Kameni nalazi starčevačke kulture s nalazišta Galovo u Slavonskom Brodu - Rezultati litičke analize iz zemunice SJ 291

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Kameni nalazi starčevačke kulture s nalazišta Galovo u Slavonskom Brodu

Rezultati litičke analize iz zemunice SJ 291

Stone Finds of the Starčevo Culture From the Site of Galovo in Slavonski Brod

The Results of the Lithic Analysis From Pit House SU 291

Prethodno priopćenje
Prapovijesna arheologija

Preliminary communication
Prehistoric archaeology

UDK/*UDC* 903.01(497.5 Slavonski Brod)"6343"
Primljeno/*Received*: 29. 2. 2008.
Prihvaćeno/*Accepted*: 12. 3. 2009.

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Tijekom desetogodišnjih istraživanja naselja starčevačke kulture na položaju Galovo u Slavonskom Brodu, prikupljena je velika količina kamenih nalaza koji, uz keramičke nalaze, čine najbrojniji pokretni inventar. U ovom se radu prikazuju kameni nalazi pronađeni tijekom istraživanja 2007. godine u zemunici SJ 291. S obzirom na količinu cijepanih kamenih izrađevina, posebno na brojne jezgre te odbojke i sječiva s okorinom, može se pretpostaviti radni karakter ove zemunice. Naglasak je na cijepanoj kamenoj industriji, a provedena je tehnološka i tipološka analiza izrađevina. Zemunica je sadržavala i četiri ulomka alatki od glačanoga kamena, brus za koštana šila i brojne amorfne ulomke brusnoga kamena.

Ključne riječi: starčevačka kultura, Slavonski Brod, cijepane kamene izrađevine, tehnologija, tipologija, glačani kamen, brusni kamen

Ten-year-long investigations of the Starčevo culture settlement at Galovo in Slavonski Brod yielded a large quantity of stone finds, which, in addition to ceramic finds make up the bulk of the movable inventory. This paper presents the stone finds discovered in the 2007 investigations in pit house SU 291. Taking into consideration the quantity of chipped stone artifacts, particularly the many cores as well as flakes and blades with cortex, it can be assumed that the structure served as a working pit house. The focus is placed on the chipped stone industry, with the presentation of the technological and typological analysis of the artifacts. The pit house yielded four fragments of polished stone tools, a whetstone for bone awls and numerous amorphous fragments of grindstone.

Key words: Starčevo culture, Slavonski Brod, chipped stone, technology, tipology, polished stone, ground stone

1. UVOD

Arheološko nalazište Galovo nalazi se u sjeveroistočnom rubnom dijelu Slavonskog Broda, na mjestu gdje se donedavno nalazila Ciglana-Brod (sl. 1). Nalazište je slučajno otkriveno 1995. godine zbog pojave ulomaka prapovijesne keramike pri iskopu zemljišta za potrebe Ciglane, a tada je ujedno eksploatacija tog zemljišta i zaustavljena. Godine 1997. započela su sustavna arheološka istraživanja koja provodi Institut za arheologiju[1] u suradnji s Muzejom brodskog Posavlja. Osim naselja starčevačke kulture, koje se ovdje primarno istražuje, otkriveni su i ostaci paljevinskih grobova koji datiraju u kasno brončano doba (grupa Barice-Gređani). Dosadašnja istraživanja obuhvatila su površinu od 2500 m^2 (Minichreiter 2007, 32-34).

Istraživanje koje je provedeno 2007. godine obuhvatilo je južni dio naselja, gdje su se nalazile zemunica SJ 291, jama SJ 963 i polukružni rov SJ 955 (Minichreiter 2008a, 51;

1 Zahvaljujem voditeljici istraživanja dr. sc. Korneliji Minichreiter na ustupljenoj građi za objavu.

1. INTRODUCTION

The archaeological site of Galovo lies in the northeastern peripheral part of Slavonski Brod, at the place where Ciglana-Brod (Brick factory-Brod) stood until recently (Fig. 1). The site was discovered by chance in 1995 due to the appearance of prehistoric pottery shards during the soil extraction for the use by the brick factory, whereupon the land exploitation was halted. The year 1997 saw the beginning of the first systematic archaeological investigations, carried out by the Institute of Archaeology in Zagreb[1] in cooperation with the Museum of Brodsko Posavlje. In addition to the settlement of the Starčevo culture, which is the primary object of interest here, the investigations led to the discovery of the remains of cremation burials from the Late Bronze Age (the Barice-Gređani group). The investigations conducted so far covered an area of 2500 m^2 (Minichreiter 2007, 32-34).

The 2007 investigation covered the southern part of the settlement, with pit house SU 291, pit SU 963 and semicircu-

1 I thank the manager of the investigation, Dr. Kornelija Minichreiter, for the permission to publish the material.

Minichreiter, Bunčić 2008, 32). U odnosu prema ostalim objektima na dosad istraženom prostoru, zemunica SJ 291 smještena je jugoistočno od radnih zemunica SJ 205 i 207 te s njima čini skupinu od tri (radna) objekta, sličnih veličinom, oblikom, a vjerojatno i namjenom, osim što za razliku od druge dvije, zemunica SJ 291 nije imala peć (Minichreiter, Bunčić 2008, 32).

Zemunica (SJ 291) je imala oblik nepravilne elipse, dužine 8 m i prosječne širine 5 m (Minichreiter 2008a, 50; Minichreiter 2008b, 7-8; Minichreiter, Bunčić 2008, 32). Središnji i južni dio zemunice bili su bogati pokretnim nalazima. Kada je riječ o keramici, u ovom su objektu standardno zastupljene posude grube i fine fakture. Grubo posuđe čine lonci, zdjele i šalice, najčešće ukrašeni urezivanjem, utiskivanjem, ubadanjem ili plastičnim modeliranjem, dok se kao rijetkost javlja urezani mrežasti motiv. Kupe na nozi pripadaju posuđu fine fakture, kojih nije nedostajalo u ovom objektu, a neke od njih bojane su crvenom ili smeđom bojom. Zemunica je sadržavala i pet koštanih šila što joj, s obzirom na samo jedno do tada pronađeno, daje na važnosti. Ističe se i nalaz glinene pintadere (Minichreiter 2008a, 53-54; Minichreiter 2008b, 9-13; Minichreiter, Bunčić 2008, 34-35).

Stilske odlike keramičke produkcije svojstvene su za stupanj Linear A starčevačke kulture, dok je analiza uzorka ugljena metodom C^{14} objekt datirala u vrijeme 5710-5550 cal BC (Minichreiter 2008a, 56; Minichreiter 2008b, 13).

Zemunica je sadržavala 1082 komada cijepanih kamenih izrađevina, a analiza je obuhvatila njihovu tehnološku i tipološku klasifikaciju. Također, prikazane su i druge alatke koje su podijeljene u kategorije glačanoga kamena i kamena grube, odnosno brušene površine (žrvnjevi i brusni kamen).

S obzirom na iznimnu količinu nalaza iz svih dosadašnjih sezona iskopavanja te na opsežan posao koji zahtijeva obrada cjelokupnog materijala, u ovom su radu obrađeni kameni nalazi koji su bili sastavni dio zapune zemunice (SJ 291), istražene u sezoni iskopavanja 2007. g. Razlog odabira upravo ove zatvorene cjeline za analizu je količina cijepanih kamenih izrađevina u njoj u odnosu na ostale te se u ovome slučaju promatraju kao izdvojeni skup nalaza. Ta količina nalaza daje dobar uvid u opću produkciju kamenih izrađevina, ali pruža i mogućnost spekulacije o radnom karakteru ovog objekta. Cilj je i temeljem analiza ocrtati stanje i ponuditi podatke o proizvodnji i upotrebi kamenih izrađevina na ovome bogatom nalazištu rane starčevačke kulture. Posebno stoga što su već predstavljeni ostali, prvenstveno keramički, pokretni nalazi, arhitektura i s njima povezani aspekti života (Minichreiter 2007, 2008b, Minichreiter, Krajcar Bronić 2006).

Zbog malih dimenzija odbojaka od obrade, uvijek postoji i mogućnost da prilikom iskopavanja nisu uočeni. S obzirom na pretpostavku kako se proizvodnja obavljala u samom objektu, čemu u prilog ide velika količina jezgri te jezgra i sječivo, čijim je spajanjem moguće rekonstruirati proces redukcije (T. 3, 1a, 1b), pretpostavka je da se i proces završne obrade obavljao na istome mjestu.

lar ditch SU 955 (Minichreiter 2008a, 51; Minichreiter, Bunčić 2008, 32). The position of SU 291 with respect to the remaining structures in the area investigated so far is at the southeast of working pit houses SU 205 and 207. These structures form a group of three (working) structures, similar in size, shape and probably also the function, except that in contrast to the other two structures, pit house SU 291 lacked a kiln (Minichreiter, Bunčić 2008, 32).

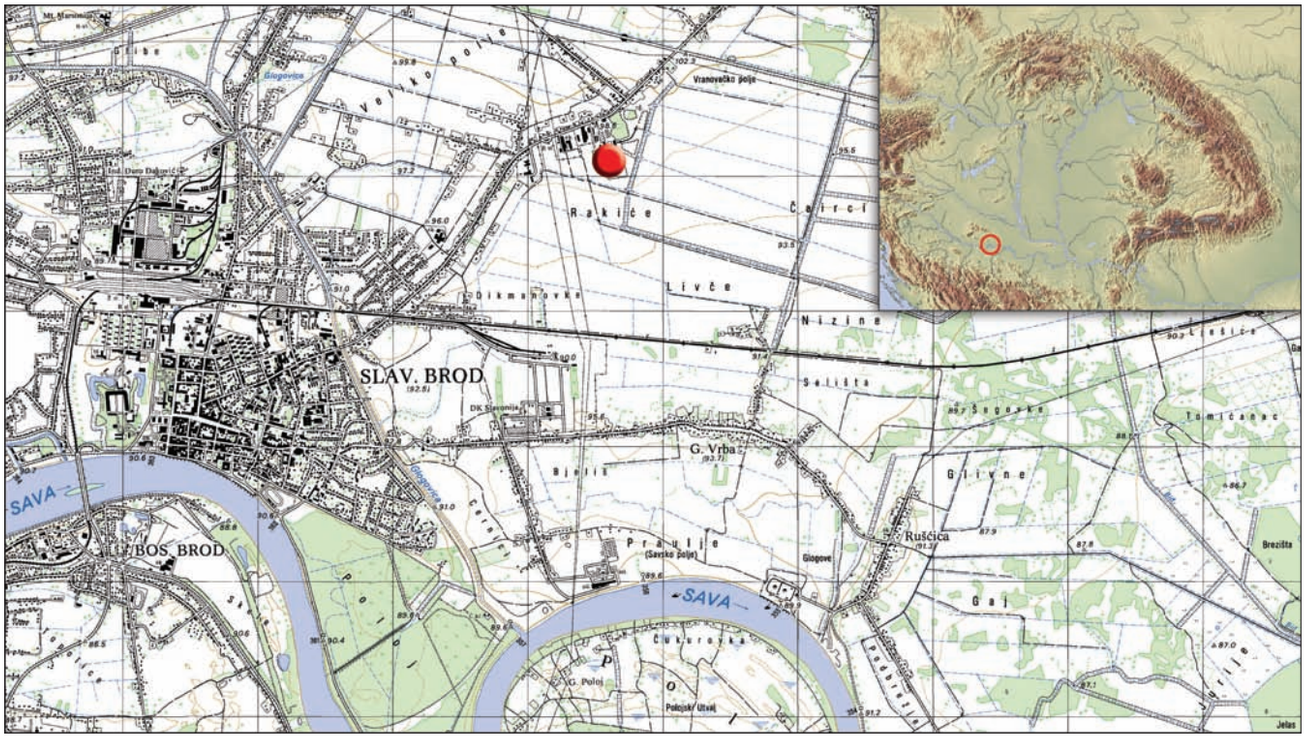
Pit house (SU 291) was shaped as an irregular ellipse, 8 m long and 5 m wide on the average (Minichreiter 2008a, 50; Minichreiter 2008b, 7-8; Minichreiter, Bunčić 2008, 32). The central and southern parts of the pit house contained rich portable finds. When it comes to pottery, this structure yielded a standard repertoire of coarse and fine vessels. Coarse pottery consists of pots, bowls and cups, in most cases decorated with incision, impression, stabbing or plastic modelling, while the network motif appears rarely. Cups on foot belong to fine pottery. They were well represented in this structure, and some of those were coloured with red or brown. The pit house yielded five bone awls, which contributes to its importance, considering than only one awl had been found before that. Another prominent find is that of a clay *pintadera* (Minichreiter 2008a, 53-54; Minichreiter 2008b, 9-13; Minichreiter, Bunčić 2008, 34-35).

The stylistic features of the ceramic production are typical of Linear A phase of the Starčevo culture, while the C^{14} analysis of a charcoal sample dated the structure to 5710-5550 cal BC (Minichreiter 2008a, 56; Minichreiter 2008b).

The pit house contained 1082 pieces of chipped stone artifacts, and the analysis entailed their technological and typological classification. Other tools are also presented, classified into categories of polished stone and stone of coarse, that is, ground surface (quernstones and grindstones)

In view of the exceptional quantity of finds from all previous excavation seasons, as well as the extensive work which the processing of the entire material entails, this paper presents the analysis of stone finds from the fill of the pit house (SU 291), investigated in the 2007 excavation season. This particular closed assemblage was selected for the analysis because of the quantity of chipped stone artifacts it contained with respect to the remaining ones, and in this case it is looked at as a distinct group of finds. This number of finds offers a good insight into the general production of stone artifacts, but allows also a possibility to speculate about the working character of this structure. The objective is to use the analyses as another indicator in the attempt to draw a picture of the situation and offer information about the production and use of stone artifacts at this rich site of the early Starčevo culture, all the more so as the other, primarily ceramic portable finds, architecture and related aspects of life have already been presented (Minichreiter 2007, 2008b, Minichreiter, Krajcar Bronić 2006).

Due to the small size of retouching flakes, it is always possible that they were missed during excavation. Considering that production presumably took place within the structure, as corroborated by the large quantity of cores as well as by a core with a blade, whose refitting allows us to reconstruct the reduction process (Pl. 3, 1a, 1b), the final retouching presumably occurred in the same place.



Sl. 1 Karta s označenim položajem nalazišta Galovo
Fig. 1 Map with marked position of the site of Galovo

2. CIJEPANE KAMENE IZRAĐEVINE

2.1. Tehnološka analiza

Pri tehnološkoj analizi korištena je lista od 22 kategorije (prema Šošić - Karavanić 2004). Tim su kategorijama zastupljene sve faze u lancu operacija, a također su korištene i pri analizi cijepanih kamenih izrađevina iz grobne jame 15 s istog nalazišta (Šošić 2007, 176-187). Zbog ujednačenosti lista nije mijenjana (sl. 2; tablica 1).

2.1.1. Odbojci

Odbojci su najzastupljenija tehnološka kategorija (ukupno 561 komad, odnosno 51,8%), bilo da je riječ o odbojcima s okorinom ili bez nje. Odbojaka s više od 50% okorine (prvotni odbojci) ima 89 (8,2%), s manje od 50% okorine 164 (15,2%), odbojaka 204 (18,8%) te odbojčića (odbojci manji od 2 cm) 104 (9,6%). Dimenzije odbojaka variraju između 2 i 7,3 cm, s prosječnom dužinom od 2,6 cm, no samo su četiri odbojka s dimenzijama većim od 5 cm. Velik broj odbojaka s okorinom upućuje na proizvodnju kamenih izrađevina u naselju, ali i podatak da su sve uočene vrste sirovina u ovoj cjelini prisutne među prvotnim odbojcima. U alatku su obrađena tri prvotna odbojka, 24 drugotna odbojka, 24 odbojka i dva odbojčića. Težina svih tipova odbojaka iznosi 41,9% (2972,5 g) ukupne težine cijepanoga kamena u ovoj cjelini.

2.1.2. Sječiva i pločice

Sječiva i pločice također čine vrlo zastupljenu kategoriju (ukupno 349 komada, odnosno 32,3%) s visokim brojem

2. CHIPPED STONE ARTIFACTS

2.1. Technological analysis

A list with 22 categories (after Šošić-Karavanić 2004) was used in the technological analysis. These categories cover all the phases in the operational sequence, and they were also used in the analysis of chipped stone artifacts from grave pit 15 from the same site (Šošić 2007, 176-187). The list was not modified in order to follow a standardized approach (Fig. 2; Table 1).

2.1.1. Flakes

Flakes are the most represented technological category (a total of 561 pieces, i.e. 51,8%), consisting of flakes with and those without cortex. There are 89 flakes (8,2%) with more than 50% cortex (primary flakes); 164 (15,2%) flakes with less than 50% cortex; 204 (18,8%) flakes and 104 (9,6%) small flakes (flakes smaller than 2 cm). The dimensions of flakes vary between 2 and 7,3 cm, with the average length of 2,6 cm. However, there are only four flakes larger than 5 cm. A large number of flakes with cortex point to the production of stone artifacts within the settlement, as well as the fact that all perceived types of raw materials in this assemblage were represented within the category of primary flakes. Three primary flakes were worked into a tool, as well as 24 secondary flakes, 24 flakes and two small flakes. The combined weight of all these flake types is 41,9 % (2972,5 g) of the total weight of chipped stone in this assemblage.

2.1.2. Blades and bladelets

Blades and bladelets also make up a quite well represented category (a total of 349 pieces, i.e. 32,3%), many of

onih s okorinom. Sječiva s više od 50% okorine (prvotnih sječiva) ima 22 (2%), s manje od 50% okorine (drugotnih sječiva) 65 (6%), sječiva 182 (16,8%), a dva su sječiva krijestasta (jedno je djelomično s okorinom) (0,2%). U pločice su svrstana sječiva dužine manje od 3 cm, a njih je prvotnih četiri (0,4%), drugotnih 16 (1,5%) te pločica bez okorine 58 (5,4%). Dužine sječiva variraju između 3 i 6,57 cm, s prosječnom dužinom od 4 cm, iako je samo šest sječiva duže od 5 cm. Alatke su izrađene na 20 drugotnih sječiva (30,7%), 45 sječiva (24,7%), 2 pločice (3,4%) te na jednom krijestastom sječivu (50%). Uočena su četiri sječiva koja su proizvedena tehnikom indirektnog odbijanja (T. 1, 1, 2), što nije neuobičajeno s obzirom na to da su takva sječiva već poznata na Galovu (Šošić 2007, 178), ali i na susjednom starčevačkom naselju Dužine u Zadubravlju (Karavanić, Balen 2003, 49; Šošić 2007, 178; Karavanić, Šošić, Bunčić, Kurtanjek 2009). Težina sječiva i pločica je svega 10,7% (756,5 g) od ukupne mase.

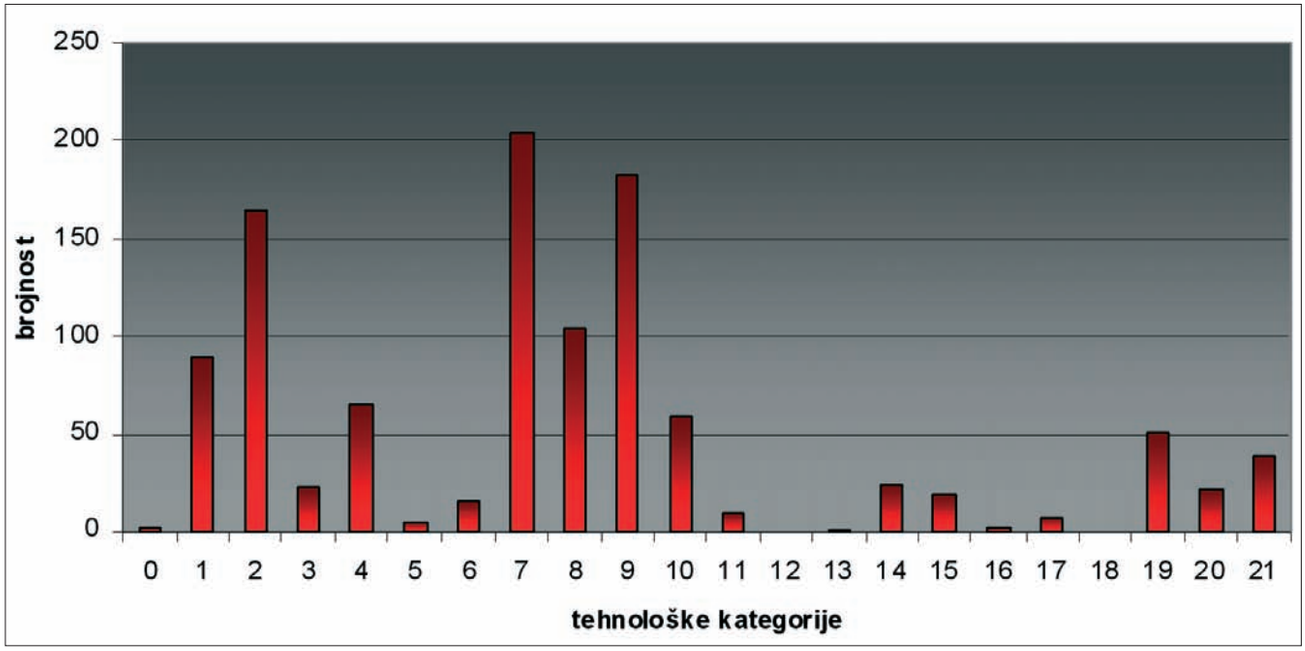
2.1.3. Jezgre (T. 2, 6-9; T. 3, 1a)

Jezgre i njezini ulomci (53 komada) čine 4,9% ukupne količine ovog skupa nalaza. Najviše je miješanih jezgri koje imaju tragove odbijanja i odbojaka i sječiva, njih 24 (2,2%). Jezgri za odbojke je devet (0,8%), a za pločice jedna (0,1%) (T. 2, 6). Od 19 ulomaka jezgri (1,8%), četiri su dijelovi jezgre za sječiva. Intenzivnu proizvodnju kamenih izrađevina potvrđuje i podatak kako je uočeno dosta jezgri (oko 18%) koje su već prilično iskorištene, što pokazuju njihove manje

which have cortex. There are 22 blades (2%) with more than 50% cortex (primary blades), 65 blades (6%) with less than 50 % cortex, 182 blades (16,8%), and two crested blades (one partly with cortex) (0,2%). Blades less than 3 cm long were classified as bladelets. There are four primary bladelets (0,4 %), 16 secondary bladelets (1,5%) and 58 bladelets without cortex (5,4%). The lengths of blades vary between 3 and 6,57 cm, with the average length of 4 cm, although only six blades are more than 5 cm long. The tools were made on 20 secondary blades (30,7%), 45 blades (24,7%), 2 bladelets, and one crested blade (50%). Four blades were produced by indirect flaking (Pl. 1, 1, 2), which is not unusual in the view of the fact that such blades have already been known from Galovo (Šošić 2007, 178), but also from the neighbouring Starčevo settlement at Dužine in Zadubravlje (Karavanić, Balen 2003, 49; Šošić 2007, 178; Karavanić, Šošić, Bunčić, Kurtanjek 2009). The weight of blades and bladelets amounts to merely 10,7% (756,5 g) of the total mass.

2.1.3. Cores (Pl. 2, 6-9; Pl. 3, 1a)

Cores and core fragments (53 pieces) make up 4,9% of the total quantity of this group of finds. The most frequent are mixed cores with traces of removal of flakes and blades, a total of 24 (2,2%). There are nine cores for flakes (0,8%), and one core for bladelets (0,1%) (Pl. 2, 6). Out of 19 core fragments (1,8%), there are four fragments of cores for blades. The intense production of stone artifacts is corroborated by the fact that a number of cores (around 18%) show clear signs of long use, as shown by their small size and very



Sl. 2 Grafički prikaz brojčane zastupljenosti tehnoloških kategorija (ukupno 1082 komada)
0 oblutak, 1 prvotni odbojak, 2 drugotni odbojak, 3 prvotno sječivo, 4 drugotno sječivo 5 prvotna pločica, 6 drugotna pločica, 7 odbojak, 8 odbojčić, 9 sječivo, 10 pločica, 11 jezgra za odbojke, 12 jezgra za sječiva, 13 jezgra za pločice, 14 miješana jezgra, 15 ulomak jezgre, 16 krijestasto sječivo ili pločica, 17 dotjerujući odbojak jezgre, 18 odbojak od obrade, 19 krhotina, 20 okrhak, 21 neodredivi ulomak

Fig. 2 Frequency chart of technological categories by number of pieces (a total of 1082 pieces)
0 pebble, 1 primary flake, 2 secondary flake, 3 primary blade, 4 secondary blade 5 primary bladelet, 6 secondary bladelet, 7 flake, 8 small flake, 9 blade, 10 bladelet, 11 cores for flakes, 12 cores for blades, 13 cores for bladelets, 14 mixed cores, 15 core fragments, 16 crested blades or bladelets, 17 platform rejuvenation flakes, 18 retouching flakes, 19 chunks, 20 chips, 21 indeterminate pieces

dimenzije i vrlo mala preostala udarna ploha. No jedna se jezgra ističe svojim dimenzijama (v - 9,2 cm; š - 7 cm; db - 5,5 cm ; t - 575 g), ali čini se kako ili još nije dobro pripremljena ili je, vjerojatnije, riječ o sirovini neprikladnih obilježja za cijepanje. Na više od polovine jezgri, odnosno ulomaka, još se nalazi malo okorine, a ponegdje je riječ o sirovini sa žilama. Ukupna težina jezgri je 2932,3 g, što iznosi 41,4% ukupne težine cijepanoga kamena u ovoj cjelini.

2.1.4. Ostalo

Ostale su tehnološke kategorije dotjerujući odbojci jezgre, kojih je sedam (0,6%), krhotine, kojih je (zajedno s okrhcima) 72 (6,6%) a neodredivih je ulomaka 38 (3,5%). Dva bi se komada mogla svrstati u nultu kategoriju – oblutak (0,2%).

Tehnološka kategorija	zastupljenost u postocima (%)
0	0,2
1	8,2
2	15,2
3	2
4	6
5	0,4
6	1,5
7	18,8
8	9,6
9	16,8
10	5,4
11	0,8
12	0
13	0,1
14	2,2
15	1,8
16	0,2
17	0,6
18	0
19	4,7
20	1,9
21	3,5
Ukupno	100

Tablica 1 Tablični prikaz zastupljenosti tehnoloških kategorija u postocima

Zanimljivi su ulomci sječiva, slučajno uočeni, koji se spajaju i čine cjelinu (osam komadića koji spajanjem tvore četiri cjelovita sječiva), a posebno je zanimljiv primjer jezgre i (uranjajućeg) sječiva[2] (T. 3. 1a, 1b). Očit je i visok postotak fragmentiranosti odbojaka[3] (60% je cjelovitih), a posebno sječiva, kojih je od ukupno 182, samo 69 cijelih (37,9%), dok sječiva s okorinom i pločice ipak imaju manji postotak fra-

2 Sječivo i jezgra nalazili su se vrlo blizu unutar zapune zemunice, u istom potkvadrantu, a jezgra se nalazila nešto pliće od sječiva.

3 Uključujući i one s okorinom te odbojčiće.

small remaining flaking surface. One core stands out by its dimensions (h. 9,2 cm; wi. 7 cm; th. 5,5 cm; we. 575 g), but it appears that it either had not been prepared well or, more probably, the raw material was unsuitable for chipping. At least some cortex is found on more than half of the cores and fragments, and in some cases veins are visible in the raw material. The total weight of the cores is 2932,3 g, which makes up 41,4% of the total weight of chipped stone in this assemblage.

2.1.4. Various

Other technological categories are platform rejuvenation flakes, a total of seven (0,6%); chunks (together with chips), a total of 72 (6,6%), as well as 38 indeterminate fragments (3,5%). Two pieces can be classified in the zero category – pebbles (0,2%).

Technological category	PERCENTAGE SHARE (%)
0	0,2
1	8,2
2	15,2
3	2
4	6
5	0,4
6	1,5
7	18,8
8	9,6
9	16,8
10	5,4
11	0,8
12	0
13	0,1
14	2,2
15	1,8
16	0,2
17	0,6
18	0
19	4,7
20	1,9
21	3,5
Ukupno	100

Table 1 Frequency table of technological categories

Of interest are fragments of blades, spotted by chance, which fit together and make up a whole (eight pieces that make up four integral blades when joined). A core and a (conjoining) blade[2] are a particularly interesting example (Pl. 3. 1a, 1b). The percentage of fragmented flakes is conspicuously high[3] (there are 60% integral pieces), and this is even more prominent in the case of blades, with only 69

2 The blade and the core lay very close to each other within the fill of the pit-house, in the same quadrant of a grid-square, and the core lay at a somewhat shallower depth than the blade.

3 Including the ones with cortex as well as small flakes.

gmentiranosti.

Brojnošću predvode odbojci i sječiva te njihove inačice manjih dimenzija – odbojčići i pločice. Zemunica je sadržavala i veliku količinu jezgri i ulomaka jezgri, kao i odbojaka i sječiva s okorinom. Zastupljenost tih kategorija potvrđuje prvu i drugu fazu proizvodnje na nalazištu, a vjerojatno i unutar samog objekta. Od ostalih tehnoloških tipova s 10,1% zastupljene su krhotine, okrhci i neodredivi ulomci. Odbojci od obrade nisu prisutni, što upućuje na nedostatak završnog oblikovanja odnosno popravljanja alatki, unatoč činjenici da je 11,5% ukupnih nalaza dodatno obrađeno u alatke.

2.2. Tipološka analiza

Dodatno je obrađeno 124 komada, što iznosi 11,5% ukupnih nalaza (tablica 2). Obrađeni komadi odbojaka, sječiva i pločica svrstani su u sljedeće tipove alatki: obrađeni komad, komad s cjelovitom obradom na jednom rubu, komad s obradom na dva ruba, grebalo, geometrijski mikrolit, zarubak i razno (svrdlo, dubilo, udubak).

2.2.1. Komadi s obradom

Najbrojnije alatke su one najjednostavnije, komadi s obradom. To su komadi koji imaju obrađen samo dio bilo kojeg ruba (a pritom nemaju obilježja nekog drugog tipa). Od 72 komada (58%), dva su na prvotnim odbojcima, 16 na drugotnim, a 19 na odbojcima. Devet ih je na drugotnim sječivima, 23 na sječivima i jedan na pločici. S po jednim primjerkom zastupljen je i dotjerujući odbojak jezgre i neodredivi ulomak. Obrada je u većini slučajeva vrlo sitna i zahvaća sam rub sječiva ili odbojka. Podjednako su obrađivani desni i lijevi rubovi, a isto tako i dorzalna i ventralna strana. Jedina dva komada (1,6%), koja imaju sjaj na rubovima ("sjaj srpa"), pripadaju ovom tipu alatki – sječiva s obradom.

2.2.2. Komadi s cjelovitom obradom na jednom rubu (T. 1, 3)

Na devet izrađevina u cijeloj je dužini obrađen jedan rub (7,3%). Tri su odbojka i šest sječiva, uključujući i one s okorinom. Obrađivani su i desni i lijevi lateralni rubovi, a česta je naizmjenična obrada ventralne i dorzalne strane.

2.2.3. Komadi s obradom na dva ruba (T. 1, 4)

Obrada na dva ruba češća je na sječivima, a riječ je o obradi lateralnih rubova. Ovome tipu pripada 13 sječiva (10,5%), uključujući i sječiva s okorinom i sedam odbojaka (5,6%), od kojih dva s okorinom. Uglavnom je riječ o sitnoj obradi. Razne su kombinacije, primjerice, obrada jednog ruba cjelovito a drugog djelomično, zatim obrada jednog ruba s dorzalne i ventralne strane naizmjenično a s druge samo djelomično.

2.2.4. Grebala (T. 1, 7-9)

Grebala su zastupljena u prilično malom broju, uzimajući u obzir činjenicu da u jami 15, koja je sadržavala dvostruko manji broj izrađevina, ima 11 grebala (Šošić 2007,

integral pieces out of a total of 182 (37,9%). On the other hand, the percentage of fragmented blades with cortex and fragmented bladelets is smaller.

Flakes and blades, as well as their smaller variants – small flakes and bladelets – are the most numerous categories. The pit house contained also a high quantity of cores and fragments of cores, as well as of flakes and blades with cortex. The share of these categories corroborates the first and second phases of production on the site, and probably also within the structure itself. Of other technological types, chunks, chips and indeterminate pieces make up 10,1% of pieces. Retouching flakes are not present, which indicates the absence of final shaping, that is, repairing of tools, in spite of the fact that 11,5% of all finds were worked into tools.

2.2 Typological analysis

A total of 124 pieces were retouched, which constitutes 11,5% of total finds (Table 2). Retouched flakes, blades and bladelets were classified into the following tool types: retouched pieces, pieces with one retouched edge, pieces with two retouched edges, end scrapers, geometric microliths, truncated blades and various (drill, borer, notch).

2.2.1. Retouched pieces

The most numerous tools are the simplest ones – retouched pieces. On those pieces only a part of an edge is retouched (and they exhibit no features of another type). Out of 72 pieces (58%), two were made on primary flakes, 16 on secondary flakes and 19 on flakes. Nine were made on secondary blades, 23 on blades and one on a bladelet. Platform rejuvenation flakes and indeterminate fragments are represented with one piece each. Retouch is in most cases tiny and occurs on the very edge of a blade or flake. The right and left edges were evenly worked, and the same holds true for the dorsal and ventral sides. The only two pieces (1,6%) with the ''sickle gloss'' on the edges belong to this tool type – retouched blades.

2.2.2. Pieces with one retouched edge (Pl. 1, 3)

Nine artifacts exhibit retouch along an entire edge (7,3%). Three of these are flakes while six are blades, including those with cortex. Both right and left lateral edges were retouched, and the ventral and dorsal sides were frequently alternately worked.

2.2.3. Pieces with two retouched edges (Pl. 1, 4)

Retouch on two edges – the lateral ones – is more frequent on blades. A total of 13 blades (10,5%) belong to this type, including blades with cortex and seven flakes (5,6%), two of which have cortex. By and large the retouch is small. Combinations are varied, for instance, one edge is entirely worked, while the other is partial; one edge is retouched on the dorsal and ventral sides alternately, and the other only partially.

2.2.4. End scrapers (Pl. 1, 7-9)

There are rather few end scrapers, considering that there were 11 end scrapers in pit 15, which contained half

182). Od pet primjeraka iz ove zemunice (4%), dva su na drugotnim odbojcima te po jedan na odbojku, drugotnom sječivu i sječivu. Ističe se grebalo na drugotnom odbojku koje je obrađeno i na proksimalnom i distalnom rubu – dvojno grebalo (T. 1, 8). Na dva primjerka prisutna je i obrada na lateralnim rubovima (T. 1, 7, 9), na jednom samo lijevi dorzalni, a na drugom desni dorzalni i lijevi ventralni. Ove je podatke važno uzeti u obzir radi problematike jedinstvene tipologije. Naime, ovakve bi se alatke mogle svrstati i u kategoriju višestrukih, odnosno kombiniranih alatki, primjerice, grebalo i obrađeni odbojak.

2.2.5. Geometrijski mikroliti (T. 2, 3-5)

Među obrađenom građom šest je geometrijskih mikrolita (4,8%), što s obzirom na učestalost ostalih tipova nije zanemariv broj. Riječ je o trapezima, većinom nepravilnih oblika. Te su alatke izrađene na ulomcima sječiva koja su na oba poprečna ruba strmo obrađena. Jedan je samo primjerak koji ima obrađen jedan poprečni i jedan lateralni rub. Njihove dimenzije kreću se od 1,3 do 1,7 cm dužine te os 1 do 1,4 cm širine. Geometrijski oblici povezuju se s krajem razdoblja mezolitika, a njihova sporadična pojava u okvirima starčevačke kulture ukazuje na napuštanje te industrije i upotrebu kompozitnih alatki s geometrijskim mikrolitima, i njihovo zamjenjivanje proizvodnjom kratkih sječiva (Šarić 1998, 202). Ove su alatke prisutne i u obližnjem naselju Dužine u Zadubravlju (Karavanić, Šošić, Bunčić, Kurtanjek 2009). Na nalazištima starčevačke kulture u Srbiji vrlo su brojni u Donjoj Branjevini (Šarić 2005a, 63, T. CLXXVIII/4-22), ali su poznati i na brojnim drugim nalazištima (Šarić 1998, 202, T. VII/7-10; Šarić 2005a, 65, Fig. 40). Također su zastupljeni i na mađarskim nalazištima starčevačke i Körös kulture (Starnini 2000, 210, 212, Fig.2. 4-10; Biró 2002, 122, 127; Mateiciucová, Malecka-Kukawka 2007, 711, Fig. 31.16/ 18-23).

2.2.6. Zarupci (T. 2, 1)

U ovom su radu zarupcima označene izrađevine kojima je poprečni rub obrađen, uglavnom sitnom strmom obradom. U ovom se slučaju, budući da nisu izrađeni na odbojcima, mogu nazvati i *zarubljena sječiva*. Prepoznato ih je sedam (5,6%), od kojih je pet na sječivima, jedan na pločici i jedan na drugotnom sječivu. Rubovi su im ravni do blago zaobljeni. Na tri primjerka obrađen je proksimalni rub (T. 2. 1).

2.2.7. Razno (T. 1, 5, 6; T, 2. 2)

U kategoriju razno svrstani su tipovi alatki koji su zastupljeni s manje od pet komada. Njih je ukupno pet (4%), a to su dva udupka, jedno svrdlo i dva dubila. Udupci su izrađeni na drugotnim odbojcima, a obrađeni su s ventralne strane (T. 2, 2). Svrdlo je na sječivu kome su cjelovito obrađena oba lateralna ruba (T. 1, 5). Jedno dubilo izrađeno je na prvotnom odbojku i obrađeno je na desnom lateralnom rubu pri vrhu (T. 1, 6), dok je drugo na odbojku, ali bez obrade.

the number of artifacts (Šošić 2007, 182). Of the five pieces from this pit house (4%), two are on secondary flakes, and one on a flake, a secondary blade and a blade. Standing out is an end scraper on a secondary flake, worked both on the proximal and the distal end – a double end scraper (Pl. 1, 8). Two pieces exhibit retouch on lateral edges (Pl. 1, 7, 9), one only on the left dorsal edge, and the other on the right dorsal and left ventral edges. It is necessary to consider these data in view of the problem of standardized typology, as these tools could likewise be placed into the category of multiple, that is, combined tools, e.g. an end scraper and a retouched flake.

2.2.5. Geometric microliths (Pl. 2, 3-5)

There are six geometric microliths within the analyzed material (4,8%), which is not an insignificant number in view of the frequence of other types. These are trapezes, mostly of irregular shape. These tools were made on fragments of blades that were steeply retouched on both transverse edges. Only one piece is retouched on a transverse and a lateral edge. Their dimensions range from 1,3 cm to 1,7 cm in length and from 1 to 1,4 cm in width. Geometric shapes are connected with the end of the Mesolithic, and their sporadic presence in the Starčevo culture points to the abandonment of that industry and the use of composite tools with geometric microliths, and replacement thereof with the production of short blades (Šarić 1998, 202). These tools are present also in the nearby settlement of Dužine in Zadubravlje (Karavanić, Šošić, Bunčić, Kurtanjek 2009). They are present in large numbers at the sites of the Starčevo culture in Serbia, e.g. in Donja Branjevina (Šarić 2005a, 63, Pl. CLXXVIII/4-22), but also at a number of other sites (Šarić 1998, 202, Pl. VII/7-10; Šarić 2005a, 65, Fig. 40). They appear also at the Hungarian sites of the Starčevo and Körös cultures (Starnini 2000, 210, 212, Fig.2. 4-10; Biró 2002, 122, 127; Mateiciucová, Malecka-Kukawka 2007, 711, Fig. 31.16/ 18-23).

2.2.6. Truncated tools (Pl. 2, 1)

In this paper we use the term "truncated tools" for artifacts with a retouched transverse edge, by and large with small steep retouch. In this case, considering that they were not made on flakes, they can also be called *truncated blades*. We recognized seven of those (5,6%), five on blades, one on a bladelet and one on a secondary blade. Their edges are straight or slightly rounded. The proximal edge is retouched on three pieces (Pl. 2. 1).

2.2.7. Various (Pl. 1, 5, 6; Pl. 2, 2)

This category comprises tool types which contain less than five pieces. There are five such tools within the assemblage (4%) – two notches, a drill and two borers. The notches were made on secondary flakes, and they are retouched on the ventral side (Pl. 2, 2). The drill is on a blade whose both lateral edges were entirely retouched (Pl. 1, 5). One borer was made on a primary flake, with retouch on the right lateral edge near the top (Pl. 1, 6), while the other is on a flake, without retouch.

TIP ALATKE	KOLIČINA	POSTOTAK(%)
Obrađeni komadić	72	58,1
Cjelovita obrada na jednom rubu	9	7,3
Obrada na dva ruba	20	16,1
Grebalo	5	4,0
Geometrijski	6	4,8
Zarubak	7	5,6
Udubak	2	1,6
Svrdlo	1	0,8
Dubilo	2	1,6
Ukupno	124	100

Tablica 2 Tablični prikaz tipova alatki i njihove zastupljenosti

Sa 72 komada najzastupljeniji su obrađeni komadi (58,1%), kojih je najviše na sječivima (sl. 3). Komada s cjelovitom obradom na jednom rubu ima devet (7,3%), dok komada s obradom na dva ruba ima 20 (16,1%). Šest je geometrijskih mikrolita (4,8%), sedam zarubaka (5,6%), grebala je pet (4%), a u kategoriji razno također je pet alatki (4%). Za izradu alatki korištena su i sječiva i odbojci s okorinom.

Uz izrazitu dominaciju komadića s obradom (58,1 %), u ovom je skupu nalaza prisutno devet različitih tipova alatki, ali njihov udio nije toliko karakterističan. Alatke izrađene na sječivima brojnije su od alatki izrađenih na odbojcima.

Među nalazima u ovoj zemunici samo dva sječiva imaju tipičan sjaj na rubovima koji implicira upotrebu alatke pri poljodjelskim poslovima. Kamene izrađevine nisu mikro-

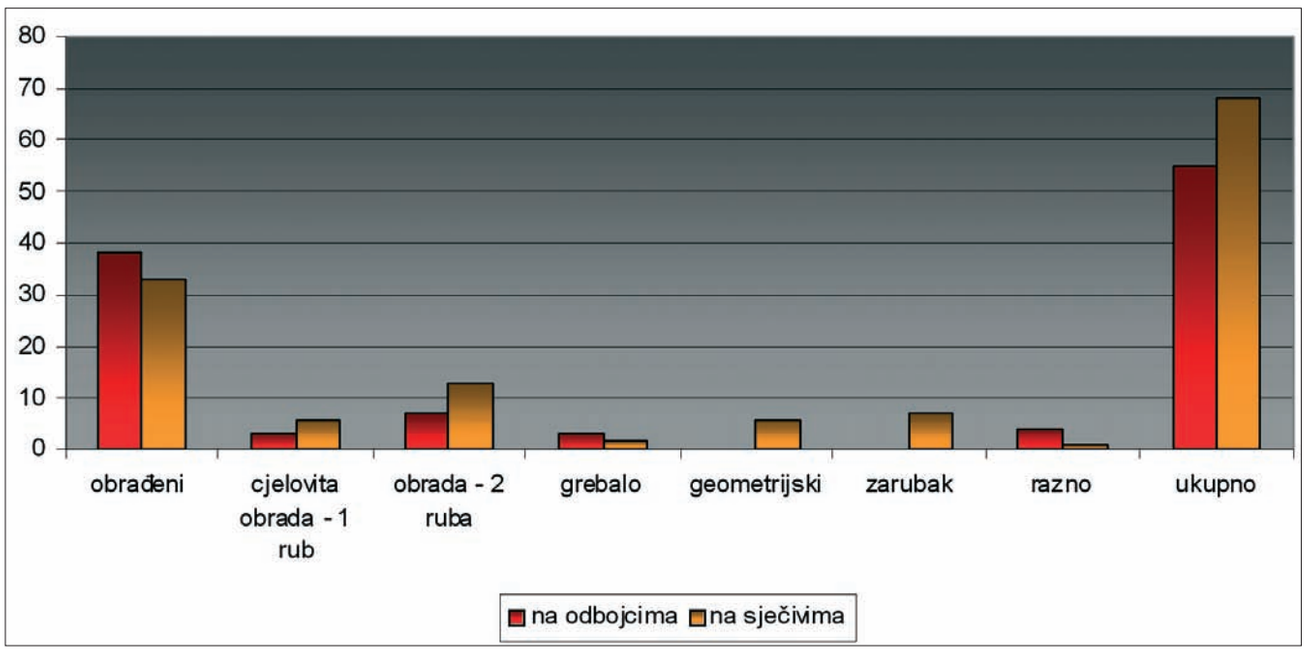
TOOL TYPE	QUANTITY	PERCENTAGE(%)
Retouched piece	72	58,1
Piece with one retouched edge	9	7,3
Piece with two retouched edges	20	16,1
End scraper	5	4,0
Geometric	6	4,8
Truncated blade	7	5,6
Notch	2	1,6
Drill	1	0,8
Borer	2	1,6
Total	124	100

Table 2 Table of the tool types and their ratios

With 72 pieces, the most frequent are retouched pieces (58,1%), most of which are on blades (Fig. 3). There are nine pieces fully retouched on one edge (7,3%), while there are 20 pieces (16,1%) with retouch on two edges. There are six geometric microliths (4,8%), seven truncated tools (5,6%), five end scrapers (4%); the category ''various'' also consists of five tools (4%). For the production of tools both blades and flakes with cortex were used.

In addition to pronounced prevalence of retouched pieces, this assemblage is composed of a total of nine different tool types, but their share is not that characteristic. Tools on blades are more numerous than those made on flakes.

Among the finds in this pit house only two blades have a



Sl. 3 Grafički prikaz brojčane usporedbe alatki izrađenih na odbojcima i na sječivima
Fig. 3 Chart showing comparison of tools made on flakes and on blades by numbers

skopski promatrane, no nekoliko je primjeraka na kojima je uočen trag upotrebe u vidu sitnih ogrebotina uz rub, uglavnom s ventralne strane, ili pak potpuno tupih rubova. Analiza cijepanih kamenih izrađevina s nekoliko starčevačkih nalazišta u Srbiji (npr. Velesnica, Knjepište, itd.), pokazala je kako je većina neobrađenih izrađevina korištena, a dokazano je to sjajem na rubovima te mikroskopski vidljivim tragovima uporabe (Šarić, 1998, 200).

3. GLAČANE KAMENE IZRAĐEVINE

Dosadašnje su analize glačanih kamenih izrađevina starčevačke kulture, s prostora sjeverne Hrvatske, pokazale učestalost tri glavna tipa - kalupasti klinovi ili sjekire, plosnate sjekire i dlijeta (Težak Gregl, Burić 2002, 14). Sve pripadaju skupini alatki bez rupe za nasad. Ipak, cjelovita obrada glačanih alatki s Galova, uz uobičajene tipove alatki, otvorila je prostor još jednome tipu, a to su perforirana oruđa. Naime, u grobnoj jami 9 pronađen je ulomak klina s otvorom za nasad držala, koji zasad predstavlja najstariji poznati primjerak perforiranog oruđa (Težak Gregl 2007, 164, 168). Temeljem sadašnjih spoznaja, distribucija sjekira na Galovu ukazuje na njihovu zastupljenost u stambenim, radnim i grobnim cjelinama.[4]

Glačane alatke su u zemunici SJ 291 zastupljene s četiri ulomka. Najuščuvaniji primjerak je sjekira trapeznog oblika, dužine 6,9 cm (T. 3, 3; sl. 4). Tjeme sjekire malo je oštećeno. Distalni rub sjekire je širi od proksimalnog, a sječivo je blago ukošeno. Poprečni presjek je elipsoidan. Po tim bi obilježjima ova sjekira pripadala tipu I/2b[5] prema tipologiji D. Antonović (Antonović, 2003, 53-54). Drugi, ovdje zastupljen, tip alatke je bradva (T. 3, 4; sl. 4), koja se oblikom od sjekire razlikuje po svom asimetričnom profilu, odnosno položaju sječiva (Antonović 2003, 54). Očuvan je distalni dio sa sječivom koje je zaobljeno, u dužini od 4,2 cm. Poprečni presjek je također elipsoidan. Bradve s lučnim sječivima pripadaju tipu III/2 po istoj tipologiji (Antonović, 2003, 54-55), iako podtip s elipsoidnim poprečnim presjekom u Srbiji nije zabilježen. Ipak, ova je bradva najbliža tom tipu. Ostala dva ulomka glačanoga kamena, zbog fragmentiranosti, nije moguće svrstati u bilo koji tip glačanih alatki. Jedan je ulomak oštećeno tjeme neke alatke, a drugi izduženi ulomak je dio ravne glačane plohe sa stranicama koje se neznatno šire, vjerojatno prema distalnom dijelu. Sjekira, bradva i jedan ulomak (tjeme) izrađeni su od mekoga bijeloga kamena.

4. ŽRVNJEVI I BRUSNI KAMEN

Velika količina kamenih nalaza pripada različitim vrstama brusnoga kamena (najčešće vrlo porozni pješčenjak), uglavnom u malim, raspadnutim ulomcima amorfnog oblika. Samo je jedan očuvan, ali važan primjerak za koji se

4 Dvije grobne cjeline sadržavale su ukupno 17 sjekira (Težak Gregl, Burić 2002, 14).

5 Profil ove sjekire nije savršeno simetričan, ali ni potpuno asimetričan kao izdvojeni tipovi neolitičkih bradvi (Antonović, 2003, 54, sl. 32).

typical gloss on the edges, which implies the use of tools in agricultural works. Stone artifacts were not analyzed under a microscope, but several pieces show traces of use in the form of tiny scratches along the edge, mostly on the ventral side, or in the form of completely blunt edges. Analyses of chipped lithic artifacts from several Starčevo sites in Serbia (e.g. Velesnica, Knjepište etc.) showed that most of the unretouched artifacts were used, which was proved by the gloss on the edges and microscopically visible traces of use (Šarić 1998, 200).

3. POLISHED STONE ARTIFACTS

Previous analyses of polished stone artifacts of the Starčevo culture from northern Croatia showed the frequence of three main types – adzes, flat axes and chisels (Težak Gregl, Burić 2002, 14). They all belong to a group of tools without a hole for hafting. Nevertheless, a thorough analysis of polished tools from Galovo, in addition to the usual tool types, opened space for yet another type – perforated tools. Grave pit 9 yielded a fragment of an adze with a hole for hafting a handle, so far the oldest known perforated tool (Težak Gregl 2007, 164, 168). Based on present knowledge, the distribution of axes at Galovo points to their presence in residential, working and grave units.[4]

Polished tools in pit house SU 291 are represented with four fragments. The best preserved piece is a trapezoidal axe 6,9 cm long (Pl. 3, 3; Fig. 4). The poll of the axe is slightly damaged. The distal edge of the axe is wider than the proximal, and the blade is slightly inclined. The cross-section is elliptical. These traits would place the axe into type I/2b[5] in D. Antonović's typology (Antonović, 2003, 53-54). The second tool type represented here is an adze (Pl. 3, 4; Fig. 4), distinguished from an axe by its assymetrical profile, that is, the position of the blade (Antonović 2003, 54). The distal part with a rounded blade is preserved in the length of 4,2 cm. The cross-section is also elliptical. Adzes with arched blades belong to type III/2 in the same typology (Antonović, 2003, 54-55), even though the subtype with elliptical cross-section was not registered in Serbia. Nevertheless, this adze is closest to that type. The remaining two fragments of polished stone, due to their fragmented condition, cannot be classified into any type of polished tools. One fragment is a damaged poll of a tool, while the other is an elongated fragment of a flat polished surface with the sides that widen slightly, probably towards the distal part. The axe, adze and the fragment (the poll) were made of soft white stone.

4. QUERN-STONES AND A GRINDSTONE

Many stone finds belong to various types of grindstone (mostly a highly porous sandstone), mainly in small, disintegrated amorphous fragments. Only one has remained preserved, but it is an important piece for which it was ascertained that it had been used. It is a grindstone of a rectangular shape, with a gently convex lower surface (Pl. 3,

4 Two grave assemblages contained a total of 17 axes (Težak Gregl, Burić 2002, 14).

5 The profile of this axe is not perfectly symmetrical, but it is neither completely assymetrical, like the Neolithic adzes that were distinguished as separate types (Antonović, 2003, 54, Fig. 32).

Sl. 4 Sjekira i ulomak bradve, Galovo – SJ 291
Fig. 4 An axe and a fragment of an adze, Galovo – SU 291

Sl. 5 Brus, Galovo – SJ 291
Fig. 5 A grindstone, Galovo – SU 291

sa sigurnošću može reći da je bio upotrebljavan. Riječ je o pravokutno oblikovanom brusnom kamenu, s blago zaobljenom (konveksnom) donjom plohom (T. 3, 2; sl. 5). Kroz sredinu uzdužne stranice gornje (radne) plohe stvoren je plitak uski utor, nastao pri oblikovanju i uporabi predmeta. Izrađen je od prilično poroznog pješčenjaka.

Dio inventara zemunice čini i nekoliko ulomaka kamena za koje je, zbog masivnosti i ravnih ploha, moguće pretpostaviti da su dijelovi žrvnja. Slično je i s dva ulomka kamena (koja spajanjem čine dio cjeline) s ravnom, zaglađenom donjom plohom. Budući da je riječ samo o ulomku, teško je utvrditi njegov tip, odnosno funkciju. Iako fragmentiran, prilično je masivan, od tvrdoga i čvrstoga kamena. Moguće je riječ ili o rastiraču ili eventualno o čekiću. Zbog neopredijeljenosti i moguće povezanosti sa žrvnjem, ovdje je spomenut u okviru ove kategorije kamena, a ne glačane. Ipak, rastirači nisu u pravom smislu alatke od glačanoga kamena, jer svoj oblik nisu dobivali svjesnom ljudskom obradom, već su njihove uglačane površine nastale uporabom (Antonović, 2003, 60).

5. SIROVINSKI MATERIJAL

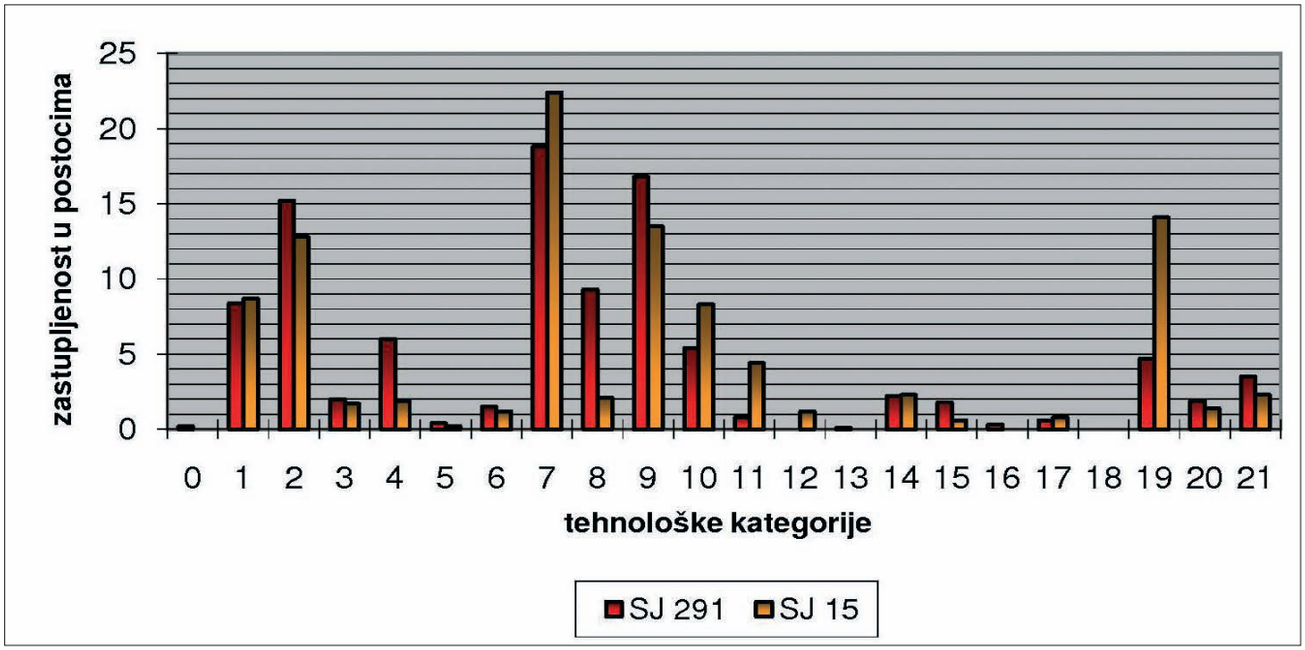
Većina izrađevina od cijepanoga kamena načinjena je od rožnjaka. Njegova boja je najčešće svijetlosmeđa, ali varira od svijetlosive, zatim plavo-zelene do smeđe. U nešto manjim količinama prisutne su i druge vrste sirovinskog materijala. Ipak, najčešća je pretpostavka da je sirovinski materijal pribavljan iz planina sjeverne Bosne, savskih riječnih nanosa, ali i iz slavonskih (Psunj, Papuk, Krndija, Požeška gora) i južnih mađarskih (Mecsek, Villány) planina (Težak Gregl, Burić 2002, 14; Burić i sur. 2004, 154-155). To bi potvrdila i činjenica da na Galovu do sada nije pronađena nijedna

2; Fig. 5). A shallow narrow groove was formed along the middle of the upper (working) longitudinal surface through the modeling and use of the object. It was made of a quite porous sandstone.

The pit house assemblage contains also several stone fragments, presumably from a quern-stone, judging by their massive appearance and flat surfaces. The case is similar with two stone fragments (which form a part of a whole when refitted) with a flat, smoothed lower surface. As it is only a fragment, it is difficult to ascertain its type or function. Although fragmented, it is quite massive, made from a hard and solid stone. It might have been a handstone or possibly a hammer. As it was indeterminate and possibly connected with a quern-stone, we mentioned it here within this category of stone, instead of polished stones. Handstones are not polished stone tools in the proper sense, because they did not acquire their shape through intentional human modeling. Instead, their surfaces became polished through use (Antonović, 2003, 60).

5. RAW MATERIALS

Most artifacts of chipped stone were made of chert. It is by and large of a light brown colour, but it varies from light gray and blue-green to brown. Other types of raw materials are present in somewhat smaller quantities. It is generally believed that the raw materials were obtained from the mountains of northern Bosnia, from the Sava alluvium, but also from the mountains in Slavonia (Psunj, Papuk, Krndija, Požeška Gora) and in southern Hungary (Mecsek, Villány) (Težak Gregl, Burić 2002, 14; Burić et al. 2004, 154-155). This appears to be corroborated by the fact that not a single artifact of obsidian is known so far from Galovo. Obsidian finds are known from some Starčevo (and Körös) sites in Serbia (Šarić 1998, 198; 2002, 14; 2005a, 57; 2005b, 89, 91) and, more



Sl. 6 Usporedba zastupljenosti tehnoloških kategorija u jami SJ 15 i zemunici SJ 291, izraženo u postocima
Fig. 6 Comparison of the frequency of technological categories in pit SU 15 and pit house SU 291, in percent

izrađevina od opsidijana, koji je poznat na nekim starčevačkim (i kereškim) nalazištima u Srbiji (Šarić 1998, 198; 2002, 14; 2005a, 57; 2005b, 89, 91) i češće u Mađarskoj (Biró 2002, 122, 135-137; Mateiciucová et Malecka-Kukawka 2007, 682). Prethodne analize sirovinskog materijala glačanih kamenih izrađevina s Galova[6] potvrdile su eksploataciju sirovina lokalnog porijekla, najvjerojatnije s obronaka Dilj gore i Požeške gore, dok se korištenje sirovine iz udaljenijih krajeva i trgovina smatraju neuobičajenima (Težak Gregl, Burić 2002, 15; Težak Gregl 2007, 166).

Tri od četiri glačane alatke iz zemunice 291, izrađene su od tzv. mekoga (lakoga) bijeloga kamena. Pod tim su terminom obuhvaćene stijene čije su osnovne značajke da su lagane, porozne i relativno mekane, raznih nijansi prljavobijele i žućkaste boje (Antonović 2003, 20). Alatke od lakoga bijeloga kamena svojstvene su mlađim fazama vinčanske kulture, dok su u manjem broju zastupljene na starčevačkim i starijim vinčanskim nalazištima (Antonović 2003, 22; Šarić 2005b, 91).

6. ZAKLJUČNA RAZMATRANJA

Analiza kamenih (cijepanih) izrađevina s nalazišta Galovo provedena je tek na dvije zatvorene cjeline – grobnoj jami 15 (Šošić 2007) i ovdje obrađenoj, zemunici SJ 291, te je s obzirom na broj istraženih objekata na nalazištu, odnosno ukupnu količinu kamenih izrađevina, riječ o relativno malom uzorku. Stoga je moguće govoriti tek o uvodu u problematiku produkcije kamenih rukotvorina na nalazištu, odnosno stvaranju baze podataka i temelja za daljnje analize. Zbog toga se značajke ove cjeline ne mogu smatrati pravim

6 Većina sjekira s Galova i iz Zadubravlja izrađena je od od pješčenjaka ili silta (Težak Gregl, 2007, 162).

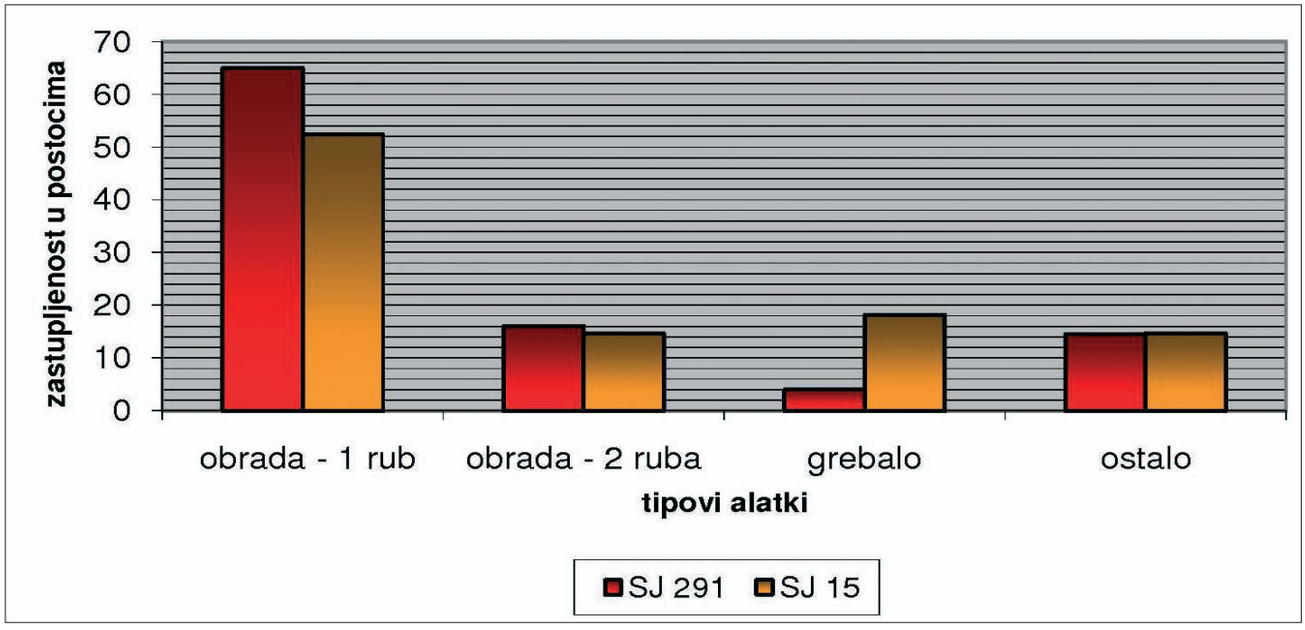
often, in Hungary (Biró 2002, 122, 135-137; Mateiciucová et Malecka-Kukawka 2007, 682). Previous analyses of raw materials for polished stone artifacts from Galovo[6] confirmed the exploitation of raw materials of local origin, in all probability from the slopes of the Dilj Gora and Požeška Gora mountains, while the use of raw materials from more remote areas as well as trade are considered less usual (Težak Gregl, Burić 2002, 15; Težak Gregl 2007, 166).

Three out of four polished tools from pit house 291 were made of the so-called soft (light) white stone. This term comprises rocks whose basic features are lightness, porosity and relative softness, and colour in various shades of dirty-white and yellow (Antonović 2003, 20). Tools of light white stone are typical of the younger phases of the Vinča culture, whereas their numbers are fewer at the sites of the Starčevo and earlier Vinča cultures (Antonović 2003, 22; Šarić 2005b, 91).

6. CONCLUDING OBSERVATIONS

The analysis of stone (chipped) artifacts from Galovo site was carried out on only two closed assemblages – grave pit 15 (Šošić 2007) and pit house SU 291, which is the subject of this paper. Considering the number of investigated structures at the site and the total number of stone artifacts, this is a relatively small sample. It is therefore possible to talk here only about an introduction of sorts into the body of issues regarding the production of stone artifacts at the site, that is, about the beginning of the creation of a database and laying of the foundation for further analyses. The features of this assemblage therefore cannot be considered true and exclusive indicators of the specific nature of the chipped stone industry of the settlement at Galovo. Nev-

6 Most of the axes from Galovo and Zadubravlje were made of sandstone or silt (Težak Gregl, 2007, 162).



Sl. 7 Usporedba zastupljenosti tipova alatki u jami SJ 15 i zemunici SJ 291, izraženo u postocima
Fig. 7 Comparison of the frequency of tool types in pit SU 15 and pit house SU 291, in percent

i isključivim pokazateljima specifičnosti cijepane kamene industrije naselja na Galovu. Ipak, riječ je o zatvorenoj cjelini - zemunici kojoj je, prema rezultatima, jedna od namjena mogla biti i radni prostor za proizvodnju kamenih izrađevina. Stoga ostavlja dovoljno prostora kako bi djelomično bili prikazani neki osnovni pokazatelji kamene industrije nositelja starčevačke kulture na ovome nalazištu. Također, u trenutku kada bude obrađena cjelokupna kamena građa s nalazišta, moći će se ustanoviti distribucija kamenih izrađevina na razini cijelog naselja te rekonstruirati mjesta povezana s aktivnostima proizvodnje ili uporabe kamenih izrađevina, i međusobno usporediti kameni nalazi pojedinih jama, odnosno zemunica.

Spomenute izdvojene cjeline s Galova (jama 15 i zemunica 291), iz kojih su do sada obrađeni cijepani kameni nalazi, u osnovnim obilježjima daju iste rezultate. U ovoj su zemunici odbojci najzastupljenija tehnološka kategorija koju slijede sječiva, a brojni su i odbojci i sječiva s okorinom. Postotak dodatno obrađenih komada – alatki, iznosi 11,44% od ukupne količine nalaza, iako tragovi te završne obrade (odbojci od obrade) nisu prisutni. Više je alatki izrađeno na sječivima. Brojne su i jezgre i njezini ulomci, što uz izrađevine s okorinom ponovo potvrđuje proizvodnju na nalazištu. U jami 15 također su zastupljene samo izrađevine koje pripadaju prvoj i drugoj fazi lanca operacija, dok nulta i treća nisu ustanovljene (sl. 6) (Šošić, 2007, 178, 184). Minimalne se razlike uočavaju u tipovima alatki (sl. 7). U zemunici su zabilježeni tipovi kojih nema u grobnoj jami 15, kao što su geometrijski mikroliti i udupci, dok je zastupljenost grebala u jami (Šošić, 2007, 182) veća nego u zemunici. Sjaj na rubovima, koji uglavnom ukazuje na korištenje kao dijela kompozitne alatke (srpa), uočen je na samo dva ulomka sječiva iz zemunice.

ertheless, this is a closed assemblage – a pit house among whose functions – so the results show – may have been that of a working area for the production of stone artifacts. It therefore allows sufficient space to present certain basic features of the stone industry of the bearers of the Starčevo culture at this site. Moreover, once that the entire stone material from this site has been analyzed, it will be possible to ascertain the distribution of stone artifacts at the level of the entire settlement, as well as to reconstruct the areas connected with the production or use thereof. It will also be possible to compare the stone finds from individual pits and pit houses.

The basic features of the mentioned assemblages from Galovo (pit 15 and pit house 291), the two from which the chipped stone finds have been analyzed so far, are the same. In the pit house, the flakes are the most numerous technological category, followed by blades. Flakes and blades with cortex are also numerous. The percentage of retouched pieces – tools is 11,44% of the total finds, even though traces of retouching (retouching flakes) are not present. A number of tools were made on blades. Cores and fragments thereof are likewise abundant, which is another fact, in addition to artifacts with cortex, that speaks in favour of the production on the site. Pit house also contains only artifacts that belong to the first and second phases of the operational sequence, while the zero and third phases were not ascertained (Fig. 6) (Šošić, 2007, 178, 184). Minimal differences are noticeable in the tool types (Fig. 7). Pit house yielded types that are absent from grave pit 15, such as geometric microliths and notches, while the frequency of end scrapers in the pit (Šošić, 2007, 182) is higher than in the pit house. The gloss on the edges, generally pointing to the use as part of a composite tool (a sickle), was observed on only two blade fragments from the pit house.

Temeljitija usporedba materijala iz susjednih naselja Dužine (Zadubravlje) i Galovo (Slavonski Brod) bit će konkretnija u fazi kada će cjelokupna građa s Galova biti obrađena. Budući da je riječ o dva naselja, međusobno udaljena 15-ak km, a koja datiraju iz iste (rane) faze starčevačke kulture, veća se odstupanja u proizvodnji i uporabi kamenog oruđa ne bi trebala očekivati. Već je sada jasno (temeljem velikog broja jezgri, i odbojaka i sječiva s okorinom) da su stanovnici oba naselja (Karavanić, Šošić, Bunčić, Kurtanjek 2009) prvu i drugu fazu proizvodnje obavljali u naselju.

Na oprezna tumačenja upozorava i dioba starčevačke industrije cijepanoga kamena na dva smjera. Jedna se temelji na obrađenim sječivima, grebalima i obrađenim odbojcima, s manjim brojem dubila i zarubaka, dok su u drugoj uz obrađena sječiva i odbojke u visokom broju zastupljeni mikroliti - geometrijski oblici (Kozlowski, Kozlowski, 1984, 275). Nalazi s Galova zasada pokazuju obilježja jedne i druge industrije.

Na temelju iznesenih podataka, kao i usporedbe s inventarom drugih objekata u ovome naselju (Minichreiter 2007), nesumnjivo je ova zemunica predstavljala jedno od važnijih prostora, kada je riječ o proizvodnji cijepanih kamenih izrađevina.

Zahvala

Zahvaljujem prof. dr. sc. Ivoru Karavaniću na pruženoj pomoći prilikom tehnološkoga i tipološkog određivanja pojedinih kamenih izrađevina te na sugestijama koje mi je uputio prilikom pisanja rada, zatim dr. sc. Borisu Kavuru također na konstruktivnim kritikama i savjetima i Miljenki Galić što je izradila crteže.

7. IZBOR KAMENIH NALAZA

Sječivo (T. 1, 1)
Neobrađeno sječivo proizvedeno tehnikom indirektnog odbijanja.
dimenzije: d – 6,57 cm; š – 1,9 cm; db – 0,5 cm; t – 6 g

Sječivo (T. 1, 2)
Neobrađeno sječivo proizvedeno tehnikom indirektnog odbijanja.
dimenzije: d – 6,3 cm; š – 1,2 cm; db – 0,45 cm; t – 4 g

Sječivo s obradom (T. 1, 3)
Sječivo s cjelovitom, naizmjeničnom obradom dorzalne i ventralne strane desnoga lateralnog ruba.
dimenzije: d – 4,5 cm; š – 1,44 cm; db – 0,3 cm; t – 3 g

Sječivo s obradom (T. 1, 4)
Sječivo sa sitnom obradom na oba lateralna ruba.
dimenzije: d – 4,36 cm; š – 1,38 cm; db – 0,26 cm; t – 1,5 g

Svrdlo (T. 1, 5)
Svrdlo izrađeno na sječivu. Cjelovito su obrađena oba lateralna ruba.

A detailed comparison of the material from the neighbouring settlements of Dužine (Zadubravlje) and Galovo (Slavonski Brod) will be more to the point once that the entire material from Galovo has been analyzed. Considering that these two settlements, separated by a distance of around 15 km, date from the same (early) phase of the Starčevo culture, one should not expect significant differences in the production and use of stone tools. It is already clear (based on the large number of cores and flakes and blades with cortex) that the inhabitants of both settlements (Karavanić, Šošić, Bunčić, Kurtanjek 2009) carried out the first and second phases of production within the settlement.

The division of the Starčevo chipped stone industry into two directions is another fact that calls for caution in interpretations. One is based on retouched blades, end scrapers and retouched flakes, with a small number of borers and truncated blades, while in the other, in addition to retouched blades and flakes, there is a large number of microliths – in geometric shapes (Kozlowski, Kozlowski, 1984, 275). The finds from Galovo so far exhibit features of both industries.

Based on the presented data, as well as on the comparison with the inventories from other structures in this settlement (Minichreiter 2007), this pit house was undoubtedly one of the more important areas for the production of chipped stone artifacts.

Acknowledgements

I thank Prof. Ivor Karavanić for his help in the technological and typological determination of specific stone artifacts as well as for his suggestions during the work on the paper; Dr. Boris Kavur for his constructive criticism and advice as well as Miljenka Galić for the drawings.

7. SELECTION OF STONE FINDS

Blade (Pl. 1, 1)
An unretouched blade made by indirect flaking.
Dimensions: l. – 6,57 cm; wi. – 1,9 cm; th. – 0,5 cm; we. – 6 g

Blade (Pl. 1, 2)
An unretouched blade made by indirect flaking.
Dimensions: l. – 6,3 cm; wi. – 1,2 cm; th. – 0,45 cm; we. – 4 g

Retouched blade (Pl. 1, 3)
A blade with a full, alternate retouch of the dorsal and ventral sides of the right lateral edge.
Dimensions: l. – 4,5 cm; wi. – 1,44 cm; th. – 0,3 cm; we. – 3 g

Retouched blade (Pl. 1, 4)
A blade with small retouch on both lateral edges.
Dimensions: l. – 4,36 cm; wi. – 1,38 cm; th. – 0,26 cm; we.– 1,5 g

Drill (Pl. 1, 5)
A drill made on a blade. Both lateral edges are fully retouched.
Dimensions: l. – 4,27 cm; wi. – 1,5 cm; th. – 0,5 cm; we. – 3,6 g

dimenzije: d – 4,27 cm; š – 1,5 cm; db – 0,5 cm; t – 3,6 g

Dubilo (T. 1, 6)
Dubilo izrađeno na prvotnom odbojku. Obrađen je distalni dio desnoga lateralnog ruba.
dimenzije: d – 7,5 cm; š – 2,94 cm; db – 0,5 cm; t – 21,4 g

Grebalo (T. 1, 7)
Grebalo velikih dimenzija izrađeno na odbojku. Obrađeni su i lijevi i desni lateralni rub s dorzalne strane.
dimenzije: d – 7,3 cm; š – 4,6 cm; db – 2 cm; t – 69,6 g

Grebalo (T. 1, 9)
Grebalo izrađeno na drugotnom odbojku. Obrađen je i desni lateralni rub s dorzalne strane i dio lijevog s ventralne strane.
dimenzije: d – 2,7 cm; š – 1,55 cm; db – 0,6 cm; t – 2,7 g

Dvojno grebalo (T. 1, 8)
Dvojno grebalo izrađeno na drugotnom odbojku. Obrađen je i dio lateralnog ruba na kojemu se ne nalazi okorina.
dimenzije: d – 3,5 cm; š – 2 cm; db – 1,5 cm; t – 11,4 g

Zarubak (T. 2, 1)
Zarubak izrađen na pločici s obradom na proksimalnom rubu.
dimenzije: d – 2,47 cm; š – 1 cm; db – 0,3 cm; t – 1,1 g

Udubak (T. 2, 2)
Udubak izrađen na drugotnom odbojku. Obrađen je lijevi lateralni rub s ventralne strane.
dimenzije: d – 2,3 cm; š – 2,5 cm; db – 0,47 cm; t – 2,7 g

Geometrijski mikrolit (T. 2, 3)
Geometrijski mikrolit na ulomku sječiva s obradom na distalnom i proksimalnom rubu.
dimenzije: d – 1,6 cm; š – 1,4 cm; db – 0,34 cm; t – 1,2 g

Geometrijski mikrolit (T. 2, 4)
Geometrijski mikrolit na ulomku sječiva s obradom na distalnom i proksimalnom rubu.
dimenzije: d – 1,7 cm; š – 1,27 cm; db – 0,2 cm; t – 0,7 g

Geometrijski mikrolit (T. 2, 5)
Geometrijski mikrolit na ulomku drugotnog sječiva s obradom na distalnom i proksimalnom rubu.
dimenzije: d – 1,5 cm; š – 1,25 cm,; db – 0,36 cm; t – 0,8 g

Jezgra za pločice (T. 2, 6)
Jezgra za pločice, s okorinom.
dimenzije: d – 2,55 cm; š – 2,9 cm; db – 1,36 cm; t – 16,2 g

Miješana jezgra (T. 2, 7)
Miješana jezgra s više udarnih ploha.
dimenzije: d – 3,3 cm; š – 4,05; t – 116,4 g

Miješana jezgra (T. 2, 8)
Miješana jezgra, s okorinom. Vrlo malo iskorištena.
dimenzije: d – 5 cm; š – 4,3; t – 119,5 g

Miješana jezgra (T. 2, 9)
Miješana jezgra, iskorištena.
dimenzije: d – 2,9 cm; š – 3,56; t – 34,8 g

Borer (Pl. 1, 6)
A borer made on a primary flake. The distal part of the right lateral edge is retouched.
Dimensions: l. – 7,5 cm; wi. – 2,94 cm; th. – 0,5 cm; we. – 21,4 g

End scraper (Pl. 1, 7)
A large end scraper on a flake. Both the left and right lateral edges are retouched on the dorsal side.
Dimensions: l. – 7,3 cm; wi. – 4,6 cm; th. – 2 cm; we. – 69,6 g

End scraper (Pl. 1, 9)
An end scraper on a secondary flake. The right lateral edge on the dorsal side is retouched, as well as a part of the left edge on the ventral side.
Dimensions: l. – 2,7 cm; wi. – 1,55 cm; th. – 0,6 cm; we. – 2,7 g

Double end scraper (Pl. 1, 8)
A double end scraper on a secondary flake. A part of a lateral edge without cortex is retouched.
Dimensions: l. – 3,5 cm; wi. – 2 cm; th. – 1,5 cm; we. – 11,4 g

Truncated tool (Pl. 2, 1)
A truncated bladelet, with retouch on the proximal edge.
Dimensions: l. – 2,47 cm; wi. – 1 cm; th. – 0,3 cm; we. – 1,1 g

Notch (Pl. 2, 2)
A notch made on a secondary flake. The left lateral edge is retouched on the ventral side.
Dimensions: l. – 2,3 cm; wi. – 2,5 cm; th. – 0,47 cm; we. – 2,7 g

Geometric microlith (Pl. 2, 3)
A geometric microlith on a fragment of a blade, with retouch on the distal and proximal edges.
Dimensions: l. – 1,6 cm; wi. – 1,4 cm; th. – 0,34 cm; we. – 1,2 g

Geometric microlith (Pl. 2, 4)
A geometric microlith on a fragment of a blade, with retouch on the distal and proximal edges.
Dimensions: l. – 1,7 cm; wi. – 1,27 cm; th. – 0,2 cm; we. – 0,7 g

Geometric microlith (Pl. 2, 5)
A geometric microlith on a fragment of a secondary blade, with retouch on the distal and proximal edges.
Dimensions: l. – 1,5 cm; wi. – 1,25 cm; th. – 0,36 cm; we. – 0,8 g

Core for blades (Pl. 2, 6)
A core for blades, with cortex.
Dimensions: l. – 2,55 cm; wi. – 2,9 cm; th. – 1,36 cm; we. – 16,2 g

Mixed core (Pl. 2, 7)
A mixed core with several flaking surfaces.
Dimensions: l. – 3,3 cm; wi. – 4,05 cm; we. – 116,4 g

Mixed core (Pl. 2, 8)
A mixed core, with cortex. Very little used.
Dimensions: l. – 5 cm; wi. – 4,3 cm; we. – 119,5 g

Mixed core (Pl. 2, 7)
A mixed core, used up.
Dimensions: l. – 2,9 cm; wi. – 3,56 cm; we. – 34,8 g

Miješana jezgra i obrađeno sječivo (T. 3, 1a, 1b)
a) Miješana jezgra, s okorinom. (T. 3, 1a)
dimenzije: d – 2,4 cm; š – 4,4; t – 39,1 g
b) Uranjajuće sječivo s cjelovitom obradom na lijevom lateralnom rubu i djelomičnom na desnom. (T. 3, 1b)
dimenzije: d – 4,4 cm; š – 1,7; db – 0,6; t – 6,7 g
Spajanjem jezgre i sječiva jezgra dobiva koničan oblik kakav je imala prije odbijanja ovog sječiva. Odbijanjem sječiva zahvaćen je donji dio jezgre.

Sjekira (T. 3, 3)
Sjekira trapeznog oblika, elipsoidnoga poprečnog presjeka. Sječivo je blago zaobljeno, gotovo ravno, ali ukošeno. Tjeme je oštećeno. Fino uglačana.
boja: bijela (5Y 8/1 white)
dimenzije: d – 6,9 cm; š (oštrica) – 4,2 cm, (tjeme) – 3,2 cm; db – 2,1 cm; t – 104 g

Ulomak bradve (T. 3, 4)
Ulomak bradve. Očuvan je distalni dio. Sječivo je izrazito zaobljeno. Fino uglačana.
boja: bijela (5Y 8/1 white) – svijetložuta (5Y 8/2 pale yellow)
dimenzije: d – 4,2 cm; š – 5,5 cm; db – 3,1 cm; t – 98,7

Brusni kamen (T. 3, 2)
Brusni kamen (pješčenjak) izduženoga pravokutnog oblika. Donja ploha je zaobljena. Dio dna i dio lijeve bočne stranice su oštećeni. Kroz sredinu gornje plohe, po dužoj osi, ocrtava se uski utor nastao obradom koštanih šila.
boja: žuto-smeđa (10 YR 6/6 brownish yellow)
dimenzije: d – 5 cm; š – 2,4 cm; v – 2,5 cm; t – 41,8 g

Mixed core and a retouched blade (Pl. 3, 1a, 1b)
a) A mixed core, with cortex. (Pl. 3, 1a)
Dimensions: l. – 2,4 cm; wi. – 4,4 cm; we. – 39,1 g
b) A conjoining blade with full retouch on the left lateral edge and partial retouch on the right edge (Pl. 3, 1b)
Dimensions: l. – 4,4 cm; wi. – 1,7 cm; th. – 0,6; we. – 6,7 g
By refitting the core and the blade the core acquires the conical shape it had had before the blade was removed. The removal of the blade affected the lower part of the core.

Axe (Pl. 3, 3)
A trapezoidal axe with an elliptical cross-section. The blade is slightly rounded, almost straight, but inclined. The poll is damaged. Finely polished.
Colour: white (5Y 8/1)
Dimensions: l. – 6,9 cm; wi. (blade) – 4,2 cm, (poll) – 3,2 cm; th. – 2,1 cm; we. – 104 g

Fragment of an adze (Pl. 3, 4)
A fragment of an adze. The distal part is preserved. The blade is distinctly rounded. Finely polished.
Colour: white (5Y 8/1) – pale yellow (5Y 8/2)
Dimensions: l. – 4,2 cm; wi. – 5,5 cm; th. – 3,1 cm; we. – 98,7 g

Grindstone (Pl. 3, 2)
An elongated rectangular grindstone (sandstone). The lower surface is rounded. A part of the base and a part of the left lateral side are damaged. A narrow groove created by the processing of bone awls is visible along the middle of the upper surface in the longitudinal axis.
Colour: brownish yellow (10 YR 6/6)
Dimensions: l. – 5 cm; wi. – 2,4 cm; h. – 2,5 cm; we. – 41,8 g

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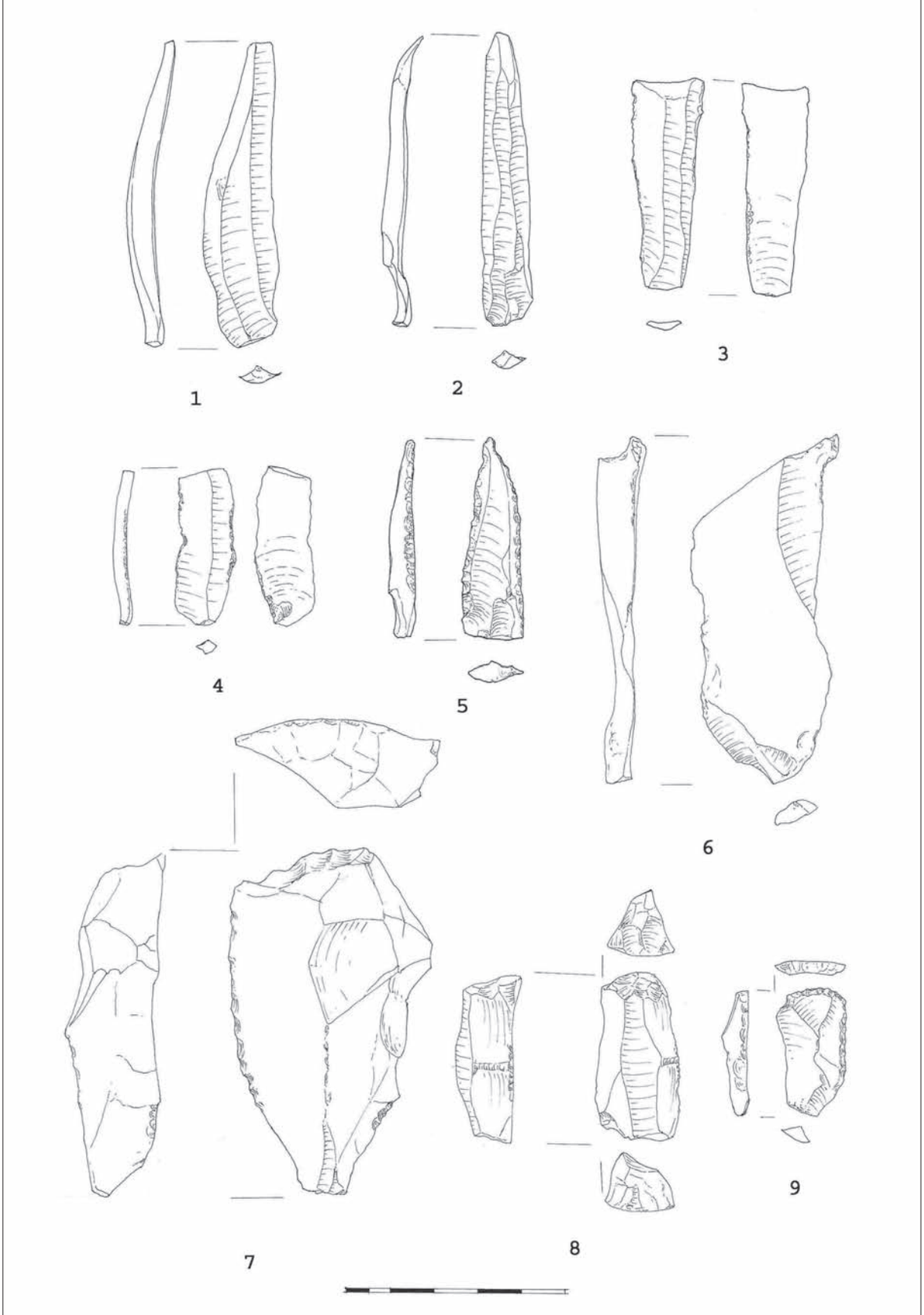
T. 1



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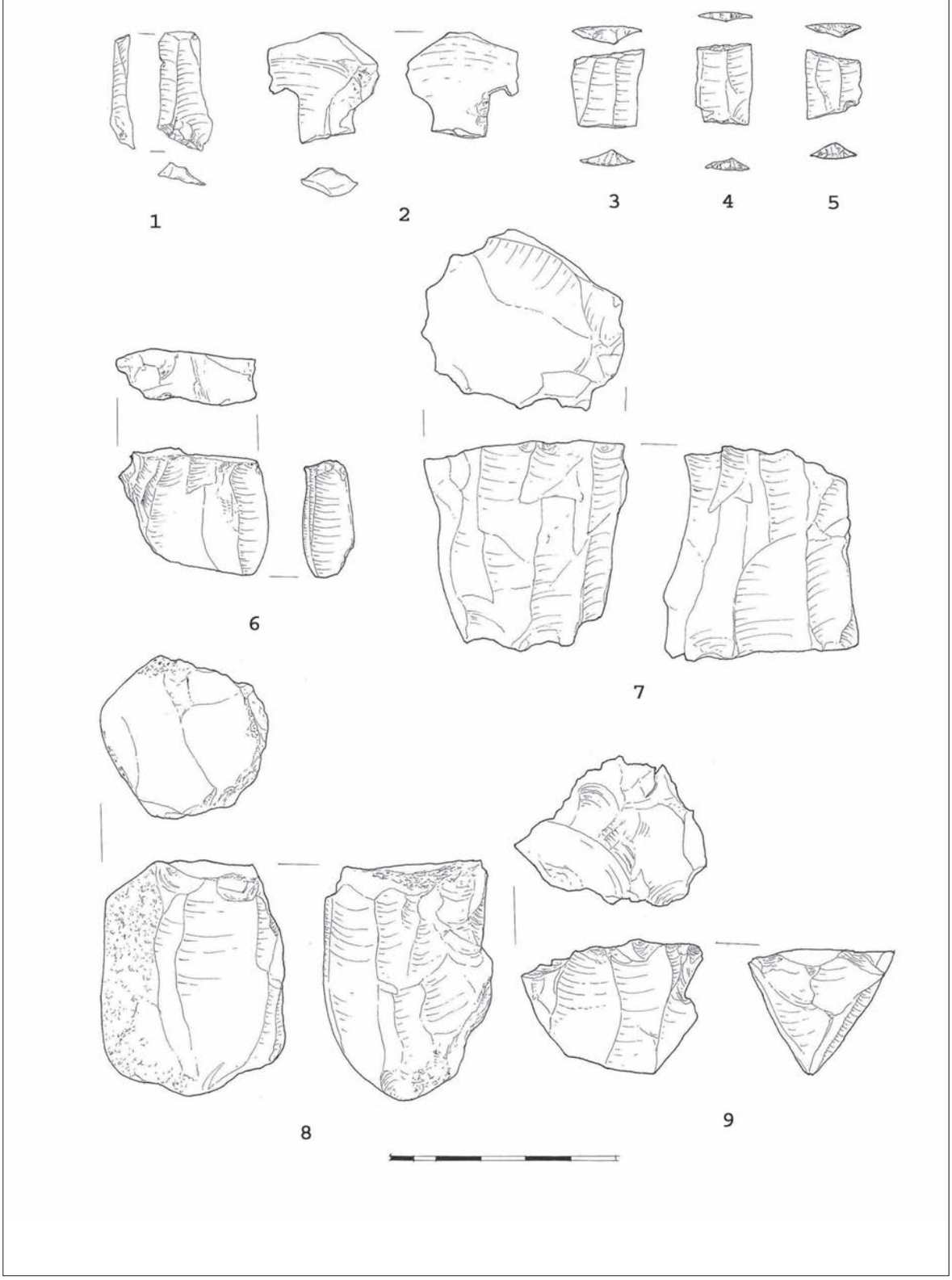
Pl. 1, 1-9

T. 2



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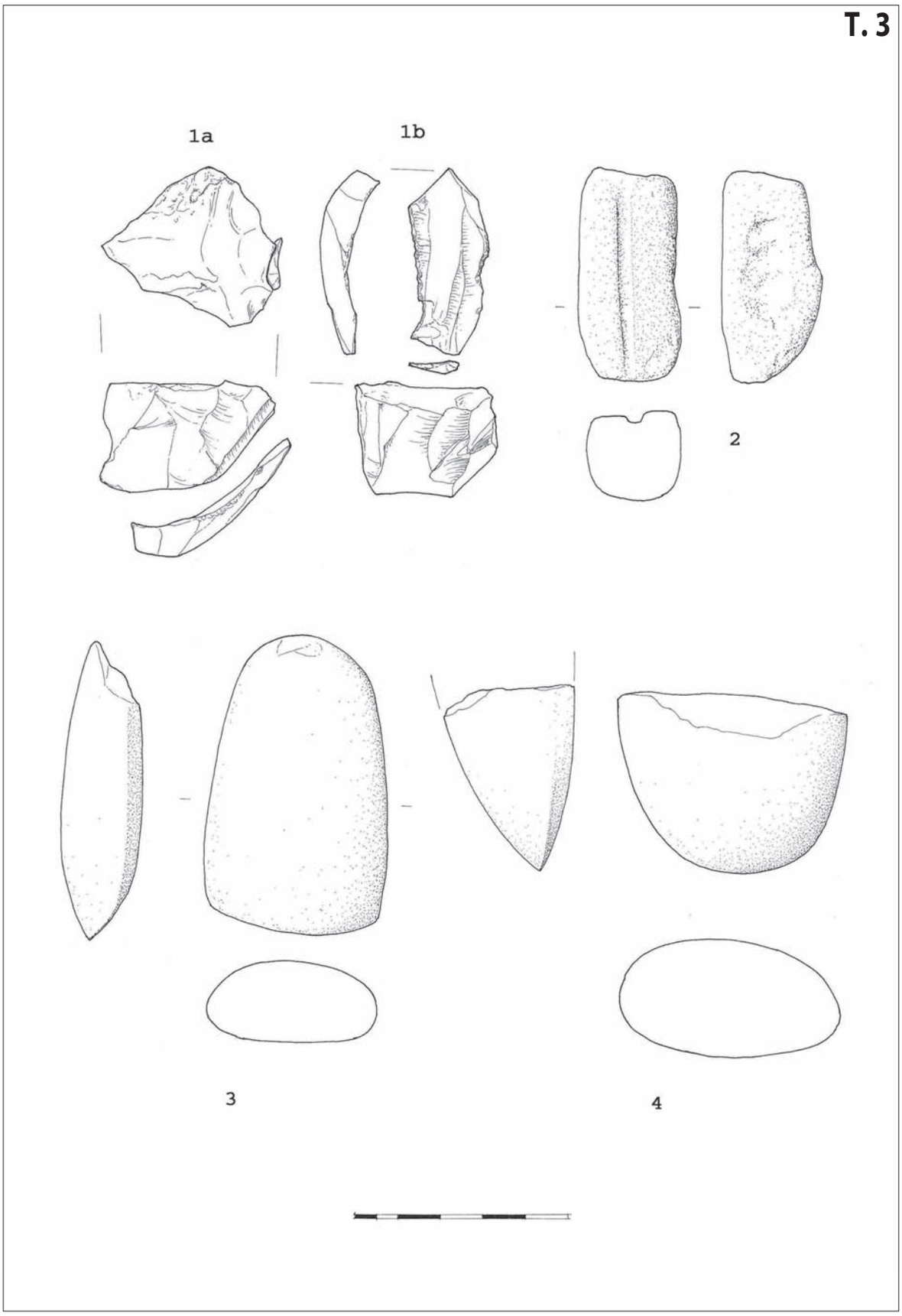
T. 3



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