

New Absolute Dates for Three Early and Middle Bronze Age Burials in the Serbian Danube Region

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Abstract

The paper presents the new absolute dates for three burials from the territory of the Serbian Danube region: Vajuga-Pesak, Golokut-Vizić, and Šljunkara-Zemun. All of the burials are inhumations with the deceased in a crouched position and grave goods comprising ceramic vessels and metal finds. Their cultural and chronological attribution was primarily based on the stylistic and typological characteristics of the grave goods, and hence the burials from Vajuga-Pesak and Šljunkara-Zemun have been attributed to the Early Bronze Age, and the burial from Golokut-Vizić to the Middle Bronze Age. The new absolute dates clarify such attributions and position the burials within a wider cultural and chronological narrative.

Keywords

Bronze Age, burials, absolute dates, Vinkovci Group, Novačka Čuprija-Pančevo Group, Vatin Group, Maros Group, Encrusted Pottery Culture

Zusammenfassung – *Neue absolute Datierungen für drei Bestattungen aus der frühen und mittleren Bronzezeit in der serbischen Donauregion*

Der Beitrag präsentiert die neuen absoluten Datierungen für drei Bestattungen aus der serbischen Donauregion: Vajuga-Pesak, Golokut-Vizić und Šljunkara-Zemun. Dabei handelt es sich um Körperbestattungen, bei denen die Verstorbenen in Hockerlage beigesetzt wurden und deren Grabbeigaben Keramikgefäße und Metallfunde umfassen. Ihre kulturelle und chronologische Zuordnung basierte in erster Linie auf den stilistischen und typologischen Merkmalen der Grabbeigaben, weshalb die Bestattungen aus Vajuga-Pesak und Šljunkara-Zemun der frühen Bronzezeit und jene aus Golokut-Vizić der mittleren Bronzezeit zugeordnet wurden. Die neuen absoluten Datierungen präzisieren diese Zuordnungen und ordnen die Gräber in einen größeren kulturellen und chronologischen Kontext ein.

Schlüsselbegriffe

Bronzezeit, Bestattungen, absolute Datierung, Vinkovci-Gruppe, Novačka Čuprija-Pančevo-Gruppe, Vatin-Gruppe, Maros-Gruppe, transdanubische inkrustierte Keramik

1. Introduction

The burial customs of the Early (c. 2800–2000 BCE) and Middle Bronze Age (c. 2000/1900–1600/1500 BCE) in Serbia are known primarily from the research on several major necropolises and through single finds of burials.¹ The results of the research clearly indicate the existence of different burial customs, which, within the given periods, vary chronologically, geographically, and culturally (for the most recent overview of Bronze Age burial customs, see Kapuran, Gavranović, Jovanović 2022; Bulatović 2025). Within the territory of Serbia, the most prominent and well-documented Early Bronze Age necropolises are certainly Mokrin and Ostojićevo in the Banat region (Girić 1971; Girić 1995; Milašinović 2008; Nicodemus, O'Shea 2015; O'Shea et al. 2019; Krečković Gavrilović 2022; Milašinović, Kapuran, Bulatović 2024) and Meaniše in Ranutovac within the South Morava Valley (Bulatović 2020).

According to the available absolute dates, the Mokrin necropolis is dated between the 22nd and the first half of the 17th century calBCE (O'Shea 1996; Krečković Gavrilović 2022). The utilisation of the Ostojićevo necropolis can be divided into two phases: the earlier one that marked the end of the Early Bronze Age, dated to the 20th and the 19th century BCE, and the Middle Bronze Age, with the occupation post-1800 BCE (O'Shea et al. 2019, Figs. 3, 8; Milašinović, Kapuran, Bulatović 2024). Both necropolises are characterised by inhumations in a crouched position, although the Ostojićevo necropolis displays certain specifics regarding the treatment of the child burials during the

¹ In addition, a number of barrows dated to the first half of the 3rd millennium BCE have been recorded and excavated within the Serbian part of the Carpathian Basin. They are not presented in this study due to their specific chronological and cultural attribution. For a detailed overview, refer to Koledin et al. 2020.

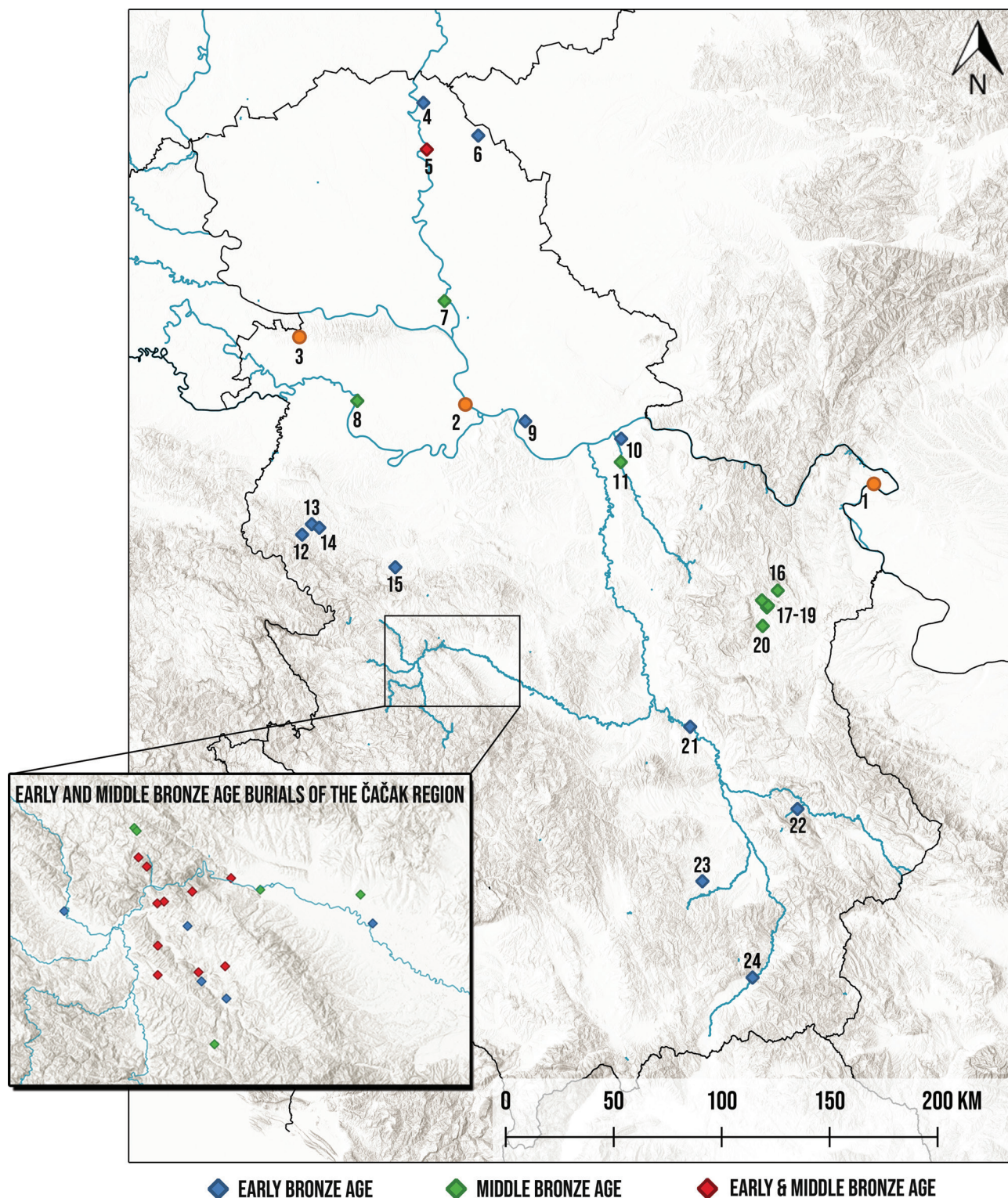


Fig. 1. Position of burials in the region under study. – 1. Vajuga-Pesak; 2. Šljunkara-Zemun; 3. Golokut-Vizić; 4. Novi Kneževac; 5. Ostojićevo; 6. Mokrin; 7. Stubarlija; 8. Gomolava; 9. Kod Krsta, Starčevo; 10. Amphitheatre, Viminacium; 11. Mogila-Cigansko Brdo; 12. Tolisavac; 13. Cerik-Bandera, Bela Crkva; 14. Šumar, Belotić; 15. Žabari; 16. Kriveljski Kamen; 17. Borsko Jezero; 18. Trnjane; 19. Hajdučka Česma; 20. Šoka Lu Patran; 21. Utrina, Rutevac; 22. Polje, Glogovac; 23. Svinjarička Čuka; 24. Meanište, Ranutovac (Base map: EsriTopoMap, QGIS version 3.34.15-Prizren; graphics: O. Mladenović).

Middle Bronze Age (Girić 1995; Marin et al. 2024). Both necropolises are attributed to the Maros Group, as the main representative of the Early and Middle Bronze Age in the Serbian Banat region (Garašanin 1983a). In addition, similar burials from Novi Kneževac and a single burial from the site Kod Krsta near Starčevo are likewise attributed to the Maros Group (Jocić 1991). Another burial comes from a mound in Skorenovac near Kovin, although the existing information is contradictory and prevents a more reliable cultural and chronological attribution. One of the ceramic vessels connected with the burial can be attributed with a degree of certainty to the Novačka Čuprija-Pančevo Group (Bulatović 2025, 16, Fig. 2.4/7). The Meanište necropolis in Ranutovac within the South Morava Valley, associated with the Armenochori Group, yielded 21 graves with remains of incinerated deceased, covered with circular stone structures. The necropolis is dated between the beginning of the 22nd and the middle of the 18th century calBCE (Bulatović 2020; Mladenović 2025).

The given examples reflect the different burial traditions between the northern, Carpathian part of Serbia, and the southern, Central Balkans part, during the Early Bronze Age. The Early Bronze Age burial customs of the Serbian part of the Carpathian Basin reflect the Eneolithic traditions, while in contrast, the burials at the Ranutovac necropolis display a strong connection with the southern parts of the Balkans and northern Greece, which is also reflected in their cultural attribution, as the stylistic and typological characteristics of the grave goods point to the Armenochori Group (Garašanin 1983b; Bulatović 2020).

Unfortunately, burial customs of the Early Bronze Age in this part of the Central Balkans remain largely unknown, save for several single burials. A triple inhumation burial at the site of Polje in Glogovac is absolutely dated to the end of the 29th and the first half of the 28th century calBCE (Lazić, Ljuština 2017, 130–131; Bulatović, Gori, Vander Linden 2020, 1171, Tab. 1/3). Unfortunately, there are no grave goods that could connect the burial with recognised cultural phenomena of the period. Another inhumation burial is known from the site of Utrina in Rutevac within the South Morava Valley, which, based on the ceramic vessel that served as a grave good, is dated to the end of the 3rd and the beginning of the 2nd millennium BCE (Bulatović 2009). An urn with cremated bones recorded at the site of the amphitheatre in Viminacium might represent a grave, although there is no data on the human origin of bones. The form of the ‘urn’ itself is analogous to a number of Early Bronze Age groups in the Central Balkans (Bulatović, Jovičić, Milovanović 2019). The latest Early Bronze Age burial in this region comes from the site of Svinjarička Čuka in the hinterland of the Leskovac Basin and represents an uncommon

burial manifestation in the area. The deceased, placed in a crouched position within a massive stone cist, was buried with several gold ornaments, yet no other grave goods have been recorded. The burial is absolutely dated between the mid-25th and the beginning of the 23rd century calBCE (Horejs et al. 2025, 4–5).

A similar picture regarding the differences in burial customs can be observed during the Middle Bronze Age. The well-documented Middle Bronze Age burials in the territory of eastern Serbia (Kriveljski Kamen, Borsko Jezero, Trnjane, Hajdučka Česma, Šoka Lu Patran), attributed to a local variant of the Bubanj-Hum IV-Ljuljaci Group (the eastern or the Timok variant), are absolutely dated between the 21st and the 17th century calBCE (Gavranović et al. 2020, 67–69; Kapuran, Gavranović, Mehofer 2020, 69–70; Gavranović et al. 2025). These burials bear characteristics of the Early Bronze Age Ranutovac necropolis, as the remains of incinerated deceased in urns are placed in large circular stone structures. Further to the north, within the Carpathian Basin, the Early and Middle Bronze Age burials are characterised primarily by cremations, while inhumations are quite common for southern parts of the Carpathian Basin and the Maros Group in Serbia, respectively (Fischl et al. 2013, 362–363). Although several such burials have been recorded, such as the child burial at the site of Gomolava and Grave No. 2 from the Stubarlija necropolis (Medović 2007; Balj 2019), none of those have been absolutely dated to the Middle Bronze Age, as their attribution is based on the stylistic and typological characteristics of the grave goods, primarily pottery (Ljuština 2022, 102–105; Mladenović, Bulatović, Grujić forthcoming). The only dated inhumation grave from the Middle Bronze Age comes from the site of Mogila-Cigansko Brdo within the Mlava Valley in the Stig region. The deceased was laid in a crouched position in a circular pit, with no grave goods except for a stone that covered their face. The burial is dated between the beginning of the 19th and the beginning of the 17th century calBCE (Mladenović, Bulatović, Grujić forthcoming). It is important to highlight that burial customs within the territory of western Serbia were biritual and characterised by burial mounds throughout the Early, Middle and Late Bronze Age, hence differing from the surrounding regions (Lazić 2007; Dmitrović 2016, 201–218; Bulatović, Filipović, Gligorić 2017).

The three burials presented in this study, were selected for several reasons, the foremost being that these burials have been a subject of debates on chronology and cultural attribution for almost half a century, based solely on analyses of the material culture. Further, two of these graves, Šljunkara in Zemun and Golokut in Vizić, contain metal objects (gold and bronze), thereby highlighting their importance with regard to the production, circulation and

chronology of metal objects within the Carpathian Basin and the Central Balkans. Finally, in the light of recent publications, which have resulted in a new framework for the study of interactions between the southern Carpathian Basin and the Central Balkans (Bulatović 2025), these graves are especially relevant.

2. New Absolute Dates

This paper presents the absolute dates for three burials that have so far been based on the stylistic and typological characteristics of grave goods attributed to the Early and the Middle Bronze Age (Fig. 1/1–3). The analyses were conducted at the Isotoptech Zrt. Laboratory in Debrecen, Hungary. The sample preparation and measurements were conducted according to Molnár et al. 2013a, Molnár et al. 2013b, Major et al. 2019a and Major et al. 2019b. The new data and interpretation of the given burials will enrich our knowledge of the burial customs and cultural interactions of the Bronze Age communities of the Serbian Danube region.

2.1. Vajuga-Pesak

The inhumation burial from the site of Vajuga-Pesak is a single such grave recorded within an Early Iron Age and medieval necropolis located on an elongated terrace on the right bank of the Danube River (Popović, Vukmanović, Radojčić 1986; Popović, Vukmanović 1998). Besides the necropolises, the site yielded finds attributed to the Early and Late Eneolithic, the Late Bronze Age and the Late Iron Age (Kapurán 2014, 151). The grave in question contained the remains of an adult female, between 30 and 40 years of age. The deceased was placed in a crouched position, and the grave goods comprised a bowl and a one-handed jug (Fig. 2; Popović, Vukmanović, Radojčić 1986, Fig. 6/13–14). The burial dating is based on a sample of a human tooth absolutely dated to a period between 2663 and 2474 calBCE ($\sigma 2$ range) or between 2622 and 2496 calBCE ($\sigma 1$ range) (4051 ± 23 BP) (Fig. 5/1 and Tab. 1). Calibrations of all presented dates were performed using OxCal 4.4. (Bronk

No.	Village, Site	Lab. Code	Date BP	Date calBC	Sample	Published	Culture
EARLY BRONZE AGE							
1	Vajuga, Pesak	DeA 48857	4051 ± 23	2622–2496 (68.3 %) 2663–2474 sigma 2	Human tooth	This study	Somogyvár-Vinkovci
2	Majilovac, Marjansko brdo	DeA 44839	3906 ± 20	2466–2339 (94 %) 2470–2300 sigma 2	Animal bone	Bulatović 2025	Somogyvár-Vinkovci
3	Dučalovići, Ruja	MAMS 31473	3892 ± 16	2455–2348 (68.2 %) 2463–2305 (95.4 %)	Human bone	Bulatović, Gori, Vander Linden 2020	Belotić-Bela Crkva Group
4	Ostrikovac, Đula	DeA 32271	3886 ± 26	2411–2342 (61.4 %) 2470–2290 sigma 2	Animal bone	Bulatović 2025	Somogyvár-Vinkovci
5	Hum, Velika Humska Čuka	MAMS 31477	3885 ± 16	2454–2344 (68.2 %) 2461–2300 (95.4 %)	Animal bone	Bulatović, Gori, Vander Linden 2020	Bubanj-Hum III
6	Pelince, Dve Mogili	MAMS 31472	3843 ± 22	2344–2211 (68.2 %) 2455–2205 (95.4 %)	Animal bone	Bulatović, Gori, Vander Linden 2020	Bubanj-Hum III
7	Lučani, Suva Česma	RICH 24503	3831 ± 30	2340–2200 (68.2 %) 2460–2190 (94.2 %)	Cremated human bone	Bulatović, Gori, Vander Linden 2020	Belotić-Bela Crkva Group
8	Grčac, Novačka ćuprija	Beta 2572	3800 ± 330	2860–1765 (68 %) 3105–1436 (94.3 %)	?	Krstić et al. 1986; Nikolova 1999	Bubanj-Hum III/Novička ćuprija-Pančevo
9	Štulac, Svinjarička Čuka	MAMS 46942	3785 ± 22	2281–2146 (68.2 %) 2288–2141 (95.4 %)	Seed	Horejs et al. 2022	Bubanj-Hum III
10	Majur, Vecina mala	DeA-42050	3778 ± 47	2240–2138 (70 %) 2400–2030 sigma 2	Animal bone	Bulatović 2025	Bubanj-Hum III/Novička ćuprija-Pančevo
11	Štulac, Svinjarička Čuka	MAMS 46945	3770 ± 22	2274–2142 (68.2 %) 2286–2061 (95.4 %)	Seed	Horejs et al. 2022	Bubanj-Hum III
12	Zemun, Šljunkara	DeA 48997	3740 ± 19	2205–2122 (65.4 %) 2268–2039 sigma 2	Human tooth	This study	Somogyvár-Vinkovci/Maros
13	Novo Selo, Bubanj	MAMS 31461	3718 ± 22	2191–2044 (68.2 %) 2197–2035 (95.4 %)	Animal bone	Bulatović, Gori, Vander Linden 2020	Bubanj-Hum III

14	Viminacium, Nad klepečkom	DeA 14239	3652 ± 30	2040–1965 (79.6 %) 2140–1940 (95.4 %)	Animal bone (<i>Bos taurus</i>)	Kapuran, Bulatović, Danković 2019	Novačka čuprija-Pančevo
15	Novo Selo, Bujanj	SUERC 61530	3648 ± 32	2120–1950 (68.2 %) 2140–1920 (95.4 %)	Animal bone (<i>Equus sp.</i>)	Bulatović, Vander Linden 2017	Bujanj-Hum III
16	Prijedor, Ada	RICH 24502	3638 ± 30	2035–1945 (68.2 %) 2140–1910 (95.4 %)	Cremated human bone	Bulatović, Gori, Vander Linden 2020	Bujanj-Hum III/ Bujanj-Hum IV-Ljuljaci
17	Novo Selo, Bujanj	SUERC 69298	3632 ± 34	2035–1942 (68.2 %) 2131–1900 (95.4 %)	Animal bone (<i>Sus sp.</i>)	Bulatović, Vander Linden 2017	Bujanj-Hum III
18	Majilovac, Marjansko brdo	DeA 45287	3597 ± 34	1978–1918 (67 %) 2114–1826 sigma 2	Charcoal	Bulatović 2025	Novačka čuprija-Pančevo
19	Viminacium, Rit	DeA-14236	3593 ± 28	1977–1907 (91.6 %) 2030–1880 (95.4 %)	Animal bone (<i>Equus sp.</i>)	Bulatović, Jovičić, Milovanović 2019	Novačka čuprija-Pančevo
20	Grčac, Novačka Čuprija	BC 84	3590 ± 100	2160–1850 (68 %)	?	Krstić et al. 1986; Nikolova 1999	Novačka čuprija-Pančevo
21	Majilovac, Marjansko brdo	DeA 44840	3546 ± 19	1930–1879 (83 %) 1950–1770 sigma 2	Animal bone	Bulatović 2025	Novačka čuprija-Pančevo
22	Majilovac, Marjansko brdo	DeA 44841	3534 ± 19	1849–1773 (53 %) 1940–1770 sigma 2	Animal bone	Bulatović 2025	Novačka čuprija-Pančevo
MIDDLE BRONZE AGE							
23	Omoljica, Zlatica	BC 2	3530 ± 60	1960–1760 (68.2 %) 2040–1690 (95.4 %)	?	Gogâltan 1999	Bujanj-Hum IV-Ljuljaci/Early Vatin
24	Maskare, Bedem	DeA 44857	3522 ± 19	1930–1760 sigma 2 1853–1768 (68 %)	Animal bone	Bulatović 2025	Bujanj-Hum IV-Ljuljaci
25	Ljuljaci, Milića Brdo	Z 546	3480 ± 100	1940–1680 (68.2 %) 2150–1500 (95.4 %)	Charcoal	Gogâltan 1999	Bujanj-Hum IV-Ljuljaci
26	Golokut, Vizić	DeA 48996	3471 ± 18	1828–1740 (59.4 %) 1880–1699 sigma 2	Human tooth	This study	Vatin/Encrusted pottery
27	Bratinac, Cigansko brdo	DeA 44856	3468 ± 20	1828–1738 (61 %) 1880–1690 sigma 2	Human tooth	Bulatović 2025	Vatin
28	Bratinac, Cigansko brdo	DeA 42035	3463 ± 31	1884–1730 (86.1 %) 1890–1680 sigma 2	Animal bone	Bulatović 2025	Vatin
29	Ljuljaci, Milića Brdo	Z 548	3460 ± 100	1930–1670 (68.2 %) 2050–1500 (95.4 %)	Charcoal	Gogâltan 1999	Bujanj-Hum IV-Ljuljaci
30	Štulac, Svinjarička Čuka	MAMS 46947	3438 ± 29	1869–1689 (68.2 %) 1876–1631 (95.4 %)	Seed	Horejs et al. 2022	Bujanj-Hum IV-Ljuljaci
31	Štulac, Svinjarička Čuka	MAMS 46940	3430 ± 22	1863–1689 (68.2 %) 1872–1634 (95.4 %)	Animal tooth	Horejs et al. 2022	Bujanj-Hum IV-Ljuljaci
32	Ljuljaci, Milića Brdo	Z 545	3425 ± 95	1890–1630 (68.2 %) 2050–1500 (95.4 %)	Charcoal	Gogâltan 1999	Bujanj-Hum IV-Ljuljaci
33	Majilovac, Marjansko brdo	DeA 45283	3423 ± 31	1775–1623 (87 %) 1873–1623 sigma 2	Charcoal	Bulatović 2025	Vatin
34	Štulac, Svinjarička Čuka	MAMS 40140	3412 ± 20	1743–1688 (68.2 %) 1756–1643 (95.4 %)	Emmer grain	Horejs et al. 2019	Bujanj-Hum IV-Ljuljaci
35	Ljuljaci, Milića Brdo	Z 549	3370 ± 100	1870–1520 (68.2 %) 1920–1440 (95.4 %)	Charcoal	Gogâltan 1999	Bujanj-Hum IV-Ljuljaci
36	Majilovac, Marjansko brdo	DeA 45291	3359 ± 33	1689–1611 (83 %) 1740–1537 sigma 2	Charcoal	Bulatović 2025	Vatin
37	Majilovac, Marjansko brdo	DeA 45290	3357 ± 33	1689–1610 (80 %) 1739–1536 sigma 2	Charcoal	Bulatović 2025	Vatin

Tab. 1. Absolute dates for the Early and Middle Bronze Age in Serbia (A. Bulatović).

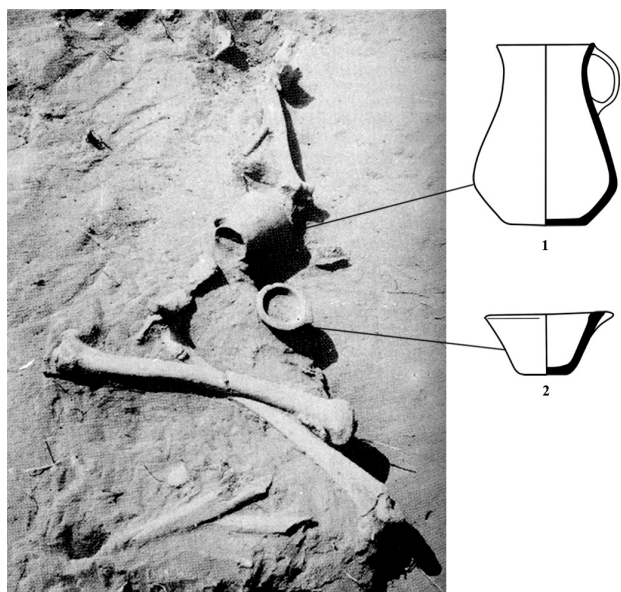


Fig. 2. Burial from Vajuga-Pesak (Graphic: O. Mladenović, modified after Popović, Vukmanović, Radojčić 1986).

Ramsey 2009; Bronk Ramsey 2025) and Intcal 20 (Reimer et al. 2020).

2.2. Šljunkara-Zemun

Similarly to the burial from the site of Vajuga-Pesak, the burial from the site of Šljunkara in Zemun represents a lone find within a multilayered site. The inhumation grave contained the remains of an adult female individual between 25 and 30 years of age (Krnić 1991, 26). The deceased was placed in a crouched position, oriented west-east, with the face turned towards the northeast. The grave goods were divided into two groups, with the first group placed below the feet of the deceased (Fig. 3/1–3). This group was composed of a conical bowl with a slightly inverted rim (Fig. 3/1), a globular beaker with a short neck and two handles that connect the rim with the shoulder (Fig. 3/2) and a small pear-shaped beaker with two handles that connect the rim with the shoulder (Fig. 3/3). The second, larger group was placed above the head of the deceased, and consisted of a small stubby jug or a cup with one handle (Fig. 3/4), an S-profiled bowl with everted rim and doubled handle (Fig. 3/5), a globular beaker with four handles that connect the rim and the shoulder (Fig. 3/6), and two S-profiled bowls (Fig. 3/7, 8). A diadem made of gold plate was placed around the skull of the deceased, at the level of the forehead (Fig. 3/9). The diadem had small perforations for attachment on each of the ends, and the edges were decorated with punctures (Vranić 1991, 19–21). Based on the grave goods, the burial was connected with the Early Bronze Age Vinkovci Group (Tasić 2004, 26) or the late phase of the Somogyvár-Vinkovci

Group with strong stylistic and typological elements of the Maros Group (Bulatović 2025, 16). The burial dating is based on a tooth dated to a period between 2268 and 2039 calBC (σ_2 range) or between 2199 and 2061 (σ_1 range) (3740 ± 19 BP) (Fig. 5/2 and Tab. 1).

2.3. Golokut-Vizić

The grave from Golokut was discovered within the Early Neolithic Starčevo layer. The deceased was placed directly on the virgin soil, in a slightly crouched position on the left side, with bent knees. The burial was oriented south-east-northwest, with the face turned to the west. The grave contained several possible grave goods, although not all finds could be directly linked to the burial pit. However, the author identifies several items that should be considered grave goods based on their depth and position relative to the deceased. These are a miniature vessel with an elongated neck and deep carvings for encrustation (Fig. 4/1), a conical cup with two handles and finger impressions on the rim (Fig. 4/2) and a bronze *Lockenring* (Fig. 4/3). Further, a conical cup with one handle (Fig. 4/4) and a pear-shaped beaker with an emphasised recipient, elongated neck, two handles and an extension on the mouth (Fig. 4/5) most likely originate from the grave as well. Finally, a conical cup (Fig. 4/6) and a large conical pot with finger impressions on the rim (Fig. 4/7) were recorded below the deceased on the bottom of the pit (Petrović 1980, 57–58). The burial dating is based on a tooth dated to a period between 1880 and 1699 calBCE (σ_2 range) or between 1873 and 1746 calBCE (σ_1 range) (3471 ± 18 BP) (Fig. 5/3 and Tab. 1).

3. The Analysis of Grave Goods and Absolute Dates

The jug with one handle and elongated neck (Fig. 2/1) recorded within the grave at Vajuga-Pesak is quite characteristic for a number of Early Bronze Age groups in the Carpathian Basin, and particularly for the Somogyvár-Vinkovci Group and the Belotić-Bela Crkva Group (Garašanin 1983c; Garašanin 1983d, Pl. XCIX/3, 4, 6; Kulcsár 2009, 276–292; Mladenović, Bulatović 2024, with cited literature). The bowl from the grave, with a slightly everted and flattened rim (Fig. 2/2), is identical to the example from Mound XV with incinerated deceased at the Šumar necropolis in Belotić in western Serbia, attributed to the Belotić-Bela Crkva Group (Garašanin, Garašanin 1962; Garašanin 1983d, Pl. XCIX/1), a local, southern variant of the Somogyvár-Vinkovci Group (Tasić 1984, 19; Bulatović 2025, 105). However, the date, which falls between the first half of the 27th and the first half of the 25th century calBCE (σ_2 range), or between the final quarter of the 27th and the very beginning of the 25th century calBCE (σ_1 range), is slightly earlier than the existing dates for both the Somogyvár-Vinkovci and the Belotić-Bela

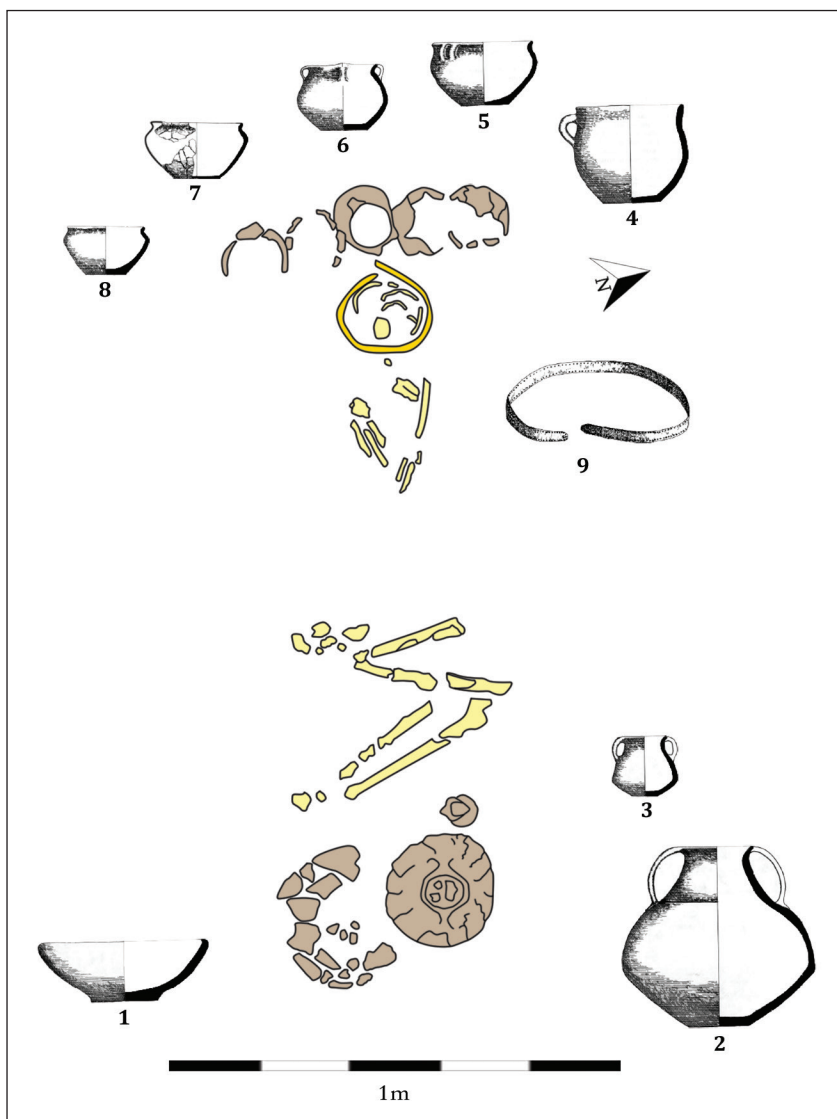


Fig. 3. Burial from Šljunkara-Zemun (Drawing: O. Mladenović, modified after Vranić 1991).

Crkva groups (Kalafatić 2006, 21–23, Tab. A; Kulcsár 2013, 652–653, Tab. 1; Szabó 2017, 110, Tab. 1; Bulatović, Gori, Vander Linden 2020, 1177, Fig. 6; Bulatović 2025, Tab. 1).

Regarding the burial from Šljunkara-Zemun, several vessels are quite indicative for the cultural attribution. S-profiled bowls with an everted rim and with or without doubled handle, similar to the example from the grave (Fig. 3/5), represent a common ceramic form at the Mokrin necropolis (Girić 1971, Pls. IV/1, VIII/10, XI/1, XIII/1, XV/1, XVII/4, XIX/5, LII/1, LXIX/3). Similar forms of bowls with or without doubled handles are known from the sites of Nad Klepečekom and Rit in the Stig region (northeastern Serbia) (Bulatović, Jovičić, Milovanović 2019, Pl. 1/1–9; Kapuran, Bulatović, Danković 2019, Pl. 1/1–3), the site of Novačka Čuprija (Krstić et al. 1986, Pl. XII) and the site of Smrdan in the confluence area of the South and West Morava rivers (Mladenović 2025, 7–9). Besides bowls, the sites of Nad Klepečekom and Novačka Čuprija yielded

two-handled beakers similar in form to the examples from the grave (Fig. 3/2–3; Krstić et al. 1986, Pl. XIV; Kapuran, Bulatović, Danković 2019, Pl. 5/1–5). Although such beakers are quite a common feature within the ceramic inventory of the Early Bronze Age groups in the Carpathian Basin, judging by the emphasised junction of the cones of the belly, similarities can be observed with the examples from the site of Pančevo-Vatrogasni Dom (Grčki-Stanimirov 1996, Pls. 1–2). A prominent feature of the burial from Šljunkara-Zemun is a diadem made of gold plate, decorated with a series of punctures. Examples made of copper, similar in craftsmanship and function, come from Grave No. 73 at the Mokrin necropolis (Girić 1971, 75–76, Pl. XXII/1) and from Grave No. 2 at Novi Kneževac, and similar examples are known from sites in Hungary and Croatia (Girić 1971, 219, with cited literature; Bulatović 2025, 25). The location of the site of Šljunkara in Zemun, on the border between the Syrmia and Banat regions, positions the burial in the domain

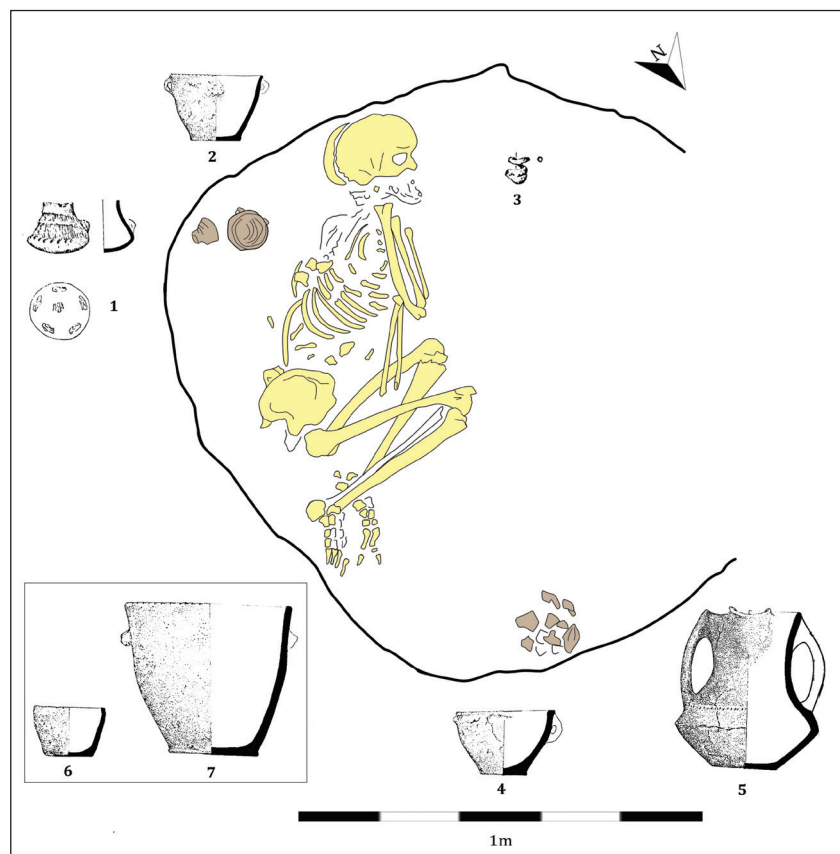


Fig. 4. Burial from Golokut-Vizić (Drawing: O. Mladenović, modified after Petrović 1980).

of the Early Bronze Age groups of the Carpathian Basin or the somewhat earlier Somogyvár-Vinkovci Group in the west, the Maros Group in the northeast and the Novačka Čuprija-Pančevo Group in the east and south (Mladenović, Bulatović 2024). The absolute date that falls between the beginning of the 22nd and the middle of the 21st century BCE, falls within the very end of the chronological scopes of the Somogyvár-Vinkovci Group, in Transdanubia and the Central Balkans primarily dated between the 26th and the 23rd century calBCE, with several outliers in absolute dates in a few smaller regions which are slightly younger (Kalafatić 2006, 21–23, Tab. A; Kulcsár 2013; 652–653, Tab. 1; Szabó 2017, 110, Tab. 1), and the Maros Group, dated between the 22nd and the 17th century calBCE (O'Shea 1996, Tab. 3.1; Gogâltan 2015, 60–62; Szabó 2017, 112, Tab. 1; Kiss et al. 2019, 181, Fig. 4; O'Shea et al. 2019, Tab. 1; Krečković Gavrilović 2022, 41–43, Fig. 3.1, with cited literature). Regarding the dates for the Novačka Čuprija-Pančevo Group, the date from Šljunkara-Zemun is slightly earlier than the sites of Rit and Nad Klepečkom, which are dated into the 21st/20th century calBCE (Bulatović, Jovičić, Milovanović 2019; Kapuran, Bulatović, Danković 2019) and the site of Novačka Čuprija, dated between the mid-22nd and the second half of the 19th century calBCE (Krstić et al. 1986, 34; Nikolova 1999), and quite similar to the site of

Smrdan, which is dated between the very end of the 23rd and the second half of the 21st century calBCE (Mladenović 2025, 7–9).

The typological and stylistic characteristics of the majority of grave goods from the burial in Golokut are not sufficiently indicative to permit a more detailed analysis. The decoration of certain vessels, represented by finger impressions on the rim (Fig. 4/2, 7), is a common decoration technique for the Middle Bronze Age in the wider area, including both the Carpathian Basin and the Central Balkans. The form of the two-handled beaker (Fig. 4/5) is analogous to a number of examples from Gomolava in Hrtkovci, Popov Salaš in Kač and Feudvar in Mošorin, which are all attributed to the so-called Syrmian-Slavonian regional variant of the Vatin Group, based on their stubbier form, handles in line with the rim and the shape of the mouth (Ljuština 2012, 148–149, Pls. 18/8–9, 19/11, 21/8, 22/3, 23/4, 30/9). However, the mouth of the beaker from the burial in Golokut is shaped more as a trapezoid than a triangle. Beakers with a similar form to the rim have been defined as the Pannonian type of beakers with trapezoid mouth, and an almost identical beaker is known from the site of Pákozdvár (Bulatović 2021, 131, Fig. 3/d). The absolute date that positions the burial from the site of Golokut between the end of the first

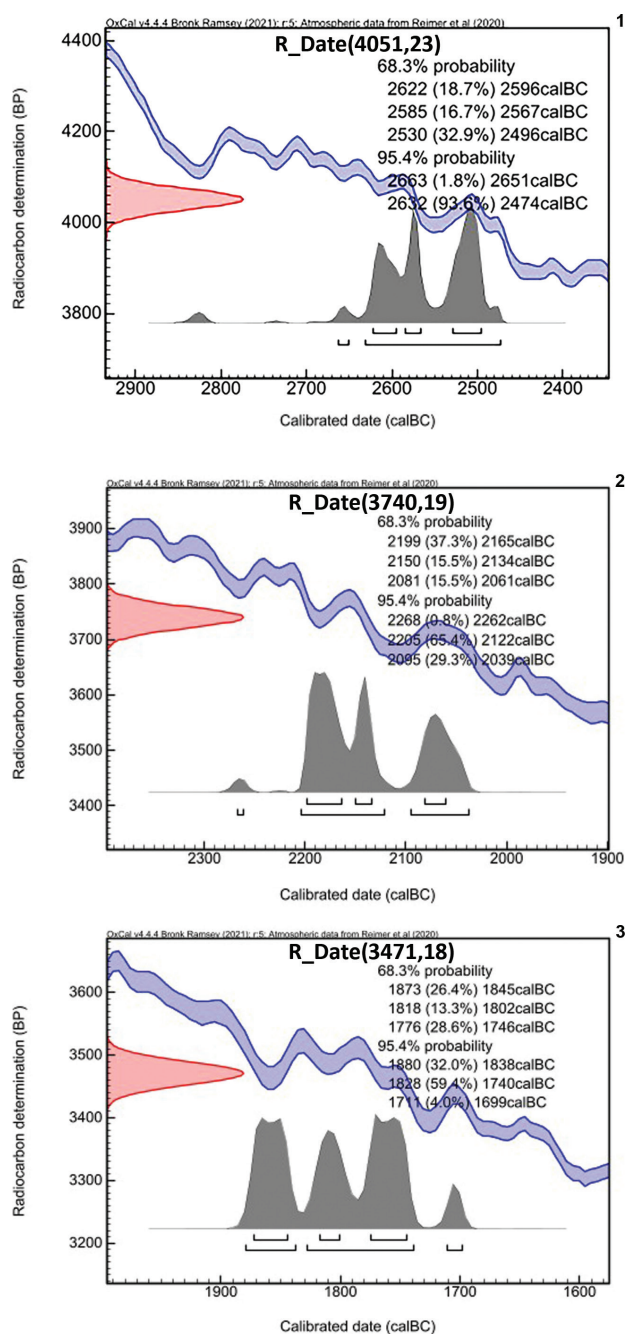


Fig. 5. Calibration curves for 1. Vajuga-Pesak; 2. Šljunkara-Zemun; 3. Golokut-Vizić (Graphics: A. Bulatović, O. Mladenović).

quarter of the 19th and the middle of the 18th century calBCE certainly falls within the existing absolute chronology of the Vatin Group, which positions the group between the 20th and the 16th century calBCE. However, the date is almost identical to a dwelling and single burial from the site of Mogila-Cigansko Brdo in the Stig region, which are dated to 1890–1680 calBCE (Feature 10a, semi-sunken dwelling) and 1880–1690 calBCE (Feature 56/Grave 5, burial). Based on the stylistic and typological characteristics of the

ceramic inventory from the site of Mogila-Cigansko Brdo, the aforementioned dwelling and burial are attributed to the Pančevo-Omoljica variant of the Vatin Group (Mladenović, Bulatović, Grujić forthcoming).

4. Discussion

The burial customs of all three graves presented, comprising inhumation of the deceased in a crouched position and grave goods positioned around them, indicate strong connections with the dominant burial custom of the Early and Middle Bronze Age in the southern Carpathian Basin, which is confirmed by the absolute dates presented in this study. Although the burial from Vajuga-Pesak is located within the Danube region, this part of the Danube region has been shown to have strong cultural connections with the Carpathian Basin throughout the Bronze Age, most likely due to their similar geomorphological characteristics (Mladenović, Bulatović 2024).

Surprisingly, the burial from Vajuga-Pesak is absolutely dated between the second half of the 27th and the beginning of the 25th century calBCE (σ_1 range), a date older than that suggested by the stylistic and typological characteristics of the grave goods, which point to the Somogyvár-Vinkovci Group. The geographic position of the burial at the site of Vajuga-Pesak is not surprising, despite the fact that it lies at a distance of several hundred kilometres from the core region of the Somogyvár-Vinkovci Group and is separated from this by a natural obstacle, the Đerdap Gorge. Connections between the sites situated within the Đerdap and Oltenia regions and the Somogyvár-Vinkovci Group have previously been suggested (Machnik 1991, 17; Roman 2006, 459; Mladenović, Bulatović 2024; Bulatović 2025, 55), although the date obtained for the burial at the site of Vajuga-Pesak is unusually old, since the Somogyvár-Vinkovci Group is dated between 2600/2500 and 2300 BCE (Kulcsár 2009, 232) or between 2500/2400 and 2300/2200 BCE (Kulcsár 2013, 653, with cited literature). The date from Vajuga-Pesak, with the highest probability within the 26th century BCE, positions the grave prior to or at the very beginning of the Somogyvár-Vinkovci Group in its core region of the western Carpathian Basin. Unfortunately, this is the only date for the Somogyvár-Vinkovci Group at a location that is so isolated from the core region, yet several dates are available from the neighbouring regions of Peri-Pannonia and the Great Morava Valley. A date from the site of Marjansko Brdo in Majilovac in the Stig region falls between 2466 and 2339 calBCE (σ_1 range) (Tab. 1), and a date from the Great Morava Valley, from a feature with pottery with corresponding stylistic and typological characteristics, is dated between 2411 and 2342 calBCE (σ_1 range) (Tab. 1). The earliest date for the Belotić-Bela Crkva Group in western Serbia, a regional

variant of the Somogyvár-Vinkovci Group, is also quite high and falls between 2455 and 2348 calBCE (σ_1 range) (Tab. 1), all of which indicates intensive contacts between communities of the southwestern Carpathian Basin and the Central Balkans from the end of the second half of the 3rd millennium BCE. According to the distribution of sites attributed to the Somogyvár-Vinkovci Group, these contacts might represent certain population movements down the Danube Valley towards the east and through the Great Morava Valley and western Serbia towards the south (Bulatović 2025, 105). Evidently those contacts reached significantly further to the east than previously thought, at least according to the absolute date from Vajuga-Pesak, which indicates that those contacts were established at the very beginning of the Somogyvár-Vinkovci Group. However, it is quite unusual for the earliest date for the Somogyvár-Vinkovci Group to originate from the site of Vajuga-Pesak in northeastern Serbia, and that could indicate the need for a possible revision of its beginning based on new dates from its core territory.

In general, the end of the 4th and the first half of the 3rd millennium BCE in the southern Carpathian Basin represent a turbulent period marked by intensive changes and mutual contacts between the autochthonous populations and newcomers from the east, the bearers of the so-called Yamnaya traditions. This resulted in the more or less intensive population movements towards the south (Bulatović 2025, 238), which, so it seems, shifted to the west-east and west-south directions during the mid-3rd millennium BCE.

Certain troubles regarding the cultural attribution of the burial at the site of Šljunkara-Zemun are caused by its absolute date, the wider domain of the Early Bronze Age groups to which its grave goods could be attributed and its geographic position. The absolute date acquired for the burial (2268 and 2039 calBC, σ_2 range) is slightly earlier than the majority of existing dates for the Novačka Čuprija-Pančevo Group (Rit, Nad Klepečkom, Novačka Čuprija; Tab. 1) and concurrent with the chronological scopes of the Somogyvár-Vinkovci and Maros groups. As the burial itself is located on the very border between the two groups, it could be attributed to either of those, according to the absolute date and the stylistic and typological characteristics of the grave goods. The other possibility is based on the similarities of the date of the burial and the date for the Novačka Čuprija-Pančevo Group from the site of Smrdan in Braljina. The site of Smrdan is located in the South Morava Valley, near the confluence with the West Morava River, meaning the formation of the Great Morava River, and so far, it represents the southernmost site attributed to the Novačka Čuprija-Pančevo Group. The Early Bronze Age horizon at the site is dated between the middle of the 24th and the second half of the 21st century calBCE (Tab. 1; Bulatović 2025,

Tab. 1/10; Mladenović 2025, 7–9), which further confirms the opinion that the Novačka Čuprija-Pančevo Group formed within the Great Morava Valley as a symbiosis between the Bubanj-Hum III Group and the later phase of the Somogyvár-Vinkovci Group, which is likewise represented within the Great Morava Valley (site of Đula in Ostrikovac; Bulatović 2025, 41). This assumption is confirmed by an earlier date from the site of Smrdan in Braljina, which positions the phase prior to the appearance of the stylistic and typological characteristics of the Novačka Čuprija-Pančevo Group in the 24th/23rd century calBCE. This phase can most likely be connected with the bearers of the Bubanj-Hum III Group, judging by the cultural and chronological relations in this region during the third quarter of the 3rd millennium BCE (Bulatović 2025, 111, Tab. 1/10).

The significance of the burial from Golokut-Vizić is twofold. At the moment, it represents only the second burial attributed and absolutely dated to the chronological scopes of the Vatin Group, along with the burial at the site of Mogila-Cigansko Brdo in Bratinac, in the Stig region. The two burials yielded almost identical absolute dates and display significant similarities in burial customs, such as the treatment of the body, meaning the placement of the deceased on the left side in a crouched position. Further, both sites yielded beakers with a trapezoidal mouth, although the example from Golokut is attributed to the Pannonian type and the example from Bratinac to the Central Balkan type (Bulatović 2021, 129–132, Figs. 2–3). Within the contexts of such burial customs, inhumation Grave No. 2 from Stubarlija (Medović 2007) and the child burial from Gomolava in Hrtkovci (Balj 2019, 24) should also be attributed to the Vatin Group, as previously suggested (Ljuština 2022, 102–105). The contemporaneous burial from Golokut-Vizić, attributed to the Syrmian-Slavonian variant of the Vatin Group, and the burial from the site of Mogila-Cigansko Brdo, attributed to the Pančevo-Omoljica variant of the Vatin Group, support the existence of regional variants of the Vatin Group, which developed simultaneously during the first half of the 2nd millennium BCE (Gogăltan 2022, with cited literature; Ljuština 2022, 88–101). Regarding the grave from Golokut-Vizić, the appearance of a small vessel with carvings for encrustation (Fig. 4/1) is particularly interesting. Such vessels or cups are characteristic of the Transdanubian Encrusted Pottery Culture, particularly the Late Kisapostag-Early Encrusted Pottery Phase (Type C2) and the Southern Transdanubian group of the older phase of the Transdanubian Encrusted Pottery Culture (Type C1) (Kiss 2012, 25, 28, Figs. 6, 10). Similarly, the tripartite bronze *Lockenring* from the grave (Fig. 4/3) can be connected with the later phases of the Early Bronze Age and the Middle Bronze Age and with Late Kisapostag/Early Encrusted Pottery finds in Transdanubia

(Szathmári et al. 2024, 289). Such connections between the Transdanubian Encrusted Pottery Culture and the Vatin culture, reflected in the occurrence of certain ceramic forms in burial contexts, are likewise attested within Grave No. 2 at the Stubarlija necropolis (Kiss 2012, Fig. 44). From a chronological point of view, the absolute date from Golokut fits within the small assemblage of dates correlated with the Late Kispostag and Early Encrusted Pottery Phase, thus further confirming their chronological attribution (Kiss 2012, 203).

5. Conclusions

The intensification of interactions between the southern Carpathian Basin and the Central Balkans that occurred from the mid-4th millennium BCE and lasted throughout the Bronze Age, marked by changes in material culture, burial customs and the formation and transformation of cultural groups, has recently been the subject of a number of studies (e.g. Bulatović 2021; Cwaliński et al. 2023; Bulatović et al. 2023; Bulatović, Mladenović 2024; Bulatović 2025; Horejs et al. 2025; Mladenović 2025). Once again, the analyses of burial customs, material culture and new absolute dates proved that the permeation of different elements of material culture occurred in different directions and that such permeation was of varying intensity.

The absolute dates presented in this study challenged our perception regarding the chronology and territorial distribution of the material culture recognised as the Somogyvár-Vinkovci Group. The site of Vajuga-Pesak, with the earliest date for the given group, seemingly indicates a slightly earlier dating of the group itself and points to cultural transmission along the west-east axis during the 3rd millennium BCE. The date for the burial at the site of Šljunkara-Zemun has further pointed out the justification of the recent separation of a new Early Bronze Age manifestation in the territory of the Great Morava Valley, Peripannonia and the southern Carpathian Basin, the Novačka Čuprija-Pančevo Group (Ljuština 2022; Mladenović, Bulatović 2024; Bulatović 2025), and further strengthened its absolute chronological position and its relations to the neighbouring groups. The date for the burial at the site of Golokut-Vizić, as one of the few published dates for the Vatin Group, confirmed the chronological positioning of the group in the first half of the 2nd millennium BCE, while simultaneously confirming the contemporaneity of different regional variants of the Vatin Group and their connection with the Transdanubian Encrusted Pottery Culture.

Regarding the burial customs of all three burials presented here, they strongly indicate the southern Carpathian burial traditions of the Early and Middle Bronze Age, which is expected in relation to the treatment of the deceased and

the stylistic and typological characteristics of the material culture, and confirmed by the presented absolute dates. The long-lasting burial traditions likewise reflect the mutual connections, similarities and intertwining between Early and Middle Bronze Age groups of the Carpathian Basin and might point to a similar spiritual perception within a wider geographical area.

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