

Medieval workshop of an alchemist, Jeweller and Glassmaker in Bilyar (Middle Volga Region, Russian Federation)

Valiulina S.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

In the centre of Bilyar, the pre-Mongolian capital of Volga Bulgaria, a team of researchers from Kazan University (Head - S. I. Valiulina) excavated and investigated an alchemy workshop - an example of an advanced experimental and craft alchemy practice. Some technological secrets from these experiments were determined using X-ray analysis (XRD) and scanning electron microscopy (SEM). The considered artefacts and materials are representative of the workplace or 'production facilities' of an alchemist-craftsman who combined chemical experiments with a jewellery practice and who was capable of providing himself with the necessary specialpurpose glassware. The scope of alchemy activity was determined using the analysis of alembics, as all other obtained materials are related to craft jewellery, which is quite common for Oriental alchemy as a whole. Judging from the results of the stratigraphic analysis and the nature of obtained materials, the Bilyar workshop of an alchemist, jeweller and glassmaker functioned in the centre of Bilyar at the very end of the 12th century and the beginning of the 13th century. The majority of finds were in use for a long period of time. Archaeometric dating was performed for the following items: Iranian Kashin ceramics of a lustrous design and minai, Russian glass tumblers, a lamp and a bead necklace of semi-transparent yellow glass. Finds of chemical glassware in Bilyar and other pre-Mongolian cities of Bulgaria and the discovery of the workshop of alchemist, jeweller and glassmaker in the centre of Bilyar informed the conclusion on the existence of alchemy in Volga Bulgaria in the 12th century to the beginning of the 13th century. Thus, archaeologists gained a rare opportunity to unveil the peculiarities of the initial stage of development of alchemy - experimental, craft or practical chemistry in eastern Europe.

Keywords

Bilyar, Islamic glass, Medieval alchemy, Natural science methods, Volga Bulgaria