Creating the database of Urnfield burials from northern Croatia

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Abstract: Knowledge about prehistoric societies comes mostly from archaeological correlates of prehistoric mortuary practices. Formal cemeteries, consisting of individual graves, appear in Europe by the beginning of the Bronze Age. Among the most prominent of them are the Urnfield cemeteries of the Central European Late Bronze Age. The systematic analysis of Urnfield burials from Croatia has rarely been conducted, especially regarding the anthropological analysis. Most of those analyses are limited to sex and age determination, lacking a synthetic treatment of anthropological and archaeological information.

In order to expand our current knowledge of Late Bronze Age mortuary practices and society, we introduced an interdisciplinary project combining physical anthropology and archaeology. It will integrate analyses of burial features and associated artefacts with analyses of cremated human remains from several Urnfield cemeteries in northern Croatia, dated between the 13th and 9th centuries BC. A trial public-access database will be designed in order to archive the anthropological and archaeological data, as well as to distribute and promote our findings. The database will be designed to archive data, in various digital formats, including field records, raw archaeological and anthropological data generated in the laboratory, and results of post-excavation analyses. Its immediate purpose is to make the data readily available for analysis and to provide a standardized framework within which analyses will be undertaken. The aim is to provide a public resource that can be modified and expanded to include information from other Urnfield cemeteries, thus allowing comparative studies and analyses of larger samples from the wider geographic region of the southern Carpathian Basin.

Key words: database, Urnfield burials, northern Croatia

Our knowledge about prehistoric societies comes mostly from archaeological evidence of prehistoric mortuary practices (BINFORD 1971; TAINTER 1978; PARKER PEARSON 1999; CHESSON 2001; LANERI 2007). Formal cemeteries that consist of individual graves appear in Europe with the beginning of the Bronze Age (HARDING 2000). Among the most prominent of them are the Urnfield cemeteries of the Central European Late Bronze Age (KRISTIANSEN 1998).

Even though several large cemeteries in southern Carpathian Basin were investigated (PAHIČ 1972; STARÈ 1975; PUŠ 1982; VRANIĆ 2002; TRAJKOVIĆ 2008), they have not been subjected to comprehensive analyses of all material and skeletal finds. A synthetic treatment of anthropological and archaeological information is completely lacking. Anthropological data is mostly available as part of grave inventory presenting only sex and age of the deceased. A similar situation is present in Croatia, where the systematic analysis of Urnfield burials has rarely been conducted. Most of those analyses lack a multidisciplinary approach that combines not only archaeological and anthropological data but also those of other types of material such as animal and plant remains.

In order to expand our current knowledge of Late Bronze Age mortuary practices and society in the southern Carpathian Basin, an interdisciplinary project combining physical anthropology and archaeology was proposed. The project "Late Bronze Age mortuary practices and society in the southern Carpathian Basin" started in July 2014 as an Installation Research Project funded by the Croatian Science Foundation. The project is designed as a comprehensive synthesis of information obtained through archaeological, anthropological, and zooarchaeological analyses, as well as radiocarbon dating. Therefore, a team of experts from several disciplines has been gathered. Our project integrates analyses of burial features and associated artefacts with those of cremated human remains from several Urnfield cemeteries in northern Croatia.

Currently, the sample consists of 120 burials from six cemeteries in northern Croatia, dated between the 13th and 9th centuries BC. This time span of about five centuries will allow us to monitor variability of mortuary practices across the region, during the entire Late Bronze Age. Our sample was collected through standard archaeological methods in the period between 2008 and 2013, but in order to augment it we plan some additional archaeological excavations. Therefore, in our investigations we will use a uniform methodological approach that will allow us to compare the „old" and „new" data, to introduce hypotheses about funerary rituals within a wider spatial and chronological frame. The implementation of our project implies the connection and intertwining of the traditional approach of the Central European archaeological school and the theoretical approaches of the Anglo-Saxon School (GRAMSCH 2010), as well as their application to the area of northern Croatia, as part of the Carpathian Basin, that is, Central Europe, where our area belongs in terms of the cultural affiliation in the Late Bronze Age.

Research on the project is organised in four major steps. The first one is systematic data collection through laboratory work independently on the remains of material culture and human cremated remains. The second step in the project is the creation of a database in order to archive all our gathered data. The third step consists of independent analyses of the two main categories of data, human remains and artefacts. The last step is integration of the results of independent anthropological and archaeological analyses in order to address issues of mortuary practices.

One of the crucial steps of the project is the creation of the database. It is designed to archive data from all aspects of our project, from initial excavation records through post-excavation analyses and research to eventual dissemination and archiving. Its immediate purpose is to make the data readily available for analysis and to provide a standardized framework within which analyses will be undertaken. The creation of the database was done by a computing specialist, who has designed the structure in close consultation with members of the research team. The database was created using the ASP.NET web application framework and C# programming language. In order to fulfil all the proposed tasks, the database contains comprehensive information about all available different types of archaeological and anthropological resources. It was created on the model of the e-publication of the cemetery Franzhausen-Kokoron (http://epub.oeaw.ac.at/franzhausen-kokoron2). This e-publication was used as a starting point that was enhanced with some of the data from the research specific to our proposed project, such as archaeological excavation, anthropological and archaeological analysis, as well as archaeozoological and archaeobotanical analysis and radiocarbon dating. The database structure consists of several data resources and the links or connections between them. Resources are further subdivided when necessary.

Ten general sections are: cemetery, grave, grave good, human remains, sex of the individual, age of the individual, animal remains, plant remains, dating, references. All the data entries will be carried out by the team member that performed that specific research. The category cemetery provides a unique identification number for every cemetery, site name, geographic location of the site and number of excavated graves. Data for each cemetery are entered by grave respectively. In the grave category, beside the cemetery identification number, each grave is attributed its own identification number. Also the number of grave goods and individuals is reported, as well as radiocarbon dating if available and photographies of the grave. The "Grave good category" describes every type of finding found in each grave by its basic characteristics. Once each artefact gets its own identification number and the type of the object is defined, it is described by several categories: the material from which it is made, its form, type of processing and decoration, colour and measurements. Also, if available, some photographs or drawings of the described artefact will be inserted. The Category "Individual" provides anthropological data for each individual discovered in the grave. Information on sex and age of the deceased as well as weight and colour of the collected bones and identification of pathological changes are presented. Sex and age sections are further subdivided in order to precisely emphasise on which criteria estimation was based. Also, when possible, some photographs of interesting bone fragments will be presented. Although analyses of animal and plant remains are not currently part of the proposed project, we have provided sections for their future input. The category for animal remains contains the identification number for the grave and the animal bone, which is further described according to the body part and the anatomical element to which they belong. Also, if possible, animal species is quoted as well as age and sex of the animal, with short description of the remains, their weight and photography. A plant section provides the grave and plant remains identification number, a short description of the find and, if available, photography. The dating section brings information on material on which dating was performed, relative and absolute chronology for the analysed site and the laboratory in which radiocarbon dating was done.

In order to demonstrate how our proposed database is used, we have inserted data gathered from one of our cemeteries, Slatina. The site is positioned on gentle elevations on the eastern side of the Potočani stream, which is located on the eastern edge of the town of Slatina in eastern Croatia. The rescue excavation in late autumn 2009 yielded a settlement and a cemetery of the Urnfield culture. Below the geological stratum of brown clay with numerous features from Antiquity and the Late Iron Age, another stratum was discovered with abundant remains of a Late Urnfield settlement. A contemporary cemetery was excavated south from the settlement (FILIPOVIĆ 2010, 132-133). Altogether, 38 Urnfield graves were explored, which changed the perception of the period that follows after the end of the Virovitica group in the Drava valley region. The burial rite practised in Slatina shows some modifications in relation with the preceding Virovitica group (VINSKI-GASPARINI 1973). The cremated remains of the deceased were placed in ceramic receptacles functioning as urns – pots, amphorae or jugs which were usually covered with a bowl. Urns were of a smaller size, grave-pits were also smaller, and they did not contain any shards of other broken vessels, nor were grave-pits filled up with the remains of the funeral pyres, except in the case of grave 15. In the majority of graves the cremated human remains were placed in pots, followed by amphorae. In exceptional cases jugs were also used. For the time being, we can only speculate about the reasons for the selection of particular receptacles for the burial of the cremated remains of the deceased. It is clear how the burial rite, besides

ceramics, was also changed during the Ha A1. These graves were dated to the end of Ha A1 and in Ha A2 and, according to new absolute dates from the neighbouring area, in the 12th and 11th centuries BC (ČREŠNAR, TERŽAN 2014, 693). Radiocarbon dates obtained from the bone samples from two Slatina graves confirm this datation. The two burial were dated to cal BC 1120 to 970 (grave 20) and cal BC 1155 to 1145 (grave 30).

All excavated material from Slatina was submitted for the analysis of artifactual remains and cremated human bones. Laboratory work on both types of remains was aimed at systematic data collection. After conservation and documentation of the finds, formal traits of artifacts and their features were described. Each artifact was analysed in detail in order to document a series of parameters related to the artifact's shape,size, decoration and raw material. This detailed documentation allowed classification and attribution of the artifact to a specific period.

Human cremated remains were analysed using standardized techniques in order to gather information about macroscopic appearance: fragmentation and completeness of bone, color, number of individuals, age and sex determination as well as pathological conditions (MCKINLEY, ROBERTS 1993; BRICKLEY, MCKINLEY 2004). Bone fragmentation and completeness was assessed by weighing the complete cremated remains and each of the several skeletal regions into which the bones were divided (cranium, axial, upper limb, lower limb, unidentified fragments). Bone colour was recorded by standard colour chart in order to gain information on pyre temperature and position of the body. The number of individuals within a cremation was determined by the duplication of identifiable bone fragments or by obvious age-related differences in bone size and development. Ageing of the individuals was based on epiphyseal fusion, dental development, cranial suture closure, pubic symphysis and auricular surface morphology and signs of joint degeneration. The determination of sex was based on sexually dimorphic characteristics of cranium and pelvis, and size and robusticity of bone fragments. Position and form of pathological lesions was described and a possible diagnosis was proposed.

After all the available data for Slatina cemetery were entered in the database, a preliminary data mining was performed. The database will provide us some preliminary answers on research questions about mortuary practices through modes of body treatment and disposal, such as: How many graves contain human skeletal remains? How many persons were buried in one grave or in one urn? Which type of vessel was used as urn and which as lid? Which parts of attire were put with deceased on the pyre?

The analysis of 38 burials revealed some interesting results. Human skeletal remains were found in only 27 graves. The other 11 burials should be interpreted after anthropological analyses as mostly damaged graves with little amount of burned bones (grave 16), or ritual pits with remains of sacrificed animal bones and pottery shards. All burials, except one, are single. In grave 15, remains of two individuals, a child and a young female, were present. Detailed analysis revealed that the remains belonged to 28 individuals, 12 children and 16 adults. Among adults there were five females, eight males, and three persons whose sex could not be estimated. The majority of the children, eight of them, were younger than 5 years. According to the age at death, adults were assigned to one of the three categories 20-35 years, 35+ years and adults. In all three age groups adults were equally present, five individuals in 20-35 group, six in the older group, and for five of them a precise age could not be estimated. The weight of complete cremated remains ranged from 3.3g (juvenile burial) to 2241.3g (adult burial). However, the majority of the burial weighed from 100 to 1000g.

Grave 15, even being the double burial, also fits into this range. The colour of cremated bones is mostly light grey.

In graves with human remains, each deceased was buried in an urn. Analyses of grave goods have demonstrated that the Slatina community used three types of urn: amphorae, jugs and pots. In 15 graves bowls were used as lids on urns, while in 6 graves cups were used as lids. The relative scarcity of metal objects in graves is also evident. They were found in only 6 graves and were mostly pieces of jewellery (rings, pins, bracelet and torc). The only knife was found in grave 16, where a child was buried. These results put into question the common opinion that sex and age of the deceased could be estimated based on the type of the grave goods.

By combining archaeological and anthropological data from Slatina we have received some preliminary results. Anthropological data confirm normal demographic distribution of the community that was buried in this cemetery. Even though three types of urns were present, two of them, amphora and jug, were only found in the graves of children and males. It is possible that the selection of the recipient depended on the quantity of the human remains after cremation. Several pieces of jewellery belong mostly to females and children. Only one grave stands out by the quantity and quality of grave goods. That is grave 6 in which a young female was buried in an urn with a lid. Among the burned bones three bronze rings, one pin and one little bowl were placed. For the moment, the most conspicuous characteristic of the Slatina cemetery is the uniformity of the burial practice and even distribution of burial goods.

The next step in our research will be comparing the data from Slatina with another Urnfield cemetery from our project sample. Then we will have the opportunity to compare cemeteries through space in northern Croatia and through time during the time-span of the Urnfield culture. We assume that our research and using the database will confirm our hypothesis about different mortuary practices during the Urnfield culture with small but significant differences in body treatment and disposal between communities. It will be an attempt to the "bottom- up" approach according to A. Harding (2013,394) which enables "contextualizing the object in their home setting, prior to placing them within a wider framework". Such an approach will clarify the meaning of mortuary practices in small Urnfield communities and help researchers to connect them with neighbouring communities in their interactions which we could read not only through artefacts but through ritual practices also.

Although our database is only in the initial phase it has already shown its potential and we believe that it would be a useful tool in multidisciplinary analysis. The database will have an option to search and filter according to all categories of data. That will be the opportunity for fast searching of particular data and a possibility for testing our hypotheses with exact data within different analyses (archaeological, anthropological, archaeozoological and archaeobotanical). The first aim of constructing the database is to use it as a tool for testing our research questions within our sample, all the more so because this type of analysis had been neglected in Croatia. Our ultimate aim is that the database could be accessed through Internet in order to expand it with information from other Urnfield cemeteries. That would allow us comparative studies and analyses of larger samples from the wider geographic region on the same research questions.

This meeting (CHNT 19) was an opportunity to present our database in its initial phase, as well as to test it with an aim to improve it as a final product which is an important step in our research that will influence our following project research.

Acknowledgements

References

ČREŠNAR, M., TERŽAN B. (2014) *Absolutno datiranje bronaste dobe na Slovenskem*, in: Teržan B., Črešnar M. Absolutno datiranje bronaste in železne dobe na Slovenskem/Absolute Dating of the Bronze and Iron Ages in Slovenia, Katalogi in monografije 40. Ljubljana: Narodni muzej Slovenije.

BINFORD, L. R. (1971) *Mortuary Practices: Their Study and their Potential*. in: Brown J,A. (ed) *Approaches to Social Dimensions of Mortuary Practices,* Memoirs of the Society for American Archaeology 25. Washington: Society for American Archaeology.

BRICKLEY, M. MCKINLEY, J. I. (2004). *Guidelines to the Standards for Recording Human Remains*, IFA Paper No. 7. Southampton: British Association for Biological Anthropology and Osteoarchaeology. Reading: Institute of Field Archaeologists.

CHESSON, M. S. (2001) *Social Memory, Identity, and Death: Anthropological Perspectives on Mortuary Rituals*, Archaeological Papers of the American Anthropological Association No. 10. Hoboken: Wiley-Blackwell.

FILIPOVIĆ, S. (2010) *Slatina – Veliko polje – Trnova*č*a*, Hrvatski arheološki godišnjak 6: 132-135.

GRAMSCH, A. (2010) *Ritual und Kommunikation, Altersklassen und Geschlecherdifferencz im spätbronze- und früheisenzeitlichen Gräberfeld Cottbus Alvensleben-Kaserne (Branderburg)*, UPA Band 181. Bonn: Verlag Dr. Rudolf Habelt GmbH.

HARDING, A. F. (2000) *European Societies in the Bronze Age*. Cambridge: Cambridge University Press.

HARDING, A. F. (2013) *World Systems, Cores, and Peripheries in Prehistoric Europe,* European Journal of Archaeology 16(3): 378-400.

http://epub.oeaw.ac.at/franzhausen-kokoron2/

KRISTIANSEN, K. (1998) *Europe before History*. Cambridge: Cambridge University Press.

LANERI, N. (2007) *Performing Death: Social Analysis of Funerary Traditions in the Ancient Near East and the Mediterranean*. Chicago: The Oriental Institute.

MCKINLEY, J. I., ROBERTS, C. (1993) *Excavation and Post-excavation Treatment of Cremated and Inhumed Human Remains*, IFA Technical Paper No. 13. Reading: Institute of Field Archaeologists.

PAHIČ, S. (1972) *Pobrežje*, Katalogi in monografije 6. Ljubljana: Narodni muzej.

PARKER PEARSON, M. (1999) *The Archaeology of Death and Burial*. Phoenix Mill: Sutton Publishing Limited.

PUŠ. I. (1982) *Prazgodovinsko žarno grobiš*č*e v Ljubljani*, Razprave XIII/2. Ljubljana: Slovenska akademija znanosti in umetnosti.

STARÈ, F. (1975) *Dobova*. Brežice: Posavski muzej.

TAINTER, J. (1978) *Mortuary Practices and the Study of Prehistoric Social Systems*. Advances in Archaeological Method and Theory 1:105–141.

TRAJKOVIĆ, D. (2008) Đepfeld – nekropola starijeg gvozdenog doba kod Doroslova. Sombor: Gradski muzej.

VINSKI-GASPARINI, K. (1973) Kultura polja sa žarama u sjevernoj Hrvatskoj. Zadar: Filozofski fakultet. VRANIĆ, S. (2002) Belegiš: Stojiča gumno - nekropola spaljenih pokojnika. Beograd: Muzej grada Beograda.

Filter: 'age=child'

Individual(s): 1

ID:	28 PN 134
Pathology:	periostitis
Color:	white
Description:	
Weight:	3,3 g
Sex:	child	Based on:
Age:	child	Based on:

Grave goods: 2

Material:	pottery
Finish:	rough
Decoration:	plastic ribbon
Item Type:	pot urn
Color:	ocher brown
Shape:	rounded body and everted rim
Width:	0 cm
Height:	13,3 cm
Diameter:	17,5 cm

Material:	bronze
Finish:	
Decoration:	
Item Type:	bracelet
Color:	
Shape:	
Width:	0 cm
Height:	0 cm
Diameter:	0 cm

Fig. 1 – Example of database entry for grave 28