

NEW ABSOLUTE DATES AS A CONTRIBUTION  
TO THE STUDY OF THE LATE BRONZE AGE CHRONOLOGY  
IN THE CENTRAL BALKANS

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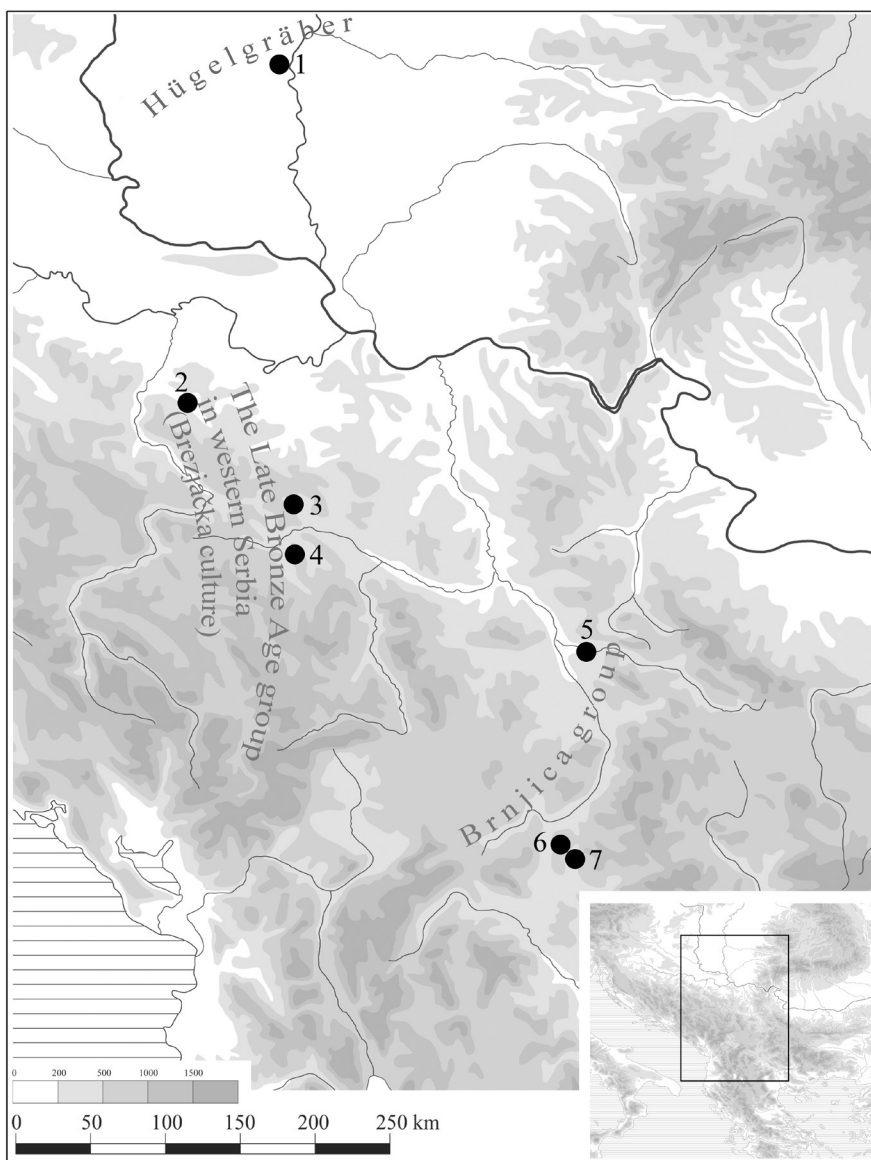
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**Abstract:** *The paper presents three Late Bronze Age absolute dates from contexts located in the territory of western Serbia and northern Republic of Macedonia, and discusses them together with further absolute dates from the same period, which will be published shortly by one of the authors and other colleagues. On the basis of these dates the Late Bronze Age chronology is discussed together with cultural aspects of the groups representative of this period in the Central Balkans.*

**Key words:** *absolute dates, the Late Bronze Age, Central Balkan*

The absolute chronology of the Late Bronze Age in the Central Balkans is highly problematic since only few absolute dates are known, and traditional chronologies are solely based on sequences built on stylistic and typological characteristics of pottery and metal finds. Absolute dates from this region are few (e.g. Mediana: Coles and Harding 1979, 452; Novačka ćuprija: Krstić et al., 1986, 10). These were however obtained a long time ago and suffer from large standard deviations, especially in comparison to the accuracy of AMS dates (Bronk Ramsey 2009). For this reason these dates should thus be considered with caution. Several absolute dates have recently been obtained for this period, and the corresponding results will shortly be available (Bulatović, Kapuran, Gavranović, forthcoming; Kapuran, forthcoming). To these, this paper adds three further absolute dates which will hopefully contribute to a better understanding of the Late Bronze Age chronology in the Central Balkans.



**Map 1.** Central Balkans and south Pannonia in the Late Bronze Age:

1. Senta, Velebit; 2. Brezjak, Paulje; 3. Dubac, Jančići; 4. Krstac, Ivkovo brdo;
5. Niš, Medijana; 6. Svinjište, Gradina; 7. Pelince, Dve mogili.

(background of the map is provided by courtesy of M. Milinković)

**Карта 1.** Централни Балкан и јужна Панонија у позно бронзано доба:

1. Сента, Велебит; 2. Брезјак, Пауље; 3. Дубац, Јанчићи; 4. Крстац, Ивково брдо; 5.

Ниш, Медијана; 6. Свињиште, Градина; 7. Пелинце, Две могили

(позадину мапе љубазно је уступио М. Милинковић)

## Method and results

The paper presents the results of the AMS analysis of three samples, which were obtained from two different laboratories. Cremated human bones from Jančići and Krstac were analysed in KIK–IRPA AMS laboratories of the Royal Institute for Cultural Heritage in Brussels, while animal bone from Pelince was analysed at the AMS Laboratory of the Curt–Engelhorn–Center for Archaeometry in Mannheim. Laboratory code for the first mentioned laboratory was RICH, and for the second one, MAMS, and the calibration was obtained by using the Oxcal 4.3 software (Bronk Ramsey 2009).

\*

The first date comes from Dubac, close to the village of Jančići, 30 km northwest of Čačak. Ten burial mounds were recorded at this location, five of which were excavated. The sample taken for analysis is a cremated human bone from grave 1 in tumulus 7. This funerary structure measures 9 m in diameter and 1.2 m in height, and consists of stone and earth. The tumulus was covered with two or three layers of stone slabs (Dmitrović 2016, 81). Three graves from the Late Bronze Age with cremated human remains were found inside it. Grave 1 – from which the sample was taken – consists of the remains of a pyre and cremated human bones, and was located in the centre of the tumulus on a layer of brown soil whose surface measured about 4 m<sup>2</sup>. The only grave good recovered was a chipped stone tool. In the neighbouring grave 3, however, a two-handled beaker with wide belly was found (Pl. I/1). The handles have their upper edges modelled as volutes, which is a typological trait attributed to the Late Bronze Age cultural group of western Serbia and eastern Bosnia. The sample from grave 1 dates to  $3009 \pm 28$  calBP, that is 1290–1200 calBC (68.2% probability), or 1310–1120 calBC (85% probability). The second sample was taken from the Ivkovo Brdo cemetery in Krstac, located about 25 km southwest of Čačak, in which five mounds were excavated. The sample was obtained from the central grave of tumulus 4. This structure had a diameter of about 10 m, and contained the remains of a pyre and a cremation burial in its central part (Dmitrović 2016, 101). A single object of uncertain interpretation, probably a whetstone, was found. The cremated human bone from the central grave provided a value of  $3045 \pm 31$  calBP, that is 1390–1230 calBC (68.2% probability), or 1400–1210 calBC (95.4% probability).

The last absolute date was obtained from the ritual place at Dve mogili (“Two mounds”) in Pelince, which is located about 30 km north of Kumanovo, in northern Republic of Macedonia, close to the border with Serbia. The sample consists of an animal bone that was recovered in square IJ22 in zone IV, an area

where the excavated features date to the Late Bronze Age. The pottery shows characteristics of the Brnjica cultural group (Pl. I/2–6), which during the Late Bronze Age occupied the area encompassing southeastern Serbia and northern Republic of Macedonia (Bulatović and Stankovski 2012, T. LVIII/69–80). The sample provided a value of  $2939 \pm 21$  calBP, that is 1207–1115 calBC (68.2% probability), or 1214–1057 calBC (95.4% probability).

## Discussion

According to D. Garašanin (1967, 203–208), the Late Bronze Age chronology of Serbia corresponds to Reinecke's phases Br C and D, while R. Vasić proposed that Reinecke's phases Ha A and B should be included into this period as well (Vasić 1997, 149–151). This phase is commonly referred to as Transition Period from the Bronze to the Iron Age, a definition that derives from the uncertainty of its chronological aspects. According to one of the present authors (Bulatović and Stankovski 2012, Tables 18 and 19), in the Southern Morava region the Late Bronze Age started in the second half of the 15<sup>th</sup> century with the emergence of the Brnjica group. This hypothetical dating of the Brnjica group before the chronology proposed by Srejović at the end of Ha B and the beginning of Ha C phases (Srejović 1959–60, 122), was first put forward by M. Garašanin (1960, 189), who pointed out that the dating of this group should have been moved back at least into the Ha A phase. Similar opinion was held by M. Lazić, who dated the Brnjica group cemeteries to the Br D–Ha A1 phases (Lazić 1996, 173).

The dates for the Brnjica group from Svinjište near Preševo (Pl. I/7–10) and from Mediana near Niš (Pl. I/11–13) (Bulatović and Kapuran 2007; Bulatović 2008) suggest that the group probably existed already in the Br C phase (end of the 15<sup>th</sup> and 14<sup>th</sup> centuries BC), and quite certainly in Br D phase (13<sup>th</sup> century BC). Namely, the date from Mediana (Bulatović et al. forthcoming), which is 1380–1271 calBC (68.2% probability) (Table 1/5) defines the chronology of this group between the end of the first quarter of the 14<sup>th</sup> and the beginning of the second quarter of the 13<sup>th</sup> century BC. Dates from Svinjište, a hillfort-type settlement in which a Brnjica group dwelling structure was excavated, are slightly younger (Bulatović et al. forthcoming) and indicate a period between the beginning of the second quarter of the 14<sup>th</sup> and the beginning of the last quarter of the 13<sup>th</sup> century BC (Table 1/6, 7). The date from Pelince (Table 1/8) is somewhat younger and indicates that this group, at least in terms of the Pčinja Valley, also existed during the 12<sup>th</sup> century, and not later than the middle of the 11<sup>th</sup> century BC, i.e. in the Ha A1–A2 phase, according to the central European chronology.

N/ бр.	Site/локалитет	Archaeological context/ археолошки контекст	Lab. Sign./ лаб. ознака	BP	calBC/ калибр. пре н.е.
1	Brezjak, Paulje / Брезјак, Пауље	Mound XVIII, central grave / Хумка XVIII, централни гроб	Z 5897	3082±24	1402-1302 (68.2%) 1415-1278 (95.4%)
2	Senta, Velebit / Сента, Велебит	Grave 107 / Гроб 107	DeA-12043	3061±25	1408-1260 (95.4%)
3	Krstac, Ivkovo brdo / Крстац, Ивково брдо	Mound 4, central grave / Хумка 4, централни гроб	RICH 24504	3045±31	1390-1230 (68.2%) 1400-1210 (95.4%)
4	Dubac, Jančići	Mound 7, grave 1 / Хумка 7, гроб 1	RICH 24505	3009±28	1370-1200 (68.2%) 1390-1120 (95.4%)
5	Niš, Medijana / Ниш, Медијана	Dwelling structure 2/ Стамбени објекат 2	MAMS 27601	3046±26	1380-1271 (68.2%) 1400-1220 (95.4%)
6	Svinjište, Gradina / Свињиште, Градина	Trench 6, Dwelling structure / Сонда 6, стамбени објекат	BETA 433117	3030±30	1370-1225 (68.2%) 1390-1210 (95.4%)
7	Svinjište, Gradina / Свињиште, Градина	Trench 6, Dwelling structure / Сонда 6, стамбени објекат	MAMS 27600	3015±25	1369-1215 (68.2%) 1384-1113 (95.4%)
8	Pelince, Dve mogili / Пелинце, Две могили	Ritual space, zone IV, sq. Ц22 / Ритуални простор, зона IV, кв. Ц22	MAMS 31470	2939±21	1206-1116 (68.2%) 1214-1057 (95.4%)

**Table 1.** The Late Bronze Age absolute dates in the central Balkans and south Pannonia  
**Табела 1.** Апсолутни датуми из позног бронзаног доба на централном Балкану  
и у јужној Панонији

The precise chronology of the Late Bronze Age in western Serbia remains still rather blurred, and there is no consensus regarding the terminology. This being said, this group presents typological traits reminiscent of both the earlier phase of the Belegiš group in the Pannonian Plain and the Carpathian variant of the Hügelgräber culture. The earlier definition for this group as the West-Serbian variant of the Vatin culture (Garašanin 1973, 359) is no longer acceptable considering the latest research of the mounds in the surroundings of Loznica and Čačak, and the absolute dates available for this territory (Филиповић 2013; Dmitrović 2016; Gligorić, Filipović, Bulatović 2016). The debate on this group's definition has been always intense, since it was considered inadequate by several scholars. M. Stojić named this group the Mojsinje-Dobrača horizon or the latest horizon of Vatin culture (Stojić 1998, 138), while V. Filipović (2013, 70) called this group the Brezjačka culture, according to the largest explored necropolis of this group in Brezjak near Loznica. Relying largely on the typological characteristics of metal finds from cemeteries, this author considers that it is younger than it had been previously accepted, so that it does not belong to the Middle, but rather to the Late Bronze Age (Filipović 2013, 68–70).

K. Dmitrović proposes term West Serbian Middle Bronze Age group (Dmitrović 2016, 233), instead the Garašanin's term West-Serbian variant of the Vatin culture, considering the definition proposed by M. Garašanin inappropriate since no elements of Vatin culture are recognisable there. According to the stylistic and typological characteristics of the pottery, this group is indeed closer to the older phase of the Belegiš group, as N. Tasić (1983, 97) also noticed several decades ago.

Dates from Brezjak (Gligorić, Filipović and Bulatović 2016) (Pl. I/14), Jančići and Krstac (Table 1/1, 3, 4) indicate that this cultural group dates to the Late Bronze Age, i.e. to a period dating between the early 14<sup>th</sup> to the early 12<sup>th</sup> century BC (Table 1/1, 3, 4), and thus that it is younger than the Vatina culture. On this ground, we suggest to choose for this group a name that reflects its absolute chronology, such as Brezjačka group, which at present seems the most appropriate solution.

The date from the Hügelgräber culture cemetery in Senta (Pl. I/15) (Kapuran, forthcoming) points to the same chronology as in western Serbia (Table 1/2). These results suggest that the Western Serbian group was likewise formed in the Late Bronze Age. A vessel with a cylindrical elongated foot and a low broad belly with four warts was found in a pit together with pottery of the Žuto Brdo group at Nad klepečkom, a site in Viminacium (Pl. I/16). These typological traits are characteristic of the earlier phase of the Belegiš culture and other western Serbia and eastern Bosnia Late Bronze Age groups. This pit was dated to the end of the Middle Bronze Age, i.e. 16<sup>th</sup>–15<sup>th</sup> century calBC (Kapuran et al. in preparation). This find suggests that the mentioned typological elements were already present in the Middle Bronze Age, but, at least so far, exclusively in the Pannonian area. In summary, on the basis of the above-mentioned data, it is possible to propose that those typological elements date to the earlier stage of the Belegiš group, which is contemporaneous with the Žuto Brdo-Girila Mare group (compare with Alexandrov, Ivanov and Hristova 2016, Fig. 9). Such chronology, as well as very similar ceramic forms, can point to a northwestern Pannonian origin of the cultural traits of the group that settled in western Serbia and eastern Bosnia during the Late Bronze Age. This is to be taken as a hypothesis based on the data at our disposal. Discussion on these crucial aspects definitely requires further data and research.

Furthermore, it can be observed that both cultural groups (ie. Belegiš I and LBA group in western Serbia and eastern Bosnia) possess several Hügelgräber elements, especially in terms of ceramics. It is worth mentioning that the Balkan variant of the Hügelgräber culture is a complex comprising different



cultural traits of Central European, Pannonian and Balkan origin (e.g. Otomani, Belegiš, etc.), at least in terms of pottery, while metal finds are fairly uniform across the entire territory of this culture and beyond. Furthermore, it is interesting to observe that this group spread exclusively in Pannonia and western Serbia, while in the Morava Valley and in eastern Serbia its traces remain scanty. It can be suggested that despite the contemporaneity between these groups, the communities in the south and east of the Central Balkans seem to have had a relatively strong cultural identity, possibly rooted as far back as in the Early Bronze Age (Bulatović, Stankovski 2012). Naturally, this hypothesis needs to be tested by further research by combining traditional approach based on ceramic analysis with scientific analyses on archaeological materials.

## Conclusion

The Late Bronze Age absolute dates presented in this paper provide relevant information regarding the chronology of the Late Bronze Age in the Central Balkans and allow for chronological comparison between different regional cultural groups.

It is ascertained that in the area of the South Morava Valley the Brnjica cultural group existed already from the 14<sup>th</sup> century BC onwards (i.e. Late Bronze Age, or Br C/D according to Reinecke's chronology), and not as it was originally thought from the early Iron Age. Quite certainly the Brnjica culture continued also into the 12<sup>th</sup> century BC and possibly even longer.

Likewise in western Serbia the Brezjačka group – referred to in the literature alternatively as the West-Serbian variant of Vatin culture, the Mojsinje–Dobrača horizon, the Brezjačka culture, or the West-Serbian group of the Middle Bronze Age – appears to be contemporary with the Brnjica group and thus belonging to the Late Bronze Age. Such chronology questions some of the interpretations regarding its chronology, which are reflected in the different names adopted for its chrono-cultural definition. Furthermore the forthcoming date from the Senta cemetery shows that the Brezjačka group in western Serbia and the Hügelgräber culture in Vojvodina were at least partially contemporary. This can explain the presence of some common cultural traits that can be connected to the Belegiš I group, whose material culture appears to be very close to the West Serbia group.

Both chronological sequences and cultural interpretation represent a working hypothesis that will be tested by further research.

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## НОВИ АПСОЛУТНИ ДАТУМИ КАО ПРИЛОГ ПРОУЧАВАЊУ ХРОНОЛОГИЈЕ ПОЗНОГ БРОНЗАНОГ ДОБА НА ЦЕНТРАЛНОМ БАЛКАНУ

**Кључне речи:** *апсолутни датуми, позно бронзано доба, централни Балкан*

Апсолутна хронологија позног бронзаног доба на централном Балкану готово је потпуно недефинисана, а аутори који се баве овом проблематиком ослањају се искључиво на релативну хронологију, базирану на стилско-типолошким особинама керамике и металних налаза. Апсолутни датуми са овог простора су изузетно ретки, а једини до сада познати датуми потичу са Медијане (Coles and Harding 1979, 452) и Новачке ћуприје (Krstić et al. 1986, 10). Ови датуми су, међутим, прилично широког хронолошког опсега, а потичу из времена далеко пре примене АМС методе (Bronk Ramsey 2009), те се ти датуми морају посматрати са извесном резервом. У последње време, међутим, реализовано је неколико апсолутних датума из овог периода, чији су резултати у процесу публиковања (Bulatović, Karuran, Gavranović, у штампи; Karuran, у штампи), док ће три датума бити публикована у овом раду.

У раду су представљени резултати АМС анализе три узорка, који су обављени у две различите лабораторије. Кремиране људске кости из Јанчића и Крстаца анализирани су у КИК–IRPA АМС лабораторијама Краљевског института за културно наслеђе у Бриселу (KIK–IRPA АМС laboratories of the Royal Institute for Cultural Heritage in Brussels), док је животињска негорела кост из Пелинца анализирана у АМС лабораторији Курт Енгелхорн центра за археометрију у Манхајму (Curt–Engelhorn–Center for Archaeometry in Mannheim).

Лабораторијска ознака за прву наведену лабораторију је RICH, а за другу, MAMS, а калибрација је вршена Oxcal 4.3. методом (Bronk Ramsey 2009).

Први датум потиче са локалитета Дубац у селу Јанчићи тридесетак км северозападно од Чачка, на којем је евидентирано 10 тумула. Узорак за анализу чинила је спаљена кост покојника из гроба 1 у тумулу 7 (Дмитро-

вић 2016, 81). Стилско-типолошке карактеристике пехара широког трбуха са две дршке које се завршавају волутама из суседног гроба указују да је реч о културној групи позног бронзаног доба карактеристичној за западну Србију и источну Босну. Добијени резултат из гроба 1 износио је  $3009 \pm 28$ , што у калибрисаним датумима пре н.е. износи 1290–1200, са вероватноћом од 68,2%, или 1310–1120, са вероватноћом од 85%.

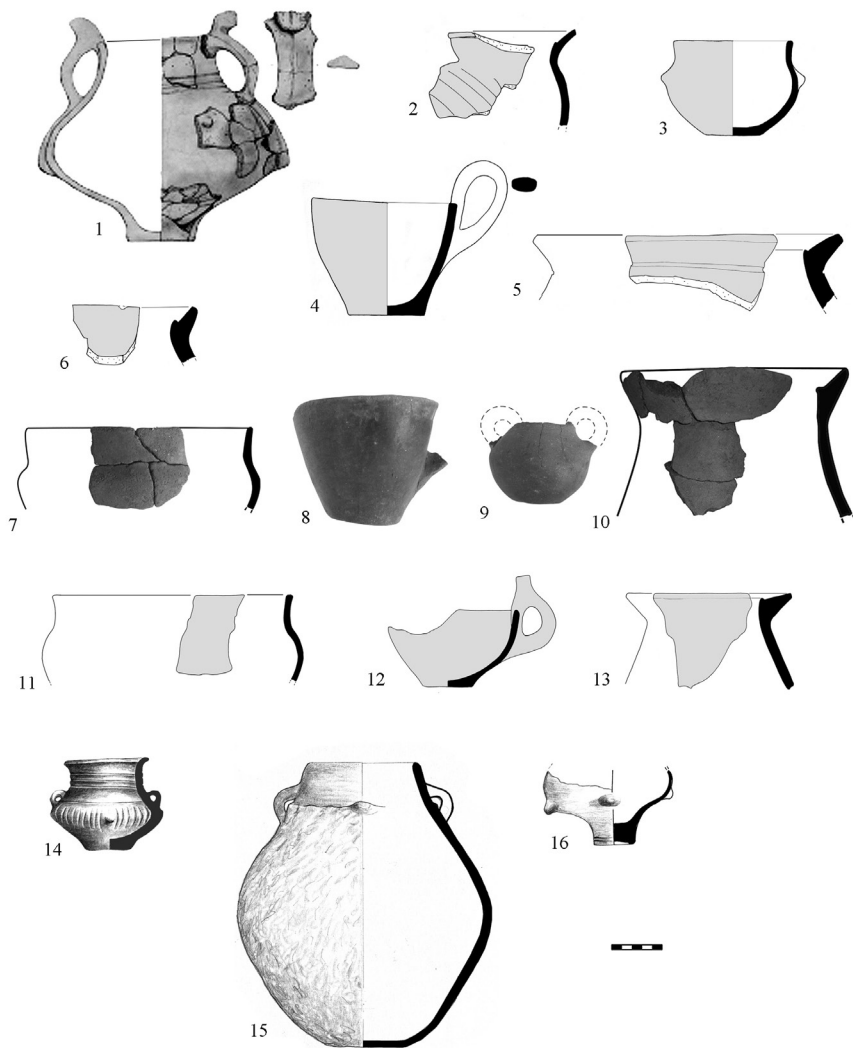
Други датум је узоркован са некрополе са тумулима на локалитету Ивково брдо у Крстацу, око 25 км југозападно од Чачка. Датовани узорак потиче из централног гроба хумке 4 (Дмитровић 2016, 101), а његова вредност јесте  $3045 \pm 31$ , што у калибрисаним датумима пре н. е. износи 1390–1230 (са вероватноћом од 68,2%), односно 1400–1210 (са вероватноћом од 95,4%).

Последњи апсолутни датум потиче са ритуалног простора на локалитету Две могили у Пелинцу, тридесетак км северно од Куманова, у северној Македонији. Реч је о животињској кости нађеној у квадрату Ц22 у зони IV која припада позном бронзаном добу (Булатовић, Станковски 2012, 73–85). У овој зони констатована је керамика типична за брњичку културну групу, која је егзистирала на простору југоисточне Србије и северне Македоније. Вредност датованог узорка јесте  $2939 \pm 21$ , што у калибрисаним датумима пре н. е. износи 1207–1115, са вероватноћом 68,2%, односно 1214–1057, са вероватноћом од 95,4%.

Нови апсолутни датуми из позног бронзаног доба са територије централног Балкана пружили су неке важне информације о хронологији позног бронзаног доба на овој територији као и хронолошком односу појединих културних група са овог простора. Тако је извесно да је брњичка културна група на простору Јужноморавске долине егзистирала већ од XIV века пре н.е. (позно бронзано доба, или Вг С/D према Рајнекеовој хронологији), а не тек од раног гвозденог доба, како се то првобитно мислило, а да је трајала сасвим сигурно и у XII веку пре н.е., а могуће је и дуже.

Исто тако, за културну групу која се различито назива у зависности од аутора (западносрпска варијанта ватинске културе, хоризонт Мојсиње–Добрача, брезјачка култура, западносрпска група средњег бронзаног доба), чији су носиоци насељавали област западне Србије установљено је да је истовремена са брњичком групом и да припада позном бронзаном добу, те су оваквом хронологијом неки досадашњи називи ове групе неодговарајући.

Треба на крају напоменути, међутим, да ови датуми јесу драгоцени, али да је потребно много више датума, односно целих серија датума како би се установила прецизна хронологија позног бронзаног доба на овом простору, као и међусобни хронолошки односи појединих група из овог периода.



**Pl. I** 1. Jančići, Dubac, tumulus 7, grave 3 (after Dmitrović 2016); 2–6. Pelince, Dve mogili, zone IV (after Bulatović, Stankovski 2012); 7–10. Svinjište, Gradina (after Bulatović, Kapuran 2007); 11–13. Mediana (after Bulatović 2008); 14. Brezjak, Paulje, tumulus XVIII, central grave (after Gligorić, Filipović, Bulatović 2016); 15. Senta, grave 107 (after Kapuran forthcoming); 16. Viminacium, Nad klepečkom, Trench 77, feature 6 (after Kapuran et al. in preparation).

**T. I** Јанчићи, Дубац, тумул 7, гроб 3 (према Дмитровић 2016); 2–6. Пелинце, Две могили, зона IV (према Булатовић, Станковски 2012); 7–10. Свињиште, Градина (према Булатовић, Каруран 2007); 11–13. Медијана (према Булатовић 2008); 14. Бре-зјак, Пауље, тумул XVIII, централни гроб (према Gligorić, Filipović, Bulatović 2016); 15. Сента, гроб 107 (према Каруран у штампи); 16. Виминацијум, Над клепечком, сонда 77, објекат 6 (према Каруран et al. у припреми).