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Processing technology for the objects of mobile art in the Upper Paleolithic of Siberia (the Malta site)

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ABSTRACT

Investigation of the technological aspects of the processing of the Siberian collection of animal materials opens up new possibilities for the historical and cultural reconstructions of archaeological materials. The complete collection of processed ivory reflecting technological cycles is shown in single sites of the Classical stage of the Upper Paleolithic in Siberia (Malta, Ust-Cova, Afontova Gora, Listvenka, and Jansky). Materials of animal origin from the collection of Malta (especially ivory) are suitable for their preservation for microscopic analysis. The Malta-site is the main archaeological site of the Upper Paleolithic in Siberia (dated near 19,000–23,000 years BP). The collection is represented by the more than 650 decorated objects of ivory, antler, and bone. A detailed study of the most part of the collection stored in the State Hermitage Museum (St. Petersburg) has established the general steps of processing the ivory, antler, and bone articles at the time of Siberian's Upper Paleolithic. Mobile art of Malta is well known in the scientific and popular press, but our study differs from other studies. The work is based on a set of morphological data, technical, use wear analyzes and experiment. The collection includes the sculptures of people, birds, fish, and animals as well as ornamented plates, rods, and personal ornaments. The microscopic analysis allows one to systematize the process of shape formation, the processing, and the ornamentation of Paleolithic sculptures and personal ornamentations of Malta. In addition, we propose certain stable sets of tools and techniques used to work with each of the selected morphological types of Paleolithic sculpture. We have identified all steps of manufacturing the mobile art pieces including flaking, drilling, carving, grinding, and polishing. A number of tools were employed for the manufacture of artifacts: hammer stones, retouches, bow-shaped drills, perforators, boring, different kinds of burins and knives, reamers, engravers, grinding tablets, and scrapers. The basic tools that were involved in forming shape were planer knives and some variants of scrapers. Burins and knives were employed to make decorative elements. According our opinion, In Malta's tool kit were: the bow-shaped drills, perforators, and burins, as well as different kind of burins were used for drilling the holes and forming of the ornamental elements. The different types of abrasives were also used.

1. Introduction

Malta is the main archeological site of the Upper Paleolithic in Siberia. The site was discovered and investigated in 1928–1958 by M. M. Gerasimov (Fig. 1-1), whose studies were continued until the present day by a group of archeologists from Irkutsk State University under the leadership of G. I. Medvedev. The Malta site is located deep in Northeastern Asia, in the Lake Baikal area on the left bank of the Belaya River which belongs to the Angara basin (52°51′12.7″N; 103°30′41.1″E).

Malta is a multilayer archeological site with cultural deposits ranging from 43,000 to 41,000 to 12,000 BP. The classical Malta layer (according to the conclusions of M. M. Gerasimov) is characterized by ivory inventory, anthropomorphic sculpture, and dwellings structures with the dates ranging from 20,000 to 21,000 BP (Medvedev et al., 1996; Stone Age …, 2001). The collection of the finished objects discovered at the site includes over six hundred fifty widely known decorated objects of ivory, horn, and bone. A detailed technical and typological study of most of the collection, which is now kept in the State Hermitage Museum in St. Petersburg, has made it possible to establish the stages in ivory,

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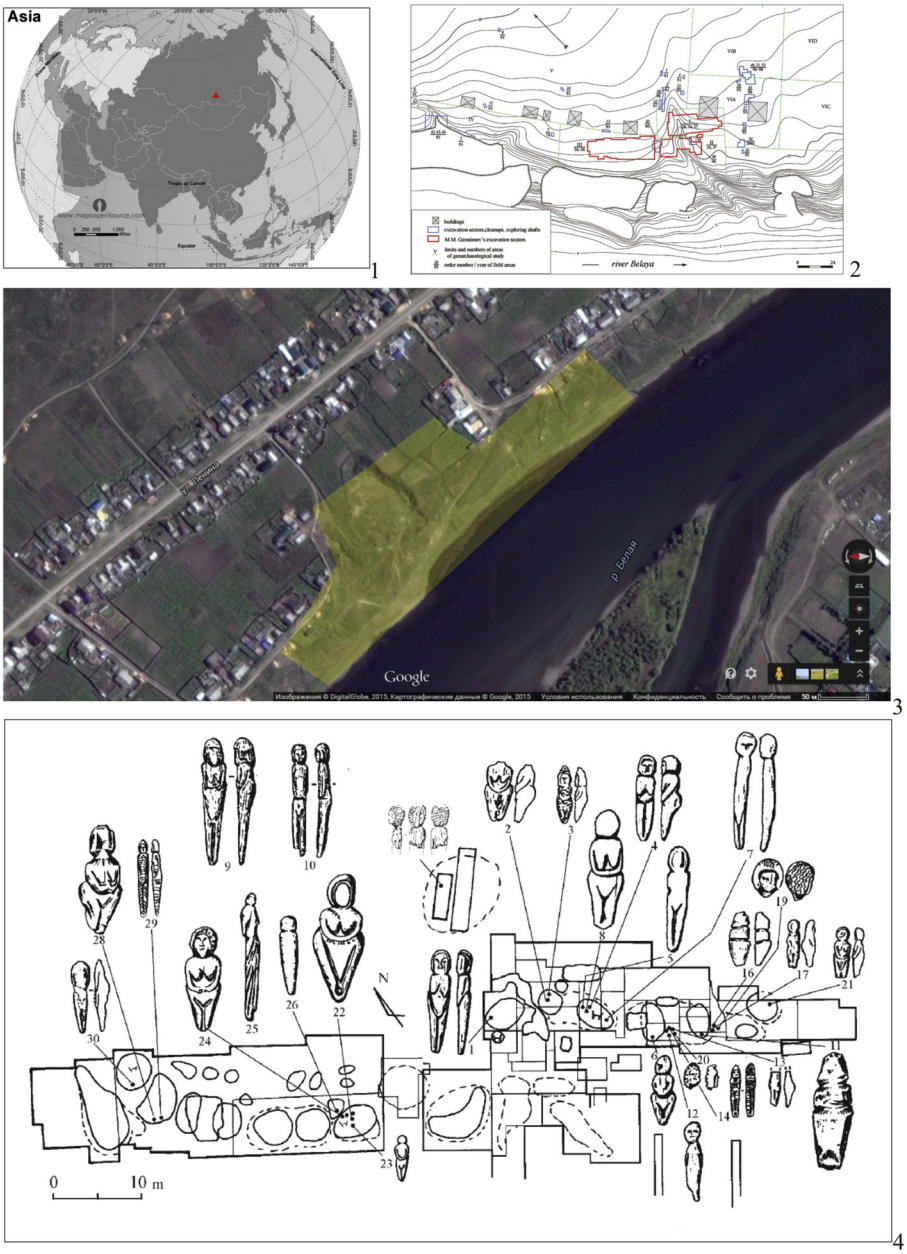

Fig. 1. Place of Malta-site (1), geomorphologic position and plan of excavations by M. Gerasimov in 1936–58 and modern excavation (2), zone of the diffusion of the Artifacts (3), indicating the points of the findings of anthropomorphic sculptures in Gerasimov's excavations (4) (illustrations modified from Medvedev et al., 1996).

horn, and bone processing during the Upper Paleolithic in Siberia. Modern research of the ivory collection from the Malta site has significantly changed our understanding of the cultures at the classical stage of the Upper Paleolithic in Siberia.

Hundreds of studies describe and analyze the objects from the Malta collection. However, a complete comprehensive study of the processed ivory and bone of the collection by means of general technical analysis has not yet been done. Microscopic analysis makes it possible to understand the stages in shaping the techniques, technological processes, and decoration of ivory, horn, and bone in the Malta collection. In addition, we propose that some certain stable sets of tools and their combinations used for manufacturing selected morphological types of Paleolithic sculpture, personal adornments, etc.

The most recent paleogenetic results obtained from the remains of a boy (one of the two children from the Malta burial) are pertinent to our study. The investigation of the team headed by E. Willerslev showed that the specimen from Malta belongs to the Y-haplogroup R and the mtDNAhaplogroup U (Willerslev and Raghavan, 2013). Previous studies have shown that the haplogroup U appears in a number of the Upper Paleolithic cultures in Europe (Kostenki-XIV, Dolni Vestonice, Hohle Fels, and Oberkassel). The goal of our project was to define the main technological methods used for processing animal materials such as ivory, horn and bone from the Malta site and in the future to compare our results with the results of similar studies in other Eurasian contexts and in other assemblages.

2. Research methodology

The study was based on morphological, technical and typological, as well as microscopic analyses and experiments with hard