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Special Issue from the Eighth Balkan Symposium on Archaeometry in Belgrade

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Our Balkan cultural heritage is remarkable. Due to its unique geographical position of a bridge between Europe and Asia Minor, the Balkans has often played a prominent role in the evolution of civilisations. The settlement of Europe by Palaeolithic hunter-gatherers, the spread of Neolithic farming, the invention of copper metallurgy, and the formation of Europe's first great Bronze Age societies are just a few examples. The Balkans was the birthplace of Classical Greece and Hellenism, the core of the Late Roman Empire and the long-lasting Byzantine Empire. And yet, despite its significance, the Balkan cultural heritage has not been sufficiently analysed, its role still not entirely understood, and its importance not fully appreciated. To understand it better is to become aware of our common cultural heritage in all its diversity and beauty.

To this goal, the biannual meeting of scientists from the Balkan countries in the field of Archaeometry – the Balkan Symposium on Archaeometry (BSA) – is dedicated. BSA has matured and established itself well since its first edition in Ohrid, Macedonia (2008), followed by Istanbul, Turkey (2010), Bucharest, Romania (2012), Nesebar, Bulgaria (2014), Sinaia, Romania (2016), Ljubljana, Slovenia (2018) Athens, and Greece (2020), which was held entirely as an online meeting due to Covid-19 pandemic. The next BSA conference will be in Zadar, Croatia, in 2024.

The Eighth Balkan Symposium on Archaeometry (BSA 8) was held from the 3rd to the 6th of October 2022 in Belgrade, Serbia. It was organised by the Vinča Institute of Nuclear Sciences with the support of the National Museum in Belgrade. The event hosted forty-one presentations from the Balkans countries, Belgium, Cyprus, France, Georgia, Hungary, India, Italy, Russia and UK; there were participants from fifteen countries. Organisers strongly encouraged the participation of scientists from non-Balkan countries and hope that this trend will continue in the future. The concept of BSA 8 was conceived by the eleven-member Programme Committee, coming from several Serbian institutions. The seventeen-member International Advisory Committee of renowned scientists from twelve different non-Balkan countries insured the high scientific standards of the symposium. BSA 8 focused on several major important topics of archaeometry: analytical methods; dating methods; inorganic materials (glasses, pigments, lithics, mortars, metals); computer science and imaging; geographic information systems; preservation and management in cultural heritage; and multidisciplinary fields. The focus of investigations was on the Balkans and its cultural heritage, but topics relating to other areas were also well represented. The Eighth Balkan Symposium on Archaeometry is the first BSA meeting that will see its selected contributions published in a peer-reviewed international scientific journal.

Five papers are presented in this Special Issue of Interdisciplinaria Archaeologica, Natural Sciences in Archaeology. They cover various materials and topics, such as metal, glass, obsidian, and biological tissues, and geophysics. The papers cover not only the Balkan region but also Hungary, Poland and Mexico, and the time span from the Iron Age up to the 18th century AD.

A paper by Pia Šmalcelj Novaković, Vlasta Vyroubal, and Mario Carić, presents carbon and nitrogen isotope analysis of 22 samples of bone collagen from the 6th to 8th century Avar cemetery of Privlaka-Gole njive in western Croatia, with the aim of getting some insight into local Avar dietary practices. The first results indicate no significant differences in diet regarding sex, age and social stratification, with somewhat elevated $\delta^{15}N$ values in males compared to females and in older adults compared to younger adults.

The paper by Viktória Mozgai, László Schilling, Máté Szabó, and Bernadett Bajnóczi, reports the concentrations of elements and decoration techniques of the metal alloys of recently excavated Hunnic-period artefacts using optical microscopy, handheld XRF and SEM-EDS. Analysis showed that the gold objects were manufactured using a gold alloy with more than eighty percent of gold. The fragments of the scale-patterned silver plate were manufactured from a silver alloy similar to late Roman silver alloys with a high silver content. The chemistry of garnets indicated their likely provenance as being from the placer deposits of Sri Lanka.

Žiga Šmit, A. Franjić, and N. Topić report a compositional analysis of 12th–18th century glass finds from the Cathedral

of the Assumption of the Blessed Virgin Mary in Dubrovnik, Croatia. The concentrations of elements were determined by the simultaneous use of Proton-induced X-ray emission (PIXE) and Proton-induced gamma-ray emission (PIGE). The results indicated that most glasses were produced using the ash of halophytic plants from the Levant. Sand-derived content indicated the glass was likely worked in different secondary workshops, probably in Northern Italy and in the Levant. Several glasses were attributed to the mixed-alkali glass type (*façon de Venise*). The findings confirmed the strong cultural and economic links of Dubrovnik with the Venetian glassmaking industry and the preference for the Mediterranean seafaring trade routes over the continental European ones.

The paper by Anne-Kyria Robin, Katrin Sieron, and José Carlos Beltrán Medina deals with obsidian sources of prehispanic artefacts from Mexico. The authors performed compositional analysis of the obsidian samples, determining their major and trace element concentrations. They compared them statistically to the known obsidian sources from the region, showing that obsidian artefacts were produced using local and neighbouring obsidian outcrops. The results also indicated the existence of obsidian trade with other areas. While this site is geographically distant from the Balkans, the analytical approach described in the article is relevant since the Neolithic Balkans is known for a fair number of obsidian finds, whose analyses have just begun.

The paper by Tomasz Tokarczyk and Łukasz Porzuczek reports on the non-invasive investigations of the Early Iron Age Chotyniec settlement in Poland, belonging to the westernmost region of the Scythian cultural area. The employed methods – magnetic, electromagnetic and ground-penetrating radar – are cross-examined and compared with archaeological excavations in selected parts of the settlement. The comparison showed the varying effectiveness of these methods in the detection of archaeological features.

We hope that this new issue of the IANSA, related to the Eighth Balkan Symposium on Archaeometry, will prove itself interesting and valuable for readers from the fields of Archaeometry, Archaeology and Heritage Science. We also hope that it will draw their attention and interest to the study of the large, not fully investigated cultural heritage of the Balkans. I sincerely thank all the authors, reviewers and the Editorial Board of IANSA for their efforts in bringing this special edition before the public.

Figure 1. Participants of the 8th Balkan Symposium on Archaeometry at the excursion in the Lepenski Vir Museum.