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## SOME REMARKS ON THE GENESIS OF THE EARLY ENEOLITHIC IN THE CENTRAL BALKANS

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*Abstract.* – The study addresses an imprecisely defined period between the end of the Neolithic and the beginning of the Eneolithic in the Central Balkans. The study primarily refers to the characteristic ceramic forms common to both the Vinča culture and the Early Eneolithic groups, especially the Bubanj–Hum I group. The pottery under consideration originates exclusively from absolutely dated sites, single-layered sites, and sites that possess a well-defined vertical stratigraphy. The analyses of pottery, combined with brief reviews on economic strategies, the chipped stone industry, settlement topography and the process of metallurgy indicate that the transitional period from the Vinča culture to the Bubanj–Hum I group was a gradual process in the Central Balkans, without major external factors, yet continuous cultural contacts with the neighbouring communities, especially into the east. This gradual process of vertical genetic transmission between the 47<sup>th</sup> and the 45<sup>th</sup> century calBC resulted in the formation of the Bubanj–Hum I group.

*Key words.* – Central Balkans, Late Vinča culture, Early Eneolithic, Bubanj–Hum I group, characteristic ceramic elements, absolute dates

Each transition, whether it concerns an individual or community is difficult, not only for the turbulent process of the transition itself but also for the effects that such a transition implies. The social changes are complex processes of shifts in the social structure of a community and, therefore, have short and long term effects on each individual, as well as on the entire society. The short term effects caused by such changes are usually distinguishable, while, on the other hand, the long term effects are more difficult to notice, yet cause lasting and intensive changes in the social structure of a community. Certainly, the intensity and character of the effects caused by changes are dependent on the conditions in which they took place.

One such tradition occurred during the 5<sup>th</sup> millennium BC, when a vast prehistoric “proto-civilization”, the Vinča culture, ceded its centuries-old place on the historic stage of the Balkans to the Copper Age communities. Those communities were interpreted by

several authors as intruders with different degrees of social awareness, originating from foreign territories.<sup>1</sup> However, the question remains; was that the case?

The zenith of that transition, meaning the end of the second and the beginning of the third quarter of the 5<sup>th</sup> millennium BC is one of the least addressed prehistoric periods in the Central Balkans. The period in question remains under-researched in almost all of its aspects: the material culture, which was usually primarily defined, the spiritual culture, economy, settlement topography, architecture, and other aspects of everyday life, as well as chronological frameworks. Recently, however, based on new data, the absolute dates, and research into metallurgy, papers regarding the subject have been published, actualizing this problem once again.

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<sup>1</sup> Garašanin 1979, 204–205; Tasić 1995, 28–29; Срејовић 1998, 223–224.

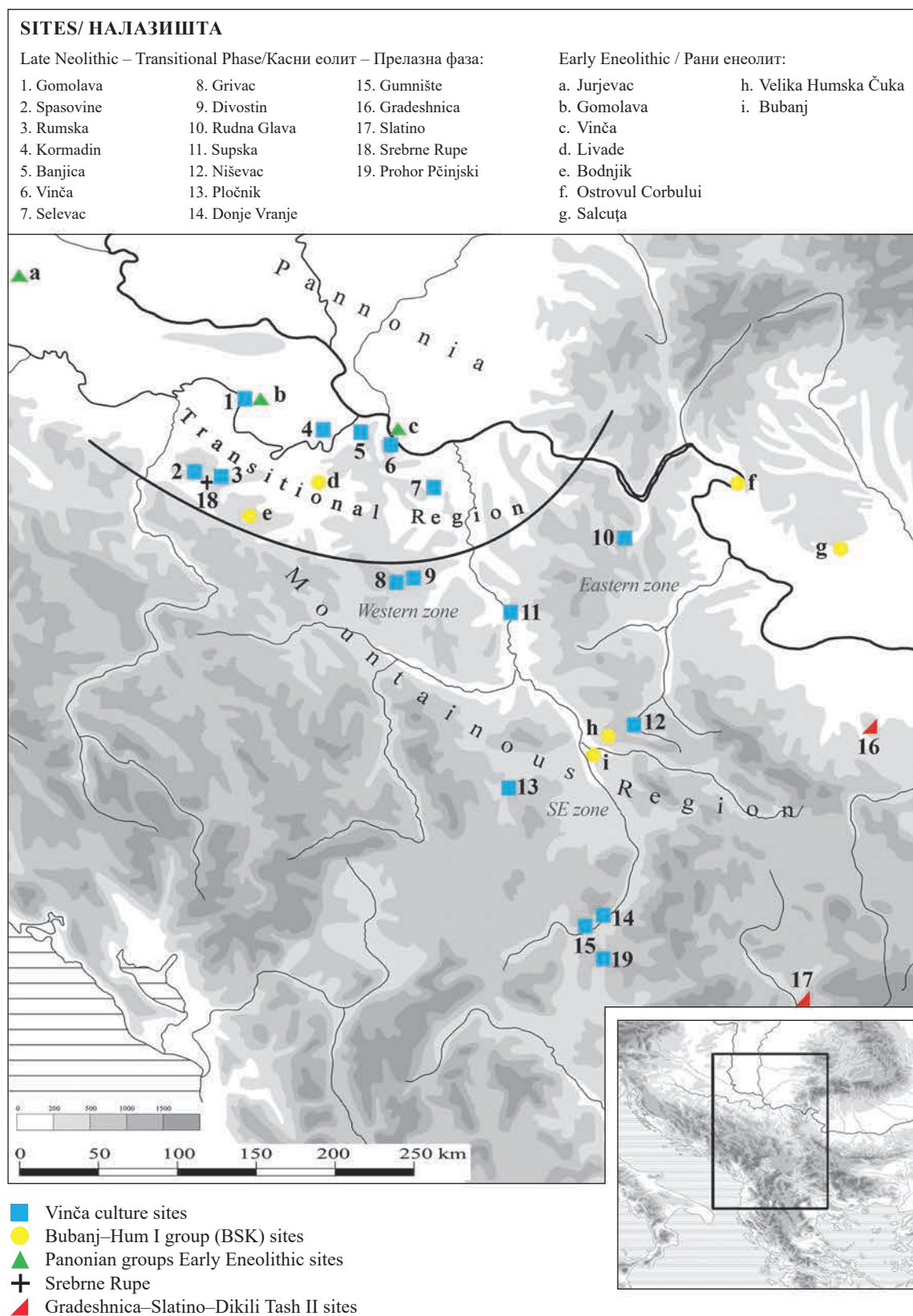


Fig. 1. Sites mentioned in this study (background of the map is provided courtesy of M. Milinković)

Сл. 1. Налазишћна поменућна у шексију (на позадину мапе захваљујемо М. Милинковићу)

The study of Neolithic cultures of the Central Balkans has always been the focus of archaeologists, as the research regarding the Vinča culture started quite early, at the beginning of the 20<sup>th</sup> century, and with almost the same intensity continues even today.<sup>2</sup> The phenomenon of Vinča culture has intrigued and still intrigues both domestic and foreign archaeologists, which has proved valuable for the international renown of the Vinča culture and its continued scientific popularity.<sup>3</sup>

The long term research of the culture has defined its chronological framework and the characteristics of its material and spiritual culture.<sup>4</sup> Still, its cultural and chronological relationships with the preceding Starčevo culture and the following Early Eneolithic cultural groups remain unclear. This especially refers to the reasons behind the gradual disappearance of the Vinča culture, a problem addressed in particular by numerous domestic and foreign professionals.<sup>5</sup> There are several different opinions regarding the disintegration of the Vinča culture. M. Garašanin considers that the development of the Vinča culture was interrupted by the communities identified as the bearers of the Bubanj–Hum group, who penetrated the southern Morava Region. The same author highlights the penetration of Bubanj–Salcuța–Krivodol (BSK) elements from Oltenia.<sup>6</sup> A similar opinion is shared by N. Tasić and D. Srejić, who connect such population shifts with Indo-European migration.<sup>7</sup> R. Tringham considers profound social changes within the Vinča community as the key reasons for the disintegration of the culture. Namely, due to the low level of staple resources, communities were unable to function within the vast social network that Vinča settlements represented. That led to the fractionation of large settlements and the dispersal of small groups of individuals that formed new settlements and settlement networks.<sup>8</sup>

Chapman shares this opinion and highlights the decrease of soil fertility and deforestation as key factors which led to the unsustainability of the ever-growing population.<sup>9</sup>

The main focus of this paper will not be on the development and disintegration of the Vinča culture, which has been thoroughly discussed,<sup>10</sup> but the character of relationships between the late Vinča culture and Early Eneolithic groups that took its place in the Central Balkans, as well as the process of formation of those groups. Research of Early Eneolithic sites has recently yielded new results that deserve a thorough archaeological interpretation. The analysis primarily

refers to the characteristic ceramic forms common to both the Vinča culture and Early Eneolithic groups, and especially the Bubanj–Hum I group. The study exclusively addresses pottery from dated sites, except for single-layered sites and sites that possess a well defined vertical stratigraphy. The pottery in question is represented by plates with a thickened inner side of the rim, carinated bowls, slightly biconical bowls, bowls with an inverted rim, beakers with two handles (*kantharoi*), etc. Besides the characteristic stylistic and typological elements of the material culture, the paper will also address the settlement topography and the economy of those communities, as well as other relevant aspects of life in this turbulent period. Due to the specific geographic characteristics of the Central Balkans and in order to make the following of the paper easier, the territory of the Central Balkans has been interpreted through two separate geographic regions – the Transitional Region and the Mountainous Region. Unfortunately, the study does not include the sites from the Morava Region (Supska, Drenovac, Motel Slatina, etc.), which was one of the most densely inhabited regions at the time, since, despite the intensive research conducted in past years, there are no absolute dates for those sites.

### The Transitional Region

This region encompasses the territory between the Drina River to the west, the Sava and Danube rivers to the north, the mountain massif comprised of the Gučevo, Sokolske, Povlen, Maljen, Suvobor and Rudnik mountains to the south and the Homolje mountains to the east. In geographic terms, aside from the parts of the Sava and Drina valleys, this region is comprised of the valleys of the Jadar, Kolubara, and Tamnava rivers and the lower course of the Velika (Great) Morava River, Mt Cer, and the mountainous area to the south and the east, which is bordered by the mentioned

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<sup>2</sup> Vasić 1902; Fewkes 1936; Holste 1939; Milojević 1950 and other.

<sup>3</sup> Tringham 1992; Schier 1996; Chapman 1981; Borić 2009 and other.

<sup>4</sup> Garašanin 1979; Borić 2015; Tasić *et al.* 2015 and other.

<sup>5</sup> Гарашанин 1973; Tasić 1995; Bankoff, Winter 1990.

<sup>6</sup> Garašanin 1979, 204–205. Hereinafter BSK.

<sup>7</sup> Tasić 1995, 11; Srejić 1987, 45–49.

<sup>8</sup> Tringham 1992, 137–138.

<sup>9</sup> Chapman 1981.

<sup>10</sup> Borić 2015, 158–162 with cited literature.

mountains. The region is suitable for agriculture, with composite river valleys comprised of alluvium dominated areas and highly fertile chernozem.

Since there is abundant data from the Neolithic sites in the eastern part of this region (the sites of Vinča and Banjica), the focus will be directed towards its western parts – the Mačva and Jadar regions.

According to the earlier researchers who addressed the Late Neolithic of the Central Balkans, this region falls within the domain of the Vinča culture,<sup>11</sup> although it is the opinion of some authors that other elements are represented, such as the Butmir and Tisza culture elements.<sup>12</sup> The research of Neolithic cultures in the regions of Mačva and Jadar, besides the site of Gomolava,<sup>13</sup> was intensively conducted by M. Vasiljević and V. Trbuhović,<sup>14</sup> who coined the term “Benska Bara III phase” for the Late Neolithic in this region. In the latest monograph that deals with the prehistory of the Šabac region, the phase is completely omitted,<sup>15</sup> while Bulatović, Filipović, and Gligorić<sup>16</sup> highlight it to a certain degree, considering that the authors have properly argued the separation of such a phase of the Late Neolithic and the Early Eneolithic, although they did not define it through all of the aspects.

According to Trbuhović and Vasiljević, the Benska Bara III phase is defined based on the stratigraphy of the multilayered settlement at the site of Jela–Benska Bara, in the present-day city of Šabac. The settlement, excavated during the ‘60s and ‘70s, was located on a slight elevation, surrounded by water, in the marshy terrain within the former centre of the city of Šabac.<sup>17</sup> In the course of the excavations, a total of three phases of the Neolithic were separated, of which the youngest was marked as the Benska Bara III phase. Unfortunately, the authors do not highlight the stylistic and typological characteristics of pottery attributed to that phase, save for the appearance of pseudo-barbotine wares (the site of Kik in Svileuva).<sup>18</sup> Based on the characteristic pottery recorded at the sites attributed to the Benska Bara III phase, which is presented in monographs on prehistory in Šabac and Loznica, the main stylistic and typological characteristics of pottery from this phase were established. Those are primarily slightly biconical bowls, bowls with an inverted rim, which are sometimes on a hollow conical foot, with modelled tongue-shaped or circular handles, conical plates, occasionally with a thickened inner side of the rim, shallow bowls with a thickened belly and funnelled neck, deep carinated bowls, globular vessels with a short cylindrical neck and narrow mouth, beakers with

two handles in line with the rim, high narrow vessels (amphorae) with arched, button-shaped or wart-like handles, *pyraunos* pots, etc.<sup>19</sup>

The phase was incorporated into the Vinča culture by Trbuhović and Vasiljević, with one of the characteristics being the copper axe-adze,<sup>20</sup> which would in fact position the phase into a later period, the Early Eneolithic.<sup>21</sup> On the other hand, the authors attribute the site of Bodnjik in Družetić to the same phase,<sup>22</sup> which, based on absolute dates, falls within the Early Eneolithic.<sup>23</sup> Such a different chronological and cultural perception of the Benska Bara III phase indicates that the authors have separated it rationally, yet did not completely define it.

In the course of the recent archaeological excavations at the site of Spasovine in the village of Milina (Fig. 1/2), located on a hill above the right bank of the Milina River, not far from its estuary with the Lešnica River, two enclosed archaeological features were recorded – a shallow circular feature in Trench 1, filled with daub, and a portion (approximately a quarter) of an oval feature in Trench 2, filled with daub, soot, and portable archaeological material.<sup>24</sup> Judging by the thick layer of burnt shaped daub in the lower portion and the layer of ashy soil mixed with soot in the upper portion, the feature in Trench 2 could represent a semi-sunken dwelling with the above-ground portion built using the wattle and daub technique (Fig. 2). The feature contained several typical and numerous atypical potsherds and chipped stone tools. The ceramic forms are represented by slightly biconical bowls with an inver-

<sup>11</sup> Garašanin 1979, 146 with cited literature.

<sup>12</sup> Стојић, Церовић 2011, 23–34

<sup>13</sup> Врукнер 1988.

<sup>14</sup> Трбуховић, Васиљевић 1983, 27.

<sup>15</sup> Стојић, Церовић 2011.

<sup>16</sup> Bulatović *et al.* 2017, 43–47.

<sup>17</sup> Трбуховић, Васиљевић 1983, 26.

<sup>18</sup> Трбуховић, Васиљевић 1983, 73.

<sup>19</sup> Стојић, Церовић 2011 (the sites of Rumska, Janjići, Švar, Provo, Nakučani, Desić, Ridake, etc.); Bulatović *et al.* 2017 (the sites of Jerinin Grad, Vojića Ada, Lipovica, etc.).

<sup>20</sup> Трбуховић, Васиљевић 1983, 85–86.

<sup>21</sup> Compare Antonović 2014, Taf. 60; Bulatović *et al.* 2017, 42–47.

<sup>22</sup> Трбуховић, Васиљевић 1983, 74.

<sup>23</sup> Палавистра *et al.* 1993; Živanović 2013, 54.

<sup>24</sup> The excavations were conducted in 2018 as a part of the Jadar Project, realised by the Institute of Archaeology, in Belgrade and Brooklyn College, in New York (Mladenović *et al.* 2020).



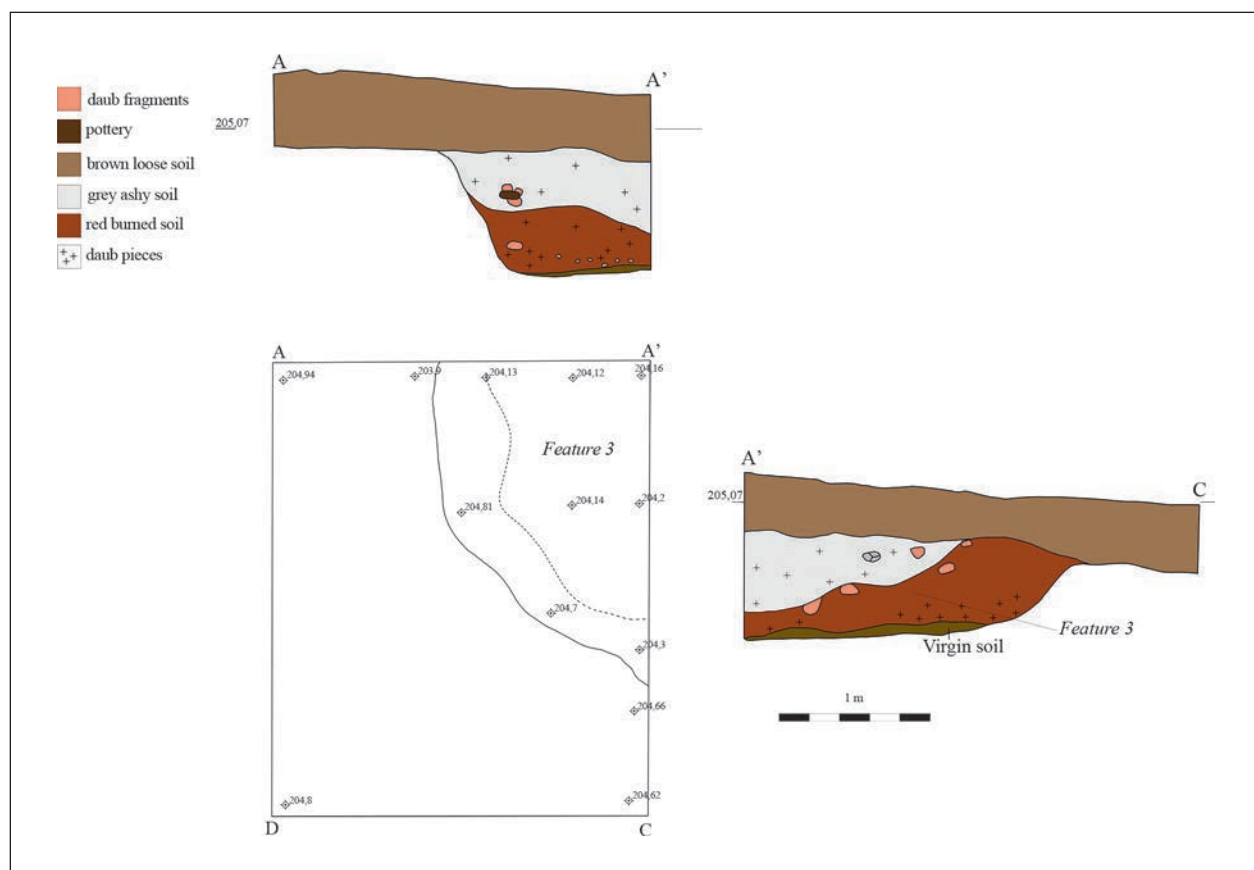


Fig. 2. Milina, the site of Spasovine, ground plan and cross-sections of Feature 3 in Trench 2

Сл. 2. Милина, налазиште Сјасовине, основа и пресеци објекта 3 у сонду 2

ted rim, often with modelled tongue-shaped handles on the shoulder (Fig. 3/1, 2), globular vessels with a narrow mouth (Fig. 3/4, 5), vessels (bowls) with a funnelled neck (Fig. 3/3), vessels on a foot (Fig. 3/7) and short arched horizontally perforated handles (Fig. 3/6). The layer surrounding the feature yielded fragments of a beaker with a handle in line with the rim (Fig. 3/12), bowls identical to the examples from the feature (Fig. 3/8, 9), a globular vessel with a short cylindrical neck (Fig. 3/10, 11), and a large barrel-shaped and slightly biconical vessel with modelled application on the belly (Fig. 3/13). The ornamentation is represented by modelled applications and shallow vertical parallel incised lines (Fig. 3/13–15). The potsherds from the feature in Trench 1 correspond to the stylistic and typological characteristics of pottery from Trench 2, with the occurrence of bowls with an inverted rim, which are numerous, and plates with a semi-circularly thickened inner side of the rim (Fig. 3/16, 17).

A sample of soot from the feature in Trench 2 dated the feature into the period between the 46<sup>th</sup> and the 45<sup>th</sup>-century calBC (Fig. 8/11).<sup>25</sup> This also dates the archaeological material from the layer, and most likely from Trench 1, since this part of the site is single-layered.

Identical ceramic forms are recorded on the sites in the nearby territory of Mačva, especially at those sites which Trbuhović and Vasiljević attributed to the Benska Bara III phase (the sites of Rumska, Janjići, Ševar, Provo, Nakučani, Desić, Riđake, etc.),<sup>26</sup> but

<sup>25</sup> The analysis was conducted by the University of Arizona AMS Laboratory (Lab. nr. AA 113502), with the result 5706±25 BP, which is calibrated to 4611–4461 calBC (95% probability).

<sup>26</sup> Трбуховић, Васиљевић 1983, 46/15, 56/103, 63/159, 70/11, 71/15, 73/21. Compared the illustrations from these sites from: Стојић, Церковић 2011 and Bulatović *et al.* 2017.

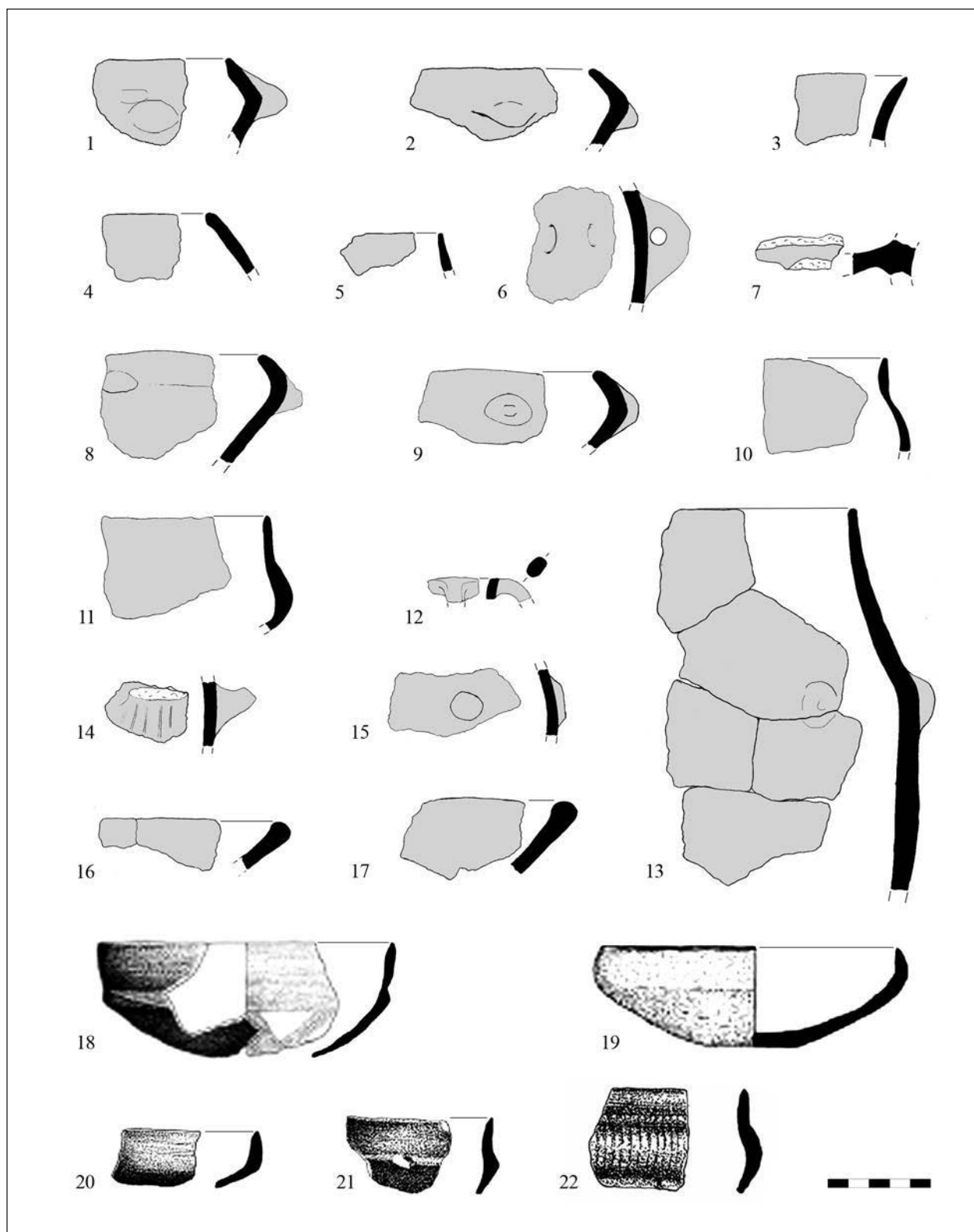


Fig. 3. Spasovine: 1–7) Feature 3 in Trench 2; 8–13) Layer around the feature; 14–17) Feature in Trench 1. Vinča: 18–22) The youngest Neolithic horizon (Tasić et al. 2015)

Сл. 3. Спасовине: 1–7) објект 3 у сонди 2; 8–13) слој око објекта; 14–17) објект у сонди 1. Винча: 18–22) најмлађи неолитски хоризонт (Тасић et al. 2015)

also at sites within the Loznica Region, such as Jerinin Grad, Bojića Ada, and Lipovica.<sup>27</sup> Such forms have also been recorded in the surroundings, within the youngest Vinča layer at the site of Gomolava,<sup>28</sup> at the site of Mali Borak,<sup>29</sup> and the sites within the Morava and Šumadija regions (Supska, layers 3–1; Divostin IIb; Grivac, horizon VI)<sup>30</sup> and the Danube Region (the youngest burnt Neolithic layer at the site of Vinča).<sup>31</sup> Interestingly, a copper axe of the *Jászladány* type was recorded at the nearby site of Crkvine in Rumska (Fig. 1/3),<sup>32</sup> and the pottery from the site bears similar stylistic and typological characteristics as that from the site of Spasovine (Fig. 4/1–9).

Some of the highlighted stylistic and typological elements of the final phase of the Late Neolithic are recorded within the Early Eneolithic groups in the region and, therefore, the differentiation between the Late Vinča and the Early Eneolithic sites can sometimes be marked solely by the accompanying archaeological material, such as forms and ornaments which are characteristic exclusively for one of the periods. Bowls with an inverted rim are recorded in both periods, as well as small vessels (beakers) with handles (or handle) in line with the rim or directly below the rim. It is exactly those ceramic forms within the feature and the cultural layer that are dated to the 46<sup>th</sup> century calBC at the site of Spasovine, to the 46<sup>th</sup>–45<sup>th</sup> century calBC at the site of Gomolava, to a period between the 48<sup>th</sup> and the 46<sup>th</sup>-century calBC at the site of Divostin (IIb)<sup>33</sup> and between the 45<sup>th</sup> and the 44<sup>th</sup> century calBC at the site of Bodnjik (Fig. 8/16, 17).<sup>34</sup> Almost identical forms from the sites of Velika Humska Čuka and Bujanj are dated to the period between the 45<sup>th</sup>/44<sup>th</sup> and the 43<sup>rd</sup> century calBC (Fig. 8/18).<sup>35</sup> According to the current chronology of the Neolithic and the Eneolithic in Serbia, the mentioned dates fall between the final phase of the Late Neolithic, the Vinča culture (Vinča D), and the developed phases of the Early Eneolithic.

It is important to highlight that three copper axes, two of the *Jászladány* type and one of the Kladari type were recorded at the site of Staro Selo–Detinji Potok (the name varies in publications) in the region of Milina.<sup>36</sup> Unfortunately, the site was never precisely located, and its spatial relationship with the site of Spasovine remains unknown.

In contrast to sites in the western part of the Transitional Region, the eponymous site of Belo Brdo in Vinča (Fig. 1/6) is one of the best researched and most scientifically renowned Neolithic sites in the Balkans.

For this study, the importance lies in the youngest Neolithic phase at the site, which, according to a series of new absolute dates, ends during the mid-46<sup>th</sup> century calBC,<sup>37</sup> which approximately corresponds to the settlement at the site of Spasovine. During this phase of the Neolithic at the site of Vinča, carinated bowls from the earlier phase are represented (Fig. 3/18, 21, 22), with the appearance of slightly biconical bowls (Fig. 3/19, 20), which is also the case in other regions of the Central Balkans during the later phase of the culture. This form is one of the most common forms within the Early Eneolithic cultural groups in the Central Balkans, especially the variant with a short upper cone (the so-called bowls with an inverted rim).

A total of five housing layers were recorded at the site of Banjica in Belgrade (Fig. 1/5), of which the two youngest layers (layers I and II) have not been preserved to a great degree.<sup>38</sup> The slightly biconical bowls and bowls with an inverted rim appear within horizon III, which is dated between the 44<sup>th</sup> and the 42<sup>nd</sup> century calBC.<sup>39</sup> Such an early date most likely represents contamination from the upper layers. However, the site of Banjica yielded two absolute dates which could, according to the vertical stratigraphy of the site and the stylistic and typological characteristics of the pottery from features of horizon III, correspond to that horizon. Those absolute dates position horizon III between the 47<sup>th</sup> and the 45<sup>th</sup> century calBC (Fig. 8/10),<sup>40</sup> a period corresponding to the settlements at the sites of Spasovine, Divostin IIb, Gomolava II, and the final Neolithic settlement at the site of Vinča.<sup>41</sup>

<sup>27</sup> Bulatović *et al.* 2017, T. XXXII–XXXIII, XLIX–LI, LXIII.

<sup>28</sup> Brukner 1988, Taf. 4/1–4.

<sup>29</sup> Спасић 2011, T. III–V, VII, XIX/4, XXI/5, 8, 9, XXVI/1–3, 8.

<sup>30</sup> (Гарашанин М., Гарашанин Д. 1979, T. I/1, 7, II/1, III/1–4, VI/1–4; Madas 1988, figs. 6.2–6.4, 6.6–6.7 and other; Nikolić 2008, fig. 9.70, 9.71)

<sup>31</sup> Tasić *et al.* 2015, Fig. 6; Borić 2015, Fig. 5.

<sup>32</sup> Atonović 2014, 74.

<sup>33</sup> Madas 1988, fig. 6.21; Borić 2009, tab. 4.

<sup>34</sup> Живановић 2013, 54, fig. 2.

<sup>35</sup> Bulatović, Vander Linden 2017; Bulatović *et al.* 2018.

<sup>36</sup> Antonović 2014, 66–82; Bulatović *et al.* 2017, 46–47.

<sup>37</sup> Tasić *et al.* 2015, 1077; Whittle *et al.* 2016, 19.

<sup>38</sup> Трипковић 2007, 45–46.

<sup>39</sup> Трипковић 2007, 46.

<sup>40</sup> Borić 2009, Appendix 1 with cited literature.

<sup>41</sup> Madas 1988, fig. 6.21; Borić 2009, tab. 4; Tasić *et al.* 2015.

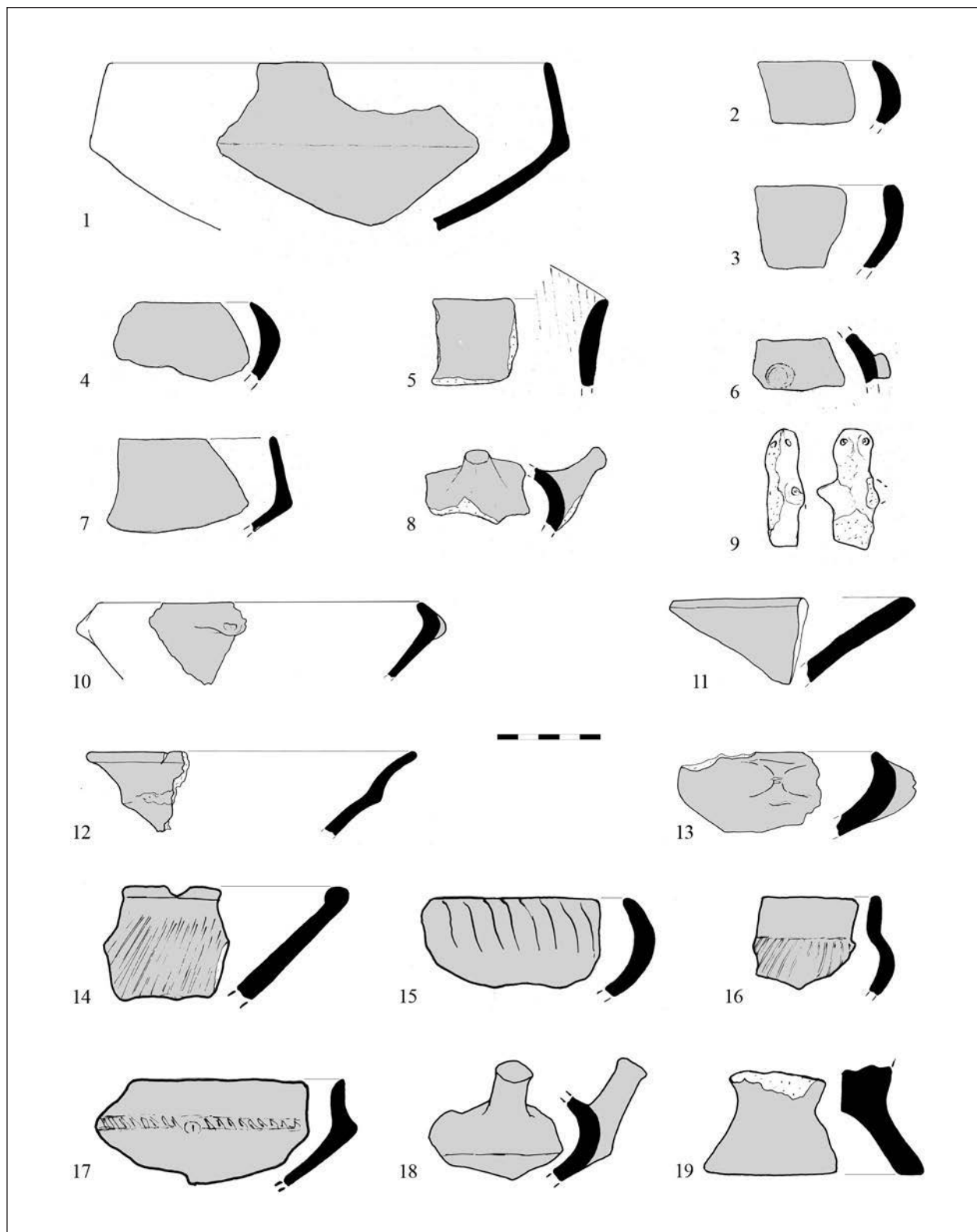


Fig. 4. 1–9) Rumska; 10–13) Gomolava (after Brukner 1988);  
14–19) Grivac, horizon VI (after Bogdanović 2008)

Сл. 4. 1–9) Румска; 10–13) Гомолава (Брукнер 1988);  
14–19) Гривац, хоризонт VI (Богдановић 2008)



At the site of Selevac near Smederevska Palanka, located within the central part of the so-called Transitional Region of the Central Balkans (Fig. 1/7), bowls with an inverted rim (occasionally with oblique channels) have been recorded mostly within the latest horizon IX, which is dated to the second quarter of the 5<sup>th</sup> millennium BC (5670±80 BP and 5750±80 BP, calibrated to 4618–4424 calBC and 4693–4515 calBC with a probability of 68%) (Fig. 8/12).<sup>42</sup> In terms of the ceramic elements characteristic of the Early Eneolithic in the region, vessels on a tall, hollow foot are registered from the earliest horizon II at Selevac, as well as bowls and plates with a thickened rim, which appear from horizon III, which is chronologically positioned into the final quarter of the 6<sup>th</sup> millennium calBC.<sup>43</sup>

### The Mountainous Region

The Mountainous Region is comprised of mountainous areas of the Central Balkans, which are divided by large Velika Morava (Great Morava), Ibar, Zapadna Morava (West Morava), etc. and other smaller rivers. It can be further divided into eastern, western, and south-eastern zones. The eastern zone is comprised of volcanic Carpathian-Balkan mountains that represent one of the largest ore mineralisations in South-eastern Europe. The western zone is comprised of fold mountains rich in forests and tin and copper ores. The south-eastern zone is comprised of the Serbian-Macedonian mountain massif. Within the Mountainous Region, the soil is of the forest type and erosive, and soils suitable for agriculture are represented in a few basins and within the areas of milder slopes and lower altitudes.

A total of four absolute dates originate from the Neolithic layer at the well stratified Neolithic site of Grivac in the western zone of the Mountainous Region (Fig. 1/8). According to M. Bogdanović,<sup>44</sup> none of the dates originate from the youngest Neolithic horizon, horizon VI, which would be the most suitable for this study, since it hosts ceramic forms similar to those from the sites of Spasovine, Divostin IIb and Gomolava II and other sites of the Late Vinča culture (Fig. 4/14–19), and which continue into the Early Eneolithic. However, absolute dates from earlier periods allow for a presumption that horizon VI at the site of Grivac falls after the 48<sup>th</sup>/47<sup>th</sup> century calBC.<sup>45</sup> The date published in Srdoč *et al.*,<sup>46</sup> separately and significantly earlier than the monograph on the site of Grivac, is quite baffling.<sup>47</sup> The date allegedly originates from horizon V (Fig. 8/14) and yielded a value of 5600±140 BP, which is calibrated to 4557–4367 calBC with a

probability of 68%.<sup>48</sup> However, the date and, especially, its upper border (the 46<sup>th</sup>/45<sup>th</sup> century calBC) would rather correspond to the youngest horizon VI, which is also indicated by the stylistic and typological characteristics of pottery from this horizon and the mentioned concurrent sites in the region. It is interesting that certain ceramic forms characteristic of the Early Eneolithic in the area, especially the Bubanj–Hum I group, such as plates with a thickened rim, appear in horizon V at the site of Grivac, which is dated to the end of the 6<sup>th</sup> and the first quarter of the 5<sup>th</sup> millennium calBC.

Approximately 10 km east of the site of Grivac, the site of Divostin (Fig. 1/9), within the housing horizon IIb,<sup>49</sup> dated to the second quarter of the 5<sup>th</sup> millennium calBC,<sup>50</sup> finds characteristic of the Early Eneolithic, such as bowls with an inverted rim, are complemented by a pear-shaped beaker with two handles (*kantharos* type), bowls with a short cylindrical neck and a rounded and thickened belly, often decorated with channels, and a hollow conical foot, and a large amphora with a narrow mouth (Fig. 5/1–9).<sup>51</sup> The shape of the figurine head from the site of Divostin IIb (Fig. 5/10) somewhat resembles a figurine head attributed to the Bubanj–Hum I group from the site of Velika Humska Čuka.<sup>52</sup>

A significant number of Early Eneolithic sites, all attributed to the Bubanj–Hum I group, have been recorded within the western and eastern zones of the Mountainous Region.<sup>53</sup> Numerous elements characteristic of that group, such as plates with a thickened rim, vessels on a hollow foot, slightly biconical bowls and bowls with an inverted rim (often decorated with

<sup>42</sup> Tringham, Krstić 1990, 50. The calibration was conducted using the CalPal online calibration programme, <http://www.calpal-online.de/>, on 21.04.2020.

<sup>43</sup> Tringham, Krstić 1990, 50.

<sup>44</sup> Bogdanović 2008, 460.

<sup>45</sup> Bogdanović 2008, 457–459, Fig. 15.5.

<sup>46</sup> Srdoč *et al.* 1987, 140.

<sup>47</sup> Bogdanović 2008, 441–460.

<sup>48</sup> The calibration was conducted via CalPal online calibration programme, <http://www.calpal-online.de/>, on 20.04.2020.

<sup>49</sup> Madas 1988, 143.

<sup>50</sup> Borić 2009.

<sup>51</sup> Madas 1988, fig. 6.21/9.

<sup>52</sup> Bogdanović 1990, Abb. 7.

<sup>53</sup> Key-sites: Panjevački rit, Blagotin, Mokranjske stene, Četaće. The complete overview of the Bubanj–Hum I sites in the Central Balkans is presented in Kapuran *et al.* 2018, Fig. 7.3.

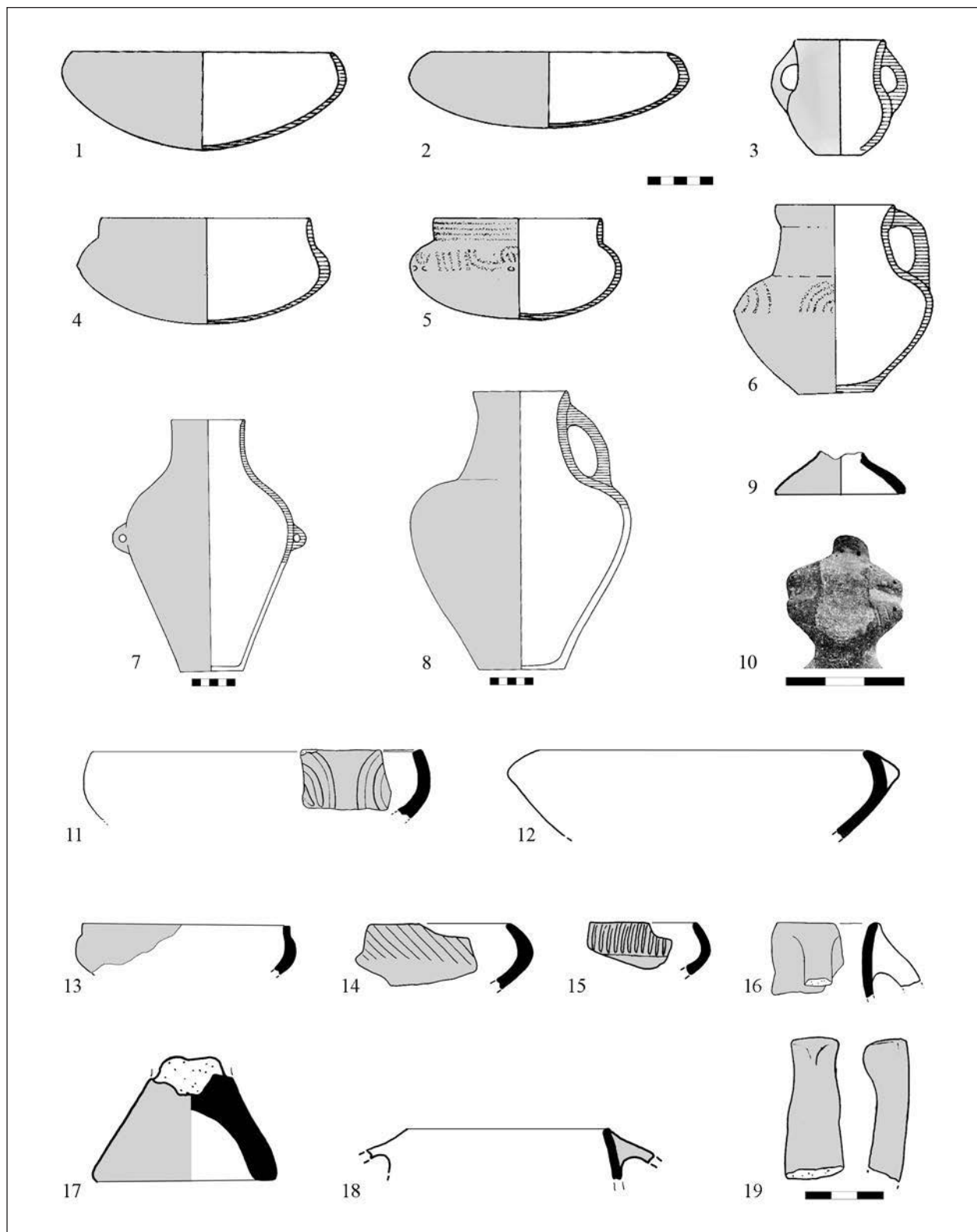


Fig. 5. 1–10) Divostin horizon IIb (after Madas 1988; Bogdanović 1990);  
 11–19) Prohor Pčinjski

Сл. 5. 1–10) Дивостин, хоризонт IIb (Мадас 1988; Богдановић 1990);  
 11–19) Прохор Пчињски

channels) and carinated bowls existed in the region within the preceding period, meaning the Late Vinča culture. The exception is the Timočka Krajina Region, where numerous Bubanj–Hum I sites have been registered, yet no Late Neolithic Vinča sites have been registered, despite the high degree of research.<sup>54</sup>

Although several Neolithic sites have been intensively excavated within the south-eastern zone of the Mountainous Region, as well as several Early Eneolithic sites, none of the sites possessed horizons from both periods, which could potentially determine their stratigraphic and cultural-chronological relationships. This is similar to the western and eastern zone of the region.

The highest degree of research of the Neolithic sites within the south-eastern zone was conducted at the site of Pločnik (Fig. 1/13). According to the authors of the excavations, D. Šljivar and J. Kuzmanović Cvetković, several cultural layers, representing the phases of the Vinča culture, have been recorded at the site, starting from the earliest Vinča–Tordoš I phase, to the Gradac phase.<sup>55</sup> The series of published absolute dates from the site does not correspond to the aforementioned chronology of the site.<sup>56</sup> According to those dates, the life at the settlement started somewhat later than previously suggested, during the Vinča–Tordoš II phase (the final quarter of the 6<sup>th</sup> millennium calBC, the Vinča B phase) and also ended later, during the Vinča–Pločnik II phase (the second quarter of the 5<sup>th</sup> millennium calBC, the Vinča D phase). The text which presents trench VIII/A, excavated in 1978,<sup>57</sup> points to a clear stratigraphy of the trench and the context for the find of a copper chisel, with the accompanying pottery from that housing horizon. This horizon will be addressed in the paper, as it represents the best stratified and presented context from the youngest layer at the site of Pločnik. Besides the usual forms of the so-called southern variant of the Vinča culture (plates with a thickened rim, which occur from the earliest layers together with carinated bowls), the pottery from the context is represented by slightly biconical bowls, meaning bowls with an inverted rim, which were not recorded in earlier layers.<sup>58</sup> Another copper chisel, almost identical in form and dimensions to the example from the site of Pločnik, was recorded in a similar housing horizon at the site of Velika Humska Čuka, together with typical material of the Bubanj–Hum I group and dated to a period between the 44<sup>th</sup> and the 43<sup>rd</sup> century calBC (Fig. 8/20).<sup>59</sup> The housing horizon with a copper chisel at the site of Pločnik is

not dated, yet, based on the find of a similar chisel and the analogy from the site of Velika Humska Čuka, as well as the occurrence of bowls with an inverted rim within the same context, the horizon could correspond to the youngest published date from the site.<sup>60</sup> The date in question originates from a context in which a similar copper chisel was recorded in 2000 and falls within the second quarter of the 5<sup>th</sup> millennium calBC (Fig. 8/5), which corresponds to dates from other sites in the Central Balkans in which similar bowls have been recorded (Spasovine, Vinča, Divostin, Grivac and Selevac).<sup>61</sup> Besides the aforementioned bowls, beakers with two handles in line with the rim (the so-called *kantharoi*), characteristic of the Early Eneolithic in the area, were recorded within the youngest layer at the site of Pločnik. However, it remains unclear whether those originate from this layer dated to the second quarter of the 5<sup>th</sup> millennium calBC, or a younger layer that is, for the time being, stratigraphically and chronologically undefined.<sup>62</sup>

Of all of the excavated Early Eneolithic sites within the south-eastern zone of the Mountainous Region of the Central Balkans, only the sites of Bubanj and Velika Humska Čuka have been absolutely dated (Fig. 1/i, h). The stylistic and typological characteristics of pottery from those sites can be completely attributed to the Bubanj–Hum I group, as a regional variant of a wider BSK (Bubanj–Salčuța–Krivodol) cultural complex. The earliest date originates from the site of Velika Humska Čuka, from the earliest floor of a residential structure located on a solid rock foundation. The date indicates that the site was primarily settled between the mid-45<sup>th</sup> and the mid-44<sup>th</sup> century calBC,<sup>63</sup> which is almost identical to the date from the site of Bodnjik (Fig. 8/15 and 16). Material typical of the Bubanj–

<sup>54</sup> Compare Bulatović *et al.* 2013 and Kapuran *et al.* 2014.

<sup>55</sup> Шљивар, Кузмановић-Цветковић 1997; Шљивар 1999.

<sup>56</sup> Borić 2009, 211–215, Tab. 3.

<sup>57</sup> Шљивар 1999.

<sup>58</sup> Шљивар 1999, T. I/7, T. II/9, 11.

<sup>59</sup> Bulatović *et al.* 2018, 21, Fig. 2, Pl. I/1–8; Pl. III/1.

<sup>60</sup> Borić 2009, 211–215, Tab. 3.

<sup>61</sup> Borić 2009, 211.

<sup>62</sup> Based on the oral account by the author of the excavations, D. Šljivar, to whom we are grateful. However, N. Tasić points to the existence of a Bubanj–Hum I horizon at the site of Pločnik, which was largely destroyed by farming (Tasić 1995, 29). If that is correct, the beakers could originate from that horizon.

<sup>63</sup> The date was acquired in the Isotoptech ZRT, Laboratory in Debrecen.

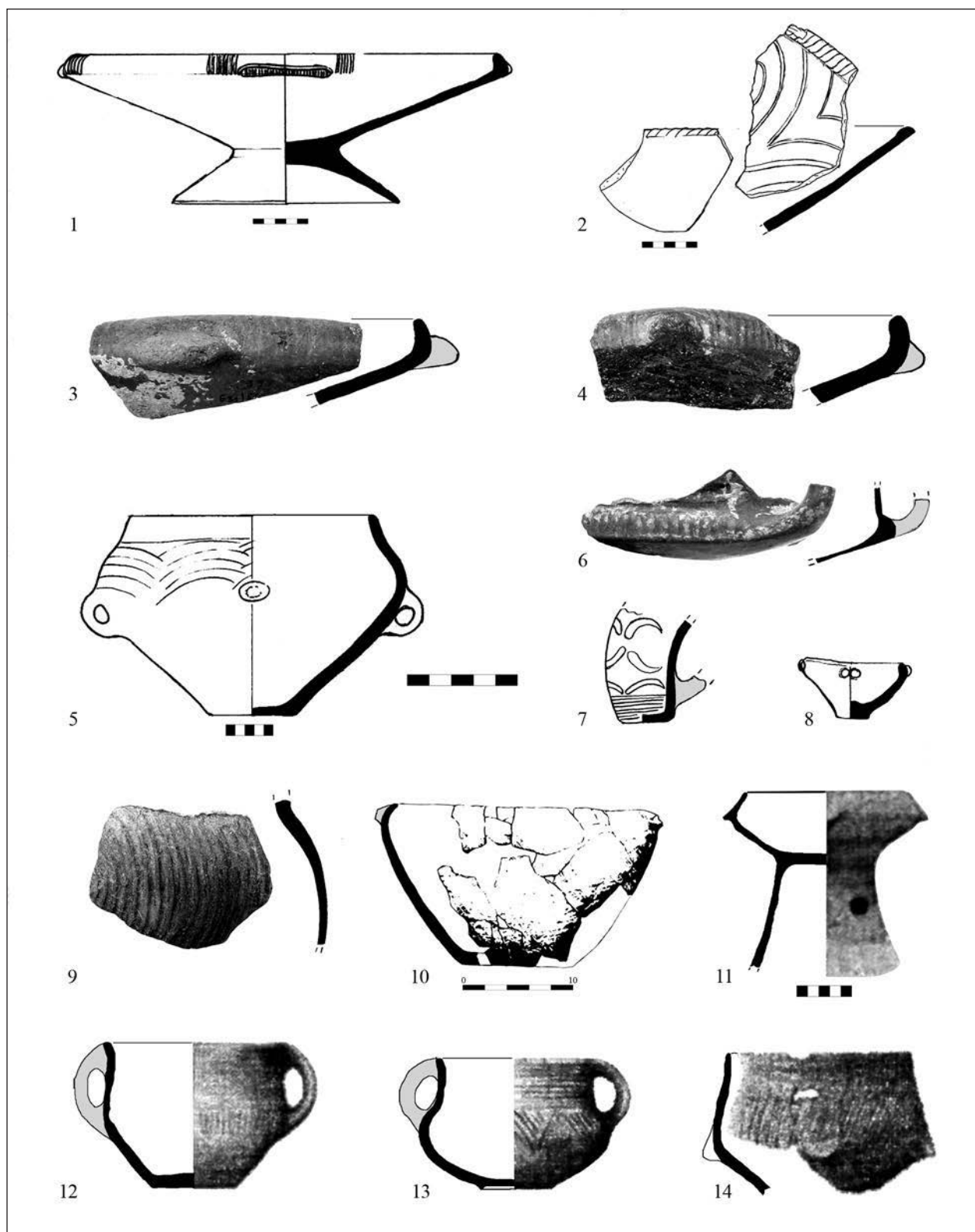


Fig. 6. 1–9) Velika Humska Čuka, feature 2/S1/19;  
 10–14) Družetić, site of Vodnjik (after Палавесџра et al. 1993; Живановић 2013)

Сл. 6. 1–9) Велика Хумска Чука, објекат 2/S1/19;  
 10–14) Дружејић, локалитет Бодњик (Палавесџра et al. 1993; Живановић 2013)



Hum I group was recorded in this horizon, such as bowls with an inverted channelled rim (Fig. 6/3, 4), short beakers with two handles in line with the rim (Fig. 6/6), bowls with an inverted and channelled rim on a hollow foot (Fig. 6/1), plates with a thickened inner side of the rim (Fig. 6/2), large biconical vessels with arched handles and arched channels on the neck (Fig. 6/5), etc. The dominant ornamentation is represented by channels (Fig. 6/1, 2, 4–7), and a sort of shallow and narrow groove-like ornament (Fig. 6/1–3). It has been noticed that the plate with the thickened and channelled rim resembles examples from the Late Vinča culture, which will be further discussed. The remaining dates from the site of Velika Humska Čuka correspond to dates from the nearby site of Bubanj and the other sites of a BSK complex in western Bulgaria (Krivodol) and Oltenia (Ostrovul Corbului, Salcuța) (Fig. 8).<sup>64</sup>

## DISCUSSION

### The Transitional Region

Based on the presented data regarding the result of the latest research, and short reviews of necessary previous results, it can be noted that, in terms of chronology, the late phase of the Vinča culture, dated at the sites of Spasovine and the site of Gomolava, and the Early Eneolithic, dated at the site of Bodnjik, are practically concurrent in the territory of western Serbia. The eventual difference could be within a scope of several decades, comparing the highest range of dates from the sites of Gomolava and Bodnjik (Fig. 8/9, 16). Such chronological continuity between the Late Neolithic and the Early Eneolithic cultures in this area is further supported by the stylistic and typological characteristics of the pottery, such as slightly biconical bowls, bowls with an inverted rim, plates with a thickened inner side of the rim, beakers with one or two handles in line with the rim (*kantharoi*), vessels on a hollow foot, etc. Such forms occurred during the Late Neolithic at numerous sites in the area and in other regions of the Central Balkans (the sites of Spasovine, Gomolava, Vinča, Banjica, Divostin, Grivac, Pločnik, etc.) and also represent one of the main characteristics of the Early Eneolithic ceramic inventory, especially the Bubanj–Hum I group (Figs. 6, 7).<sup>65</sup> Plates with a thickened and mostly channelled rim are recorded within the earliest settlement (horizon V) at the site of Banjica,<sup>66</sup> which is unfortunately undated, yet, accord-

ing to the ceramic finds, is attributed to the late Vinča – Tordoš phase of the Vinča culture.<sup>67</sup> However, such plates occur from horizon III at the site of Selevac, which is dated to the final quarter of the 6<sup>th</sup> millennium calBC.<sup>68</sup> Interestingly, such forms have not been recorded within the horizon III at the site of Banjica, and a similar lack has been noted for the site of Kormadin, likewise dated to the Vinča–Pločnik phase of the Vinča culture.<sup>69</sup> On the other hand, such forms have been recorded at the site of Spasovine (Fig. 3/16, 17), which is approximately concurrent with the settlements of Banjica III and Kormadin II. Carinated bowls occur from horizon V at the site of Banjica and continue throughout later horizons,<sup>70</sup> and similar bowls have been noted for Selevac, where they occur sporadically within horizons III–V and become more common within the later horizons.<sup>71</sup>

Slightly biconical bowls appear later within the Vinča culture in the Transitional Region and stand connected with the Divostin IIIb horizon, the youngest Neolithic layer at the site of Vinča, horizons II and III at Kormadin,<sup>72</sup> and layer IX at Selevac, which corresponds to the youngest phase of the Vinča culture, meaning the second quarter of the 5<sup>th</sup> millennium calBC in absolute dates.<sup>73</sup> A beaker with two handles (*kantharos*) has also been recorded within the horizon III at Kormadin.<sup>74</sup>

Early Eneolithic finds from the Mačva Region and the transitional area between the Pannonian Plain and the mountainous regions of the Central Balkans in general, are usually defined within the inventory of the Bubanj–Hum I group (or BSK complex), with certain elements of Pannonian groups such as the Tiszapolgár–Bodrogresztúr, the Lasinya, and the Sopot–

<sup>64</sup> The second date for the site of Velika Humska Čuka (Fig. 8/17) was also acquired in the Isotopech ZRT. Laboratory in Debrecen. For further reading on the absolute dates from those sites, refer to Boyadzhiev 1995, Bulatović, Vander Linden 2017 and Bulatović *et al.* 2018.

<sup>65</sup> Благојевић 2005.

<sup>66</sup> Трипковић 2007, 147, 155, 161.

<sup>67</sup> Трипковић 2007, 45.

<sup>68</sup> Tringham, Krstić 1990, 50.

<sup>69</sup> Булатовић *et al.* 2010, 11–42.

<sup>70</sup> Трипковић 2007, 135, 136, 143, 179, 184.

<sup>71</sup> Tringham, Krstić 1990, Fig. 9.3/307, 373, 370, 389.

<sup>72</sup> Булатовић *et al.* 2010, T. III/7–9, T. V/7–10.

<sup>73</sup> Tringham, Krstić 1990, 50.

<sup>74</sup> Булатовић *et al.* 2010, T. V/15.

Lengyel,<sup>75</sup> which is not unexpected considering the geographic position of the region. At some of the sites, such as Vinča, a Bodrogkeresztúr necropolis was registered,<sup>76</sup> and further to the east, a BSK complex grave was registered at the site of Lepenski Vir,<sup>77</sup> which all illustrate the directions of the process of cultural transmission at the southern fringe of Pannonia during the beginning of the Eneolithic period.

Speaking of changes, a specific distribution of axes of the *Jászladány* type in a relatively small area of the Cer and Mačva regions is notable. Namely, on the south-eastern slopes of Mt Cer and its immediate vicinity, in an area covering approximately 50 km<sup>2</sup>, a total of seven such axes have been recorded (Milina, Tekeriš, Pomijača, Gornja Sipulja and Rumska).<sup>78</sup> Similar finds have been noted in the neighbouring region of Mačva, which continues to the northeast of the Cer Region, comprising one wider area. A total of 18 such axes (complete and fragmented) have been recorded within the Mačva Region, with the majority (10 examples) being registered in the Štitar hoard.<sup>79</sup> A large number of axes in this relatively small area could indicate the possibility of their production within the mentioned area. However, there is currently no evidence that could confirm this thesis, such as traces of metallurgy in settlements, although M. Stojić and M. Cerović mention certain “ceramic moulds” from the sites of Đipovi in Riđake and Benska Bara in Šabac.<sup>80</sup> The same authors also note that the analyses of some of the axes have pointed out that they were made from the local copper ore from Mt Cer.<sup>81</sup> It is important to highlight that possible surface exploitation of copper was recorded within the region, at the location of Srebrne Rupe (Fig. 1). Allegedly, copper was extracted from this location in the narrow canyon of the Kramska River,<sup>82</sup> some 1.5 km east of Tekeriš and 4 km west of the site of Crkvine in Rumska, meaning between two sites at which copper axes of the *Jászladány* type were recorded. According to Vasiljević, who cites the data from Maszek, Preusehen and Pittioni, it is a sulphide ore of chalcopyrite.<sup>83</sup> Deep and wide pits cut into the riverbank, connected to the riverbed with channels, are visible at the location even today. The walls of the pits consist of greasy greyish-green rock.<sup>84</sup>

Likewise, such a large number of axes recorded within a relatively small area could indicate a trade zone between the populations in Pannonia, where such axes are numerous, and the Mountainous Region of the Central Balkans, with sporadic finds of such

axes. The highest distribution of such axes is recorded in the Carpathian Basin, and it can be assumed that the production centres were located within this area, yet again without finds of moulds and metallurgical activities connected with those objects. From this point, such axes could have reached the southern fringe of Pannonia through cultural interaction, and were then distributed further to the south. Contacts between the Pannonian populations and the populations that inhabited the Transitional Region of the Central Balkans are also reflected in the stylistic and typological characteristics of pottery from the Early Eneolithic sites in this area, such as the sites of Livade in Kalenić, Velimirovi Dvori, and Bodnjik, which correspond to the Pannonian Eneolithic groups such as the Lasinya and the Tiszapolgár–Bodrogkeresztúr.<sup>85</sup>

The chronology of those axes also remains unclear, especially the time of their initial occurrence. According to most authors, they are dated to the Early Eneolithic, meaning the period after the mid-5<sup>th</sup> millennium calBC.<sup>86</sup> However, at the site of Rumska, where a similar axe was recorded several decades ago, no Early Eneolithic material was recorded during several surveys, only Late Neolithic material (Vinča D), which could be dated to the second quarter of the 5<sup>th</sup> millennium calBC, based on numerous analogies (Fig. 4/1–9).<sup>87</sup> Ceramic material with identical stylistic and typological characteristics to the sites of Spasovine, Rumska, and other mentioned sites was also registered at the site of Jasupovac in Velika Vranjska,<sup>88</sup> together with a copper axe of the *Jászladány* type, which could provide yet another argument for the

<sup>75</sup> Vlačojević 2005, 66–72; Bulatović *et al.* 2017, 45.

<sup>76</sup> Јевтић 1986.

<sup>77</sup> Летица 1970.

<sup>78</sup> Compare Antonović 2014.

<sup>79</sup> Antonović 2014, 66–82.

<sup>80</sup> Стојић, Церовић 2011, 30.

<sup>81</sup> Maszek *et al.* 1952.

<sup>82</sup> Васиљевић 1967, 133.

<sup>83</sup> Maszek *et al.* 1952.

<sup>84</sup> Bulatović *et al.* 2017, 236.

<sup>85</sup> Vlačojević 2005; Bulatović *et al.* 2017, 45; Stevanović 1998, Sl. 4/a–c; Живановић 2013, 54. Compare the Lasinya material from Jurjevac in eastern Srem in Balen *et al.* 2017, Pl. 5/8; Pl. 6/7, Pl. 7/1 and Raczky *et al.* 2014, 331–337, Figs. 5 and 6.

<sup>86</sup> Todorova 1981; Boroffka 2009; Antonović 2014.

<sup>87</sup> Стојић, Церовић 2011, Т. CXVIII.

<sup>88</sup> Стојић, Церовић 2011, 190, Т. CCIX.

possibility of the earlier occurrence of such axes than previously thought. The site of Spasovine in Milina, dated to the final century of the third quarter of the 5<sup>th</sup> millennium calBC, could serve as an additional argument, as a hoard comprised of three such axes was recorded in the same village (the site is not precisely located). If data on the chronological determination of the sites of Rumska and Velika Vranjska is correct (it would appear, according to the material, the both sites are attributed to the Late Vinča culture), those would represent the earliest axes of the mentioned type.

All of the presented arguments indicate the possible production of the *Jászladány* type of axes in this region, but without interdisciplinary analyses and the comparison of the physical-chemical composition of the copper and lead isotopes of the copper axes and the ore from the Srebrne Rupe location, which remains the only hypothetical outcrop of copper in the area, the subject remains in the domain of assumptions.

#### The eastern and western zones of the Mountainous Region

All of the registered Early Eneolithic sites within the eastern and western zones of the Mountainous Region of the Central Balkans are attributed to the Bubanj–Hum I group. The largest number of sites in this region is located within the Timočka Krajina Region and the wider confluence area of the Zapadna Morava (West Morava) and Velika Morava (Great Morava) rivers. A significantly lower distribution of sites is registered within the Iron Gates (Đerdap) and Ključ regions and the upper course of the West Morava River, while only one site has been registered within the Velika Morava Basin.<sup>89</sup> A ceramic inventory characteristic for Bubanj–Hum I group was recorded at all of the sites, such as slightly biconical bowls, bowls with an inverted rim (often vertically or obliquely channelled), plates with a thickened inner side of the rim, *kantharoi*, vessels (mostly bowls) on a hollow foot, carinated bowls with a funnelled neck, etc.

Plates with a thickened rim, the carinated form of bowls, and hollow feet of vessels have been recorded in the eastern and western zones of the Mountainous Region of the Central Balkans, within the early phases of the Vinča culture. The carinated form of bowls occurs at the site of Grivac from horizon IV,<sup>90</sup> although positioned on the shoulder of the bowl, while bowls with a thickened belly and carinated form are recorded in horizon V and continue through horizon VI.<sup>91</sup> Plates with thickened rims, often decorated with chan-

nels, were recorded in horizon V, and in horizon VI, where such forms were less emphasised and mostly undecorated.<sup>92</sup> At the site of Supska, which is, unfortunately, undated, yet possesses a solid stratigraphic determination, carinated bowls, and plates with a thickened rim have been registered from the 8<sup>th</sup> layer, continuing up to the youngest layers.<sup>93</sup>

Besides those forms, vessels with a hollow foot were recorded at the site of Supska, starting from the earliest 9<sup>th</sup> layer<sup>94</sup> and starting from horizon IV at the site of Grivac.<sup>95</sup> According to the absolute dates from the site of Grivac, the occurrence of such forms in this area can be connected with a period not later than the final quarter of the 6<sup>th</sup> millennium calBC.<sup>96</sup>

#### The south-eastern zone of the Mountainous Region

A similar situation occurs within the south-eastern zone of the Mountainous Region of the Central Balkans. In the course of excavations of the Antique town of *Timacum Maius* in Niševac, a portion of a Neolithic Vinča settlement was recorded. Aside from globular bowls decorated with shallow channels, meaning burnished narrow strips, the characteristic forms were represented by plates with a thickened rim and carinated bowls.<sup>97</sup> The absolute date from one of the pits from this site is unpublished and falls within 6240±36 BP, meaning 5303–5207 calBC, with a probability of 65.2%, which positions the site into the 53<sup>rd</sup> century calBC, slightly earlier than settlement IV at Grivac.<sup>98</sup> Save for globular bowls decorated with oblique channels, plates with a thickened rim, often decorated with channels, a hollow vessel foot, and a few carinated bowls with a less emphasised belly have also been recorded at the Neolithic site of Donje Vranje, in the upper course of

<sup>89</sup> Kapuran *et al.* 2018.

<sup>90</sup> Bogdanović 2008, Fig. 9.14/j, f, Fig. 9.15, 9.16 and other.

<sup>91</sup> Bogdanović 2008, Fig. 9.23/g, j, 9.24/a, c, Fig. 9.28/h, j, Fig. 9.74 i 9.75 and other.

<sup>92</sup> Bogdanović 2008, Fig. 9.24/j, k, Fig. 9.26/b, f–i, Fig. 9.77/a–c and other.

<sup>93</sup> Гарашанин Д., Гарашанин М. 1979, Т. XXIX/3–5.

<sup>94</sup> Гарашанин Д., Гарашанин М. 1979, Т. XXXVII/6.

<sup>95</sup> Bogdanović 2008, Fig. 9.19/c, f, i.

<sup>96</sup> Bogdanović 2008, 459.

<sup>97</sup> Булатовић *et al.* 2014, Т. I.

<sup>98</sup> The lab-code of the sample is SUERC 54882. The date from Niševac was provided by the ERC-funded research project Eurofarm (Stg-313716) directed by M. Vander Linden.

the South Morava River.<sup>99</sup> An absolute date from this site positions the settlement into the final quarter of the 6<sup>th</sup> millennium calBC.<sup>100</sup> Plates with a thickened rim have also been recorded within the Gumnište II horizon in Pavlovac, together with globular vessels characteristic for the Vinča–Tordoš II phase, which remained in use within the younger Gumnište III horizon, together with slightly biconical bowls and carinated bowls.<sup>101</sup>

All of the absolute dates indicate that the plates with a thickened rim, bowls with a carinated form and vessels on a hollow foot were common for the Vinča culture within the so-called Mountainous Region of the Central Balkans during the final quarter of the 6<sup>th</sup> millennium calBC, which corresponds to the Vinča–Tordoš II phase, according to M. Garašanin and Vinča B phase, according to V. Milojević. Contrary to the other regions of the Central Balkans, plates with a thickened rim occur earlier and represent a preferred ceramic form in the south-eastern zone of the Mountainous Region.<sup>102</sup> On the other hand, such plates were mostly not utilised in the north of the Mountainous Region or the Transitional Region, and even disappeared during the Vinča–Pločnik phase at numerous sites, or sporadically appear with mild thickening and no ornamentation.

Interestingly, plates with a thickened rim have been recorded at the site of Karanovo in Thrace, starting from horizon III,<sup>103</sup> which is radiocarbon dated to the 55<sup>th</sup>–54<sup>th</sup> century calBC,<sup>104</sup> meaning slightly earlier than at the settlements in the Central Balkans. Also, those plates lasted through all of the horizons at Karanovo, including horizon VI, which belongs to the Eneolithic period, although such plates are sporadic after horizon III and the thickening on the rim is mild and usually undecorated.<sup>105</sup>

A similar situation has been noted for the so-called carinated bowls (thickened and acutely profiled belly), which, as previously mentioned, occur at the site of Supska from the 8<sup>th</sup> layer and horizon IV at Grivac. They are also recorded within settlements in the southeast of the Mountainous Region, at the sites of Niševac, Donje Vranje, and Pločnik.<sup>106</sup> Such a form occurs at Banjica from horizon V and lasts throughout the younger horizons.<sup>107</sup> Based on the absolute dates, this form, possibly the most dominant and long-lasting ceramic form of the Vinča culture, occurs in the Central Balkans starting from the Vinča–Tordoš II phase, according to M. Garašanin (Vinča B, according to V. Milojević), meaning the final quarter of the 6<sup>th</sup> millen-

nium calBC. This bowl profile, although slightly modified (acute profile, less emphasised thickening positioned on the funnelled neck of the vessel) prevailed within the Bubanj–Hum I group.<sup>108</sup>

In terms of slightly biconical bowls, especially bowls with an inverted and often channelled rim, and *kantharoi*, meaning beakers with handles in line with the rim, which are, beside the plates with the thickened rim, the most dominant ceramic forms of the Bubanj–Hum I group, it is noticed that those forms also appear in the south-eastern zone of the Mountainous Region within the Vinča culture, but, in contrast to carinated bowls and plates, during its later phase. Similar to the Transitional Region, slightly biconical bowls, meaning bowls with an inverted rim, occurred during the Vinča–Pločnik II phase within the Mountainous Region of the Central Balkans. This is indicated by finds from Divostin Ib (Fig. 5/1, 2), layer II at the site of Supska, horizon III at the site of Grivac (Fig. 4/15), the context with copper chisel in trench VIII/A at Pločnik, horizon Gumnište III at the site of Pavlovac and at Prohor Pčinjski (Fig. 5/1–5), some of which possess a channelled rim (Fig. 5/14, 15).<sup>109</sup> According to the absolute dates for horizons with such bowls at the sites of Grivac and Divostin, they could be positioned within the second quarter of the 5<sup>th</sup> millennium BC. There are no absolute dates for the Gumnište III horizon in Pavlovac, and the authors position it into the end of the Vinča–Pločnik I phase,<sup>110</sup> which approximately corresponds to the mentioned chronology. The finds from Prohor Pčinjski, which originate from the same horizon, represent a sort of

<sup>99</sup> Kapuran *et al.* 2016, T. 1/4, 7, T. II/9, T. III/2, 3.

<sup>100</sup> Kapuran *et al.* 2016, 125.

<sup>101</sup> Perić *et al.* 2016, T. III/4, 10; T. V/1, 3, 5, 6.

<sup>102</sup> Schrier 2000.

<sup>103</sup> Hiller, Nikolov 2005, Taf. 19/2, 10, Taf. 22/5–10.

<sup>104</sup> Thissen 2000, Tab. 7

<sup>105</sup> Hiller, Nikolov 2005, Taf. 42, Taf. 43/1, 2, Taf. 52/2, Taf. 67/6, Taf. 124.

<sup>106</sup> Шљивар 1999, T. II/7, 8, T. V/4; Булатовић *et al.* 2014; Kapuran *et al.* 2016.

<sup>107</sup> Трипковић 2007, 135, 136, 143, 179, 184.

<sup>108</sup> Стојић, Јоцић 2006, T. LXV/40; Булатовић, Милановић 2015, T. I/1; Булатовић *et al.* 2013, T. XXXVI/1, 3, T. XXXVI-II/2, T. LXXV/12–14; Капуран *et al.* 2014, T. VI/49, T. LXXVI/16–23.

<sup>109</sup> Perić *et al.* 2016, T. V/2, 11, 12; Булатовић 2007, 244–247.

<sup>110</sup> Perić *et al.* 2016, 262–263.



mixture of the Late Vinča culture and the Bubanj–Hum I group.<sup>111</sup>

Beakers with two handles in line with the rim (*kantharoi*) have also been recorded within the late phase of the Vinča culture at Divostin IIb (Fig. 5/3),<sup>112</sup> within layer 2 at the site of Supska,<sup>113</sup> the youngest layer at the site of Pločnik<sup>114</sup> and the sites of Spasovine (Fig. 3/12) and Kormadin III. Based on the absolute dates from Spasovine and Divostin (Fig. 8), they can be positioned within the second quarter of the 5<sup>th</sup> millennium BC.

Interestingly, beakers with two handles in line with the rim (*kantharoi*) primarily occur within the ceramic inventory of the Gradešnica–Slatino–Dikili Tash II and the Akropotamos–Topolnica groups in the territory of present-day western Bulgaria, in the Struma Valley and lower Vardar Region<sup>115</sup> during the first quarter of the 5<sup>th</sup> millennium calBC,<sup>116</sup> approximately concurrent with the appearance of bowls with an inverted rim in the same region.<sup>117</sup> Beside those forms, bowls with a triangularly thickened belly and a cylindrical or conical neck (carinated bowls),<sup>118</sup> similar to the Late Vinča examples from the sites of Vinča, Gomolava and Grivac VI (Fig. 3/21, Fig. 4/12, 17), appear in these groups as well. Bowls with a thickened rim have also been recorded within the ceramic inventory of those groups,<sup>119</sup> which is, in general, similar to the ceramic inventory of the Vinča culture. Slightly biconical bowls also occurred in Oltenia during the Rast III phase, which corresponds to the Vinča–Pločnik II phase.<sup>120</sup> Painting as a pottery decoration technique, which was quite common for the Gradešnica–Slatino–Dikili Tash II and the Akropotamos–Topolnica group, has only been sporadically recorded within the Late Vinča culture,<sup>121</sup> yet it represents one of the most common decoration techniques of the Bubanj–Hum I group.

\* \* \*

From all that has been presented above, it can be noticed that certain ceramic forms characteristic of the Early Eneolithic Bubanj–Hum I group, such as plates with a semi-circularly thickened inner side of the rim, bowls with a triangularly acute thickening on the belly or shoulder (the so-called carinated profile),<sup>122</sup> as well as vessels on a tall hollow foot (Fig. 6/1, 2, 11, Fig. 7/1, 3, 11) are represented in the ceramic inventory of the Vinča culture and, more precisely, the earlier phases of the culture, in all of the regions of the Central Balkans. According to the available absolute dates,

such ceramic forms are represented in this territory from the final quarter of the 6<sup>th</sup> millennium calBC, which corresponds to the Vinča–Tordoš II phase, according to M. Garašanin or Vinča B phase, according to V. Miložičić. It has been noted that the same ceramic forms were represented in Thrace during approximately the same period,<sup>123</sup> which used to be explained by contacts between the Vinča culture and the Neolithic cultures of Thrace, through the existence of a unique Balkan–Anatolian Neolithic complex that originated in south-eastern Thrace and western Anatolia.<sup>124</sup> The appearance of new elements within the Vinča culture, represented by plates with a thickened rim, which prevailed within the ceramic inventory of the Bubanj–Hum I group, is defined as the Gradac phase of the Vinča culture.<sup>125</sup> According to M. Garašanin, the phase can be observed at a depth of between 6 and 6.5 m at the site of Vinča, and at the eponymous site of Gradac near Zlokućani. In terms of cultural and chronological aspects, the phase is quite similar to the Karanovo IV horizon in Thrace.<sup>126</sup>

<sup>111</sup> A portion of the finds originates from excavations in the 1980s and a smaller portion originates from the excavations conducted in the early 2000s, which were directed by T. Čerškov from the Institute for Cultural Heritage Preservation, in Niš. I would like to take this opportunity and thank him for the insight into the material.

<sup>112</sup> Madas 1988, Fig. 6.21/9.

<sup>113</sup> Гарашанин Д., Гарашанин М. 1979, Т. III/4.

<sup>114</sup> Based on the oral account by the author of excavations, D. Šljivar. The question remains whether the youngest layer belongs to the bearers of the Bubanj–Hum I group, as N. Tasić (1995, 29) considers.

<sup>115</sup> Тодорова 1986, 46/6; Pernicheva 1995, Fig. 6/191, 193, 194, Fig. 8/259, 266, Fig. 9/297, Fig. 12/418; Treuil (ed.) 2004, Pl. 4/1, Pl. 5/4, Pl. 59/1, Pl. 81/2.

<sup>116</sup> Boyadzhiev 1995, 182, Tab. 5.

<sup>117</sup> Тодорова 1986, 46/12; Treuil (ed.) 2004, Pl. 13, 58, 62, 68, 71.

<sup>118</sup> Тодорова 1986, 46/1; Treuil (ed.) 2004, Pl. 69/2, Pl. 84/4, 5, Pl. 97/3, 4.

<sup>119</sup> Treuil (ed.) 2004, Pl. 91/1, 2, Pl. 101/3, Pl. 104/4–7.

<sup>120</sup> Гарашанин 1973, 11.

<sup>121</sup> Булатовић *et al.* 2011, Т. VI/10–12. Васић 1936, сл. 281, 283. Compare with Vajsov 2007.

<sup>122</sup> According to M. Garašanin (Garašanin 1979, 166), the carinated vessels appear during the Vinča–Tordoš I phase, but without the characteristic thickening.

<sup>123</sup> Hiller, Nikolov 2005.

<sup>124</sup> Гарашанин 1973, 122.

<sup>125</sup> Garašanin 1979, 151–152.

<sup>126</sup> Гарашанин 1973, 122–124; Garašanin 1979, 151–152, 174.

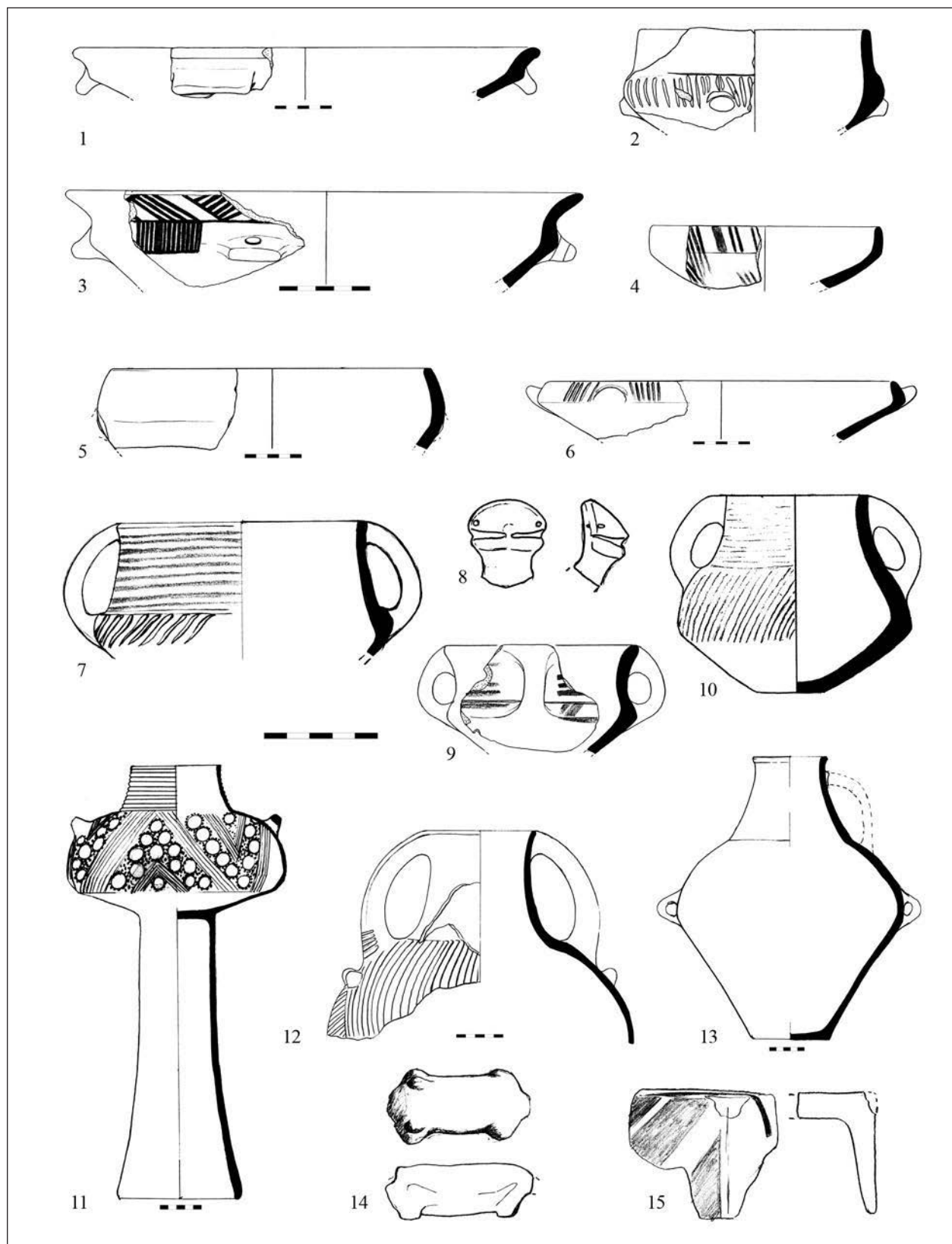


Fig. 7. Characteristic pottery of Bubaň–Hum I group: 1–9, 11–15) Velika Humska Čuka; 10) Bubaň

Сл. 7. Карактеристичне посуде Бубањ – Хум I групе: 1–9, 11–15) Велика хумска чука; 10) Бубањ

Without addressing the origin of the Vinča culture, these elements, especially the plates with a thickened rim, occur in Karanovo from the earliest Late Neolithic horizon (Karanovo III), which is chronologically correlated with the third quarter of the 6<sup>th</sup> millennium BC. Interestingly, without the absolute chronology and solely based on the material culture, certain authors have determined the origin point for the Gradac phase in the east, in Thrace, and on the shores of the Sea of Marmara.<sup>127</sup> On the other hand, S. Perić criticises the previous definition of the Gradac phase and considers that it should be defined as a “turning point” within the Vinča culture when hilltop settlements appeared together with lowland settlements.<sup>128</sup>

As the subject of this paper is not exclusively the Vinča culture, but rather its role in the genesis of the Bubanj–Hum I group, its origin and development phases will not be further addressed. It was important for this study to point to the fact that the connection between the Vinča culture and Thrace was also highlighted by previous colleagues and that they have built a solid relative chronology of those contacts, despite the lack of absolute dates. The present absolute chronology indicates that certain ceramic forms (plates with a thickened rim) occurred in Karanovo during the earliest phase of the Late Neolithic (Karanovo III), dated to the third quarter of the 6<sup>th</sup> millennium calBC, somewhat earlier than the examples in the Central Balkans (the final quarter of the 6<sup>th</sup> millennium calBC). It is peculiar that such forms, especially plates with a thickened rim, were more represented within the south-eastern zone of the Mountainous Region of the Central Balkans (in which the characteristics of the so-called Gradac phase are most represented), in which they prevail into the youngest phases of the Vinča culture, although with less emphasised thickening and usually without ornamentation (channels), common for the earlier phases. In the north, their representation within the ceramic inventory of the Vinča culture decreases, but they are still occasionally represented within the later phases of the Vinča culture. Judging by their distribution, it seems that the most intensive transmission with the territory of Thrace was through the Nišava Valley.

The process of cultural transmission with the population which inhabited the territory east of the Vinča cultural domain continued in the later phases of the Late Neolithic, which is illustrated by the appearance of few *kantharoi* and the massive representation of slightly biconical bowls in the Vinča D phase, meaning

during the third quarter of the 5<sup>th</sup> millennium calBC. Identical forms occurred during the first and became common during the second quarter of the 5<sup>th</sup> millennium BC in the lower Vardar Basin, Struma Basin, and at the sites located on the northern slopes of the western portion of the Balkan Mountains.<sup>129</sup> As the distribution of *kantharoi* and slightly biconical bowls was more or less equal in all of the regions within the territory of the Vinča culture (from Gumnište in Pavlovac, to Spasovine in the Cer Region and Vinča in the Danube Region), and sites attributed to the Vinča culture have not been recorded in eastern Serbia, it is assumed that the communication route of cultural transmission was through the Nišava Region and possibly the Danube transversal. Finds from a house at the site of Poduen, in the Sofia Basin, which represents a certain mixture of Vinča and Karanovo V elements, is one of the most discernible examples of evidence for those contacts and their communication routes.<sup>130</sup> An additional argument supporting Late Vinča contacts with the cultural groups from the Struma Valley and lower Vardar Region is painted pottery, which is sporadically represented at Vinča sites in the Central Balkans, but became a common ornamentation technique for the Bubanj–Hum I group and the entire BSK complex.

Besides the aforementioned ceramic forms common for both the Vinča culture and the Bubanj–Hum I group, one should also highlight the semi-globular bowls with a thickened belly, often decorated with channels, and a modelled handle with arched incision or a channel above it (Fig. 4/11, 16, Fig. 5/5, Fig. 7/2, Fig. 7/6 – handle with an arched channel above),<sup>131</sup> large ovoid amphorae with a narrow mouth with small horizontally perforated arched handles on the belly (Fig. 7/13), or a large arched handle that connects the vessel rim and shoulder,<sup>132</sup> and also the figurine head

<sup>127</sup> Jovanović 2006, 225.

<sup>128</sup> Perić 2006, 244.

<sup>129</sup> Тодорова 1986; Pernicheva 1995.

<sup>130</sup> Todorova 1990, 165, T. I–III.

<sup>131</sup> Such vessels have also been recorded at the sites of Pločnik (Шљивар 1999, T. III/1, T. V/7), Belovode, but without the arched ornament (Шљивар, Јацановић 1997, T. II/4), Grivac V, without arched ornament (Bogdanović 2008, Fig. 9.31/e), Grivac VI (Bogdanović 2008, fig. 9.71/g), Kormadin (Булатовић *et al.* 2010, T. I/7, T. IV/6) and numerous other sites.

<sup>132</sup> Similar amphorae have also been recorded at the sites of Ванјиса (Трипковић 2007, 186, 187); Divostin IIb (Madas 1988, Fig. 6.2/2, 6.6/10), Vinča, at a 4 m depth (Borić 2015, Fig. 5) and other.

Nr	Site	Context (Culture)	Lab.code	BP	calBC	Published
1	Strumsko	(Acropotamos-Topolnitsa)	Bln-2612	6020±50	4983–4855 (68% CalPal)	Boyadzhiev 1995
2	Slatino	(Gradešnica-Slatino-Dikili Tash II)	Bln-3350	5860±80	4823–4623 (68% CalPal)	Boyadzhiev 1995
3	Belovode	Trench 7, spit 4 (Late Vinča)	OxA-14628	5800±36	4764–4545 (95%)	Borić 2009
4	Divostin	House 13, feature 21 (Late Vinča)	OxA-14694	5775±34	4720–4530 (95%)	Borić 2009
5	Pločnik	burnt building debris, Trench 16, spit 7 (Late Vinča)	OxA-14685	5765±35	4710–4530 (95%)	Borić 2009
6	Gomolava	Burial 21 (Late Vinča)	OxA-14708	5739±35	4688–4498 (95%)	Borić 2009
7	Vinča	House 6, sector II, segment III (Late Vinča)	OxA-16597	5728±34	4686–4491 (95%)	Borić 2009
8	Vinča	House 1/06, sector II (Late Vinča)	UBA-22024	5720±37	4630–4518 (68% CalPal)	Tasić <i>et al.</i> 2015
9	Gomolava	House 9/80, block VII, sq. E3, 4, spits 17/18 (Late Vinča)	GrN-13160	5710±60	4711–4401 (95%)	Borić 2009
10	Banjica	(Late Vinča)	GrN-1542	5710±90	4670–4468 (68% after CalPal)	Vogel, Waterbolk 1963
11	Spasovine	trench 2/feature 3 (Late Vinča)	AA 113502	5706±25	4577–4509 (68% CalPal) 4611–4461 (95%)	This study
12	Selevac	horizon IX(?) (Late Vinča)	HAR 3218	5670±80	4618–4424 (68% after CalPal)	Tringham, Krstić 1990
13	Vinča	House 01/06, the uppermost burnt horizon (Late Vinča)	NOSAMS-67686	5650±30	4519–4463 (68% after CalPal)	Tasić <i>et al.</i> 2015
14	Grivac	Charcoal from trench A, level 5 (Late Vinča)	Z-1507	5600±100	4557–4367 (68%, CalPal)	Srdoč <i>et al.</i> 1987
15	Ostrovul Corbului	(Salcuța IIIb)	SMU-585	5591±82	4519–4371 (68% after CalPal)	Lazarovici 2006
16	Bodnjik, Družetić	Below house floor in House IV, qv. J8/1994 (Bubanj–Hum I)	OxA-?	?	4468–4347 (95%) 4448–4369 (68.2%)	Živanović 2013
17	Velika Humška Čuka	Trench II/19, feature 2/S2/19, the oldest floor on the bedrock (Bubanj–Hum I)	DeA 21482	5571±39	4465–4342 (99%), 4447–4373 (68% CalPal)	This study
18	Velika Humška Čuka	Trench 1/19, feature 2/S1/19 (Bubanj–Hum I)	DeA 21483	5481±40	4375–4253 (91%), 4360–4282 (68% after CalPal)	This study
19	Salcuța	(Salcuța IIb)	GrN-1990	5475±55	4377–4275 (68% after CalPal)	Echrich and Bankoff 1992
20	Velika Humška Čuka	Trench III/16, feature 2 (Bubanj–Hum I)	AA 109498	5473±31	4352–4326 (51.0%) 4365–4259 (95.4%)	Bulatović <i>et al.</i> 2018
21	Bubanj	feature 69 (Bubanj–Hum I)	SUERC 50666	5452±28	4343–4266 (68.2%) 4351–4257 (95.4%)	Bulatović, Vander Linden 2017
22	Vinča	Burial 1, female 20–30 years (Tiszapolgar- Bodrogkeresztur)	OxA-24922	5451±35	4344–4263 (68.2%) 4354–4244 (95.4%)	Borić 2015
23	Krivodol	(Krivodol I)	Bln-2114	5445±45	4338–4266 (68% after CalPal)	Boyadzhiev 1995
24	Bubanj	feature 37 (Bubanj–Hum I)	Lyon 13690	5440±30	4346–4246	Bulatović <i>et al.</i> 2018

Fig. 8. Absolute dates for the Late Vinča and the Early Eneolithic sites in the Central Balkans

Сл. 8. Абсолютни датуми за касну винчанску културу и локалитете ране енеолитске на централном Балкану



from the site of Velika Humska Čuka (Fig. 7/8), which rather resembles Vinča examples (Fig. 5/10),<sup>133</sup> as well as zoomorphic figurines and altars (Fig. 7/14, 15), which differ little from the Vinča examples. The latter indicates a certain continuity in the spiritual life, which, based on those relics as parts of a ritual, did not change compared to the Late Neolithic. However, a difference in pottery surface treatment and quality has been noticed – during the Early Eneolithic, pottery possessed a burnished slip, mostly brown, while Vinča pottery was mostly black polished or grey without slip (especially during the late phase). However, this could possibly be explained by the shift in settlement topography and with that the selection of clay sources, as well as by different affinities of the Bubanj–Hum I population. Channels and polished bands represent a common ornament in the Vinča culture which prevailed within the Bubanj–Hum I group, although combined with incisions. Unlike Vinča pottery, vessels of the Bubanj–Hum I group were often decorated with paints of various colours and with graphite.

The two earliest sites of the Early Eneolithic, meaning the Bubanj–Hum I group, are interestingly recorded in different regions of the Central Balkans – the Transitional Region (Bodnjik) and the Mountainous Region (Velika Humska Čuka) – at a distance of more than 250 km apart. The absolute dates from those sites are almost identical and correspond with the latest dates for the Vinča culture from the sites of Vinča, Spasovine, Grivac, and Selevac (Fig. 8). According to those dates and the common stylistic and typological characteristics of pottery at these two sites, the stylistic and typological characteristics of pottery of the Late Vinča culture and the Early Eneolithic, as well as according to approximately the same territories in which the Vinča culture and the Bubanj–Hum I group were represented, it seems that the group originated from the Vinča culture.

The territory in which the BSK complex was formed with the Bubanj–Hum I group as a regional variant matches the territory of the Late Vinča culture. Therefore, besides the Central Balkans, the Late Vinča culture has also been recorded in Oltenia and the Sofia Basin, which would later fall under the domain of the BSK complex. This also indicates that the traditions of the Late Vinča populations were involved in the formation of the BSK complex. One of the earliest absolute dates for the Salcuța group (a regional variant of the BSK complex) from the site of Ostrovul Corbului, dates the group slightly earlier, concurrently with the

settlements at Bodnjik and Velika Humska Čuka (Fig. 8),<sup>134</sup> and indicates that the BSK complex was formed approximately simultaneously in all of its geographical regions. This is also confirmed by an absolute date for the Šuplevac–Bakarno Gumno group, which represents a regional variant of the BSK complex in Macedonia, from the site of Spančevo in eastern Macedonia, which is concurrent with the previously mentioned dates.<sup>135</sup>

Although the territories of the Vinča culture and the Bubanj–Hum I group and BSK complex mostly match, the topography of Bubanj–Hum I settlements is significantly different when compared to the topography of the Vinča settlements in the Central Balkans. The habitation horizon of the Bubanj–Hum I group has not been recorded at Late Vinča settlements within the Mountainous Region of the Central Balkans, which complicates the determination of their relations. The Early Eneolithic settlements in this region were not established even in the vicinity of previous Vinča settlements, and the reason for that probably lies in certain climate changes during the second quarter of the 5<sup>th</sup> millennium BC, as noted by Todorova.<sup>136</sup> Namely, the temperature rise started around 4700/4600 BC and caused the intensive dry period and the depopulation of the area south of the Rhodope Mountains, northern Greece, and the Struma Region, where the Slatino–Dikili Taš II and the Akropotamos–Topolnica groups existed. It could be the case that the depopulation is directly reflected in the appearance of new ceramic elements from these groups within the ceramic inventory of the Late Vinča culture, which would imply not only direct or indirect contacts of these populations with the Vinča culture, but also certain population shifts from these regions towards the north and north-west. This climate shock most likely influenced the Central Balkans as well and could be the reason behind the transformation of settlement topography, meaning the selection of settlement locations of the Bubanj–Hum I group. The Vinča settlements were mostly established on mild slopes and lowlands close to rivers (68%) and rarely on barely accessible and dominant elevations (16%) which is usually the case within the south-eastern and western zones of the

<sup>133</sup> Bogdanović 1990, Abb. 7; Игњатовић 2008, кат. бр. 41, 63.

<sup>134</sup> Lazarović 2006.

<sup>135</sup> Здравковски 2009, 20.

<sup>136</sup> Todorova 2007.

Mountainous Region, as well as on elevations along the Danube within the Transitional Region.<sup>137</sup> The percentage of settlements located on dominant elevations rises to 35% within the Bubanj–Hum I group, while settlements established on mild slopes and river terraces are represented with 43%. Interestingly, only in extraordinary cases do the populations of the Bubanj–Hum I group inhabit Vinča sites and usually hilltop sites. The reason for the abandonment of lowland Vinča sites could lie in the exhaustion of fertile soil surrounding those sites, since those were usually inhabited for a longer period. On the other hand, the reason for the emergence of a larger number of sites located on dominant and sometimes inaccessible elevations on the fringe of valleys and basins could be sought in various threatening factors (anthropogenic or natural), which endangered the existence of the population. A similar pattern has been noted for the Carpathian Basin during the transition from the Neolithic to the Eneolithic when, despite the overwhelming Neolithic tradition in culture, Eneolithic populations abandoned long-lasting tell settlements and established settlements in new locations.<sup>138</sup>

A series of absolute dates from both lowland and hilltop settlements could eventually provide interesting data and answers regarding the possibility that the hilltop settlements are older than lowland settlements, as indicated by the available dates, or whether such settlements are contemporaneous and the topography is based on the economy of the population and other factors.

The thesis that the territories of the Late Vinča culture and the Bubanj–Hum I group are mostly matching is, however, completely contradicted by one region. In the region of Timočka Krajina, which is relatively well researched in the field, and where the complete prehistoric corpus from local museums was recently published, not a single Vinča site was recorded, besides the site of Rudna Glava, which served exclusively for the exploitation of copper ore.<sup>139</sup> The fact that this region was utilised for the exploitation of copper ore and not for settling indicates that it was, for some reason, undesirable for settlement. One of the reasons could be climate-related: the rise of temperature and humidity, and the formation of dense forest and low vegetation during the Late Neolithic, which made this terrain impassable and unsuitable for settling. If that was the case, the question is how did the Late Neolithic population discover the outcrops of copper ore in the first place, without a lengthy and detailed

prospection of the terrain, which would in such a setting be completely impossible? The argument which could indirectly support such a thesis is the climate change that was recorded after 4700/4600 BC, causing deforestation and making the terrain suitable for occupation.<sup>140</sup> The other possible reason behind the depopulation of the Timočka Krajina Region during the Vinča culture could be sociological, concerning the relationship between humans and the natural phenomena, which were of great significance in life. A good example of this is found in Late Bronze Age natural sanctuaries in the north of Macedonia (the sites of Pelince and Kokino), whose wide surroundings were completely uninhabited as they represented a “forbidden” sacred space.<sup>141</sup> This could be the reason why the Vinča settlements are not represented in the Timočka Krajina Region, as settlements from the preceding Early Neolithic and later Early Eneolithic were recorded in numbers. The thesis that this territory was uninhabited and utilised solely for the exploitation of copper ore, thus a significant and “forbidden” sacred space, is supported by the youngest date from the site of Rudna Glava, which indicates that the mine was utilized up to the 47<sup>th</sup> century calBC.<sup>142</sup> The region was uninhabited in the period of copper exploitation, and a dense occupation of the region occurred after this period, in the time of the Bubanj–Hum I group.

In terms of copper exploitation and metallurgy in the Central Balkans, several papers have been published recently that unequivocally indicate that the process of copper exploitation and processing in the area was utilised since the Vinča–Tordoš II phase, which is confirmed by portable finds and absolute dates.<sup>143</sup> Radivojević *et al.* argue for the utilisation of copper during the end of the 6<sup>th</sup> millennium calBC by two different techniques – cold bead making and copper smelting.<sup>144</sup> Interestingly, save for lumps of slag, direct evidence of copper smelting, such as crucibles, blowpipes and smelting kilns are lacking, which is ex-

<sup>137</sup> Kapuran *et al.* 2018.

<sup>138</sup> Raczky *et al.* 2014, 339.

<sup>139</sup> Булатовић *et al.* 2013; Капуран *et al.* 2014; Kapuran 2014.

<sup>140</sup> Todorova 2007.

<sup>141</sup> Stankovski 2007, 11; Булатовић, Станковски 2012, 269 with cited literature.

<sup>142</sup> Borić 2009.

<sup>143</sup> Капуран *et al.* 2014, 28–29, Figs. 22–35; Borić 2009.

<sup>144</sup> Radivojević *et al.* 2010.

plained by the fact the copper smelting took place in pits.<sup>145</sup> As opposed to the Neolithic, copper objects are more numerous and typologically diverse during the Early Eneolithic and objects which were supposedly used within the metallurgical process, such as ceramic blowpipes and possible crucibles, were recorded at the sites of Bubanj and Kmpije.<sup>146</sup> This is also confirmed by numerous copper objects found at Bubanj–Hum I settlements, such as chisels, pins, axes, etc., unfortunately, usually without a context. Such objects are significantly more numerous at the Early Eneolithic sites in Pannonia and the Transitional Region than in the territory of the Bubanj–Hum I group within the Mountainous Region of the Central Balkans.<sup>147</sup> It is important to highlight that the process of copper metallurgy initiated during the Neolithic did not stop, but evolved during the Early Eneolithic, which indicates a certain vertical transmission within the Neolithic and Eneolithic society in the area, and the transition of (metallurgical) information within several generations of one population. Such knowledge was utilised during the Early Eneolithic, as even certain types of tools prevailed from the Late Neolithic, such as a type of chisel (*schmale keile* according to D. Antonović).<sup>148</sup> Such a chisel was dated to the 47<sup>th</sup>/46<sup>th</sup> century calBC at Pločnik<sup>149</sup> and to the 44<sup>th</sup>/43<sup>rd</sup> century calBC at the site of Velika Humska Čuka.<sup>150</sup> Despite the evolution of copper metallurgy and the technology of production of copper objects, the Early Eneolithic population exploited the same oxidic or mixed oxidic-sulphidic copper outcrops in the Central Balkans<sup>151</sup> and utilised the same technological knowledge inherited from the preceding period.

Interesting conclusions can be highlighted by comparing the economic affinities of the Neolithic and the Early Eneolithic. From the archaeozoological aspect, the analyses of small samples indicate that there was no interruption in the representation of domestic species within the Bubanj–Hum I group, compared to the Late Neolithic sites. The relationship of species is slightly different, and the dominant role of domestic cattle during the Late Neolithic was distorted by the presence of ovicaprines, which were equally represented during the Early Eneolithic, while the representation of domestic pig rose during the Early Eneolithic.<sup>152</sup> In terms of the representation and relationship of crop spectra, the data is similar for the Late Neolithic and the Early Eneolithic, with the underrepresentation of certain types of wheat during the Eneolithic compared to the Neolithic in the same area

(the samples originate from the sites of Pločnik and Bubanj, separated by less than 50 km). This could be explained by the regional distribution of certain species.<sup>153</sup> Certainly, the samples were not in relevant numbers, or from a large number of sites, and, therefore, the results should be considered with caution and not as definite conclusions.

A similar observation has been made in terms of the chipped stone industry. By comparing the samples from multiple Neolithic sites (the final Neolithic horizon at Vinča, Crkvine in Mali Borak, Pločnik, and the final phase at the site of Divlje Polje near Kraljevo) and samples from two Early Eneolithic houses at the site of Velika Humska Čuka, it can be concluded that the production of blades and end-scrapers on blades continued in a similar way to the final phases of the Vinča culture (ca. 4500 BC),<sup>154</sup> yet with less detailed treatment, and a similar trend is noted in terms of the procurement of raw materials, as the tendency for the utilisation of high-quality cherts and cherts that attest to less regular knapping properties have been recorded. There were no major oscillations after 5000 BC, when a significant shift in the production of lithic raw materials had already occurred at the break of the millennium, reflected in the higher production of tools based on flakes, even though the trend of the standardised blade production prevailed.<sup>155</sup>

Based on analyses of finds from two houses at the site of Velika Humska Čuka, it is not unusual that a spectrum of higher to lower quality raw material is represented, which is understandable considering that the Kremenac flint outcrop is located less than 3 km from the site. The outcrop was most likely exploited during the Early Eneolithic at the site of Velika Humska Čuka. Hence, during the Early Eneolithic, it is possible to follow the continuation of Vinča's technological package, but also the deterioration of criteria –

<sup>145</sup> Radivojević *et al.* 2010, 2785.

<sup>146</sup> Јовановић 2006, Fig. 3; Bulatović, Milanović 2020, Pl. 28/7, 8.

<sup>147</sup> Compare: Todorova 1981; Antonović 2014.

<sup>148</sup> Antonović 2014.

<sup>149</sup> Borić 2009.

<sup>150</sup> Bulatović *et al.* 2018.

<sup>151</sup> Powell *et al.* 2017.

<sup>152</sup> Filipović *et al.* forthcoming.

<sup>153</sup> Filipović *et al.* forthcoming.

<sup>154</sup> Bogosavljević Petrović 2015; Bogosavljević Petrović 2018.

<sup>155</sup> Bogosavljević Petrović 2018.

the selection of raw materials of different quality, the variety of knapping techniques, swift adaptation, and the occasional revival of the simplest knapping with the use of direct percussion with a hammerstone. Aside from the raw material from Kremenac and the so-called Balkan Flint, obsidian tools have been recorded to a lesser degree at the sites of Velika Humska Čuka and Bubanj.<sup>156</sup> The selection of obsidian, as well as the selection of Balkan Flint for chipped stone tools, also represents the heritage of the Vinča culture.

As obsidian outcrops have not been recorded in the area, it is clear that the obsidian (or finished products) was brought to the area through contacts and connections with populations outside the Central Balkans. Contacts between the Central Balkan populations with populations that inhabited the territory of Pannonia during the Early Eneolithic (the Bubanj–Hum I group) are illustrated by numerous finds. Especially in the north, in the so-called Transitional Region of the Bubanj–Hum I group, ceramic finds typical of the Early Eneolithic of Pannonia occur together with Bubanj–Hum I finds. This phenomenon is particularly characteristic for the Bubanj–Hum I sites within the Transitional Region, such as Bodnjik and Livade, but also within the ceramic inventory of the Early Eneolithic cultural groups in Pannonia, where finds characteristic of the Bubanj–Hum I group, such as beakers with two handles (*kantharoi*), have been recorded.<sup>157</sup> Contacts are also confirmed by certain “Pannonian” stylistic and typological features within the ceramic inventory of the Mountainous Region of the Central Balkans (Fig. 7/11) and numerous finds of axes of the *Jászládány* type, with the highest distribution in the Carpathian Basin, from where they spread towards the Central Balkans and especially the Transitional Region.

The brief review of all of the essential parameters of the Late Vinča and the Early Eneolithic life in the Central Balkans conducted in this study affirms the thesis that the Early Eneolithic in the area, meaning the Bubanj–Hum I group, likely formed from the traditions of the Vinča culture, although gradually throughout the final quarter of the 5<sup>th</sup> millennium calBC. Based on the relationship of the represented stylistic and typological characteristics of ceramic inventory within the dated settlements, such as Spasovine, Griovac (horizon VI), Divostin (horizon IIb), and Banjica (horizon III), a transitional phase from the Vinča culture to the Bubanj–Hum I group could be defined. Despite the lack of absolute dates and a smaller scope of

research, this was highlighted decades ago by M. Garašanin, who defined the phase as Vinča–Pločnik IIb, and by V. Truhović and M. Vasiljević, who defined it as the Benska Bara III phase, within the Jadar and Mačva regions.<sup>158</sup>

A similar peaceful and gradual transition has been recorded in Pannonia, between the Vinča culture and the early Tiszapolgár group,<sup>159</sup> which calls for a re-evaluation of the previous interpretation, which considered that the process of the disintegration of the Vinča culture and the formation of the Early Eneolithic groups in the Central Balkans unquestionably included potential migrations, usually from the east.<sup>160</sup>

### CONCLUSION

Following the disintegration of the Vinča culture in the Central Balkans, the Bubanj–Hum I group was formed as a part of a larger Bubanj–Salcuța–Krividol complex, named after the eponymous sites. The precise period of this transition and its character has remained without an answer, despite the continuous and intensive research into the Vinča culture. This study presents certain characteristic ceramic forms and absolute dates for the Late Vinča culture, the Bubanj–Hum I group, and several related groups that took part in the formation of the Early Eneolithic in the Central Balkans. The numerous stylistic and typological characteristics highlight the numerous common forms that occur both in the Vinča culture (especially the Late Vinča culture) and the Bubanj–Hum I group.<sup>161</sup> The differences are represented by the surface treatment, pottery quality, and ornamentation. Aside from the channels inherited from the Vinča culture, Bubanj–Hum I pottery is often painted with different colours and with graphite.

The territory of the Bubanj–Hum I group matches the territory of the Late Vinča culture to a great extent, while the BSK complex surpasses the territorial reach

<sup>156</sup> Šarić 2020.

<sup>157</sup> Balen *et al.* 2017, Pl. 6/7; Sava 2015, Pl. 118/3.

<sup>158</sup> Гарашанин 1973, 94–95; Трбуховић, Васиљевић 1983, 27.

<sup>159</sup> Schrier 2008, 61.

<sup>160</sup> Garašanin 1979, 204–205; Tasić 1995, 28–29; Срејовић 1998, 223–224.

<sup>161</sup> In the recent study, Whittle *et al.* suggested that the characteristic shapes of the Vinča pottery remained relatively stable in Vinča D phase (2016, 44) which indicates certain cultural continuity till the very end of the Vinča culture.



of the Vinča culture, although Vinča sites have also been recorded in the Sofia Basin, Bregalnica Valley, and Oltenia.

Interestingly, the earliest dates for the BSK complex, including the Bubanj–Hum I group, originate from the peripheral areas of its territory (Spančevo in the Bregalnica Valley, Bodnjik in the so-called Transitional Region of the Central Balkans and Ostorvul Corbului in Oltenia), indicating that the complex originated from the Vinča culture and developed relatively simultaneously in all of the regions around 4450–4400 calBC. This data negates the previous thesis on the disintegration of the Vinča culture and the formation of the Bubanj–Hum I group, which emphasised the role of migrations of populations from the east in this process, but rather indicates that the complex was formed almost simultaneously within its entire territory, upon a unique cultural base.

It is difficult to precisely determine the period of the beginning of a certain cultural group, especially if such a large territory is in question. However, it seems that certain sites with elements characteristic of the Bubanj–Hum I group, which appear together with Vinča material, and considering the absolute dates from those sites, could be attributed to the “transitional” phase of the gradual process between the Vinča culture and the Bubanj–Hum I group. The phase, which approximately took place between 4650 and 4450 calBC (according to the available absolute dates), marked by the abandonment of long-lasting Vinča settlements and the utilisation of different topographic positions, is well illustrated by the sites of Spasovine, Grivac (horizon VI), Divostin (horizon IIb), Banjica (horizon III), Kormadin (horizon III), Prohor Pčinjski, Supska (horizons 1 and 2), etc.

The formation of the Early Eneolithic culture, meaning the Bubanj–Hum I group, was gradual and lasted for almost two centuries. It was marked by the abandonment of large settlements and the formation of smaller settlements in other locations, compared to Vinča settlements. The population of the period still utilised “Vinča” ceramic forms, yet some new forms appeared, which would be characteristic of the Early Eneolithic and the Bubanj–Hum I group. The gradual transition did not interrupt the life of the “Vinča” population and, besides the process of cultural transmission with neighbouring regions, especially to the east, no intensive social processes have been noted.

This is the phase, or the transitional phase (period) within the transition between the Vinča culture

and the Eneolithic groups (in this case the Bubanj–Hum I group) that was marked as the Benska Bara III phase decades ago by V. Trbuhović, and M. Vasiljević, and which M. Garašanin defined as the Vinča–Pločnik IIb phase.

Such a gradual transition allowed a certain cultural uniformity in this territory, which could already be noted during the developed Vinča culture, in the final quarter of the 6<sup>th</sup> millennium calBC. A cultural connection with populations east of the Vinča territory was achieved, especially in Thrace, which formed a sort of “similar” cultural basis in this territory, based on the intensified processes of horizontal cultural transmission. This similar cultural base, which would develop into the Early Eneolithic Gumelnița–Kodjadermen–Karanovo VI and BSK cultural complexes, prevailed within the later phases of the Neolithic, during the first half of the 5<sup>th</sup> millennium calBC. In that period, those contacts became more intensive, especially with the population of present-day western and south-western Bulgaria and the lower Vardar Region. This interaction resulted in a sporadic occurrence of painted pottery in the Central Balkans at the end of the second quarter of the 5<sup>th</sup> millennium calBC, within the so-called transitional phase of the Vinča culture. Painted pottery would later be well represented within the Bubanj–Hum I group, at least at the sites in the Morava Region and the Timočka Krajina Region.

Besides the material culture, the Bubanj–Hum I group inherited other knowledge and experiences from the Vinča culture through the process of so-called vertical genetic cultural transmission.<sup>162</sup> These were related to the metallurgy, and chipped stone industry, and, based on numerous finds of altars, spiritual life during the Eneolithic did not differ from the preceding period. The general economic strategies remained more or less the same, with small regional variations, despite the shift in settlement topography. The reasons for such a shift remain unclear, yet it can be assumed that the exhaustion of fertile soil surrounding the long-lasting Vinča settlements or climate change during the second quarter of the 5<sup>th</sup> millennium calBC played an important role.

At the same time, similar changes occurred in Pannonia, where the Tisza culture, with some regional Late Neolithic groups (Proto-Tiszapolgar phase of Herpaly group, Csoszhalom-Oborin group, etc.) gradually

<sup>162</sup> Eerkens, Lipo 2007, 243.

developed into the early Tiszapolgár group.<sup>163</sup> Likewise, the Eneolithic population abandoned long-standing Neolithic settlements, which was one of the few changes within this transition. Such a character of transition indicates a peaceful, long-lasting and gradual shift, without the significant impact of external factors, which is completely opposed to previous theses, which considered the migrations from the east as one of the key factors for the disintegration of the Vinča culture and the formation of the Eneolithic

groups in the Balkans. Therefore, it seems as though there was no disintegration of the Vinča culture, but rather its transformation into the Early Eneolithic groups, the Bubanj–Hum I group in our case.

At the end of the 5<sup>th</sup> and the beginning of the 4<sup>th</sup> millennium BC, certain changes took place in the Central Balkans. Those changes could partially represent the result of potential migrations within the Lower Danube Region, but such a subject surpasses the chronological framework of this study.

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<sup>163</sup> Diaconescu 2009, 261–262.

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*Резиме:* АЛЕКСАНДАР БУЛАТОВИЋ, Археолошки институт, Београд  
АРТУР БАНКОФ, Департман за антропологију и археологију, Бруклин колеџ  
ВЕЈН ПАУЕЛ, Одељење за науку о земљи и животној средини, Бруклин колеџ  
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## НЕКЕ ЗАБЕЛЕШКЕ О ГЕНЕЗИ РАНОГ ЕНЕОЛИТА НА ЦЕНТРАЛНОМ БАЛКАНУ

*Кључне речи.* – централни Балкан, касновинчанска култура, рани енеолит, Бубањ – Хум I група, карактеристични керамички елементи, апсолутни датуми

У овој студији реч је о недовољно јасно дефинисаном периоду на крају неолита и почетку енеолита на централном Балкану. Главна тема овог текста нису развој и дезинтеграција позне винчанске културе, о чему је доста писано у последње време, него карактер и хронологија односа између позне винчанске културе и раноенеолитске групе која ће је наследити на овој територији (Бубањ – Хум I као регионална варијанта комплекса Бубањ–Салкуца–Криводол – скраћено БСК), као и процес настанка те групе. Ова студија, стога, анализира одређене карактеристичне керамичке форме које потичу искључиво са апсолутно датираних локалитета, једнослојних или оних са добро дефинисаном вертикалном стратиграфијом, као и хронологију (апсолутне датуме) касновинчанске културе и групе Бубањ – Хум I на централном Балкану.

Због специфичних географских карактеристика централног Балкана, али и ради лакшег праћења излагања, територија централног Балкана интерпретирана је у раду путем две засебне географске регије – прелазне регије (део Посавине и Подриња, басени Јадра, Колубаре, Тамнаве и доњег тока Велике Мораве, планина Цер, као и побрђе на југу и истоку ограничено планинама Гучево, Повлен, Маљен, Суворор и Рудник) и планинске регије (планинска област централног Балкана).

Анализа стилских и типолошких карактеристика керамике указала је на бројне заједничке керамичке форме које се јављају како у винчанској култури (посебно касној винчанској култури), тако и у групи Бубањ – Хум I. Разлике се уочавају у површинској обради, квалитету грнчарије и техници и мотивима украшавања.

Територија групе Бубањ – Хум I, такође, у великој мери подудара се са територијом касновинчанске културе, а занимљиво је да најранији датуми за БСК комплекс, укључујући групу Бубањ – Хум I, потичу са периферних подручја његове територије (Спанчево у долини Брегалнице, Бодњик у такозваној прелазној регији централног Балкана и Осторвул Џорбулуи у Олтенији), што може да указује на то да је овај раноенеолитски комплекс проистекао из винчанске културе и да се развијао приближно истовремено у свим регионима почевши од око 4450–4400. пре н. е. Ови подаци би могли да доведу у питање претходну тезу о распаду винчанске културе и формирању групе Бубањ – Хум I, која је истицала улогу миграција становништва са истока у том процесу, те да укажу на то да је раноенеолитски комплекс настао приближно истовремено на целокупној својој територији, на мање-више јединственим, а највећим делом аутохтоним културним основама.

Резултати анализа стилско-типолошких одлика карактеристичних керамичких форми винчанске културе и културне групе Бубањ – Хум I, уз осврт на њихове економске стратегије, духовну културу, индустрију окресаног камена, топографију и архитектуру насеља као и процес металургије, показују да је прелазни период од краја винчанске културе до појаве класичне Бубањ – Хум I групе био постепен и континуиран процес који се на простору централног Балкана одвијао уз извесне културне контакте са суседним заједницама, посебно на истоку. Овај културни процес између 47. и 45. века пре н. е. резултирао је формирањем групе Бубањ – Хум I, која ће егзистирати током друге половине V миленијума на највећем делу територије централног Балкана.