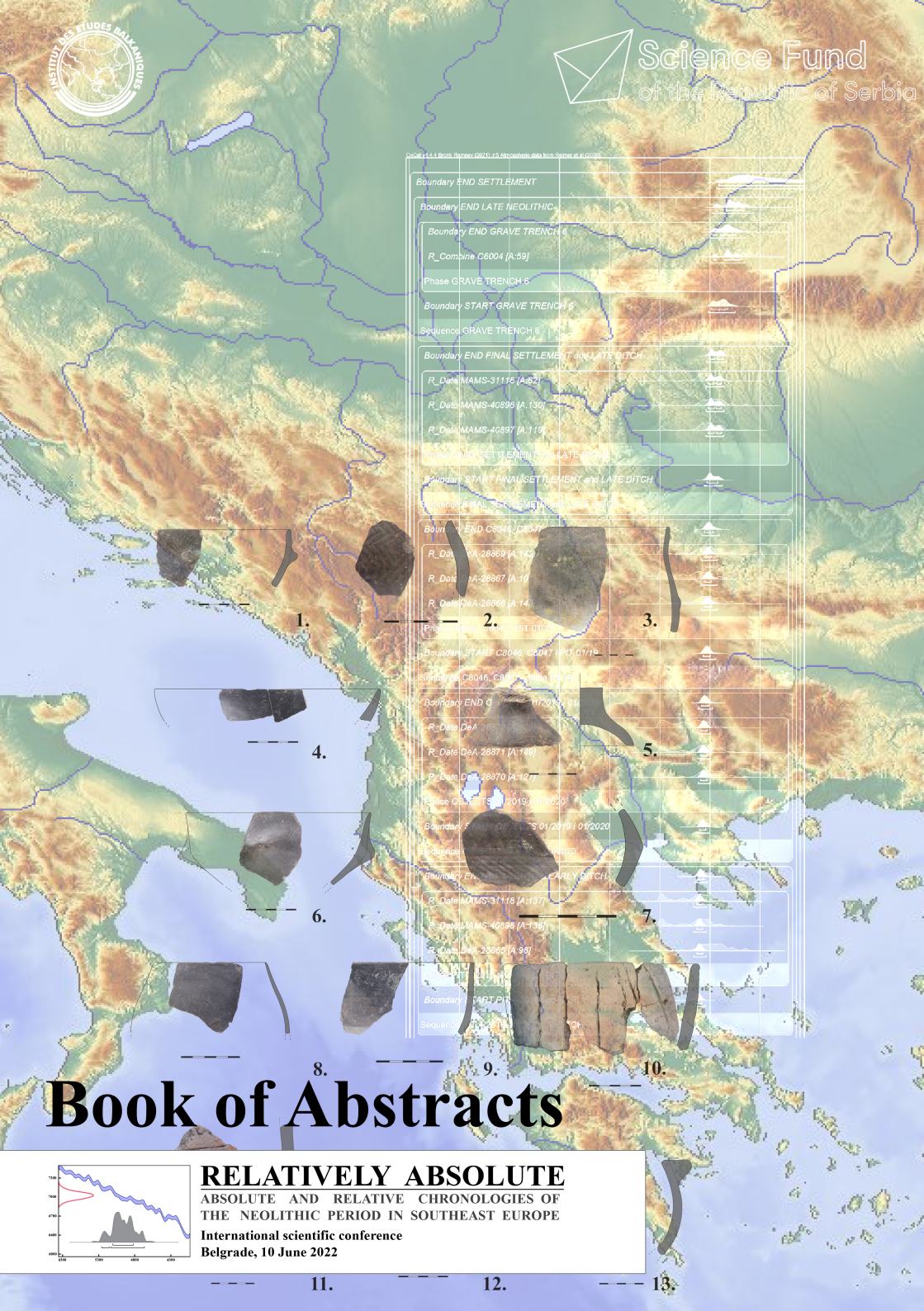

Book of Abstracts

RELATIVELY ABSOLUTE

ABSOLUTE AND RELATIVE CHRONOLOGIES OF THE NEOLITHIC PERIOD IN SOUTHEAST EUROPE

International scientific conference

Belgrade, 10 June 2022

ORGANIZACIJA / ORGANISER:

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Relatively Absolute.

Absolute and Relative Chronologies of the Neolithic Period in Southeast Europe (Belgrade, Virtual, 10 June, 2022)

ABSTRACT BOOK

CONFERENCE PROGRAMME:

Time	
10:00	Conference opening
10:20	Alasdair Whittle - *Refining chronologies and narratives for the Neolithic of south-east Europe: a personal account.*
10:40	Zoï Tsirtsoni - *Chronological framing of the evolutions in prehistoric Aegean and the Balkans: on the way to a consensus?*
11:00	Agathe Reingruber - *Neolithic impressed decorations on pottery: their relative and absolute chronological positions in Thessaly and Western Macedonia, Greece.*
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12:00	Ljubo Fidanoski – *New Dates from the Early/Middle Neolithic Site Cerje-Govrlevo.*
12:20	Lennart Brandtstätter - ^{14}C-*Chronology of multi-layered Neolithic sites in the Thracian Plain.*
12:40	Selena Vitezović, Nemanja Marković, Jelena Bulatović, Velibor Katić, Miroslav Marić - *Bone industry from the The Late Neolithic site of Jablanica (Serbia). A Chronological Comparison.*
13:00	Miroslav Marić, Jelena Bulatović, Nemanja Marković, Ivana Pantović – *Late Neolithic chronology in the contact zone between the south edge of the Carpathian Mountains and the Pannonian plain. The case study of Vršac region.*
13:20	***Discussion and Break***

14:20 Dragoș Diaconescu - *The Late Vinča Culture (phases C and D) in the Middle Danube Region. A Correspondence Analysis perspective on chronology and regional evolution.*

14:40 Krisztián Oross, János Jakucs and Tibor Marton - *Recent developments and current objectives in the research on the absolute chronology of 6th millennium cal BC western Hungary.*

15:00 Zsuzsanna Siklósi, Péter Csippán, András Füzesi, Pal Raczky – *Spatial and chronological modelling of Polgár-Csőszhalom, Late Neolithic complex site in Northeast-Hungary*

15:20 Katarina Botić, Marcel Burić - *North Croatian Late Neolithic relative and absolute chronologies: current state of research.*

15:40 Robert Hofmann, Mila Shatilo - *Synchronities and asynchronies in the development of human societies in South-Eastern Europe during the Neolithic and Chalcolithic Periods.*

16:00 **Discussion and Conference Closing**

ABSTRACTS

Refining chronologies and narratives for the Neolithic of south-east Europe: a personal account

Alasdair Whittle (Cardiff University)

This is a brief account of my involvement as an archaeologist in the revolution in producing high-resolution chronologies and narratives, made possible by the Bayesian approach to the formal modelling of radiocarbon results — with the aims especially of underlining the basis of successful applications and lessons learnt, and of pointing the way ahead in future research.

I look back briefly on my engagement with Bayesian chronological studies over more than 20 years, beginning with studies on the British Neolithic and culminating in the ambitious scope of the ERC-funded The Times of Their Lives (ToTL) project, all in cooperation with Prof. Alex Bayliss. ToTL made possible several large-scale chronological projects in south-east and central Europe: for the Vinča tell, and the Vinča culture; the Uivar tell; Alsónyék, and the Lengyel culture; Szederkény and Versend; and the spread of the earliest LBK. I also draw attention to other Bayesian chronological studies in the region. I will also note small-scale investigation, as recently of some Balaton-Lasinja graves at Veszprém-Jutasi út in western Hungary, with nonetheless wider implications for understanding of the end of the Neolithic and development of the Copper Age.

I will try to draw out some of the key reasons for successes with these undertakings. I will note the importance of iteration, drawing attention to our revisions currently in progress of Gathering Time (for the early Neolithic of England and Wales) and for the chronology of the spread of the earliest LBK. Though I am not a Bayesian specialist, I will note further technical developments including the refinement of the calibration curve and the dating of lipids in pottery.

Based on all this effort, there is the challenge to construct and interpret detailed narratives of change. I go on advocating a particularising and historical approach to what we have called prehistory, and I end by underlying what I see as remaining challenges and problems in the chronology of the Neolithic and Copper Age in south-east Europe.

Chronological framing of the evolutions in prehistoric Aegean and the Balkans: on the way to a consensus?

Zoï Tsirtsoni (Centre National de la Recherche Scientifique, Nanterre).

Keywords: Chronology, Neolithic, Relative, Absolute, Greece, Bulgaria, Turkey.

Anyone who ever tried to work on archaeological material or discuss past phenomena that concern more than two areas in the Aegean or the Balkans, is aware of the problem: the chronological framing is not the same. Things that are named "Neolithic" on one side are named "Chalcolithic" on the other, those that are considered "Early" here are "Late" for the neighbours, etc. More than just a problem of labels, this is a problem of understanding things and dividing time. For indeed, it's not only the name of "boxes" that is different from one area to the other, but also their dimensions: as the dividing lines do not fall at the same points, correlations become even more difficult to establish and deformations appear. The gravity of these deformations depends on the importance accorded to the temporal dimension of the discussed phenomena (priority or synchronicity, presumed causality). This part becomes increasingly sensitive as we move to larger narratives –about migrations, settlement dynamics, correlation with climatic/environmental changes– involving also scholars from other disciplines, who are not necessarily familiar with the finesse of archaeological schemes.

I would like to seize the opportunity of this conference to share with the participants my concern about this situation, and also some ideas about how to overcome the problem. Absolute chronology is certainly the key of the solution, but not alone, and not under any circumstances. Like all measuring instruments, this one has to be used in adequacy with the body we wish to measure, and this in turn is something that has to be defined, circumscribed. If the body to be measured is poorly or erroneously defined, or if the item that is subjected to measurement is not representative enough, the result will be problematic. Whatever the alternative proposed to the various traditional schemes, it has to rely on robust archaeological sequences and well-understood/well-dated contexts.

I have recently proposed such an alternative scheme for the period from the 7th to the end of the 4th millennium BC in the two countries that I know best: Greece and Bulgaria, and the Western part of Turkey. This scheme –which will be discussed in a conference for the first time here– could serve as basis or model for similar attempts in other countries.

Neolithic impressed decorations on pottery: their relative and absolute chronological positions in Thessaly and Western Macedonia, Greece

Agathe Reingruber (Institute for Prehistoric Archaeology, Freie Universität, Berlin)

Keywords: Impressed decoration, Thessaly, Macedonia, relative and absolute chronology

In human history, impressed decorations on pots appeared as early as the Late Palaeolithic together with the first ceramic products. By pressing a fingernail or a hard tool into the still soft surface of a vessel before firing, rims, shoulders or entire surfaces were decorated – not randomly, but according to specific patterns. This type of decoration came into use in the Aegean towards the end of the 7th millennium BC. It was first described in more detail in the 1960s and 1970s on the basis of inventories from sites in western and northern Thessaly, and a distinct phase of the EN was separated for it (the EN III, Pre-Sesklo). Further south, this type of decoration disappears completely.

However, new evidence from western Macedonia supports the view that its occurrence in Thessaly must be due to a northern influence (and not the other way round). A closer look at well contextualized examples shows that different styles (impressions with fingernails, pointed or broad tools and combs) as well as combinations with other decorative elements (colour, either monochrome or polychrome) appeared at different times. Their exact relative and absolute chronological position will be outlined in this paper. Building on this, their significance in a broader Southeast European and Aegean context shall be highlighted.

Absolute Beginners: calibrated dating of the first farmers in Pelagonia

Goce Naumov (Center for Prehistoric Research / Museum of Macedonia, Skopje)

Keywords: Pelagonia, tells, wetlands, radiocarbon dating, Neolithization

C14 dating is not the best part of Macedonian archaeology and therefore many sites are missing radiocarbon analysis in order to determine the solid chronological framework of the region. This is however not reflected on the Neolithic chronology of Pelagonia as there is a number of sites that provided substantial information on the initial stages of the agricultural life in this large elongated valley. The first dates have been provided in the 1970's when the C14 analysis indicated the first half of 6th millennium as period of the establishment of farming communities in this region. There was a huge gap of thorough archaeological research and dating in Pelagonia that was ended almost a decade ago when new multidisciplinary studies were initiated and provided more detailed perspective on the Neolithic societies. Several sites were explored and a variety of dates were provided that contribute in far better understanding of the beginnings of agriculture in this valley. Samples from seeds, bones, charcoal and lipids were sent for analysis in various European laboratories resulting with a sequence that enabled absolute chronology for the Neolithic tells established around the wetlands in the valley. This paper will elaborate the dates and methods applied for their calibration and consequently will reconsider the process of Neolithization among first farming societies in Pelagonia.

New Dates from the Early/Middle Neolithic site Cerje-Govrlevo

Ljubo Fidanovski (Museum of the city of Skopje)

Keywords: Macedonian Neolithic; Radiocarbon dates, Neolithic Chronology, Neolithization; Balkans Early Neolithic.

The image of the Macedonian Neolithic as an important part of the Anatolian and South-east European cultural bridge, in recent times, was significantly diminished due to various factors. Unfortunately, that was inevitable mostly for many reasons, of which the most important were/are: the deficiency of extensive explorations, the absence of international collaborations within the past research, the insufficient level of interdisciplinary studies, the partial publications of material, etc. However, in the last 20 years there were some archaeological and interdisciplinary explorations on few Neolithic sites in North Macedonia, such as in Cerje-Govrlevo, Vrbjanska Čuka-Slavej and Veluška Tumba-Porodin. In this study new radiocarbon dates from Cerje-Govrlevo shall be presented, thus enriching the Neolithic chronology and most importantly challenging our ideas and conclusions about the first farming communities in North Macedonia.

^{14}C-Chronology of multi-layered Neolithic sites in the Thracian Plain

Lennart Brandtstätter (Institute of Prehistory, Early History and Medieval Archaeology, Eberhard Karls University of Tübingen)

Keywords: Bayesian statistics, Gaussian Monte Carlo Wiggle Matching, KDE, multi-layered sites, Thracian plain

The research on absolute-chronological questions in the Balkans has made significant progress in recent years. Important studies have been published that highlighted the beginning of LBK longhouses, the absolute chronology of Vinča – Belo Brdo and associated pottery assemblages, as well as the earliest phases of Pietrele – Măgura Gorgana or the transition to the Neolithic in the Danube Gorges. Projects like ToTL, BIRTH or Lepenski Vir have greatly enlarged the radiocarbon dataset and opened new perspectives (not only in the context of the spread of Neolithisation).

By now for most areas within the Balkans a great number of radiocarbon dates have been individually published and were collected in databases like CalPal, RADON or 14SEA. Still there are some regions, which are mostly unaffected by this trend and reliable data is missing on a larger scale.

This presentation will focus on Neolithic multi-layered sites in the Thracian Plain, the Lower Danube and the Struma- Mesta- and Vardar-River-Valley. In the area of research, there are less than 400 radiocarbon dates, measured to a big extent before 2000 CE. These available data will be summed up, reevaluated and analysed specifically on the level of a single site. Problems regarding unreliable and corrupted samples will be discussed and possible ways to deal with will be compared. Finally the site-specific models will be contextualised and interpreted using chronologies provided by different projects. Methods include Gaussian Monte Carlo Wiggle Matching (CalPal), Sequence and Outlier analysis, as well as Sum and KDE functions integrated in OxCal and free R packages.

Bone industry from the The Late Neolithic site of Jablanica (Serbia). A chronological comparison

Selena Vitezović (Institute of Archaeology, Belgrade)
Nemanja Marković (Institute of Archaeology, Belgrade)
Jelena Bulatović (Department of Historical Studies, University of Gothenburg, Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade)
Velibor Katić (Belgrade City Museum, Belgrade)
Miroslav Marić (Institute of Balkan Studies, Serbian Academy of Sciences and Arts, Belgrade)

Keywords: Late Neolithic, Jablanica, Bone industry, Chaîne opératoire

The small-sized excavations carried out in 2018 at the Late Neolithic site of Jablanica (c. 5000 – 4700 BC) in central Serbia yielded approximately 90 artefacts produced from bone and antler, including finished objects, preforms and the manufacture debris. The assemblage has allowed a detailed analysis of manufacturing and the reconstruction of the chaîne opératoire. In this paper, we will present the results of the analysis of raw materials selection, manufacturing techniques, typological repertoire and use-wear. Dominant raw materials were bones, mainly long bones, metapodials and ribs. The majority of them belong to large-sized mammals, such as cattle and red deer, while the rest belong to medium-sized mammals, i.e., sheep/goat and roe deer. Besides bones, only six red deer antlers and one Spondylus shell had manufacturing traces. Awls comprising more than one-third of the assemblage were the most frequent objects, followed by heavy points, polishers and needles. Several preforms (mainly awls) and manufacture debris provided the evidence of the presence of a working area or workshop within the settlement. Finally, we will put our findings into a broader picture for the central Balkan Late Neolithic by comparative analysis with other synchronous bone industries in the region.

Late Neolithic chronology in the contact zone between the south edge of the Carpathian Mountains and the Pannonian plain. The case study of Vršac region.

Miroslav Marić (Institute of Balkan Studies, Serbian Academy of Sciences and Arts, Belgrade)
Jelena Bulatović (Department of Historical Studies, University of Gothenburg, Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade)
Nemanja Marković (Institute of Archaeology, Belgrade)
Ivana Pantović (City Museum Vršac)

Keywords: Bayesian modelling, Radiocarbon dating, Correspondence Analysis, Late Neolithic, Southeast Europe, Vinča, Chronology

The south Banat area in northeast Serbia, confined between the Danube in the south and the southern brinks of the Carpathians in the north is an important corridor throughout the Neolithic period, linking two major geographic regions (Central and the southeast Europe) over a relatively short distance. The area, centred around Deliblato sands and bounded by Alibunar depression on its western edge consists of a predominantly flat terrain marked with two distinct geological features that surely influenced the settlement patterns, population aggregation, movement and pathways and the use of landscape. Researched archaeologically for well over a century now, the area has yielded one of the largest known concentrations of Late Neolithic Vinča period sites in a relatively small region. This appear to be largely concentrated in areas to the north and the south of the Deliblato sands. However, the chronological duration of the Late Neolithic occupation in the region is not well defined, mostly due to limited scale of archaeological excavations, but also to sparsely published data and limited number of radiocarbon dates available for analysis. The results presented here are the premiere approach intended to correcting this issue, and are an attempt open a new niche in our understanding of chronological relationships in an area between two major features of the Vinča period, the name site of Belo Brdo in Vinča to the south, and the site of Turdaş in the north east, both among the earliest sites of Vinča period excavated.

The Late Vinča Culture (phases C and D) in the Middle Danube Region. A Correspondence Analysis perspective on chronology and regional evolution

Dragoș Diaconescu (The National Museum of Banat, Timişoara)

Keywords: Vinča culture, Vinča C-D phases, Correspondence analysis,

The late stage of the Vinča culture (namely the phases C and D or Vinča-Pločnik I and II) from fourteen archaeological sites/settlements from the lower sector of the Middle Danube region is characterised, among others, by the publication of the pottery items, which were integrated into a database. Correspondence analysis (CA) was applied, using the morphological characteristics of the Late Vinča ceramic from these sites, as analysis variables and the archaeological features/layers of provenance, as analysis units. The results of the CA show congruent results that imply a continuous and gradual change of the pottery style between ca. 4900-4600 cal BC. Five stages were identified, labelled as C1, C2, C3, D1 and D2. The boundary between the phases C and D of the Vinča culture can be established at ca. 4700 cal BC. The Vinča C phase/style of pottery is common to the northern area of the Danube River and the Vinča D phase/style of pottery seems to cover especially the southern regions of the same river.

Recent developments and current objectives in the research on the absolute chronology of 6th millennium cal BC western Hungary

Krisztián Oross, János Jakucs, Tibor Marton (Institute of Archaeology, Research Centre for the Humanities, Eötvös Loránd Research Network, Centre of Excellence of the Hungarian Academy of Sciences, Budapest)

Keywords: western Hungary, Neolithic, absolute chronology, radiocarbon dates, 6th millennium cal BC, material culture, settlement system

Archaeological research of Neolithic southern Transdanubia between Lake Balaton and the Drava River has received special attention over the last 20 years. Beside of large-scale excavations of early farming settlements, micro-regional surveys and various bioarchaeological investigations, one of the distinguished research objectives has been the establishment of an absolute chronological framework for the region. Hundreds of AMS radiocarbon measurements were carried out in course of several research projects. The Times of Their Lives ERC Advanced Investigator Grant has explored radiocarbon chronology as its main task, a series of research projects funded by the National Research, Development and Innovation Office of Hungary and other institutions have also enriched databases with essential data. The paper focuses on the 6th millennium cal BC, thus the emergence and consolidation of the Neolithic in the region.

The swift spread of the Neolithic across the Balkan peninsula reached the southernmost parts of the Carpathian basin during the last centuries of the 7th millennium cal BC. The process did not become completely frozen afterwards; a gradual northward shift of the frontier zone could be recorded in eastern Hungary. Similar assumptions emerged for areas west of the Danube, but suggested a relatively late regional development. The Transdanubian model was derived from the general dynamics of the Neolithic dispersal, rather than from local radiocarbon dates. Our current investigation analyses whether the available evidence can confirm the existence of a general pattern for the internal areas of the Carpathian basin in the first half of the 6th millennium cal BC.

Another pivotal point of the regional chronology is the formation of new model settlements after the initial Neolithic and their possible contribution to the neolithisation of central Europe. This topic was already discussed in a series of studies.

Nevertheless, the virtually unlimited variability of late 6th millennium cal BC material culture encourages further research on spatial and temporal patterns of pottery styles and pottery manufacturing. Radiocarbon dating programmes are powerful tools to fix the actual use-time of different pottery technologies. In the same time, they provide substantial information on the evolution and density of the regional settlement system.

The third focus of the paper discusses the end of the Linearbandkeramik world. This includes the appearance of a distinct material culture (Sopot) originating in the south and its possible coexistence with the LBK on a regional level.

Spatial and chronological modelling of Polgár-Csőszhalom, Late Neolithic complex site in Northeast-Hungary

Siklósi, Zsuzsanna (Eötvös Loránd University, Institute of Archaeological Sciences, Budapest)
Csippán, Péter (Eötvös Loránd University, Institute of Archaeological Sciences, Budapest)
Füzesi, András (Hungarian National Museum, Budapest)
Raczky, Pál (Eötvös Loránd University, Institute of Archaeological Sciences, Budapest)

Keywords: Late Neolithic, Bayesian modelling, spatial modelling, radiocarbon dating, tell, flat settlement

The Late Neolithic complex settlement of Polgár-Csőszhalom is well known due to the intensive archaeological research carried out in recent decades. The tell settlement surrounded by a multiple enclosure and the large flat settlement surrounding it, as well as the smaller enclosure and the burials excavated at all these locations, refer to various activities of former life.

The temporality and the relation of these different activities to each other can only be explored with a comprehensive modelling that reflects both the spatial and temporal dimensions. In our presentation, the complex site is analysed by Bayesian and spatial modelling based on approximately 130 AMS measurements. Taking into account the stratigraphic information, the Bayesian modelled AMS data are placed in space based on the coordinates of the features providing the samples, and the changes in the intensity of human activities in certain spatial segments are examined according to a uniform system of criteria throughout the whole site.

North Croatian Late Neolithic relative and absolute chronologies: current state of research

Katarina Botić (Institute of Archaeology, Zagreb)
Marcel Burić (Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb)

Keywords: Sava-Drava-Danube interfluve, Late Neolithic, history of research, radiocarbon dates, local chronology

Relative chronology of the Late Neolithic in the Sava-Drava-Danube interfluve region (northern Croatia) was introduced in the 1960s and following decades when diversification of pottery styles was more closely studied and named as separate cultures. The most substantial contribution to building a micro-regional relative chronology based on the typology of pottery finds was that of S. Dimitrijević, with later attempts by Z. Marković to re-define relative chronology and add to the still scarce typology of already established pottery stiles. However, splitting up relative chronology into three or four stages of the same "culture" prevailed and is still in use.

Attempts to define the absolute chronology are of a recent date and still scarce. Although a fair number of radiocarbon dates were published, especially in the last 20 years, the quality of samples, lack of sampling strategy, and problematic results received render most of them almost unusable. In addition, there have been no attempts to build a local chronology through combining Bayesian modelling of radiocarbon dates with full statistical seriation of finds from individual sites. Our paper focuses on problems related to the past methodology, a new approach to building a more precise local chronology and discusses conclusions about the Late Neolithic micro-regional chronology of several recently published papers.

Synchronities and asynchronies in the development of human societies in South-Eastern Europe during the Neolithic and Chalcolithic Periods

Robert Hofmann (Kiel University, CRC 1266: "Scales of Transformation - Human-Environmental Interaction in Prehistoric and Archaic Societies", Kiel University, Institute of Prehistoric and Protohistoric Archaeology, Kiel)
Mila Shatilo (Kiel University, Institute of Prehistoric and Protohistoric Archaeology, National Academy of Science of Ukraine (NASU), Institute of Archaeology, Kiel)

Keywords: Summed 14c dating probability distributions, Neolithic, Chalcolithic, Southeast Europe, population dynamics, population aggregation, settlement structures

Summed 14c dating probability distributions represent a suitable method for reconstructing population dynamics and changing research intensities, despite various source filters have to be considered. Building on regional reconstructions by other research groups, in our contribution we would like to focus on Neolithic and Chalcolithic population development at the geographic macro-level of South-Eastern Europe. Our investigation focuses on the question of whether we are dealing with synchronous and asynchronous historical developments of human societies in this region in the period from the 7th to the 4th millennium BCE and to what extent these regional developments were interconnected? By placing the summed 14c dating probability distributions in the context of selected regional reconstructions of settlement dynamics and aggregated settlements, we are able to reconstruct boom and bust phases of human aggregation history. Apart from transitional time horizons with largely synchronous developments, we can identify phases of regionally more independent developments. The underlying reasons for these shifts are probably differences in settlement behaviour and mobility.

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