**COMPREHENSIVE STUDY OF BRONZE MIRRORS FROM THE VOLNA 1 NECROPOLIS**

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The Volna 1 urban necropolis is one of the most important archaeological monuments of the Greek colonization of the northern Black Sea region. This monument is located on the Taman Peninsula of the Krasnodar Territory and dates back to the 6th century BC - 1st century AD. The necropolis is located on important trade routes through the Kerch Strait, so it makes it possible to study the peculiarities of the interaction of the barbarian and Greek populations of this territory. Archaeological objects of mixed Greek-Barbarian origin indicate the level and dynamics of mutual penetration of cultures. Of particular interest in this context are objects made of metals that have striking technological features of various craft schools. However, the great rarity and high value of metal artifacts require the use of special non-destructive research methods. One of these is neutron tomography, which allows to identify areas of various metals and corrosion, to reveal hidden structural features. Neutron tomography also allows you to assess the degree of preservation of the artifact for the correct choice of conservation strategy. Neutron and X-ray diffraction methods are complementary to tomography and provide information about the phase composition of the object under study. Thus, the use of non-destructive methods to study the artifacts of the Greek necropolis Volna 1 can provide comprehensive information about ancient production technologies and the interaction of Greek and barbarian cultures.

A user program is being implemented at the IR-8 reactor at the Kurchatov Institute Research Center, which allows conducting research of cultural heritage objects at the facilities of the center. Neutron tomography experiments were carried out at the DRAGON station on the second horizontal experimental channel of the IR-8 reactor. Neutron diffraction measurements were carried out at the DISK station, located on the horizontal experimental channel of the IR-8 reactor.

In this work, fragments of bronze mirrors were studied. By the method of neutron tomography, the areas of corrosion propagation were visualized and various structural features were detected. The content of tin in the alloy was clarified and the phase composition of corrosion products was determined by neutron and X-ray diffraction.

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