



09TH
INTERNATIONAL
SCIENTIFIC
CONFERENCE
METHODOLOGY & ARCHAEOLOGY
Zagreb, 2nd – 3rd December 2021

eBook of abstracts

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Thursday, 2nd of December**10:00 – 10:15****Conference opening****Ina Miloglav** – organizer, Department of Archaeology**Jacqueline Balen** – president of Croatian Archaeological Society**Nevena Škrbić Alempijević** – Vice-dean for research and international cooperation**Keynote lecture:****Chair: Ina Miloglav****10:15 – 10:45****Vedrana Glavaš****Cadaver dogs, archaeologist's best friends.****The use of dogs as bio-detectors in archaeological prospection****10:50 – 11:00****Break****Session 01****Chair: Miroslav Vuković****11:00 – 11:15****Andrej Janeš****Use of archaeological structural survey and the analysis of standing structures on mediaeval castles****11:20 – 11:35****Ivor Kranjec & Jelena Behaim****Macro and Micro Spatial Analysis in the Research of Early Medieval Istrian Bale Region****11:40 – 11:55****Igor Kulenović, Šime Vrkić & Sara Igljić****Historic Landscape Characterization – Let's Do That!****12:00 – 12:15****Neda Kulenović****Historic Landscape Characterisation –****Potential Improvements of the Method Using Geospatial Technologies**

12:20 – 12:35

Igor Medarić

Project MagIstra - magnetic mapping of archaeological structures in soils on flysch. Case studies from Slovenian Istria

12:40 – 13:00

Break

Session 02

Chair: Jacqueline Balen

13:00 – 13:15

Jelena Anđelković Grašar & Bojana Plemić

Participation programmes for young people as an educational method in archaeology dissemination

13:20 – 13:35

Predrag Novaković

The Sorcerer's Apprentices: Teaching archaeological methods and techniques

13:40 – 13:55

Maja Kaleb & Ivan Vidulić

Underwater Archaeology Courses conducted by ICUA Zadar

14:00 – 14:45

Break

Session 03

Chair: Rajna Šošić Klindžić

14:45 – 15:00

Dragana Rajković & Selena Vitezović

The Prehistoric site of Kotlina – methodology of excavation and preliminary results from seasons 2018–2021

15:05 – 15:20

Dolores Knežić

Alternative methods in handling heavy fraction - when do we need them?

15:25 – 15:40

Mario Novak & Dragana Rajković

The Late Neolithic human burials from Kotlina - Szuzai Hegy, Baranja: the first results of the anthropological analysis

15:45 – 16:00

Tina Bareša, Ivan Jerković, Željana Bašić & Ivana Kružić

The role of multi-slice computed tomography (MSCT) imaging in biological anthropology

16:05 – 16:20

Goran Tomac

Moooooving with the Herd - The analysis of domestic animal body size in the Neolithic and Copper Age of the eastern Croatia

16:25 – 16:40

Break

Session 04: Poster presentations

Chair: Nikola Vukosavljević

16:40 – 16:45

Šime Vrkić, Sara Igljić & Igor Kulenović

Late Prehistoric Enclosures- an Elusive Type of Site

16:45 – 16:50

Pio Domines Peter

Survey methodology and challenges in an inaccessible Mediterranean (is)landscape with small surface visibility and dense vegetation - case study from island of Ist, Northern Dalmatia

16:50 – 16:55

Jugoslav Pendić, Vidan Dimić & Dragana Antonović

Application of photogrammetric method of 3D scanning within the shaft Object 1 at the Prljuša-Mali Šturac site

16:55 – 17:00

Katarina Gerometta & Rajna Šošić Klindžić

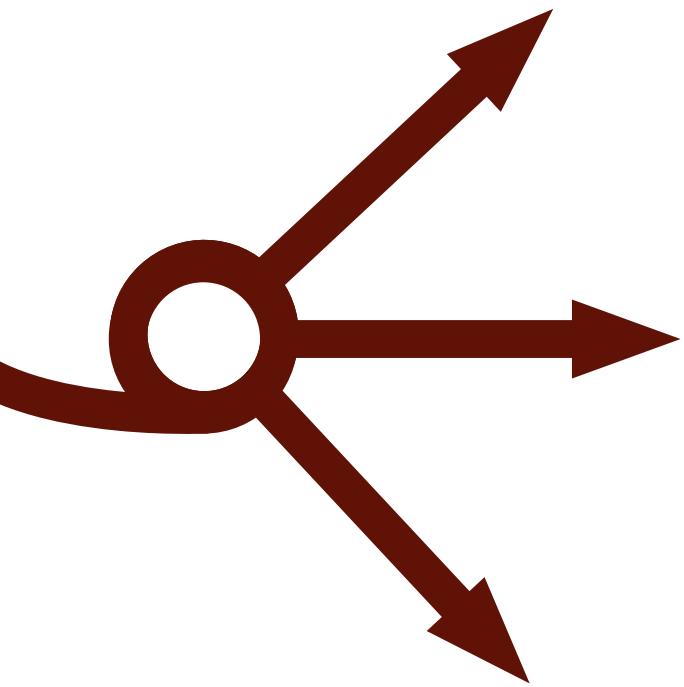
Archaeological micromorphology at the Late Neolithic site Gorjani

17:00 – 17:05

Katarina Šprem & Bernardo Marcuiš

Geochemical analysis of Istrian flint – first results and discussion

Friday, 3rd of December**Session 05***Chair: Jasna Vuković***10:00 – 10:15****Tomislav Brenko, Tena Karavidović, Sibila Borojević Šoštarić & Tajana Sekelj Ivančan**
Mineralogy and geochemistry of iron slags towards their provenance studies in Podravina region, NE Croatia**10:20 – 10:35****Ilaria Calgaro, Umberto Veronesi, Antonina Ermolaeva & Miljana Radivojević**
Copper production and technology at Mid-Late Bronze Age Taldysai (central Kazakhstan): its place in the wider Eurasian metalmaking framework**10:40 – 10:55****Tena Karavidović & Tajana Sekelj Ivančan**
Interpreting the archaeological record of iron production sites: a multi-method approach**11:00 – 11:15****Zorana Kovačević & Julia Fileš Kramberger**
SEM in Archaeological Textile Research**11:20 – 11:35****Aleksandra Cetwińska, Ewa Wagner-Wysiecka, Katarzyna Kwiatkowska & Dariusz Manasterski**
Origin versus style. An interdisciplinary study of amber ornaments from NE Poland**11:40 – 12:00****Break****Session 06***Chair: Ivana Ožanić Roguljić***12:00 – 12:15****Ana Fundurulić, Mafalda Costa, Fabrizio Michelangeli, Andrea Babbi, Cecilia Predan, Ana Manhita, Alessandra Celant, Cristina Barrocas Dias & Donatella Magri**
Exploring Etruscan burial rituals: analysis and research potential of organic residues from funerary bronze vessels**12:20 – 12:35****Anđa Petrović, Cristina Lemorini & Stella Nunziante-Cesaro**
Reference collection as key element of use-wear and residue analysis of chipped stone assemblages: study of Iron Gates region (Serbia)**12:40 – 12:55****Nikola Marković, Boban Tripković, Marko Porčić, Ana Tripković & Jasna Vuković**
Preliminary X-Ray Fluorescence Analysis of Early Eneolithic Pottery: Šanac-Izba near Lipolist (Western Serbia)**13:00 – 13:15****Andreja Kudelić, Dinko Tresić Pavičić, Natali Neral, Mia Marijan & Ana Maričić**
Research on Bronze Age pottery traditions – Conceptual approach**13:20 – 13:35****Aleksandra Cetwińska, Grzegorz Koczan, Maciej Sadło & Dariusz Manasterski**
Potential of using reed arrow shafts hidden in their spine-force value**13:40 – 14:00****Break****Session 07***Chair: Jacqueline Balen***14:00 – 14:15****Ines Krajcar Bronić, Ivor Karavanić, Andreja Sironić, Nikola Vukosavljević, Marko Banda & Fred Smith**
Radiocarbon dating of the Middle Paleolithic animal bones from two caves, Croatia**14:20 – 14:35****Miroslav Marić, Jelena Bulatović & Nemanja Marković**
Regional Absolute Chronologies of the Late Neolithic in Serbia**14:40 – 14:55****Andreja Sironić, Žana Matulić Bilač, Barbara Španjol-Pandelo & Ines Krajcar Bronić**
Dating wooden artefacts treated with resins**15:00 – 15:15****Dinko Tresić Pavičić, Željka Bedić & Filomena Sirovica**
System for Recording and Analyzing Articulated Human Skeletal Remains**15:30****Closing**



ABSTRACTS

Vedrana Glavaš

Department of Archaeology, University of Zadar, Croatia

Cadaver dogs, archaeologist's best friends.**The use of dogs as bio-detectors in archaeological prospection**

It is generally known that dogs can be used for a variety of purposes such as explosives, drugs, blood or disease detection, or that they can find missing persons. However, it is less known that dogs have abilities to detect graves from different periods. Human Remains Detection (HRD) or cadaver dogs are trained to detect and indicate the strongest concentrations of odor that is characteristic for human body at various stages of decomposition. Since the smell of human decomposing odor differs from odor of other decomposing mammals, properly trained dogs can locate positions of human burials.

Dogs trained in this way are mostly used to help solving criminal cold cases and they are usually employed by the police. However, research on the use of HRD dogs to detect and locate older historic or prehistoric burials was very limited. Since recent studies demonstrate that human decomposition smell can be very persistent, we have started testing the capabilities of dogs noses and developing the methodology of training and work in archaeology within the "Archaeological dog project".

This talk will present the methodology of work with HRD or cadaver dogs in archaeology and also the results of some research at archaeological sites from various periods.

The main goal of this talk is to present the general use and possibilities of Human remains detection dogs in locating burial sites from various periods and demonstrate how dogs can be used as bio-detectors in archaeology in the same manner as many other tools and techniques that are common in archaeology.



Tina Bareša, Ivan Jerković, Željana Bašić & Ivana Kružić

University Department of Forensic Sciences, University of Split, Croatia

The role of multi-slice computed tomography (MSCT) imaging in biological anthropology

In forensic anthropology, MSCT images can be used for personal identification by comparing antemortem and postmortem data, but even in the lack of antemortem records, for biological profiling. In bioarchaeology, MSCT images can be used for creating osteobiography of an individual but can also give valuable data for population studies such as sex, age, ancestry, stature, disease, trauma, and traits on bones and teeth.

The greatest issue in forensic and biological anthropology is the unavailability of documented skeletal collections that could be utilized to develop population/time-period-specific standards for biological profiling. To overcome this issue, MSCT scans of patients are used for creating virtual skeletal collections with documented data.

In this paper, the authors will present activities of the installation research project "Forensic identification of human remains using MSCT imaging" and highlight the possibilities that new technologies can offer to forensic and biological anthropology. They will present the processes of creating a virtual skeletal collection, taking virtual skeletal measurements and non-metric scoring, and developing population-specific standards for sex and age estimation. Lastly, the authors will explain how data obtained from MSCT images of living individuals can be used to compare modern and ancient populations by evaluating migrations, population mixtures, secular changes, and population dynamics in general.

This paper is financed by the Croatian Science Foundation installation research project (UIP -2020-02) "Forensic identification of human remains using MSCT scans imaging".

Goran Tomac

Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb, Croatia

Moooooving with the Herd - The analysis of domestic animal body size in the Neolithic and Copper Age of the eastern Croatia

The area of Slavonia in continental Croatia has relatively recently started to provide data in the field of archaeozoology, gradually complementing the picture of the prehistoric animal exploitation in the northern Balkan region. As part of the analysis of faunal remains from Neolithic and Copper Age sites (c. 6000 – 3000 cal. BC) in the eastern area of the interfluvium of the Sava, Drava and Danube rivers, one of the author's goals is to study the role domestic animals played in the local population's subsistence strategies. Since skeletal remains of cattle, domestic pig and sheep/goat are the most abundant in the analysed assemblages, they also yielded a sufficient quantity of measurable bones. The sites are located in the geographically confined area and this presentation aims to examine the potential diachronic differences in individual species' body size on a local level and compare the data with relevant biometric studies of animal bones from contemporary sites in the neighbouring areas. Given that the majority of the material analysed by the author belongs to cattle, the study of its genetic history in south-eastern Europe is planned in the future. Therefore, the results of this analysis may serve as a stepping stone in observation of the species' genetic changes in the wider region, which may have occurred relatively instantaneously, with the archaeologically documented cultural transitions.

Tomislav Brenko¹, Tena Karavidović², Sibila Borojević Šošćarić¹ & Tajana Sekelj Ivančan²

¹ Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Croatia

² Institute of Archaeology, Zagreb, Croatia

Mineralogy and geochemistry of iron slags towards their provenance studies in Podravina region, NE Croatia

Archaeological excavation and field surveys in the Podravina region led to the discovery of numerous sites with traces of iron ore smelting and processing of the bloom that were dated to the Late Antique and Early Middle Ages. The discovered slag can be divided into two main categories: smelting slag (furnace bottom and tap slag) and primary smithing slag. The main focus of this study is 33 samples of tap slags and furnace bottom slags from archaeological sites Hlebine-Velike Hlebine, Virje-Sušine, and Virje-Volarski Breg and their provenance towards locally discovered bog iron ores using mineralogical and geochemical analyses. X-ray diffraction confirmed fayalite as the main mineral phase, with occurrences of other Fe minerals, such as wüstite and magnetite.

Geochemical analysis confirmed high Fe contents ranging between 52.30 and 66.46 wt. %, typical values for iron bloomery. Previous studies confirmed bog iron ore occurrences in the study area, both in archaeological as well as geological context. Therefore, provenance studies were carried using major, trace, and rare earth elements. Non-Reducible components ratios and principal component analysis revealed some differentiation between the samples from different archaeological sites, mostly due to aluminum contents. The geochemical signature of both bog iron ores and iron slags was constructed using 26 major, trace, and rare earth elements. Both ore and slag signatures are characterized by similar shapes, peaks, and patterns, implying a genetic connection between the bog iron ores and iron slags in the Podravina region.

Ilaria Calgaro¹, Umberto Veronesi¹, Antonina Ermolaeva² & Miljana Radivojević¹

¹ Institute of Archaeology (UCL), London, UK

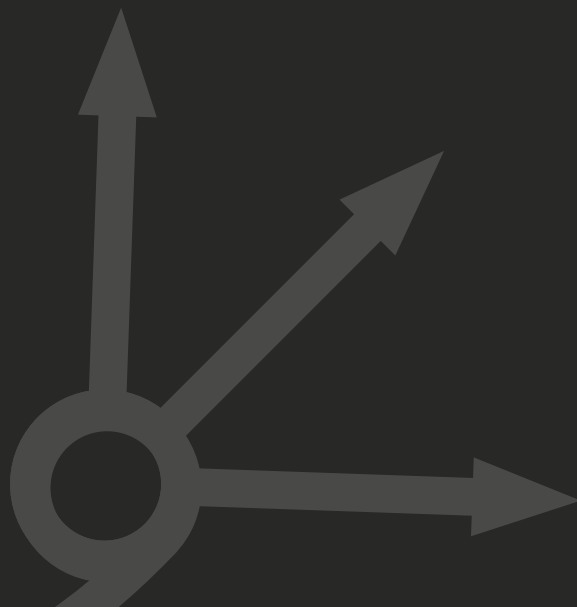
² Institute of Archaeology named after A.Ch. Margulan, Almaty, Kazakhstan

Copper production and technology at Mid-Late Bronze Age Taldysai (central Kazakhstan): its place in the wider Eurasian metalmaking framework

Second millennium BC Eurasian copper extractive metallurgy is widely assumed as large-scale and standardised, with its highest technological peak reached during the Mid-Late Bronze Age. Present-day Kazakhstan and Southern Urals host among the richest polymetallic ore deposits of Eurasia, massively exploited since the Early Bronze Age by the Steppe pastoralist communities. The metallurgical workshop of Taldysai in the steppes of central Kazakhstan was one of these production centres and represents the focus of this study. Extensive evidence of metalmaking has been unearthed at this site, including complex smelting furnaces, production debris, mining and beneficiation tools and finished metal artefacts.

Out of these, seven copper smelting slags were chemically and microstructurally analysed by Optical and Energy Dispersive Scanning Electron Microscope and provided a first insight into the multi-step metallurgical chaîne opératoire carried out onsite. Then, in order to test the estimated uniformity of Mid-Late Bronze Age copper extractive metallurgy, data collected from Taldysai were integrated with a comparative reference database of thirteen coeval metalmaking sites located between the Eastern Alps and Central China and analysed through multivariate statistics in form of principal component analysis (PCA) and ternary diagrams.

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