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GLASS BEADS MADE IN TURAN: THEIR SHAPE, COLOR, AND SPIRITUAL SIGNIFICANCE

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Abstract
This article examines the emergence of glass objects in the Bronze and Iron Ages in ancient Turan, their manufacturing technologies, development in terms of shape and color, and their religious-symbolic significance. Glass beads, necklaces, rings, and other ornaments provide important information about the aesthetic views, religious beliefs, and social stratification of ancient society. The study analyzes the findings of glass and glass-paste objects, their symbolic meanings (water, sun, life, eternity, fertility, etc.), and the technical skills of artisans, including polishing, drilling, coloring, and working with alloys. The results contribute to a deeper understanding of the cultural heritage, craftsmanship traditions, and religious worldviews of the peoples of ancient Turan.

Keywords: Ornament, glass objects, glass paste, bead, Bronze Age, Iron Age, Turan, jewelry craftsmanship, geometric shapes, color symbolism, religious beliefs, polishing technology, drilling technique, archaeological finds, cultural heritage, Zoroastrianism, Jarqoton, Bostan, Kökcha-3, Khorezm.

Introduction

The ancient region of Turan-one of the earliest cultural centers of Central Asia-played an important role in the formation of handicraft traditions during the Bronze and Iron Ages. Objects made of glass and glass paste-beads, necklaces, earrings, rings, and other ornaments-serve as key archaeological sources for studying the daily life, religious beliefs, and aesthetic perceptions of ancient populations. Glass objects unearthed at sites such as Jarqoton, Bostan, Kökcha, Tuproqqal'a, Jonbosqal'a, and Qoyqirilganqal'a demonstrate the technical proficiency of artisans and their mastery of complex glass-working processes.

No glass vessels from the Iron Age have been found in Turan, but Sarmatians living near the Ural region used glass vessels as early as the 5th century BCE [9:7]. Jewelry items were predominantly used by women in ancient times; seals, signs, and amulets found in men's graves, while other ornaments are mostly found in women's burials. Jewelry-making technology gradually developed. Glass beads were produced by cold-working the mass-drilling, cutting, polishing, painting, and applying thin layers of gold and silver were possible while the material was cold [9:7].

Artisans polished every type of ornament. A small piece of glass alloy was taken and polished into shape, then each bead was drilled using a rotary technique. Polishing stone objects has been known since the Early Paleolithic, and this technology posed no difficulty for Bronze Age populations. Soft stones were worked using harder stones; similarly, drilling techniques known

from the Mesolithic (e.g., Kuba Sengir site) continued into later times, and stone beads are also known from the Dam-Dam Chashma site [14:86-89].

After mastering metallurgy, craftsmen drilled beads using hard implements or metal tubes. Depending on the bead's length, it was drilled either from one side or both. M.A. Itina observed this technique in beads from the Kökcha-3 cemetery, noting that it appears in the South Caucasus from the Late Bronze and Early Iron Ages and at the Samtavra cemetery beginning from the 11th century BCE [15:86-89]. Spiral beads produced by winding softened glass around rods were also found in Khorezm. During the Iron Age, double-layered beads with gold foil inserted between glass layers emerged, as evidenced by finds from Jergetal, Bozorqal'a, Qorgon-3, and Tuproqqal'a [18:81-83].

Ornaments served not only aesthetic purposes but also conveyed sacred meanings and magical protection. Beads were crafted into rectangular, square, round, cylindrical, drop-shaped, tubular, oval, rhombic, biconical, spherical, ring-shaped, elongated, and spiral forms [16:34]. In the Iron Age, their variety increased to 17 main shapes: round, barrel-shaped, oval, biconical, segmented, cylindrical, ring-shaped, spring-like, ribbed, square, parallelepiped, trapezoidal, polygonal, eye-shaped, and *biser* beads [3:46].

In the Sopolli culture's Jarqoton phase, cylindrical and tubular glass beads predominated, with blue being the most common color [1:564]. Most glass ornaments were produced in circular (disk-shaped) and square forms. The circle, representing the moon and sun, is among the most ancient geometric symbols [11:335]. In symbolic traditions, the circle often denoted fire and the sun [17:47-58], while the square represented the earth and humanity [22:43-50].

Drop-shaped beads made of glass paste (Bostan VI graves) were among the most widespread items [1:564]. In addition to glass, southern Turanian populations of the Bronze Age wore drop-shaped beads made of lapis lazuli, agate, and calcite [6:24-31]. The drop unmistakably symbolized water [7:69-72]. The presence of sacred wells in Bronze Age sanctuaries-Jarqoton, Dashtli, Togolok, Gonur [12:41]-confirms the early sacralization of water. The *Aban-Yasht* of the *Avesta* is dedicated to the water goddess Anahita (Ardvisura), revered as the origin of life among ancient Turanian and Iranian peoples [5:152-169]. Drop-shaped beads thus represented miniature symbols of water. The sacred character of water and the sun among Saka and Massagetae tribes is evident from finds at Uygarak, Tagisken, and Jetiasar sites [13:67-98].

Cylindrical shapes widely used in Eastern cultures symbolized fertility. The square-one of the most important geometric symbols-represented stability, prosperity, and strength. Early dwellings of agricultural communities were mostly square or rectangular [16:34]. In ancient India, the square was the symbol of the earth [8:234]. The rhombus represented the sun and fertility. The oval symbolized eternity and the continuity of life. The circle represented yearly and seasonal cycles [8:85-86]. The dot at its center symbolized the origin of life; the circle, derived from the dot, represented the eternal cycles of life and death, day and night.

Bead shapes help distinguish the economic, cultural, and spiritual conceptions of different populations. For example, drop-shaped lapis lazuli beads from the Kozali phase of Jarqoton are associated with the spiritual concepts of steppe nomads (Andronovo and Srubnaya cultures) [1:530].

Five ring-shaped glass-paste beads were found at Bostan VII [1:568], suggesting broader use of such ornaments in the later Kozali, Mölali, and Bostan phases. At Bostan VI, ten necklaces were discovered, five of which were made of glass paste. They include ring-shaped, biconical, and rectangular beads. Bostan VI also yielded six drop-shaped pendants and 26 beads in cylindrical, circular, ring-shaped, rectangular, biconical, barrel-shaped, and disk forms. Bostan VII produced five ring-shaped glass-paste beads.

Bead color selection in the Bronze Age was not determined by artisans; beads were produced in the natural color of the glass alloy. Excavations have revealed mostly green and blue (sky-blue) beads. Only ancient Khorezmians used bright blue glass-paste beads [15:86-89]. Some bright-blue beads from Kökcha-3 changed to pale white over time.

In the Iron Age, beads appear in blue, white (Aktam cemetery) [4:63], and large flat shapes in blue and green (Tomdi cemetery) [4:63]. The widespread use of blue beads corresponds with improvements in glass clarity during the Iron Age, as seen in glass objects from Jonbosqal'a and Qoyqirilganqal'a [21:46].

Common ancient glass colors-white, light blue, blue, green-were produced using silver and iron compounds [19:1]. In early Zoroastrianism, blue symbolized the nocturnal sun wheel and darkness, while in the Vedic system, white, red, and black had sacred significance [2:48]. Considering that Zoroastrianism was the dominant religion in Turan, bead shapes and colors may have served protective or apotropaic functions.

Blue was associated with the transition into the uncertain afterlife. Mineral samples of bright blue color discovered in the Kohitang burial structures represent a unique artificial compound not naturally occurring; laboratory analyses at Charles University (Czech Republic) confirmed the presence of an unidentified pigment substance [23:16]. This blue color symbolized the journey to the unknown realm after death, explaining the placement of blue beads in graves.

Conclusion

The evidence shows that glass-making and glass-based jewelry production were highly developed in ancient Turan during the Bronze and Iron Ages. Ornaments made of glass, glass paste, lapis lazuli, and agate served not only decorative but also religious, ritualistic, and symbolic protective functions. The shapes, colors, and manufacturing techniques of beads and other ornaments reflect the aesthetic taste, beliefs, and naturalistic worldview of ancient populations. Studying glasscraft products thus contributes significantly to understanding the material and spiritual culture of the peoples of ancient Turan.

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