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SUPPLEMENTARY MATERIAL TO

Physicochemical characterisation of pottery from the Vinča culture, Serbia, regarding the firing temperature and decoration techniques

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Pottery is one of the most available remains of past societies due to its mineralogical composition and very good preservation abilities.¹ Especially during the Neolithic period (c. 7000 BCE–1700 BCE), pottery production excelled and it is often a dominant manifestation of these prehistoric cultures worldwide.

The territory of today's Balkan region is regarded as the location where the first and prominent features of Neolithic culture in Europe were constructed.² In this territory during the Neolithic period (from mid VI until the first half of V millennium BCE), the highly developed Vinča culture stretched for hundreds of kilometres along several rivers, such as Danube, Sava and Morava (Fig. S-1). Newer findings provide proof that the Vinča culture developed the first utilisation of copper at c. 5000 BCE, making it the earliest securely dated record of extractive metallurgy.^{3,4}

The Vinča culture is also renowned for advancements in agriculture, social structuring, and the first permanently and systematically built dwellings known in the archaeological records, the emergence of which is linked to the more general process of domestication.⁵ This Neolithic culture obtained the name after the settlement Vinča, which was located about 20 km down the Danube river from today's city of Belgrade (Serbia). This site is very important for archaeology of the Neolithic in Europe since it has 10 m thick cultural layer that continuously provides information on events in the region from this era.⁶

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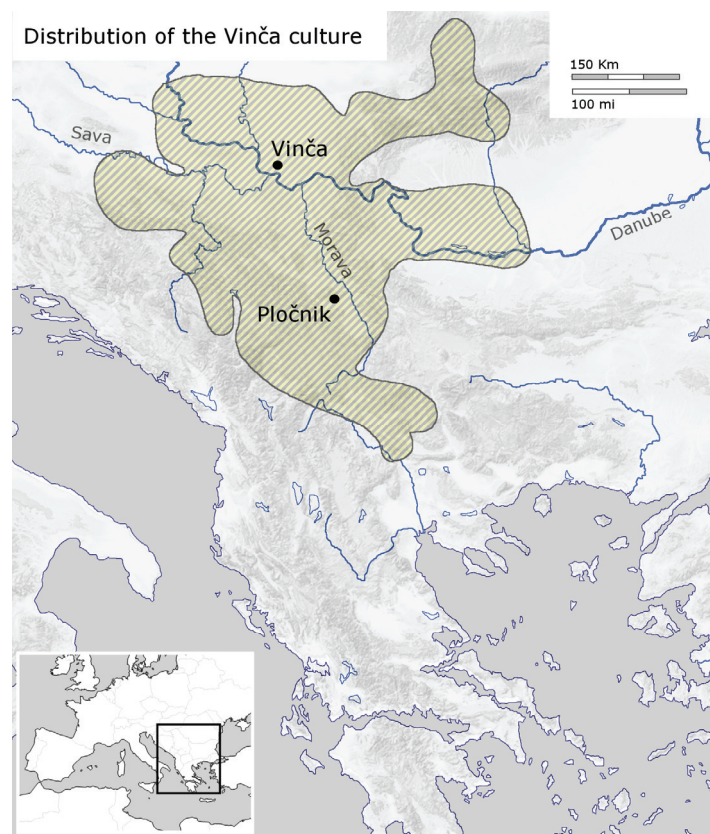


Fig. S-1. Territory of the Vinča culture (shaded) during Neolithic period, with locations of Vinča settlement and Pločnik excavation site (adapted after ref. 3).

Besides the Vinča settlement, there are several excavation sites of great significance within the territory populated by the Vinča people: Pločnik, Belovode and Gradac in today's Serbia, Tartaria Verbicioara, Rast and Turdaş in Romania, as well as Gornja Tuzla in Bosnia and Herzegovina.⁷ The Pločnik site is particularly important because of its abundant and significant inventory, which was excavated there, making this site into an eponym for later phases of the Vinča culture. Traces of the Vinča culture found at Pločnik consist of various pottery shards, remainders of dwellings and the first metal artefacts in the prehistory of South–East Europe.⁷ The excavated pottery shards exhibit a wide variety of shapes, colours and decorative elements, which underline the diversity of pottery utilisation and emphasize the technological advancement of pottery manufacturing. The pottery of the Vinča culture has been thoroughly visually inspected and characterised by archaeologists according to its style, colour, shape and tex-

ture.^{7–9} Despite its historical and cultural significance, archaeometric analysis of the Vinča pottery is limited.

Description of the samples

The analysed pottery shards are presented Fig. S-2. The investigated samples had the best-preserved remains of pigments and exhibited notable differences in decoration patterns and colouration. The body of ceramics obtained from the Pločnik locality was usually black or grey, as could be observed in samples P-3–P-10. It is known from the literature that the Neolithic potters obtained different colorations of the ceramics by controlling the firing conditions in the kiln or the pit.^{10,11} Under reducing conditions, the black colour could be produced and under the oxidizing firing conditions, shades of pale yellow to red colour could be obtained. It is also known that consecutive colouring of the ceramics could be performed after firing by the use of certain pigments. For this purpose, usually red or yellowish clays were used as a red pigment.^{10,11} Among the samples investigated in this study, only P9 and P10 samples look like additional colouring was performed after the firing.

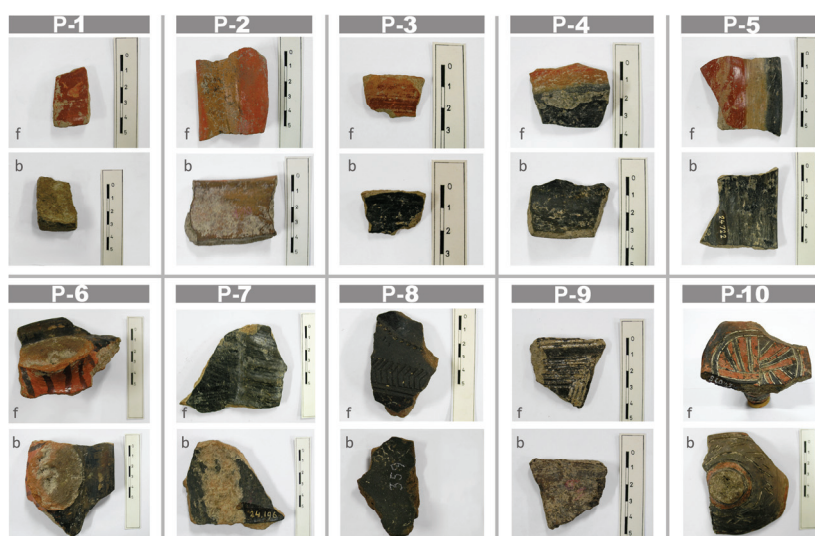


Fig. 2. Pottery shards excavated at the Pločnik site investigated in this study; shards are presented as the front (f) and the back (b) view.

The pottery fragments were too small to allow determination of the particular type of pottery object they originated from, but their quality indicates that they were a part of smaller vessels (conical or biconical bowls). The exception was sample P-10, which represents a part of a beaker on the foot. The investigated material was dated 5250–4600 BCE.

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