The Colors of Prehistory
Bronze Age Anthropomorphic and Zoomorphic Figurines

Over the past two decades, a new scientific field has been created with the subject of study being "cultural and artistic values." This field of science makes it possible to interpret our movable cultural heritage in a comprehensive and meaningful way, filling the hypotheses formulated in previous studies with concrete content. In this sense, the global trend is both to train a new generation of scholars and experts in the study of movable cultural heritage and to define basic scientific conclusions and recommendations regarding the strategy for its preservation. In practice, this new field of knowledge summarises the comprehensive study, research and evaluation of cultural objects and works of art based on worldview values and symbolic principles, scientific laws, categories and conceptual apparatus from history, philosophy, aesthetics, art history, and materials science, drawing on parts of their fields of research.

The introduction of modern technologies in research has changed the way the public perceives archaeology, offering both interactive access to objects from the past and the context of their discovery, as well as open access to data that was previously only available to the academic community. In this regard, we also refer to the International Science Council's policy on the creation of platforms that provide "... access to data, connectivity, and the tools and concepts necessary for effective practice, training, and capacity development."

The project "The Colors of Prehistory. Bronze Age Anthropomorphic and Zoomorphic Figures " is in line with the above-mentioned trends and aims to introduce new methods for interdisciplinary research/expertise of movable cultural values and their presentation in a digital environment. Anthropomorphic and zoomorphic figurines from the second half of the 2nd millennium BC, which are emblematic of prehistoric art in Bulgarian lands and are kept at the National Archaeological Institute with Museum, National Historical Museum, Regional Historical Museum – Vidin, and Historical Museum – Lom.

The main working hypothesis is based on the fact that over time and under the influence of various factors such as air, salts, temperature fluctuations, secondary firing, etc., ceramic artifacts undergo structural changes, losing or altering their color. Some of the pigments are lost during cleaning, contact with air, or sunlight. In other words, what we see today are objects that have been altered at least in terms of their color. Global experience shows that without delving into the anatomy of the artifacts and taking into account their composition and structure, their technological features, and the technical skills of their creators, our understanding of them would be incomplete or inaccurate, and only through instrumental research can data be collected that allows for the reconstruction of their authentic appearance. This thesis is formulated on the basis of the availability of sufficiently effective modern instruments that allow the accumulated data to be analyzed and interpreted in such a way as to synthesize the desired model.

The project also envisages the creation of an open database that can be used by a wide range of specialists and by the specialized bodies responsible for protecting movable cultural heritage in Bulgaria. To date, Bulgaria has not defined a clear methodology for expertise and has not described the technical equipment for analyzing individual groups of movable cultural values (ceramics, metal, painting, etc.). In the case of ceramic artifacts, such as the figurines to be analyzed in the project, over time and under the influence of air, salts, temperature fluctuations, and other factors, the delicate pigments applied to them have lost or changed their color, and only instrumental studies can provide information about the pigments and colors that decorated their surface.

The project "The Colors of Prehistory. Anthropomorphic and Zoomorphic Sculptures from the Bronze Age" has three main objectives:

• The first objective is related to the development of algorithms and the introduction of new methods for interdisciplinary research of movable cultural assets through the integration of technical and information technologies.

• The second objective is related to the creation of a database and algorithms for the presentation of movable cultural assets in a virtual environment and the semantic annotation of movable cultural heritage.

• The third objective is related to expanding the participation of the Bulgarian scientific community in the European Research Area and international scientific cooperation.

To achieve the objectives of the project, an analysis will be made of the morphology and composition of the pigments of anthropomorphic and zoomorphic figurines from the 2nd millennium BC from Bulgarian lands. Through 3D scanning and the creation of an accurate polymer model/copy, and based on the data from the analyses, the authentic appearance of the artifacts will be restored on the copies. The originals and the restored copies will be presented in a virtual exhibition and in one of the halls of the National Archaeological Museum.

Parallel to the exhibition, an international conference will be held on the methodology for interdisciplinary research of movable cultural assets and their presentation in a virtual environment. The results of the analyses and reconstructions will be uploaded to a database that will allow for the addition and entry of new information units.