

POTTERY TECHNOLOGY OF VINCA: PROVENANCE AND CHARACTERIZATION OF RAW MATERIALS AND EXPERIMENTAL RESEARCH

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Pottery of Late Neolithic Vinca culture of the Central Balkans is very well known. However, technology, manufacture and firing techniques are still unknown. Therefore, complex interdisciplinary investigations were conducted in order to determine microstructure, composition, porosity and other characteristics of late Vinca pottery (Vinca-Plocnik phase), as well as to identify raw materials used by Neolithic potters. The total of 13 samples of typical Late Vinca pottery sherds (bowls, amphorae, jars, pans) were selected for various analyses. Concerning the fact that raw materials are usually of local origin, geological research were also conducted in the vicinity of archaeological site. The total of 5 samples were taken for further analyses (loess deposits, alluvial deposits from the right bank of Danube, clayey formations of Miocene lake deposits). Two groups of test briquettes were prepared from these samples: 1. briquettes made of pure raw material and 2. composite ones. Briquettes were experimentally fired in a pit (reducing atmosphere) and in laboratory electric kiln (oxidizing atmosphere). The results of XRD, AAS, chemical elemental and mineralogical analyses of archaeological pottery revealed that all vessel types were made of same clay. Technological analyses were also conducted: water absorption, density, apparent porosity, true porosity and sintering rate. On the basis of the results of comparative analyses of pottery and fired briquettes the original raw material used by Neolithic potters was identified. In order to reconstruct pottery forming techniques experimental vessels were made (pinching, coiling and combined mould/coiling techniques) using raw materials with different amounts of various inclusions (crushed riverine shells, animal dung, grog, rough and fine sand). Half of the dried vessels were experimentally fired in a pit (reducing atmosphere), and the other in the open fire (oxidizing atmosphere). Several vessels from open fire were subjected to post firing reducing treatment. The main goal of the experiment was definition of performance characteristics of the raw material mixed with various types of inclusion during the whole pottery manufacture process.