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THE BEGINNING OF THE LATE BRONZE AGE BETWEEN THE EASTERN ALPS AND THE DANUBE

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CONTENT

MARKO DIZDAR INTRODUCTION	5
DANIEL NEUMANN CHANGING PATTERNS – DEPOSITIONS AND THEIR SITES DURING THE MIDDLE BRONZE AGE AND EARLIER LATE BRONZE AGE IN THE EASTERN ALPINE AREA	7
IDA MURGELJ THE BEGINNING OF THE VIROVITICA CULTURAL GROUP IN DOLENJSKA – THE EXAMPLE OF PODSMREKA 2	17
PRIMOŽ PAVLIN “TERRAMARE” SICKLES	29
MARIJA LUBŠINA TUŠEK • BORIS KAVUR • MARTINA BLEČIĆ KAVUR INTO THE GREAT WIDE OPEN	71
SABINE PABST DER BEGINN DER FIBELTRACHT IM KARPATENBECKEN UND DAS VERHÄLTNIS DER BZ D/HA A1-ZEITLICHEN HORTFUNDHORIZONTE	83
GÁBOR ILON DER ANFANG DER URNENFELDERZEIT (BZ D) IM BAKONYGEBIRGE (UNGARN)	101
GÁBOR VÁCZI – KATALIN JANKOVITS ANGABEN ZU DEN SPÄTBRONZEZEITLICHEN GRÄBERN VON SÁRBOGÁRD-TRINGER-TANYA (KOM. FEJÉR) IN TRANSDANUBIEN	179
PÉTER POLGÁR EINE SPÄTBRONZEZEITLICHE SONDERFORM BEI SOPRON (NW-UNGARN)	201
SNJEŽANA KARAVANIĆ KALNIK-IGRIŠČE SETTLEMENT AND BEGINNING OF THE URNFIELD CULTURE IN NORTHWESTERN CROATIA	209
JASNA ŠIMIĆ THE BEGINNING OF THE LATE BRONZE AGE IN THE OSIJEK-BARANYA REGION	219

BOŠKO MARIJAN † SUBSTRATE ELEMENTS OF CULTURAL GROUP BARICE GREĐANI	225
DARIA LOŽNJAK DIZDAR SOUTH-EASTERN PERIPHERY OF THE URNFIELD CULTURE? THE CROATIAN PERSPECTIVE	235
MARIO GAVRANOVIĆ EINZUGSRAUM DES FLUSSES BOSNA WÄHREND DER ÄLTEREN URNENFELDERZEIT	249
KATARINA DMITROVIĆ NOTES ON THE URNFIELD PERIOD IN THE ČAČAK REGION, SERBIA	261
MARIJA LJUŠTINA THE BEGINNING OF THE LATE BRONZE AGE IN SOUTHERN BANAT AND THE END OF THE VATIN CULTURE: CASE STUDY OF ŽIDOVAR	273
ALEKSANDAR KAPURAN SETTLEMENTS AND NECROPOLISES FROM THE MIDDLE/LATE BRONZE AGE IN THE SERBIAN PART OF THE IRON GATE (DJERDAP) HINTERLAND	285

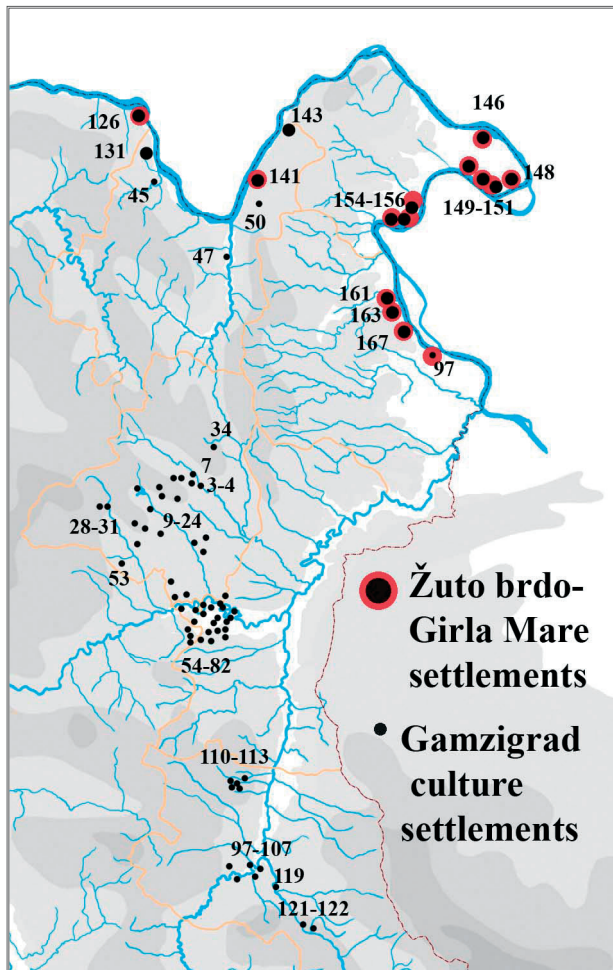
SETTLEMENTS AND NECROPOLISES FROM THE MIDDLE/ LATE BRONZE AGE IN THE SERBIAN PART OF THE IRON GATE (DJERDAP) HINTERLAND

The last decade was marked by extensive archaeological identification work in the north-eastern Serbia. Owing to this, we now have a better understanding of the distribution of prehistoric settlements and are able to reconstruct the social and economic relationships between the Middle/Late Bronze Age communities. So far, the most extensive archaeological excavations were carried out on Urnenfelder type necropolises, while identification work mostly extended to settlements. By analysing their topographic characteristics a certain advance was achieved in our understanding of the economic justification of the existence of settlements that, on the one hand, centred solely on metallurgy and settlements that, on the other, centred solely on agriculture. More recent research of climatic changes indicates that the climatic optimum, which occurred during the Sub-Boreal, contributed to increased food production which resulted in demographic expansion. Increased settlement of fertile river valleys with agricultural land, coupled with innovations in the development of agricultural tools and transportation, provided the logistics for the development of mining and metallurgical activities, given that this part of Europe is well known for surface copper ore deposits.

Key words: north-eastern Serbia, Middle/Late Bronze Age, mining-metallurgy communities, agricultural communities, pastoral communities, settlements, necropolises

Volcanic activity in the distant geological past contributed to the Serbian part of the Djerdap hinterland becoming one of the largest surface copper ore deposits in Europe. During prehistory copper and gold could often be found on the surface, in brooks and rivers, in native form (Jovanović 1971, 17; Симић 1969, 18). The millennium old tradition of metallurgy which started in the Neolithic period and lasted through to the Middle Bronze Age, as observed on Rudna Glava (Serbia) and Ai Bunar (Bulgaria), indicates that the technology of copper ore exploitation and of metallurgy in the metallogenic regions of eastern Serbia, was of similar intensity as in the region of the Alps (Kapuran 2011, 135-136). In the Middle Bronze Age a smaller number of settlements clustered around mines or larger surface copper deposits, while a larger number of settlements were located in river valleys with land that was suitable for agricultural production (Map 1). These two different groups of settlements existed at a distance of around 10 kilometres from each other (Kapuran 2011, 34, Map 4). However, during the Late Bronze Age, the distance between highland and lowland settlements became smaller, reflecting increased interaction between metallurgical communities in the metallogenic areas and farming communities in the fertile river valleys, setting the stage for an economic and demographic expansion. For now, this phenomenon is best illustrated by the number of burials in *Urnenfelder* type necropolises.

Recent re-identification and ubication work in the prehistoric settlements in the Serbian part of the Djerdap hinterland yielded information about numerous settlements that belonged to the Coțofeni-Kostolac cultural complex of the Late Aeneolithic period (Kapuran 2011, Map 10). These settlements extended along the entire territory of north-eastern Serbia, both in highland and lowland areas. Material culture finds indicate that these were exclusively transhumant pastoral communities that seasonally moved with their herds between highland and lowland areas. Such a pastoral economy was conditioned by the relatively dry climate which characterized this region around 3200/3000 BC (Todorova 2007, 5), when the Coțofeni-Kostolac communities appeared. It is possible that this dry period lasted right up to the middle of the second millennium BC and the Middle Bronze Age, when the climatic optimum reached its peak on the territory of the central Balkans and in the Carpathians (ibid.).

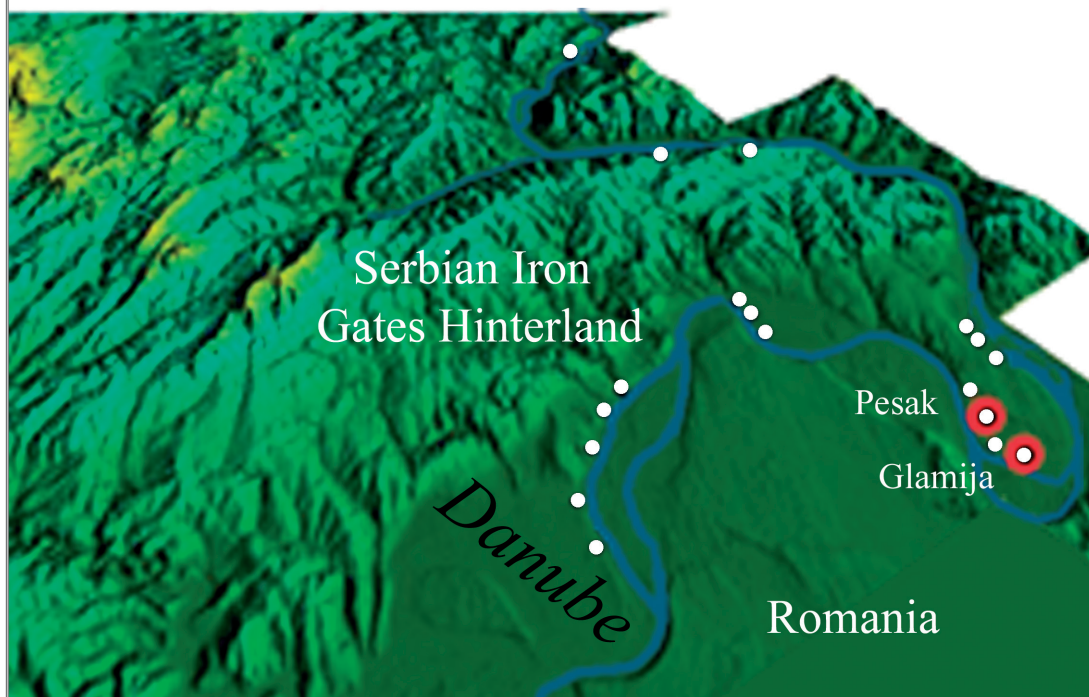


Map 1 Distribution of the Bronze Age settlements and necropolises in north-eastern Serbia

Improvements in climatic conditions which occurred somewhere around the middle of the second millennium BC (ibid.) resulted in more frequent rainfall, which in turn spurred agricultural production (Bankoff – Greenfield 1984, 14; Harding 1979). Besides climatic improvements, agricultural production was also conditioned by technological innovations in agriculture, which were initiated by technological innovations in bronze production, with the use of cattle drawn carts, bronze ploughshares and sickles (ibid.). Cattle drawn carts contributed to faster communication and transportation of goods along greater distances, thus stimulating livelier exchange of goods and ideas at greater distances than was previously possible in earlier periods of prehistory.

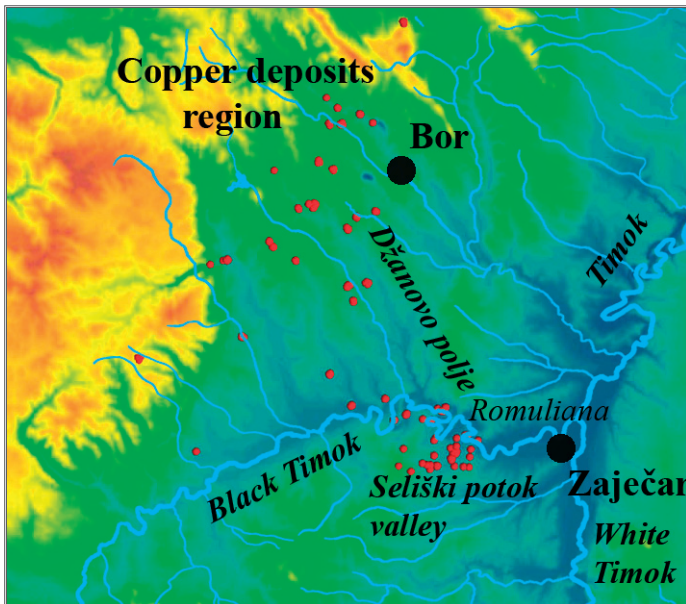
Characteristic ceramics were found in settlements in the Djerdan hinterland which stylistically and typologically reflect concurrent influences of the cultures of the Middle Bronze Age in Pannonia (Vatin culture), the middle and southern Morava river valley (Paraćin culture), south-western Romania and north-western Bulgaria (Verbicoara culture). Professor Dragoslav Srejić designated this phenomenon as the *Gamzigrad culture*, based on finds discovered in the necropolises at Magura hill, near the

Distribution of Žuto Brdo-Girila Mare settlements and Necropolises of the Serbian side of Danube



Map 2 Žuto Brdo-Girila Mare settlements and necropolises

village of Gamzigrad (Срејовић-Лазић 1997; Лазић 1998; Капуран 2009) (Fig. 1). At the same time, dense concentrations of settlements and necropolises of the *Žuto Brdo-Girila Mare* cultural complex were located on the banks of the Danube between today's Rumania and Serbia (Васић 1912; Цермановић 1961; Летица 1975; Jevtić – Vukmanović 1996, Map 2) (Map 2). It is an interesting phenomenon that these settlements are nowhere else to be found beyond the narrow band of river terraces along this river. These settlements are located at positions where it is fairly easy to cross to the other side, near river islands and sandbanks, where water levels are low during droughts, and where ice crossings readily form during the winter (Тасић 1983, 53, 59). Their necropolises also belong to the *Urnenfelder* type, although they differ in many respects from contemporaneous ones in the Serbian part of the Djerdap hinterland.



Map 3 Distribution of the Bronze Age settlements and necropolises in Black Timok basin

Landscape analysis, soil morphology, topography and settlement distribution, including material culture finds of the known part of the Bronze Age on the territory of the Crni Timok river allow for the recognition of two types of settlements, while on the banks of the Danube a third settlement type can be identified. The topographic characteristics of a number of settlements, which are positioned at higher elevations and on remote ground, in the close proximity of surface copper ore deposits, can be classified into mining-metallurgical types of settlements (Map 3). This primarily relates to the region which to this date is known as one of the largest copper ore deposits, being the territory in the vicinity of the city of Bor (Janković at al. 1980, Fig. 11). Their natural and environmental positions, higher

elevations and low soil quality in their immediate vicinity exclude the possibility of food production, except for small-scale pastoral activity (Капуран 2011a, 11). Besides this, archaeological excavations in these settlements yielded larger quantities of slag, which is most often discovered on the floors of houses, as well as in burial structures and on the bones of burnt skeletons (Jovanović – Janković 1987-1990, 1; Капуран-Миладиновић 2011, 149). Pyraunos type ceramics are frequent on the floors of houses, for which it is believed that they could have been used in fractional heating of ore, which precedes smelting (Janković – Bugarski – Janjić 1987-1990, 13, 18, Fig. 3-4). Tranjane, Zlotska pećina, Hajdučka česma, Tanda, Čoka Njica and Čoka Kormaroš settlements represent the best examples of metallurgical communities, given that all of the above listed elements have been observed in them during archaeological excavations.



Fig. 1 Trnjane necropolis

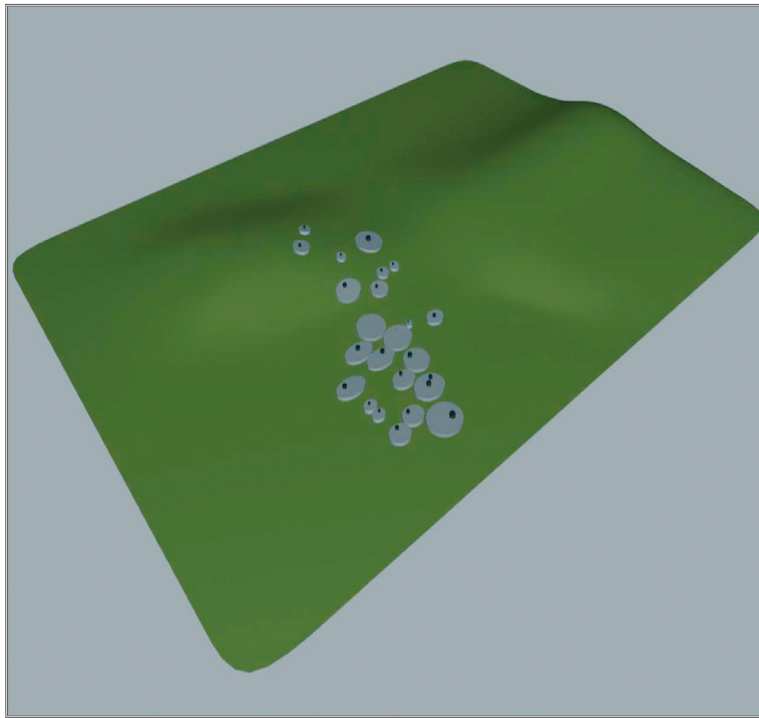


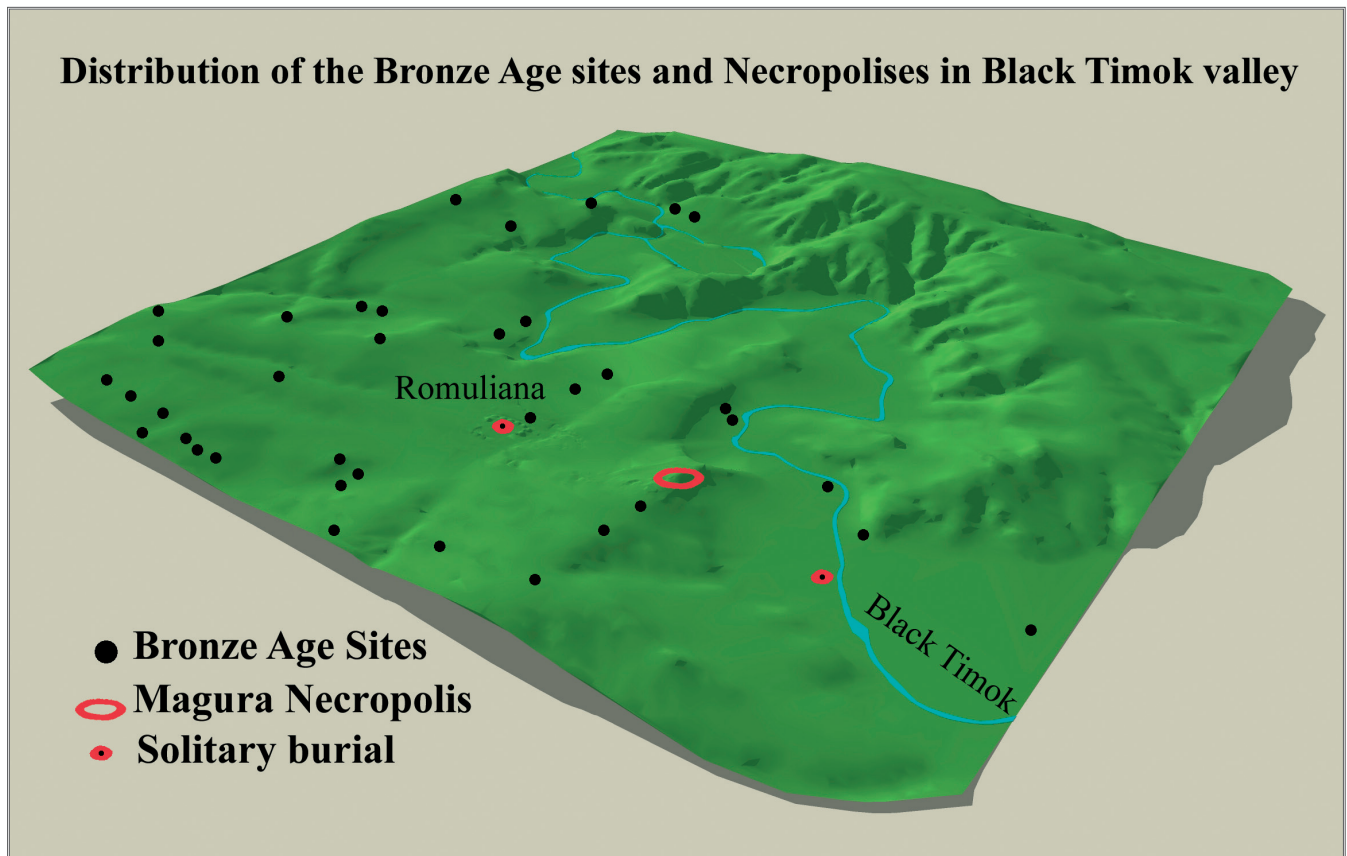
Fig. 2 Borsko Jezero necropolis

In several cases necropolises were founded so close to the remains of houses in settlements or even inside the settlements themselves, as was the case at Trnjane (Jovanović – Janković 1987-1990; Jovanović 1999) (Fig. 1), in the settlement discovered in the Roman Imperial palace Romuliana (Срејовић-Лазих 1997, 229; Kapuran 2011a, Fig. 5), in the Borsko jezero (Fig. 2) and in Hajdučka česma (Срејовић-Лазих 1997, 227). All the necropolises dating back to this period belong to the *Urnenfelder* complex, but in contrast with the ones discovered on Djerdap, in Pannonia and the Carpathian basin, they are represented by flat graves built from circular stone structures in which urns were placed (ibid; Jovanović 1999; Лазих 2010; Kapuran 2011a; Капуран-Миладиновић 2011) (Fig. 3). Although there are certain differences in the dimensions of burial stone structures, the urn finds reflect an absence of decoration and accessories, making observation of differences in social status of the deceased impossible (Лазих 2004, 117). This is also the case at the necropolis in Trnjane, where uniformity in burying the dead is clear (ibid.).



Fig. 3 Trnjane necropolis grave 21

Large quantities of metal slag were discovered at the necropolises at Trnjani and Borsko jezero, both in the urns and inside of burial structures, differentiating them from necropolises in agricultural regions. In graves 2 and 13 in Borsko jezero, bone fragments that burnt at extremely high temperatures have stains caused by contact with copper slag (Капуран-Миладиновић 2011, 149). Metal slag fragments were also found inside the urns, which leads us to believe that the dead were probably incinerated in some of “out of order” metallurgical kilns. It is highly probable that in such kilns the skeletal remains of the dead could have come in contact with metal slag, remaining after the smelting process. Only inside such kilns it was possible to develop very high temperatures in excess of 1000° C, where fragmentation of skeletal remains confirms that they had been exposed to extreme temperatures.



Map 4 Distribution of the Bronze Age settlements and necropolises in the South Bank of Black Timok

Lowland settlements are located on river terraces or on the gentle slopes of hills, inside larger river valleys, where the local population even today exclusively engages in agricultural-pastoral economic activity (Map 4). This land is exceptionally fertile, given that flooding rivers deposit large quantities of organic materials in riverbank areas during floods. Bronze Age settlements represent larger communities made up of numerous households or of a single self-sufficient household with several economic structures. They are distributed at distances of several hundred meters, up to one kilometre, resting in the surrounding landscape. Members of these agricultural communities were buried in *Urnenfelder* type necropolis with round burial structures, although ceramic urns in graves are more richly ornamented than the urns found in the necropolises of metallurgical communities. There are sporadic finds of bronze objects, jewellery or weapons in graves and urns, but without any traces of slag, as is the case at the necropolis at Magura (Лазич 2010, 25) (Fig. 4). The burial structures themselves vary in dimensions from 2 to 5 m in diameter; in some up to three urns have been deposited, while in some cases urns have been discovered that had been buried in the ground, without any surrounding stone structure (Лазич 1998, 111). Metal accessories in graves are meagre and sporadic, represented only by a small spear and a needle head, although some urns had been covered by stone slabs with engraved ornaments (*ibid.*). This could point to a certain social differentiation within the community itself, but at present it is still not sufficiently pronounced, as is the case in the necropolises found on the banks of the Danube.

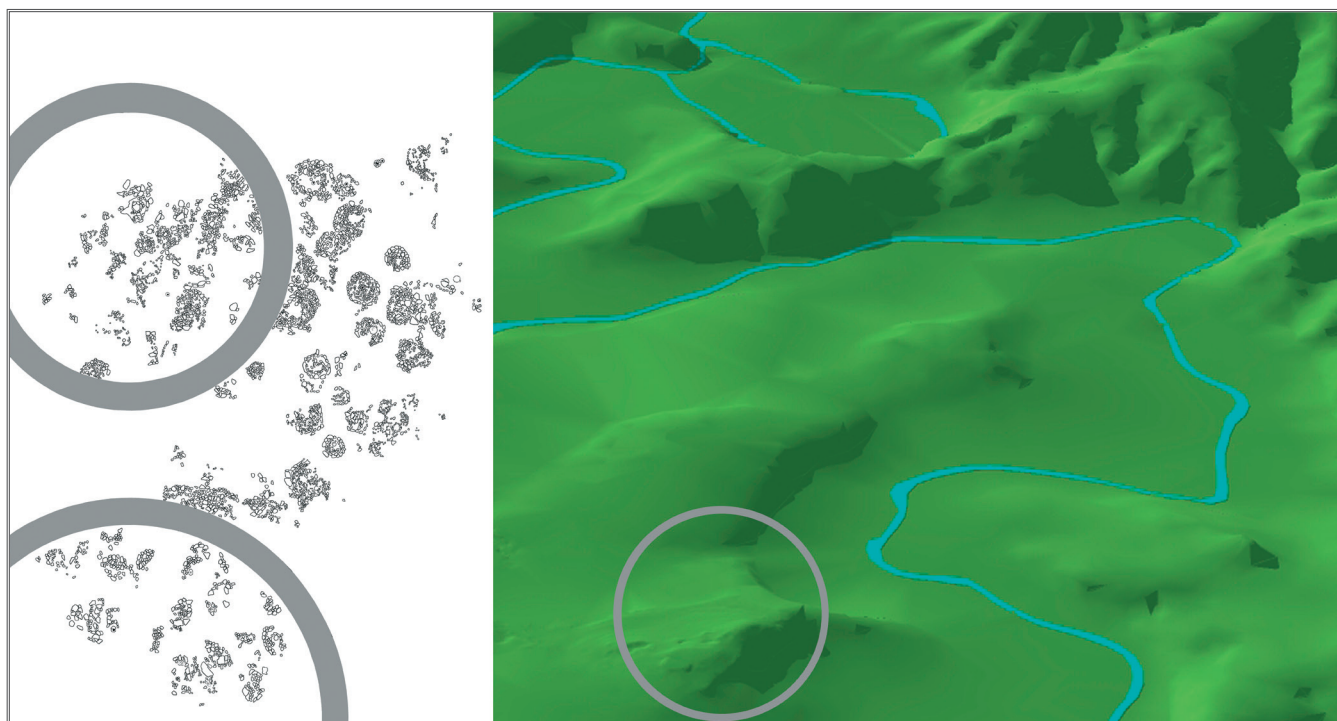


Fig. 4 Magura necropolis

The communities that peopled the banks of the Danube during the Middle/Late Bronze Age between Serbia and Romania were most probably pastoral and nomadic in character. They held control over the banks of this great river which during prehistory represented one of the key thoroughfares of the Balkan Peninsula. Rare residential mud huts have been discovered only sporadically in settlements. Locations of settlements are concentrated in places providing an easy crossing to the other side of the river. The stylistic and topological characteristics of the ceramic forms and their rich ornamentation places them in the Žuto Brdo-Girła Mare cultural group and the southern region of the Transdanubian encrusted ceramics, which lasted until the Late Bronze Age (Тасић 1983, 84-85).

Along this narrow band of the Danube riverbank, besides numerous settlements, there were also large necropolises of the representatives of the Glamija and Pesak in Korbovo (Цермановић 1961; Летица 1973; Крстић 1983; 2003). Burial rituals indicate that they also belong to the *Urnfelder* cultural complex, but in this case the urns were directly deposited into the ground, without any stone structures, by contrast with the graves discovered in the Djerdap hinterland. A large number of urns with burnt remains, sometimes up to as many as three individuals in a single urn, were discovered in the necropolises of the Žuto Brdo-Girła Mare cultural complex (Крстић 1983, 20) (Fig. 5). Small goblets, anthropomorphic and



Fig. 5 Glamija necropolis

zoomorphic figurines or richly decorated bird-shaped ritual vases were placed in graves in lieu of metal accessories. However, by contrast with the necropolises in the highland metallogenic areas, the necropolises of the Žuto Brdo culture reflect a certain degree of social differentiation as evidenced by the number and wealth of grave accessories, which is best seen in the example of grave number 24 at the Glamija necropolis (ibid. 24, Fig. 1a-b) (Fig. 6). It contains a far higher number of accessories than is the case with other graves at this necropolis. D. Krstić indicates that perhaps the deceased had been buried with members of his family, but does not exclude the possibility that they might have been servants or slaves (ibid.).

A wide market for copper products was created on the territory of Europe during the Aeneolithic period (Јовановић 2004, 51). On the territory of Serbia, this process is best illustrated by the metallogenic region between Majdanpek and

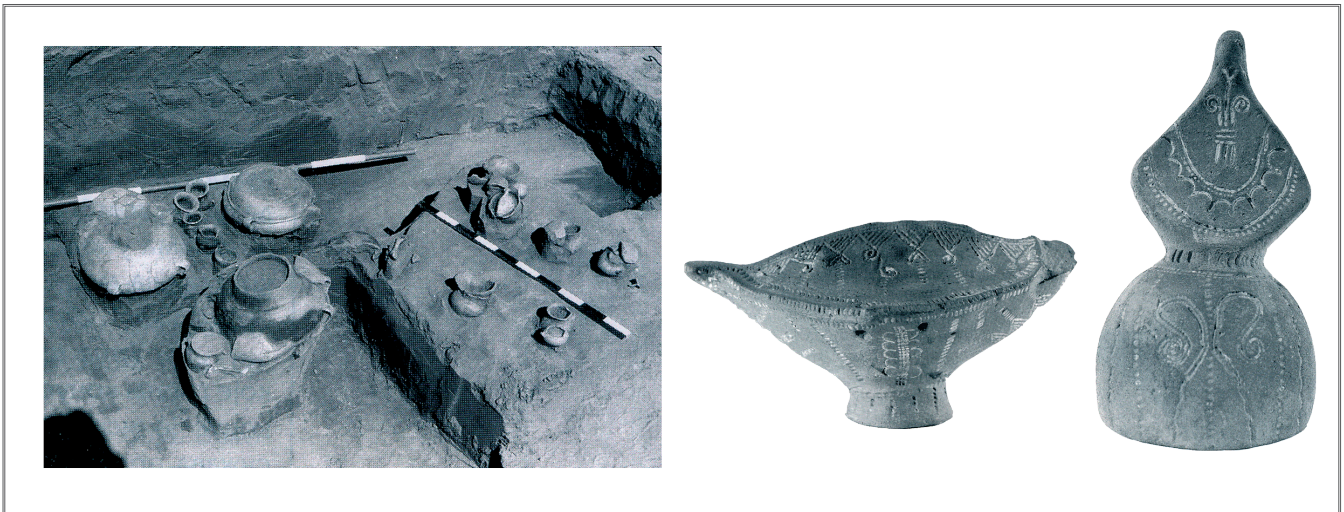
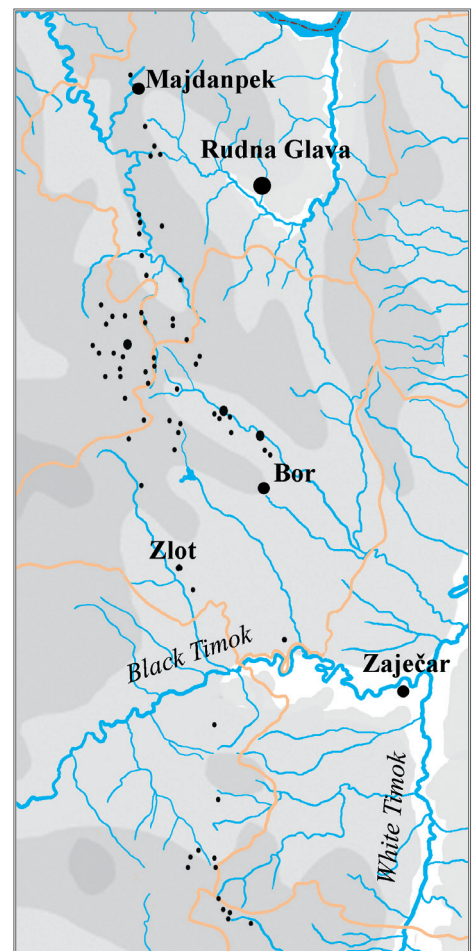


Fig. 6 Glamija necropolis grave 24

Map 5 Copper deposits in the north-eastern Serbia

Bor (Map 5). Possession of bronze weapons and jewellery indicated social stratification in which probably highest social standing went to the owners of the copper mines themselves. The creation of a class of craftsman was spurred on by the metallurgical process itself, which involved miners, producers of supporting structures and ore separators (Wells 1984, 59). The logistics required for feeding such a large group of metallurgists necessitated the engagement of a large number of farmers in the fertile lowland regions. This meant that there was a permanent need for the production and supply of food, which the metallurgists lacked the time to produce, given that they were engaged in mining, ore separation, smelting and forging of copper and bronze products.

For this reason interaction between metallurgists and food producers, conditioned by increased demand for bronze products, brought into the market numerous settlements from the fertile valleys positioned along the right and left banks of the Black Timok (Kapuran 2011, Fig. 2). In this area of the Black Timok the exceptionally fertile lowland areas are the Džanovo polje near Bor, and the Seliški potok valley near Gamzigrad. Analysis of settlement distributions in these two neighbouring regions indicates that during the Middle/Late Bronze Age self-sufficient households with several economic structures had been established at distances of several hundred meters from each other (Map 4). An identical model of settlement proliferation and “demographic explosion” can be seen in particular metallogenic regions of central Europe (Bertelheim 2009, Fig. 1; Krause 2009, Fig. 1; Kienlin – Stöllner 2009, Fig. 15). Intense copper exploitation during the Bronze Age in the Alps foothills, as well as the incre-



ase in the number of agricultural settlements in river valleys has been observed in the vicinity of Salzburg, in the upper Rhine region, in Tirol and the Upper Danube valley (ibid.). The example of Bartholomäberg and its vicinity demonstrates that supplying food to three or four settlements (around 200 residents) requires the cultivation of 60-70 ha of arable land (Krause 2009, 63). The territory of Džanovo polje and Seliški potok near Romuliana had sufficient capacity to produce the food required for supplying the metallurgical settlements around the copper mines in the vicinity of Bor (Map 1). Burials in necropolises of metallurgical communities at Trnjane and Borsko jezero point to a certain equality between members of those communities. Burial structures might differ in dimensions of diameters, but the fact that accessories are rare in urns, allows us to conclude that the deceased probably had the same social standing. At the necropolis of agricultural settlements at Magura, only several graves stand out from the others in that they had lids with engraved ornaments, where only two urns had been decorated (Срејовић-Лазич 1997, Fig. 32-33). Social differentiation is more pronounced in the nomadic pastoral communities of Žuto Brdo-Girila Mare, which were concentrated around the banks of the Danube that provided an easy crossing (Fig. 7). No metal finds had been discovered in their necropolis, but judging by the number of vessels and intricate ornamentation, we can postulate that it had been quite pronounced. The absence of solid residential structures in settlements does not bring into question their transhumant character and the fact that their residents, together with their herds, depended on cyclic seasonal migrations, which allowed them to engage in trade over a large area from the Wallachian Plain to the Carpathian basin.



Fig. 7 Korbovo Pesak necropolis

The “golden period” of proliferation of settlements and necropolises in the Djerdap hinterland ended somewhere around the 12th and 11th cent. BC when climatic changes once again caused a general negative shift in climatic conditions. There are suggestions that these changes had been caused by volcanic eruptions in the Mediterranean and in Iceland (Vasić 1998). This could be confirmed by the necropolis at Magura where the most recent find of the bronze pin head dates back to the very end of the Bronze Age. After this period ended, new necropolises only cropped up during the Ha B period. The intervening absence of settlements indicates that this region was once again depopulated over a period of several centuries. It is possible that, just as during the Aeneolithic period, agricultural populations were subjected to an *equilibrium*, becoming pastoral transhumant communities.

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