INSTITUTE OF ARCHAEOLOGY

BELGRADE, SERBIA

1ST INTERNATIONAL CONFERENCE WITH WORKSHOP

SCIENCE FOR CONSERVATION OF THE DANUBE LIMES

Mortar Design for Conservation – Danube Roman Frontier

2000 Years After

PROGRAMME AND ABSTRACTS

VIMINACIUM, SERBIA

JUNE 27TH - JULY 1ST, 2022

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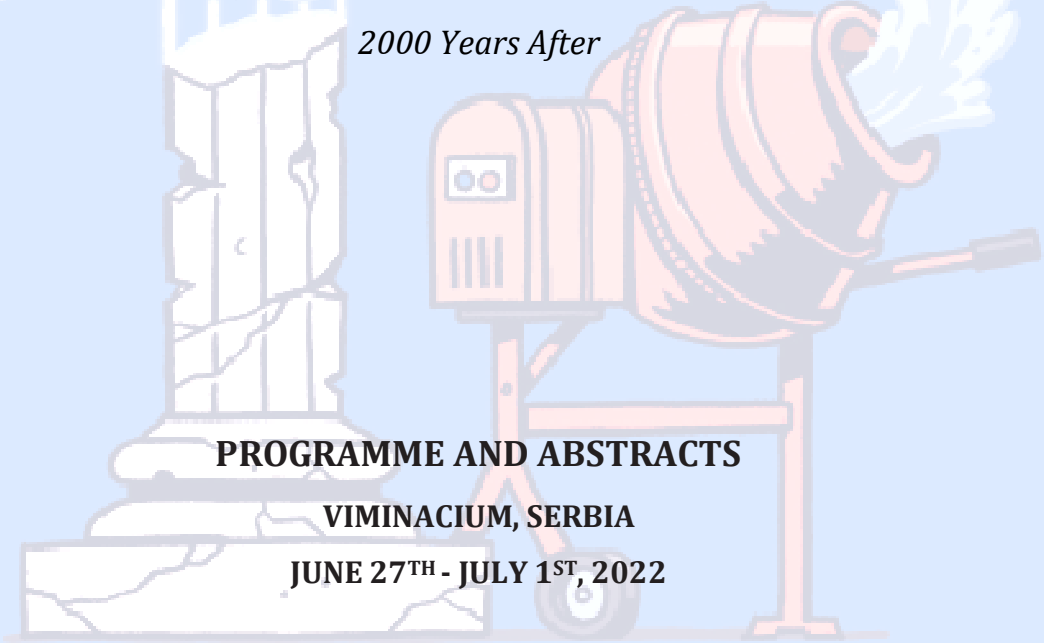

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institut@ai.ac.rs; https://ai.ac.rs; tel. +381 11 2637-191
Editor in Chief:
Miomir Korać, Institute of Archaeology, Belgrade, Serbia
Editors:
Emilija Nikolić, Institute of Archaeology, Belgrade, Serbia
Mladen Jovičić, Institute of Archaeology, Belgrade, Serbia
Graphic Design:
Emiija Nikolić, Institute of Archaeology, Belgrade, Serbia
Mladen Jovičić, Institute of Archaeology, Belgrade, Serbia
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Dave Calcutt
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Scientific Programme Committee

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Dr Mladen Jovičić, Institute of Archaeology, Belgrade, Serbia
Dr Snežana Vučetić, University of Novi Sad, Faculty of Technology Novi Sad, Novi Sad

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Ljubomir Jevtović, Institute of Archaeology, Belgrade, Serbia
Dr Dragana Gavrilović, Institute of Archaeology, Belgrade, Serbia

CONTENTS

PREFACE

The dust that a building is transformed into when it becomes a ruin holds precious traces of the past. The hands of an archaeologist will search through it patiently, and find a necklace bead of a woman that lived in it. The hands of an architect will virtually transform the dust into a mortar, brick, or stone. The first profession sees through the unbuilt. The second one builds from it. However, both perform their work by communicating with the sciences.

Throughout history, various components were chosen, measured, and mixed into one of the most complex building composites ever - mortar, whose re-creation is of invaluable importance for architectural conservation. Geologists and chemists will best tell us about its composition. However, sometimes, while excavating a ruined wall, an archaeologist finds a mortar trowel, accidentally left by the past builder. Is this a more valuable trace for revealing the creation of a wall than the binder/aggregate ratio of the mortar used? Can we pick it up and imagine the hands that combined colourful aggregate grains with the earth, gypsum, lime, or cement?

From the exploitation, transport, and use of raw materials, to the product called mortar, we pass by the people from the past, the quarries, roads, and rivers, we look at the craftsmen working with tools, and observe the investors negotiating with engineers, and the rulers supervising the construction. The four hands from the beginning of the story can combine the chemistry of the red, blue, green, yellow, black, and white mineral grains with the found trowel, and help us revive many

unknown hands from the past. Thus, the research of historic mortars for conservation purposes must not be a purely technical process. Only by understanding the multiple values of a historic building, we can adequately protect it.

The project Mortar Design for Conservation – Danube Roman Frontier 2,000 Years After (MoDeCo2000), funded by the Science Fund of the Republic of Serbia, was created with the sincere intent and great hope that it could help in the future discoveries and preservation of the rich heritage in Serbia from the period of the magnificent Roman Empire, whose Danubian monuments are part of the preliminary list for UNESCO World Heritage. Different researchers and professionals - architects, archaeologists, geologists, chemists, materials scientists, physicists, biologists, restorers, craftsmen, and managers have all made an effort to get closer to the fulfilment of the wish of the project creators.

After sampling and investigating numerous mortars originating from the structures dating to the period from the 1st to the 6th century, many conclusions were made, but challenges for future researchers and conservators also arose, telling us we need to continue our work in the future, in an attempt to gain more knowledge and, thus, preserve our heritage more adequately.

We welcome you to the Viminacium Archaeological Park and the 1st International Conference with Workshop, Science for Conservation of the Danube Limes. With the hope that many new fruitful collaborations between our guest researchers will be developed on this occasion, taking us one step further towards long-term technical

solutions for architectural conservation and civil engineering based on nature, but also to new cognitions about the life of the past people, always for the cause of the preservation of rich world material and immaterial cultural heritage and our planet, we invite you to peruse this publication. All the authors have shown their enormous affection and passionate devotion towards the discoveries of ancient knowledge, advocating its use in the further preservation of the most monumental physical witnesses of the past – buildings, for future generations.

EDITORS

Members of the MoDeCo2000 Project team:

Dr Emilija Nikolić, PI, Institute of Archaeology, Belgrade
Dr Mladen Jovičić, Institute of Archaeology, Belgrade
Dr Snežana Vučetić, University of Novi Sad, Faculty of Technology Novi Sad, Novi Sad
Dr Jonjaua Ranogajec, University of Novi Sad, Faculty of Technology Novi Sad, Novi Sad
Ljiljana Miličić, Institute for Testing of Materials (IMS Institute), Belgrade
Ivana Delić-Nikolić, Institute for Testing of Materials (IMS Institute), Belgrade
Dr Nevenka Mijatović, Institute for Testing of Materials (IMS Institute), Belgrade
Dr Biljana Ilić, Institute for Testing of Materials (IMS Institute), Belgrade

DANUBE LIMES IN SERBIA: ON THE WAY TO A UNESCO WORLD HERITAGE SITE – PROBLEMS, CHALLENGES AND SOLUTIONS

NEMANJA MRĐIĆ
Institute of Archaeology, Belgrade, Serbia

IVANA KOSANOVIĆ
Institute of Archaeology, Belgrade, Serbia

MILICA MARJANOVIĆ
Institute of Archaeology, Belgrade, Serbia

ivana.kosanovic@yahoo.com

Since 1987, when the first part of the Roman Limes was inscribed to the UNESCO List of World Heritage, there has been an idea to unite this system, stretching over 5,000 km across the Roman provinces in Europe, the Near East and North Africa, into one big site – Frontiers of the Roman Empire (Ployer, Polak and Schmidt 2017). Apart from Hadrian's and Antonine's wall, the Lower Germanic, the Upper German-Raetian Limes and the western part of the Danube Limes have also been inscribed to this list so far.

The Danube Limes was divided into two segments – western

and eastern, with the parts in Germany, Slovakia and Austria already inscribed. The nomination of the eastern part of the Danube Limes is a joint project of four countries – Croatia, Serbia, Romania and Bulgaria.

The Limes section in Serbia is 450 km long. Archaeological prospection and excavations have confirmed the existence of approximately 80 sites, 10 in the province of Pannonia Inferior and 70 in Moesia Superior (Korać et al. 2014). For the revised Tentative List, 35 sites were selected (Tentative List). The Serbian part of the Danube Limes is comprised of a large number of fortifications. It features a variety of sites – two legionary fortresses, several larger and smaller auxiliary forts, a few watchtowers, ports and civil settlements, as well as some unique features (Korać et al. 2014; Petrović 1996).

During the preparation of the nomination dossier, the Serbian team (Institute of Archaeology Belgrade, The Institute for the Protection of Cultural Monuments of the Republic of Serbia, and the Commission of the Republic of Serbia for UNESCO) encountered many problems and challenges. Despite the diverse and unique features on the Serbian part of the Limes, many sites have not been visited for decades since the excavations and conservation, so they are inaccessible, overgrown with weeds, some of them not even marked. Not a small number of them still have no legal status as a cultural property, and they are at risk from modern construction or looters.

Submission of the Tentative List in 2015, followed by the formation of the working group for the preparation of the nomination

in 2019, initiated and intensified the work on all these problems. The process of acquiring the legal protection for the sites has begun, and geophysical surveys and drone imagery have been conducted on many sites. The production of an archaeological map of Serbia with sites on the Limes as a test sample has started and some of the sites have been excavated systematically for the first time. Those sites that were submerged have been proven to still exist using underwater sonar surveys.

The Danube Limes has been a point of interest of national and international projects in the last decade, ever since its promotion started with the projects Danube Limes Brand and Itinerarium Romanum Serbiae, more recently Living Danube Limes and MoDeCo2000, to name but a few of them.

Keywords – UNESCO, nomination, Danube, Limes, Roman frontier

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