

ИСТОРИЧЕСКИЙ ОБЗОР КЕРАМИКИ В ЦЕНТРАЛЬНОЙ АЗИИ И ТЕХНИКИ ЕЕ ПРИГОТОВЛЕНИЯ

Алимардонов Шухрат Джуманазар угли

Бобокулова Гулсевар Шухрат кизи

студенты Термезского государственного университета

Алтибоева Дилфуза Кудрат кизи,

Ёлдошева Максудахон

студенты Термезского филиала Ташкентского государственного

педагогического университета имени Низами

Тохилова Дилрабо Музаффаровна

Студент Самаркандского государственного института иностранных

языков

Аннотация: в статье ниже представлена керамика с исторической точки зрения, а также особенности производства керамики в Азии и актуальность сырья. Обсуждаются требования изготовления высококачественной глины керамистов Центральной Азии и необходимые компоненты керамики.

Ключевые слова: керамика, глина, лепка, удаление солей, терракота, кирпич, шлифование, температура, испарение, обжиг.

HISTORICAL OVERVIEW OF CERAMICS IN CENTRAL ASIA AND THE PREPARATION TECHNIQUES

Alimardonov Shuxrat Jumanazar ugli,

Boboqulova Gulsevar Shuhrat qizi,

students of Termiz state university

Altiboyeva Dilfuza Qudrat qizi,

Yo'ldosheva Maqsudaxon Ilhom qizi,

students of Tashkent state pedagogical university, the branch of Termiz

Tohirova Dilrabo Muzaffar qizi,

student of Samarkand state institute of foreign languages.

***Abstract:** The paper below aims to introduce ceramics from historical point of view and the peculiarities of Asian ceramics production and actuality of raw materials. Furthermore, the requirements of making high-quality clay of Central Asian ceramists and necessary components of ceramics are discussed.*

***Key words:** pottery, clay, molding, removal of salts, terracotta, bricks, grinding, temperature, evaporation, firing, burning*

The production process of clay for pottery is approximately the same for all the types of pottery materials. Therefore, the choice of raw materials and the preparation of clay mass can be considered akin to each other in terms of the production of bricks, architectural terracotta, glazed products, with only considerable or slight variations in techniques of preparation.

Judging from the findings of researches and archeological investigations, it was established that the material of ceramics dates back to the 1-2th centuries BC. Only high-quality ceramics have come hither to us, which differed from ordinary ceramics. The molding material was prepared via the method that has been preserved in some places even until now. After thorough removing of the soil's surface layer, soil was loosened with water and repeatedly ground to pieces. Water was periodically drained and poured again to remove salts from the soil. Prolonged soil treatment (freezing, washing, shoveling, grinding) significantly improves the quality of the future kitchenware or houseware. This is absolutely correct that grinding increases the elastic properties of the clay, contributing to the density of the product, and, consequently, better preservation. The removal of salts ensures the durability of raw products. To reduce shrinkage probability, a significant amount of adobe was sometimes added into the clay mass.

In the manufacture of ceramics, in some cases, thin grass stems, horsehair and wool were added to it, which served to prevent cracking of the material. Bricks were molded in wooden frames and after drying they were removed simply

by hand. Sometimes ceramic products were cut out with a knife from a leveled clay layer instead of molding process.

Simple details of ceramics decoration can be noticed from the XI-XII centuries ceramics samples. Whetstones, partition were used as the main techniques of decorating ceramics. The small parts of the ornament with figured outlines were usually cut with a knife from the layers of crude, slightly strengthened clay mass. At the same time burnt bricks started to creep in the ceramics production. The Kalyan minaret in Bukhara was built from burnt bricks, which was usually and widely practiced in the monuments of Turkmenistan as well.

The procedure of clay layers' preparation was complex and known to ceramics masters only. Elaborately mixed clay mass was leveled into a layer of the thickness of reasonable sufficiency. After keeping in a shaded place, depending on the air temperature ranging from one to three days, the clay was cut deploying great skill and care. Clay moisture should have been kept approximately stable. In order to prevent over-drying of clay, they were most likely wrapped in damp rags.

The dried products were fired, obviously in the same furnaces in which the brick was fired. The firing temperature was unstable in different parts of the furnace, as a result of which the degree of firing products was different. Laboratory analysis of firing temperature of ceramics showed that it varied within 850-1200 C, most often it was 900-1000 C. The ceramic products had variety of colors due to the uneven distribution of temperature. Thus, unglazed products, especially bricks and tiles, were painted after firing to create a one-color building surface. Different colored products were painted with liquid made out of powdered colored minerals using brushes.

Carved glazed ceramics with epigraphic ornaments were chiefly painted in two colors to highlight the inscription. Method for the production of glazing had the different varieties. First, the prepared tile surface was immersed in the glaze

liquid, forming the background surface of the picture. After absorbing stage of the paint, pattern was drawn with black paint, requiring great experience and taste and elegance from the master. Often, the entire remaining surface of the product surface was covered with blue, green, blue, purple and black colors glazes. Red paint was used least to cover small details and draw contours. Secondary glaze firing was usually carried out at lower temperatures than the first, depending on the composition and fusibility of the glaze. So, temperature of about 720 ° C was applied, the second glaze firing didn't require much exceeding it, while the base must be fired at a temperature of about 900-950 ° C.

The main material for the production of glaze is quartz. In Uzbekistan, there are deposits of quartz sand used to the manufacture of glass. The second main component of the glaze was alkali soil. In Uzbekistan, as in the whole of Middle Asia, alkali was obtained from the soil of the desert or semi-desert plants. Their soil contains up to 50% alkalis, mainly sodium. In addition to alkalis, it contains a small amount of magnesium, calcium, amorphous silica and even gypsum.

Glazes were usually filled with a small amount of plastic clay, which improved the quality, the consistency and fusibility. Tin and lead were mixed into the glaze mass to ensure glittering surface and special brightness.

Mineral dyes, copper, manganese ores were used to obtain colored glazes. Materials for the glaze mixture were selected, crushed, dosed, fused and ground thoroughly. At first, alkali and quartz were fused, then tin, lead, and dyes were added during the frying process. Afterward, glaze was diluted with water to obtain a glaze slip. *Samarkand glazes* used to cover certain details of the ornament of carved terracotta and tiled majolica. The element of iron was used as well to give greenish shade.

The schools of ceramics were akin to each other in some respects. For example, glazes of Bukhara, Shakhrisabz and ancient Merv were close to those of

Samarkand in terms of glazing techniques. Likewise, judging from the available fragments of ceramics, the same technique was applied in Khorezm and the Golden Horde. The firing temperature of the glaze in these places lied approximately in the same range as for carved ceramics, but the overglaze paints were apparently fired at low temperature of 700C.

As a conclusion, clay ceramics as a whole have been well preserved to draw parallels and conclusions about what was to life like in the ancient times. Only the incomplete burnt up ceramics kitchenware was destroyed under the influence of frost, or overexposure to open air, salts. XV century gives very high-quality samples of the clay-ceramic base of majolica and tiles. The glazes of this majolica are generally the same as in the 14th century. These findings accelerate the procedures of discovering much about the life habits of ancient people.

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