

## Srednjebronastodobni levoročni jezičastoročajni srpi in meč iz Ljubljane

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### Izvleček

V članku so obravnavani trije bronasti levoročni jezičastoročajni srpi in meč, ki so bili najdeni v Ljubljani. Srpi se tipološko ločijo po prehodu iz ročaja v rezilo, po širini rezila in po preseku rezila. Imajo dobre primerjave v naselbinskih najdbah v Padski nižini in v madžarskem depoju iz srednje bronaste dobe. Kalup iz Italije kaže na tamkajšnje poreklo izdelave levoročnih srpov.

Meč sodi v skupino kratkih mečev tipa Sauerbrunn.

**Ključne besede:** Slovenija, Ljubljana, severna Italija, srednja bronasta doba, srp, kalup, meč tipa Sauerbrunn

### Abstract

The article discusses three bronze left-handed tanged sickles and a sword that were found in the Ljubljana River. The sickles can be distinguished typologically according to the transition from the tang to the blade, the width of the blade, and the cross-section of the blade. Good analogies can be found in the settlement finds in the Po valley and in Hungarian hoard from the middle Bronze Age. A mould from Italy indicates the origin of production of left-handed sickles.

The sword belongs to the short swords of the Sauerbrunn type.

**Keywords:** Slovenia, Ljubljana River, northern Italy, middle Bronze Age, sickle, mould, Sauerbrunn type sword

### LEVOROČNI JEZIČASTOROČAJNI SRPI

#### Najdiščne okoliščine in opis

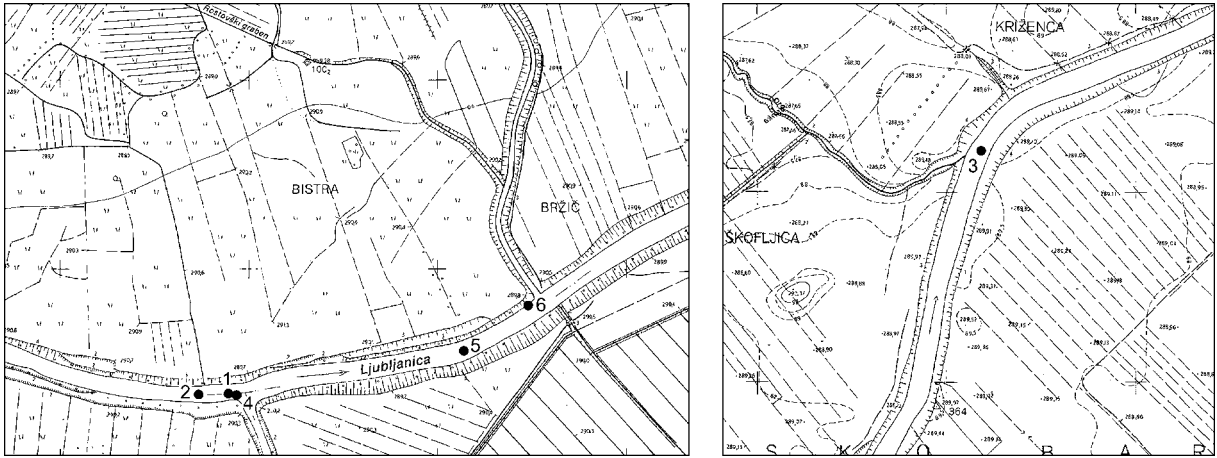
V Ljubljani so med ostalim arheološkim gradivom<sup>1</sup> našli tudi tri bronaste srpe, ki so bili izdelani za uporabo z levo roko.<sup>2</sup> To so srpi, ki imajo

ročaj na levi, rezilo pa se izteče v konico na desni strani. Srpe so našli trije potapljači, na treh mestih, ob različnem času.

1. Prvi srp je bil najden približno 25 m nad izlivom Bistre v Ljubljani (sl. 1: 1; 2: 1a,1b). Ohranjen je v celoti. Ima gladek ročaj trapezastega preseka, osnova ročaja je ravna. Rezilo je trikotnega pre-

<sup>1</sup> P. Petru et al., *Najdbe v Ljubljani (pridobitve l. 1981)*, Podvodna arheologija v Sloveniji 1 (1982); N. Logar, P. Bitenc, Poročilo o podvodnih raziskovanjih v letih 1982 in 1983, v: *Podvodne raziskave v Sloveniji*, Podvodna arheologija v Sloveniji 2 (1984) 99 ss; M. Potočnik, Bakreno- in bronastodobne podvodne najdbe iz Bistre in Ljubljane na Ljubljanskem barju, *Arheološki vestnik* 39-40, 1988-1989, 387 ss; D. Svoljšak et al., Novo gradivo v Arheološkem oddelku Narodnega muzeja v Ljubljani (pridobljeno v letih od 1987 do 1993), *Varstvo spomenikov* 36, 1994-1995, 224 ss; I. Šinkovec, Katalog posameznih kovinskih najdb bakrene in bronaste dobe, v: *Deposke in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem* 1, Katalogi in monografije 29 (1995) 29 ss; A. Gaspari, *Latenske in zgodnjerske najdbe iz Ljubljane*. Doktorsko delo, Oddelek za arheologijo, Filozofska fakulteta Univerze v Ljubljani (Ljubljana 2002); id., *Bronzezeitliche Funde aus der Ljubljana*. Opfer, Überreste von Bestattungen oder zufällige Verluste, *Archäologisches Korrespondenzblatt* 34/1, 2004, 37 ss.

<sup>2</sup> E. Humer, Linkshändigkeit im Altertum, v: *Die Geschichte der Antike aktuell: Methoden, Ergebnisse und Rezeption*, Altertumswissenschaftliche Studien Klagenfurt 2 (Klagenfurt/Celovec, Ljubljana/Laibach, Wien/Dunaj 2005) 307 ss.



Sl. 1: Najdišča srednjebronastodobnih kovinskih predmetov v zgornjem toku Ljubljanice. 1,2,3 srpi; 4,6 meča; 5 sekira. Vir: TTN 5, izseka iz listov Vrhnika 28, 1992 in Ljubljana-jug 21, 1988 ©Geodetska uprava Republike Slovenije, pomanjšano na 50%. Objavljeno z dovoljenjem Geodetske uprave RS.

Fig. 1: Sites of middle Bronze Age metal objects in the upper course of the Ljubljanica River. 1,2,3 sickles; 4,6 swords; 5 axe. Source: TTN 5, sectors from the Vrhnika 28 map, 1992, and Ljubljana-south 21, 1988 ©Geodetic Institute of the Republic of Slovenia, reduced by 50%. Published by permission of the Geodetic Institute RS.

seka, brez hrbtnega rebra. Mesto ulivanja je na zalomljenem prehodu<sup>3</sup> ročaja v rezilo. Izrastek oz. ostanek ulivnega sistema je odlomljen. Površina je močno korodirana, patina je rjave barve. Dolžina<sup>4</sup> 15,8 cm, višina<sup>5</sup> 8,8 cm, širina ročaja 1,9 cm, teža 51,3 g. Hrani Narodni muzej Slovenije, inv. št. V 1972.<sup>6</sup>

2. Drugi srp<sup>7</sup> je bil najden kakih 40 m vzdovno od prvega, se pravi okoli 65 m nad izlivom Bistre (sl. 1: 2; 2: 2a,2b). Ohranjen je v celoti. Ročaj trapezastega preseka je gladek, osnova ročaja je ravna. Na rezilu je hrbtno rebro. Prehod ročaja v rezilo je tekoč. Mesto ulivanja je na izrastku. Patina

je rjave barve. Dolžina 15 cm, višina 9,3 cm, širina ročaja 2 cm, teža 63,6 g. Zasebna last.<sup>8</sup>

3. Tretji srp je bil najden 8. januarja 1998 v Ljubljani, približno 7,3 km zračne linije nizvodno od izliva Bistre, med Podpečjo in Lipami, v višini prometne table, ki označuje kraj Lipe (sl. 1: 3; 2: 3a,3b). Ohranjen je skoraj v celoti. Gladek ročaj je trapezastega preseka, osnova ročaja je ravna. Na rezilu je hrbtno rebro. Prehod ročaja v rezilo je tekoč. Patina je rjave barve. Mesto ulivanja je na izrastku. Dolžina 14,6 cm, višina 9,2 cm, širina ročaja 2,3 cm, teža 85,5 g. Zasebna last.<sup>9</sup>

Ta srp je bil analiziran po ICP AES metodi.<sup>10</sup>

Cu	Sn	Pb	As	Ni	Sb	Co	Bi	Ag	Fe	Mn	Zn
93 %	7,65 %	0,02 %	0,30 %	0,71 %	0,03 %	0,01 %	-	0,01 %	0,25 %	n. a.	-

Z detektorjem kovin so bili v Sloveniji najdeni še trije bronasti fragmenti, ki bi jih lahko pripisali levoročnim srpom.

4. Na Gobavici pri Mengšu je bil leta 1997 naj-

den bronast fragment (sl. 2: 4), ki po trapezastem preseku in širini ustreza spodnjemu delu gladkega ročaja levo-ali desnoročnega srpa.<sup>11</sup> Na desnem robu in na sredini pri lomu so sledovi udarcev. Širina

<sup>3</sup> Za razliko od tekočega prehoda zunanega roba ročaja v rezilo srpa pri zalomljenem prehodu zunanji rob ročaja in začetek hrbtna rezila tvorita topi kot.

<sup>4</sup> Pravokotnica od levega roba ročaja do konice rezila.

<sup>5</sup> Pravokotnica od osnove ročaja do najvišje točke na hrbtnu rezila.

<sup>6</sup> P. Pavlin, *Bronastodobni srpi na področju Slovenije, Panonije in na zahodnem Balkanu*. Magistrsko delo, Univerza v Ljubljani, Filozofska fakulteta, Oddelek za arheologijo (Ljubljana 2001) 19, t. 1: 1 (v pripravi za objavo v seriji *Prähistorische Bronzefunde*).

<sup>7</sup> Šinkovec (op. 1) 125 št. 8, t. 144: 8.

<sup>8</sup> Pavlin (op. 6) 20, t. 1: 2.

<sup>9</sup> *Ib.*, 20, t. 1: 3.

<sup>10</sup> R. Urankar, *Arheometrične raziskave posameznih najdb pozne bronaste dobe*. Diplomsko delo, Univerza v Ljubljani, Filozofska fakulteta, Oddelek za arheologijo (Ljubljana 2003) 52 št. 54, pril. 1.

<sup>11</sup> Desnoročni srpi z gladkim ročajem: Tržišče pri Dolenji vasi, posamezna najdba: Šinkovec (op. 1) 113, t. 33: 224; med Steinachom in Salfauom (Avstrija, Tirolska), posamezna najdba: M. Primas, *Die Sichel in Mitteleuropa 1. (Österreich, Schweiz, Süddeutschland)*, *Prähistorische Bronzefunde* 18/2 (1986) 112, t. 49: 807; Isolone del Mincio (Italija, Lombardija, prov. Manto-

ročaja 2 cm, teža 4,6 g. Zasebna last.<sup>12</sup>

5. Med kovinskim gradivom iz Turjeve jame pri Robiču je, po profilu sodeč, tudi konica levoročnega srpa (sl. 2: 5).<sup>13</sup> Da gre za konico noža, je manj verjetno, saj ima večina rezil nožev običajno skoraj simetričen profil. Dolžina 3,4 cm, teža 10 g. Hrani Tolminski muzej, inv. št. TM 608.

6. Konica levoročnega srpa je bila 16. januarja 1994 najdena tudi na Gradišču pri Dobrni (sl. 2: 6). Na površini so sledovi udarcev. Dolžina 3,7 cm, teža 10,8 g. Zasebna last.<sup>14</sup>

### Časovna opredelitev

Prvi srp lahko primerjamo s srpom iz večplastnega naselja Baselle (prov. Mantova) (sl. 3: 1).<sup>15</sup> Srp, ki je bil v ognju poškodovan in deformiran, je slabo ohranjen. Kakšen je prehod iz ročaja v rezilo, iz risbe ni jasno, kot tudi ne, ali je na ročaju luknjica ali ne. Iz preseka rezila je moč razbrati, da nima hrbtnega rebra. Rezili obeh srpov sta v primerjavi z ostalimi razmeroma ozki in blago ukrivljeni. Kontekst, v katerem je bil najden (keramika, sekira, bodalo in sulična ost),<sup>16</sup> R. de Marinis datira v srednjebronastodobno stopnjo II A (Bronzo medio II A).<sup>17</sup>

Drugo primerjavo predstavlja fragment srpa, slučajna najdba iz naselja Ara di Spin (prov. Mantova) (sl. 3: 2).<sup>18</sup> Ima gladek ročaj trapezastega preseka z ravno osnovo in zalomljen prehod iz ročaja v rezilo, ki je trikotnega preseka brez hrbtnega rebra.

Površinske najdbe iz naselja Ara di Spin so okvirno datirane v srednjo bronasto dobo.<sup>19</sup>

Drugi in tretji srp iz Ljublanice imata odlične primerjave v treh dobro datiranih srednjebronastodobnih kontekstih. Prvo analogijo predstavlja srp iz madžarskega depoja Dunaújváros-Kosziderpádlas II (sl. 3: 3), ki je datiran v eponimni depojški horizont, torej srednjo bronasto dobo.<sup>20</sup> Druga je srp iz naselbinske plasti iz Monte Castellaccio di Imola (prov. Bologna) (sl. 3: 4), ki je datirana v drugo srednjebronastodobno stopnjo (Bronzo medio 2).<sup>21</sup> Vsem tem srpom so skupni gladek ročaj, poudarjeno hrbtno rebro in mesto ulivanja, ki je na tekočem prehodu ročaja v rezilo. Tretja, zelo pomembna primerjava pa je fragmentiran glinast kalup za ulivanje levoročnih jezičastoročajnih srpov iz naselja Castellaro del Vhò di Piadena (prov. Cremona) (sl. 3: 5). Stratigrafska pozicija tega kalupa je 4III faza naselja, kar omogoča datacijo v razvito drugo srednjebronastodobno stopnjo (Bronzo medio 2B).<sup>22</sup> Velikost odtisa srpa v kalupu (dolžina 15,3 cm, višina 9,6 cm širina ročaja 2,2 cm) se presenetljivo ujema z dimenzijami srpa št. 2 iz Ljublanice. Tudi ulivni lijak je na prehodu ročaja v rezilo srpa.

Srp iz naselja Baselle kaže, da so srpi z zalomljenim prehodom iz ročaja v ozko rezilo, ki je trikotnega preseka in brez hrbtnega rebra, nekoliko starejši od srpov, ki imajo prehod tekoč in hrbtno rebro izrazito. Obojim sta skupna gladek ročaj in mesto ulivanja, ki je pri šestih srpih (sl. 1: 1a-3b; 2: 3-6) zanesljivo na prehodu ročaja v rezilo. Levoročni srpi so razmeroma majhni. Njihova dolžina se giblje med 14,4 in 15,8 cm, višina med 8,6 in 9,3 cm in širina ročaja med 1,9 in 2,3 cm.

va), naselbina, plast I z najdbami od zgodnje do pozne bronaste dobe: T. Urban, *Studien zur mittleren Bronzezeit in Norditalien*, Universitätsforschungen zur prähistorischen Archäologie 14 (1993) 445 ss, t. 17B; Bor di Pacengo (Italija, Veneto, prov. Verona), naselbina, najdbe od zgodnje do pozne bronaste dobe: L. Fasani, *L'età del Bronzo, v: Il Veneto nell'antichità. Preistoria e protostoria* 2 (1984) sl. na str. 547: 11; Urban, ib., 562 ss.

<sup>12</sup> Pavlin (op. 6) 20, t. 1: 4.

<sup>13</sup> P. Čerče, I. Šinkovec, Katalogi in monografije 29 (1995) 221 ss, t. 142A: 11.

<sup>14</sup> Pavlin (op. 6) 52, t. 17: 291.

<sup>15</sup> M. Perini, La stazione preistorica delle Baselle di Castelnovo di Asola (Mantova) nel carteggio inedito di don Luigi Ruzzenenti, *Museo e territorio. La Bassa orientale* 2, 1981-1982, t. 13: 2.

<sup>16</sup> Ib., 23, t. 8-12; 13: 4.

<sup>17</sup> Raffaeleju de Marinisu se zahvaljujem za podatke. Za kronologijo srednje bronaste dobe severne Italije glej: R. de Marinis, Towards a Relative and Absolute Chronology of the Bronze Age in Northern Italy, *Notizie Archeologiche Bergomensi* 7, 1999, 23 ss.

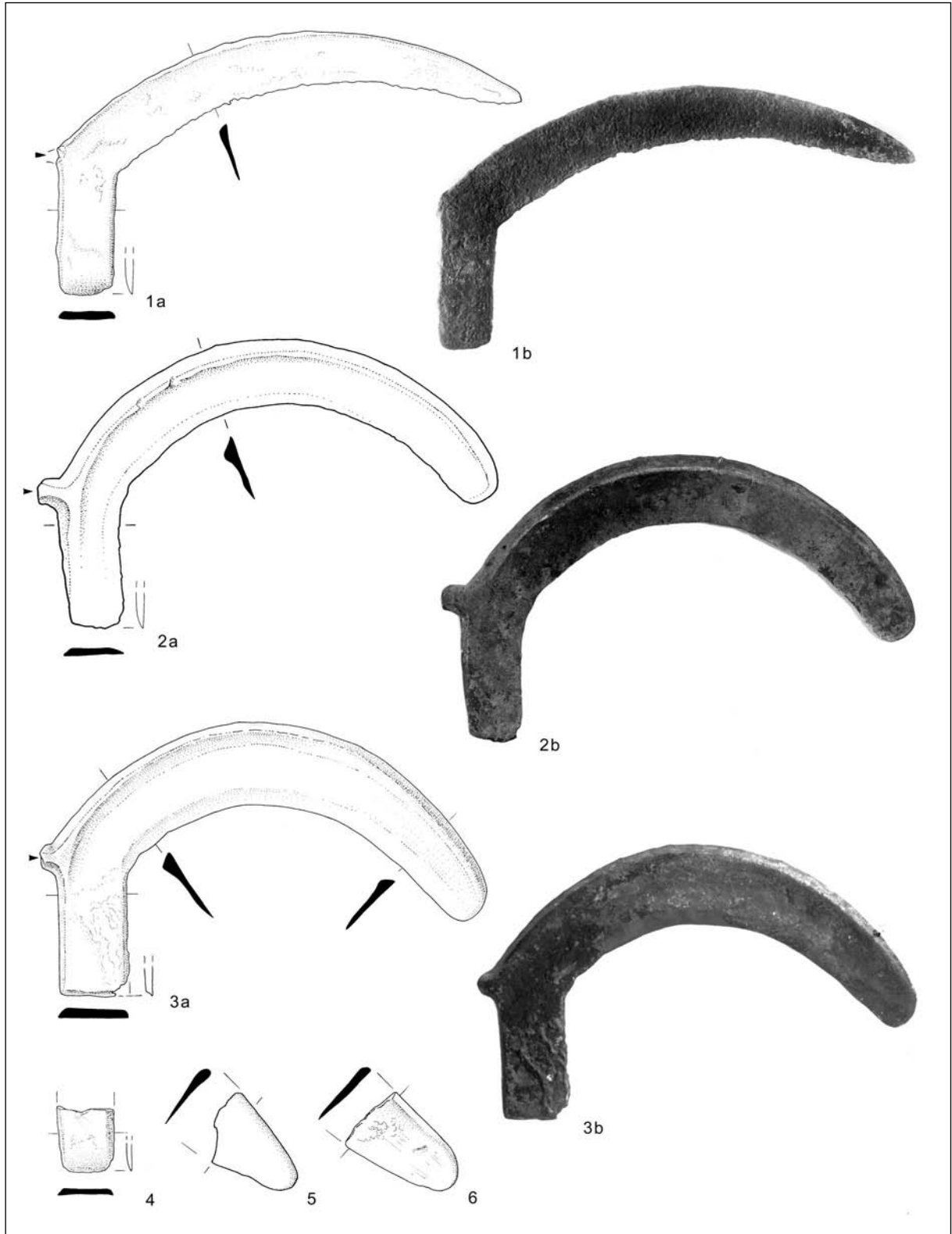
<sup>18</sup> R. de Marinis, *Villaggi e necropoli dell'età del Bronzo nel territorio di Ostiglia* (Ostiglia 1987) 21 ss, sl. 15: 1.

<sup>19</sup> Ib., 26 s.

<sup>20</sup> A. Mozsolics, *Bronzefunde des Karpatenbeckens. Depotfundhorizonte von Hajdúsámson und Kosziderpádlás* (Budapest 1967) 123 ss, 134 s, t. 49: 10. Glej še B. Hänsel, *Beiträge zur Chronologie der mittleren Bronzezeit im Karpatenbecken*, *Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturraumes* 7, 8 (1968) 161, 165.

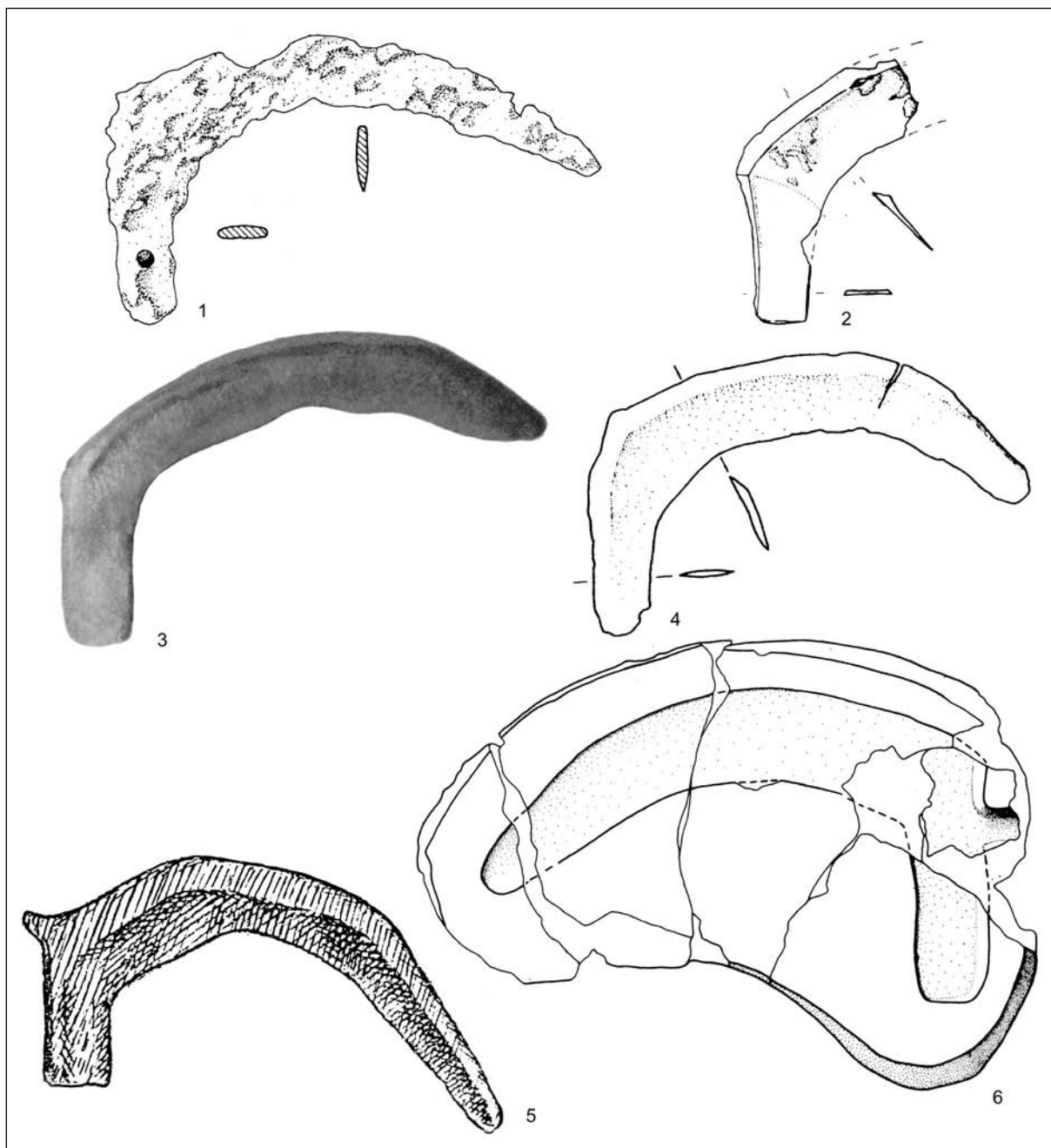
<sup>21</sup> M. Pacciarelli, Il Bronzo Medio-Recente della Romagna: evoluzione tipologica e vicende del popolamento, v: *Le Terramare. La più antica civiltà padana* (Modena 1997) 428, sl. 246: 10.

<sup>22</sup> J. Cierny, N. Degasperis, P. Frontini, M. Prange, Le attività metallurgiche, v: *Castellaro del Vhò. Campagne di scavo 1996-1999. Scavi delle Civiche Raccolte Archeologiche di Milano* (Milano 2001) 73, sl. 37: 5; P. Frontini, Considerazioni cronologiche sulle fasi indagate stratigraficamente, ib., 225 ss.



Sl. 2: 1a,1b Ljubljana - nad izlivom Bistre I; 2a,2b Ljubljana - nad izlivom Bistre II (po Šinkovec, op. 1); 3a,3b Ljubljana - med Podpečjo in Lipami; 4 Gobavica pri Mengešu; 5 Turjeva jama pri Robiču (po Šinkovec, op. 1); 6 Gradišče pri Dobrni. 1-6 bron. M. = 1:2. Risba: Dragica Knific-Lunder.

Fig. 2: 1a,1b The Ljubljana River - above the influx of the Bistra Stream I; 2a,2b The Ljubljana River - above the influx of the Bistra Stream II (from Šinkovec, n. 1); 3a,3b The Ljubljana River - between Podpeč and Lipe; 4 Gobavica near Mengeš; 5 Turjeva jama near Robič (from Šinkovec, n. 1); 6 Gradišče near Dobrna. 1-6 bronze. Scale = 1:2. Drawing: Dragica Knific-Lunder.



Sl. 3: 1 Baselle (po Periniju, op. 15); 2 Ara di Spin (po de Marinisu, op. 18); 3 Dunaújváros-Kosziderpádlas II (po Mozsolics, op. 20); 4 Monte Castellaccio di Imola (po Pacciarelliju, op. 21); 5 Subotica (po Iványiju, op. 25); 6 Castellaro del Vhò di Piadena (po Ciernyju et al., op. 22). 1-5 bron; 6 glina. M. 1-4,6 = 1:2; 5 = brez merila.

Fig. 3: 1 Baselle (from Perini, n. 15); 2 Ara di Spin (from de Marinis, n. 18); 3 Dunaújváros-Kosziderpádlas II (from Mozsolics, n. 20); 4 Monte Castellaccio di Imola (from Pacciarelli, n. 21); 5 Subotica (from Iványi, n. 25); 6 Castellaro del Vhò di Piadena (from Cierny et al., n. 22). 1-5 bronze; 6 pottery. Scale 1-4,6 = 1:2; 5 = not in scale.

Naj opozorim še na naključno najdbo fragmen-  
tiranega kalupa iz Virgena na Tirolskem. Izdelan  
je iz blestnika, na večji ploskvi sta poglobitvi za  
ulivanje dveh različno velikih levoročnih srpov. Imata  
izrazito zalomljen, skoraj pravokoten prehod ročaja

v rezilo.<sup>23</sup> Zanimiva je poglobitev za ulivanje več-  
jih srpov. Srp, ulit v tem kalupu, je imel mesto za  
ulivanje na hrbtu rezila. Višina 8,3 cm in širina  
ročaja 2,2 cm sta meri, ki kar ustrežata meram  
zgoraj obravnavanih srpov.

<sup>23</sup> Primas (op. 11) 191, t. 120: 2048.

R. Vasić je v svojem delu o srednjebalkanskih srpih objavil tudi srpe iz depoja, ki je bil najden v Subotici. Med njimi je tudi en levoročni. Depo, ki je imel nenavadno usodo, Vasić datira v fazo II depojev Vojvodine in Srbije.<sup>24</sup>

Namreč, leta 1882 so našli v glinokopu opekarne Mačković v Subotici okoli 50 kg bronastih predmetov, ki so bili v razbiti trebušasti keramični posodi. Najditelji so predmete raznesli. Nekaj so jih pretalili, 40 pa jih je nekaj mesecev po odkritju za svojo zbirko od lokalnega livarja kupila subotička gimnazija. Zbirka je danes izgubljena.

Depo je bil delno objavljen dvakrat. Prvič leta 1892<sup>25</sup> in drugič trinajst let kasneje.<sup>26</sup> Objavi se med seboj dopolnjujeta. V prvi je v depou trinajst predmetov, v drugi enajst. Poleg gumbastega in jezičastoročajnih srpov so v depou še fragmenti jezičastoročajnega meča, noža, suličnih osti, igle, tordirane žice, plavutaste in tulastih sekir ter žage. Obema objavama je skupnih samo pet predmetov. Če primerjamo samo srpe, ugotovimo, da je v obeh objavah isti samo en gumbasti srp, sicer pa srpov, ki so v prvi objavi, v drugi ni, in obratno, srpa, ki sta v drugi objavi, ju v prvi ni.

Objavljena skica levoročnega srpa, brez merila, je narejena po prvi objavi. Srp je podoben zgoraj obravnavanim primerkom, ki imajo izazito hrbtno rebro (sl. 3: 5).

Poleg levoročnega jezičastoročajnega srpa je v depou še en podobno star predmet. To je fragment desnoročnega srpa s tremi ročajnimi rebri, pri katerem zunanje (desno) ročajno rebro sedlasto preide v hrbtno rebro gladkega rezila.<sup>27</sup> Srp z enakimi značilnostmi je bil namreč najden v drugi plasti naselja Isolone del Mincio (prov. Mantova), v kateri so bile

pretežno najdbe iz druge polovice srednje bronaste dobe. Radiokarbonska datacija vzorca iz plasti je 3475 ± 60 (1525) pr. n. št.<sup>28</sup> Podoben srp, z manj izrazitim sedlastim prehodom, je tudi v depou Piller-Moosbruckschrofen (Tirolska), v katerem so predmeti iz razpona več stoletij, eden najstarejših predmetov pa je igla s pločevinasto glavo s krilci.<sup>29</sup> Zanimiva je karta razprostranjenosti srpov z izrazito sedlastim prehodom zunanega ročajnega rebra v hrbtno rebro (sl. 4). V nasprotju s pričakovanjem je težišče njihove razprostranjenosti Panonska nižina. Vsi, razen enega, ki je posamezna najdba, izvirajo iz starejšezarnogrobiščnih (Ha A1) depojev (seznam I).<sup>30</sup> Srpi s sedlastim prehodom zunanega ročajnega rebra v hrbtno rebro so, kot kaže, star element med mlajšim gradivom in nakazujejo dolgotrajno nastajanje depojev, v katerih se pojavljajo.

A. Mozsolics je srpe s sedlastim prehodom zunanega ročajnega rebra v hrbtno rebro po primerkih s podobnim prehodom, ki so bili najdeni v naselbinah južno in severno od Pada, poimenovala "terramare" srpi.<sup>31</sup> M. Primas se to poimenovanje ne zdi posrečeno, saj imajo italijanski srpi običajno samo dve ročajni rebri in, kar je bistveno, luknjico na ročaju.<sup>32</sup>

V zvezi s tremi fragmenti levoročnih srpov (?) iz Slovenije velja omeniti, da z Gobavice in z Gradišča pri Dobrni niso znane najdbe iz srednje bronaste dobe, zato bi lahko bila fragmenta eden izmed kazalcev za njuno poselitev v tem obdobju. To posebej velja za Gobavico, saj je s Kamniškobistriške ravni znanih kar nekaj srednjebronastodobnih najdb.<sup>33</sup> Drugače je s Turjevo jamo, kjer so z izkopavanji odkrili tudi srednjebronastodobno keramiko.<sup>34</sup>

<sup>24</sup> R. Vasić, *Die Sicheln im Zentralbalkan (Vojvodina, Serbien, Kosovo und Mazedonien)*, *Prähistorische Bronzefunde* 18/5 (1994) 9, 39, t. 23: 308.

<sup>25</sup> I. Iványi, *Szabadka. Szabad királyi város története* 2 (Szabadka 1892) 23, t. 3: 23-35.

<sup>26</sup> Ö. Gohl, *Régiségek a szabadkai főgymnasium gyűjteményében*, *Archaeologiai értesítő* 15, 1895, 312 ss, t. 1: 1-8,10-12.

<sup>27</sup> Iványi (op. 25) t. 3: 31; Vasić (op. 24) 36, t. 19: 250.

<sup>28</sup> Urban (op. 11) 447, t. 17B: Schicht 2. Primerjaj še kalibriran <sup>14</sup>C datum pri de Marinisu (op. 17) sl. 42: 10, ki je bistveno starejši.

<sup>29</sup> Depo je objavljen delno: G. Tomedi, *Gedanken zur Interpretation des Schatzfundes vom Moosbruckschrofen am Piller*, *ArchaeoTirol. Kleine Schriften* 3, 2001, 76 ss (risba srpa je na ovitku knjige); M. Egg, G. Tomedi, *Ein Bronzehelm aus dem mittelbronzezeitlichen Depotfund vom Piller, Gemeinde Fließ, in Nordtirol*, *Archäologisches Korrespondenzblatt* 32/4, 2002, 543 ss; G. Tomedi, *Der bronzezeitliche Schatzfund vom Piller (Gemeinde Fließ, Nordtirol)*, *Schriften Museum Fließ 1 (Fließ 2004)*. Glej še P. Schauer, *Zur Zeitstellung der vermeintlich ältesten Bronzekammhelme in Mitteleuropa*, *Archäologisches Korrespondenzblatt* 33/2, 2003, 193 ss.

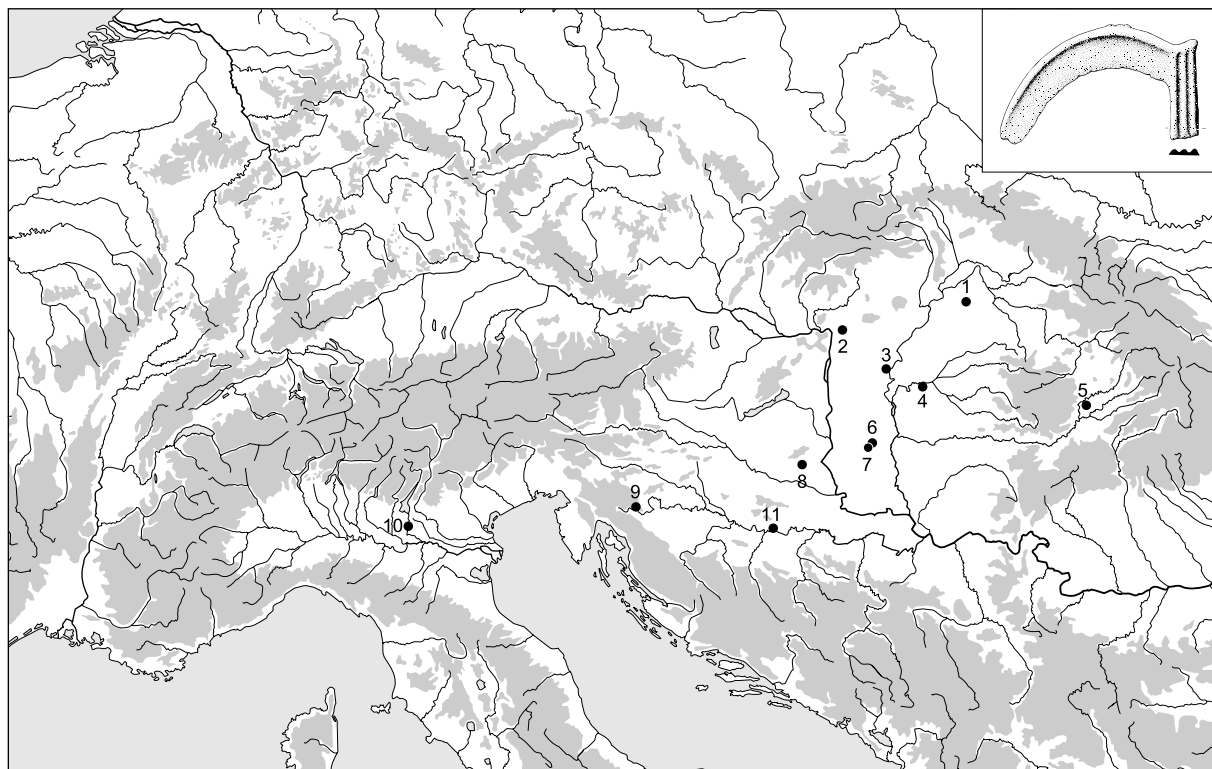
<sup>30</sup> Upoštevani so samo srpi s tremi vzporednimi ročajnimi rebri in gladkim rezilom.

<sup>31</sup> A. Mozsolics, *Some remarks on 'Peschiera' bronzes in Hungary*, v: *The European Community in Later Prehistory. Studies in honour of C. F. C. Hawkes*, 66 s (London 1971); ead., *Beziehungen zwischen Italien und Ungarn während "Bronzo Recente" und "Bronzo Finale"*, *Rivista di scienze preistoriche* 27/2, 1972, 373 ss; ead., *Bronzefunde aus Ungarn. Depotfundhorizonte von Aranyos, Kurd und Gyermely* (Budapest 1985) 45 s.

<sup>32</sup> M. Primas, *Bonner Jahrbücher* 188, 1988, 546 s.

<sup>33</sup> Plavutasti sekiri iz Duplice pri Kamniku: S. Gabrovec, *Kamniško ozemlje v prazgodovini*, *Kamniški zbornik* 10, 1965, 92, t. 13: 5,6; Šinkovec (op. 1) 40, t. 4: 24,25. Plavutasta sekira najdena med Kamnikom in Palovčami: Gabrovec (op. 33) 94, t. 8: 3; Šinkovec (op. 1) 42, t. 5: 30. Bodalo z ročajno ploščo iz Domžal, Gabrovec (op. 33) 92, t. 6: 6; Šinkovec (op. 1) 95, t. 27: 182.

<sup>34</sup> F. Bressan, *Le Valli di Natisone e la Kovačeva jama di Robič*, *Arheološki vestnik* 39-40, 1988-1989, 519 ss. Glej tudi: Čerče, Šinkovec (op. 13) 221 ss, t. 142A: 1-11.



Sl. 4: Karta razprostranjenosti jezičastoročajnih srpov s tremi ročajnimi rebri in sedlastim prehodom zunanjega ročajnega rebra v hrbtno rebro gladkega rezila (*seznam 1*).

Fig. 4: The distribution map of sickles with three ribs on the tang and a saddle-shaped transition from the outer tang rib to the back rib of the smooth blade (*list 1*).

#### Seznam 1 / List 1

1 Napkor II-Piripucpuszta, Madžarska, županija Szabolcs-Szatmár, depo, horizont Kurd. - T. Kemenczei, A Napkor-piripucpusztai bronzlelet, *A nyíregyházi Jóna András Múzeum Évkönyve* 8-9, 1965-1966, 14, t. 6: 2; id., *Die Spätbronzezeit Nordostungarns*, *Archaeologia Hungarica* 51 (1984) 178, t. 184: 1.

2 Püspökhatvan, Madžarska, županija Pest, depo, horizont Kurd. - T. Kemenczei, *Die Spätbronzezeit Nordostungarns*, *Archaeologia Hungarica* 51 (1984) 150 ss, t. 113: 37; Mozsolics (op. 31, 1985) 178 s, t. 139: 22.

3 Szolnok I, Madžarska, županija Szolnok, depo, horizont Kurd. - Mozsolics (op. 31, 1985) 197 s, t. 219: 9.

4 Gyoma, Madžarska, županija Békés, depo, horizont Kurd. - V: *Magyarország régészeti topográfiája* 8. Békés megye régészeti topográfiája (1989) 237, t. 27: 15.

5 Șpálnaca II, Romunija, Sedmograška, okraj Alba, depo, stopnja Suseni. - R. Zsigmond, Az ispánlaki bronzlelet, *Archaeologiai értesítő* 8, 1888, 10 ss, t. 5: 28,32; M. Petrescu-Dimbovița, *Die Sicheln in Rumänien mit Corpus der jung- und spätbronzezeitlichen Horte Rumäniens*, *Prähistorische Bronzefunde* 18/1 (1978) 38, t. 147: 240.

6 Hajdukovo, Srbija, Bačka, posamezna najdba. - Vasić (op. 24) 36, t. 19: 248.

7 Subotica, Srbija, Bačka, depo, faza II. - Vasić (op. 24) 36, t. 19: 250.

8 Peterd, Madžarska, županija Baranya, depo, horizont Kurd. - Mozsolics (op. 31, 1985) 171 ss, t. 52: 5; 53: 4.

9 Debeli vrh nad Predgradom, Slovenija, Dolenjska, depo, horizont II. - Čerče, Šinkovec (op. 13) 159 ss, t. 64: 46; 150: 18.

10 Isolone del Mincio (op. 11).

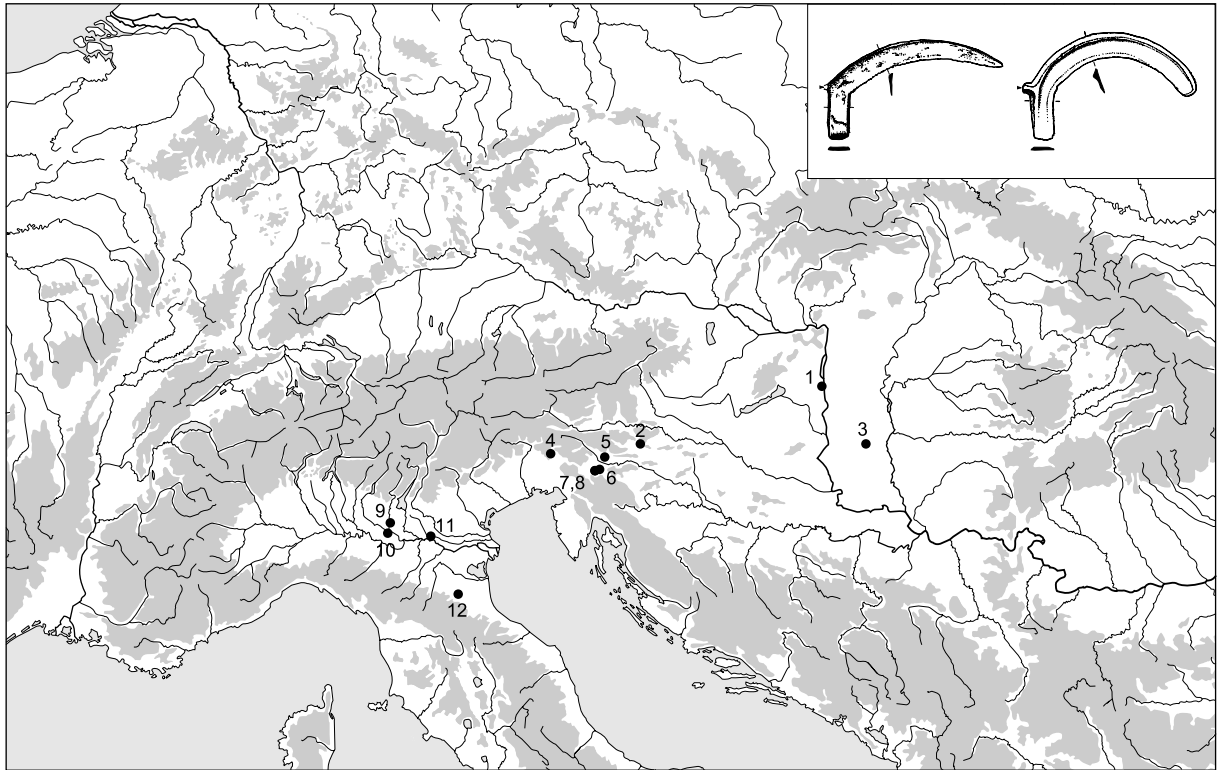
11 Pričac, Hrvaška, Slavonija, depo, horizont Veliko Nabrđe. - K. Vinski-Gasparini, *Kultura polja sa žarama u sjevernoj Hrvatskoj*, *Monografije* 1 (1973) 183, t. 72: 21.

### Razprostranjenost

Levoročni jezičastoročajni srpi so razprostranjeni od Padske nižine na zahodu do medrečja Donave in Tise na vzhodu (*sl. 5*). Današnje stanje raziskav kaže na dve skupini z večjim številom najdišč: ena je v Padski nižini, druga v osrednji Sloveniji. Glinast kalup iz naselja Castellaro del Vhò di Piadena pa daje slutiti, da je bilo njihovo poreklo v Italiji.

### MEČ

V neposredni bližini najdišča prvega srpa, deset metrov nizvodno, je bil najden še meč (*sl. 1: 4; 6*). Meč je v predelu ročajne plošče močno zbrusen, patina je po celotni površini erodirana. Na ročajni plošči so ostanki šestih lukenj za zakovice. Na obeh straneh ročajne plošče je rahlo poglobljen vtis podkvasne oblike, v katerega je nalegal ročaj.



Sl. 5: Karta razprostranjenosti srednjebronastodobnih levoročnih jezičastoročajnih srpov.

1 Dunaújváros-Kosziderpádlas II, 2 Gradišče pri Dobrni, 3 Subotica, 4 Turjeva jama pri Robiču, 5 Gobavica pri Mengšu, 6 Ljubljana - med Podpečjo in Lipami, 7,8 Ljubljana - nad izlivom Bistre I, II, 9 Baselle, 10 Castellaro del Vhò di Piadena, 11 Ara di Spin, 12 Monte Castellaccio di Imola.

Fig. 5: Distribution map of middle Bronze Age left-handed tanged sickles.

1 Dunaújváros-Kosziderpádlas II, 2 Gradišče near Dobrna, 3 Subotica, 4 Turjeva jama near Robič, 5 Gobavica near Mengeš, 6 The Ljubljana River - between Podpeč and Lipe, 7,8 The Ljubljana River - above the influx of the Bistra Stream I, II, 9 Baselle, 10 Castellaro del Vhò di Piadena, 11 Ara di Spin, 12 Monte Castellaccio di Imola.

Pod ročajno ploščo se rezilo zoži, se pred polovico rahlo razširi in izteče v konico, preseki je rombičen. Vzdolž sredine je meč odebeljen. Odebelitev rezila se začne pod lokom podkvaste poglobitve na ročajni plošči in teče do konice. Odebelitev je izrazitejša v zgornji polovici meča. Prednja in zadnja stran sta okrašeni s slabo vidnimi kanelurami. Na obeh straneh meča sta pod ročajno ploščo po dva šrafirana, srčasto oblikovana viseča trikotnika, ob katerih vzporedno tečejo po tri kanelure, ki sledijo obrisu zgornje polovice rezila. Na eni strani (sl. 6: 1a) so na ročajni plošči štiri slabo vidne kanelure, verjetno ostanki okrasa. Po njihovi legi bi bil okras lahko podoben tistim, ki so na ročajnih ploščah mečev iz Ljubljane nad izlivom Zrnice,<sup>35</sup> Pichlerna in iz neznanega najdišča na Madžarskem.<sup>36</sup> Na drugi strani meča (sl. 6: 1b) je ornament na ročajni plošči

popolnoma izbrisan. Na dnu ročajne plošče so štiri kanelure, površina med spodnjima dvema je šrafirana. Dolžina meča 26,4 cm, širina ročajne plošče 3,6 cm, teža 85,59 g. Meč je v zasebni lasti.

Po obliki, dolžini in okrasu sodi meč v tip Sauerbrunn, in sicer v skupino kratkih mečev (25-33 cm). Okras na rezilu (tri kanelure, ki sledijo obrisu rezila, in dva šrafirana, srčasto oblikovana viseča trikotnika) je enak kot na kratkem meču iz Leobersdorfa. Na kratkih mečih iz Pichlerna in Sauerbrunn pa je med notranjo kaneluro in višjim trikotnikom še šrafiran trak. Kratka meča iz Leobersdorfa in Sauerbrunn sta grobni najdbi, po katerih je skupina kratkih mečev tipa Sauerbrunn datirana v horizont Lochham (Bd B1).<sup>37</sup>

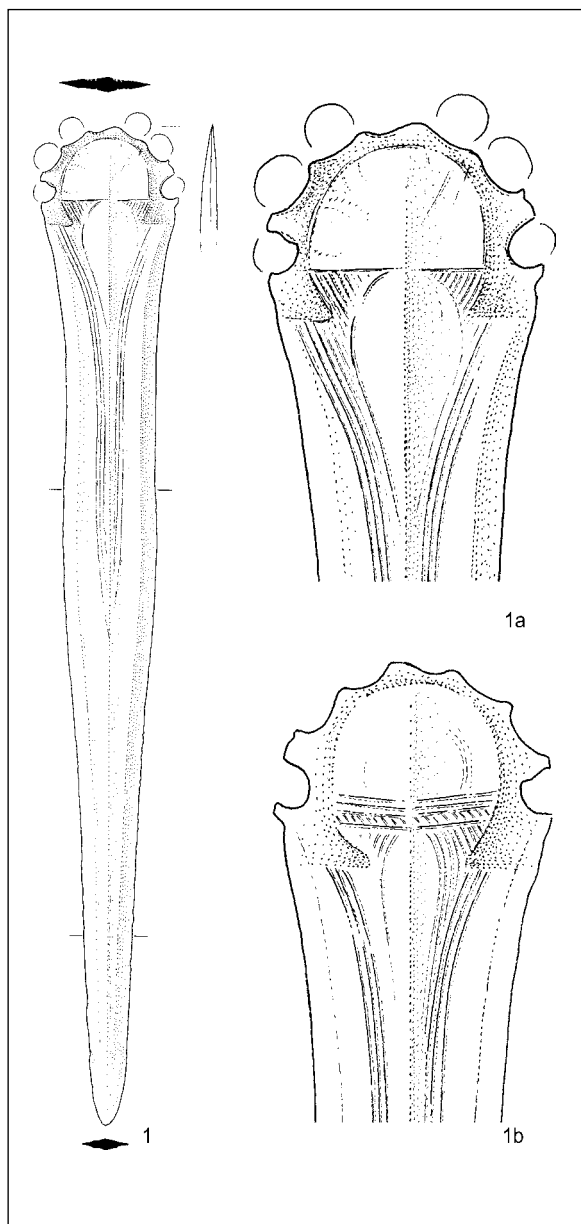
Podoben okras je tudi na rezilu kratkega meča z Lavrice. Med stranskima visečima trikotnikoma

<sup>35</sup> Potočnik (op. 1) 390 s, t. 5: 30.

<sup>36</sup> J. Cowen, The Origins of the Flange-hilted Swords of Bronze in Continental Europe, *Proceedings of the Prehistoric Society* 32, 1966, sl. 3: 5,6.

<sup>37</sup> P. Schauer, *Die Schwerter in Süddeutschland, Österreich und der Schweiz* 1, *Prähistorische Bronzefunde* 4/2 (1971) 20 ss, t. 2: 13,15,16.





sta še dva viseča šrafirana trikotnika, dve kaneluri pa spremlja niz girland (sl. 7: 3).<sup>38</sup> Štirje šrafirani trikotniki in kanelure z nizom girland so tudi na rezilu zgodnjebronastodobnega bodala z Iga (sl. 7: 2).<sup>39</sup> Na ročajni plošči bodala z Iga sta nad visečimi trikotniki dva šrafirana trakova, na ročajni plošči obravnavanega kratkega meča pa je šrafiran samo en trak (sl. 6: 1b).

Skoraj enak motiv, kot je na rezilih kratkih mečev iz Sauerbrunn in Pichlerna (šrafiran trak ob visečem trikotniku), najdemo tudi na dveh dolgih mečih: meč iz Ljublanice nad izlivom Zrnice ima kot kratek meč iz Sauerbrunn na rezilu po tri kanelure, meč iz kanala Barche<sup>40</sup> med jezeroma S. Maria in Lago di Revine (prov. Treviso) pa kot kratki meč iz Pichlerna po dve.

Dolgi meč, ki je bil najden v Tisi pri Szegedu (sl. 7: 4),<sup>41</sup> ima skoraj v vseh podrobnostih (oblika ročajne plošče, število lukenj za zakovice in ornamentu, z izjemo girland) odlično primerjavo v kratkem meču z Lavrice. Obema je skupen tudi motiv cik-caka med podkvastim okrasom na ročajni plošči in visečimi trikotniki, ki je v podaljšani izvedbi tudi na zgodnjebronastodobnem bodalu tipa Pacengo iz naselja Bor di Pacengo (prov. Verona), katerega rezilo pa je brez kanelur (sl. 7: 1).<sup>42</sup> Motiv cik-caka je tudi na kratkem meču iz Pichlerna.

Karta razprostranjenosti kratkih mečev tipa Sauerbrunn (sl. 8) kaže, da je njihov izvor v vzhodnih oz. jugovzhodnih Alpah. So predhodniki dolgih Sauerbrunn mečev, ki jih lahko smatramo kot še eno zvrst v nizu predmetov, ki jih je srednja Evropa posredovala severni Italiji.<sup>43</sup>

Sl. 6: Ljublanica - nad izlivom Bistre. Bron. M. 1 = 1:2; 1a,1b = 1:1. Risba: Dragica Knific-Lunder.

Fig. 6: The Ljublanica River - above the influx of the Bistra Stream. Bronze. Scale 1 = 1:2; 1a,1b = 1:1. Drawing: Dragica Knific-Lunder.

<sup>38</sup> J. Dular, Bronasti jezičastoročajni meči iz Slovenije, v: *Varia archaeologica*, Posavski muzej Brežice 1 (1974), 13 s, t. 1: 1; S. Gabrovec, Jugoistočnoalpska regija, v: *Praistorija jugoslavenskih zemalja* 4 (Sarajevo 1983) 19 ss, t. 1: 5,5a; I. Šinkovec, Posamezne kovinske najdbe bakrene in bronaste dobe, v: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem* 2, Katalogi in monografije 30 (1996) 143, sl. 21: 1.

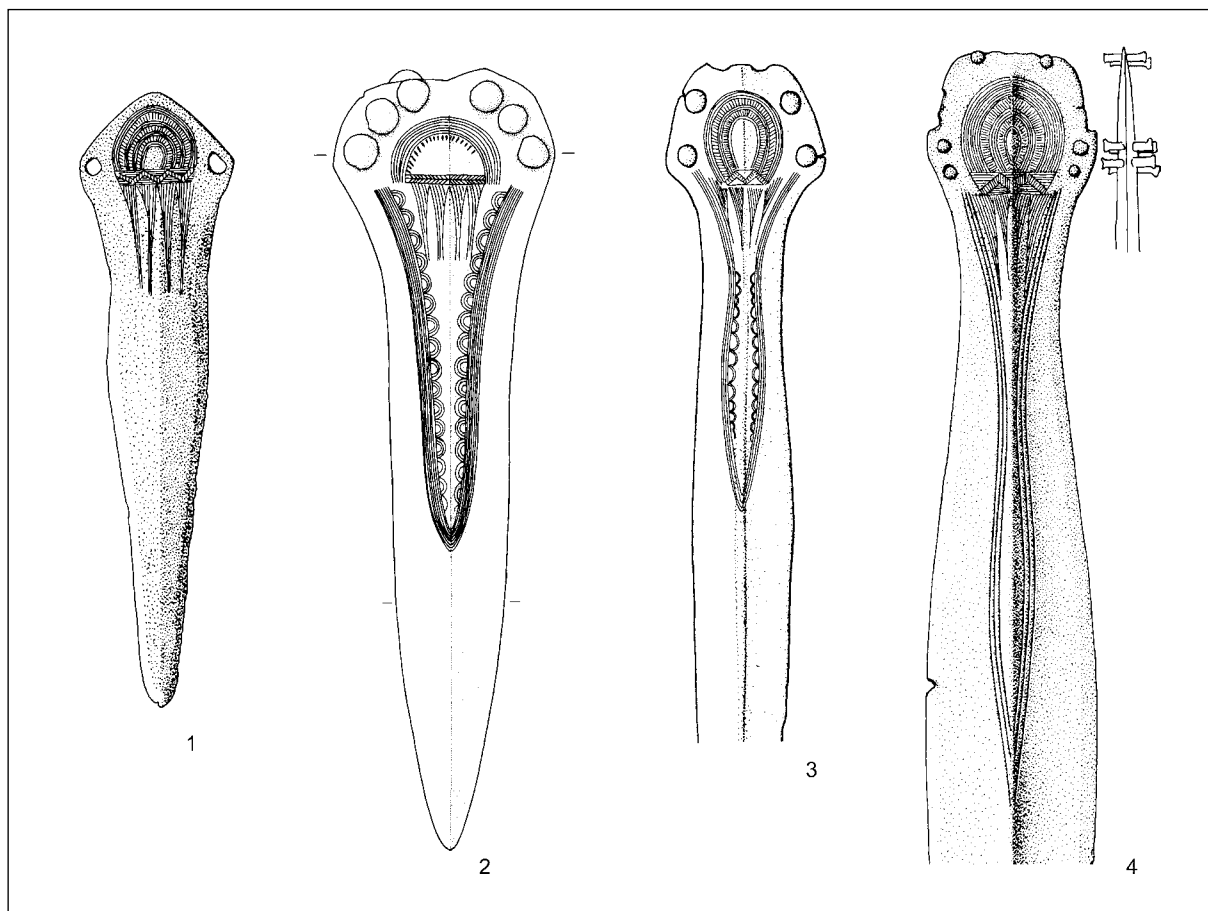
<sup>39</sup> Šinkovec (op. 38) 99, t. 28: 193.

<sup>40</sup> E. Bianchin Citton, Due spade della media età del Bronzo al Museo Civico di Conegliano (TV), *Padusa* 13, 1977, 73 ss, sl. 1.

<sup>41</sup> T. Kemenczei, *Die Schwertwer in Ungarn* 1. (Griffplatten-, Griffangel- und Griffzungenschwerter), *Prähistorische Bronzefunde* 4/6 (1988) 38, t. 14: 159. Avtor ga na podlagi argumenta, da je ročaj odlomljen, uvršča med rapirje tipa B, različica 2. Na risbi je tudi stranski pogled (sl. 7: 4), iz katerega je razvidno, da se vrh ročajne plošče popolnoma stanjša, kar govori v prid dejstvu, da ročaja ni bilo in torej sodi k različici 1 (glej op. 45).

<sup>42</sup> V. Bianco Peroni, *I pugnali nell'Italia Continentale*, *Prähistorische Bronzefunde* 6/10 (1994) 45, t. 21: 367.

<sup>43</sup> H. J. Hundt, Donauländische Einflüsse in der frühen Bronzezeit Norditaliens, *Preistoria Alpina* 10, 1974, 143 ss. Za razprostranjenost mečev tipa Sauerbrunn v Italiji glej: Cowen (op. 36) karta A; V. Bianco Peroni, *Die Schwerter in Italien. Le spade nell'Italia continentale*, *Prähistorische Bronzefunde* 4/1 (1970) t. 68A. Dodajam še: kanal Barche - Bianchin Citton (op. 40); S. Giorgio di Nogaro - P. Cassola Guida, Una spada dell'età del bronzo dal Friuli, v: *Zbornik posvečen Stanetu Gabrovcu ob šestdesetletnici*, *Situla* 20-21 (1980) sl. 1; Olmo di Nogara - L. Salzani, La necropoli, v: *La necropoli dell'età del Bronzo all'Olmo di Nogara*, *Memorie del Museo Civico di Storia Naturale di Verona*. 2. serie. Sezione Scienze dell'Uomo 8 (2005) gr. 48, 50 in 475.



Sl. 7: 1 Bor di Pacengo (po Bianco Peroni, op. 42); 2 Ig (po Šinkovec, op. 39; dopolnjeno po Gabrovcu, op. 38); 3 Lavrica (po Šinkovec, op. 38); 4 Tisa pri Szegedu (po Kemenczeiju, op. 41). M. = 1:2.

Fig. 7: 1 Bor di Pacengo (from Bianco Peroni, n. 42); 2 Ig (from Šinkovec, n. 39; supplemented from Gabrovec, n. 38); 3 Lavrica (from Šinkovec, n. 38); 4 The Tisza River at Szeged (from Kemenczei, n. 41). M. = 1:2.

## ZAKLJUČEK

Levoročni srpi, meča tipa Sauerbrunn in bronasta sekira z robniki<sup>44</sup> so za zdaj najstarejše kovinske najdbe iz zgornjega toka Ljubljanice. Na *sl. 1*, kjer so kartirana najdišča srednjebronastodobnih kovinskih predmetov v tem delu Ljubljanice, pritegne pozornost koncentracija treh predmetov, ki so bili najdeni nad izlivom Bistre. Dva srpa in kratek meč so ležali na razdalji samo 50 m. Relativno blizu, okoli 300 m nizvodno od kratkega meča, je bil najdena sekira z robniki (*sl. 1: 5*), še 100 m

nižje pa še en meč tipa Sauerbrunn (*sl. 1: 6*).<sup>45</sup> Na razmeroma kratkem odseku Ljubljanice okoli izliva Bistre je bilo torej kar pet srednjebronastodobnih predmetov. Dejstvo, da so predmeti ohranjeni v celoti, da so nepoškodovani in da so bili malo rabljeni, govori v prid žrtvovanja.<sup>46</sup> Pomenljiva je tudi lega drugega meča tipa Sauerbrunn, ki je bil vertikalno zapičen v strugo.<sup>47</sup>

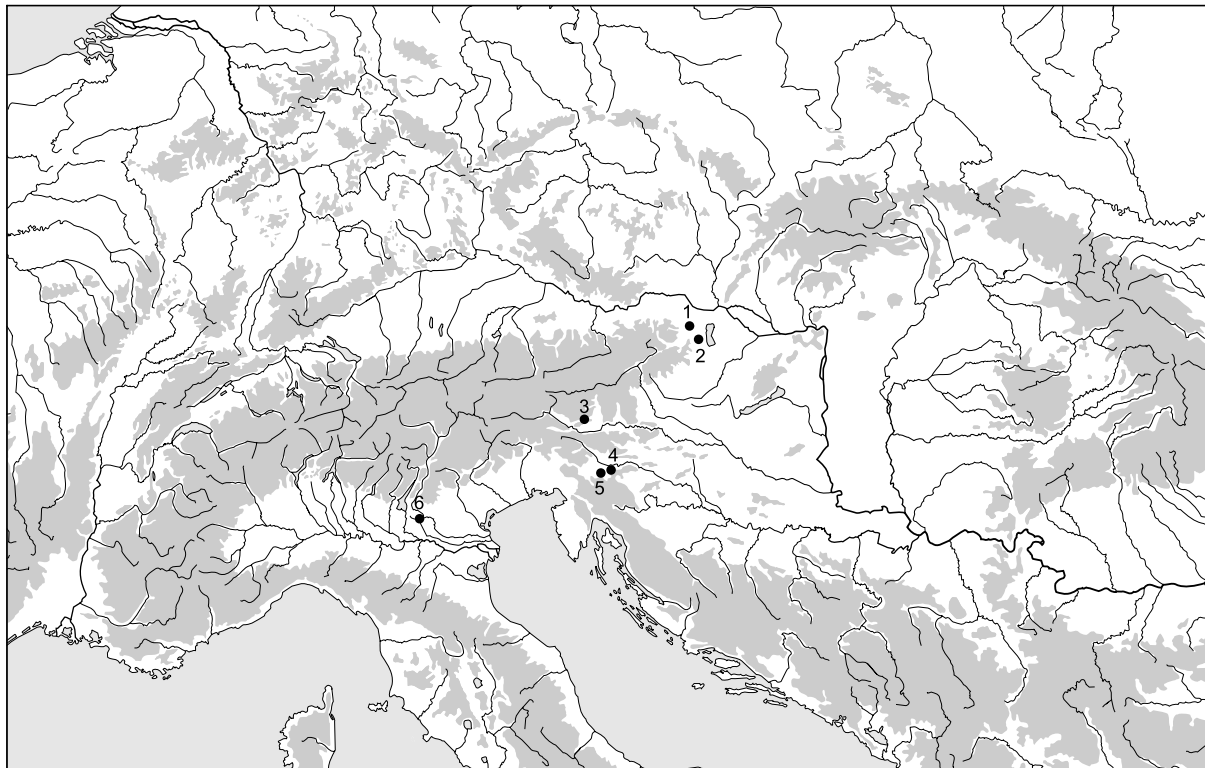
Z vseh treh kart razprostranjenosti (*sl. 4; 5; 8*) je razvidno, da je komunikacija med severno Italijo in Panonsko kotlino potekala tudi po današnjem slovenskem ozemlju. Pri levoročnih srpih ko-

<sup>44</sup> Gaspari (op. 1, 2004) sl. 6: 2.

<sup>45</sup> A. Harding ga je kot nedoločljivega uvrstil v družino Sauerbrunn-Boiu - *Die Schwerter im ehemaligen Jugoslawien*, *Prähistorische Bronzefunde* 4/14 (1995) 23 s (Blatna Brezovica) t. 5: 28. Oglad meča v Narodnem muzeju Slovenije je pokazal, da se vrh ročajne plošče popolnoma stanjša, kar je prepričljiv argument proti odlomljenemu jezičastemu ročaju (glej op. 41).

<sup>46</sup> Šinkovec (op. 38) 156 ss; B. Teržan, Sklepna beseda, v: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem* 2, Katalogi in monografije 30 (1996) 255 s.

<sup>47</sup> Potočnik (op. 1) 390 s. Glej še T. Soroceanu, *Die Fundumstände bronzzeitlicher Deponierungen - Ein Beitrag zur Hortdeutung beiderseits der Karpaten*. - V: *Bronzefunde aus Rumänien*, *Prähistorische Archäologie in Südosteuropa* 10 (1995) 40 s, sl. 12.



Sl. 8: Karta razprostranjenosti kratkih mečev tipa Sauerbrunn. 1 Leobersdorf, 2 Sauerbrunn, 3 Pichlern, 4 Lavrica, 5 Ljubljana - nad izlivom Bistre, 6 Povegliano Veronese.

Fig. 8: Distribution map of short swords of the Sauerbrunn type. 1 Leobersdorf, 2 Sauerbrunn, 3 Pichlern, 4 Lavrica, 5 The Ljubljana River - above the influx of the Bistra Stream, 6 Povegliano Veronese.

munikacijo v smeri zahod-vzhod do neke mere naznakuje kalup iz Castellaro del Vhò di Piadena (sl. 5), pri srpih s tremi ročajnimi rebri in sedlastim prehodom zunanjega ročajnega rebra v hrbtno rebro pa je šla komunikacija verjetno v obratni smeri; iz jedra razprostranjenosti v osrednji Panonski kot-

lini po Savi in Kolpi dalje proti zahodu (sl. 4). Pri potovanjih bodisi v eno ali drugo smer je bil zgornji tok Ljubljance vedno začetek ali konec neke vodne poti. Morda bi lahko obravnavane srpe in meč interpretirali tudi v tem smislu - kot priporočilo pred plovo ali kot zahvalo po srečnem pristanku.

## Middle Bronze Age left-handed tanged sickles and a sword from the Ljubljana River

### Translation

#### LEFT-HANDED TANGED SICKLES

##### Circumstances of discovery and descriptions

Among the various archaeological material recovered from the Ljubljana River,<sup>1</sup> three bronze sickles made for use with the left hand were also found.<sup>2</sup> These are sickles that have the

tang on the left, while the blade extends to the point on the right side. The sickles were found by three divers, in three places, at different times.

1. The first sickle was found approximately 25 m above the influx of the Bistra Stream into the Ljubljana River (fig. 1: 1; 2: 1a,1b). It is fully preserved. It has a flat tang of trapezoidal

<sup>1</sup> P. Petru et al., *Najdbe v Ljubljani (pridobitve l. 1981)*, *Podvodna arheologija v Sloveniji 1* (1982); N. Logar, P. Bitenc, Poročilo o podvodnih raziskovanjih v letih 1982 in 1983, in: *Podvodne raziskave v Sloveniji*, *Podvodna arheologija v Sloveniji 2* (1984) 99 ff.; M. Potočnik, Bakreno- in bronastodobne podvodne najdbe iz Bistre in Ljubljane na Ljubljanskem barju, *Arheološki vestnik* 39-40, 1988-1989, 387 ff.; D. Svobljšek et al., Novo gradivo v Arheološkem oddelku Narodnega muzeja v Ljubljani (pridobljeno v letih od 1987 do 1993), *Varstvo spomenikov* 36, 1994-1995, 224 ff.; I. Sinkovec, *Katalog posameznih kovinskih najdb*

section, the base of the tang is straight. The blade has a triangular section, without a back rib. The casting place is at the angular transition<sup>3</sup> from the tang to the blade. A protrusion that represented the remains of the gating system was broken off. The surface is greatly corroded, with a brown patina. Length<sup>4</sup> 15.8 cm, height<sup>5</sup> 8.8 cm, width of the tang 1.9 cm, weight 51.3 g. National Museum of Slovenia, inv. no. V 1972.<sup>6</sup>

2. The second sickle was found some 40 m upstream from the first, i.e. around 65 m above the influx of the Bistra (*fig. 1: 2; 2: 2a,2b*).<sup>7</sup> It is fully preserved. The tang of trapezoidal section is flat, and the tang base is straight. The blade has a back rib, and the transition from the tang to the blade is curved. The casting place is represented by a protrusion. The patina is

brown. Length 15 cm, height 9.3 cm, width of the tang 2 cm, weight 63.6 g. Privately owned.<sup>8</sup>

3. The third sickle was found on the 8th of January 1998 in the Ljubljana, approximately 7.3 km in a straight line downstream from the influx of the Bistra, between Podpeč and Lipe, at the level of the road sign marking the village of Lipe (*fig. 1: 3; 2: 3a,3b*). It is almost completely preserved. The flat tang has a trapezoidal section, and the tang base is straight. The blade has a back rib, and the transition from the tang to the blade is curved. The patina is brown. The casting place is represented by a protrusion. Length 14.6 cm, height 9.2 cm, width of the tang 2.3 cm, weight 85.5 g. Privately owned.<sup>9</sup>

That sickle was analyzed using the ICP AES method.<sup>10</sup>

Cu	Sn	Pb	As	Ni	Sb	Co	Bi	Ag	Fe	Mn	Zn
93%	7.65%	0.02%	0.30%	0.71%	0.03%	0.01%	-	0.01%	0.25%	n. a.	-

A further three bronze fragments have been found in Slovenia with metal detectors that could also perhaps be defined as left-handed sickles.

4. A bronze fragment was found at Gobavica near Mengeš in 1997 (*fig. 2: 4*), which in terms of its trapezoidal section and width would correspond to the lower section of a flat tang of a left (or right) handed sickle.<sup>11</sup> Traces of blows are visible on the right edge and in the middle, near the break. Width of the tang 2 cm, weight 4.6 g. Privately owned.<sup>12</sup>

5. The metal finds from Turjeva jama (cave) near Robič include the point of a left-handed sickle (*fig. 2: 5*).<sup>13</sup> It is less likely that this was the point of a knife, as the majority of knife blades usually have an almost symmetrical profile. Length 3.4 cm, weight 10 g. Tolmin Museum, inv. no. TM 608.

6. The point of a left-handed sickle was found on the 16<sup>th</sup> of January 1994 at Gradišče near Dobrna (*fig. 2: 6*). Traces of blows are visible on the surface. Length 3.7 cm, weight 10.8 g. Privately owned.<sup>14</sup>

### Chronological classification

The first sickle can be compared to a sickle from the multilayered settlement of Baselle (Mantua Province) (*fig. 3: 1*).<sup>15</sup> The sickle, which was damaged and deformed by fire, is poorly preserved. As such, the transition from the tang to the blade is not clear from the drawing, nor is whether or not the tang had a rivet hole. It is possible to distinguish from the cross-

bakrene in bronaste dobe, in: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem 1*, Katalogi in monografije 29 (1995) 29 ff.; A. Gaspari, *Latenske in zgodnjerske najdbe iz Ljubljane*. Doktorsko delo, Oddelek za arheologijo, Filozofska fakulteta Univerze v Ljubljani (Ljubljana 2002) [*La Tène and Early Roman Finds from the Ljubljana River*, Ph.D. Thesis, Department of Archaeology, Faculty of Arts, University of Ljubljana (Ljubljana 2002)]; Id., *Bronzezeitliche Funde aus der Ljubljana*. Opfer, Überreste von Bestattungen oder zufällige Verluste, *Archäologisches Korrespondenzblatt* 34/1, 2004, 37 ff.

<sup>2</sup> E. Humer, Linkshändigkeit im Altertum, in: *Die Geschichte der Antike aktuell: Methoden, Ergebnisse und Rezeption*, Altertumswissenschaftliche Studien Klagenfurt 2 (Klagenfurt/Celovec, Ljubljana/Laibach, Wien/Dunaj 2005) 307 ff.

<sup>3</sup> In contrast to a curved transition of the outer edge of the tang to the blade of the sickle, in an angular transition, the outer edge of the tang and the beginning of the back of the blade form a blunt angle.

<sup>4</sup> A rectangular measurement from the left edge of the tang to the point of the blade.

<sup>5</sup> A rectangular measurement from the tang base to the highest point on the back of the blade.

<sup>6</sup> P. Pavlin, *Bronzodobni srpi na področju Slovenije, Panonije in na zahodnem Balkanu*. Magistrsko delo, Univerza v Ljubljani, Filozofska fakulteta, Oddelek za arheologijo (Ljubljana 2001) 19, t. 1: 1 [*Bronze Age Sickles in Slovenia, Pannonia, and the Western Balkans*, M.A. Thesis, Department of Archaeology, Faculty of Arts, University of Ljubljana (Ljubljana 2001) 19, pl. 1: 1] (in pre-publication preparation for the *Prähistorische Bronzefunde* series).

<sup>7</sup> Šinkovec (n. 1) 125 no. 8, pl. 144: 8.

<sup>8</sup> Pavlin (n. 6) 20, pl. 1: 2.

<sup>9</sup> *Ib.*, 20, pl. 1: 3.

<sup>10</sup> R. Urankar, *Arheometrične raziskave posameznih najdb pozne bronaste dobe*. Diplomsko delo, Univerza v Ljubljani, Filozofska fakulteta, Oddelek za arheologijo (Ljubljana 2003) 52 no. 54, add. 1 [*Archaeometric Analysis of Individual Finds from the Late Bronze Age*, B.A. Thesis, Department of Archaeology, Faculty of Arts, University of Ljubljana (Ljubljana 2003) 52 no. 54, add. 1].

<sup>11</sup> Right handed sickles with a flat tang: Tržišče near Dolenja vas, individual find: Šinkovec (n. 1) 113, pl. 33: 224; between Steinach and Salfau (Austria, Tyrol), individual find: M. Primas, *Die Sichel in Mitteleuropa 1. (Österreich, Schweiz, Süddeutschland)*, *Prähistorische Bronzefunde* 18/2 (1986) 112, pl. 49: 807; Isolone del Mincio (Italy, Lombardy, Mantua Province), settlement, stratum 1 with finds from the early to the late Bronze Age: T. Urban, *Studien zur mittleren Bronzezeit in Norditalien*, *Universitätsforschungen zur prähistorischen Archäologie* 14 (1993) 445 ff., pl. 17B; Bor di Pacengo (Italy, Veneto, Verona Province), settlement with finds from the early to the late Bronze Age: L. Fasani, *L'età del Bronzo*, in: *Il Veneto nell'antichità. Preistoria e protostoria 2* (1984) fig. on p. 547: 11; Urban, *Ib.*, 562 ff.

<sup>12</sup> Pavlin (n. 6) 20, pl. 1: 4.

<sup>13</sup> P. Čerče, I. Šinkovec, Katalog depojev pozne bronaste dobe, in: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem 1*, Katalogi in monografije 29 (1995) 221 ff., pl. 142A: 11.

<sup>14</sup> Pavlin (n. 6) 52, pl. 17: 291.

<sup>15</sup> M. Perini, La stazione preistorica delle Baselle di Castelnuovo di Asola (Mantova) nel carteggio inedito di don Luigi Ruzzenenti, *Museo e territorio. La Bassa orientale* 2, 1981-1982, pl. 13: 2.

section of the blade that there was no back rib. The blades of both sickles are relatively narrow and gently curved in comparison to the others. The context in which it was found (with pottery, an axe, a dagger, and a spearhead),<sup>16</sup> was dated by R. de Marinis to the middle Bronze Age phase II A (*Bronzo medio II A*).<sup>17</sup>

A second analogy is a fragment of a sickle, a chance find from the settlement of Ara di Spin (Mantua Province) (*fig. 3: 2*).<sup>18</sup> It has a flat tang of trapezoidal section with a straight base and an angular transition from the tang to the blade. The latter has a triangular section without a back rib.

The surface finds from the settlement of Ara di Spin are dated to the middle Bronze Age.<sup>19</sup>

The second and third sickles from the Ljubljana have excellent analogies within three well dated middle Bronze Age contexts. The first comparison can be made to a sickle from the Hungarian Dunaújváros-Kosziderpádlas II hoard (*fig. 3: 3*), which is dated to the eponymous hoard horizon of the middle Bronze Age.<sup>20</sup> The second sickle is from the settlement stratum of Monte Castellaccio di Imola (Bologna Province) (*fig. 3: 4*), which is dated to the second middle Bronze Age phase (*Bronzo medio 2*).<sup>21</sup> All of these sickles have in common a flat tang, an emphasized back rib, and a casting place located at the curved transition from the tang to the blade. A third, very important comparison would be with the fragmentary clay mould for casting left-handed sickles from the settlement of Castellaro del Vhò di Piadena (Cremona Province) (*fig. 3: 5*). The stratigraphic position of this mould in phase 4III of the settlement permits a dating to the developed second phase of the middle Bronze Age (*Bronzo medio 2B*).<sup>22</sup> The size of the impression of the sickle in the mould (length 15.3 cm, height 9.6 cm, tang width 2.2 cm) correspond surprisingly well to the dimensions of sickle no. 2 from the Ljubljana. The ingate is also located at the transition from the tang to the blade of the sickle.

The sickle of the settlement of Baselle indicates that the sickles with an angular transition from the tang to the narrow blade (of triangular section and without a back rib) were somewhat earlier than the sickles with a curved transition and an emphasized back rib. Both groups have in common a flat tang and a casting place that for six sickles (*fig. 1: 1a-3b; 2: 3-6*) was dependably at the transition from the tang to the blade. Left-handed sickles are comparatively smaller. Their length ranges between 14.4 and 15.8 cm, height between 8.6 and 9.3 cm, and tang width between 1.9 and 2.3 cm.

Attention should also be drawn to the chance find of a fragmentary mould from Virgen in the Tyrol. Hollows were made on the large surface of a micaceous stone for casting two different large left-handed sickles. They have a distinct, almost right angled, transition from the tang to the blade.<sup>23</sup> The hollow for casting the larger sickle is interesting. The sickle cast in that mould had a casting place on the back of the blade. The height of 8.3 cm and tang width of 2.2 cm are measurements that correspond to the dimensions of the sickles discussed above.

In his work about central Balkan sickles, R. Vasić published sickles from a hoard that was found in Subotica. One of them was left-handed. The hoard, which had an unusual fate, was dated by Vasić to phase II of the hoards of Vojvodina and Serbia.<sup>24</sup>

In 1882, around 50 kg of bronze objects were found in a shattered globular pottery vessel in the clay diggings for the Mačković brickworks in Subotica. The objects were scattered by those who found them. Some were melted down, while some 40 were purchased from the local foundry several months after the discovery by the Secondary School of Subotica for their collection. All trace has been lost of the collection.

The hoard was partially published twice. For the first time in 1892,<sup>25</sup> and the second time thirteen years later.<sup>26</sup> The publications supplement one another. The first notes thirteen objects in the hoard, the second lists eleven. In addition to ordinary sickles and a button sickle, the hoard also contained fragments of a flange-hilted sword, a knife, spearheads, pins, spirally twisted wires, winged and socketed axes, and saw. Both the publications have only five objects in common. If we compare only the sickles, it can be established that only one button sickle was the same in both publications, and otherwise the sickles that were in the first text did not appear in the second text, and vice versa.

The published sketch of a left-handed sickle, without measurements, was made on the basis of the first publication. The sickle is similar to the examples discussed above with an emphasized back rib (*fig. 3: 5*).

In addition to a left-handed sickle the hoard also contained one equally old object. This was a fragment of a right-handed sickle with three ribs on the tang, where the outer (right) rib of the tang had a saddle-shaped transition to the back rib of the smooth blade.<sup>27</sup> A sickle with identical characteristics was found in the second stratum of the settlement of Isolone del Mincio (Mantua Province), which mostly contained finds from the second half of the middle Bronze Age. The radiocarbon date of

<sup>16</sup> *Ib.*, 23, pl. 8-12; 13: 4.

<sup>17</sup> I would like to thank Raffaele de Marinis for this information. For the chronology of the middle Bronze Age in northern Italy, see: R. C. de Marinis, *Towards a Relative and Absolute Chronology of the Bronze Age in Northern Italy*, *Notizie Archeologiche Bergomensi* 7, 1999, 23 ff.

<sup>18</sup> R. de Marinis, *Villaggi e necropoli dell'età del Bronzo nel territorio di Ostiglia* (Ostiglia 1987) 21 ff., fig. 15: 1.

<sup>19</sup> *Ib.*, 26 f.

<sup>20</sup> A. Mozsolics, *Bronzefunde des Karpatenbeckens. Depotfundhorizonte von Hajdúsámson und Kosziderpádlás* (Budapest 1967) 123 ff., 134 f, pl. 49: 10. See also B. Hänsel, *Beiträge zur Chronologie der mittleren Bronzezeit im Karpatenbecken*, *Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturraumes* 7, 8 (1968) 161, 165.

<sup>21</sup> M. Pacciarelli, *Il Bronzo Medio-Recente della Romagna: evoluzione tipologica e vicende del popolamento*, in: *Le Terra-mare. La più antica civiltà padana* (Modena 1997) 428, fig. 246: 10.

<sup>22</sup> J. Cierny, N. Degasperi, P. Frontini, M. Prange, *Le attività metallurgiche*, in: *Castellaro del Vhò. Campagne di scavo 1996-1999. Scavi delle Civiche Raccolte Archeologiche di Milano* (Milano 2001) 73, fig. 37: 5; P. Frontini, *Considerazioni cronologiche sulle fasi indagate stratigraficamente*, *ib.*, 225 ff.

<sup>23</sup> *Primas* (n. 11) 191, pl. 120: 2048.

<sup>24</sup> R. Vasić, *Die Sichel im Zentralbalkan (Vojvodina, Serbien, Kosovo und Mazedonien)*, *Prähistorische Bronzefunde* 18/5 (1994) 9, 39, pl. 23: 308.

<sup>25</sup> I. Iványi, *Szabadka. Szabad királyi város története* 2 (Szabadka 1892) 23, pl. 3: 23-35.

<sup>26</sup> Ö. Gohl, *Régiségek a szabadkai főgymnasium gyűjteményében*, *Archaeologiai értesítő* 15, 1895, 312 ff., pl. 1: 1-8,10-12.

<sup>27</sup> Iványi (n. 25) pl. 3: 31; Vasić (n. 24) 36, pl. 19: 250.

specimens from the stratum was 3475 ±60 (1525) BC.<sup>28</sup> A similar sickle with a less pronounced saddle-shaped transition from the outer tang rib to the back rib, is also known from the hoard of Piller-Moosbruckschrofen (Tyrol), where the objects were dated to a span of several centuries, one of the oldest being a trefoil pin.<sup>29</sup> The distribution map of the sickles with pronounced saddle-shaped transition of the outer tang rib to the back rib is interesting (fig. 4). In contrast to expectations, the central point of their distribution was the Pannonian plain. All, with the exception of one isolated find, come from early Urnfield period (Ha A1) hoards (list 1).<sup>30</sup> Sickles with a saddle-shaped transition of the outer rib of the tang to the back rib represent early elements among later material and indicate a lengthy creation of the hoards in which they appeared.

A. Mozsolics called the sickles with a saddle-shaped transition of the outer rib of the tang to the back rib "terramare" sickles after the examples with a similar transition that were found in settlements north and south of the Po River.<sup>31</sup> M. Primas did not consider this term well chosen, as the Italian sickles usually have only two ribs on the tang, and an essential feature is a rivet hole in the tang.<sup>32</sup>

In connection with the three fragments of left-handed sickles (?) from Slovenia, it should be noted that finds from the middle Bronze Age are not known from Gobavica and Gradišče near Dobrna, so the fragments could represent an indication that these two places were settled in that period. This refers particularly to Gobavica, as several middle Bronze Age finds are known from the Kamniška Bistrica plain.<sup>33</sup> The situation is different at Turjeva jama, as middle Bronze Age pottery was also discovered in the excavations.<sup>34</sup>

### Distribution

Left-handed sickles are distributed from the Po River valley in the west to the area between the Danube and Tisza Rivers in the east (fig. 5). The present state of research indicates two groups with greater numbers of sites: one is in the Po valley, and the other in central Slovenia. The clay mould from the settlement of Castellaro del Vhò di Piadena points to their origin being in Italy.

### THE SWORD

In the immediate vicinity of where the first sickle was found, a sword was discovered some ten meters further downstream (fig. 1: 4; 6: a,b). The sword is highly ground down in the area of the butt, and the patina was eroded over the entire surface. The remains of six holes for rivets are visible on the butt. A slightly deepened horseshoe-shaped impression into which the hilt fit can be seen on both sides of the butt. The blade contracts below the butt, gently swells before the halfway point and gradually tapers to the point, the section is rhomboid. The sword has a concave-sided rib along the center. The thickening of the blade begins below the curve of the horseshoe-shaped hollow on the butt and extends to the point. It is more emphasized in the upper half of the sword. The front and back are decorated with poorly visible grooves. Both sides of the sword under the butt have two hatched heart-shaped hanging triangles with three parallel channelled lines that follow the contours of the upper blade. One side of the butt (fig. 6: a) bears poorly visible grooves, probably representing the remains of a decoration. From its position, this decoration could be similar to that on the butts of the swords from the Ljubljana River,<sup>35</sup> from Pichlern, and from an unknown site in Hungary.<sup>36</sup> On the other side of the sword (fig. 6: b), the decoration on the butt was completely erased. There are four channels at the bottom of the butt, and the surface between the two lower ones is hatched. The length of the sword is 26.4 cm, the width of the butt is 3.6 cm, and it weighs 85.59 g. The sword is privately owned.

In terms of form, length, and decoration the sword can be classified to the Sauerbrunn type, specifically to the group of short swords (25-33 cm). The decoration on the blade (three channels following the outline of the blade and two hatched heart-shaped hanging triangles) is identical to that on the short sword from Leobersdorf. The short swords from Pichlern and Sauerbrunn have an additional hatched band between the channelling and the hanging triangles. The short swords from Leobersdorf and Sauerbrunn are grave finds, and accordingly the short swords of the Sauerbrunn type are dated to the Lochham horizon (BA B1).<sup>37</sup>

A similar motif can be seen on the blade of the short sword from Lavrica, only it has two more hanging triangles, and the

<sup>28</sup> Urban (n. 11) 447, pl. 17B: Schicht 2. Compare the already calibrated <sup>14</sup>C datum in de Marinis (n. 17) fig. 42: 10, which is considerably earlier.

<sup>29</sup> The hoard is only partly published: G. Tomedi, Gedanken zur Interpretation des Schatzfundes vom Moosbruckschrofen am Piller, *ArchaeoTirol. Kleine Schriften* 3, 2001, 76 ff. (the drawing of the sickle is on the cover of the book); M. Egg, G. Tomedi, Ein Bronzehelm aus dem mittelbronzezeitlichen Depotfund vom Piller, Gemeinde Fließ, in Nordtirol, *Archäologisches Korrespondenzblatt* 32/4, 2002, 543 ff.; G. Tomedi, *Der bronzezeitliche Schatzfund vom Piller (Gemeinde Fließ, Nordtirol)*, Schriften Museum Fließ 1 (Fließ 2004). Also see P. Schauer, Zur Zeitstellung der vermeintlich ältesten Bronzekammhelme in Mitteleuropa, *Archäologisches Korrespondenzblatt* 33/2, 2003, 193 ff.

<sup>30</sup> Only sickles with three parallel ribs on the tang and smooth blade were taken into consideration.

<sup>31</sup> A. Mozsolics, Some remarks on 'Peschiera' bronzes in Hungary, in: *The European Community in Later Prehistory. Studies in honour of C. F. C. Hawkes*, 66 f. (London 1971); Ead., Beziehungen zwischen Italien und Ungarn während "Bronzo Recente" und "Bronzo Finale", *Rivista di scienze preistoriche* 27/2, 1972, 373 ff.; Ead. *Bronzefunde aus Ungarn. Depotfundhorizonte von Aranyos, Kurd und Gyermely* (Budapest 1985) 45 f.

<sup>32</sup> M. Primas, *Bonner Jahrbücher* 188, 1988, 546 s.

<sup>33</sup> Winged axes from Duplica near Kamnik: S. Gabrovec, Kamniško ozemlje v prazgodovini, *Kamniški zbornik* 10, 1965, 92, pl. 13: 5,6; Šinkovec (n. 1) 40, t. 4: 24,25. A winged axe was found between Kamnik and Palovče: Gabrovec (n. 33) 94, pl. 8: 3; Šinkovec (n. 1) 42, pl. 5: 30. A dagger with a butt from Domžale, Gabrovec (n. 33) 92, pl. 6: 6; Šinkovec (n. 1) 95, pl. 27: 182.

<sup>34</sup> F. Bressan, Le Valli di Natisone e la Kovačeva jama di Robič, *Arheološki vestnik* 39-40, 1988-1989, 519 ff. Also see: Čerče, Šinkovec (n. 13) 221 ff., pl. 142A: 1-11.

<sup>35</sup> Potočnik (n. 1) 390 f., pl. 5: 30.

<sup>36</sup> J. Cowen, The Origins of the Flange-hilted Swords of Bronze in Continental Europe, *Proceedings of the Prehistoric Society* 32, 1966, fig. 3: 5,6.

<sup>37</sup> P. Schauer, *Die Schwerter in Süddeutschland, Österreich und der Schweiz* 1, *Prähistorische Bronzefunde* 4/2 (1971) 20 ss, t. 2: 13,15,16.

two lines of incisions are accompanied by a garland design (fig. 7: 3).<sup>38</sup> The early Bronze Age dagger from Ig also has four hatched triangles and channelling with a row of garlands (fig. 7: 2).<sup>39</sup> The dagger from Ig has two hatched bands above the hanging triangles, while on the short sword under discussion only one band is hatched (fig. 6: 1b).

Almost identical motifs to those on the blades of the short swords from Sauerbrunn and Pichlern can also be found on two long swords: the sword from the Ljublanica River above the influx of the Zrnica Stream has three incised channels on each side of the blade, just like the short sword from Sauerbrunn, while the sword from the Barche canal<sup>40</sup> between the lakes of S. Maria and Lago di Revine (Treviso Province) has two, like the short sword from Pichlern.

The long sword that was found in the Tisza River at Szeged (fig. 7: 4) has excellent analogies to the short sword from Lavrica in almost all details (the shape of the butt, the number of rivet holes, and the decoration, with the exception of the garland).<sup>41</sup> They also have in common the zig-zag motif between the horseshoe-shaped decoration on the butt and the hanging triangles, which is almost identical to the decoration of the early Bronze Age dagger of the Pacengo type from the settlement of Bor di Pacengo (Verona Province) (fig. 7: 1).<sup>42</sup> The zig-zag motif is also depicted on the short sword from Pichlern.

The distribution map of short swords of the Sauerbrunn type (fig. 8) shows that their origin was in the eastern or south-eastern Alps. They were the forerunners of the long Sauerbrunn swords, which can be considered as yet another example in a line of products that were introduced into northern Italy from central Europe.<sup>43</sup>

## CONCLUSION

The discussed objects and a bronze flanged axe<sup>44</sup> are the earliest metal finds discovered to date in the upper reaches of the Ljublanica River. Figure 1, showing the finds of middle Bronze Age metal objects in this part of the Ljublanica, draws attention to the concentration of three artifacts found near

the influx of the Bistra. Two sickles and a short sword laid at a distance of only 50 meters. Relatively nearby, some 300 m downstream from the short sword, a flanged axe was found (fig. 1: 5), and a further 100 meters downstream another Sauerbrunn type sword (fig. 1: 6).<sup>45</sup> This means that five middle Bronze Age objects were found in a relatively short section of the Ljublanica around the influx of the Bistra. The fact that the objects were entirely preserved, were undamaged, and were only slightly worn would speak in favour of ritual sacrifice.<sup>46</sup> The position of the second Sauerbrunn sword, which was vertically driven into the riverbed, is also indicative.<sup>47</sup>

It is apparent from all three distribution maps (fig. 4; 5; 8) that communication and trade between northern Italy and the Pannonian plain took place across present-day Slovenian territory. A connection from west to east for left-tanged sickles is indicated to some extent by the mould from Castellaro del Vhò di Piadena (fig. 5), while for the sickles with three tang ribs and a saddle-shaped transition from the outer tang rib to the back rib the trade route probably went in the opposite direction; from the nucleus of distribution in the central Pannonian plain and along the Sava and Kolpa Rivers further towards the west (fig. 4). Whether travelling in one or the other direction, the upper course of the Ljublanica River was always either the beginning or end of transportation by water. Perhaps the analyzed sickles and sword could be interpreted in this sense - either as a form of prayer before a trip or as an offering of thanks for a safe voyage.

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<sup>38</sup> J. Dular, Bronasti jezičastoročajni meči iz Slovenije, in: *Varia archaeologica*, Posavski muzej Brežice 1 (1974) 13 f., pl. 1: 1; S. Gabrovec, Jugoistočnoalpska regija, in: *Praistorija jugoslavenskih zemalja* 4 (Sarajevo 1983) 19 ff., pl. 1: 5,5a; I. Šinkovec, Posamezne kovinske najdbe bakrene in bronaste dobe, in: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem* 2, Katalogi in monografije 30 (1996) 143, fig. 21: 1.

<sup>39</sup> Šinkovec (n. 38) 99, pl. 28: 193.

<sup>40</sup> E. Bianchin Citton, Due spade della media età del Bronzo al Museo Civico di Conegliano (TV), *Padusa* 13, 1977, 73 ff., fig. 1  
<sup>41</sup> T. Kemenczei, *Die Schwertwer in Ungarn* 1. (Griffplatten-, Griffangel- und Griffzungenschwerver), *Prähistorische Bronzefunde* 4/6 (1988) 38, pl. 14: 159. On the basis of the argument that the tang was broken off, the author classified it among rapiers of type B, variant 2. The drawing also offers a side view (fig. 7: 4), from which it is apparent that the top of the butt was entirely thinned, which speaks in favour of the fact that there was no tang, and hence this belongs to variant 1 (see n. 45).

<sup>42</sup> V. Bianco Peroni, *I pugnali nell'Italia Continentale*, *Prähistorische Bronzefunde* 6/10 (1994) 45, pl. 21: 367.

<sup>43</sup> H. J. Hundt, Donauländische Einflüsse in der frühen Bronzezeit Norditaliens, *Preistoria Alpina* 10, 1974, 143 ff. For the distribution of Sauerbrunn type swords in Italy, see: Cowen (n. 36) map A; V. Bianco Peroni, *Die Schwertwer in Italien. Le spade nell'Italia continentale*, *Prähistorische Bronzefunde* 4/1 (1970) pl. 68A. My addition: Barche canal - Bianchin Citton (n. 40); S. Giorgio di Nogaro - P. Cassola Guida, Una spada dell'età del bronzo dal Friuli, in: *Zbornik posvečen Stanetu Gabrovcu ob šestdesetletnici*, Situla 20-21 (1980) fig. 1; Olmo di Nogara - L. Salzani, La necropoli, in: *La necropoli dell'età del Bronzo all'Olmo di Nogara*, Memorie del Museo Civico di Storia Naturale di Verona. 2. serie. Sezione Scienze dell'Uomo 8 (2005) gr. 48, 50, and 475.

<sup>44</sup> Gaspari (n. 1, 2004) fig. 6: 2.

<sup>45</sup> A. Harding classified it as indeterminate into Sauerbrunn-Boiu family - *Die Schwertwer im ehemaligen Jugoslawien*, *Prähistorische Bronzefunde* 4/14 (1995) 23 f. (Blatna Brezovica) pl. 5: 28. The examination of the sword in National museum of Slovenia showed that the top of the butt was entirely thinned, which speaks in favour of the fact that there was no tang (see n. 41).

<sup>46</sup> Šinkovec (n. 38) 156 ff.; B. Teržan, Conclusion, in: *Depojske in posamezne kovinske najdbe bakrene in bronaste dobe na Slovenskem* 2, Katalogi in monografije 30 (1996) 255 f.

<sup>47</sup> Potočnik (n. 1) 390 f. Also see T. Soroceanu, Die Fundumstände bronzezeitlicher Deponierungen - Ein Beitrag zur Hortdeutung beiderseits der Karpaten, in: *Bronzefunde aus Rumänien*, *Prähistorische Archäologie in Südosteuropa* 10 (1995) 40 f., fig. 12.