



The Final Bronze/Early Iron Age in the Old Zerafshan Delta, Uzbekistan: Pilot Investigations at Kimirek-kum-1

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ABSTRACT

The transition between the Final Bronze and Early Iron Age remains one of the least understood periods in the archaeology of southern Central Asia. In this paper, we introduce the newly discovered site of Kimirek-kum-1 (floruit ca. 1250–1050 CAL B.C.) in the old delta of the Zerafshan River in present-day Uzbekistan. Combined pedestrian survey, geomagnetic prospection, hand augering, and stratigraphic excavation, conducted between 2021 and 2023, demonstrate the site's unique potential to improve our understanding of the Final Bronze/Early Iron Age transition and the interface between the Central Eurasian steppes to the north and the Indo-Iranian world to the south. Notably, our investigations yielded nearly 400 objects in copper alloys, lead, gold, and semi-precious stone. These findings strongly suggest that Kimirek-kum-1 represents a substantial new Final Bronze/Early Iron Age center with extensive external links. It raises critical questions about the continuity of long-distance exchanges and elite networks after the end of the Oxus civilization.

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Introduction

In southern Central Asia, the Bronze/Iron Age transition represents a protracted period of major cultural changes alongside political, social, economic, and environmental transformation, which collectively stretch across some 500 years of the mid-2nd millennium B.C. (Table 1). Many of the questions that arise in relation to this period will be familiar to archaeologists investigating major transition periods in other parts of the world: in which materials and practices do we recognize era-defining changes? What impacts does the scaling down or reconfiguration of exchange networks have on elite groups (or their archaeological indications)? How do we interpret major archaeological changes recognized at region-wide and centuries-long scales against specific data from individual sites? In this article, we approach these questions from the perspective of a newly-discovered proto-historic site in the old Zerafshan Delta of south-central Uzbekistan. The site of Kimirek-kum-1, which initial radiocarbon results suggest dates to 1250–1050 CAL B.C., pushes the geographic bounds of Final Bronze/Early Iron Age material cultural groups and stretches the traditional definition of transition period technologies and exchange systems.

At the end of the 3rd millennium B.C. in southern Central Asia, the height of the Middle Bronze Age is defined by the mature Oxus civilization, with its proto-urban centers engaged in extensive prestige-oriented exchange networks with partners in Mesopotamia, southern Iran, and the Indus Valley (Lyonnet 2005; Luneau 2017; Lyonnet and Dubova 2021). During the first half of the 2nd millennium B.C., this exchange system slowly dissolved, and the Oxus civilization entered its final phase. During this period, many of the Oxus proto-urban

centers were abandoned in favor of smaller sites, the construction of monumental buildings ceased, and there was a sharp reduction in the circulation of symbolic, prestige-laden items in stone and metal that required skilled craftsmanship (for a summary, see Luneau 2021). While the underlying production technologies and organization seem to have changed in the late Oxus period, there are nonetheless typological and aesthetic continuities in certain ceramic, metal, and stone artifacts that indicate a reorientation, rather than a full-scale collapse, of the prevailing economic system (Rouse 2020; Luneau 2021). Exemplifying this reorientation, a major new role was played by partnerships for sourcing copper-tin ores within the realm of “Andronovo” or “steppe” pastoralist communities to the north of the late Oxus civilization (Garner 2013), creating new venues for cultural exchange and the material symbols of prestige (Doumani Dupuy, Luneau, and Rouse 2021).

After the middle of the 2nd millennium B.C., the trajectory of cultural change is expressed in the formation of a series of new regional cultures—grouped as the so-called “Handmade Painted Ware Cultures” or “Sine-Sepulcro Cultural Complex” (Francfort 2001; Lhuillier 2013; Lhuillier et al. 2013; Bendezu-Sarmiento and Lhuillier 2015, 2020; Boroffka and Sverchkov 2019) (Figure 1). These have usually been perceived through their differences from the previous late Oxus-Andronovo cultural system: thought to be modest, egalitarian, and inward-looking, supposedly based on self-sustaining local agropastoral economies with few long-distance exchanges and limited intercultural contacts that are altogether “more diffuse and difficult to grasp than during the Bronze Age” (Lhuillier 2022, 137). However, only relatively few

relationship to the other prestige objects and materials identified at KK1? The pre-modern exploitation of alluvial gold deposits is known from many streams in southern Central Asia—notably the upper Amu-darya and its tributaries Panj and Vakhsh, as far south as Qunduz, north to Karategin, and east to Darvaz, Badakhshan, and the Pamirs (Francfort 2022), in northern Fergana (Вольфсон 1935), Илақ (Маджи и Буряков 1974; Пругер 1990; Sverchkov 2009, 143–146), and the upper Zerafshan (Бубнова 1975, 21–22). Geographically closer to KK1—only ca. 250 km to the northeast—are the gold mines in the Nuratau Mountains (see Figure 1:53, 55; Пругер и Дресвяская 1978; Буряков 2001). Like with so many other mining areas in Central Asia, discovered finds mostly pertain to the last period of activity, namely the 9th–12th centuries A.D., but there are finds of stone tools from the Altynkazkan gold mine (see Figure 1:55) and nearby Bronze Age settlements that could suggest early exploitation (Sverchkov 2009, 154–155). To the northwest of KK1, there are 18th century A.D. Russian reports about the existence of gold deposits in the Khanate of Khiva at a mountain variously called Sheldekhtau or Shikh-Zelil—likely the Sultanuzdag, ca. 350 km to the northwest of KK1 (see Figure 1:58; Бубнова 1975, 15–16, 38). Although these reports are somewhat legendary in character, they have been partially confirmed by Soviet-period geological surveys (Пругер 1978, 29). Finally, no archaeological investigations have ever been conducted in the area of the enormous, recent, open-pit gold mine in the Murun-tau (see Figure 1:46), one of the largest individual gold deposits worldwide with resources in excess of 5000 metric tons of gold, situated only ca. 190 km to the north-northeast of KK1 (Kempe et al. 2016). Thus, it remains unclear whether this deposit was to some degree already exploited in pre-modern times.

Finally, the ubiquitous presence of lead rods is possibly explained by the fact that lead was regularly added to bronze and other copper alloys in eastern Iran and southern Central Asia from the Early Bronze Age onwards. It not only (slightly) reduces the melting temperature but also—and more importantly—improves the fluidity of the alloy, which facilitated difficult casting processes, such as those for jewelry (pins, bracelets, and pendants), cosmetic containers, or compartmented seals (Рузанов 2013, 227). This could be a hint at what was produced at KK1—namely comparably complicated objects, such as jewelry, and though this question requires further study, it fits well with the presence of prestige materials such as gold and lapis lazuli.

Conclusions

Our finds and the results of the AMS ¹⁴C dating indicate that KK1 flourished during the last quarter of the 2nd millennium B.C.—with the possibility of some degree of occupancy during the first half of the 2nd millennium B.C. and the sporadic presence of herdsmen during later centuries. This makes KK1 the first Final Bronze/Early Iron Age site (second half of the 2nd millennium B.C.) ever discovered in the Zerfshan Delta and, thus, contributes to filling a lacuna in our understanding of this crucial period in the cultural trajectory of southern Central Asia. Research planned for future excavation and analyses of KK1 will be able to address issues of subsistence economy, paleoecology, and production technologies with specific data, but information gleaned during our pilot studies already provides tantalizing hints of sustained

interregional trade networks and skilled craft production during this “dark age” in southern Central Asia during the mid- to late 2nd millennium B.C.

So far, the only clearly observable architectural feature at KK1 is the site’s enclosure wall. With a width of only ca. 1.5 m (at least on its western side), it seems to represent a fence rather than a regular fortification wall. As such, it is considerably thinner and less meticulously constructed than most contemporary fortification walls enclosing entire sites in southern Central Asia, such as those around Chust culture sites in Fergana (Заднепровский 1976; Матбабаев и Абдуллаев 2011). In architectural concept, however, the enclosure at KK1 is similar to the circular stone wall enclosing Burgut-kurgan in northern Bactria (Kysela, Augustinová, and Kinaston 2018), a major difference being that no similar interior architecture has yet been identified at KK1. At any rate, the relatively thin wall around KK1 needs to be further investigated, together with the surrounding canal, possibly as part of a more substantial wall-and-ditch feature.⁴

Geophysical survey suggests the existence of artificial channels and subterranean structures in various forms, including sizable pits. Such pits are characteristic for contemporary archaeological sites all across southwestern Central Asia. The potential presence of large economic pits could explain the noticeable absence of large storage vessels, as storage of grains might have taken place in silo pits instead of large storage vessels—a practice observed at contemporary sites in the steppes of central Kazakhstan (Варфоломеев, Ломан, и Евдокимов 2017), in Fergana, the Middle Syr-darya, central and southern Sogdiana, northern Bactria, and Chorasmia (Lhuillier 2013, 48–49). Year-round agricultural production at and around KK1 is suggested by the presence of wheat, barley, and millet seeds, while vetch might have played a role in foddering animals. Together with the ceramic repertoire, this suggests close intracultural links with the sphere of Final Bronze Age descendants of the Srubno-Andronovo-Tazabag’iab cultural horizon in Central Asia, in particular with the Amirabad culture in neighboring right-bank Chorasmia, which was presumably based on very similar ecological conditions (in the southern Akcha-darya Delta). However, the presence of grapes is clearly a more southern feature and suggests close, though perhaps exocultural, links with communities in Margiana and/or Bactria.

Perhaps the most fascinating result of our work at KK1 so far is the unexpectedly large corpus of metal objects and stone beads, pendants, and inlays on the one hand and, on the other, the combination of various indicators for metallurgical activity at the site. Comprehensive archaeometallurgical analyses, scheduled for the next project phase (kindly supported by another grant from the Gerda Henkel Foundation), will hopefully throw light on the character and scale of metallurgical activities at KK1. The relative abundance of gold objects and precious stones (lapis), together with finds of objects that served as status symbols (mace heads and pestle-scepters), raises the question of elite networks spanning across Final Bronze/Early Iron Age Central Asia. To date, very little is known about post-Oxus civilization elite cultures in southern Central Asia, although the presence of citadels and monumental buildings in Yaz-I period Margiana, southern Bactria, and the Kopet-dagh piedmonts (e.g., Yaz-depe, Tilla-tepe, and El’ken-depe—see remarks in Массон и Сарияниди [1972, 50–51] and Gardin [1998, 177]), on the one hand, and the elite mausolea of

Tagisken-North, on the other, hint at their existence. Both of these geographical and cultural poles are tangible at KK1. Therefore, future research at the newly discovered Final Bronze/Early Iron Age center of KK1 promises valuable new insights into this old problem.

Endnotes

1. Figure 2A:1–2: Beta-426624: 3110 ± 30 B.C. = 1497–1260 CAL B.C. (99.9% probability); Beta-426625: 2790 ± 30 B.C. = 1055–820 CAL B.C. (99.7% probability).
2. Preliminary XRD analysis of one tubular bead suggests a soft stone containing calcite and magnesite, possibly associated with steatite. Our sincere thanks go to Federico Carò from the Department of Scientific Research at the Metropolitan Museum of Art, who kindly carried out this preliminary analysis.
3. Previously, we had published one such pendant found by chance at the surface southeast of Bashtepa in 2017, i.e., before we understood their Final Bronze/Early Iron Age date (Stark et al. 2022, fig. 32:3).
4. It is intriguing to compare this wall-and-ditch feature with what we are told about Yima's *wara* (*vara-*) in Vendidad 2, 22–41 (translation Malandra 1983, 180–182). Though later often interpreted as an underground structure, the etymological connection with Vedic *valā-* (an enclosure for cows known from a cycle of Vedic cattle-raiding myths) suggests that, originally, Yima's *wara* was envisioned as an aboveground enclosure to shelter animals and men. Like the enclosure at KK1, it was of circular layout (Steblyn-Kamensky 1995), well-watered (stanza 26), and built of pakhsa—see stanza 31: “*zəmō ... zastaēibya vīxada,*” “beat the earth apart (i.e., knead) with (your) hands!”

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