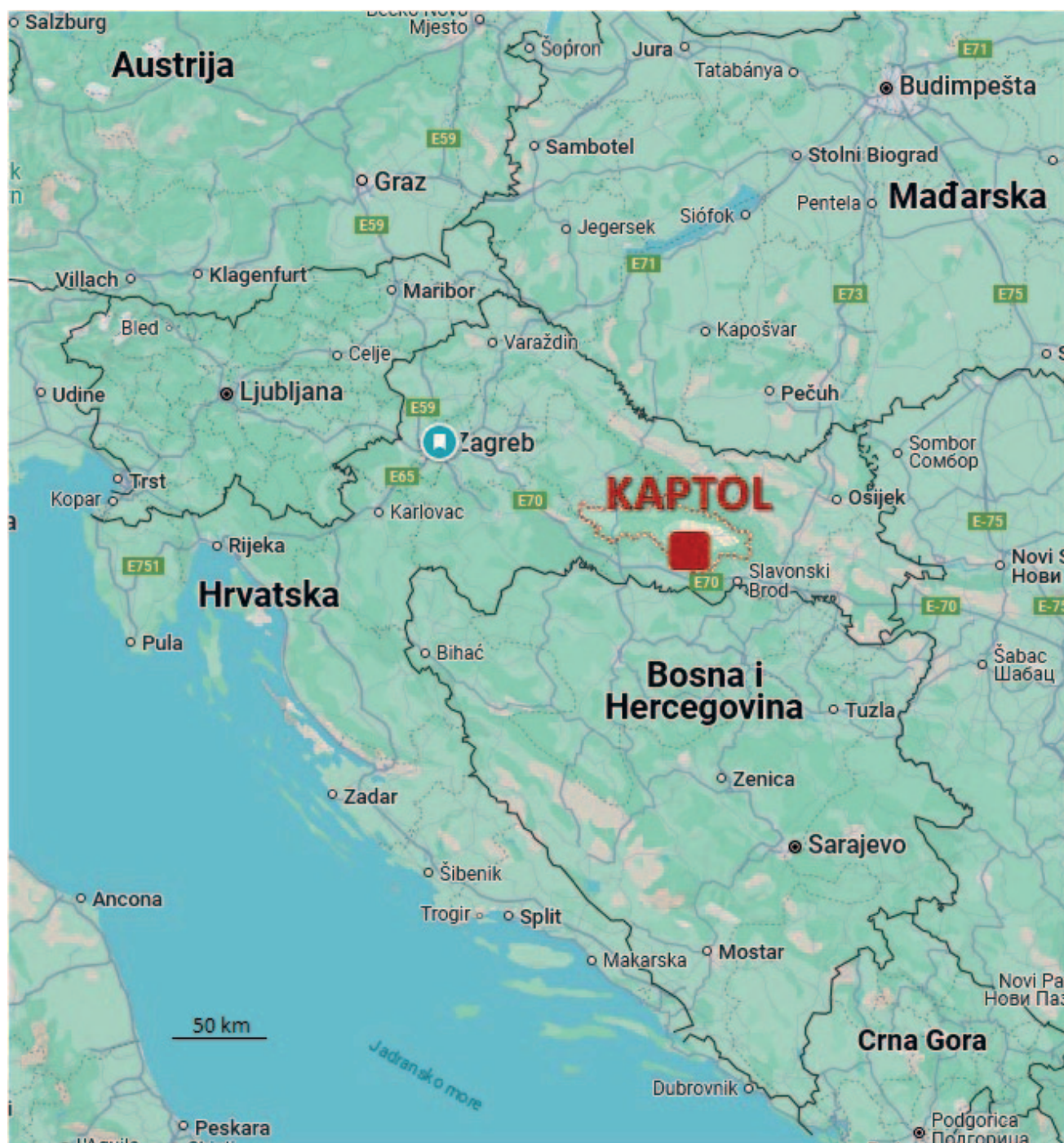
Ovim radom prezentiramo dio sustavnih interdisciplinarnih istraživanja prapovijesnih nekropola u Kaptolu kraj Požege (sl. 1) koja su započela 2000. godine. Uključuju pregled ranije objavljenih te novih rezultata arheoloških, arheobotaničkih i preliminarnih antropoloških (Nicholls 2017) analiza.

Kada smo započeli sustavna istraživanja, prije više od 20 godina, dostupno je bilo vrlo malo publiciranih radova s halštatskim arheobotaničkim nalazima (Jerem et al. 1984; Jerem, Facsar 1985). Stoga je inicijalna ideja bila istražiti je li biljna komponenta (u vidu hrane, darova, simbolike) imala važnost u konceptu grobnog rituala starijeg željeznog doba i, ako da – u kojoj mjeri i što je bilo zastupljeno. Kako se tijekom godina arheoloških istraživanja pokazalo da su kaptolski grobovi vrlo individualizirani, a i rezultati arheobotaničkih analiza ukazali su na oscilacije, iako se prilikom iskopavanja tumula primjenjivala vrlo slična metodologija uzorkovanja, postalo je jasno kako biljna komponenta nesumnjivo ima važnu ulogu u kompleksnom grobnom ritualu halštatskog Kaptola (usp. Šoštarić et al. 2016; 2017; 2020). Međutim, nametalo se pitanje odražavaju li varijacije u nalazima razlike u grobnom

INTRODUCTION

This paper presents part of the systematic interdisciplinary research into prehistoric necropolises in Kaptol, near Požega (Fig. 1), which began in 2000. It includes a review of previously published and new results of archaeological, archaeobotanical and preliminary anthropological (Nicholls 2017) analyses.

When we began systematic research, more than 20 years ago, very few published works with Hallstatt archaeobotanical finds were available (Jerem et al. 1984; Jerem, Facsar 1985). Therefore, the initial idea was to investigate whether the plant component (in the form of food, gifts, symbolism) had importance in the concept of the funerary ritual of the Early Iron Age and, if so, to what extent, and what was represented. It turned out, over the years of archaeological research, that the Kaptol graves were highly individualized, and the results of archaeobotanical analysis also showed oscillations, although a very similar sampling methodology was applied during the excavation of the tumuli. It also became clear that the plant component undoubtedly played an important role in the complex funerary ritual of Hallstatt Kaptol (cf. Šoštarić et al. 2016; 2017; 2020). However, the question arose whether the variations in the finds reflected differences in bu-



Sl. 1 – Geografski položaj Kaptola kraj Požege (podloga: Google maps, ©2025. GeoBasis-DE/BKG ©2009; prilagodila: R. Šoštarić)

Fig. 1 – Geographical location of Kaptol, near Požega. (base: Google maps, ©2025. GeoBasis-DE/BKG ©2009; adapted by: R. Šoštarić)

ritualu vezane za spol, dob, status pokojnika, ili u individualnom tretmanu pokojnika bez ja-snih pravilnosti.

Arheobotanički nalazi analize makrofosila (plodova i sjemenki), koji će biti predstavljeni u ovom radu, potječu iz 15 tumula s položaja Kaptol – Gradca (T 1 – T 15; sl. 2), što je 60 % otkrivenih grobova, te dva sačuvana tumula koji potječu

rial rituals relating to gender, age and status of the deceased, or in the individual treatment of the deceased without clear regularities.

Archaeobotanical finds from the analysis of macrofossils (fruits and seeds), which will be presented in this paper, come from 15 tumuli at the Kaptol – Gradca site (T 1 – T 15; Fig. 2), which is 60% of the discovered graves, and two preserved tumuli origi-

s položaja Kaptol – Čemernica (T III i T XI; sl. 2). Prethodno su objavljeni rezultati arheobotaničkih analiza šest tumula – na položaju Gradci: tumul 1 (Šoštarić et al. 2007), tumuli 6 i 7 (Šoštarić et al. 2017) te tumuli 13 i 14 (Šoštarić et al. 2016) i na položaju Čemernica: tumuli III i XI (Šoštarić et al. 2020). U ovom radu prezentirati ćemo rezultate preostalih 10 tumula te komparativno analizirati sve do sada istražene kaptolske nekropole i usporediti ih s dostupnim objavljenim podacima ostalih europskih halštatskih tumula.

Kaptolske nekropole i njihova važnosti u razumijevanju istočnog halštatskog kruga

Povijest istraživanja

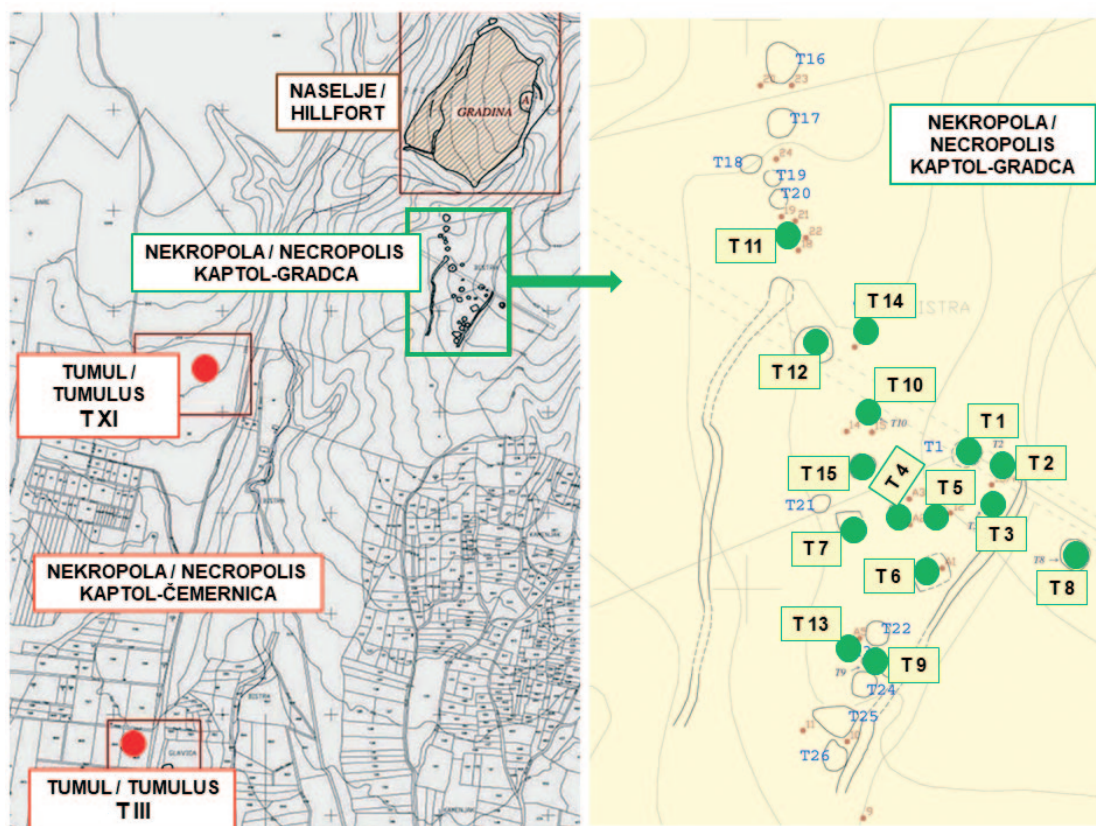
Do sada se smatralo da su nalazišta oko Kaptola (sl. 1) šire poznata još od kraja 19. stoljeća, odnosno od 1881. kada se prvi puta spominju u pismu kojim je kotarski pristav i povjerenik Hrvatskog arheološkog društva Martin Bišćan tadašnjeg ravnatelja Narodnog muzeja, arheologa don Šimu Ljubića izvjestio

nating from the Kaptol – Čemernica site (T III and T XI; Fig. 2). The results of archaeobotanical analyses of six tumuli have been previously published: at the Gradca site, tumulus 1 (Šoštarić et al. 2007), tumuli 6 and 7 (Šoštarić et al. 2017) and tumuli 13 and 14 (Šoštarić et al. 2016); and, at the Čemernica site, tumuli III and XI (Šoštarić et al. 2020). In this paper, we will present the results of the remaining 10 tumuli and comparatively analyse all the Kaptol necropolises explored so far and compare them with the available published data on other European Hallstatt tumuli.

Kaptol necropolises and their importance in understanding the Eastern Hallstatt Circle

History of research

Until recently, it was believed that the sites around Kaptol (Fig. 1) had been widely known since the end of the 19th century, i.e. since 1881, when they were first mentioned in a letter in which the district magistrate and commissioner of the Croatian Archaeological Society, Martin Bišćan, reported to the then director of the National Mu-



Sl. 2 – Položaj istraživanih tumula na lokalitetu Kaptol kraj Požege prezentiranih u ovom radu (prilagođeno prema: Potrebić 2013: 190; 2015; izradila: R. Šoštarić)

Fig. 2 – Location of the tumuli investigated at the Kaptol site, near Požega, presented in this paper (adapted from: Potrebić 2013: 190; 2015; made by: R. Šoštarić)

„da se u mjestu 'Kaptol' kraj Požege nalaze grobovi, potičući iz 'prehistoričke dobe'" (Vejvoda, Mirnik 1991: 9). Međutim, sada znamo da su tumuli kao arheološki lokalitet bili poznati barem stoljeće ranije jer su četiri humke na nekropoli Čemernica izuzetno precizno ucrtane na kartu tzv. Prve vojne izmjere Habsburške Monarhije koja je u Slavoniji izvedena 1781. – 1783. Prva prava arheološka istraživanja provela je između 1965. i 1971. ekipa Arheološkog muzeja iz Zagreba pod vodstvom Vere Vejvode i suradnika, među kojima je najistaknutiji bio Ivan Mirnik. Tadašnji senzacionalni nalazi kneževskih grobova postavili su Kaptol čvrsto na kulturnu kartu Europe.

Sustavna istraživanja željeznodobnih nekropola i naselja obnovljena su 2000. godine pod vodstvom prof. Hrvoja Potrebice s Odsjeka za arheologiju Filozofskog fakulteta Sveučilišta u Zagrebu. Od tada pa do danas, interdisciplinarni tim Centra za prapovijesna istraživanja kontinuirano radi na prostoru oko Kaptola.

Željeznodobno središte u Kaptolu

Iako je kulturna skupina kojoj pripada Kaptol i koja zauzima veći dio sjeverne Hrvatske i neke okolne krajeve kroz posljednjih osam desetljeća često mijenjala imena, već prve godine obnavljenog istraživanja ovog kompleksa bile su dovoljne da se u europskoj literaturi ta skupina počne nazivati upravo po Kaptolu (Egg, Kramer 2005). Posljednjih dvadesetak godina istraživanja dovelo je do toga da sada eponimno nalazište Kaptol bude jedno od najatraktivnijih nalazišta halštatskog kulturnog kompleksa jer svake godine donosi nove podatke koji značajno upotpunjuju sliku o različitim aspektima željeznog doba središnje Europe. U prostornom smislu, Kaptol je zapravo kompleksno nalazište koje se sastoji od utvrđenog naselja i dvije nekropole. Naselje i sjeverna nekropola smješteni su na položaju Gradca na prvim obroncima Papuka, neposredno iznad potoka Bistra s njegove istočne strane. Južna nekropola na položaju Čemernica prostirala se u nizini u okolici današnjeg jezera, sa zapadne strane potoka Bistra, a danas je uglavnom prekrivaju vinogradi (sl. 3).

Kaptol – Čemernica: nekropola

Na nalazištu Čemernica je tijekom iskopavanja u razdoblju 1965. – 1971. zapaženo i istraženo ukupno 14 humki, ali pravi opseg nekropole

seum, archaeologist don Šime Ljubić, "that in the place 'Kaptol' near Požega there are graves, originating from the 'prehistoric era'" (Vejvoda, Mirnik 1991: 9). However, we now know that the tumuli as an archaeological site were known at least a century earlier, because the four mounds at the Čemernica necropolis were extremely precisely drawn in the so-called First Military Survey of the Habsburg Monarchy, which was carried out in Slavonia in 1781–1783. The first real archaeological research was carried out between 1965 and 1971 by a team from the Archaeological Museum in Zagreb led by Vera Vejvoda and associates, the most prominent of whom was Ivan Mirnik. The sensational finds of princely graves at the time placed Kaptol firmly on the cultural map of Europe.

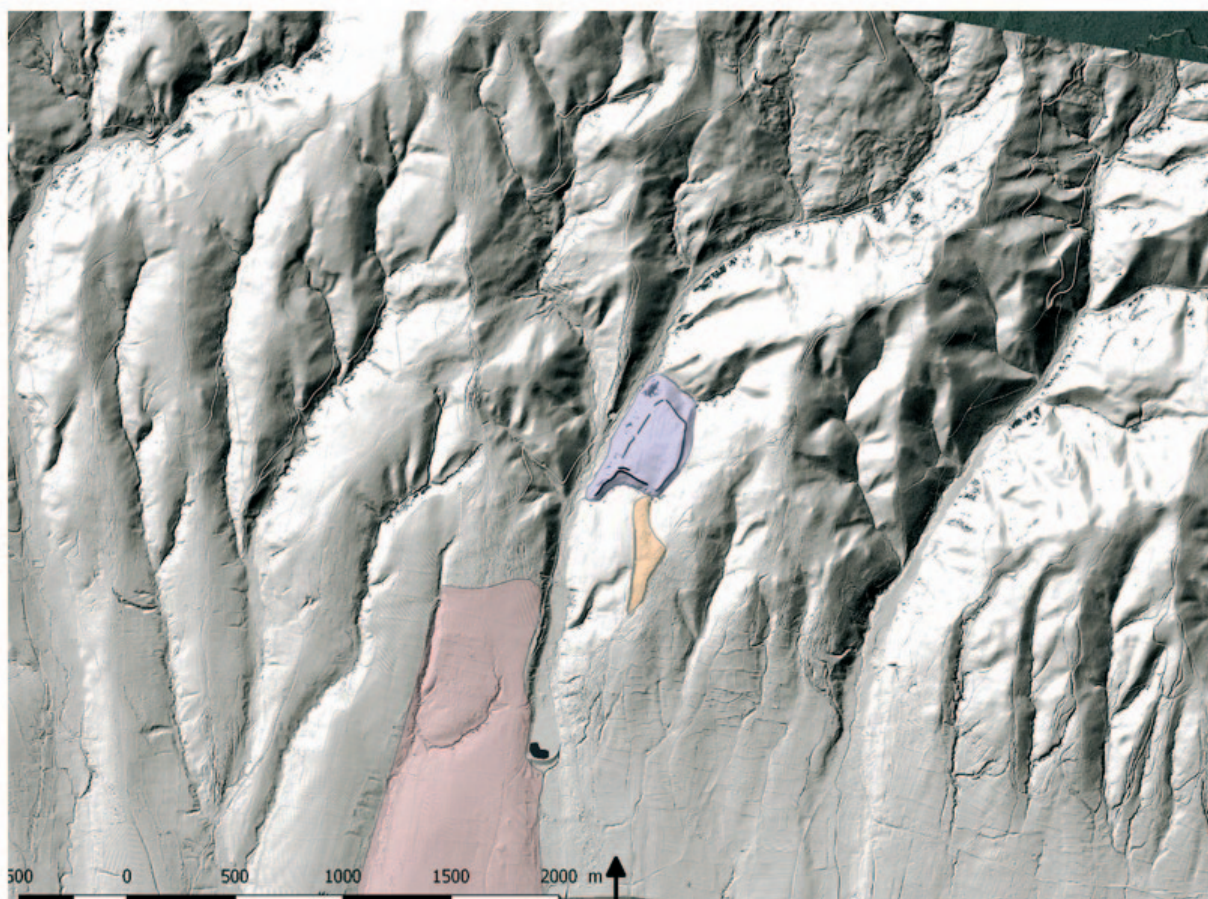
Systematic research on the Iron Age necropolises and settlement was resumed in 2000 under the leadership of Prof. Hrvoje Potrebica of the Department of Archaeology of the Faculty of Humanities and Social Sciences, University of Zagreb. Since then, the interdisciplinary team of the Centre for Prehistoric Research has been working continuously in the area around Kaptol.

Iron Age centre in Kaptol

Although the cultural group to which Kaptol belongs, and which occupies most of northern Croatia and some surrounding areas, has frequently changed name over the past eight decades, the first years of renewed research on this complex were enough for the group to start being referred to in European literature precisely as the Kaptol Group (Egg, Kramer 2005). The last twenty years of research have led to the fact that the now eponymous Kaptol site is one of the most attractive sites of the Hallstatt cultural complex, as each year it brings new data that significantly completes the picture of various aspects of the Iron Age of Central Europe. In spatial terms, Kaptol is actually a complex site consisting of a fortified settlement and two necropolises. The settlement and the northern necropolis are located at the location of Gradca on the slopes of the Papuk mountain, immediately above the Bistra stream on its eastern side. The southern necropolis at the location of Čemernica lay in the lowland around the present-day lake, on the western side of the Bistra stream, and is today mostly covered by vineyards (Fig. 3).

Kaptol – Čemernica: necropolis

During excavations in the period 1965–1971, 14 mounds were identified and excavated at the Čemernica site, but the true extent of the necropo-



Sl. 3 – Lidarski snimak s označenim nalazištima iznad Kaptola (podloga: LIDAR projekta ENTRANS; obradio: D. Mlekuž Vrhovnik)

Fig. 3 – Lidar image with marked sites above Kaptol (base: LIDAR by project ENTRANS; processed by: D. Mlekuž Vrhovnik)

je teško ustanoviti jer je vjerojatno puno tumula uništeno obradom zemlje, na što upućuje činjenica da je zbog intenzivne poljoprivredne obrade sačuvana visina pojedinih tumula u vrijeme istraživanja iznosila i manje od jednog metra. Danas zahvaljujući novijim zračnim snimcima znamo da je broj tumula bio vjerojatno u nekoj mjeri ali ne znatno veći. Tri tumula (III – 2009., IV – 2016. i XI – 2007.) su ponovno istražena tijekom revizijskih istraživanja (Potrebica 2019).

Kaptol – Gradca: nekropola

Međutim, najznačajniji pomaci u spoznaji o Kaptolu kao nalazištu i kaptolskoj skupini dogodila su se tijekom istraživanja položaja Gradca. Tragove gradinskoga naselja i sjeverne nekropole na brdu Gradci iznad potoka Bistra, sjeveroistočno od nekropole Čemernica uočila je još ekipa Arheološkog muzeja u Zagrebu pregledima terena 1975. godine kada su poduzeta i manja sondažna istraživanja (Vejvoda, Mirnik 1991: 13, 16). Sustavnim istraživanjima od 2000. godine definirano je

lis is difficult to establish, because many of the tumuli were probably destroyed by intensive agricultural cultivation, indicated by the fact that the preserved height of some tumuli at the time of the investigation was less than one metre. Today, thanks to more recent aerial photographs, we know that the number of tumuli was probably somewhat, but not significantly, higher. Three tumuli (III – 2009, IV – 2016 and XI – 2007) were re-investigated during revision investigations (Potrebica 2019).

Kaptol – Gradca: necropolis

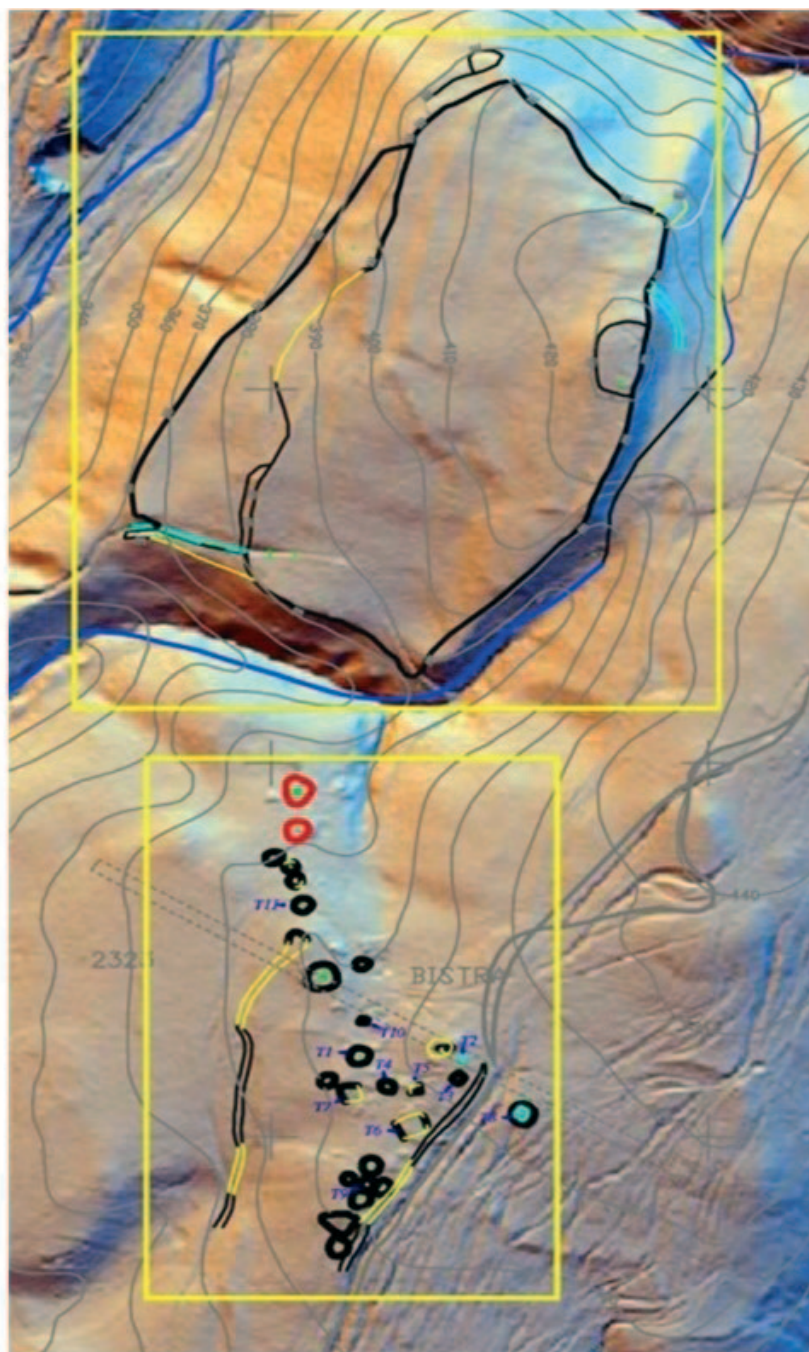
However, the most significant advances in knowledge of Kaptol as a site and of the Kaptol Group occurred during the excavation at the position of Gradca. Traces of the hillfort settlement and the northern necropolis on the Gradca hill above the Bistra stream, northeast of the Čemernica necropolis, were also discovered by the team of the Archaeological Museum in Zagreb during field surveys in 1975, when they also dug two small trenches (Vejvoda, Mirnik 1991: 13, 16). Systematic research since 2000 has identified around 25 tu-

oko 25, a istraženo 17 tumula na nekropoli koja zauzima nekoliko hektara (sl. 4) (Potrebica 2012; 2019). Nekropola je od utvrđenog naselja odvojena tek dubokim usjekom na dnu kojeg protječe potok, nalazi se na apsolutnoj nadmorskoj visini od oko 450 m i čini se da je na neki način bila ograđena.

Materijal pronađen u grobovima datira obje nekropole u razdoblje od 7. do polovice 6. st. pr. Kr.

muli, and excavated 17 of them, on the necropolis, which covers several hectares (Fig. 4) (Potrebica 2012; 2019). The necropolis is separated from the fortified settlement only by a deep ravine with a stream at its bottom. It is located at an altitude of around 450 m above sea level, and it seems to be surrounded by some sort of enclosure.

The material found in the graves dates both necropolises to the period from the 7th to the mid-6th century BC.



Sl. 4 – Lidarski snimak nekropole Kaptol – Gradca i naselja (podloga: LIDAR projekta ENTRANS; obradio: D. Mlekuž Vrhovnik)

Fig. 4 – Lidar image of the Kaptol – Gradca necropolis and settlement (base: LIDAR by project ENTRANS; processed by: D. Mlekuž Vrhovnik)

Kaptol – Gradca: naselje

Gradina na položaju Gradca bila je poznata i ekipi koja je pod vodstvom I. Mirnika 1975. u njezinoj neposrednoj blizini sondirala dva tumula. Međutim, zbog šume i neprohodne šikare gradina nikada nije istraživana niti sondirana. Prikupljeni su površinski nalazi, a 1975. je načinjena i geodetska skica koja je prvi puta objavljena 1991. (Vejvoda, Mirnik 1991: 10, 26), na žalost bez odgovarajućeg mjerila što je znatno otežalo ponovnu ubikaciju naselja 2001. godine neposredno iznad najsjevernijih tumula nekropole Gradca.

Gradinsko naselje nalazi se sjeverno od tumula na uzvišenju koje je od nekropole odvojeno dubokim kanjonom potoka. Naselje zauzima površinu od preko 7 hektara. Gradina je s tri strane okružena izuzetno strmim padinama koje se gotovo vertikalno ruše u duboke kanjone dva potoka, dok se s istočne strane, u dužini od oko 60 m, uz nju proteže izduženo uzvišenje visine od oko 15 m i mjestimične širine do 20 m. Površina naselja je organizirana u terase što nije uobičajeno na ovim prostorima i na takav način je višestruko uvećana iskoristiva površina (Potrebica 2013).

Naselje je, čini se, osnovano početkom 7. st. pr. Kr.. Drastičnu reorganizaciju je doživjelo polovicom 6. st. pr. Kr., kada naglo prestaju ukopi pod tumulima na obje nekropole. Prema sadašnjim spoznajama, naselje nakon toga u nekoj mjeri nastavlja život sve do u 3. st. pr. Kr.

Kaptol u mreži željeznoga doba

Odmah upada u oči da mnogo predmeta upravo u Kaptolu dosežu svoje najdalje točke rasprostiranja u europskim okvirima, poput različitih tipova naoružanja (bojne sjekire, mačevi, kacige, knemide), dijelova nošnje (fibule i višeglave igle) i drugih predmeta specifične namjene (konjska oprema i brusovi/žezla).

Veliko i prosperitetno naselje s dugim kontinuitetom života kao i bogati prilozi u grobovima elite koji sadrže ekskluzivne prestižne predmete iz udaljenih krajeva ukazuju na golemu važnost kneževskog središta u Kaptolu u komunikacijskoj mreži koja je tijekom starijeg željeznog doba povezivala razvijena kulturna i proizvodna središta u Grčkoj i Italiji s bogatim sjedištima halštatskih kneževa

Kaptol – Gradca: settlement

A hillfort at the location of Gradca was also known to the team that, under I. Mirnik's leadership, excavated small trenches in two tumuli in its immediate vicinity in 1975. However, due to the impenetrable forest and brush, the hillfort was never excavated. Surface finds were collected, and a geodetic sketch was made in 1975 and published for the first time in 1991 (Vejvoda, Mirnik 1991: 10, 26), unfortunately without an appropriate scale, which made it much more difficult to reconfirm the position of the settlement in 2001 directly above the northernmost tumuli of the Gradca necropolis.

The fortified settlement is located north of the tumuli on an elevation that is separated from the necropolis by a deep ravine. The settlement covers an area of over 7 hectares. The hillfort is surrounded on three sides by extremely steep slopes that almost vertically collapse into the deep canyons of two streams, while on the eastern side, for a length of about 60 m, an elongated elevation, about 15 m high and up to 20 m wide in places, stretches along it. The surface of the settlement is organized into terraces, which is not common in this area, and in this way the usable area is multiplied (Potrebica 2013).

The settlement seems to have been established at the beginning of the 7th century BC. It underwent a drastic reorganization in the middle of the 6th century BC, when burials under tumuli in both necropolises suddenly stopped. According to current knowledge, the settlement continued to live to some extent until the 3rd century BC.

Kaptol in the Iron Age network

It is obvious that many objects reach their furthest points of distribution precisely in Kaptol, such as various types of weapon (battle axes, swords, helmets, cnemidae), parts of attire (fibulae and multi-headed pins) and other objects of specific purpose (horse equipment and whetstones/sceptres).

A large, prosperous settlement with a long continuity of life, as well as rich contributions in the graves of the elite containing exclusive, prestigious objects from distant regions, indicate the enormous importance of the princely centre in Kaptol in a communication network that, during the Early Iron Age, connected the developed cultural and production centres in Greece and Italy with the rich seats of the Hallstatt princes in Central Europe. Kaptol and the Požega Valley, or the Kaptol cultur-

u središnjoj Europi. Kaptol i Požeška kotlina, odnosno Kaptolska kulturna skupina, svaka-ko pripadaju istočnom halštatskom krugu. Na to upućuju izrazite veze s Dolenjskom skupinom u jugoistočnoalpskom prostoru, kao i s halštatskim skupinama u Transdanubiji (Potrebica, Mavrović Mokos 2016). Međutim, kako se nalazi na jugoistočnoj periferiji tog velikog kulturnog kompleksa, ima naglašene kontakte i sa susjednim kulturnim fenomenima Daljske skupine i Bosutske skupine u Podunavlju. No, najizrazitija veza je sa željezodobnim skupinama južno od Save (skupina Donja Dolina i Glasinačka kultura) (Potrebica, Pravidur 2022). Sve to ukazuje na ključni položaj Kaptola na razmeđu tri civilizacijska kruga: Panonije, Alpa i Balkana. Stoga nije čudno da je upravo Kaptol dao ime najjužnijoj skupini halštatskog kulturnog kompleksa.

Arheološki kontekst tumula iz kojih potječu arheobotanički uzorci

Grobni ritual u Kaptolu

Iako je svaki tumul u kaptolskim nekropolama specifičan i po konstrukciji i po sadržaju, možemo navesti nekoliko osnovnih karakteristika koje se odnose na grobni ritual u cijelosti. Jedini pogrebni ritual do sada zabilježen u Kaptolu jest kremacija. Pokojnik je bio spaljen na za sada nepoznatom mjestu. Potom bi na mjestu pokopa bio konstruiran drveni sanduk, odnosno komora (ovisno o veličini). Dno sanduka bi u cijelosti ili na određenim mjestima bilo posuto pepelom i garom s lomače. Na tu podlogu bi se stavili ostaci pokojnika skupljeni u posudu ili u neki organski recipijent (vreću). Pored toga su polagani grobni prilozi: posude s različitim sadržajem, oružje, konjska oprema, nakit. Po zatvaranju drvene komore katkad je oko nje izgrađen suhozidni zid i krov bi bio prekriven kamenom. Zadnja faza je bilo nasipanje zemljane humke preko te konstrukcije i time bi tumul bio završen.

Važno je naglasiti da svi arheobotanički i antropološki nalazi obrađeni u ovom radu predstavljaju sekundarni depozit – spaljene ostatke skupljene na lomači i prenesene u grobnu komoru. Izuzetak čini tumul 12, koji jedini ima vidljivo spalište. Analizirani nalazi dolaze iz grobnih konteksta, ali zapravo ne govore o grobnim prilozima nego o ritualu spaljivanja pokojnika. Naime, grobni prilozi botaničke vr-

al group, certainly belong to the Eastern Hallstatt circle. This is indicated by the strong connections with the Dolenjska Group in the southeastern Alpine region, as well as with the Hallstatt groups in Transdanubia (Potrebica, Mavrović Mokos 2016). However, as it is located on the south-eastern periphery of this large cultural complex, it also has strong contacts with the neighbouring cultural phenomena of the Dalj group and the Bosut group in the Danube region. However, the most significant connection is with the Iron Age groups south of the Sava (the Donja Dolina group and the Glasinac culture) (Potrebica, Pravidur 2022). All this underlines the key position of Kaptol at the crossroads of three civilization circles: Pannonia, the Alps and the Balkans. Therefore, it is not surprising that Kaptol gave its name to the southernmost group of the Hallstatt cultural complex.

Archaeological context of the tumuli from which the archaeobotanical samples originate

Funerary ritual in Kaptol

Although each tumulus in the Kaptol necropolis is specific in both its construction and its content, we can list several basic characteristics that relate to the burial ritual as a whole. The only burial ritual recorded so far in Kaptol is cremation. The deceased would be burned at a currently unknown location. Then a wooden box or chamber (depending on the size) would be constructed at the burial site. The bottom of the coffin would be covered – entirely or in certain places – with ash and soot from the pyre. The remains of the deceased, collected in a pottery vessel or in some organic receptacle (bag), would be placed on this surface, and grave goods were also placed inside: pots with various contents, weapons, horse equipment, ornaments. After the wooden chamber was closed, a dry-stone wall was sometimes built around it and the roof/lid would be covered with stone. The last phase was to build an earthen mound over this construction, and thus the tumulus would be completed.

It is important to emphasize that all archaeobotanical and anthropological finds discussed in this paper represent a secondary deposit – burnt remains collected on a pyre and transferred to the burial chamber. The exception is tumulus 12, which is the only one with a visible cremation site. The analysed finds come from burial contexts, but in fact they do not speak of grave goods, but of the ritual of cremation of the deceased. Grave goods of a bo-

ste ne mogu se sačuvati u kaptolskom okolišu ukoliko su u svježem obliku, a nalazi u karboniziranom obliku dospjeli su u grob tijekom posipanja površine grobne komore garom i ostacima s lomače ili uz ostatke pokojnika u urnama. Upravo botanički ostaci su nam prvi dali naslutiti da je ritual spaljivanja u ritualnom i performativnom smislu bio jednako vrijedan kao izgradnja i ukop pokojnika. U kaptolskom slučaju, s obzirom da je ekskluzivitet ukopa pod tumulima bio izuzetno visok, pretpostavljamo da je sama kremacija bila i jedini oblik pogrebnog rituala za većinu željeznodobnih stanovnika kaptolske gradine. Njihovi ostaci su vjerojatno bili odlagani na drugim mjestima i na druge načine, moguće čak i u vodama koje okružuju naselje za što postoje nebrojene etnoarheološke paralele. Iz tog razloga teško da ćemo u potpunosti saznati kakvu ulogu su imale razne biljke u općem pogrebnom ritualu. Međutim ono što je očito jest da su, uz niz drugih priloga na lomači (konji i razne druge životinje, metalne i keramičke posude, ukrasi i elementi nošnje), i određene biljke imale značajnu ulogu.

TUMUL 1 (GRADCA)

Tumul 1 se nalazio odmah uz tumul 2 sjeverno od kneževskog tumula 6. Prvi istraženi tumul kopan je 2001. i 2002. Ispod kamenog obzida koji se sastojao od dvije vrste kamena (lokalnog gnajsa i amfibolita) vjerojatno je bila drvena komora. U sjevernom kutu na dnu komore stajala je nakupina pepela i kostiju koja je prema jugu bila omeđena sa četiri manje keramičke plitice. U ispuni komore nađeni su fragmenti različitih većih i manjih posuda koji su vjerojatno dospjeli u komoru s lomače. Na kostima su bila dva keramička pršljenka, željezni nožić i brončana fibula s diskoidnim proširenjima na narebrenom luku i dva brončana prstena koja su visjela s igle od fibule koja se nije sačuvala. Između kostiju i istočnog zida bila je željezna sjekira s ručicama. Uzorci za arheobotaniku su uzimani s cijele površine komore, ali velika većina dolazi iz najzapadnije plitice i oko nje. Pretpostavljamo da se radi o ženskom ukopu, a grob je datiran u prvu polovinu 7. st. pr. Kr. = Ha C1 (Potrebica 2011; Šoštarić et al. 2007).

tanical type cannot be preserved in the Kaptol environment if they are in fresh form, and the finds in carbonized form reached the grave during the covering of the surface of the burial chamber with soot and remains from the pyre, or with the remains of the deceased in urns. It was precisely the botanical remains that first gave us a hint that the ritual of cremation was equally important in ritual and performative terms as the construction and burial of the deceased. In the case of Kaptol, given that the exclusivity of burial under tumuli was extremely high, we assume that cremation itself was the only form of funeral ritual for most of the Iron Age inhabitants of the Kaptol hillfort. Their remains were probably disposed of in other places and in other ways, possibly even in the waters surrounding the settlement, for which there are countless ethnoarchaeological parallels. For this reason, it is difficult to fully understand what role various plants played in the general funeral ritual. However, what is clear is that, along with a number of other offerings on the pyre (horses and various other animals, metal and ceramic vessels, ornaments and elements of costume), certain plants also played a significant role.

TUMULUS 1 (GRADCA)

Tumulus 1 was located immediately next to tumulus 2, north of princely tumulus 6. The first tumulus investigated, it was excavated in 2001 and 2002. Under the stone wall, which consisted of two types of stone (local gneiss and amphibolite), there was probably a wooden chamber. In the northern corner at the bottom of the chamber there was a pile of ashes and bones, which was bordered to the south by four smallish ceramic bowls. Fragments of various vessels, large and small, were found in the chamber filling, which probably reached the chamber from the pyre. Two ceramic spindle whorls were placed on the bones, together with an iron knife, a bronze fibula with discoid extensions on a ribbed arch, and two bronze rings that probably hung from a fibula pin that has not been preserved. Between the bones and the eastern wall was an iron trunnion axe. Samples for archaeobotanics were taken from the entire surface of the chamber, but the vast majority came from the westernmost small bowl and around it. We assume that this is a female burial, and the grave is dated to the first half of the 7th century BC = Ha C1 (Potrebica 2011; Šoštarić et al. 2007).

TUMUL 2 (GRADCA)

Tumul 2 se nalazio odmah uz tumul 1 sjeverno od kneževskog tumula 6. Istražen je 2002. Vjerojatno drvena komora bila je obzidana kamenom, a neuobičajeno debeo sloj kamena bio je na vrhu komore. U slojevima tog kamena pronađeno je nekoliko većih, izuzetno fragmentiranih posuda među kojima se ističu kernos i veliki lonac sa štapićastim rogolikim ukrasima na trbuhu. Dno komore je očigledno bilo posuto materijalom s lomače u kojem su bili vidljivi mali fragmenti kostiju. Na tom sloju pronađena su fragmentirana dva lonca ukrašena trokutastim kositrenim aplikama, kao i zdjela na nozi s kaneliranim ukrasom s unutrašnje strane. Od metalnih nalaza ističu se željezna sjekira sa zaliscima označena urezanim numeričkim simbolom i dvije plosnate željezne strelice. Tumul 2 je grob muškarca, a potječe iz prve polovine 7. st. pr. Kr. = Ha C1 (Potrebica 2011).

TUMUL 3 (GRADCA)

Tumulus 3 nalazio se oko 10 m od tumula 2, odmah uz nasip koji označava istočni rub nekropole. Bio je relativno malih dimenzija: promjera od oko 7 m i 1 m sačuvane visine. Šumski put oštetiio je istočnu stranu tumula. Iskopavan je 2002. Nije bilo kamenog obzida komore, ali se naziru tragovi pravokutne drvene komore. Od nalaza smo zabilježili pet fragmentiranih posuda i pliticu. Kostiju su bile veoma sitne i fragmentirane i nalazile su se isključivo u sloju pepela i ugljena na dnu komore za koji pretpostavljamo da je donesen s pogrebne lomače. Pretpostavljamo da se radi o ženskom ukopu, a datacija se može u grubo postaviti samo na temelju keramičkih tipova u 7. st. pr. Kr. = Ha C (Potrebica 2011).

TUMUL 4 (GRADCA)

Tumul 4 nalazio se na padini između tumula 5 i tumula 7. Promjer je vjerojatno bio oko 7 m, a sačuvana visina oko 40 cm. Pod ovim nasipom nije otkrivena nikakva konstrukcija, a nalazi se svode na nekoliko fragmenata amorfnе keramike. Ukoliko je uopće riječ o grobnom humku bio je opljačkan i temeljito razoren, ali možemo biti gotovo sigurni da nikada nije sadržavao kamenу konstrukciju (Potrebica 2011).

TUMULUS 2 (GRADCA)

Tumulus 2 was located immediately next to tumulus 1, north of princely tumulus 6. It was excavated in 2002. The wooden chamber was probably walled with stone, and there was an unusually thick layer of stone on top of the chamber. Several largish, extremely fragmented vessels were found in the layers of this stone, among which a kernos and a large pot with horn-like protrusions on the belly stand out. The bottom of the chamber was apparently covered with material from a pyre in which small fragments of bones were visible. Two fragmented pots decorated with triangular tin appliques were found in this layer, as well as a footed bowl with a fluted decoration on the inside. The most important metal finds are an iron winged axe marked with an engraved numerical symbol and two flat iron arrowheads. Tumulus 2 is a male grave, dating from the first half of the 7th century BC = Ha C1 (Potrebica 2011).

TUMULUS 3 (GRADCA)

Tumulus 3 was located about 10 m from tumulus 2, right next to the embankment marking the eastern edge of the necropolis. It was relatively small in size: about 7 m in diameter and 1 m in preserved height. A forest road had damaged the eastern side of the tumulus. It was excavated in 2002. There was no stone wall to the chamber, but traces of a rectangular wooden chamber can be seen. The finds included five fragmented vessels and a shallow bowl. The bones were very small and fragmented and were found exclusively in a layer of ash and charcoal at the bottom of the chamber, which we assume was brought from a funeral pyre. We assume that this is a female burial, and the dating can only roughly be established, on the basis of ceramic types, to the 7th century BC = Ha C (Potrebica 2011).

TUMULUS 4 (GRADCA)

Tumulus 4 was located on the slope between tumulus 5 and tumulus 7. Its diameter was probably about 7 m, and the preserved height was about 40 cm. No structure was discovered under this mound, and the finds are limited to a few fragments of amorphous pottery. If it is a burial mound at all, it was looted and thoroughly destroyed, but we can be almost certain that it never contained a stone structure (Potrebica 2011).

TUMUL 5 (GRADCA)

Tumul 5 smješten je na padini istočno od tumula 3 i sjeverno od kneževskog tumula 6; ispod njega na padini prema zapadu nalaze se tumuli 4 i 7. Nije imao kamenu konstrukciju, a pravokutna distribucija nalaza sugerira postojanje drvene komore. Dva velika lonca vjerojatno su sadržavala neke organske grobne priloge (hrana, piće, itd.). Dvije plitice (male zdjele s uvučenim rubovima poput tanjura) služile su kao poklopci lonaca. Jedna globularna posudica s malenim poklopcem vjerojatno je sadržavala neku skupocjenu tvar. Mala nakupina kostiju nalazila se uz dva velika lonca i na njoj su pronađeni željezni nožići. Druga skupina osteoloških ostataka nalazila se u loncu s niskim cilindričnim vratom koji je također bio pokriven pliticom kao poklopcem. Preliminarna osteološka analiza upućuje na to da je prva skupina kostiju pripadala ženi, a druga djetetu starosti od pola godine do godine i pol. Oba uzorka kostiju (pogotovo onaj u loncu) sadržavali su dosta životinjskih kostiju. Tumul 5 potječe iz druga polovine 7. st. pr. Kr. / prva polovina 6. st. pr. Kr. = Ha C2/D1 (Potrebica 2011).

TUMUL 6 (GRADCA)

Tumul 6 nalazio se zapadno od tumula 5, također na strmom obronku brda zbog čega je kao posljedica erozije teško utvrditi točne dimenzije. Uz to je prije tridesetak godina tijekom vojnih vježbi na vrhu ovog tumula bio ukopan mitraljeski rov. U svakom slučaju, sačuvana visina mu je oko 2,8 m, a promjer oko 18 m, što ga je činilo najvećim vidljivim tumulom na nekropoli Gradca. Istraživan je tijekom 2004. i 2005. Odmah ispod prvog sloja nasipa pronađen je paljevinski grob manjih dimenzija (85 x 50 cm) u kojem je pronađeno tek nešto malo gara, dosta kostiju, manja keramička posuda i željezni nož s pojasnom garniturom od željeznih i brončanih elemenata. Grob se datira oko sredine 6. st. pr. Kr. Na vrhu komore pronađena je još jedna nakupina gara s nešto slabije sačuvanim kostima iznad koje su nađeni ulomci crnog grafitiranog lonca ukrašenog urezivanjem, crvenog grubog lonca i dvije plitice, a od metala donji dio brončane višeglave igle i željezna perla. Tragove drvene komore pronašli smo kako u obliku karboniziranog drveta tako i u otiscima na dnu tumu-

TUMULUS 5 (GRADCA)

Tumulus 5 is located on the slope east of tumulus 3 and north of princely tumulus 6; below it on the slope to the west are tumuli 4 and 7. It had no stone construction, and the rectangular distribution of the finds suggests the existence of a wooden chamber. Two large pots probably contained some organic grave goods (food, drink etc.). Two small bowls served as lids for the pots. One small globular vessel with a small lid probably contained some valuable substance. A small pile of bones was located next to the two large pots, and two iron knives were found on it. The second group of osteological remains was located in a pot with a low cylindrical neck that was also covered with a small bowl as a lid. Preliminary osteological analysis indicates that the first group of bones belonged to a woman, and the second to a child aged between six months and one-and-a-half years. Both bone samples (especially the one in the pot) contained a lot of animal bones. Tumulus 5 dates from the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1 (Potrebica 2011).

TUMULUS 6 (GRADCA)

Tumulus 6 was located west of tumulus 5, also on a steep hillside, which is why it is difficult, as a result of erosion, to determine its exact dimensions. In addition, about thirty years ago, during military exercises, a machine-gun trench was dug atop this tumulus. In any case, its preserved height is about 2.8 m, and its diameter is about 18 m, making it the largest visible tumulus in the Gradca necropolis. It was excavated during 2004 and 2005. Immediately below the first layer of the mound fill, a small cremation grave (85 x 50 cm) was found. It contained just a little soot, a significant quantity of bones, a small ceramic vessel and an iron knife with a belt set made of iron and bronze elements. The grave dates back to around the middle of the 6th century BC. At the top of the chamber, another pile of soot was found with slightly less well-preserved bones, above which were found fragments of a black graphite pot decorated with engraving, a red coarse pot and two trays – and, of metal, the lower part of a bronze multi-headed pin and an iron bead. We found traces of the wooden chamber both in the form of carbonized wood and in impressions at the bottom of the tumulus. The bottom of the chamber was

la. Dno komore je na dva mjesta bilo posuto debljim slojem gara i pepela s pogrebne lomače. U njoj je pronađeno preko 25 keramičkih posuda koje su mogle biti rekonstruirane, među kojima je bilo i nekoliko lonaca ukrašenih brončanim i kositrenim lamelama i jedna posuda ukrašena crnim slikanjem na crvenoj pozadini. Od metalnih nalaza pronađeni su bogati kompleti konjske opreme (brončani kalotasti i križni razvodnici, brončani košarasti privjesci, željezne žvale itd. i oružja (5 željeznih kopalja, 4 željezne sjekire, 2 željezne perle, željezni i brončani mač, željezna pojasna garnitura s brončanim elementima na kojoj su bili kameni brus i željezni nožić). Između keramičkih lonaca pronađena je brončana situla bez ukrasa ispunjena metalnim predmetima: dijelovi vjerojatno 2 zdjelaste kacige, 2 željezna perforirana diska (dijelovi kola?), brončane pravokutne pločice s rupicama na rubu (možda dijelovi oklopa?), drška prije spomenutog brončanog mača i dijelovi njegovih korica, kao i niz drugih još nedefiniranih brončanih i željeznih predmeta. Kostiju su pronalazene na čitavom prostoru prekrivenom garom i paljevinom, uz dvije istaknute nakupine: jedna u samom jugozapadnom kutu komore, a druga ispod pojasne garniture. Ovo je najbogatiji grob starijeg željeznog doba na prostoru Hrvatske pa i šire, a mogao bi biti i jedini dvostruki kneževski grob na području čitave halštatske kulture! Grob se datira u 7. st. pr. Kr. = Ha C (Šoštarić et al. 2017).

TUMUL 7 (GRADCA)

Tumul 7 nalazio se na dnu padine odmah ispod tumula 4 i sjeverozapadno od tumula 6. Riječ je o najistočnijem tumulu u nizu koji se spušta niz padinu od istoka prema zapadu (3, 5, 4, 7). Pravokutni suhozidni kameni obzid vjerojatno je okruživao drvenu komoru. Mali brus pronađen je s vanjske strane komore što upućuje na muški grob. Komora je bila ispunjena zemljom izmiješanom s malim fragmentima kostiju, ugljenom i fragmentima posuda koje su sve vjerojatno materijal s pogrebne lomače. U sjeverozapadnom kutu, na dnu komore bio je polirani crni lonac poklopljen pliticom koji je služio kao urna i sadržavao kosti pokojnika. Grob je datiran u drugu polovinu 7. st. pr. Kr. / prvu polovinu 6. st. pr. Kr. = Ha C2/D1 (Šoštarić et al. 2017).

strewn with a thicker layer of soot and ashes from the funeral pyre in two places. Over 25 ceramic vessels were found in it that could be reconstructed, among which were several pots decorated with bronze and tin lamellae and one vessel decorated with black painting on a red background. Among the metal finds, rich sets of horse equipment (bronze calotte- and cross-shaped strap-dividers, bronze basket-shaped strap-pendants, iron bits etc.) and weapons (5 iron spears, 4 iron axes, 2 iron beads, a sword of iron and another of bronze, and an iron belt set with bronze elements on which there was a stone whetstone and an iron knife). Among the ceramic pots, an undecorated bronze situla was found filled with metal objects: parts of probably 2 bowl-shaped helmets, 2 perforated iron discs (parts of a chariot?), rectangular bronze plates with holes at the edge (perhaps parts of armour?), the handle of the aforementioned bronze sword and parts of its scabbard, as well as a number of other as-yet undefined bronze and iron objects. Bones were found throughout the area covered with soot and charred material, along with two prominent accumulations: one in the very southwest corner of the chamber, and the other under the belt set. This is the richest grave of the Early Iron Age in Croatia and beyond, and it could be the only double princely grave in the entire Hallstatt culture! The grave dates back to the 7th century BC = Ha C (Šoštarić et al. 2017).

TUMULUS 7 (GRADCA)

Tumulus 7 was located at the bottom of the slope immediately below tumulus 4 and northwest of tumulus 6. It is the easternmost tumulus in a series that descends the slope from east to west (3, 5, 4, 7). A rectangular dry-stone wall probably surrounded a wooden chamber. A small whetstone was found on the outside of the chamber, indicating a male grave. The chamber was filled with soil mixed with small bone fragments, charcoal, and fragments of vessels, all of which are probably material from a funeral pyre. In the northwest corner, at the bottom of the chamber, there was a polished black pot covered with a small bowl that served as an urn and contained the bones of the deceased. The grave is dated to the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1 (Šoštarić et al. 2017).

TUMUL 8 (GRADCA)

Dva manja nasipa (poput minijturnih bedema – visine 0.5–1 m) čine granicu groblja tumula na položaju Gradca sa zapadne i istočne strane. Pretpostavljamo da se te dvije konstrukcije na jugu spajaju i na taj način okružuju groblje. Jedini tumul koji je zamijećen izvan tog okruženja je tumul 8 koji se nalazi istočno od tumula 3 s druge strane spomenutog nasipa i trenutnog šumskog puta. Podignut je na kamenom izdanku vjerojatno kako bi vizualno dobio na visini. Tumul je gotovo potpuno izravnisan erozijom, ali u procjepima kamenog izdanka pronašli smo nešto kostiju, nekoliko ulomaka keramike i jedan ukrašeni pršljenak (uteg za vreteno) što bi sugeriralo da je riječ o ženskom grobu. S obzirom da je erozija gotovo u potpunosti uništila tumul, nemamo pouzdanih podataka o njegovoj konstrukciji, a na temelju oskudnih nalaza pretpostavljamo da potječe iz druge polovine 7. st. pr. Kr. / prve polovine 6. st. pr. Kr. = Ha C2/D1.

TUMUL 9 (GRADCA)

Tumul 9 bio je u središtu kružne skupine od pet manjih tumula, južno od kneževskog groba 6 (tumul 13 bio je na zapadnoj strani iste skupine). Nasip je bio relativno nizak i inventar je bio u velikoj mjeri oštećen korištenjem drveća, prvenstveno bagrema (*Robinia pseudoacacia*). Nalazi su se sastojali od nekoliko veoma fragmentiranih keramičkih posuda. Najbolje sačuvan je bio lonac koji je služio kao urna i sadržavao osteološke ostatke i sve metalne nalaze (brončanu perlu, fragment brončanog predmeta – iglu?, dva željezna prstena). Nije bilo vidljivih tragova kamenog obzida ili drvene komore. Tumul 9 predstavlja ženski grob iz druge polovine 7. st. pr. Kr. / prve polovine 6. st. pr. Kr. = Ha C2/D1.

TUMUL 10 (GRADCA)

Jednu četvrtinu tumula je 1975. iskopao I. Mirnik iz Arheološkog muzeja u Zagrebu. Izvadio je četiri posude i zatrpao iskop. Mi smo tijekom 2006. i 2007. istražili cijeli tumul. Ispod zemljanog nasipa bio je kameni obzid koji je na jednoj strani imao nešto poput malog hodnika dužine oko 1 m. Inače, takvi ritualni ulazi u obliku hodnika se nazivaju dromosi i rijetki su u

TUMULUS 8 (GRADCA)

Two small earthen embankments (like miniature ramparts: 0.5–1 m high) form the boundary of the tumulus cemetery at the Gradca location on the western and eastern sides. We assume that these two structures join in the south and thus surround the cemetery. The only tumulus that has been discovered outside this enclosure is tumulus 8, which is located east of tumulus 3 on the other side of the aforementioned mound and the current forest road. It was built on a rocky outcrop, probably to gain height visually. The tumulus was almost completely levelled by erosion, but in the crevices of the stone outcrop we found some bones, a few fragments of pottery and one decorated spindle whorl, which would suggest that it was a woman's grave. Given that erosion has almost completely destroyed the tumulus, we have no reliable data on its construction; and, on the basis of the scarce finds, we assume that it originates from the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1.

TUMULUS 9 (GRADCA)

Tumulus 9 was in the centre of a circular group of five smaller tumuli, south of princely grave 6. (Tumulus 13 was on the western side of the same group.) The mound was relatively low, and the inventory was largely damaged by tree roots, primarily of black locus (*Robinia pseudoacacia*). The finds consisted of several very fragmented ceramic vessels. The best preserved was a pot that served as an urn and contained osteological remains and all metal finds (a bronze bead, a fragment of a bronze object – needle?, two iron rings). There were no visible traces of a stone wall or wooden chamber. Tumulus 9 is a female grave from the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1.

TUMULUS 10 (GRADCA)

A quarter of this tumulus was excavated in 1975 by I. Mirnik of the Archaeological Museum in Zagreb. He removed four vessels and filled up the trench. We excavated the entire tumulus in 2006 and 2007. Under the earthen mound there was a stone wall that had something like a small corridor about 1 m long on one side. Such ritual entrances in the form of a corridor are called *dromoi* (sing. *dromos*) and are rare in the Hallstatt culture, but they are found

halštatskoj kulturi, ali ih ima u raznim krajevima od Alpa do Dunava i uvijek označavaju važne grobove. Unutar obzida je vjerojatno bila drvena komora poput sanduka s poklopcem. Od nje su ostali samo tragovi karboniziranog drveta. Dno komore je bilo posuto materijalom s lomače (pepeo i sitni nalazi) – odakle vjerojatno dolazi i karbonizirani arheobotanički materijal. Na taj sloj su položeni nalazi. Spaljene kosti pokojnika donesene su u urni (katkad i u vreći), ali su često izmiješane i s još nešto materijala s lomače, pa dio arheobotanike možda dolazi i iz tog mikrokonteksta. Radi se o muškom ukopu s početka 7. st. pr. Kr. = Ha C1.

TUMUL 11 (GRADCA)

Tumul 11 bio je smješten sjeverno od tumula 12, malo izvan nasipa/bedema koji je opasavao nekropolu s južne strane. To je najjužniji u liniji od tri tumula (11, 17 i 16) koji su po osi jug – sjever bili položeni u smjeru gradine. Ovo je nešto manji tumul (malo manje od 10 m promjera). Nije bilo tragova kamene konstrukcije, ali se drvena komora mogla definirati po distribuciji nalaza. Činilo se da je niz keramičkih posuda stajao na nekoj vrsti police uz zapadni zid komore i da je sjeverna strana popustila dok je komora još bila prazna (odnosno nije se još urušila pod nasipom tumula). Nekoliko lonaca otkrivenih u komori odgovara uobičajenim halštatskim tipovima, ali su znatno manji (otprilike 2/3 uobičajene veličine) što sugerira da bi ovo mogao biti grob djeteta. Mali željezni nož može biti dio i muške i ženske nošnje, pa je rodno neutralan. Spaljene kosti pronađene su na sloju pepela i gara što odgovara situaciji u ostalim tumulima (ostaci pogrebne lomače rasprostrti po podu komore, a kosti pokojnika donesene u komoru u nekom sad nevidljivom recipijentu: drvena kutija, tekstilna vreća ili košara). Grob je datiran u drugu polovinu 7. st. pr. Kr. / prvu polovinu 6. st. pr. Kr. = Ha C2/D1.

TUMUL 12 (GRADCA)

Tumul 12 nalazi se na sjevernom dijelu nekropole Gradca i drugi je po veličini tumul na spomenutoj nekropoli. Kao i tumul 6, oštećen je iskopom vojnog rova koji je ovdje zahvatio i dobar dio grobne komore. Cjelokupni tumul podignut je na prirodnoj kamenoj podlozi od gnajsa koja se na pojedinim mjestima uzdiže

in various regions from the Alps to the Danube and always mark important graves. Inside the wall there was probably a wooden chamber like a large box with a lid. Only traces of carbonized wood remain of it. The bottom of the chamber was covered with material from the pyre (ashes and small finds) – where the carbonized archaeobotanical material probably came from. The finds were placed on this layer. The burnt bones of the deceased were brought in an urn (sometimes in a sack), but they were often mixed with some other material from the pyre, so part of the archaeobotanics may also come from that micro-context. It is a male burial from the beginning of the 7th century BC = Ha C1.

TUMULUS 11 (GRADCA)

Tumulus 11 was located to the north of tumulus 12, a little outside the earthen enclosure/rampart that encircled the necropolis on the south side. It is the southernmost in a line of three tumuli (11, 17 and 16) that formed a south-north line in the direction of the hillfort. This is a slightly smaller tumulus (a little less than 10 m in diameter). There were no traces of a stone structure, but a wooden chamber could be defined by the distribution of finds. It appears that a row of ceramic vessels stood on some sort of shelf along the west wall of the chamber, and that the north side gave way while the chamber was still empty (i.e. had not yet collapsed under the tumulus mound). Several pots discovered in the chamber correspond to common Hallstatt types, but are considerably smaller (about 2/3 the usual size), suggesting that this may be a child's grave. A small iron knife may have been a part of both male and female costume, and is therefore gender-neutral. The burnt bones were found on a layer of ash and soot, which corresponds to the situation in other tumuli (remains of the funeral pyre spread on the floor of the chamber, and the bones of the deceased brought to the chamber in some now invisible receptacle: wooden box, textile bag or basket). The grave is dated to the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1.

TUMULUS 12 (GRADCA)

Tumulus 12 is located in the northern part of the Gradca necropolis and is the second-largest tumulus in that necropolis. Like tumulus 6, it was damaged by the excavation of a military trench, which also covered a good part of the burial chamber. The entire tumulus was built on a natural stone base made of gneiss, which sometimes

i preko pola metra u odnosu na okolni prostor što dodaje dojamu visine. Na samoj periferiji tumula, odmah pod humusom pronađen je jednostavni lonac s kostima. Vjerojatno je riječ o urni koja je bila ukopana u ravnom terenu neposredno uz tumul, a koju je kasnije djelomično prekrrio erodirani nasip tumula. U blizini središta tumula je otkriveno jedino spalište pronađeno na ovoj nekropoli, na koje se prema sjeveru naslanjala kamena konstrukcija grobne komore teško oštećene vojnim rovom. Spalište je u grubo imalo dimenzije 2 x 1 m i debljinu od oko 50 cm. Taj je prostor bio prekriven sitnim kamenjem ispod kojeg se nalazio debeli sloj paljevine s nalazima, koji je opet ležao na podlozi od krupnijeg kamenja položenoj na prirodnu kamenu podlogu. U spalištu su pronađeni dijelovi čitavog niza različitih posuda od kojih vjerojatno niti jedna nema sve svoje dijelove i sve su bile izložene djelovanju vatre. Pronađeno je i 16 piramidalnih utega tkalačkog stana (15 u spalištu i jedan u rovu oko komore). U spalištu je bio i niz ulomaka spaljenih željeznih i brončanih predmeta koji se ne mogu definirati. Unatoč oštećenjima, bilo je moguće prepoznati dvije čunaste i jednu žičanu fibulu te dva zvonasta privjeska, kao i velik broj okruglih alkica koje su pripadale brončanim lančićima na čijim su krajevima stajali trokutasto oblikovani privjesci od brončanog i željeznog lima ukrašeni iskucavanjem. Pronađena je i brončana plastično oblikovana ptica koja je vjerojatno dio nekog privjeska, ali i velik broj brončanih cilindričnih perlica (vjerojatno dio ogrlice). Nekoliko cilindričnih perlica oblikom potpuno identičnih brončanim primjercima načinjen je od elektruma – to su prvi nalazi plemenitih metala na kaptolskim nalazištima. Nađeno je i nekoliko ukrašenih koštanih predmeta (vjerojatno privjesaka na ogrlici i našivaka na nošnji) kao i bogato ukrašeni drveni gumb. U komori je pronađen jedan veći lonac i dvije zdjele. Lonac i jedna zdjela sadržavali su spaljene kosti i pepeo kao i mnoštvo sitnih nalaza ukrašenog brončanog lima, alkica, cilindričnih perli, manjih okruglih (koštanih i/ili staklenih) perlica, nekoliko predmeta od željeza i fragmentiranih koštanih ukrasa (ulomak figuralnog prikaza jahača na konju, itd.). Možda je riječ o ženi čiji visoki status i iznimna važnost proizlaze iz visokog položaja u religijskoj strukturi navedene zajednice, odnosno ukopu neke vrste svećenice. Grob je datiran u drugu polovinu 7. st. pr. Kr. / prvu polovinu 6. st. pr. Kr. = Ha C2/D1.

risers over half a metre in relation to the surrounding area, which adds to the impression of height. A simple pot with bones was found at the very periphery of the tumulus, right under the humus. It is probably an urn that was buried in the flat ground immediately next to the tumulus, and which was later partially covered by the eroded mound of the tumulus. Near the centre of the tumulus, we discovered the only remains of a pyre at this necropolis. Right next to it was the stone structure of a burial chamber heavily damaged by the military trench. The pyre had dimensions of roughly 2 x 1 metre and a thickness of about 50 cm. This area was covered with small stones, under which was a thick layer of burnt material with finds, which in turn lay on a bed of larger stones laid on a natural stone bed. Parts of a whole series of different vessels were found in the cremation ground, none of which were complete, and all of which had been exposed to the fire. Sixteen pyramidal loom weights were also found (15 in the cremation ground and one in the trench around the chamber). The pyre also contained a series of fragments of burnt iron and bronze objects that cannot be defined. Despite the damage, it was possible to identify two cone-shaped and one wire fibula and two bell-shaped pendants, as well as a large number of small rings that belonged to bronze chainlets that ended in embossed triangular-shaped pendants made of bronze and iron sheet. A bronze figure of a bird was also found, which is probably part of a pendant, but also a large number of bronze cylindrical beads (probably part of a necklace). Several cylindrical beads with a shape completely identical to the bronze specimens were made of electrum; these are the first finds of precious metal at the Kaptol sites. Several decorated bone objects were also found (probably pendants on a necklace and buttons on clothes) as well as a richly decorated wooden button. One large pot and two bowls were found in the chamber. The pot and one bowl contained burnt bones and ashes, as well as numerous small finds of decorated bronze sheet metal, anklets, cylindrical beads, smaller round (bone and/or glass) beads, several iron objects and fragmented bone ornaments (a fragment of a figurative representation of a rider on a horse, etc.). Perhaps this is a woman whose high status and exceptional importance stem from her high position in the religious structure of the aforementioned community, or the burial of some kind of priestess. The grave is dated to the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1.

TUMUL 13 (GRADCA)

Tumul 13 bio je rubni tumul u skupini od pet manjih tumula koji se nalaze južno od kneževskog tumula 6. Sondiran je 2007. kada je utvrđeno je da je riječ o veoma plitkom nasipu teško devastiranom korijenjem drveća, pa je pronađeno tek nešto ulomaka keramike koji upućuju da je riječ o loncima iz nekadašnjeg grobnog inventara. Nisu uočeni nikakvi tragovi kamenog obzida ili drvene konstrukcije komore. Istraživanje je dovršeno 2010. Osim već spomenutih nekoliko fragmentiranih posuda u središnjem dijelu tumula, u jugoistočnom kvadrantu pronađena je grobna jama kružnog oblika promjera od oko 40 cm. Svi uzorci dolaze iz ove cjeline. Dno jame je bilo posuto materijalom sa spališta, a nekoliko fragmenata različitih posuda manjih dimenzija pronađeno je u zapuni jame oko globularnog lonca koji je služio kao urna za spaljene kosti pokojnika među kojima je kao prilog pronađena samo jedna mala brončana narukvica pravokutnog presjeka. Urna je bila poklopljena pliticom, a uz nju na istočnoj strani stajala je i jedna dublja plitica. Jama se nalazi uz izduženi izdanak kamene podloge koji nalikuje zidu, a nije isključeno i da je svjesno upotrijebljen, možda i modificiran u slaganju grobne konstrukcije. Preliminarna antropološka analiza upućuje da je riječ o dječjem grobu, datiranim u 7. st. pr. Kr. / prvu polovinu 6. st. pr. Kr. = Ha C/D1 (Šoštarić et al. 2016).

TUMUL 14 (GRADCA)

Tumul 14 bio je smješten istočno od tumula 12, s druge strane recentnog šumskog puta. Bio je jedva vidljiv u trenutku istraživanja (mala uzvisina visine oko 30 cm i promjera od oko 3 m), ali se ispostavilo da je riječ o znatno većem tumulu koji je, čini se, u najvećoj mjeri zasut nekim prirodnim procesom. Ispod kamene obloge stajale su tri odvojene drvene konstrukcije (sanduka) ispunjene paljevinom sa spališta koja obiluje arheobotaničkim materijalom i veoma malo drugog materijala. Urna s pepelom i kostima bila je položena na gornji dio središnje kamene konstrukcije i poklopljena pliticom preko koje je opet bilo složeno nekoliko manjih komada kamena. S vanjske strane komore pronađeno je nekoliko fragmentiranih lonaca iznimne kvalitete i jedna zdjela s tordiranom ručkom i grafnim slikanjem na

TUMULUS 13 (GRADCA)

Tumulus 13 was a marginal tumulus in a group of five smaller tumuli located south of the princely tumulus 6. It was excavated in 2007, when it was determined that it was a very shallow mound severely devastated by tree roots, and only a few ceramic fragments were found, indicating that these were pots from the former grave inventory. No traces of a stone wall or the wooden structure of a chamber were observed. The excavation was completed in 2010. In addition to the aforementioned few fragmented vessels in the central part of the tumulus, a circular burial pit with a diameter of about 40 cm was found in the south-eastern quadrant. All samples come from this unit. The bottom of the pit was covered with material from the pyre, and several fragments of various smaller vessels were found in the pit fill around a globular pot that served as an urn for the cremated bones of the deceased, among which only one small bronze bracelet was found, of rectangular cross-section. The urn was covered with a small bowl, and another bowl was placed next to it on the eastern side. The pit is located next to an elongated outcrop of stone foundation that resembles a wall, and it is not excluded that it was consciously used, perhaps modified in the construction of the tomb. Preliminary anthropological analysis indicates that this is a child's grave, dated to the 7th century BC / first half of the 6th century BC = Ha C/D1 (Šoštarić et al. 2016).

TUMULUS 14 (GRADCA)

Tumulus 14 was located east of tumulus 12, on the other side of a recent forest road. It was barely visible at the time of the investigation (a small elevation about thirty centimetres high and about 3 m in diameter), but it turned out to be a much larger tumulus that seems to have been covered by a thick layer of sediment as a result of some natural process. Under the stone wall we discovered three separate wooden structures (boxes) filled with charred material from the pyre, which is abundant in archaeobotanical material and very little other material. An urn with ashes and bones was placed on the upper part of the central stone structure and covered with a small bowl over which stood several smaller stones. On the outside of the chamber, several fragmented pots of exceptional quality were found, as well as one bowl with a twisted handle and graphite painting on a black background. In the chamber itself, an

crnoj podlozi. U samoj komori pronađeni su željezni nožić u istočnom sanduku i dva željezna koplja uz zapadnu stranicu istog sanduka. Na sjevernoj strani središnjeg prostora između istočnog i zapadnog sanduka pronađena je veoma fragmentirana crvena zdjela na nozi s crnim slikanjem. Tumul je bio podignut na kamenom popločenju koje je prethodilo gradnji tumula i moguće je da nije povezan s prvobitnom funkcijom ove konstrukcije. Na to upućuje i činjenica da ne znamo koliko je proteklo od nastanka kamenog popločenja do nasipanja tumula. Teško da je riječ o nivelaciji terena jer je nema sa zapadne strane tumula, a na drugu namjenu upućuju i tragovi drvenih stupova koji su, čini se, bili uglavljeni između kamenja od kojeg se sastoji popločenje, ali ih pronalazimo i izvan njega. Grob muškarca potječe iz druge polovine 7. st. pr. Kr. / prve polovine 6. st. pr. Kr. = Ha C2/D1 (Šošćarić et al. 2016).

TUMUL 15 (GRADCA)

Tumul 15 istraživao je još 1975. godine kada su, na žalost, unišćeni neki elementi koji nam danas onemogućuju kvalitetan opis ove cjeline. Vjerojatno je sadržavao središnju komoru od drveta koja, čini se, nije imala izražen suhozidni obzid. Dno komore je bilo prekriveno materijalom sa spališta (gar, pepeo, fragmentirani nalazi), ali nikakve druge detalje o sadržaju komore ne možemo dati uslijed potpunog izostanka cjelovitih nalaza. U tom smislu, vjerojatno se možemo složiti s prethodnim istraživačima da je riječ o opljačkanom tumulu. Unatoč tomu, pronalazak dromosa (pogotovo u svjetlu nedavnog otkrića goleme konstrukcije s dromosom pod tumulom III na nekropoli Čemernica) ukazuje na to da je riječ o izuzetno važnoj, ali nažalost teško oštećenoj cjelini koja će nedostajati za razumijevanje strukture čitave nekropole na položaju Gradca.

TUMUL III (ČEMERNICA)

Prvi istraživači (V. Vejvoda i I. Mirnik) opisali su Tumul III kao najveći vidljiviumul nekropole na Čemernici, ali je tijekom istraživanja 1967. tek sondiran jer je interpretiran kao kulćni objekt. Revizijskim zašćitnim istraživanjima 2009. pronađena je monumentalna i kompleksna središnja konstrukcija dimenzija oko 8 x 8 m. Jezgru te konstrukcije činila je drvena prostorija dimenzija oko 5 x 5 m s krovnom konstrukcijom koja se

iron knife was found in the eastern chest and two iron spears were found along the western side of the same chest. A highly fragmented bowl on a foot with black painting on a red background was found on the north side of the central space between the eastern and western chests. The tumulus was built on a stone pavement that preceded the construction of the tumulus and may not have been connected to the original function of this structure. This is also indicated by the fact that we do not know how long a period elapsed between the construction of the stone pavement and that of the tumulus. It is unlikely that this was a matter of levelling of the terrain, as it is absent on the western side of the tumulus. There are also traces of wooden posts that seem to have been wedged between the stones that make up the pavement, but are also found outside it. All of that indicate that this construction probably had another purpose, unrelated to the tumulus. The grave of a man dates from the second half of the 7th century BC / first half of the 6th century BC = Ha C2/D1 (Šošćarić et al. 2016).

TUMULUS 15 (GRADCA)

Tumulus 15 was excavated back in 1975, when some elements were unfortunately destroyed, which today prevents us from providing a good description of this tumulus. It probably contained a central wooden chamber that did not seem to have a pronounced dry-stone wall. The bottom of the chamber was covered with material from the cremation ground (char, ash, fragmented finds), but we cannot provide any other details about the contents of the chamber, due to the total absence of complete finds. Thus, we can probably agree with previous researchers that this is a looted tumulus. Nevertheless, the discovery of a dromos (especially in light of the recent discovery of a huge construction with a dromos under tumulus III at the Čemernica necropolis) indicates an exceptionally important unit, but unfortunately severely damaged, which remains lacking for an understanding of the structure of the entire necropolis at the Gradca location.

TUMULUS III (ČEMERNICA)

The first researchers (V. Vejvoda and I. Mirnik) described tumulus III as the largest visible tumulus of the necropolis at Čemernica; however, during research in 1967 it was only probed, because it was interpreted as a cult object. In 2009, a complex, monumental central structure with dimensions of about 8 x 8 m was found during revision

oslanjala na tri reda stupova, a s vanjske strane okruživala ju je složena suhozidna konstrukcija s pojedinim drvenim elementima. U prostori-ji su pronađene tri posude za sada nepoznatog sadržaja dok je četvrta, ispunjena pepelom i kostima, pronađena neposredno na prijelazu u ritualni prolaz, dromos, širok oko 1,5 m koji se nastavljao na središnju konstrukciju u dužini od oko 8 m. Sastojao se od drvene konstrukcije na tri para stupova koje su obrubljavala dva paralelna kamena zida. Unutrašnjost dromosa bila je prekrivena garom i ostacima s pogrebne loma-če, a s vanjske strane bio je obrubljen širokim, polukružnim kamenim popločenjem. Vjerojatno su na čitavom prostoru bili provođeni složeni rituali, a potom je preko svega nasut humak. U jednom trenutku, nakon zatvaranja komore, u njoj je na zapadnom zidu načinjen prolaz do kojeg je vodio dugački rov. Spomenuti prolaz u zidu je potom zatvoren masivnom drvenom gredom, a iskop zapunjen finim pijeskom kakvoga nema u bližoj okolici. Čitav tumul podignut je na podlozi koja sugerira vlažno, možda i močvarno okruženje. U nasipu tumula pronađeno je dosta litičkog oruđa kao i ulomaka neolitičke keramike što ukazuje na postojanje naselja iz tog razdoblja u neposrednoj blizini, a čiji su ostaci pronađeni i ispod središnje konstrukcije ovog tumula. Uz dromos, pronađena je i jama koja je uz neolitičku sadržavala i ulomke srednjobrončanodobne keramike. Ovaj tumul je datiran u kraj 7. st. pr. Kr. = Ha C2 (Šoštarić et al. 2020).

TUMUL XI (ČEMERNICA)

Tumul XI („Volarska glavica“) bio je najsje-verniji i najveći tumul nekropole na Čemernici, ali je tijekom istraživanja 1971. pod vodstvom V. Vejvode i I. Mirnika tek djelomično istražen. Re-vizijskim zaštitnim istraživanjima 2007. dobive-ne su dragocjene spoznaje o konstrukciji grob-ne komore. Na niveliranoj podlozi od sivkaste gline izgrađena je drvena komora koja je sa-državala paljevinske ostatke (pretpostavljamo pokojnika) i grobne priloge. Unutrašnji dio ko-more bio je načinjen od debelih drvenih dasa-ka, dok se krovna konstrukcija oslanjala na dva niza debelih drvenih stupova ukopanih u sredi-ni komore. Oko unutrašnjeg drvenog sanduka postojala je i vanjska drvena konstrukcija koja je vjerojatno bila načinjena od balvana, a u ku-tovima te konstrukcije također su stajali debeli drveni koso položeni stupovi koji možda suge-riraju neki oblik iskošene krovne konstrukcije.

and protective excavation. The core of that struc-ture was a wooden room with dimensions of about 5 x 5 m with a roof structure that rested on three rows of columns, surrounded on the outside by a complex dry-wall construction with some wood-en elements. Three vessels of unknown contents were found in the room, while a fourth, filled with ashes and bones, was found directly at the tran-sition to the ritual passage, the dromos, about 1.5 m wide and about 8 m long, which led to the central structure. It consisted of a wooden struc-ture on three pairs of columns bordered by two parallel stone walls. The interior of the dromos was covered with soot and remains from a funeral pyre, and it was bordered on the outside with a wide, semi-circular stone pavement. It is likely that complex rituals were performed on the en-tire area, and then a mound was piled over it. The entire tumulus was built on soil that suggests a damp environment, perhaps even marshy. A large number of lithic tools were found in the tumulus embankment, as well as fragments of Neolithic pottery, which indicates the existence of a settle-ment from that period in the immediate vicinity, remains of which were also found under the cen-tral structure of this tumulus. A pit was also found next to the dromos, which, in addition to Neolit-hic pottery, also contained fragments of Middle Bronze Age pottery. This tumulus dates back to the end of the 7th century BC = Ha C2 (Šoštarić et al. 2020).

TUMULUS XI (ČEMERNICA)

Tumulus XI (‘Volarska glavica’) was the north-ernmost and largest tumulus of the necropolis at Čemernica, but it was only partially explored dur-ing the 1971 excavations led by V. Vejvoda and I. Mirnik. The revisional protective excavations in 2007 yielded valuable insights into the construc-tion of the burial chamber. A wooden chamber containing cremated remains (we assume the deceased), and grave goods was built on a lev-elled greyish clay. The inner part of the chamber was made of thick wooden planks, while the roof structure rested on two rows of thick wooden posts dug into the middle of the chamber. Around the inner wooden chest there was also an outer wooden structure, which was probably made of large posts, and in the corners of this structure there were also thick wooden posts placed at an angle, which perhaps suggest some form of a sloping roof structure.

The finds also provide an extremely interesting

Izuzetno zanimljivu sliku daju i pokretni nalazi. U jugoistočnom kutu komore, pronađeno je mnoštvo ulomaka najmanje pet (a vjerojatno i više) različitih posuda. U blizini je pronađen željezni okov sa sačuvanim čavlicima pravokutnog presjeka u kojem je ostao sačuvan komad drveta, a s okova su, čini se, visjela dva željezna prstena.

Na samom vrhu komore, pronađena je višeglava brončana igla u izvrsnom stanju, a po sredini zapadne strane komore pronađena je malena nakupina kostiju s jednim željeznim nožićem i fragmentiranim kamenim brusom lepezastog oblika.

Najveća koncentracija pokretnih nalaza unutar ovog tumula pronađena je u sjeverozapadnom dijelu komore i sastojala se od pet fragmentiranih željeznih ražnjeva s alkom koji su bili položeni preko izuzetno bogatog kompleta keramičkih posuda. U spomenutom kompletu bila su i dva lonca s izvijenim obodom od crvene keramike s grafitno slikanim geometrijskim ukrasom preko kojeg su bile nalijepljene vjerojatno kositrene lamele. Svakako treba spomenuti još dvije crne grafitirane posude na nozi od kojih je jedna velikih dimenzija i ukrašena je buklama. Tu je i crni grafitirani lonac također ukrašen kositrenim lamelama te još jedna veoma fragmentirana crna posuda (vjerojatno zdjela). Na dnu cijele skupine pronađeni su fragmenti dva mala crna askosa bez ručke i jednog crnog pseudokernosa. Riječ je o grobu muškarca, ali u kojem nema oružja. Datiran je u 7. st. pr. Kr. = Ha C (Šoštarić et al. 2020).

MATERIJAL I METODE

Nakon raščišćavanja terena uklanjanjem vegetacije, tumuli su iskopavani križnom metodom s pomakom u sredini, kako bi se kontrolni profili spajali u jednoj točki. Na taj način smo dobili dva okomita neprekinuta presjeka kroz tumul. Ukoliko je u sredini tumula bio kameni obzid komore, kontrolni profili bi se uklonili prije otvaranja grobne komore. Praćenje stratigrafskih jedinica, te dokumentiranje pokretnih nalaza i uzoraka provodilo se u skladu sa standardima struke. Svaki tumul je iskopan do sterilnog tla ili, što je češći slučaj, do prirodne kamene podloge.

Prvi tumuli koji su istraživani i arheobotanički analizirani bili su tumuli 1, 6 i 7. U njima su arheobotanički uzorci sedimenta uzimani sustavno iz svih dijelova grobne komore, te iz izdvojenih

picture. In the southeast corner of the chamber, numerous fragments of at least five (and probably more) different vessels were found. Nearby, an iron fitting was found with a preserved piece of wood and nails of rectangular cross-section, and two iron rings seemed to hang from the fitting.

At the very top of the chamber, a multi-headed bronze pin in excellent condition was found, and in the middle of the western side of the chamber, a small cluster of bones with an iron knife and a fragmented whetstone was found.

The largest concentration of finds within this tumulus was found in the northwest part of the chamber and consisted of five fragmented iron spits with a ring that were laid over an exceptionally rich set of ceramic vessels. The set also included two pots with a curved rim made of red ceramic with a graphite-painted geometric decoration which was at some point covered by tin lamellae. It is certainly worth mentioning two more black graphited vessels on a foot, one of which is large and decorated with buckles. There is also a black graphited pot, also decorated with tin lamellae, and another black vessel (probably a bowl), very fragmented. At the bottom of the entire group, there were two small fragmented black askoi without handles, and one black pseudokernos. This is a male grave, but without weapons. It is dated to the 7th century BC = Ha C (Šoštarić et al. 2020).

MATERIALS AND METHODS

After clearance of the terrain by removal of vegetation, the tumuli were excavated using the cross-section method with a shift in the middle, so that the control profiles would connect at one point. In this way, we obtained two vertical, uninterrupted sections through the tumuli. If there was a stone chamber wall in the middle of a tumulus, the control profiles would be removed before the burial chamber was opened. Monitoring of stratigraphic units and documentation of movable finds and samples was carried out in accordance with professional standards. Each tumulus was excavated to sterile soil or, more often, to the natural stone bed.

The first tumuli to be investigated and archaeobotanically analysed were tumuli 1, 6 and 7. In them, archaeobotanical sediment samples were taken systematically from all parts of the burial chamber and from isolated parts such as vessels etc. The results revealed two important

dijelova poput posuda i sl. Rezultati su pokazali dvije važne činjenice vezane za lokalitet u Kaptolu: tumul 1 je pokazao s koliko opreza treba uzimati u obzir nekarbonizirane biljne nalaze i kontekst u kojem su nađeni (Šoštarić et al. 2007), dok su tumuli 6 i 7 pokazali da ne postoji nikakav posebni obrazac ni dosljednost u unutrašnjem rasporedu nalaza grobnih komora (Šoštarić et al. 2017). Zbog toga se sa sustavnog uzorkovanja sedimenata za arheobotaničku analizu prešlo na ciljano uzorkovanje prvenstveno iz slojeva s tragovima ugljena.

Kopnjeni lokaliteti izdignuti iznad jezera ili jarka s konstantno visokom razinom podzemnih voda, kakav je Kaptol, imaju prilično loše i varijabilne uvjete za očuvanje organskog materijala. Zbog toga su se u svim tumulima uzorkovale veće količine sedimenta (minimalno 10 l), prvenstveno s vidljivim garom, iz grobnih komora i iz dromosa, ovisno o pojedinom tumulu. Također su uzimani uzorci i iz različitih posuda, te povremeno i ručno, kada su ih arheolozi uočili tijekom iskopavanja (tab. 1).

U obradi uzoraka sedimenata koristile su se dvije metode: standardna metoda flotacije uz pomoć flotacijskog uređaja (usp. Pearsall 2000: 14–59) za sve uzorke sedimenata i, po potrebi, dodatno suho prosijavanje teške frakcije kroz sita. Uzorci sedimenta (tab. 1) počeli su se procesuirati već na terenu, tijekom iskopavanja, metodom flotacije uz pomoć flotacijskog uređaja, pri čemu su za laku frakciju korištene mreže veličine pora 1 i 0,5 mm. Dvije lake frakcije su nakon sušenja pakirane u plastične vrećice s preciznim signaturama i dostavljane u Botanički zavod Biološkog odsjeka Prirodoslovno-matematičkog fakulteta u Zagrebu. Iz teške frakcije su izdvojeni nalazi poput keramike, kostiju, metala i sl., ali kako se radilo o finom i dosta „ljepljivom“ sedimentu, teška frakcija je nakon prvog pregleda sušena i pakirana sa signaturama, te također dostavljana u laboratorij. Pregledavane su i analizirane obje frakcije: i teška i dvije lake, jer je primijećeno da dio biljnih ostataka zapne i u teškoj frakciji. Iz teške frakcije su, po potrebi, najprije izdvajani крупniji komadi kamenja, keramike i kostiju, a zatim je dodatno suho prosijavana kroz dva sita veličina pora 2,5 i 1,0 mm. Pri prosijavanju teške frakcije je korišteno zatvoreno dno, pa je provjeravan, pregledavan i prosijani sediment. Biljni ostaci i prosijani uzorci su pregledavani pomoću binokularne lupe povećanja do 40 x. Izolirani i sortirani biljni ostatci su potom determinirani uz pomoć

facts relating to the Kaptol site: tumulus 1 showed how cautiously uncarbonized plant finds and the context in which they were found should be considered (Šoštarić et al. 2007), while tumuli 6 and 7 showed that there was no particular pattern or consistency in the internal arrangement of the burial-chamber finds (Šoštarić et al. 2017). Therefore, the systematic sampling of sediments for archaeobotanical analysis was switched to targeted sampling primarily from layers with traces of charcoal.

Terrestrial sites elevated above lakes or ditches with a consistently high groundwater level, such as Kaptol, have rather poor, variable conditions for the preservation of organic material. For this reason, large quantities of sediment (minimum 10 l) were sampled in all tumuli, primarily with visible traces of burning, from burial chambers and from dromoi, depending on the individual tumuli. Samples were also taken from various vessels, and occasionally by hand, when archaeologists noticed them during excavation (Tab. 1).

Two methods were used in the processing of sediment samples: the standard flotation method using a flotation machine (cf. Pearsall 2000: 14–59) for all sediment samples, and additional dry sieving of the heavy fraction, if necessary. Sediment samples (Tab. 1) began to be processed already in the field, during excavation, using the flotation machine, with sieves with mesh sizes of 1 and 0.5 mm being used for the light fraction. After drying, the two light fractions were packed in plastic bags with precise signatures and delivered to the Division of Botany of the Biology Department of the Faculty of Science in Zagreb. Finds such as ceramics, bones, metals etc. were separated from the heavy fraction, but since the sediment was fine and quite ‘sticky’, the heavy fraction was dried after the first examination and packed with signatures and also delivered to the laboratory. Both fractions were examined and analysed – the heavy and the two light ones – because it was noticed that some of the plant remains got stuck in the heavy fraction as well. If necessary, larger pieces of stones, ceramics and bones were first separated from the heavy fraction, and then additionally dry-sieved through two sieves with pore sizes of 1.0 and 2.5 mm. In sieving heavy fraction, a closed bottom was used, so the sifted sediment was also checked and examined. Plant remains and sieved samples were examined using a binocular magnifier with up to 40× magnification. The isolated and sorted plant remains were

literaturnih izvora (Akeret, Jacomet 2010; Beijerinck 1976; Cappers, Bekker 2013; Cappers, Neef 2021; Jacomet 2006; Kohler-Schneider 2001), te recentne karpološke zbirke Botaničkog zavoda PMF-a.

Nomenklatura je usklađena prema Flora Croatica Database (Nikolić 2015). U tablicama i tekstu su korištena tradicionalna imena žitarica jer su jednostavnija i lakše razumljiva interdisciplinarnoj publici. Validna imena žitarica, prema Cappers i Neef (2021: 140, 156–157) su *Hordeum vulgare* za ječam *sensu lato*, a uključuje dvoredni (*H. vulgare* subsp. *distichon*) i šesteroredni ječam (*H. vulgare* subsp. *vulgare*), koji se zbog loše očuvanosti materijala nisu mogli razlikovati; *Triticum aestivum* s.l. se odnosi na grupu nepljevičastih pšenica, a uključuje običnu ili krušnu pšenicu (*T. aestivum* subsp. *aestivum*), tvrdu ili durum pšenicu (*T. turgidum* subsp. *durum*), te englesku ili bijelu pšenicu (*T. turgidum* subsp. *turgidum*); *Triticum monococcum* (= *T. monococcum* subsp. *monococcum*, jednozrna pšenica ili jednozrni pir); *Triticum dicoccum* (= *T. turgidum* subsp. *dicoccum*, dvozrna pšenica ili dvozrni pir); *Triticum spelta* (= *T. aestivum* subsp. *spelta*, prava pšenica ili pravi pir). Cijela zrna/plodovi/sjemenke, njihove polovice i manji dijelovi – ako su imali prepoznatljive karakteristike, brojani su kao jedan nalaz. Kako istraživanja ovog lokaliteta traju više od 20 godina, u uzorcima pojedinih tumula brojani su i sitniji, neprepoznatljivi fragmenti i svrstavani u kategoriju „neprepoznatljivih“ (Indet.) te kao takvi samo djelomično korišteni u interpretaciji i statističkim prikazima.

Analiza sličnosti (ANOSIM) provedena je kako bi se testirale značajne razlike između dvije *a priori* definirane skupine (muškarci – žene). Analiza se temeljila na Bray-Curtisovim matricama sličnosti, s 999 permutacija korištenih za procjenu statističke značajnosti. Ovaj neparametrijski test proveden je kako bi se procijenilo jesu li uočene razlike između skupina veće od onih unutar skupina.

Analiza postotka sličnosti (SIMPER) korištena je kako bi se utvrdilo koje su kategorije hrane najviše doprinijele razlikama između dvije *a priori* definirane skupine na temelju spola (muški i ženski). Analiza je provedena na temelju Bray-Curtisovih matrica sličnosti (granica za niske doprinose: 90 %) i izračunatih prosječnih sličnosti unutar skupine, kao i prosječne razlike između skupina. Rezultati su pokazali koje su stavke najsnažnije

then identified using literature sources (Akeret, Jacomet 2010 ; Beijerinck 1976; Cappers, Bekker 2013; Cappers, Neef 2021; Jacomet 2006; Kohler-Schneider 2001) and recent carpological collections of the Division of Botany of the Faculty of Science.

The nomenclature follows Nikolić (2015 – Flora Croatica Database). In the text and tables, traditional names of cereals are used which are common and easily understandable in interdisciplinary research. Valid names of cereals, according to Cappers and Neef (2021: 140, 156–157) are: *Hordeum vulgare* for barley *sensu lato*, including two-row barley (*H. vulgare* subsp. *distichon*) and six-row barley (*H. vulgare* subsp. *vulgare*), which could not be reliably distinguished; *Triticum aestivum* s.l., referring to the group of free-threshing wheat, including bread wheat (*T. aestivum* subsp. *aestivum*), durum or hard wheat (*T. turgidum* subsp. *durum*) and rivet wheat (*T. turgidum* subsp. *turgidum*); *Triticum monococcum* (= *T. monococcum* subsp. *monococcum*, einkorn); *Triticum dicoccum* (= *T. turgidum* subsp. *dicoccum*, emmer); *Triticum spelta* (= *T. aestivum* subsp. *spelta*, spelt). Whole grains/fruits/seeds, halves and smaller parts of them, if they had recognizable characteristics, were counted as one find. As the research into this site has lasted for more than 20 years, smaller, unrecognizable fragments were also counted in the samples of individual tumuli and classified in the category of ‘unrecognizable’ (Indet.) and as such were only partially used in the interpretation and statistical presentations.

Analysis of Similarities (ANOSIM) was performed to test for significant differences between the two *a priori* defined groups (male – female). The analysis was based on Bray-Curtis similarity matrices, with 999 permutations used to assess statistical significance. This non-parametric test was conducted to evaluate whether the observed differences between groups were greater than those within groups.

Similarity Percentage (SIMPER) analysis was used to determine which food categories contributed most to the dissimilarity between the two *a priori* defined sex-based groups (male and female). The analysis was based on Bray-Curtis similarity matrices (cut-off for low contributions: 90%) and calculated average within-group similarities, as well as average between-group dissimilarities. The results indicated which items most strongly influenced group separation by quantifying their contribution to the overall dissimilarity.

utjecale na razdvajanje skupina kvantificiranjem njihovog doprinosa ukupnim razlikama. Obje analize su provedene u programskom paketu Primer 6.1.13 (Clarke, Gorley 2005).

Nakon kvantitativne analize, sortiranja i označavanja, sav izoliran biljni materijal pohranjen je u Botaničkom zavodu PMF-a i dostupan na uvid.

Iz uzoraka sedimenata su izdvojeni i dobro očuvani ostaci karboniziranog drva, međutim, još uvijek nisu analizirani.

REZULTATI I RASPRAVA

Tijekom više od 20 godina sustavnih interdisciplinarnih istraživanja nekropola u Kaptolu, uzorkovani su sedimenti za arheobotaničke analize iz 15 od ukupno 25 nađenih tumula na položaju Gradca te dva sačuvana tumula na položaju Čemernica. Od ukupno 17 tumula, šest ih nije sadržavalo karbonizirane karpološke biljne ostatke (tab. 1). Ostali grobovi su sadržavali različite količine nalaza: od minimalnih 2 nalaza iz tumula 3, odnosno 9 determiniranih nalaza iz tumula 11, do značajnih 23 610 determiniranih nalaza iz tumula 10 (tab. 1–2). Iz uzoraka sedimenata i posuda izdvojeno je ukupno 47 858 karboniziranih biljnih ostataka (tab. 1) od čega je identificirano njih 46 829 do taksonomske razine do koje je to bilo moguće s obzirom na stupanj očuvanosti materijala (tab. 2).

Na tragu vatre i gara

Relativno brzo nakon iskopavanja prvog tumula 2000. godine (tumul 1) napravljena je arheobotanička karpološka analiza koja je pokazala da nekarbonizirane biljne nalaze u grobnom prostoru treba uzeti s puno opreza, bez obzira na jasan i neupitan kontekst iz kojeg dolaze. Naime, u grobnoj komori pronađena je izdvojena keramička posudica prepuna nekarboniziranih plodova i sjemenki za koje je AMS datacija pokazala da su recentna kontaminacija i ispostavilo se da se radi o mravljjoj smočnici, a ne pogrebnom običaju. U ostalim dijelovima komore, iz kojih su uzorci uzimani sustavno i ravnomjerno, nalaza ili nije bilo ili tek nekoliko pojedinačnih nekarboniziranih (Šoštarić et al. 2007). Zbog toga je odlučeno da se nekarbonizirani biljni ostaci neće uzimati u obzir u interpretaciji nalaza, odnosno, ukoliko se pojavi novi, jedinstveni nalaz – svakako će biti direktno datiran.

Među najranije istraživanim tumulima bili su tumul 6 i 7 u kojima su uzorci sedimenta za arhe-

Both analyses were performed in the Primer 6.1.13 program package (Clarke, Gorley 2005).

Since quantitative analysis, sorting and labeling, all isolated plant material has been stored in the Division of Botany of the Faculty of Science and is available to interested researchers.

Well-preserved remains of carbonized wood have been isolated from the sediment samples, but have not yet been analysed.

RESULTS AND DISCUSSION

During more than 20 years of systematic interdisciplinary research on the necropolis in Kaptol, sediments have been sampled for archaeobotanical analysis from 15 of the 25 tumuli found at the Gradca site and two preserved tumuli at the Čemernica site. Of the 17 tumuli, six did not contain carbonized carpological plant remains (Tab. 1). The remaining graves contained varying numbers of finds: from a minimal 2 finds from tumulus 3, or 9 determined finds from tumulus 11, to a significant 23,610 determined finds from tumulus 10 (Tabs. 1–2). A total of 47,858 carbonized plant remains were extracted from sediment and vessel samples (Tab. 1), of which 46,829 were identified to the taxonomic level that was possible, considering the level of preservation of the material (Tab. 2).

On the trail of fire and charcoal

Relatively soon after the excavation of the first tumulus in 2000 (tumulus 1), an archaeobotanical carpological analysis was performed, which showed that uncarbonized plant finds in the burial area should be taken with great caution, regardless of the clear, unquestionable context from which they come. A separate ceramic vessel full of uncarbonized fruits and seeds was found in the burial chamber, of which AMS dating showed that they were recent contamination, and it turned out that this was an ant larder, not a funerary custom. In other parts of the chamber, from which samples were taken systematically and evenly, there were either no finds or only a few individual uncarbonized ones (Šoštarić et al. 2007). Therefore, it was decided that uncarbonized plant remains would not be included in the interpretation of the finds – or that, if a new, unique find appeared, it would certainly be directly dated.

Among the earliest investigated tumuli were tumuli 6 and 7, in which sediment samples for archaeobotanical analysis of macro-remains were taken evenly from different parts of the burial

TUMUL / TUMULUS	SPOL I BROJ POKOJNIKA / GENDER AND NUMBER OF DECEASED	KONTEKST NALAZA / CONTEXT OF THE FINDINGS	KOLIČINA UZORAKA (LITRE) / SAMPLE QUANTITY (LITRES)	UKUPAN BROJ BILJNIH NALAZA (det. i indet.) / TOTAL NUMBER OF PLANT FINDS (det. and indet.)	BROJ BILJNIH NALAZA PO 1 LITRI UZORKA / NUMBER OF PLANT FINDS PER 1 LITRE OF SAMPLE
T 1	F?	US	58	0	0
T 2	M	US	40	0	0
T 3	F?	US	32	2	0,06
(T 4)	? (?T)	US	30	0	0
T 5	F + I	US + PN	70	0	0
T 6	2 (M + M)	US + PN	432,5	2 356	5,45
T 7	M	US + PN	123	640	5,20
T 8	F	US	30	0	0
T 9	F	US + PN	30	0	0
T 10	M	US + PN + RS	148	23 974	161,99
T 11	F (I?)	US + PN	30	14	0,47
T 12	F	US + PN + RS	62,5	92	1,47
T 13	I?	US + PN + RS	10	140	14,00
T 14	M	US + PN + RS	50	3 880	77,60
T 15	? (?M)	US	40	475	11,88
T III	? (?M)	US	328	3 915	11,94
T XI	M	US	346	12 370	35,75

Tab. 1 – Kaptol. Pregled 17 istraživanih tumula s lokaliteta Kaptol s prikazom pretpostavljenog spola pokojnika, kontekstom nalaza, količinom analiziranih uzoraka, ukupnim brojem karboniziranih nalaza te brojem nalaza po 1 litri uzorka sedimenta (izradila: R. Šoštarić)

(Tumač kratica: T – tumul; F – ženski ukop; M – muški ukop; I – dječji ukop; ? – neutvrđeni spol pokojnika; US – uzorci sedimenta /flotirani; PN – sadržaj posude; RS – ručno sakupljeni biljni ostaci tijekom iskopavanja)

Tab. 1 – Kaptol. Overview of 17 investigated tumuli at the Kaptol site with a presentation of the presumed sex of the deceased, the context of the finds, the number of samples analysed, the total number of carbonized finds and the number of finds per 1 litre of sediment sample (compiled by: R. Šoštarić)

(Abbreviations: T – tumulus; F – female burial; M – male burial; I – child burial; ? – undetermined gender of the deceased; US – sediment samples /floated; PN – vessel contents; RS – manually collected plant remains during excavation)

obotaničku analizu makroostataka uzimani ravnomjerno iz različitih dijelova grobne komore, s ciljem da se istraži postoji li nekakav obrazac u raspodjeli nalaza koji bi doprinio boljem poznavanju halštatskih pogrebnih običaja. Tumuli 6 i 7 pokazali su nepostojanje bilo kakvog obrasca i potvrdili da u kaptolskim nekropolama ostaju sačuvani samo karbonizirani nalazi halštatske starosti (Šoštarić et al. 2017). Zbog toga se odustalo od sustavnog i ravnomjernog uzorkovanja sedimenta za arheobotaničku analizu i prešlo na ciljano uzorkovanje prvenstveno sedimenata s tragovima gara u grobnoj komori i u dromosu, ako je postojao.

chamber, with the aim of investigating whether there was any pattern in the distribution of finds that would contribute to a better understanding of Hallstatt burial customs. Tumuli 6 and 7 showed an absence of any pattern and confirmed that only carbonized finds of Hallstatt age remain preserved in the Kaptol necropolises (Šoštarić et al. 2017). Therefore systematic, uniform sampling of sediment for archaeobotanical analysis was abandoned in favour of targeted sampling primarily of sediments with traces of charcoal in the burial chamber and in the dromos, if it existed.

The amount of sediment taken for analysis did

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojta / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Lens culinaris</i> Medik., sjemenka / seed											1
<i>Vicia faba</i> L., sjemenka / seed				1							
<i>Avena</i> cf. <i>sativa</i> L., pšeno, zrno / caryopsis, grain				4				2	6		
cf. <i>Avena sativa</i> L., pšeno, zrno / caryopsis, grain				1						23	46
<i>Cerealía</i> , pšeno, zrno / caryopsis, grain		789	415	2437	6	2		1305	370	1944	6297
<i>Hordeum vulgare</i> L., pšeno, zrno / caryopsis, grain		6	2	1				5			
cf. <i>Hordeum vulgare</i> L., pšeno, zrno / caryopsis, grain				4					8		45
<i>Panicum miliaceum</i> L., pšeno, zrno / caryopsis, grain				9				6	4		3
cf. <i>Panicum miliaceum</i> L., pšeno, zrno / caryopsis, grain				3							
<i>Secale cereale</i> L., pšeno, zrno / caryopsis, grain				2							13
cf. <i>Secale cereale</i> L., pšeno, zrno / caryopsis, grain										1	11
<i>Setaria italica</i> (L.) P.Beauv., pšeno, zrno / caryopsis, grain								1			
cf. <i>Setaria italica</i> (L.) P.Beauv., pšeno, zrno / caryopsis, grain				5		1					
<i>Triticum aestivum</i> L. s.l., pšeno, zrno / caryopsis, grain		7		1102						396	2269

Tumul / Tumulus		T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased		F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojta / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)		32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Triticum</i> cf. <i>aestivum</i> L. s.l., pšeno, zrno / caryopsis, grain	K-Ž		4		3				124	23	6	645
<i>Triticum</i> cf. <i>aestivum</i> L. subsp. <i>compactum</i> (Host)Mackey, pšeno, zrno / caryopsis, grain												60
<i>Triticum dicoccum</i> Schrank., pšeno, zrno / caryopsis, grain	K-Ž		245	27	4967				91		288	756
<i>Triticum dicoccum</i> Schrank., pljeva / glume	K-Ž				149	1			9			7
<i>Triticum</i> cf. <i>dicoccum</i> Schrank., pšeno, zrno / caryopsis, grain	K-Ž		174	43		1					1	4
<i>Triticum dicoccum</i> Schrank./ <i>T. spelta</i> L., pšeno, zrno / caryopsis, grain	K-Ž		77						138	14		
<i>Triticum monococcum</i> L., pšeno, zrno / caryopsis, grain	K-Ž				969				4		69	6
<i>Triticum monococcum</i> L., pljeva / glume	K-Ž		2		170				5			
<i>Triticum</i> cf. <i>monococcum</i> L., pšeno, zrno / caryopsis, grain	K-Ž		11	2								4
<i>Triticum</i> cf. <i>monococcum</i> L., pljeva / glume	K-Ž											2
<i>Triticum spelta</i> L., pšeno, zrno / caryopsis, grain	K-Ž		18	4	2828	1	1		1164	7	293	714
<i>Triticum spelta</i> L., pljeva / glume	K-Ž								40	5		35
<i>Triticum</i> cf. <i>spelta</i> L., pšeno, zrno / caryopsis, grain	K-Ž		27	13	149				456		1	7

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojta / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Triticum T. aestivum</i> L. s.l./ <i>spelta</i> L., pšeno, zrno / caryopsis, grain	K-Ž							69			23
<i>Triticum dicoccum</i> Schrank./ <i>T. spelta</i> L., pljeva / glume	K-Ž							9	2	132	417
<i>Triticum</i> sp., fragment pšena, zrna / caryopsis, grain fra- gment	K-Ž	559	110	7460						744	506
<i>Triticum</i> sp., pljeva / glume	K-Ž			360				4			
<i>Brassica</i> cf. <i>rapa</i> L., sjemenka / seed	K/ SP		1								
<i>Cornus mas</i> L., koštica / pit, stone	SP	13	1				3				
<i>Corylus avellana</i> L., orah / nut	SP			17		4				2	2
<i>Corylus avellana</i> L., fragm. oraha / nut fragm.	SP	317	2	545		12	130				
<i>Corylus avellana</i> L., sjemenka / seed	SP			2							
cf. <i>Corylus avellana</i> L., orah / nut	SP			1							
cf. <i>Malus sylvestris</i> Mill., plod / fruit	SP			22				34			
cf. <i>Malus sylvestris</i> Mill., fragm. plod / fruit fragm.	SP			5				14			
cf. <i>Malus sylvestris</i> Mill., sjemenka / seed	SP	3		22				32			

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojita / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Prunus spinosa</i> L., koštica / pit, stone	SP	1									
<i>Rubus fruticosus</i> L., koštica / pit, stone	SP							2			
<i>Sambucus ebulus</i> L., sjemenka / seed	SP			1							
<i>Sambucus nigra</i> L., sjemenka / seed	SP						1				
cf. <i>Sorbus aria</i> (L.) Crantz./ <i>S. torminalis</i> (L.) Crantz., plod / fruit	SP	1									
cf. <i>Sorbus domestica</i> L., fragm. plod / fruit fragm.	SP						2				
<i>Agrostemma githago</i> L., sjemenka / seed	KR			58				2	8	16	4
cf. <i>Agrostemma githago</i> L., sjemenka / seed	KR			43							
<i>Ajuga chamaepitys</i> (L.) Schreb., plod / fruit	KR			1							
cf. <i>Asperula arvensis</i> L., plod / fruit	KR			2							
<i>Bromus arvensis</i> L., pšeno, zrno / caryopsis, grain	KR			549				5	3		
<i>Bromus secalinus</i> L., pšeno, zrno / caryopsis, grain	KR	4		1290				7	6	1	167
<i>Bromus cf. secalinus</i> L., pšeno, zrno / caryopsis, grain	KR	2									
<i>Chenopodium album</i> L., plod / fruit	KR			6		2					

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojta / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
cf. <i>Chenopodium album</i> L., plod / fruit	KR			1							
<i>Chenopodium hybridum</i> L., plod / fruit	KR			18							
<i>Chenopodium polyspermum</i> L., plod / fruit	KR										1
<i>Echinocloa crus-galli</i> L.P.Beauv, pšeno, zrno / caryopsis, grain	KR			2							
<i>Galium aparine</i> L., plod / fruit	KR			8							
<i>Galium spurium</i> , plod / fruit	KR			5							
<i>Persicaria latifolia</i> Becker (syn. <i>Polygonum lapathifolium</i> L.), plod / fruit	KR			3		1					
<i>Plantago lanceolata</i> L./ <i>P. media</i> L., sjemen- ka / seed	KR	24	2			5					
cf. <i>Plantago lanceolata</i> L./ <i>P. media</i> L., sje- menka / seed	KR							1			
<i>Poa annua</i> L., pšeno, zrno / caryopsis, grain	KR		4								
<i>Poa cf. annua</i> L., pšeno, zrno / caryopsis, grain	KR		5								
<i>Polycnemum arvense</i> L./ <i>P. majus</i> A. Braun, plod / fruit	KR	1				2					
<i>Polygonum aviculare</i> L., plod / fruit	KR		1								
cf. <i>Polygonum aviculare</i> L., plod / fruit	KR	16				2					

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojta / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Polygonum persicaria</i> L., plod / fruit	KR			1		1					
<i>Rumex crispus</i> L., plod / fruit	KR			7							
<i>Lapsana communis</i> L., plod / fruit	KR/ pPV/ pV										1
<i>Prunella vulgaris</i> L., plod / fruit	KR/ pPV			1							
<i>Rumex acetosa</i> L., plod / fruit	pPV			11							
Apiaceae, plod / fruit	O	3									
Asteraceae, plod / fruit	O					1					
<i>Atriplex</i> sp. plod / fruit	O						1				1
<i>Bromus</i> sp., pšeno, zrno / caryopsis, grain	O	1									4
<i>Carex</i> sp., plod / fruit	O			8				3			
<i>Chenopodium</i> sp., plod / fruit	O			3							1
cf. <i>Fabaceae</i> , sjemenka / seed	O					1		2			
<i>Galium</i> sp., plod / fruit	O					2					

Tumul / Tumulus	T 3	T 6*	T 7*	T 10	T 11	T 12	T 13*	T 14*	T 15	T III*	T XI*
Spol i broj pokojnika / Gender and number of deceased	F?	2 (M+M)	M	M	F (I?)	F	I?	M	?	?	M
Svojita / Ukupna količina uzoraka (litre) / Taxon / Total sample quantity (litres)	32 (U+PN)	432,5 (U+PN)	123 (U+PN)	148 (U+PN) +RS	30	62,5 (U+PN) +RS	10 (U+PN) +RS	50 +RS	40	328	346
<i>Poaceae</i> , pšeno, zrno / caryopsis, grain + fragm. zr- na / grain fragm. + pljeva	O	6	1	351		3		16			100
cf. <i>Poaceae</i> , pšeno, zrno / caryopsis, grain	O			2							
<i>Polygonum</i> sp., plod / fruit	O		3								
<i>Rumex</i> sp., plod / fruit	O			1							
Ukupno det.:	2	2311	636	23610	9	40	137	3550	456	3915	12163
Indet.		45	4	364	5	52	3	330	19		207
Ukupno + indet.:	2	2356	640	23974	14	92	140	3880	475	3915	12370

Tab. 2 – Prikaz arheobotaničkih nalaza istraživanih tumula na lokalitetu Kaptol u kojima su nađeni biljni ostaci, položaj Kaptol – Gradca: T 3 – T 15, položaj Kaptol – Čemernica: T III i T XI (prema: Grbin 2016; Šoštarić et al. 2016; 2017; 2020; izradila: R. Šoštarić)

(Tumač kratica: UZ – uzorak sedimenta za flotaciju; PN – sadržaj posude; RS – ručno sakupljeni biljni ostaci; K-Ž – kultivirana biljka – žitarica; K-M – kultivirana biljka – mahunarka; SP – samonikli plod iz prirode; KR – korovna i/ili ruderalna biljka; pPV – polu-prirodna vegetacija; O – ostalo; F – ženski ukop; M – muški ukop; I – dječji ukop; ? – neutvrđeni spol pokojnika; * – ranije publicirano)

Tab. 2 – Presentation of the archaeobotanical finds of the tumuli investigated at the Kaptol locality in which plant remains were found; Kaptol – Gradca location: T 3 – T 15; Kaptol – Čemernica location: T III and T XI (after: Grbin 2016; Šoštarić et al. 2016; 2017; 2020; compiled by: R. Šoštarić)
(Abbreviations: UZ – sediment sample for flotation; PN – vessel contents; RS – manually collected plant remains; K-Ž – cultivated plant: cereal; K-M – cultivated plant: legume; SP – wild fruit from nature; KR – weedy and/or ruderal plant; pPV – semi-natural vegetation; O – other; F – female burial; M – male burial; I – child burial; ? – undetermined gender of the deceased; * – previously published)

Količina sedimenta koji je uziman za analizu nije se pokazala presudnom za količinu nađenih biljnih ostataka. Ista količina od 40 l uzorkovanog sedimenta rezultirala je nalazom 475 biljnih ostataka u tumulu 15 i nijednim nalazom u tumulu 2. Slična količina ulaznog sedimenta od nešto više od 300 l u tumulu III sačuvala je 3 915 biljnih ostataka, a u tumulu XI čak 12 370 nalaza. Uvjerljivo najveća količina biljnih ostataka – 23 974 nađena je u „svega“ 148 l sedimenta (tab. 1). Sedimenti za arheobotaničku analizu uzimani su prvenstveno tamo gdje je bilo vidljivog crnog gara, pa je on diktirao količinu uzorka. No, ono što je važnije u ovakvoj strategiji uzorkovanja je činjenica da nalazi reflektiraju stanje na samoj lomači. Sve to što je nađeno u uzorcima, moralo je biti spaljeno na lomači, zajedno s pokojnikom (ili pokojnicima). Naravno, nemoguće je znati koliko su temeljito i na koliko dosljedan način sakupljani ostaci s lomače i prenošeni u grobnu komoru. Isto tako, na ovoj razini istraživanja, nije moguće pretpostaviti jesu li se prilagali hrana i slični prilozi u grobnu komoru tijekom sahrane, jer u postojećim uvjetima nekarbonizirani karpološki biljni ostaci ne ostaju sačuvani. Analiza fitolita nije rađena, a analize organskih ostataka u posudama još nisu dovršene. Ipak, razlike u klasičnim arheološkim prilozima, kao i u količini i sastavu arheobotaničkih priloga potvrđuju individualni pristup u grobnom ritualu za svakog pokojnika/pokojnicu, kao što je već ranije naglasio i pokazao Harding (2015) u Britaniji.

Karbonizirani biljni ostaci

Od deset novoanaliziranih grobova, čije rezultate prezentiramo po prvi put, pet ih nije sadržavalo karbonizirane karpološke ostatke – tumuli 2, 4, 5, 8 i 9 (tab. 1–2).

U tumulu 3, za koji se pretpostavlja da je u njemu pokopana ženska osoba, nađena su samo dva fragmenta ljuske lješnjaka (*Corylus avellana*).

Tumul 10 ima uvjerljivo najveći broj biljnih nalaza od ukupno 17 istraživanih tumula (Grbin 2016). Radi se o grobu muškarca u kojem su u najvećem udjelu zastupljene žitarice (87,35 %), ali i relativno značajan udio različitih plodova (sl. 5). Unutar skupine žitarica, najbrojniji su ostaci pšenice (*Triticum* sp.), a od vrsta koje su mogle biti determinirane do razine vrste najbrojniji su dvozna i prava pšenica (*Triticum di-*

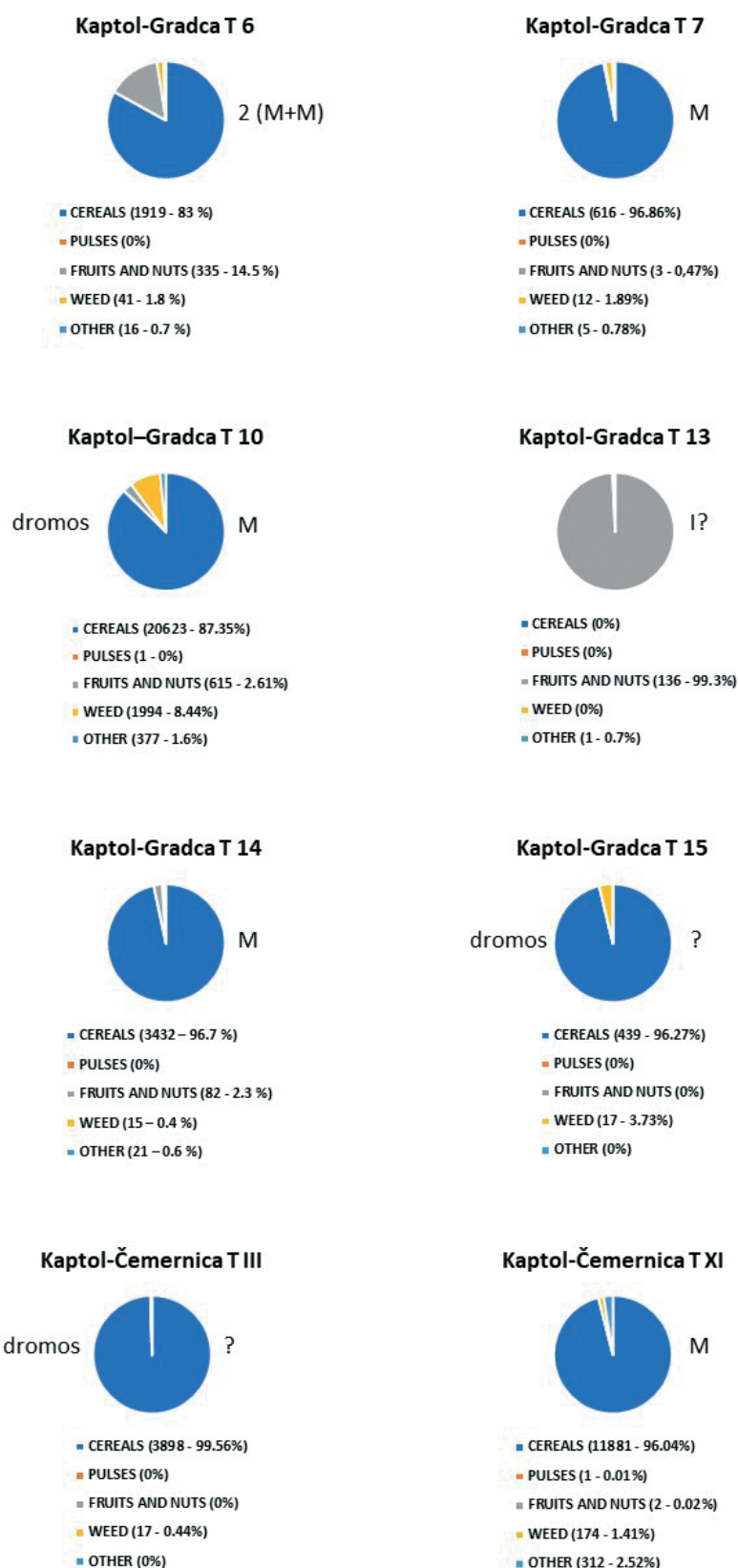
not prove to be decisive for the quantity of plant remains found. The same amount of 40 l of sampled sediment resulted in the discovery of 475 plant remains in tumulus 15 and no finds in tumulus 2. Slightly more than 300 l of input sediment in tumulus III preserved 3,915 plant remains, while a similar amount in tumulus XI yielded no fewer than 12,370 finds. Arguably the largest quantity of plant remains – 23,974 – was found in ‘only’ 148 l of sediment (Tab. 1). Sediments for archaeobotanical analysis were taken primarily where charcoal was visible, so this dictated the amount of sample. But what is more important in this sampling strategy is the fact that the finds reflect the situation at the pyre itself. All that was found in the samples had to have been burned on the pyre, together with the deceased. Of course, it is impossible to know how thoroughly and consistently the remains were collected from the pyre and transferred to the burial chamber. Likewise, at this level of research, it is not possible to make an assumption as to whether food and similar offerings were placed in the burial chamber during the burial, because, under the existing conditions, uncarbonized carpological plant remains do not remain preserved. Phytolith analysis has not been performed, and organic-residue analysis of the vessels has not yet been completed. However, differences in classical archaeological offerings, as well as in the quantity and composition of archaeobotanical offerings, confirm an individual approach to the burial ritual for each deceased, as previously emphasized and demonstrated by Harding (2015) in Britain.

Carbonized plant remains

Of the ten newly-analysed graves, the results of which are being presented for the first time, five did not contain carbonized carpological remains: tumuli 2, 4, 5, 8 and 9 (Tabs. 1–2).

In tumulus 3, which is assumed to be the burial of a female individual, only two hazelnut (*Corylus avellana*) shell fragments were found.

Tumulus 10 has by far the largest number of plant finds out of the total of 17 tumuli investigated (Grbin 2016). It is a male grave in which the largest proportion is represented by cereals (87.35%), but also with a relatively significant proportion of various fruits (Fig. 5). Within the cereal group, most numerous are the remains of wheat (*Triticum* sp.); and, of those species that could be determined to the species level, the most numerous are einkorn and spelt (*Triticum dicoccum*



Sl. 5 – Prikaz udjela pojedinih skupina biljnih nalaza za odabrane tumule s najvećim brojem biljnih nalaza na lokalitetu Kaptol (izradila: R. Šoštarić)

(Tumač kratica: F – ženski ukop; M – muški ukop; I – dječji ukop)

Fig. 5 – Presentation of the proportion of individual groups of plant finds for selected tumuli with the largest numbers of plant finds at the Kaptol site (made by: R. Šoštarić)

(Abbreviations: F – female burial; M – male burial; I – child burial)

coccum i *T. spelta*). Ostale žitarice zastupljene su u puno manjem broju (sl. 6a). Mahunarke su zabilježene samo pojedinačnim nalazom – jedan nalaz boba (*Vicia faba*). Mahunarke su izuzetno rijetke u kaptolskim nalazima i, osim spomenutog boba, pronađena je i jedna sjemenka leće (*Lens culinaris*) u tumulu T XI (tab. 2). Mahunarke se općenito teže sačuvaju u uzorcima i rjeđe su u nalazima, ali je nezahvalno bilo što zaključivati o njihovom značaju u grobnim ritualima na temelju pojedinačnih nalaza. Ono što je bez ikakve sumnje značajno u kontekstu pogreba je relativno visoki udio voćnih i orašastih priloga. Ukupno je nađeno 615 nalaza od kojih su najbrojniji lješnjaci (*Corylus avellana*, fragmenti i malobrojni gotovo cijeli orasi), te nešto manji broj plodova i sjemenki jabuka (cf. *Malus sylvestris*) (tab. 2; sl. 5; 6a).

Za tumul 11 se pretpostavlja da je grob ženske osobe, vjerojatno djeteta, a u njemu je nađena samo mala količina žitarica (tab. 2).

Tumul 12 predstavlja grob ženske osobe i jedini je uz koji je nađeno i spalište. Biljni nalazi su malobrojni i prilično šaroliki; nađena je mala količina žitarica, nekoliko lješnjaka i fragmenata ljuske lješnjaka, te ostaci korovnih i drugih primjesa (tab. 2).

Tumul 15 ima nešto više arheobotaničkih nalaza (tab. 1–2), ali najvjerojatnije se radi o opljačkanom i djelomično oštećenom tumulu za koji nije bilo moguće antropološki odrediti spol i broj pokojnika. U nalazima su zastupljene žitarice i nešto pratećih korova, a najbrojnija je skupina *Cerealia*, jer su biljni ostaci nešto lošije sačuvani. I u ovom tumulu su najbrojniji ostaci različitih tipova pšenice, ali u manjem broju se pojavljuju i zob (*Avena* cf. *sativa*), ječam (*Hordeum vulgare*) te proso (*Panicum miliaceum*) (sl. 5; 6b).

Svi biljni nalazi sačuvani su u lošem ili vrlo lošem stanju, što je naročito vidljivo na ostacima žitarica, koje su najdominantnije u nalazima (tab. 2; sl. 5). Kao što je naglašeno u ranijim objavama (Šoštarić et al. 2016; 2017; 2020), zbog lošeg stanja očuvanosti vrlo visoki postotak krupnozrnih žitarica, koje dominiraju u većem broju tumula, mogao je biti prepoznat samo do razine skupine (*Cerealia*). U dijelu žitarica koje su nešto bolje sačuvane, pa su se mogle preciznije determinirati, dominira pšenica (*Triticum*), dok se ječam (*Hordeum vulgare*), raž (*Secale cereale*) i zob (*Avena* cf. *sativa*) javljaju u vrlo malom broju, kao i sitnosjemene

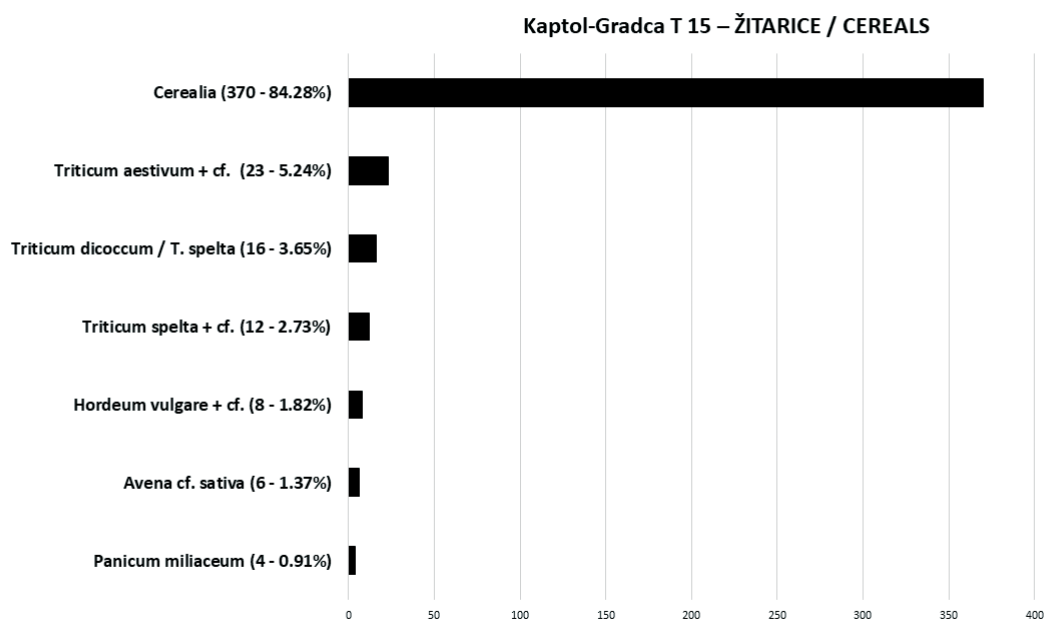
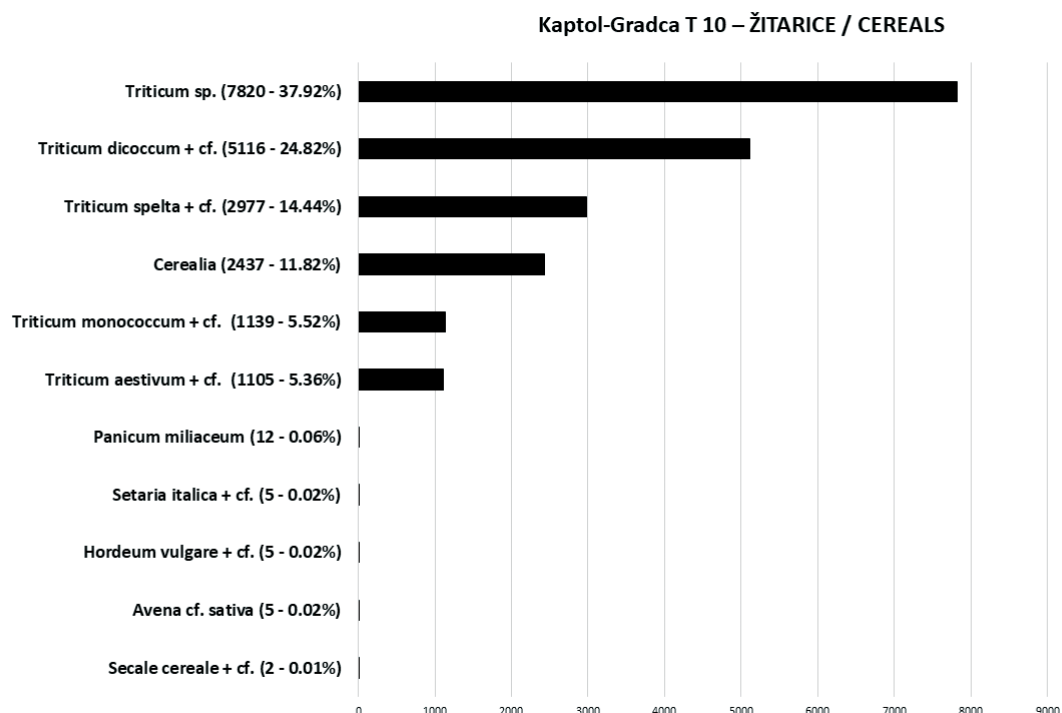
and *T. spelta*). Other cereals are represented in much smaller numbers (Fig. 6a). Legumes were recorded only in a single find: one find of broad beans (*Vicia faba*). Legumes are extremely rare in the Kaptol finds; and, in addition to the aforementioned broad beans, one lentil seed (*Lens culinaris*) was also found in tumulus T XI (Tab. 2). Legumes are generally less well-preserved in samples and are less common in finds, but it is unrewarding to draw any conclusions about their significance in burial rituals based on individual finds. What is undoubtedly significant in the context of the burial is the relatively high proportion of fruit and nut offerings. A total of 615 finds were made, of which the most numerous are hazelnuts (*Corylus avellana*, fragments and a few almost whole nuts) and a somewhat smaller number of apple fruits and seeds (cf. *Malus sylvestris*) (Tab. 2; Figs. 5; 6a).

Tumulus 11 is assumed to be the grave of a female, probably a child, and only a small amount of grain was found in it (Tab. 2).

Tumulus 12 represents the grave of a female and is the only one with a cremation ground. Plant finds are few and quite varied; a small amount of grain, a few hazelnuts and hazelnut shell fragments, and weed and other admixtures were found (Tab. 2).

Tumulus 15 has somewhat more archaeobotanical finds (Tabs. 1–2), but it is most likely a looted and partially damaged tumulus for which it was not possible anthropologically to determine the sex and number of the deceased. The finds include grains and some accompanying weeds, and the most numerous group is *Cerealia*, because the plant remains are preserved in somewhat poor condition. In this tumulus, too, the most numerous remains are of various types of wheat, but oats (*Avena* cf. *sativa*), barley (*Hordeum vulgare*) and millet (*Panicum miliaceum*) also appear in smaller numbers (Fig. 5; 6b).

All plant finds were preserved in poor or very poor condition, which is especially visible in the remains of cereals, which are the most dominant in the finds (Tab. 2; Fig. 5). As emphasized in earlier publications (Šoštarić et al. 2016; 2017; 2020), due to the poor state of preservation, a very high percentage of large-grained cereals, which dominate a large number of tumuli, could only be recognized up to the level of the group (*Cerealia*). Wheat (*Triticum*) predominates among those cereals that are somewhat better preserved, so they could be determined more precisely, while barley (*Hordeum*



Sl. 6 – Prikaz udjela pojedinih tipova žitarica nađenih u: A) tumul 10; B) tumul 15 na položaju Kaptol – Gradca (izradila: R. Šoštarić)

Fig. 6 – Presentation of the proportions of individual types of cereal found in: A) tumulus 10, B) tumulus 15, at the location of Kaptol – Gradca (made by: R. Šoštarić)

žitarice – proso (*Panicum miliaceum*) i klipasti muhar (*Setaria italica*). U različitim tumulima dominiraju različite vrste pšenica: na nekropoli Gradac najčešće dominira dvozna pšenica

vulgare), rye (*Secale cereale*) and oats (*Avena* cf. *sativa*) occur in very small numbers, as well as small-seeded cereals: millet (*Panicum miliaceum*) and foxtail millet (*Setaria italica*). In different tumu-

(*Triticum dicoccum*), zatim prava pšenica (*T. spelta*), a u tumulu 10 visok udio imaju i jednozrna i nepljevičasta pšenica (*T. monococcum* i *T. aestivum* s.l.). Na nekropoli Čemernica najveći udio ima nepljevičasta pšenica, zatim dvozrna i prava pšenica (tab. 2). No, ove udjele treba oprezno interpretirati i prihvaćati zbog već spomenutog lošeg stanja nađenih žitarica, koje su često fragmentirane i deformirane, te posljedično visokog udjela skupine *Cerealia*. U kontekstu priloga na lomači važnija je činjenica da se radi o najpoželjnijem i najcjenjenijem tipu žitarica – pšenici, tj. „samo najbolje za elitu“.

Kako su žito i drugi biljni nalazi dospjeli na lomaču, možemo samo pretpostaviti. Moguće je da je lomača bila posuta žitom, pa na nju položen pokojnik/pokojnica prije žrtvovanih životinja i drugih priloga ili je možda lomača „u valovima posipavana“ žitom prije ili tijekom gorenja lomače. Dio nalaza žitarica svakako se može općenito povezati i s posudama koje su nađene u grobnim komorama, a koje su prethodno bile na lomači. To se posebno odnosi na posudu broj 43 iz tumula 10 (tab. 3; PN 43), koja jedina od analiziranih posuda sadrži žitarice (krupnozrne žitarice i različite vrste pšenica), ali i relativno velik udio poljskog i ražastog ovsika (*Bromus arvensis* i *B. secalinus*). Ovsik se u smjesi žitarica najčešće tretira kao slučajna korovna primjesa. Ipak, u ovom slučaju čini više od 40 % nalaza u posudi, što vjerojatno nije slučajno. Zech-Matterne i suradnici (2021) su pokazali da granica između namjerno kultiviranih žitarica i korovnih trava u prapovijesti nije bila tako oštra, kako često interpretiramo. U ostalim posudama koje su bile na lomači i u kojima su nađeni biljni makro-ostaci, najčešće su prisutni lješnjaci te poneki voćni prilog (tab. 3). U zamjetnom broju pojavljuju se jabuke (cf. *Malus sylvestris*) kao voćni prilog na lomači, a većina plodova je ručno sakupljena tijekom iskopavanja, naročito u tumulima 10 i 14 (tab. 2).

Komparativno su analizirani udjeli pojedinih skupina biljaka koje se manje-više dosljedno pojavljuju u nalazima (žitarice, mahunarke, voće i orašasti plodovi, korovne primjese i ostalo – nerazvrstano). Najznačajnije u kontekstu grobnih priloga su žitarice, mahunarke te voće i orašasti plodovi, dok su korovi – slučajne primjese koje često prate žitarice. Za komparaciju je odabrano osam tumula s najvećim brojem nalaza, više od stotinu (sl. 5), a uključuju i ranije

li, different types of wheat dominate: in the Gradca necropolis, emmer (*Triticum dicoccum*) dominates, followed by spelt (*T. spelta*), and in tumulus 10 there is a high proportion of einkorn and free-threshing wheat (*T. monococcum* and *T. aestivum* s.l.). In the necropolis of Čemernica, the largest share goes to free-threshing wheat, followed by emmer and spelt wheat (Tab. 2). However, these proportions should be cautiously interpreted and accepted, due to the aforementioned poor condition of the grains found, which are often fragmented and deformed, and to the consequently high proportion of the *Cerealia* group. In the context of offerings on the pyre, a more important fact is that it is the most desirable and valued type of cereal: wheat, i.e. 'only the best for the elite'.

How the grain and other plant finds ended up on the pyre can only be speculated. It is possible that the pyre was sprinkled with grain and the deceased was placed on it before the sacrificed animals and other offerings, or perhaps the pyre was 'sprinkled in waves' with grain before or during the burning of the pyre. Some of the grain finds can certainly be generally linked to the vessels found in the burial chambers, which had previously been on the pyre. This particularly applies to vessel number 43 from tumulus 10 (Tab 3: PN 43), which is the only one of those vessels analysed containing not only grains (large grains and various types of wheat), but also a relatively large proportion of field and rye brome (*Bromus arvensis* and *B. secalinus*). Bromes are most often treated as an accidental weed admixture in a mixture of grains. In this case, however, it makes up more than 40% of the finds in the vessel, which is probably not accidental. Zech-Matterne et al. (2021) have shown that the line between intentionally cultivated cereals and weeds in prehistoric times was not as sharp as we often interpret. In other vessels that were on the pyre and in which plant macro-remains were found, hazelnuts and some fruit accompaniments were most often present (Tab 3). Apples (cf. *Malus sylvestris*) appear in significant numbers as fruit accompaniments on the pyre, and most of the fruits were collected by hand during excavation, especially in tumuli 10 and 14 (Tab. 2).

The proportions of individual plant groups that appear more or less consistently in the finds (cereals, legumes, fruits and nuts, weed admixtures and other/unclassified) were comparatively analysed. Most significant in the context of grave goods are cereals, legumes, and fruits and nuts, while weeds are accidental admixtures that often accompany cereals. The eight tumuli with the

TUMUL / TUMULUS	SPOL I BROJ POKOJNIKA / GENDER AND NUMBER OF DECEASED	BROJ POSUDE / VESSEL NUMBER	BILJNI NALAZ / PLANT FINDS	BROJ BILJNIH NALAZA / NUMBER OF PLANT FINDS
T 5	F + I	PN 49	-	0
T 6	2 (M + M)	PN 77	<i>Corylus avellana</i>	9
T 6	2 (M + M)	PN 98	<i>Corylus avellana</i>	26
T 6	2 (M + M)	PN 99	<i>Corylus avellana</i>	9
T 7	M	PN 204	<i>Corylus avellana</i>	2
T 9	F	PN 209	-	0
T 9	F	PN 211	-	0
T 10	M	PN 43	<i>Cerealia</i>	21
T 10	M	PN 43	<i>Triticum aestivum</i> s.l. + <i>T. monococcum</i> + <i>T. dicoccum</i> + <i>T. spelta</i>	2 + 3 + 13 + 12
T 10	M	PN 43	<i>Bromus arvensis</i> + <i>B. secalinus</i>	11 + 23
T 11	F (I?)	PN 10	-	0
T 12	F	PN 169	-	0
T 12	F	PN 171	-	0
T 13	I?	PN 8	<i>Corylus avellana</i>	15
T 13	I?	PN 8	<i>Sambucus nigra</i>	1
T 13	I?	PN 8	cf. <i>Sorbus domestica</i>	2
T 13	I?	PN 10	<i>Cornus mas</i>	3
T 13	I?	PN 10	<i>Corylus avellana</i>	108
T 14	M	PN 212	-	0

Tab. 3 – Kaptol. Popis tumula, posuda nađenih u grobnim komorama koje potječu s lomače i karpoloških biljnih nalaza nađenih u posudama (izradila: R. Šoštarić)

(Tumač kratica: T – tumul; F – ženski ukop; M – muški ukop; I – dječji ukop; ? – neutvrđeni spol pokojnika; PN – posuda)

Tab. 3 – Kaptol. List of tumuli, vessels found in burial chambers originating from the pyre, and carpological plant finds found in vessels (compiled by: R. Šoštarić)

(Abbreviations: T – tumulus; F – female burial; M – male burial; I – child burial; ? – undetermined gender of the deceased; PN – vessel)

bjavljene nalaze iz tumula 6, 7, 13 i 14 (Kaptol – Gradca) te tumula III i XI (Kaptol – Čemernica) (Šoštarić et al. 2016; 2017; 2020). Od preostalih tumula, čija su arheobotanička istraživanja u međuvremenu dovršena, izdvojeni su tumuli 10 i 15 s položaja Kaptol – Gradca.

U sedam od osam kompariranih tumula prevladavaju nalazi žitarica s rasponom udjela od 83 % do 99,56 %. Samo dva tumula sadrže ostatke mahunarki u tragovima: tumuli 10 i XI. Dva tumula uopće ne sadrže voćne priloge (Tumuli 15 i III), dok su u tumulu 13 nađeni samo voćni priloz (99,27 %) i zanemariv udio nerazvrstanih ostataka (sl. 5). Od osam kompariranih tumula, njih pet prema antropološkoj

largest numbers of finds, over a hundred (Fig. 5), were selected for comparison, and they also include previously published finds from tumuli 6, 7, 13 and 14 (Kaptol – Gradca), and tumuli III and XI (Kaptol – Čemernica) (Šoštarić et al. 2016; 2017; 2020). Of the remaining tumuli whose archaeobotanical research has since been completed, tumuli 10 and 15 at the Kaptol – Gradca location were selected.

In seven of the eight tumuli compared, cereal finds predominate, with a range of 83% to 99.56%. Only two tumuli contain traces of leguminous remains: tumuli 10 and XI. Two tumuli do not contain any fruit offerings at all (tumuli 15 and III), while in tumulus 13 only fruit offerings (99.27%) and a negligible propor-

analizi predstavljaju ukope muškaraca (T 6, 7, 10, 14 i XI), jedan ukop je vjerojatno ukop djeteta (T 13), a dva nisu mogla biti definirana (T 15 i III).

S obzirom na vrlo rijetko pojavljivanje i veliku važnost koju pojava dromosa daje tumulu i pokojniku, bitno je spomenuti da su dromosi pronađeni u samo tri od ovdje obrađenih 17 tumula – u tumulima 10, 15 i III – svi s velikom količinom nađenih žitarica, te velikom količinom voćnih priloga u tumulu 10.

Iako je, zahvaljujući brojnim priložima, dokumentirana vrlo razvijena trgovinska razmjena, vjerujemo da su žitarice i mahunarke lokalno uzgajane, a različito voće i orašasti plodovi sakupljani u okolici. I danas je Požeška kotlina plodno područje s razvijenom poljoprivredom, a u šumama Papuka mogu se pronaći dokumentirani plodovi (Tomašević 2016). U ovom radu ne želimo raspravljati reflektiraju li ujedno pronađeni biljni nalazi i svakodnevnu prehranu (elitnih članova) halštatskih stanovnika jer grobovi predstavljaju vrlo specifični kontekst nalaza. Osim toga, u tijeku su interdisciplinarna istraživanja kaptolskog naselja, koja uključuju i arheobotaničke analize.

Muški i ženski ukopi

Od ukupno 17 tumula na lokalitetu Kaptol, za koje je napravljena arheobotanička analiza, šest tumula nije sadržavalo karbonizirane biljne ostatke: tumuli 1, 2, 4, 5, 8 i 9 (tab. 1). Količina sedimenata koja je uzorkovana u ovim tumulima relativno je mala, pa se možda može smatrati razlogom za izostanak nalaza. No, nekoliko tumula ima sličnu ulaznu količinu sedimenta, čak i manju, pa ipak imaju veći broj biljnih nalaza. Za tumul 4 nije sigurno da se uopće radi o tumulu, s obzirom na preostale ostatke, a ako i jest – temeljito je opljačkan i razoren, pa je donekle i očekivano da nema signifikantnih nalaza. Tumul 8 je gotovo potpuno izravnian zbog erozije, pa, iako je sačuvano nešto više nalaza nego u tumulu 4, oštećenje sigurno nije pogodovalo očuvanju biljnih ostataka.

Možda je značajnija činjenica da je većina tumula bez biljnih nalaza ili s manjom količinom nalaza antropološki definirana kao ženski ukopi ili ženski ukop s djetetom. U ovu kategoriju svakako treba uključiti i tumul 1 koji nema biljnih nalaza halštatske starosti (Šoštarić et al. 2007). Tumul 3 ima svega dva nalaza, a tumuli

tion of unclassified remains were found (Fig. 5). Of the eight tumuli compared, five of them, according to anthropological analysis, represent male burials (T 6, 7, 10, 14 and XI), one burial is probably a child's burial (T 13), and two could not be defined (T 15 and III).

Considering the very rare occurrence and the great importance that the appearance of a dromos gives to the tumulus and the deceased, it is important to mention that a dromos was found in only three of the 17 tumuli processed here – in tumuli 10, 15 and III – all with a large quantity of grains found, and a large number of fruit items in tumulus 10.

Although, thanks to numerous contributions, a highly developed trade exchange has been documented, we believe that the cereals and legumes were grown locally, and various fruits and nuts were collected in the surrounding area. Even today, the Požega Valley is a fertile area with developed agriculture, and documented fruits can be found in the forests of Papuk (Tomašević 2016). In this paper, we do not want to discuss whether those plant finds that were made also reflect the everyday diet of (elite) Hallstatt inhabitants, because the graves represent a very specific context of the finds. In addition, interdisciplinary research into the Kaptol settlement is ongoing, including archaeobotanical analysis.

Male and female burials

Of the 17 tumuli at the Kaptol site for which archaeobotanical analysis was performed, six tumuli did not contain carbonized plant remains: tumuli 1, 2, 4, 5, 8 and 9 (Tab. 1). The amount of sediment sampled in these tumuli is relatively small, so this may be considered the reason for the lack of finds. However, several tumuli have a similar input amount of sediment, or even smaller, and yet have a greater number of plant finds. It is not certain that tumulus 4 is a tumulus at all, considering the remaining remains; and, if it is, it has been thoroughly looted and destroyed, so it is somewhat to be expected that there are no significant finds. Tumulus 8 has been almost completely levelled due to erosion, so – although slightly more finds have been preserved than in tumulus 4 – the damage certainly was not conducive to the preservation of plant remains.

Perhaps more significant is the fact that most of the tumuli without plant finds, or with a smaller number of finds, are anthropologically defined as female burials or female burials with a child. Tumulus 1, which does not have plant finds of Hallstatt age, should certainly be included in this category (Šoštarić et al. 2007). Tumulus 3 has only two finds, and tumuli 11 and 12 have slightly more finds. Com-

11 i 12 imaju nešto više nalaza. U usporedbi s nalazima iz grobova muškaraca, nalazi iz ženskih grobova ne samo da se razlikuju po ukupno manjem broju biljnih ostataka, nego i po tipu nalaza. Žitarice se u ženskim grobovima ne pojavljuju ili tek pojedinačnim nalazima, ali je značajna prisutnost plodova, prije svega lješnjaka (*Corylus avellana*) (tumuli 3 i 12) (tab. 1–2).

Možda tumul 12 ide najviše u prilog ideji da se biljni prilozi u grobovima razlikuju s obzirom na spol pokojnika. Radi se o ženskom ukopu, ujedno i jedinom ukopu neposredno uz spalište, s relativno velikim brojem keramičkih nalaza i elemenata nošnje. S obzirom na blizinu spališta, očekivali smo veći broj biljnih nalaza od nekoliko zrna žitarica i 16 ostataka lješnjaka (tab. 2). Biljni nalazi iz muških ukopa brojčano daleko premašuju nalaze iz ženskih ukopa. Ono što čini uočljivu razliku je velika i dominantna količina žitarica u muškim grobovima, zajedno s različitim plodovima, najčešće lješnjacima, zatim jabukama, te ostalim „voćnim prilogima“. Tri tumula u kojima su pronađeni dromosi su ujedno i tumuli s velikom količinom dominantnih žitarica (T 10, 15 i III).

Nakon što je uočena razlika u broju i sastavu biljnih nalaza, podaci grupirani u četiri skupine (žitarice, mahunarke, voće i orašasti plodovi, te ostalo; tab. 4) analizirani su ANOSIM i SIMPER testom, s početnom hipotezom kako razlike u nalazima pojedinih grobova nisu posljedica grupiranja po spolu. Ukupan broj nađenih biljnih nalaza, za svaki tumul za koji je definiran spol pokojnika, najprije je preračunat na broj nalaza po jednoj litri uzorka (tab. 1; 4). Globalni ANOSIM test pokazao je statistički značajnu razliku između dvije unaprijed definirane skupine (globalni $R = 0,423$, $p = 0,026$), na temelju svih 462 moguće permutacije (sl. 7). Opažena R vrijednost jasno je odstupala od distribucije generirane pod nultom hipotezom o nepostojanju grupnih razlika, pri čemu je samo 12 permutacija proizvelo R vrijednost jednaku ili veću od opažene. Ovaj rezultat podržava odbacivanje nulte hipoteze i potvrđuje grupiranje u muške i ženske kategorije. SIMPER analiza otkrila je značajne razlike u sastavu biljnih nalaza između muške i ženske skupine, s prosječnom razlikom od 99,06 %. Glavni uzrok ove razlike bile su žitarice, koje su činile 89,17 % razlike, s puno većom prosječnom zastupljenošću u muškoj skupini (42,10) u usporedbi sa ženskom skupinom (0,01). Drugi uzrok razlike bilo je vo-

pared to the finds from men's graves, the finds from women's graves differ not only in the overall smaller number of plant remains, but also in the type of finds. Cereals do not appear in women's graves, or only in individual finds, but the presence of fruits is significant, primarily hazelnuts (*Corylus avellana*) (tumuli 3 and 12) (Tabs. 1–2).

Perhaps tumulus 12 lends the most support to the idea that plant offerings in graves differ according to the sex of the deceased. It is a female burial, and the only burial directly next to the cremation ground, with a relatively large number of ceramic finds and costume elements. Given the proximity of the cremation ground, we expected a larger number of plant finds than a few grains and 16 hazelnut remains (Tab. 2). Plant finds from male burials far outnumber those from female burials. What makes a noticeable difference is the large, dominant amount of grain in male graves, along with various fruits, most often hazelnuts, then apples and other 'fruit offerings'. The three tumuli in which dromoi were found are also tumuli with a large quantity of dominant grains (T 10, 15 and III).

After the difference in the number and composition of plant finds was observed, the data was classified into four groups (cereals, legumes, fruits and nuts, and other; Tab. 4) and analysed using the ANOSIM and SIMPER tests, with the initial hypothesis that the differences in the finds of individual graves are not the result of grouping by gender. The total number of plant finds made, for each tumulus for which the sex of the deceased was defined, was first converted to the number of finds per one litre of sample (Tab. 1; 4). The global ANOSIM test indicated a statistically significant difference between the two predefined groups (Global $R = 0.423$, $p = 0.026$), on the basis of all 462 possible permutations (Fig. 7). The observed R value deviated clearly from the distribution generated under the null hypothesis of no group differences, with only 12 permutations producing an R value equal to or greater than the observed one. This result supports the rejection of the null hypothesis and validates the grouping into male and female categories. SIMPER analysis revealed marked differences in food composition between the male and female groups, with an average dissimilarity of 99.06%. The primary contributor to this dissimilarity was cereals, accounting for 89.17% of the difference, with much higher average abundance in the male group (42.10) than the female group (0.01). The second contributor was fruits and nuts, accounting for only 5.01% of the difference, again with higher average abundance in the male group (1.10) than the female group (0.05).

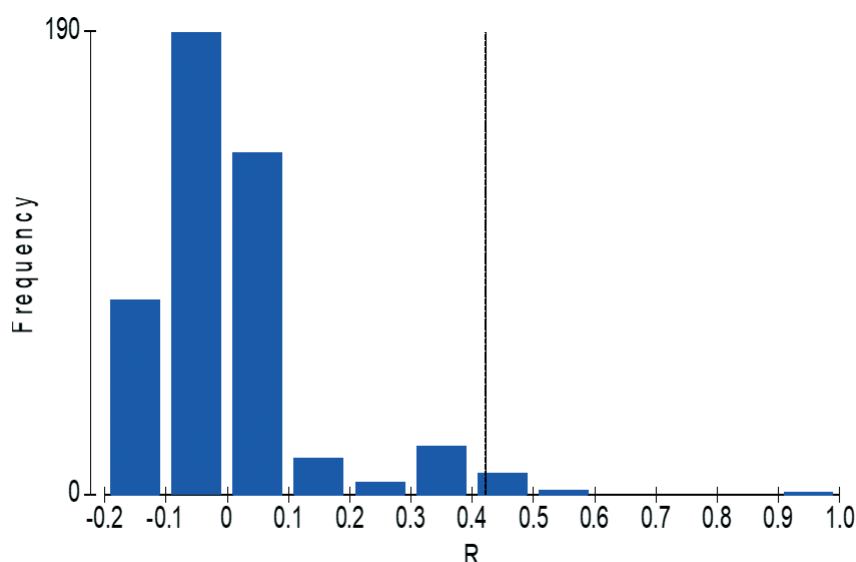
	T 1	T 2	T 3	T 5	T 6	T 7	T 8	T 9	T 10	T 11	T 12	T 14	T XI
	F?	M	F?	F	M	M	F	F	M	F	F	M	M
ŽITARICE / CEREALS	0	0	0	0	5,28	5,01	0	0	139,34	0,3	0,05	68,64	34,34
MAHUNARKE / PULSES	0	0	0	0	0	0	0	0	0,01	0	0	0	0,003
VOĆE I ORASI / FRUITS AND NUTS	0	0	0,06	0	0,77	0,02	0	0	4,16	0	0,26	1,64	0,006
KOROVI / WEEDS	0	0	0	0	0,09	0,1	0	0	13,47	0	0,21	0,3	0,53
OSTALO / OTHER	0	0	0	0	0,04	0,03	0	0	2,55	0	0,11	0,42	0,95

Tab. 4 – Kaptol. Broj karboniziranih determiniranih karpoloških nalaza po 1 litri uzorka i definiranim grupama nalaza za koje se mogao odrediti spol pokojnika (izradila: R. Šoštarić)

(Tumač kratica: T – tumul; F – ženski ukop; M – muški ukop)

Tab. 4 – Kaptol. Number of identified carbonized carpological finds per 1 litre of sample, and defined groups of finds in tumuli for which the gender of the deceased could be determined (compiled by: R. Šoštarić)

(Abbreviations: T – tumulus; F – female burial; M – male burial)



Sl. 7 – Prikaz rezultata analize sličnosti (ANOSIM) kaptolskih tumula za koje se mogao, barem približno, odrediti spol pokojnika. Simulirana raspodjela R vrijednosti pokazala je da promatrana R vrijednost od 0,423 odstupa od slučajne raspodjele, zbog čega je odbačena nulta hipoteza o nepostojanju razlike između promatrane dvije skupine (muškarci i žene) (izradio: A. Alegro)

Fig. 7 – Results of the analysis of similarity (ANOSIM) of the Kaptol tumuli for which the sex of the deceased could be determined, at least approximately. The simulated distribution of R values shows that the observed R value of 0.423 deviates from the random distribution, which is why the null hypothesis of no difference between the two observed groups (male and female) was rejected (made by: A. Alegro)

će i orašasti plodovi, koji su činili samo 5,01 %, ponovno s većom prosječnom zastupljenošću u muškoj skupini (1,10) u usporedbi sa ženskom skupinom (0,05). Sličnost unutar skupine bila je značajno manja kod ženskih grobova (prosječna sličnost = 0). Nasuprot tome, muška skupina pokazala je veću unutarnju sličnost (prosječna sličnost = 23,26 %), prvenstveno zbog velike zastupljenosti žitarica, koje su doprinijele 96,36 % sličnosti unutar skupine.

Stoga, kada bismo zaključivali na temelju arheobotaničkih nalaza, tumuli 15 i III, za koje antropološka analiza nije mogla utvrditi spol pokojnika, mogli bi biti – muški ukopi. S obzirom da je Kaptol prvi halštatski lokalitet na kojem je uočena i dokumentirana poveznica između količine i sastava biljnih nalaza i spola pokojnika, teško je reći radi li se o lokalnom običaju iz Kaptola ili šire prihvaćenom halštatskom pogrebnom običaju.

Odstupanje od prikazanog pokazuje tumul 2, koji je antropološki definiran kao muški ukop, ali nema karboniziranih biljnih nalaza. Teško je pretpostaviti zašto je tome tako jer su uzorci prikupljeni na sličan način kao i u ostalim kaptolskim tumulima, a već je ranije naglašeno kako količina uzorkovanog sedimenta na ovom lokalitetu očito nije presudna.

Within-group similarity was notably low in females (average similarity = 0). In contrast, the male group showed higher internal similarity (average similarity = 23.26%), primarily driven by the high abundance of cereals, which contributed 96.36% to within-group similarity.

Therefore, if we were to draw conclusions on the basis of archaeobotanical finds, then tumuli 15 and III – for which anthropological analysis could not determine the gender of the deceased – could be male burials. Considering that Kaptol is the first Hallstatt site where a link between the quantity and composition of plant finds and the gender of the deceased has been observed and documented, it is difficult to say whether this is a local custom from Kaptol or a more widely accepted Hallstatt burial custom.

A deviation from what is shown is observed in tumulus 2, which is anthropologically defined as a male burial, but there are no carbonized plant finds. It is difficult to guess why this is so, because the samples were collected in a similar way to those of the other Kaptol tumuli, and it has already been emphasized earlier that the amount of sediment sampled at this locality is obviously not decisive.

It is also worth mentioning tumulus 13 at the Gradca necropolis, which was not included in the statistical analysis because it was attributed to a child by

Svakako treba spomenuti i tumul 13 na nekropoli Gradca koji nije uključen u statističku analizu jer se preliminarnom antropološkom analizom pripisuje djetetu, a i sastav biljnih nalaza bitno odudara od ostalih tumula (tab. 2). U ovom tumulu u potpunosti nedostaju žitarice i mahunarke, ali zato ima dominantnu količinu voća – 130 nalaza lješnjaka te mali broj drenjina (*Cornus mas*), bazge (*Sambucus nigra*) i oskoruše (cf. *Sorbus domestica*) – 13,6 voćno-orašastih nalaza na jednu litru uzorka, što ga izdvaja od svih ostalih tumula (sl. 5).

Usporedba s nekropolama drugih istočno-halštatskih lokaliteta

Dostupni arheobotanički nalazi iz halštatskih nekropola još uvijek su rijetki. Publikacije novijeg datuma koje prezentiraju rezultate istraživanja grobova iz starijeg željeznog doba područja jugoistočno od Alpa ne spominju biljne nalaze (Čelhar 2009; Čelhar, Borzić 2024; Blečić Kavur, Podrug 2014; Perkić et al. 2025; Škvor Jernejčić, Vinazza 2016), tek eventualno rezultate analize drva (Šercelj 2002). Na lokalitetu Sopron – Krautaker iz slojeva kasnog halštata postoji samo jama, ali ne i grobovi (Jerem et al. 1984: 150–151). Ni kompleksniji pregledi i sinteze rezultata različitih istraživanja grobova i pogrebnih običaja (Dizdar, Potrebica 2022; Dizdar 2020) ili halštatskih lokaliteta (Gavranović, Sejfuli 2018) ne spominju arheobotaničke nalaze iz grobova. Izostanak botaničkih priloga u ženskim grobovima jugoistočnog Karpatskog bazena, te zapadnog i središnjeg Balkana mogao bi biti značajan, s obzirom da sustavna istraživanja nekropola na Kaptolu pokazuju izostanak ili tek minimalni broj takvih priloga u ženskim grobovima. Međutim, iz spomenutih radovima nije jasno jesu li arheobotaničke analize napravljene, pa nije bilo nalaza ili nisu ni rađene. Jedinu sigurnu informaciju imamo za radove Čelhar (2009) te Čelhar i Borzić (2024) – arheobotaničke karpološke analize nisu bile planirane ni napravljene (M. Čelhar, usmeno priopćenje). Nešto slično uočeno je i u dostupnim rezultatima istraživanja grobova zapadnog halštatskog kruga. Bogato opremljeni ženski grobovi iz područja Njemačke sadržavali su vrlo specifične biljne nalaze: u grobnoj komori u Heuneburgu pronađeno je dobro očuvano drvo hrasta i jele (Krausse et al. 2017), na lokalitetu Eberdingen-Hochdorf ostaci tekstila od konoplje (Banck-Burgess 2021), a u grobu iz Niede-

preliminary anthropological analysis, and the composition of plant finds differs significantly from other tumuli (Tab. 2). This tumulus is completely devoid of cereals and legumes, but it has a dominant amount of fruit: 130 hazelnut finds and a small number of cornelian cherry (*Cornus mas*), black elder (*Sambucus nigra*) and service tree (cf. *Sorbus domestica*) – 13.6 fruit/nut finds per litre of sample, which sets it apart from all other tumuli (Fig. 5).

Comparison with necropolises of other eastern Hallstatt sites

Available archaeobotanical finds from Hallstatt necropolises are still rare. Recent publications presenting the results of research on graves from the Early Iron Age in the area southeast of the Alps do not mention plant finds (Čelhar 2009; Čelhar, Borzić 2024; Blečić Kavur, Podrug 2014; Perkić et al. 2025; Škvor Jernejčić, Vinazza 2016), only possibly the results of wood analysis (Šercelj 2002). At the Sopron – Krautaker site from the Late Hallstatt layers there is only a pit, but no graves (Jerem et al. 1984: 150–151). Even more complex reviews and syntheses of the results of various research on graves and burial customs (Dizdar, Potrebica 2022; Dizdar 2020) or Hallstatt sites (Gavranović, Sejfuli 2018) do not mention archaeobotanical finds from graves. The absence of botanical accessories in women's graves in the southeastern Carpathian Basin and the western and central Balkans could be significant, given that systematic research of the necropolises on Kaptol shows an absence, or only a minimal number, of such accessories in women's graves. However, it is not clear from the aforementioned works whether archaeobotanical analysis was carried out, so there were no finds or they were not analysed. The only reliable information we have is for the works of Čelhar (2009) and Čelhar and Borzić (2024): archaeobotanical carpological analyses were neither planned nor carried out (M. Čelhar, oral communication). Something similar has been observed in the available results of research on graves in the western Hallstatt circle. Richly furnished female graves in the area of Germany contained very specific plant finds: well-preserved oak and fir wood were found in the burial chamber in Heuneburg (Krausse et al. 2017), and remains of hemp textiles on the Eberdingen-Hochdorf site (Banck-Burgess 2021); and, in a grave at Niedererbach, pollen remains were found in a bronze vessel indicating that the vessel contained mead

rerbacha nađeni su ostaci peluda u brončanoj posudi koji indiciraju da se u posudi nalazila medovina (Rösch 2005). Međutim, ne spominju se „klasični“ arheobotanički nalazi poput žitarica, plodova i sl.

U pregledu arheobotaničkih nalaza lokaliteta južne Češke, Šálková (2011) za razdoblje halštata navodi da je dokumentirano premalo nalaza na temelju kojih bi se mogli izvoditi zaključci o kultiviranim biljkama, ali opsežno interdisciplinarno istraživanje halštatskog tumula na lokalitetu Zahrádka, publicirano nešto kasnije, donijelo je vrlo zanimljive arheobotaničke nalaze (Šálková et al. 2015). Dva brončana prstena, koji su nađeni uz ostatke pokojne osobe, sačuvali su botaničke makroostatke, fragmente drva i pelud (Šálková et al. 2015: 107–112). U ovom kontekstu su zanimljivi pojedinačni nalazi žitarica (*Cerealia* i *Triticum dicoccum*), malobrojni nalazi voća (*Fragaria vesca*, *Rubus fruticosus*, *R. idaeus*, *Sambucus nigra* i *Vitis vinifera*), te relativno veliki broj sjemenki maka (*Papaver somniferum*). Zbog vrlo malog broja nalaza, nezahvalno je raditi usporedbu s Kaptolom, ali ipak – dva nalaza potvrđuju pšenicu, voćni nalazi su također slični, pri čemu treba spomenuti da je analiza proteina potvrdila i lješnjake (Šálková et al. 2015: 106).

Stoga je u kontekstu usporedbe s Kaptolom najzanimljiviji prikaz s analizom ostataka hrane iz grobova istočnoalpskog halštatskog kruga (Hladíková, Kmeťová 2019a; 2019b) koji donosi pregled lokaliteta s najčešće malobrojnim arheobotaničkim nalazima. Od lokaliteta s nešto više nalaza, Kaptolu je najbliži lokalitetu Kleinklein u Austriji (König 2013), gdje uz skupinu *Cerealia*, najveći udio čini pšenica (*Triticum* sp.) te prava i dvozna pšenica (*Triticum spelta* i *T. dicoccum*) uz zamjetnu količinu lješnjaka (*Corylus avellana*), te poneki plod kruške (*Pyrus* sp.) i sjemenku bazge (*Sambucus nigra*). Lokalitet Fehérvárcsurgó u Mađarskoj (Gyulai 2010: 141–142; 2012) pokazuje malo drugačiju sliku: najbrojnije su žitarice – ječam (*Hordeum vulgare*), zatim proso (*Panicum miliaceum*), ali nema lješnjaka, već je nađena samo drenjina (*Cornus mas*) i tragovi vina. U grobovima na oba spomenuta lokaliteta nađeni su ostaci kruha/kaše, čega na Kaptolu nije bilo, ili nisu ostali sačuvani. Ostali lokaliteti uključeni u interpretaciju imaju vrlo malo arheobotaničkih nalaza ili se pozivaju na ranije objavljene rezultate s Kaptola (Hladíková, Kmeťová 2019a: 271).

(Rösch 2005). However, there is no mention of 'classic' archaeobotanical finds such as grains, fruits etc.

In a review of archaeobotanical finds from sites in South Bohemia, Šálková (2011) states that too few finds have been documented for the Hallstatt period on the basis of which conclusions could be drawn about cultivated plants, but an extensive interdisciplinary investigation of a Hallstatt tumulus at the Zahrádka site, published somewhat later, yielded very interesting archaeobotanical finds (Šálková et al. 2015). Two bronze rings, which were found with the remains of a deceased person, preserved botanical macro-remains, wood fragments and pollen (Šálková et al. 2015: 107–112). In this context, individual finds of cereals (*Cerealia* and *Triticum dicoccum*), a small number of fruit finds (*Fragaria vesca*, *Rubus fruticosus*, *R. idaeus*, *Sambucus nigra* and *Vitis vinifera*), and a relatively large number of poppy seeds (*Papaver somniferum*) are interesting. Due to the very small number of finds, it is not worthwhile to make a comparison with Kaptol, but still: two finds confirm wheat, the fruit finds are also similar, and it should be noted that the protein analysis also confirmed hazelnuts (Šálková et al. 2015: 106).

Therefore, in the context of the comparison with Kaptol, most interesting is the analysis of food remains from graves of the Eastern Alpine Hallstatt circle (Hladíková, Kmeťová 2019 a and b), which provides an overview of sites mostly with few archaeobotanical finds. Of the sites with somewhat more finds, the most similar to Kaptol is Kleinklein, in Austria (König 2013), where, in addition to the *Cerealia* group, the largest share is made up of wheat (*Triticum* sp.) and spelt and emmer wheat (*Triticum spelta* and *T. dicoccum*), with a noticeable number of hazelnuts (*Corylus avellana*), and the occasional pear fruit (*Pyrus* sp.) and black elder seeds (*Sambucus nigra*). The Fehérvárcsurgó site in Hungary (Gyulai 2010: 141–142; 2012) shows a slightly different picture: most abundant are cereals – barley (*Hordeum vulgare*), then millet (*Panicum miliaceum*) – but there are no hazelnuts; only cornelian cherry (*Cornus mas*) and traces of wine were found. Remains of bread/porridge were found in the graves at both sites mentioned, which were not present at Kaptol, or were not preserved. The other sites included in the interpretation have very few archaeobotanical finds or refer to previously published results from Kaptol (Hladíková, Kmeťová 2019 a: 271).

ZAKLJUČAK

Arheobotanička analiza 17 kaptolskih tumula donijela je nekoliko značajnih rezultata koji imaju kvalitetno uporište u 46 829 identificiranih karboniziranih botaničkih ostataka. Karbonizirani karpološki ostaci pridonijeli su boljem poznavanju halštatskog pogrebnog rituala i pokazali su da je spaljivanje na lomači imalo veći značaj nego što se do sada mislilo.

Dobivena je zanimljiva slika biljnih ostataka, u kojima uvjerljivo dominiraju žitarice uz koje se pojavljuju i prateći korovi. Od žitarica, posebno se ističe najpoželjnija među njima – pšenica. Za sada nam je nepoznato je li pšenica bila rezervirana za kremaciju elite ili je bila standardni dio tog rituala. Mahunarke se pojavljuju vrlo rijetko, ali teško je reći je li tome tako zbog uvjeta očuvanja ili manjeg značaja. Međutim, neosporno je da su važnu ulogu u grobnom ritualu spaljivanja na lomači imali voćni i/ili orašasti plodovi, koji su nađeni u osam različitih tumula, s naglaskom na zanimljivu činjenicu da je najveća količina nalaza po jednoj litri uzorka nađena u tumulu 13, u kojem su i gotovo jedini tip nalaza, a antropološki je definiran kao ukop djeteta.

Po prvi put arheobotanički rezultati su pokazali moguću vezu između količine i sastava biljnih priloga na lomači i spola pokojnika. Iako je broj tumula bio relativno malen za statistiku, analiza je pokazala jasno odvajanje muških i ženskih grobova. Biljni nalazi iz muških ukopa brojčano daleko premašuju nalaze iz ženskih ukopa, a najuočljivija razlika je velika i izrazito dominantna količina žitarica u muškim grobovima. Čak i u najbogatijim ženskim grobovima, poput tumula 12 na nekropoli Gradca, količina žitarica je neznatna, uz razmjerno veći udio voća. Je li riječ o lokalnom – kaptolskom običaji ili nečemu karakterističnom za (istočno)halštatski kulturni krug, pokazati će neka nova, buduća istraživanja.

Treba svakako spomenuti i tumul 13 s iste nekropole u kojem je nađeno isključivo voće, bez žitarica. To je jedini tumul u kojem je grobna jama bila ukopana ispod površine zemlje, a uz to preliminarne antropološke analize naslućuju da bi mogla biti riječ o djetetu.

Nalazi iz halštatskih tumula potvrđuju kako su biljke, koje su se vjerojatno lokalno uzgajale te koristile u prehrani i svakodnevnom životu, također bile vrlo važne i u pogrebnim ritualima kaptolske zajednice.

CONCLUSION

Archaeobotanical analysis of 17 Kaptol tumuli has yielded several significant results, which are well supported by 46,829 identified carbonized botanical remains. The carbonized carpological remains have contributed to a better understanding of Hallstatt funerary rituals and have shown that cremation was of greater importance than previously thought.

An interesting picture of plant remains was obtained, in which cereals are convincingly dominant, along with characteristic weeds. Of the cereals, the most desirable among them stands out: wheat. For now, we do not know whether wheat was reserved for the cremation of the elite or was a standard part of that ritual. Legumes appear very rarely, but it is difficult to say whether this is due to the conditions of preservation or to their lesser importance. However, it is undeniable that an important role in the funerary ritual of burning on a pyre was played by fruits and/or nuts, which were found in eight different tumuli, with emphasis on the interesting fact that the largest number of finds per litre of sample was found in tumulus 13, in which they are almost the only type of find, and anthropologically defined as the burial of a child.

For the first time, archaeobotanical results have shown a possible link between the quantity and composition of plant offerings on a funeral pyre and the gender of the deceased. Although the number of tumuli was relatively small for statistics, the analysis showed a clear separation of male and female graves. Plant finds from male burials far exceed those from female burials in number, and the most noticeable difference is the large, extremely dominant amount of cereals in male graves. Even in the richest female graves, such as tumulus 12 at the Gradca necropolis, the quantity of cereals is insignificant, with a relatively higher proportion of fruit. Whether this is a local Kaptol custom or something characteristic of the (eastern) Hallstatt cultural circle will be shown by some new, future research.

It is also worth mentioning tumulus 13 of the same necropolis, where only fruits were found, without grains. It is the only tumulus in which the burial pit was buried below the surface of the earth, and preliminary anthropological analysis suggests that it could be a child.

The finds from the Hallstatt tumuli confirm that plants, which were probably grown locally and used in food and daily life, were also very important in the funeral rituals of the Kaptol community.

NAPOMENA

Autori Renata Šoštarić i Hrvoje Potrebica podjednako su doprinijeli ovom radu i dijele primarno autorstvo.

ZAHVALA

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