

The dynamic prehistoric culture. Comprehensive analysis of archaeological data from Central and Southeastern Europe

Archaeological records are the only data on human remote past before the written language was invented. These data are fragmentary, because numerous things made of organic materials were not preserved till the present. They do not straightly mirror the ancient life, because many of them were deposited in a specific way, while the functional and symbolic meaning of artifacts is often not known to us. Therefore, analysis and synthesis in archaeology reminds work of a detective, puzzling the past from available evidence. Spatio-temporal framework of these investigations in prehistoric archaeology of continental Europe is provided by the concept of 'archaeological culture', which represent a certain level of similarities between the data of a given time frame within some territory. Respectively, 'archaeological cultures' lay at the core of the way of thinking in the archaeology, framing the interpretations of ethnic processes, subsistence strategies and social organization of the ancient populations. However, what cultural dynamics in its wider sense is hidden behind the archaeological cultures?

The proposed project aims the analysis of cultural dynamics in prehistory within the interdisciplinary framework of complexity theory, which describes the system behavior as exceeding the behavior of sum of its component parts. This approach suggests the application of theoretical approaches, statistical analysis and mathematical modelling in order to detect and explain the laws of human individual and group cultural behavior at different scales. Cultural modifications and transformations, cultural expansion, unification and formation of the regional variations in Southeastern and Central Europe from Late Paleolithic till the Late Bronze Age, c. 11,000 – 1,300 BC will be analyzed in order to propose the new synthesis of cultural dynamics in this area. Hence, the project aims the issues of the origin and spread of innovations and different factors, which caused these processes, the individual and group behavior that caused the culture change. Special attention will be given to natural surroundings of the studied societies, their demographic profiles and socio-economic organization. Complementary to analysis of culture in its wider sense, the issue of 'archaeological culture' as a complex dynamic system is concerned aiming to solve the issue of cultural behavior caused the selectiveness in elements of culture deposited in the ground, preserved by nowadays and redeposited in the result of natural and cultural processes of later times. The related research hypotheses will be tested by the excavations of Tripolye houses dated to c. 3800 – 3600 BC, which were burnt in ritual fire with preceding special placement of pottery and tools within the buildings and then specifically deposited in the ground during the collapse in fire and partly redeposited in later time. Geophysical surveys will be conducted prior to the excavations in order to identify the settlement structure in a form of geomagnetic anomalies that may be interpreted as the remains of dwellings and pits basing on experience in related studies. Besides the archaeological data obtained in excavations, archaeozoological and archaeobotanical analyses will enable the reconstruction of economy of the Tripolye population.

'Detective work' on archaeological evidence on cultural modifications and transformation in this project will be based on deductive approach. Theories derived from cultural anthropology, culture theory and complexity theory will be converted into several research hypotheses, describing different measure of importance of different factors that may cause the culture change. Theoretical and mathematical models used in this study may be labeled as theories converted into the algorithm of method. In other words, logical links in theoretical models and correlation between variables, coefficients and exponents in mathematical models are considered as interconnections between elements of culture composing its overall dynamics. Since the project concerns different factors influencing the cultural modifications and transformations, as well as different impact of these factors on culture change, the resulted outcomes of modelling should be verified through the analysis of 'independent' records, archaeological materials that were not involved into modelling. The latter is made possible by application of statistical methods in order to systematize the archaeological data. Suitable results of modeling will be interconnected to provide a new meaning of 'archaeological culture' and new synthesis of cultural dynamics in prehistory.