

## CHAPTER SIXTEEN

# LIFE IN THE COUNTRYSIDE

## The rural archaeology of the Sapalli culture



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### INTRODUCTION

This chapter describes the rural facet of Late Bronze Age life in the Sapalli culture. It is based on recent survey work and the results of excavations conducted between 2007 and 2010 at the site of Tilla Bulak in the Pashkhurt plain on the western border of the Surkhan Darya valley (Figure 16.1).

The Sapalli culture, the local northern Bactrian variant of the Oxus Civilization,<sup>1</sup> flourished from the 20th to the 15th century BC.<sup>2</sup> According to ceramic parallels, it is contemporaneous with the Turkmen Namazga (NMG) VI phase and with all – except the earliest – Bronze Age remains in the Murghab delta.<sup>3</sup> In Uzbekistan, it can be divided into two phases, referred to here as Late Bronze (LB) I and LB II. The Late Bronze Age is clearly separated from the following Early Iron Age (the Jaz I/Kuchuk cultures with their distinctive handmade painted wares), which developed from ca. 1450 BC onwards. This terminology requires some explanation: My division between the Middle and Late Bronze Ages follows the initial classification of pottery from Namazga Depe (Ganjalın 1956; Kuftin 1956), which considered the NMG V period as Middle Bronze Age, and the subsequent NMG VI period as Late Bronze Age, without any chronological overlap. Subsequent redefinitions of the Middle Bronze Age have focused rather on social attributes and cultural-historical aspects, such as settlement structure (urban/nonurban), and thereby confused the matter. By using the original relative chronological concept, in no way do we embrace accompanying notions of absolute chronology, ethnogenesis, or migratory history. Furthermore, there is still some terminological disagreement about the final phase of the Late Bronze Age in southern Uzbekistan. This concerns the period between ca. 1700–1500 BC, which includes the successive phases of Kuzali, Molali, and Bustan according to Soviet and Uzbek scholars; it is referred to as LB II by most German archaeologists, and as “Bronze Final” in recent French publications (e.g., Luneau 2014). Its inclusion within the Oxus Civilization was endorsed by H.-P. Francfort, although he considered the dates of 2300–1500 BC “larges et symboliques” (Francfort 2005: 258) and later on consistently used the higher date of 1750 BC for its end (Francfort 2009; Francfort and Tremblay 2010).

The first Late Bronze Age sites of southern Uzbekistan were discovered in the late 1960s, when researchers of the Fine Arts Institute from Tashkent discovered

the site of Molalitepa (Beljaeva and Khakimov 1973) and a team from the newly founded Samarkand Institute of Archaeology started excavations at Sapallitepa (Al'baum 1969; Askarov 1971, 1973).<sup>4</sup> A few years later, in 1973, A. Askarov began working at Dzharkutan, the largest Sapalli culture settlement (Askarov 1977; Askarov and Abdullaev 1983). Excavations there subsequently continued in cooperation with German (Huff 1995, 2000) and French scholars (Bendezu-Sarmiento and Mustafakulov 2008, 2013; see also Chapter 13). In the Pashkhurt plain, initial surveys did not discover any Bronze Age remains (Rtveladze and Khakimov 1973; Rtveladze 1974), and the first artifacts dated to the 2nd millennium were published only in 2006 (Mokroborodov 2006).

## SETTLEMENT PATTERNS

In Margiana, the core region of the Oxus Civilization, several hundred Bronze Age sites are known along the deltaic fan of the Murghab River (Sarianidi 1990; Gubaev *et al.* 1998; Salvatori and Tosi 2008; Markofsky 2010). This settlement zone remained largely intact thanks to the subsequent retraction of the Murghab delta, which kept the sites from disturbance. Along the river branches, subsistence was based on irrigation agriculture (Miller 1999; Castiglione and Cottini 2002; Sataev and Sataeva 2012) and mixed animal husbandry (Moore 1993; Sataev and Sataeva 2014). Irrigation was presumably organized by local landlords, resident in fortified *qalas* at the heart of the riverine oases.<sup>5</sup> Francfort's early postulate of Bronze Age urban settlement in Bactria and Margiana (Francfort 1984, 1989, 2005) and V.I. Sarianidi's assumption of a highly stratified social system (Sarianidi 1990, 1998, 2002, 2005, 2008; see also Chapters 10 and 11) have been justified through the stunning results of the excavations at Gonur Depe. Here, the central *qala* with its double enceinte merely makes up the monumental center of a larger agglomeration comprising manufacturing zones, domestic architecture, and prestige burial grounds, all enclosed by a city wall. With around 50 ha, this is the largest Murghab site, and it may have been the center of a tiered settlement system (Salvatori 1998: 57–65; see also Chapter 5).

In northern Afghanistan (southern Bactria), the settlement structure along the Amu Darya's tributaries seems to resemble that of Margiana, judging by survey work in the 1970s (Kohl 1984: 162 map 18, summing up Sarianidi 1977: figs. 5, 7, 8).

In the Surkhan Darya valley, the natural conditions differ. The deeply incised Surkhan River requires substantial hydraulic efforts in order to be used for irrigation. Consequently, all Bronze Age settlements are concentrated along the wider western half of the plain, where smaller tributaries – the Sherabad Darya, Ulanbulaksaj, Khalkadzarsaj, and Sangardak – could be tapped more easily for runoff irrigation. When considering the Surkhan Darya plain's settlement pattern, it must be borne in mind that since the 1960s the region underwent a thorough land reshuffle to prepare for intensive agriculture and cotton growing. This process resulted in a massive loss of archaeological data and irrevocably changes our perception of the Sapalli culture living conditions. Only for one irrigation zone, the Bustansaj oasis, do we have an estimate of 20 km<sup>2</sup> of arable land (Shirinov 2002: 155).

At Dzharkutan, what remains of the site measures some 40 ha, half of which constitutes part of a single settled zone with several monumental compounds and production areas, the rest being devoted to several necropolises. A glimpse into

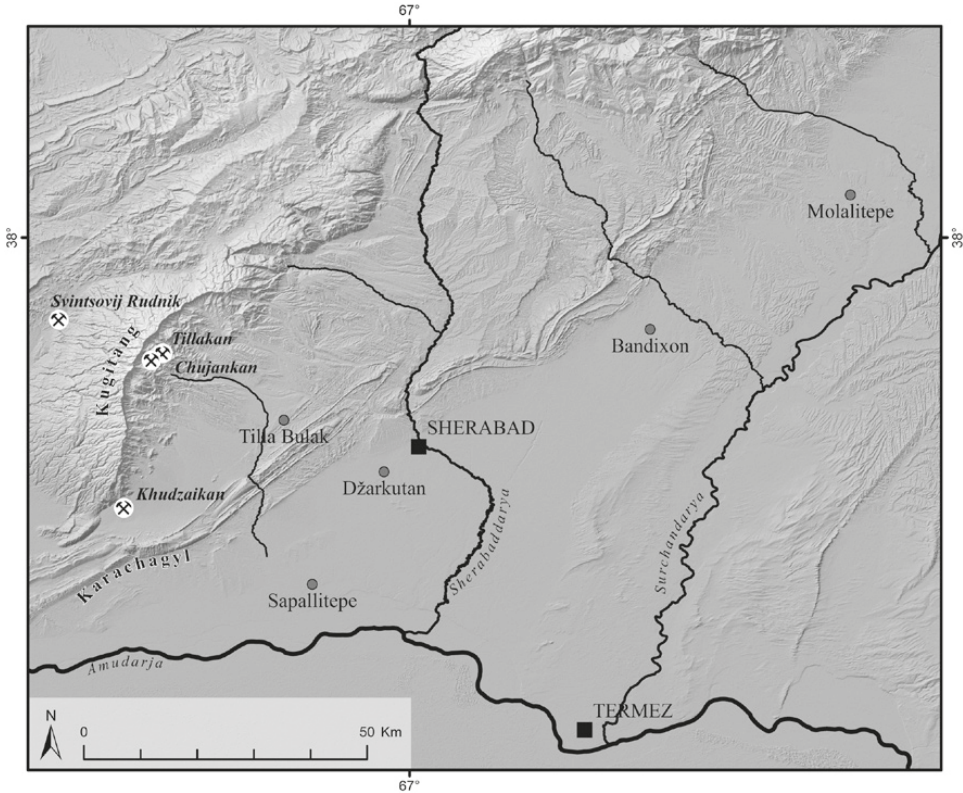


Figure 16.1 Surkhan Darya region map with major Late Bronze Age sites (map by St. E. Metz; base map: NASA SRTM GL-1).

the as yet unpublished data from a geophysical prospection carried out in 2012 (Mustafakulov *et al.* 2014: fig. 8) shows a dense occupation between the excavated *qalas* of the citadel, the “temple” (Tepe 6) and the remains on Tepes 4 (Kaniuth 2014), 5 and 8. Whether this should qualify Dzharkutan as an “urban” site is open to discussion, but the occupation is more substantial than commonly thought. At Sapallitepa, the known remains comprise a square *qala* of 82 × 82 m, but soundings in the neighboring cotton fields encountered less well-preserved settlement remains. It is not much to build an argument upon, but leaves open the possibility that the Sapallitepa settled zone was larger than the 3–4 ha usually accorded. Further north, the settlements of Molalitepa and Ochamajlitepe measure some 8–10 ha each, but have not been thoroughly investigated. Judging by the two excavated sites of Dzharkutan and Sapallitepa, therefore, the settlements of the Sapalli culture were made up of larger agglomerations with at least one central *qala* and surrounding unfortified housing. City walls have been detected with certainty only at Gonur.<sup>6</sup> At Dzharkutan, a very thick wall opened on Tepe 7 may, however, be part of a similar structure (Askarov and Shirinov 1993: fig. 68, II).

Even though the Bronze Age settlement pattern in the Surkhan Darya valley differed from that of Margiana and southern Bactria, until recently the question

remained if adaptations to more marginal zones existed, and if so, what form they took. When the site of Tilla Bulak was discovered by chance in the summer of 2006 in a region previously thought to be entirely devoid of pre-Hellenistic occupation, the possibility arose of investigating such a settlement area.

The Pashkhurt plain is a small, sparsely settled intermontane zone (between 700 and 1,200 m asl), 30 km long in a north–south direction, and perched between the Karachagyl chain (elevation ca. 900–1,000 m asl) to the east and the Kugitang Mountains (up to 3,000 m asl) to the west. It has only a single major watercourse, fed by minor tributaries flowing from the Kugitang range. This Dabilsaj River changes its name to Ulanbulaksaj after its descent into the Surkhan Darya plain at the village of Gaz, and, in these early times, continued to flow past the site of Sapallitepa.<sup>7</sup>

The Kugitang mountain chain consists of Mesozoic (Jurassic) limestone and intrusive (Paleozoic?) granite, while the Karachagyl chain consists of folded Mesozoic (Jurassic, Cretaceous) and Neogene sediments and sedimentary rocks (mudrock). The depression between them is filled with Quaternary sediments of gravel and loess. The rich mineral resources of the Kugitang may have constituted an incentive for settling this intermontane zone. On both sides of the mountain, salt,<sup>8</sup> copper, tin, lead, and iron<sup>9</sup> are readily available, but no pre-medieval exploitation has yet been documented (Ionin and Shafranov 1937; Raevskij and Fiveg 1973; Pruger 1980; Ruzanov and Burjakov 1997; Sverchkov 2009).

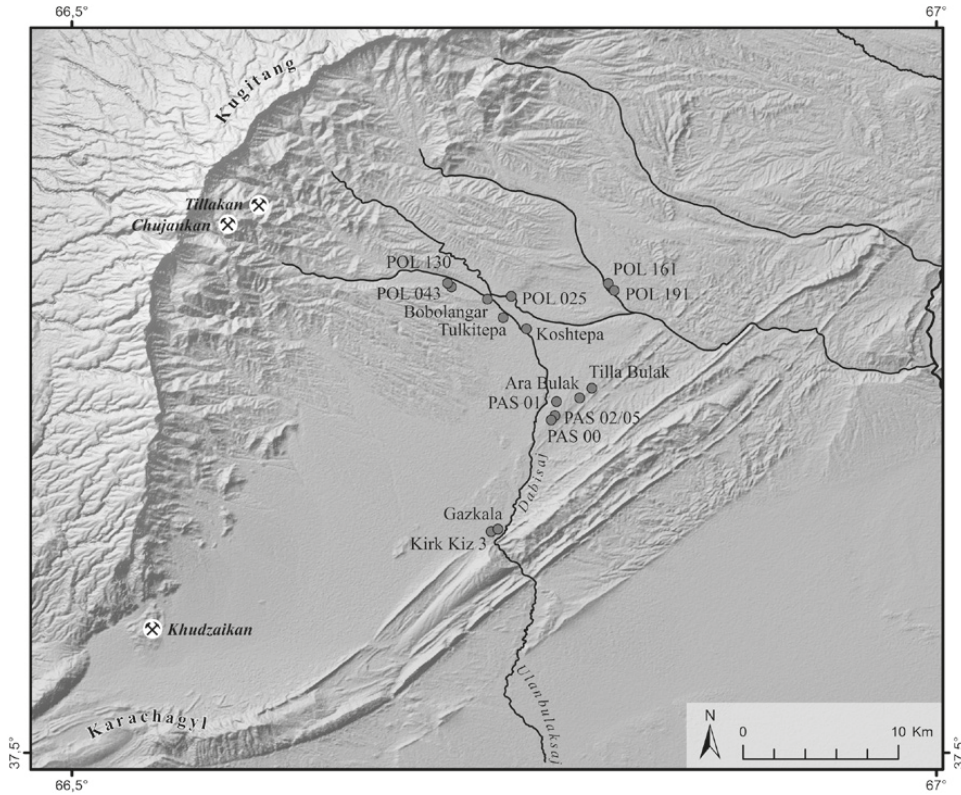
When Tilla Bulak was discovered, it was the first prehistoric settlement known in the valley.<sup>10</sup> Since then, unsystematic prospection<sup>11</sup> discovered several more sites in the eastern half of the Pashkhurt valley, the majority of which are of medieval or modern date (Kaniuth 2010b; Dvurechenskaja *et al.* 2014). After 2015, an Uzbek–Czech research project of the universities of Termez and Prague has investigated the region in a more systematic fashion.<sup>12</sup> It has demonstrated that the northern part of the Pashkhurt plain was densely inhabited for most of the 2nd millennium BC, with both Sapalli culture and Jaz I sites well represented (Danielisová *et al.* 2009; Stančo *et al.* 2014; Augustinová *et al.* 2015; Stančo 2016; Augustinová, Stančo, Damasêk, Khamidov *et al.* 2017; Augustinová, Stančo, Damasêk, Mrva *et al.* 2017; Stančo *et al.* 2017).

## LATE BRONZE AGE SITES IN THE PASHKHURT REGION

Altogether, almost two dozen Sapalli culture sites have so far been identified in the Pashkhurt region (Figure 16.2 and Table 16.1). In its northern part, around the villages of Karabag, Zarabag, and Maydan, ten Bronze Age sites have been documented by the Uzbek–Czech expedition (Augustinová, Stančo, Damasêk, Khamidov *et al.* 2017; Augustinová, Stančo, Damasêk, Mrva *et al.* 2017).<sup>13</sup> The major ones are the following.

Bobolangar, ca. 30 × 35 m, is situated 15 m above a spring in the southern part of the Zarabag oasis. Due to the good preservation of the survey pottery it was initially considered to be a cemetery (Augustinová, Stančo, Damasêk, Mrva *et al.* 2017: 125–128). Following excavation of three soundings at Bobolangar, it became clear that we are dealing with a stratified settlement involving several occupation, destruction, and rebuilding events. The published pottery dates to the very earliest phase of the Sapalli culture (LB Ia) (Kysela *et al.* 2018: 164–173). Tulkitepa is also located in the





**Figure 16.2** Pashkhurt valley map with known Late Bronze Age sites (map by St. E. Metz; base map: NASA SRTM GL-1).

Zarabag oasis and is likewise ca. 50 × 50 m large. Half of the collected pottery (20 of 38 dateable sherds) is LB in date, indicating a quite substantial Bronze Age occupation (Augustinovà, Stančo, Damasêk, Mrva *et al.* 2017). Koshtepa (T1) (Augustinovà *et al.* 2015), 1.2 km south of Zarabag, is an oval hill 2 m high and 50 m wide at its largest point. Several well-preserved vessels were recovered here. Out of 16 dateable sherds, five go back to the Late Bronze Age. A very recent addition (Stančo *et al.* 2017) is the site of Yultepa, halfway between the Pashkhurt and Surkhan Darya valleys and cut by the modern road. If its extent, as seen from satellite imagery, should turn out to relate exclusively to a Late Bronze Age occupation, this place, with 2 ha or more, would be the largest intermontane Sapalli culture site.

In the central part of the Pashkhurt plain, just east of the eponymous village, two Late Bronze Age settlements were discovered on the westernmost ridge of the Karachagyl folding zone: Tilla Bulak (0.4 ha, see pp. 471–479) and, 800 m to the south, Ara Bulak (ca. 0.3 ha). Both date to the LB I phase. A second ceramic distribution zone was documented on the crest of the elevated left bank of the Dabilsaj, on the edge of the modern town. In two instances (PAS 00, PAS 01), whole vessels of LB II date were recorded (Mokroborodov 2006; Kaniuth 2010b), suggesting that this place was used for burials, without visible contemporary settlements.

Table 16.1 Late Bronze Age sites in the Pashkhurt valley

<i>Name</i>	<i>Alternative name(s)</i>	<i>Coordinates (WGS 84)</i> <i>E</i>	<i>N</i>	<i>Village</i>	<i>Investigation</i>
Koshtepa	POL_023, KuPi_001	66.76292°	37.74502°	Zarabag	Survey
POL_025	POL_025	66.75412°	37.76380°	Zarabag	Survey
Bobolangar	POL_039, KuPi_008	66.74039°	37.76207°	Zarabag	Survey
POL_043	POL_043	66.71900°	37.76951°	Zarabag	Survey
Tulkitepa	POL_085, KuPi_011	66.74943°	37.75139°	Zarabag	Survey
POL_130	POL_130	66.71865°	37.77035°	Zarabag	Survey

<i>Description</i>	<i>Size</i>	<i>Quantity of dateable LBA (vs. all) finds</i>	<i>Date</i>	<i>References</i>	<i>Notes</i>
Tepe	0.2 ha (?) Stančo <i>et al.</i> 2017: tab. 2)	5 (15)	LB	Augustinová <i>et al.</i> 2015; Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	1 sherd illustrated in Augustinová <i>et al.</i> 2015: fig. 1, 1
Isolated finds	–	5 (7)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–
Tepe or cemetery(?)	0.1 ha	97 (438)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017; Kysela <i>et al.</i> 2018	11 sherds illustrated in Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017: fig. 20; 23 pottery items illustrated in Kysela <i>et al.</i> 2018: figs. 13, 14, and pl. 4, 2
Isolated finds	–	3 (4)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–
Tepe	0.2 ha/2 ha (Stančo <i>et al.</i> 2017: tab. 2)	20 (38)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–
Isolated finds	–	3 (20)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–

(continued)

Table 16.1 Cont.

<i>Name</i>	<i>Alternative name(s)</i>	<i>Coordinates E</i>	<i>(WGS 84) N</i>	<i>Village</i>	<i>Investigation</i>
POL 161	POL_161	66.81022°	37.77121°	Karabag	Survey
POL 191	POL_191	66.81368°	37.76716°	Karabag	Survey
Kalapushtepa	POL 218, KuPi 065	66.86056°	37.73242°	Maydan	Survey
Yultepa	ShD 254	66.922049°	37.744933°	Maydan	Survey
Tilla Bulak	PAS_TB01	66.80075°	37.71067°	Pashkhurt	Excavation



<i>Description</i>	<i>Size</i>	<i>Quantity of dateable LBA (vs. all) finds</i>	<i>Date</i>	<i>References</i>	<i>Notes</i>
Isolated finds	–	4 (9)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–
Isolated finds	–	3 (10)	LB	Augustinová, Stančo, Damašek, Mrva <i>et al.</i> 2017	–
Tepe	0.1 ha	5 (6)	LB	Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017	5 LBA sherds reported
Tepe	2 ha	?	LB	Stančo <i>et al.</i> 2017	Several dozen LBA sherds were observed by the author during a visit to the site in 2017; exact figures from the survey are not yet available
Tepe (settlement)	0.5 ha	ca. 60,000	LB I	Kaniuth 2007, 2009, 2010b, 2011, 2016	180 sherds and vessels have been published in Kaniuth 2007: figs. 13–14; 2009: figs. 7–12; Kaniuth 2010b: figs. 8–11; 2011: figs. 11, 12, 20; 2016: fig. 4

(continued)

Table 16.1 Cont.

<i>Name</i>	<i>Alternative name(s)</i>	<i>Coordinates E</i>	<i>(WGS 84) N</i>	<i>Village</i>	<i>Investigation</i>
Ara Bulak	PAS_AB01	66.79370°	37.70506°	Pashkhurt	Excavation
PAS 01	PAS_01	66.78030°	37.70290°	Pashkhurt	Survey (unsystematic)
PAS 02/05	PAS_02.03.04.05	66.77940°	37.69480°	Pashkhurt	Survey (unsystematic)
PAS 00	Unnamed (Bezimjannoe)	66.77° (?)	37.69° (?)	Pashkhurt	Survey (unsystematic)
Kirkkiz 3	Kyrkkyz-Ata?	66.74253°	37.62783°	Gaz	Survey (unsystematic)

<i>Description</i>	<i>Size</i>	<i>Quantity of dateable LBA (vs. all) finds</i>	<i>Date</i>	<i>References</i>	<i>Notes</i>
Tepe (settlement)	0.3 ha	74	LB I	Kaniuth 2010b	55 sherds illustrated in Kaniuth 2010b: figs. 43–45
Burials(?)	0.2 ha (sherd distr.)	32	LB II	Kaniuth 2010b	3 vessels in Kaniuth 2010b: fig. 40; 11 vessels this chapter, Figure 16.10
Burials(?)	0.6 ha (sherd distr.)	8	LB II	Kaniuth in press	–
Burials(?)	?	12	LB II	Mokroborodov 2006	12 items illustrated in Mokroborodov 2006: fig. 1
Tepe or cemetery(?)	0.2 ha (sherd distr.)	21	LB I	Dvurechenskaya <i>et al.</i> 2014 (Kyrkkyz- Ata); Kaniuth, this chapter, Figure 16.3	9 sherds this chapter, Figure 16.3; 12 sherds (from “Kyrkyz-Ata”, Dvurechenskaja <i>et al.</i> 2014; according to A. Augustinová (pers. comm.) this may be the spot where the LB I vessels kept in the Gaz school may come from

(continued)

Table 16.1 Cont.

<i>Name</i>	<i>Alternative name(s)</i>	<i>Coordinates E</i>	<i>(WGS 84) N</i>	<i>Village</i>	<i>Investigation</i>
Gazkala	Goz Kala Buloq/Kirkkiz (Augustinovà, Stančo, Damasèk, Khamidov <i>et al.</i> 2017: 149)	66.74642°	37.62922°	Gaz	Excavation
Goz Dagana 1	POL 240.241, KuPi 074	66.74696°	37.62178°	Gaz	Survey
Kyzylbay 1/2	POL 237.238, KuPi 073	66.7057°	37.6101°	Gaz	Survey
Kyzylbay 3	POL 239, KuPi 072	66.704231°	37.608542°	Gaz	Survey

*Note:* LBA = Late Bronze Age.

<i>Description</i>	<i>Size</i>	<i>Quantity of dateable LBA (vs. all) finds</i>	<i>Date</i>	<i>References</i>	<i>Notes</i>
Tepe (settlement)	0.7 ha	40	LB I	Dvurechenskaja <i>et al.</i> 2014; Rukavishnikova <i>et al.</i> 2015	37 sherds illustrated in Dvurechenskaja <i>et al.</i> 2014: fig. 3; 3 sherds published in Rukavishnikova <i>et al.</i> 2015: fig. 4
Tepe	100m <sup>2</sup>	8 (62)	–	Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017; Stančo <i>et al.</i> 2017;	8 LBA sherds reported
Tepe	1.420m <sup>2</sup> (K.2) 1.100 m <sup>2</sup> (K.1)	4 (85)	–	Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017; Stančo <i>et al.</i> 2017	4 LBA sherds reported by Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017; 3 of these come from the small tepe (POL 238), 1 from the lower terrace (POL 237)
Tepe	730m <sup>2</sup>	12 (89)	–	Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017; Stančo <i>et al.</i> 2017	4 sherds illustrated in Augustinová, Stančo, Damašek, Khamidov <i>et al.</i> 2017: figs. 11, 1; 12, 1–3

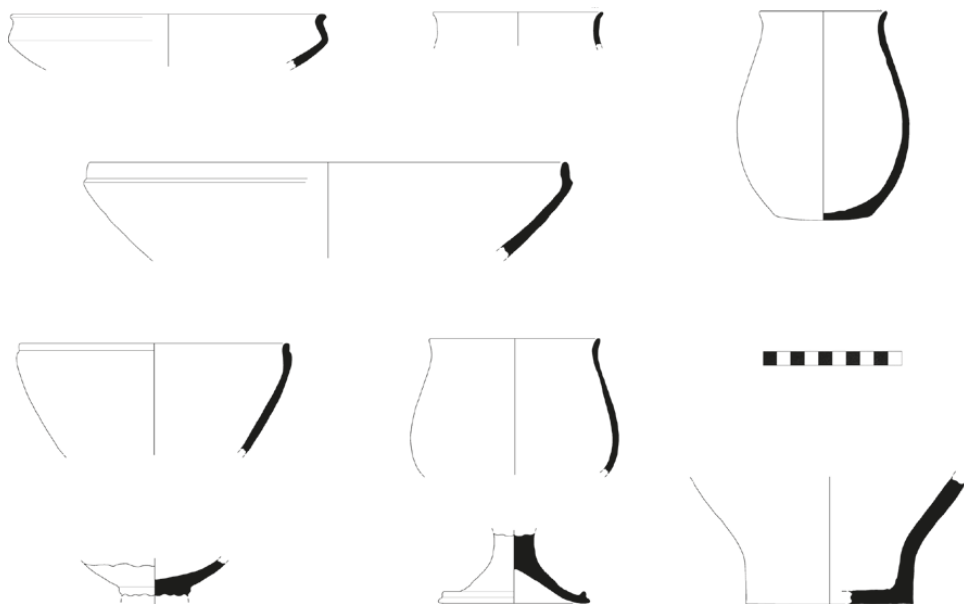


Figure 16.3 Late Bronze Age pottery from Kirkkiz 3.

Near the village of Gaz, the most important Bronze Age site appears to be Gazkala,<sup>14</sup> a dominant rocky spur with terracing on its western side. The (LB I) pottery distribution is said to extend for several hundred meters up to the banks of the Dabilsaj (Dvurechenskaja *et al.* 2014). In its immediate environs, west of Gazkala, at least one further concentration of LB I ceramics, labeled Kirkkiz 3, was discovered by the Tilla Bulak team (Figure 16.3).<sup>15</sup> The pottery scatter did not exceed 0.25 ha, but it may well be related to the Gazkala settlement 400 m away. Possibly, Kirkkiz 3 marks the location of the settlements' necropolis. At the site of Dzharkutan, for instance, the burial grounds (Dzharkutan 4a, b, c, and the Bustan group) are also separated from the living place by small streams. Gazkala and Kirkkiz 3 are separated by modern fields and by the remains of the sprawling late antique and early medieval settlement of Gaz-Ata (also named Gaztepa), which may, of course, have covered up a previous Bronze Age occupation. In any case, the Gaz region contained Late Bronze Age occupational remains distributed over an area of no less than 20 ha.

Some 4 km south of Gaz, another settled zone existed at Kyzylbay. Late Bronze Age ceramics stem from a tepe (POL 239) and two localities several hundred meters upstream (POL 237, 238). All the documented sherd scatters do not add up to more than 0.3 ha. Once the current survey program has covered the southern end of the Pashkhurt valley, around the villages of Aqtash and Chorvoq, this picture will most likely be complemented by further sites.

The overall impression then, is of fairly substantial, but spatially delimited habitational zones, clustered in or close to contemporary villages near springs, all answering the same primary requirement of water availability. The proximity to the mountains and the resulting dynamic relief of the landscape offer concomitantly very specific opportunities and limits to an economic valorization. We can currently only



guess as to what degree the mineral resources of the Pashkhurt region were exploited. Clearly, however, the limits of easily arable and irrigable land must have restricted the sustainable population, and consequently the settlement sizes. The settlement structure therefore differs much from that of the (comparatively) densely clustered and populated centers of Margiana, where the major sites exhibit such a high degree of architectural elaboration. Since Margiana's smaller hamlets are still waiting to be studied in detail, and since only one is known in Bactria (Tilla Bulak, see the next section), we are at a loss for drawing any conclusions about regional specific residential or subsistence patterns.

## TILLA BULAK

Of the Late Bronze Age sites in the Pashkhurt region, only Tilla Bulak (the “Gold Spring”) has been the target of a major field expedition, from 2007 until 2010.<sup>16</sup> Geomorphological investigations showed that the site had been founded in a particularly favorable environmental niche. Very conscious choices were made in its placement, taking into account visibility, water availability, but also conditions for building: The settlement is located on a drainage divide, and, therefore, on permanently dry ground. At the same time, it controlled a pocket of arable land to the east, easily watered by small channels fed from a perennial (“golden”) spring at the foot of the site (Makki in Kaniuth 2010b). By contrast, only livestock could be kept to the west of Tilla Bulak. Irrigation farming there requires either the tapping of groundwater resources or the construction of an elaborate canal system to bring water over larger distances.<sup>17</sup>

Tilla Bulak saw two major occupational phases, with radiocarbon (<sup>14</sup>C) dates falling between the 20th and 18th century BC<sup>18</sup> (see also the Appendix at the end of this volume). The first phase ended in a fire sometime in the late 19th century BC. The settlement was then rapidly rebuilt, only to be left once and for all in the mid-18th century BC after the relatively short reoccupation of phase 2. Initially, settlers occupied a small, steep hill of half a hectare in size and laid the ground for dense mudbrick architecture covering the entire elevation by terracing operations (Figure 16.4).

Contrary to what is regularly encountered in other larger Bactria-Margiana Archaeological Complex (BMAC) settlements, not much energy was spent on defensive architecture. Walls of different thickness at Tilla Bulak probably indicate terracing rather than protective measures, and a single round corner bastion within the settlement was, likewise, of limited value against military threats. To the northwest, access to the site was channeled by a 3 m wide artificial ditch. A 6 m wide opening remained between the moat heads, again without any visible fortification.

A central lane led from this entrance up to the top of the hill, where it ended in a blind alley just before the topmost compound (rooms 1 and 2). The households consisted of two to four rooms (i.e., about 30–60 m<sup>2</sup>).<sup>19</sup> At least one larger room in each household contained a fireplace with a chimney (Figure 16.5).

In some places, mud plaster still stuck to the walls, and floors consisted of beaten earth. Entrances from the lanes were in several instances marked by exterior stepping stones, which had to be raised as waste accumulated in the alleys. No hierarchy in the rooms or among the households can be postulated on the basis of either size,



Figure 16.4 Tilla Bulak. Plan of phase I (plan by M. Gruber, taken from Kaniuth 2016: fig. 3). The major access route through the village is marked by arrows.



Figure 16.5 Chimney of Tilla Bulak, phase 1.

embellishments, or small finds, although a larger proportion of “prestigious” objects were discovered in the upper parts of the village.

The first settlement was destroyed at the end of the 19th century BC by a conflagration of unknown cause. This phase 1 was documented only in parts of the site, but yielded much valuable information on Bronze Age life since a lot of material had been preserved *in situ* under the debris. Phase 2 architecture was built immediately above the earlier walls in many cases, but the settlement pattern seems less dense. Several households were now surrounded with open spaces, others were abandoned and filled with rubble and refuse.

From individual rooms of phase 1, the *in situ* inventories that have been recovered consist of both fine tableware and cooking ware, grinding stones, and storage vessels (some with volumes of up to 175 l). The botanical finds show that the inhabitants of Tilla Bulak were engaged in mixed farming. Among cereals, barley (*H. vulgare*) and hulled wheat (*T. aestivum*, *T. spelta*) are predominant, each making up about 30% of the macro remains recovered during flotation.<sup>20</sup> Rye (*S. secale*), oat (*Avena*), millet (*P. miliaceum*), peas (*P. sativum*), and beans (*Fabaceae/Vicia faba*) make up the remainder. The question is still open as to the identification of wild versus domesticated grape (*V. vinifera*), which is abundantly attested (Peters in Kaniuth 2009). Animal bones were exclusively recovered from refuse contexts. As can be expected, sheep

and goat dominate the assemblage, but cattle also contributed significantly to the diet, while the proportion of pig is negligible (Sachs in Kaniuth 2010b). This alimentation, based on half a dozen staples, was supplemented through hunting, as shown by finds of deer, bird, and even a few bear bones, and possibly gathering, as suggested by cherry kernels. The processing of food was a household affair, judging by the even distribution of grinding stones.

Pottery is by far the predominant find category. Some 60,000 sherds have been recovered, 6,400 of which are diagnostic (rims, bases, and 142 archaeologically complete shapes). Technologically, they are indistinguishable from the contemporary material of Sapallitepa and the early levels of Dzharkutan. The clay of the wheel-thrown fine wares (90% of all the sherds) is well prepared, with very few visible inclusions. The firing conditions (800–850°C) were tightly controlled and both reducing and oxidizing atmospheres used. The proportion of sherds with gray surface color is about 1% by number, and considerably less by weight. Given the high quality of this tableware throughout the Sapalli culture area, and the lack of kilns at Tilla Bulak, the question arose of its local production. A first series of XRF analyses on 40 sherds from Tilla Bulak showed that practically all the tableware had been produced from the same clay source, strongly suggesting that this pottery was locally manufactured (Daszkiewicz and Schneider in Kaniuth 2007; Kaniuth *et al.* in press).<sup>21</sup> Typologically, very few forms from Tilla Bulak are unattested at other Sapalli culture sites. The frequency of conspicuous vessel classes, such as footed bowls (5–6%) or goblets (ca. 1%), more or less agrees with that in graves from the LB I period and sheds an interesting light on the relationship between burial and settlement assemblages.<sup>22</sup> Cooking ware, a handmade and heavily shell-tempered pottery, completely absent from graves, is much more important (up to 25%) in Tilla Bulak primary contexts than published evidence from elsewhere would lead us to expect. This probably reflects the poorer preservation conditions in secondary contexts at Dzharkutan and Sapallitepa. An example of an *in situ* room inventory is reproduced in Figure 16.6, and the associated pottery in Figure 16.7.

A range of household utensils were discovered at the site: terracotta and stone spindle whorls, flint and bone arrowheads, bone awls, astragali, and stone grinding tools. Grooved stone balls, possibly loom counterweights, may indicate local weaving. Though very few items of jewelry would be expected from a rural settlement context, we did find some beads of lapis lazuli, turquoise, and agate, some copper or bronze dress pins and one limestone eagle-shaped pendant (see Figure 16.9). This latter piece is interesting for its wide distribution across southern Middle Asia, southwestern Iran, and up to western Syria, where one similar find is known at Ebla.<sup>23</sup> The eagle-shaped pendant bears on its back a number of drill holes, leading over to the large group of typical BMAC “amulets,” mostly flat disk-shaped stones with a geometric motif on one or on both sides. At Sapallitepa and Dzharkutan, the majority of these amulets consisted of gypsum beads strung as part of necklaces, but larger examples exist (Askarov 1973: 95, fig. 47, pl. 30; 1977: pl. 43, 45). Similar pieces from the Afghan art market (Sarianidi 1998: 200–233, nos. 1060–1233) and from Margiana (Sarianidi 1998: 304f, nos. 1669–1670) are more often made of colored stones. M. Teufer (2015: 51) has pointed to the widely shared canon of images and interpreted it as part of an interregional system of communication (see also Chapter 6).





Figure 16.6 Tilla Bulak, phase 1. Context TB-852 with *in situ* inventory covered by mudbrick collapse. Note the *in situ* grinding stones in the northeastern corner of the room. Phase 2 walls are lightly shaded.

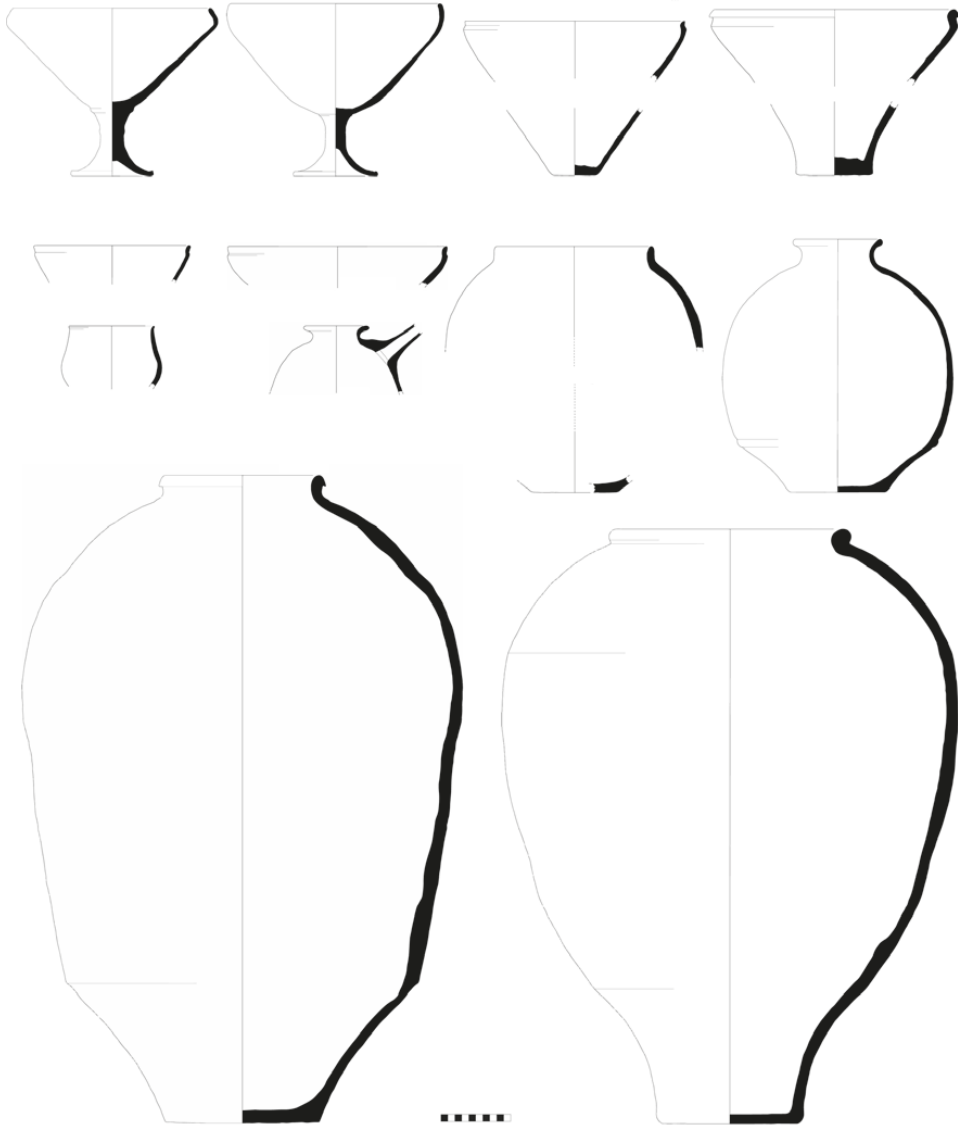


Figure 16.7 Tilla Bulak. Room inventory 3145 from context TB-852, phase I.

When such flat-surfaced objects have a lug handle (mostly on the larger pieces over 2 cm in diameter), they are usually described as seals, a term that is questionable. Sealing, apparently, was mostly restricted to pottery vessels, which leaves a wide range of interpretative possibilities and places them in the same context as other pot or potter's marks applied before firing.<sup>24</sup> It is interesting to note that here is no evidence for the use of both seals and pottery marks after LB I. Sealing on clay stoppers or bullae is very rare and does not seem to have played a role in substantial trade activities, but rather for strictly local storage practices.<sup>25</sup> The huge number of metal



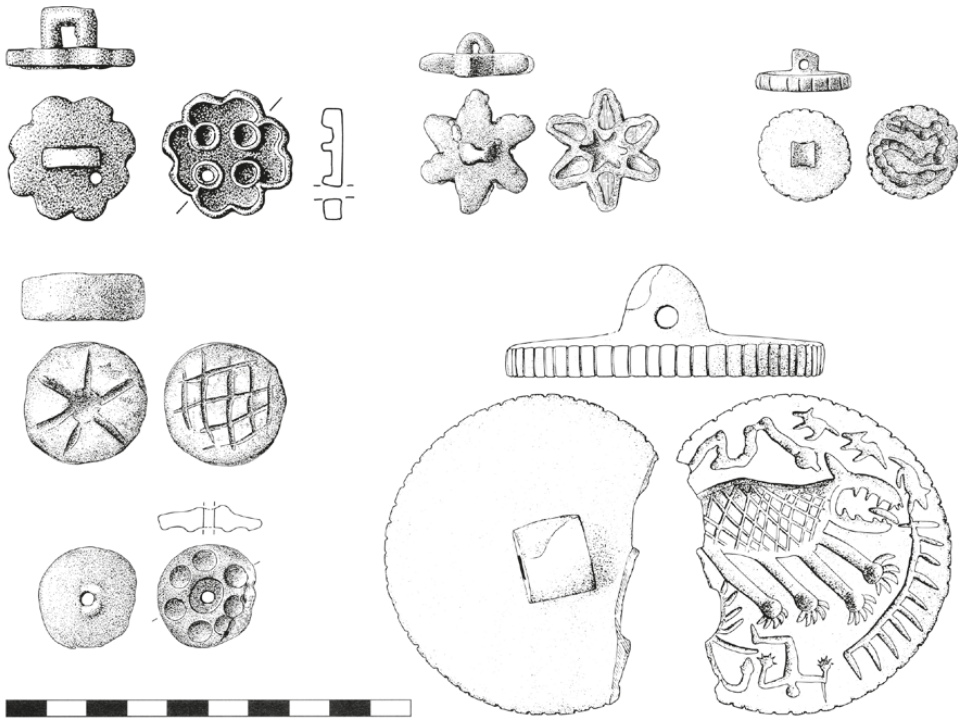


Figure 16.8 Tilla Bulak. LB I seals of stone, metal, and alabaster (all drawings by C. Wolff).

compartmented seals known in the BMAC area (Baghestani 1997; Sarianidi 1998; see also Chapter 8) is undoubtedly indicative of an awareness of the importance of administrative practices, but it does not in itself constitute proof of its application.

At Tilla Bulak, the only evidence for seal use was that of compartmented seals that had been impressed on pottery before firing (Kaniuth 2011: fig. 17), even though we paid particular attention to burnt or unburnt clay fragments during excavations and dry-sieved part of the excavated sediments. Given this negative evidence for the administrative use of seals, the variety of items considered as such discovered at Tilla Bulak is noteworthy, especially in a rural settlement context (Figure 16.8). From small circular stones with drilled compartments to casted metal compartmented seals proper, almost the entire range of shapes is encountered at the site. Furthermore, for the first time wooden inlays in compartmented seals and a wooden seal have been documented (Kaniuth 2010b). Filling the compartments of a metal seal—and thereby making the resulting impression less distinguishable—again indicates that aesthetic considerations superseded functional ones.

One particularly large, but unfortunately damaged, piece cut from a translucent white stone, possibly alabaster, found in a phase 2 refuse pit replicates the common narrative element of dominant dragons in Middle Asian glyptic art (Sarianidi 1986; Francfort 1992): A large quadruped with a flame(?) emanating from its jaw dominates a tumbling human figure. The same scene is depicted on a piece from Togolok 21 (Sarianidi 1998: 292, no. 1621). The size of our object (8 cm in diameter)

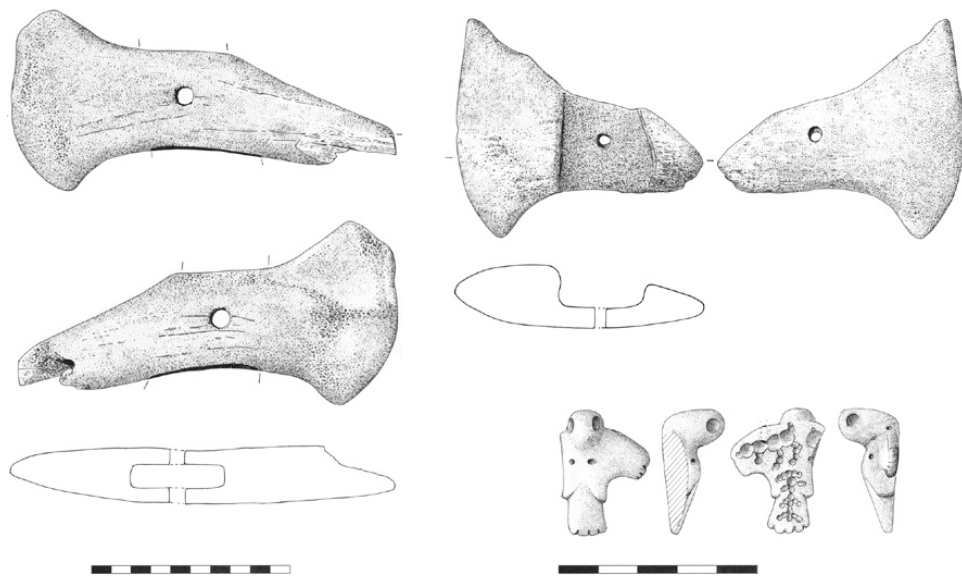


Figure 16.9 Tilla Bulak. LB I axes and eagle pendant from phases 1 and 2.

is out of proportion compared to all other contemporary “seals” and certainly to that of known impressions. Here again, an emblematic function appears as the primary motive for its creation. In the Oxus Civilization, and also in the wider region of eastern Iran, there is a clear association between seals and female burials (Baghestani 1997: 149–152; Kaniuth 2006: 74ff.). Contrary to previous assertions, this custom is not consistently observed at Gonur, where of all clearly sexed single inhumations with seals one in five is male (Sarianidi 2007: app. 1).

The necropolis of Tilla Bulak remains to be found. In the Sapalli culture the dead were buried in separate graveyards, very rarely in settlements, and, if so, then most often in abandoned houses.<sup>26</sup> Of the ten burials from Tilla Bulak, seven date to the Bronze Age, and all stratigraphically postdate the phase 2 occupation. Only one contained the body of an adult, the others are child burials in jars.<sup>27</sup> The lack of adult burials also explains the dearth of metal finds, a frequent status-related burial gift. However, another category of prestige items was encountered; namely, antler axes with curved blade, sloping neck, and lateral riveting (Figure 16.9). At Gonur and Sapallitepa, bone (antler?) and metal examples appear only in well-furnished male graves (Askarov 1973; Kaniuth 2006; Sarianidi 2007: 53).<sup>28</sup>

The occupation at Tilla Bulak ended sometime before the mid-18th century BC (at, or just after, the transition from subphase LB Ia to LB Ib). The reasons for this abandonment are unknown, especially since the street levels in the upper part of the site demonstrate clearly that we are missing several phases towards the end of the occupation, destroyed by erosion. Some ephemeral walls have been grouped as phase 3, but beyond their general LB I date, not much can be said of this final occupation.

The shift of settlements from LB I to LB II corresponds to a wide scale pattern, visible also at Sapallitepa, where life stops with the end of LB Ia, at Molali, which starts

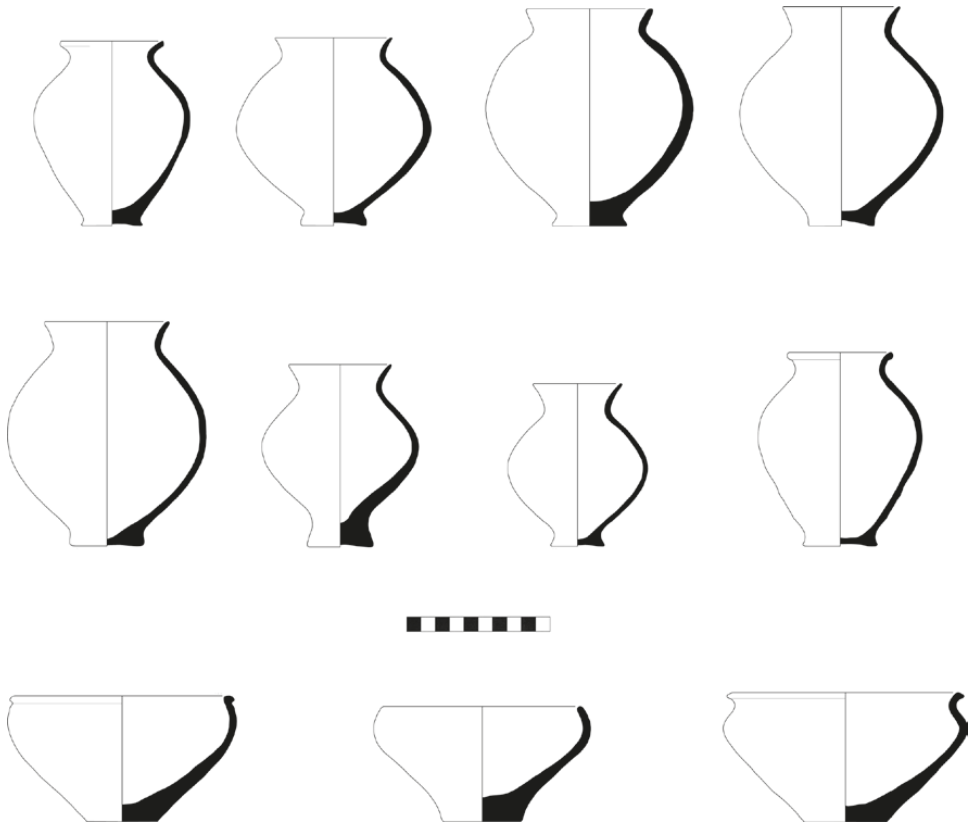


Figure 16.10 Pashkhurt. LB II pottery collected at PAS 01.

with LB II, and at Gaztepa, which is only occupied during LB I, etc. The only known settlement in southern Uzbekistan that offers a long occupation sequence covering all the Late Bronze Age periods is the large site of Dzharkutan, which apparently continued to offer suitable living conditions.

This shift in location affected also the Pashkhurt valley. Tilla Bulak was abandoned, but LB II pottery has been discovered at the southeastern limits of the modern village of Pashkhurt (PAS 00, PAS 01; see Figure 16.2). Since the material found (vessels) is very well preserved, we are probably dealing with the remains of a burial ground. The pottery of the LB II period is less uniform typologically than in the previous period and the Pashkhurt vessels are no exception. Even with the small sample available (Figure 16.10), the divergence from known assemblages at Dzharkutan or Molali is marked.

## CONCLUSION

The dense occupation of the Pashkhurt valley during the Late Bronze Age (and also the Early Iron Age) comes as a surprise only when neglecting the massive impact of modern centrally managed agriculture in the Surkhan Darya valley proper. A landscape

dotted with small rural hamlets was probably the rule there, too, and only the largest agglomerations have survived in some form to this day. Given the small size of the Pashkhurt settlements (no more than 0.5 ha, with the possible exception of Yultepa), the presence of a material culture of high quality, including prestige items identical to those encountered in the largest sites of the Sapalli culture is notable. Apparently, in these hamlets, the inhabitants' way of life and needs for ostentatious display did not differ significantly from that of the (proto-)urban sites. The major difference is directly related to their smaller size: Large architectural compounds within these hamlets have not yet been found. The rural adaption of the Sapalli culture must, until more sites have been investigated, be considered one of small, unfortified villages where social distinction was not communicated through architectural form, but probably existed as shown by status-related artifacts. Whether the availability of metals in the surrounding mountains was an incentive for settling the region is not proven by any workshop at Tilla Bulak, but the readily accessible salt deposits of Khodzaikan were probably a coveted resource. It remains to be explained why all excavated sites in the area are contemporary with the very beginning of the Late Bronze Age in southern Uzbekistan. Whatever the reasons for the choice of locations, after less than 150 years all evidence for settlement ceases in the Pashkhurt valley.

## NOTES

- 1 For the history of the terms Oxus Civilization and Bactria-Margiana Archaeological Complex (BMAC), see Chapter 1. Both terms have been employed too freely to be used as a meaningful frame of reference (see also Salvatori 2016, whose criticisms I share, if not his conclusions). For the purposes of this chapter they are considered as synonymous.
- 2 Relevant radiocarbon dates were assembled by Görsdorf and Huff (2001) and Kaniuth (2013). See also the Appendix to this volume and for the BMAC general chronology, see Chapter 1.
- 3 Compare the pottery for northern Bactria in Askarov (1977: fig. 17), Askarov and Abdullaev (1983: fig. 7), and Teufer (2015: fig. 10); for Margiana in Sarianidi (1990; 2007: 52–67) and Udeumradov (1993); and for southern Bactria in Francfort (1989: figs. 30–42).
- 4 These discoveries happened at the same time when Soviet scholars started working in northern Afghanistan, and discovered a flourishing Bronze Age civilization (Kruglikova and Moustamandy 1970; Kruglikova and Sarianidi 1971).
- 5 The assumption, that settlement was organized in separate oases, has been called into question by Markofsky (2010: 250), who noted a “significant occupational continuity” and concomitant “lack of clearly bounded and isolated regions.”
- 6 But see also the recently excavated Saridzar in southern Tajikistan (Koch *et al.* 2013; Teufer 2014; see also Chapter 5).
- 7 The Ulanbulaksaj originally discharged into the Amu Darya, but is now completely diverted for irrigation purposes.
- 8 The famous Khodzaikon salt deposit near the village of Aktash has an output of rock salt estimated at several thousand tons annually. Caves in the mountain served for treatment of respiratory diseases during Soviet times, and concentrated brine can be tapped in the shafts to this day. Salt is also produced on the western (Turkmen) side of the Kugitang Mountains, near the village of Svintsovij Rudnik (“lead mine” – see note 9). It is currently impossible to determine any ancient work at the site of Khodzaikon, although E. Pruger (quoted in Sverchkov 2009: 152) considers the possibility of exploitation in the 1st century AD.

- 9 All Russian-language sources for pre-modern mining activities in the region are conveniently, if succinctly, summarized by Sverchkov (2009). Of particular relevance are the poly-metallic deposits of Chujankan and Tillokan with mineralizations of lead, iron, copper, and tin, but the author remains wary of any Bronze Age exploitation. In the western Kugitang iron and lead are the predominant metals (Sverchkov 2009: 152f).
- 10 Earlier survey work was summed up in Rtveladze (1974: 76ff) and Arshavskaja *et al.* (1982: 134ff).
- 11 Surveys were made by the Tilla Bulak team between 2008 and 2010, and by members of the Tokharistan expedition (Uzbek Academy of Sciences) and the Middle Asian expedition (Institute of Archaeology of the Russian Academy of Sciences).
- 12 For methodology and selection procedures see the introductory notes to Augustinová *et al.* (2015), Augustinová, Stančo, Damasêk, Khamidov *et al.* (2017), Augustinová, Stančo, Damasêk, Mrva *et al.* (2017), and Stančo (2016).
- 13 Some 23 Bronze Age sites are listed in the survey report. Here, we only take into account those sites that produced at least three datable Bronze Age sherds. Given the small proportion of Late Bronze Age attributions within the collected lots and the general similarity of Late Bronze Age and Early Iron Age wheel-made pottery, it seems advisable to remain cautious in these cases until excavations are made. This also takes into account occasional misattributions: The rim sherds in Augustinová *et al.* (2015: fig. 6.2) – one of two Late Bronze Age sherds reported from Kurgantepa (POL\_142; KuPi\_055) – and Augustinová *et al.* (2015: fig. 7.3) (POL\_161) are so far not attested within the Sapalli culture repertoire of shapes.
- 14 Also named Chakmaktosh (“flintstone”) in the survey report. A preliminary excavation report has been published with details on the stone architecture, some pottery, and finds (Rukavishnikova *et al.* 2015: fig. 4). Unfortunately, these do not contain standard BMAC pottery.
- 15 No sites in the Gaz area were previously referred to in the literature, but Kirkkiz 3 could be identical with the find spot of Bronze Age pottery at the northern outskirts of Gaz village (mentioned by Dvurechenskaja *et al.* 2014: 72ff).
- 16 The excavations were conducted by a joint expedition of the Institute for Art Historical Research, Tashkent, and Ludwig-Maximilians-University, Munich, headed by the author.
- 17 An attempt to irrigate was made in recent times, but the inherent instability of the water management system led to an abortion of all efforts.
- 18 For absolute chronology, see the <sup>14</sup>C dates given in Kaniuth (2016).
- 19 Rooms of 8–25 m<sup>2</sup> were the norm at Dzharkutan, Tepe 5, one of the living quarters of the settlement (Shirinov 2002: 92).
- 20 This figure is somewhat distorted by a deposit within a single *tannur* (TB-271), which alone yielded 2,500 fragments of *T. spelta*. Actually, the balance may therefore lean towards *H. vulgare*, which was the main agricultural product at Dzharkutan, Sapallitepa, and also in the Murghab delta sites (Miller 1993, 1999; Shirinov 2002: 155, with further literature).
- 21 A further, as yet unpublished, series of analyses that compare the Tilla Bulak sherds with material from Ara Bulak, Dzharkutan, and Sapallitepa may lead to a reinterpretation of these findings.
- 22 Type quantities from the Dzharkutan Tepe 6 “temple” monumental building are 10% for footed bowls and 2% for footed goblets (Shirinov 2002: 66, tab. 4), possibly reflecting the specific function of this place.
- 23 For a discussion of the distribution and chronological relevance of this artifact, see Ascalone (2007) and Kaniuth (2010a).
- 24 The variety of potters’ marks from the Sapalli culture is illustrated by Askarov (1973: pl. 31) and Askarov and Shirinov (1993). Geometric motifs (single or double strokes, crosses, semicircles or full circles, wavy lines, and combinations thereof) are regularly found on

- medium and large storage vessels. Pots stands, which could be turned over and used as molds for forming pithos bases, show an even wider range, particularly of zoomorphic designs (deer, birds, wheels, swastikas, and spoked wheels) (see Chapter 26). Many of these potters' marks from the Pashkhurt valley are comparable, but one is unique so far, depicting a bow and arrow, and a standard or tree of life (Kaniuth 2007).
- 25 The only evidence for the sealing of bullae or containers comes from Gonur (Sarianidi 1998: 316–319 nos. 1745–1762; see also Chapter 8), while a single sealing on clay is known from Dzharkutan (Kaniuth 2010a: 15f, fig. 13). For the Sapalli culture seal impressions on pottery, see also Mustafakulov *et al.* (2012: fig. 3) and Bendezu-Sarmiento and Mustafakulov (2013: fig. 10). Bonora *et al.* (2014) give a very helpful overview of Chalcolithic tokens and sealings from Turkmenistan. Simple administrative practices have a long history in the Kopet Dagh, but the same cannot currently be said for southern Uzbekistan. A more optimistic view of sealing practices and their role in interregional trade in Bronze Age Middle Asia is given by Lyonnet (2005: 196, with further literature).
- 26 This is the case at both Dzharkutan Tepe 5 and Sapallitepa, where intrusive burials have wrongly been considered to be intramural (i.e., constructed at a time when the rooms were still inhabited) by their excavators, see Teufer (2015).
- 27 For a full list, see Gruber *et al.* (2012: 346).
- 28 But see again the Gonur necropolis for exceptional cases: Axes of bone and bronze were associated with females in graves 220 and 2406 (Sarianidi 2007: app. 1).

## REFERENCES

- Al'baum, L.I. 1969. "Pamjatnik epokhy bronzy na territorii Surkhandarya" [A Bronze Age site in the Surkhandarya region]. *Obshchestvennye Nauki Uzbekistana* 5: 46–47.
- Arshavskaja, Z.A., E.V. Rtveladze, and Z.A. Khakimov 1982. *Srednevekovye pamjatniki Surkhandarya* [Medieval sites in Surkhandarya]. Tashkent: Izdatel'stvo literatury i iskusstva imeni Gafura Gulama.
- Ascalone, E. 2007. "Archaeological Links Between Syria and Iran: Stratigraphical Correlation and Regional Connections." In *Proceedings of the International Colloquium From Relative Chronology to Absolute Chronology, Rome 2001*, ed. P. Matthiae. Rome: Bardi, pp. 33–70.
- Askarov, A.A. 1971. "Poselenie drevnykh zemledeltsev na juge Uzbekistana" [A settlement of ancient farmers in southern Uzbekistan]. *Obshchestvennye nauki Uzbekistana* 8: 40–43.
- Askarov, A.A. 1973. *Sapallitepa*. Tashkent: FAN.
- Askarov, A.A. 1977. *Drevenezemledel'cheskaja kul'tura bronzovogo veka juzhnogo Uzbekistana* [The ancient Bronze Age farmers' culture of southern Uzbekistan]. Tashkent: FAN.
- Askarov, A.A. and B. Abdullaev 1983. *Dzharkutan*. Tashkent: FAN.
- Askarov, A.A. and T. Shirinov 1993. *Rannaja gorodskaja kul'tura epokhi bronzy juga Srednej Azii* [The Bronze Age early urban culture of southern Middle Asia]. Samarkand: Institute of Archaeology.
- Augustinová, A., L. Stančo, L. Damašek, O. Khamidov, T. Kolmačka, and S. Shaydullaev, 2017. "Archaeological Survey in the Oases of Maydon and Goz in the Piedmont of the Kugitang Mountains (South Uzbekistan): Preliminary Report for Season 2017." *Studia Hercynia* 21(2): 139–152.
- Augustinová, A., L. Stančo, L. Damašek, M. Mrva, and S. Shaydullaev 2017. "Archaeological Survey of the Oases of Zarabag, Karabag and Kampyrtepa in the Piedmont of the Kugitang Mountains, South Uzbekistan: Preliminary Report for the Season 2016." *Studia Hercynia* 21: 104–148.
- Augustinová, A., L. Stančo, S. Shaydullaev, and M. Mrva. 2015. "Archaeological Survey in the Zarabag Micro Oasis South Uzbekistan: Preliminary Report on the Season 2015." *Studia Hercynia* 19: 262–281.



- Baghestani, S. 1997. *Metallene Compartimentsiegel aus Ost-Iran, Zentralasien und Nord-China*. Rahden: Leidorf.
- Beljaeva, T.V. and Z.A. Khakimov 1973. "Drevnebaktrijskie pamjatniki Mirshade" [The ancient Bactrian sites of Mirshade]. In *Iz istorii antichnoj kul'tury Uzbekistana* [From the history of ancient culture in Uzbekistan], ed. G.A. Pugachenkova. Tashkent: Izdatel'stvo literatury i iskusstva imeni Gafura Gulama, pp. 35–51.
- Bendezu-Sarmiento, J. and S. Mustafakulov 2008. "Arkheoanthropologicheskie trudy frantsusko-uzbekskej ekspeditsii na Dzharkutanskom nekropole Surkhandarja/Travaux archéo-anthropologiques sur la nécropole de Dzharkutan, Surkhan-Daria." *Istorija Material'noj Kultury Uzbekistana* 36: 75–87.
- Bendezu-Sarmiento, J. and S. Mustafakulov 2013. "Le site proto-urbain de Dzharkutan durant les âges du bronze et du fer. Recherches de la Mission archéologique franco-ouzbèke-Protohistoire." *Cahiers d'Asie centrale* 21–22: 207–236.
- Bonora, G., M. Vidale, M. Mariottini, and G. Guida 2014. "On the Use of Tokens and Seals along the Kopet Dagh Piedmont, Turkmenistan ca. 6000–3000 BCE." *Paléorient* 40: 55–71.
- Castiglione, E. and M. Cottini 2002. "Archaeobotanical Analyses on Materials from the Necropolis and City of Gonur." In *Margiana. Gonur-Depe Necropolis*, ed. G. Rossi Osmida. Trebaseleghe: Il Punto, pp. 180–195.
- Danielisová, A., L. Stančo, and A. Shaydullaev 2009. "Preliminary Report of Archaeological Survey in Sherabad District, South Uzbekistan in 2009." *Studia Hercynia* 14: 67–90.
- Dvurechenskaja, N.D., V.V. Mokrobodov, and D.V. Rukavishnikova 2014. "Marshrutnye issledovanija na jube Uzbekistana v 2013 godu" [Regional survey in southern Uzbekistan]. *Kratkie Soobshchenija Instituta Arkheologii* 236: 69–81.
- Francfort, H.-P. 1984. "The Early Periods of Shortugai (Harappan) and the Western Bactrian Culture of Dashly." In *South Asian Archaeology 1981*, ed. B. Allchin. Cambridge: Cambridge University Press, pp. 170–175.
- Francfort, H.-P. 1989. *Fouilles de Shortughai. Recherches sur l'Asie centrale protohistorique*. Paris: de Boccard.
- Francfort, H.-P. 1992. "Dungeons and Dragons: Reflections on the System of Iconography in Protohistoric Bactria and Margiana." In *South Asian Archaeology Studies*, ed. G. Possehl. New York: International Science Publisher, pp. 179–208.
- Francfort, H.-P. 2005. "La civilisation de l'Oxus et les Indo-Iraniens et Indo-Aryens en Asie centrale." In *Aryas, Aryens et Iraniens en Asie Centrale*, ed. G. Fussmann, J. Kellens, H.-P. Francfort, and X. Tremblay. Paris: De Boccard, pp. 253–332.
- Francfort, H.-P. 2009. "L'âge du bronze en Asie centrale: La civilisation de l'Oxus." *Anthropology of the Middle East* 4: 91–111.
- Francfort, H.-P. and X. Tremblay 2010. "Marhashi et la civilisation de l'Oxus." *Iranica Antiqua* 45: 51–224.
- Ganjalina, A. 1956. "K stratigrafii Namazga-tepe" [About the stratigraphy of Namazga Depe]. In *Trudy Instituta Istorii Arkheologii i Etnografii Akademii Nauk Turkmenistanskoi SSR*, vol. 2, ed. O.K. Kuliev. Moscow: Nauka, pp. 37–66.
- Görsdorf, J. and D. Huff 2001. "<sup>14</sup>C-Datierungen von Materialien aus der Grabung Dzarkutan, Uzbekistan." *Archäologische Mitteilungen aus Iran und Turan* 33: 75–87.
- Gruber, M., J. Il'yasov, and K. Kaniuth 2012. "A Decorated Ivory Belt from Tilla Bulak, Southern Uzbekistan." *Ancient Civilizations from Scythia to Siberia* 18: 339–375.
- Gubaev, A., G. Koshelenko, and M. Tosi (eds.) 1998. *The Archaeological Map of the Murghab Delta: Preliminary Reports 1990–95*. Rome: Istituto Italiano per il Antico Oriente.
- Huff, D. 1995. "Fragen zur Siedlungsgeschichte von Dzarkutan." In *Archaeologia Iranica et Orientalis: Miscellanea in honorem Louis Vanden Berghe*, ed. L. de Meyer and E. Haerincx. Ghent: Peeters, pp. 22–26.

- Huff, D. 2000. “Tempel oder Palast? Dscharkutan – Monumentalbauten und Siedlung im bronzezeitlichen Baktrien.” In *Archäologische Entdeckungen. Die Forschungen des Deutschen Archäologischen Instituts im 20. Jahrhundert*, ed. H. Kyrieleis. Mainz: Zabern, pp. 115–118.
- Ionin, N.B. and S.A. Shafranov 1937. “Tillokan i Chujankan – mestorozhdenija zheleza i polimetallov” [Tillokan and Chujankan – iron and polymetallic ore deposits]. In *Tadzhiksko-Pamirskaja ekspeditsija 1935 g.*, ed. A.I. Kovalerov and D.I. Sherbakov. Moscow: Akademija Nauk SSSR. pp. 499–525.
- Kaniuth, K. 2006. *Metallobjekte der Bronzezeit aus Nordbaktrien*. Mainz: Zabern.
- Kaniuth, K. 2007. “Tilla Bulak 2007 – Vorbericht zur ersten Kampagne.” *Archäologische Mitteilungen aus Iran und Turan* 39: 31–47.
- Kaniuth, K. 2009. “Tilla Bulak 2008 – Vorbericht zur zweiten Kampagne.” *Archäologische Mitteilungen aus Iran und Turan* 41: 75–96.
- Kaniuth, K. 2010a. “Long Distance Imports in the Bronze Age of Southern Central Asia: Recent Finds and Their Implications for Chronology and Trade.” *Archäologische Mitteilungen aus Iran und Turan* 42: 3–22.
- Kaniuth, K. 2010b. “Tilla Bulak 2009 – Vorbericht zur dritten Kampagne.” *Archäologische Mitteilungen aus Iran und Turan* 42: 129–163.
- Kaniuth, K. 2011. “Tilla Bulak 2010 – Vorbericht über die vierte Grabungskampagne.” *Archäologische Mitteilungen aus Iran und Turan* 43: 261–282.
- Kaniuth, K. 2013. “A New Late Bronze Age Site in Southern Uzbekistan.” In *South Asian Archaeology 2007*, ed. D. Frenez and M. Tosi. Oxford: Archaeopress, pp. 151–155.
- Kaniuth, K. 2014. “Die Bestattungen des Hügels 4 von Dzarkutan.” *Archäologische Mitteilungen aus Iran und Turan* 46: 95–121.
- Kaniuth, K. 2016. “The Late Bronze Age Settlement of Tilla Bulak (Uzbekistan) – A Summary of Four Years’ Work.” In *South Asian Archaeology and Art 2012. Vol. I, Man and Environment in Prehistoric and Protohistoric South Asia: New Perspectives*, ed. V. Lefèvre, A. Didier, and B. Mutin. Turnhout: Brepols, pp. 117–128.
- Kaniuth, K., B. Ögüt, and C. Salgado Ceballos in press. “The Late Bronze Age Pottery from Tilla Bulak.” In *The Bronze Age in Central Asia and Khorassan*, ed. N. Boroffka, E. Luneau, and M. Teufer.
- Koch, J., J. Fassbinder, and M. Teufer 2013. “Archäologie am Fuße des Pamirgebirges. Mit Magnetometer und Kappameter im Süden Tadschikistans.” *Denkmalpflege Informationen* 154: 68–70.
- Kohl, P. 1984. *Central Asia: Palaeolithic Beginnings to the Iron Age*. Paris: ERC.
- Kruglikova, I.T. and C. Moustamandy 1970. “Resultats préliminaires des travaux de l’expédition archéologique Afghano-Soviétique en 1969.” *Afghanistan* 23: 84–97.
- Kruglikova, I.T. and V.I. Sarianidi 1971. “Drevnjaja Baktrija v svete novykh arkheologicheskikh otkrytij” [Ancient Bactria in the light of recent archaeological discoveries]. *Sovetskaja Arkheologija* 4: 154–177.
- Kuftin, B.A. 1956. “Polevoj otchet o rabote XIV otrjada JuTAKE po izucheniju kul’tury pervobytno-obshchinnikh poselenij epokhi medi i bronzy v 1952 g” [Field report on the work of the XIVth JuTAKE brigade in 1952 for the study of the first farmer settlements during the Chalcolithic and Bronze Age]. In *Pamjatniki kul’tury kammenogo i bronzovogo veka Jurzbnogo Turkmenistana* [Sites of the Stone and Bronze Age in southern Turkmenistan], Trudy Juzhno-Turkmenistanskoj Arkheologicheskoi Kompleksnoj Ekspeditsii, vol. 7, ed. V.M. Masson. Moscow: Nauka, pp. 260–290.
- Kysela, J., A. Augustinová, and R. Kinaston 2018. “Preliminary Reports on the Excavations at Burgut Kurgan and Bobolagar in 2017.” *Studia Hercynia* 22: 158–182.
- Luneau, E. 2014. *La fin de la civilisation de l’Oxus. Transformations et recompositions des sociétés de l’âge du Bronze final en Asie centrale méridionale 1800–1500/1400 avant n. è.* Paris: De Boccard.

- Lyonnet, B. 2005. "Another Possible Interpretation of the Bactro-Margiana Culture (BMAC) of Central Asia: the Tin Trade." In *South Asian Archaeology 2001*, ed. C. Jarrige and V. Lefèvre. Paris: Éditions Recherche sur les Civilisations, pp. 191–200.
- Markofsky, S.B. 2010. "Illuminating the Black Sands: Survey and Settlement in the Bronze Age Murghab Delta, Turkmenistan." PhD thesis, University College London.
- Miller, N.F. 1993. "Preliminary Archaeobotanical Results from the 1989 Excavation at the Central Asian Site of Gonur Depe, Turkmenistan." *Unesco IASCCA Information Bulletin* 19: 149–163.
- Miller, N.F. 1999. "Agricultural Development in Western Central Asia in the Chalcolithic and Bronze Ages." *Vegetational History and Archaeobotany* 8: 13–19.
- Mokroborodov, V.V. 2006. "Keramika epokhi bronzy iz kishlaka Pashkhurt" [Bronze Age pottery from the Pashkhurt village]. In *Arkheologicheskie issledovanija v Uzbekistane 2004–2005 gody*. Samarkand: Institut Arkheologii, pp. 160–164.
- Moore, K. 1993. "Animal Use at Bronze Age Gonur Depe." *Unesco IASCCA Information Bulletin* 19: 164–185.
- Mustafakulov, S.M., J. Bendezu-Sarmiento, U. Rakhmanov, M. Khasanov, J. Lhuillier, and E. Luneau 2012. "Polevye raboty Uzbeksko-Frantsuzkoj MAFOuz ekspeditsii na Dzharkutane v 2009–2011 gg" [French–Uzbek MAFOuz expedition fieldwork at Dzharkutan in 2009–2011]. In *Arkheologicheskie issledovanija v Uzbekistane 2010–2011 gg*. Samarkand: Institut Arkheologii, pp. 203–213.
- Mustafakulov, S.M., J. Bendezu-Sarmiento, U. Rakhmanov, J. Lhuillier, K. Rakhimov, and D.S. Sarmiento 2014. "Rezultaty rabot na pamjatnike Dzharkutan v 2012 godu" [Work results at Dzharkutan in 2012]. In *Arkheologicheskie issledovanija v Uzbekistane 2012 g*. Samarkand: Institut Arkheologii, pp. 137–144.
- Pruger, E.B. 1980. "Drevnie gornopromyshlennye obekty Juga Uzbekistana" [Ancient mining sites of southern Uzbekistan]. *Materialy po istorii, istoriografii i arkheologii. Sbornik nauchnikh trudov Tashkentskogo gosudarstvennogo universiteta* 630: 27–34.
- Raevskij, V.I. and M.P. Fivg 1973. *Mestorozhdenija kaliynikh solej SSSR: Metody ikh poiskov i razvedki* [Deposits of potassium salts of the USSR: methods of their search and exploration]. Leningrad: Nedra.
- Rtveladze, E.V. 1974. "Razvedochnoe izuchenie baktrijskikh pamjatnikov na juge Uzbekistana" [Survey study of Bactrian sites in southern Uzbekistan]. In *Drevnjaja Baktريا. Predvaritel'nye soobshchenija ob arkheologicheskikh rabotakh na juge Uzbekistana* [Ancient Bactria, preliminary report on the archaeological works in southern Uzbekistan], ed. V.M. Masson. Leningrad: Nauka, pp. 74–85.
- Rtveladze, E.V. and Z.V. Khakimov 1973. "Marshrutnye issledovanija pamjatnikov Severnoj Baktirii" [Regional survey of sites in northern Bactria]. In *Iz istorii antichnoj kultury Uzbekistana* [From the history of ancient culture in Uzbekistan], ed. G.A. Pugachenkova. Tashkent: Izdatel'stvo Gafura Gulama, pp. 10–34.
- Rukavishnikova, I.V., V.V. Mokroborodov, A.N. Gorin, and A.A. Gladchenkov 2015. "Gazkala – novij pamjatnik Baktrijsko-Margianskogo arkheologicheskogo kompleksa" [Gazkala – a new site of the Bactria-Margiana Archaeological Complex]. *Kratkie Soobshchenija Instituta Arkheologii* 239: 72–87.
- Ruzanov, V.D. and Ju.F. Burjakov 1997. "Drevnye rudniki i pamjatniki metallurgii v gorakh Kugitangtau" [Old mines and metallurgical sites in the Kugitangtau Mountains]. *Ozbekiston Moddiy Madaniyati Tarixi* 28: 175–178.
- Salvatori, S. 1998. "Margiana Archaeological Map: The Bronze Age Settlement Pattern." In *The Archaeological Map of the Murghab Delta: Preliminary Reports 1990–95*, ed. A. Gubaev, G. Koshelenko, and M. Tosi. Rome: Istituto Italiano per la Archeologia Orientale, pp. 57–65.

- Salvatori, S. 2016. "Bactria-Margiana Archaeological Complex: How Terminology Hides Historical Processes." In *Trudy Margianskoj Arkheologicheskoy Ekspeditsii*, vol. 6, ed. N. Dubova. Moscow: Staryj Sad, pp. 449–460.
- Salvatori, S. and M. Tosi (eds.) 2008. *The Archaeological Map of the Murghab Delta. Studies and Reports II: The Bronze Age and Early Iron Age in the Margiana Lowlands – Facts and Methodological Proposals for a Redefinition of the Research Strategies*. Oxford: Archaeopress.
- Sarianidi, V.I. 1977. *Drevnie Zemledeltsy Afghanistana. Materiali Sovetskoj-Afghanskoj Ekspeditsii 1969–1974* [Ancient agriculturalists of Afghanistan: materials of the Soviet–Afghan expedition 1969–1974]. Moscow: Nauka.
- Sarianidi, V.I. 1986. "Zmen i drakony v gliptike Baktrii i Margiany" [Snake and dragons in the glyptic of Bactria and Margiana]. In *Vostochnyj Turkestan i Srednjaja Azija v sisteme kul'tur drevnego i srednevekovogo vostoka* [Eastern Turkestan and Central Asia in the oriental culture system of the ancient and Middle Ages], ed. B.A. Litvinskij. Moscow: Nauka, pp. 66–71.
- Sarianidi, V.I. 1990. *Drevnosti strany Margush* [Ancient Margush]. Ashkhabad: Ylym.
- Sarianidi, V.I. 1998. *Myths of Ancient Bactria and Margiana on Its Seals and Amulets*. Moscow: Pentagraphics.
- Sarianidi, V.I. 2002. *Margush: Ancient Oriental Kingdom in the Delta of the Murghab River*. Ashgabat: Türkmen döwlethabarlary.
- Sarianidi, V.I. 2005. *Gonurdepe: City of Kings and Gods*. Ashgabat: Miras.
- Sarianidi, V.I. 2007. *Necropolis of Gonur*. Athens: Kapon.
- Sarianidi, V.I. 2008. *Margush, Turkmenistan: Mystery and Truth of the Great Culture*. Ashgabat: Türkmen döwlethabarlary.
- Sataev, R.M. and L.V. Sataeva 2012. "Archaeozoological and Archaeobotanical Studies at Gonur Depe in 2010." In *Trudy Margianskoj Arkheologicheskoy Ekspeditsii*, vol. 4, ed. V.I. Sarianidi. Moscow: Staryj Sad, pp. 57–61.
- Sataev, R.M. and L.V. Sataeva 2014. "Results of Archaeozoological and Archaeobotanical Studies of Gonur Depe in 2012–2013." In *Trudy Margianskoj Arkheologicheskoy Ekspeditsii*, vol. 5, ed. V.I. Sarianidi. Moscow: Staryj Sad, pp. 177–184.
- Shirinov, T. 2002. "Die frühurbane Kultur der Bronzezeit im südlichen Mittelasien. Die vorgeschichtliche Siedlung Dzarkutan." *Archäologische Mitteilungen aus Iran und Turan* 34: 1–170.
- Stančo, L. 2016. "Archaeological Survey in the Surroundings of Kayrit, South Uzbekistan: Preliminary Report for Season 2015." *Studia Hercynia* 20: 73–85.
- Stančo, L., S. Shaydullaev, J. Bendezu-Sarmiento, A. Pažout, and H. Vondrová 2014. "Kayrit Burial Site, South Uzbekistan: Preliminary Report for Season 2014." *Studia Hercynia* 18: 31–41.
- Stančo, L., S. Shaydullaev, A. Shaydullaev, A. Augustinová, and J. Havlik 2017. "Archaeological Survey in the Eastern Kugitang Piedmonts (South Uzbekistan): Preliminary Report for Seasons 2016 and 2017." *Studia Hercynia* 21(2): 121–138.
- Sverchkov, L. 2009. "A History of Research on Ancient Mining in Uzbekistan." *Archäologische Mitteilungen aus Iran und Turan* 41: 141–164.
- Teufer, M. 2014. "Rezultaty raskopok na pamjatnikakh Saridzhar 2 i Karim Berdy v Juzhnom Tadzhikestane" [Results of excavations at the sites Saridzhar 2 and Karimberdy in southern Tajikistan]. *Arkheologicheskie Raboty v Tadzhikestane* 37: 120–179.
- Teufer, M. 2015. *Spätbronzezeitliche Grabfunde aus Nordbaktrien und benachbarten Regionen. Studien zur Chronologie zwischen Aralsee und Persischem Golf*. Berlin: Reimer.
- Udeumuradov, V.N. 1993. *Altyn-Depe i Margiana: Sujazi, khronologija, proiskhozhdenie*. Ashkhabad: Ylym.