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The origin, production and use of quartz crystals in the Neolithic of Serbia: Vinča-Belo Brdo

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ABSTRACT

The scope and importance of utilisation of quartz crystals in the prehistoric period of Serbia were smaller in comparison with cherts, and the reasons for their manufacture and purpose are not sufficiently known. Definition of the origin of quartz crystals from the Grivac site, outside the assumed mine at Mali Šturac, and artefacts from Vinča-Belo Brdo from the mine on Avala, as well as definition of working operations carried out using quartz crystal tools represent the initial framework of a systematic approach to the investigation of this group of raw materials. Precise determination of the main components and the character of lithic organization of quartz crystals is one of the important markers of the exchange of raw materials and artefacts in the network of Neolithic settlements in the territory of Serbia. This paper opens up new questions of interrelationships among Vinča settlements of large and small areas and different demographic capacities in the Final Neolithic and during the Chalcolithic.

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1. Introduction

The manufacture of quartz artefacts in the territory of Serbia in the Neolithic has not been adequately explored. Scarce and imprecise information on the archaeological context of the finds is one reason for the neglect of this subject. Another reason is that quartz crystals are, by rule, considered to have limited archaeological value and lack clear indications for distinguishing between natural and man-made forms. The difficulties in identifying worked quartz result from the hardness of the mineral, its physical and chemical stability, as well as insufficient experimental research into the identification of traces of manufacturing and use of quartz.

The first records of the prehistoric use of quartz crystals in Serbia date from the initial excavations of the site Vinča-Belo Brdo (Vasić, 1936). It was not until several decades later that some scattered information on the presence of quartz crystals in the chipped and groundstone assemblages from other sites in Serbia became available. A major change in the concept of the study happened in the 1970s with the increase in the number and extent of the analyses of worked stone assemblages. The research focus shifted from selecting attractive and most typical artefacts to a systematic analysis of lithic production of the Neolithic (Bogosavljević Petrović and Marković, 2012). In spite of the obvious progress in the investigations of stone industries, the process of defining the presence and the role of quartz crystals has developed very slowly and still remains at the margins of archaeological research. This tendency can, to a large degree, be explained by the lack of understanding of a 'response' of this raw material to knapping.

Prior to the development of the Vinča culture, the use of quartz crystals in Serbia was documented in the Middle Palaeolithic occupation horizon of the Hadži-Prodanova cave (Mihailović and Mihailović, 2007). At the Early Neolithic/Proto-Starčevo site of Blagotin, twenty-nine quartz crystal artefacts were discovered, typologically classified as flakes and blades, a retouched blade and a perforator (Šarić, 2014). No similarly detailed information was given for the three quartz pieces found at the Starčevo culture site of Popovića Brdo (Šarić, 2014), Fig. 1.

An unusually large quartz production was noted at the site of Divostin, but without direct implications for the use of quartz crystals (Fig. 1). Here, the chronological boundary between the Starčevo and the Vinča culture layers was not clear and so the

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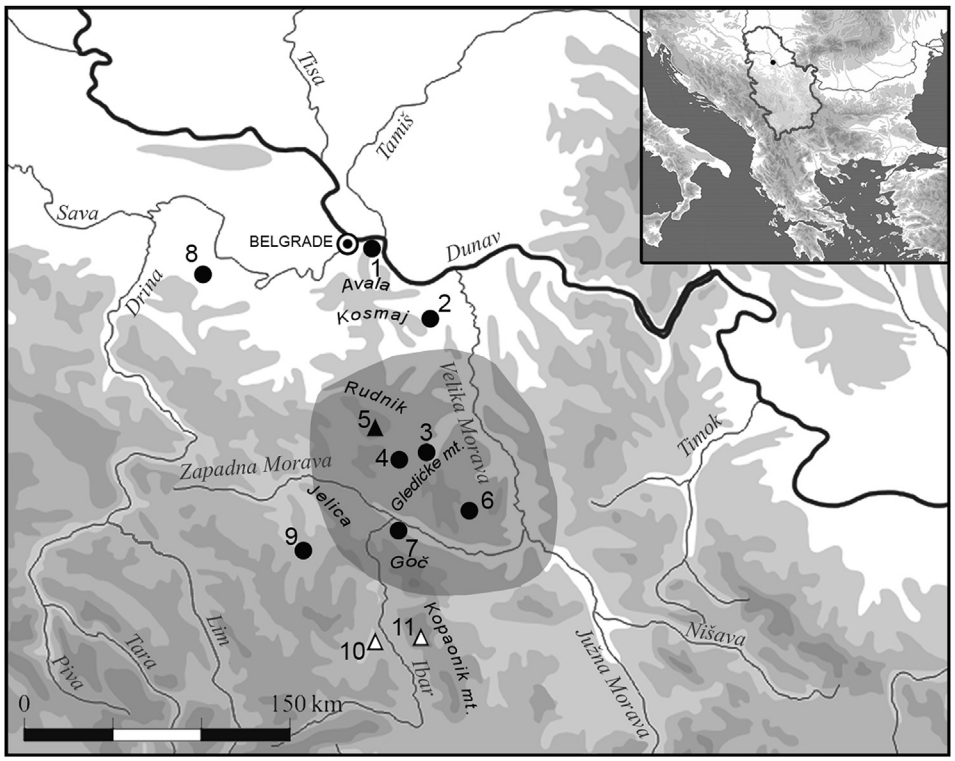

Fig. 1. Perspective area and sites of crystal quartz artefacts in Serbia. 1. Vinča-Belo Brdo; 2. Selevac; 3, Divostin; 4. Grivac; 5. Mali Šturac; 6. Blagotin; 7. Divlje Polje; 8. Popovića Brdo; 9. Hadži-Prodanova cave; Medieval sites: 10. Plavkovo; 11. Bakarnjača.

chipped stone assemblages from the two horizons were considered together (Tringham et al., 1988). In the earliest occupation phases of the Vinča culture site of Selevac, five quartz crystal specimens were discovered without the evidence of manufacture or secondary use (Voytek, 1986). Quartz crystals are much more numerous in the later phases of this settlement, but the data on the applied technology were not presented (Voytek, 1990). Rudnik Mt. was stated as the potential source of the raw material (Chapman, 1990), also the shafts of the Mali Šturac site (Jovanović, 1988), but this hypothesis was not proved.

An advanced production of quartz tools was documented at the Vinča culture site of Divlje Polje in the Morava valley (Fig. 1). A specimen made of rounded, transparent quartz crystal was recovered from the bottom of a pit-feature dated to the very beginning of the settlement (Vinča B2/Vinča C phase). The crystal was not flaked, but its whole surface was polished and the edges were smoothened (Fig. 2).

Fig. 2. Divlje Polje. Quartz crystal artefact from the bottom of a pit-feature.

2. Regional setting

The finds of quartz crystals discovered so far in Serbia come from the prehistoric sites located to the south of the Danube and the Sava rivers (Fig. 1). The geomorphological characteristics of these sites vary. The Palaeolithic site of Hadži-Prodanova cave is located in the mountainous region of south-western Serbia, at an altitude of 600 m. The settlements associated with the Starčevo and the Vinča cultures are found in highly diverse geographic settings, from mountain slopes and hilly areas to small valleys within large river systems (e.g. Grivac, Divostin, Blagotin; Fig. 1). Vinča culture settlements positioned along major river courses tend to occupy areas of over several dozen hectares in extent, such as the mega-sites of Selevac and Divlje Polje, whilst they can also be of restricted diameter but featuring a prominent geographic position, as in the case of Vinča-Belo Brdo (Fig. 1).

The perspective areas of quartz crystals concentrations were located in the Šumadija and Pomoravlje regions, between the Velika Morava and the Zapadna Morava rivers. As one of the most abundant minerals in the Earth's crust, quartz is present in all rock types – sedimentary, metamorphic and igneous. In the territory of Serbia, quartz generally originates from igneous and metamorphic rocks. The formation of quartz crystals is linked with the circulation of magmatic-related hydrothermal solutions derived by juvenile products of magmatic activity, for instance quartz latite, or some still uncovered intrusions. The precipitation of quartz from hydrothermal fluids is concentrated in the areas of paragenesis of

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