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## THE LATE BRONZE AGE SETTLEMENT OF TILLA BULAK (UZBEKISTAN)—A SUMMARY OF FOUR YEARS' WORK

Kai KANIUTH

The present paper will give an overview over four seasons' work at the Late Bronze Age site of Tilla Bulak (Southern Uzbekistan). A first note on the discovery of the site including a preliminary assessment of its nature has appeared in the Ravenna volume (Kaniuth 2013), and annual preliminary reports were published in *Archäologische Mitteilungen aus Iran und Turan* (Kaniuth 2007, 2009, 2010a, 2010b, 2011). Research at Tilla Bulak has been organised as a joint venture between the Tokharistan Expedition of the Institute for Art Historical Research, Uzbek Academy of Sciences and Munich University. I would like to thank all those involved over the past years for contributing to this team effort and particularly the sponsors of the project, the Gerda Henkel Foundation, Dusseldorf.

Our knowledge of the Late Bronze Age Sapalli Culture of Southern Uzbekistan is based on two major field projects headed by Ahmad Ali Askarov in the 1970s and early 1980s at Sapallitepe and Dzarkutan in the lower Surkhandarya plain. At these sites large fortified compounds and extended cemeteries were dug on a scale not repeated since. The major publications (Askarov 1973, 1977; Askarov and Abdullaev 1983; Askarov and Širinov 1993) are richly illustrated, but they pose a structural problem in so far as they focus mostly on burial finds, which formed the basis for the cultural sequence (Periods Sapalli, Dzarkutan, Kuzali, Molali, Bustan), and on architectural plans. To date, only some 6% of the 1000 burials dug at the time were published in their entirety, and there is only summary information available for most of the settlement contexts.

A restudy of the burial data was undertaken by M. Teufer in the 1990s, which resulted, among other things, in a reformulation of the chronological sequence with the Phases Late Bronze Ia/b and IIa/b (Teufer 2005). This latter chronology is endorsed here. The project at Tilla Bulak was conceived to address one of the resulting research questions by gathering detailed contextual data from occupational areas in order to carry out a functional analysis at a LBA settlement.

The advantages of Tilla Bulak—its restricted size and short occupational history—more than offset the disadvantages, such as its peripheral position relative to other Sapalli Culture sites. Eventually, questions concerning the representativity of our results will have to be addressed when comparing them to the sites in the lower Surkhandarya plain, especially where the impact of regional factors and issues of scale are concerned.

Tilla Bulak is situated in the piedmont region of the Kugitang mountain range, close to Pashkhurt, at an altitude of 850 m. a.s.l. (*fig. 1*). The settlement covers an area of 0.4 ha on top of a natural hill rising 9 m above the surrounding fields. The site has steep sides in the West, South and East, but gently slopes towards the North. This slope is partially created by human activity. Tilla Bulak is situated in a favourable ecological niche, with direct access to a perennial water supply. One would estimate that no more than 100 people were living here at any given time.

Excavations between 2007 and 2010 were carried out by 4-8 archaeologists from Germany, joined by 1-2 colleagues of the Tokharistan Expedition and a local workforce of between

25 and 40 men from the village of Pashkhurt. Subsidiary studies have been carried out by geomorphologists, geophysicists, archaeozoologists and palaeobotanists. Most of these have contributed to the preliminary reports so it will suffice here to comment on them briefly and to concentrate on the archaeological core issues.

At an early phase of the project archaeomagnetic investigations were carried out by H. von der Osten (in Kaniuth 2009, 86-89). They remained inconclusive with respect to architectural features but helped to identify burnt in situ remains and, most importantly, an ash-filled ditch which had demarcated the settlement's north-western boundary (visible on the phase plans, *figs. 2 and 3*).

### Stratigraphy and Architecture

It had become clear already from preliminary soundings that the archaeological deposits of Tilla Bulak were covering a relatively restricted time span, namely the initial phase of the Late Bronze Age Sapalli Culture (LB Ia). We therefore opted for a stratigraphic approach based on building levels. Accordingly, the defining criterion for all relative chronological attributions is the relation of deposits and finds to certain architectural features.

During our campaign, we differentiated four first building phases (A to D). Under this labelling the most conspicuous remains were those of sub-phases B-1 and B-2, whereas the phases A, C and D proved to be of minor importance. After four seasons of excavation, the sequence was therefore reframed to comprise only three phases (1-3) numbered from the bottom up. Substantial architecture was excavated from Phases 1 and 2, whereas Phase 3 was represented only by remains of a single building.

Excavations extended over an area of 2000 m<sup>2</sup>, not all of which could be cleared to virgin soil. In all trenches, remains of Phase 2 were discovered (*fig. 2*). Since this settlement episode was not terminated abruptly, the respective rooms contained only few reliable inventories; most ceramics and small finds come from infill. Wherever we reached deposits of Phase 1 (*fig. 3*), this situation changed: The whole Phase 1 settlement had been destroyed in a major conflagration, resulting in the deposition of original in situ assemblages. Our information on the settlement life is thus made up of two complementary data sets, one spatial (or quantitative) and the other qualitative.

### Pottery

During four seasons of excavation, approximately 60.000 sherds were processed, counted and weighed, and 10% diagnostics were drawn. The pottery appears relatively homogenous throughout the sequence, but this is to some degree due to the restricted corpus of types. Footed bowls, the key type for all chronological subdivisions of the Sapalli Culture sequence, are a typical burial gift but do not abound in settlement contexts. Still, a few chronologically sensitive forms, the conical bowl in its earlier (LB Ia), slightly sinuous-sided form, the deep footed bowl and the open-spouted bowl do appear in Tilla Bulak (*fig. 4*; Kaniuth 2007, *fig. 14*; 2010a, *figs. 9-11*; 2011, *figs. 12 and 20*). On the other hand, characteristic LB Ib types, such as jars with elongated open spouts or straight-walled "conical bowls" (Teufer 2005), are lacking. Compared to all previous studies, the proportion of handmade, grog-tempered cooking ware is surprisingly high: it comes close to 25% in some primary occupational deposits, which suggests that the overall counts from earlier excavations, which had put this figure closer to 5%, may reflect the secondary nature

of many contexts. For chronological purposes, the pottery from Tilla Bulak is best compared with material from the graves of Sapallitepe and the earlier occupational levels at Dzarkutan (LB Ia/Ia-Ib transitional).

### Absolute Chronology

In order to back up our dating and to compensate for the dependence of the absolute chronology of the Sapalli Culture on the series of ca. 20 Radiocarbon dates from charcoal samples taken at Dzarkutan in the nineties, we had a further 20 <sup>14</sup>C samples analysed (*table 1*). Those attributed to the phase 1 destruction horizon are mostly taken from charred seeds discovered inside their original storage vessels. Phase 2 samples were taken from either charcoal or floated grains. Taken together, our dates suggest a timeframe of ca. 1950-1800 cal. BCE for phases 1-2 of Tilla Bulak, and, by extension, for the Sapalli Culture phase LB Ia and the transition to Ib.

Two dendro-dates were obtained from juniper roof beams discovered in a phase 1 destruction context (TB-KF-851) but could not be connected to an existing dendro-curve. The <sup>14</sup>C-dates of rings 3 and 45 (the outermost preserved ring) fall within the late 22nd/early 21st centuries BCE (see *table 1*, samples 19 and 20). No sapwood was preserved on the beams, and since juniper trees can have more than 100 sapwood rings, the resulting dates only serve for a very general terminus post quem for the felling around 2100 BCE.

### Small finds

The roll of small finds from Tilla Bulak is at first sight unimpressive. Ground stone tools such as grinders or pestles form the largest category, followed in number by bone awls, terracotta spindle whorls and flint blades, with only a small number of bronze fragments and semi-precious stone beads. But given the rural character of the settlement, a few outstanding pieces command our attention which may, for sake of simplicity, be referred to as “prestige objects”.

Two antler axes (KF-555 and KF-530; *fig. 5: 1-2*; Kaniuth 2010a, *fig. 13*) with curved blades, transverse borings to secure the shaft and—in the better preserved example—a straight, slightly tapering neck replicate a bronze type known best from Sapallitepe Grave 22 (Askarov 1973, *pl. 25: 13*). Further examples in metal have been published from Gonur Depe (Sarianidi 1998b, *fig. 25: 3*; 2002, 102-103; 2007, 77-80), while antler axes are attested from both the Gonur necropolis (Sarianidi 2001, 73, *fig. 38a*; 2007, 121, *fig. 238*) and the Gonur South complex (Sarianidi 1998b, *fig. 22: 1-2*; 2002, 153; for a discussion of the type see Kaniuth 2006, 93f.). They belong to a larger group of axes from Bactria (Pottier 1984; Amiet 1977), Margiana (see above) and Eastern Iran (Curtis 1988; Hakemi 1997), which are considered emblems of authority partly through comparison with the investiture on the Kuk-Simut sealing from Susa (Amiet 1986, 195-197, *fig. 83*). Distant as this analogy may be geographically, it supports the idea that sceptre-like objects (mace-heads, axes) were imbued with a particular meaning related to the personae in these funerary assemblages. The presence of two such axes at Tilla Bulak shows that even at the local level some emphasis was put on public display and the visualisation of authority. Possibly, the (minor) damage to the axes was the reason for their discard.

Further interesting results concern the production technology, iconography and use of stamp seals. The pieces were made from a variety of materials and mostly fall into a size range of 3-4 cm

in diameter. The metal seals (such as KF-667; *fig. 5: 4*; probably cast from a copper-lead alloy — see Kaniuth 2006, 74 and Baghestani 1997, table 1) were of the compartmented variety. Stone seals (KF-557; *fig. 5: 5*) were cut with drills and gouges. The single wooden seal (KF-420; *fig. 5: 6*) is a unique find for the prehistory of Middle Asia. Another seal (KF-509; *fig. 5: 3*) for the first time demonstrates the use of wooden inlays for metal compartmented seals. Depending on the type of wood used, an attractive contrast between the original, possibly polished metal partitions and the inlays may have resulted. This technique is useful only for closed-back compartmented seals,

	Lab number	Sample number	Material	conv. $^{14}\text{C}$ age BP	$\delta^{13}\text{C}$	calibrated age $1\sigma$ calBC	calibrated age $2\sigma$ cal BC
1	HD-26067	TB07-KF-012	Charcoal	$3615 \pm 23$	-27.2	2021-1942	2032-1905
2	HD-26247	TB07-KF-013	Charcoal	$3527 \pm 32$	-25.5	1911-1776	1939-1755
3	HD-26250	TB07-KF-014	Charcoal	$3714 \pm 20$	-23.4	2140-2041	2195-2035
4	HD-28467	TB08-KF-238	Charcoal	$3594 \pm 27$	-24.2	2010-1910	2024-1889
5	HD-28466	TB08-KF-143	Charcoal	$3719 \pm 19$	-17.6	2191-2044	2197-2036
6	KIA-36744	TB08-KF-211	Charred grain	$3510 \pm 25$	$-24.40 \pm 0.13$	1885-1775	1900-1751
7	MAMS-13262	TB08-KF-350	Charred seeds	$3489 \pm 28$	-23,9	1878-1769	1891-1740
8	MAMS-13263	TB09-KF-505	Charred seeds	$3530 \pm 28$	-25,8	1914-1778	1941-1761
9	MAMS-13264	TB10-KF-658	Charred seeds	$3590 \pm 27$	-21,7	2006-1901	2023-1886
10	MAMS-13265	TB10-KF-674	Charred grain	$3614 \pm 26$	-21,2	2021-1939	2034-1895
11	MAMS-13266	TB10-KF-697	Charred grain	$3578 \pm 28$	-25,5	1957-1889	2024-1830
12	MAMS-13267	TB10-KF-701	Charred seeds	$3617 \pm 27$	-18,9	2022-1942	2111-1895
13	MAMS-13268	TB10-KF-805	Charred grain	$3541 \pm 33$	-21,1	1936-1781	1959-1757
14	MAMS-13269	TB10-KF-869	Charred grain	$3602 \pm 32$	-20,5	2017-1917	2108-1884
15	MAMS-13270	TB10-KF-870	Charred grain	$3559 \pm 34$	-20,9	1955-1786	2018-1774
16	MAMS-13271	TB10-KF-871	Charred seeds	$3645 \pm 33$	-24,8	2114-1954	2134-1923
17	MAMS-13272	TB10-KF-919	Charred grain	$3540 \pm 33$	-21,4	1933-1780	1955-1756
18	MAMS-13273	TB10-KF-863	Ivory	$3883 \pm 62$	-20,8	2465-2291	2561-2149
19	MAMS-13274	TB10-KF-851-03	Charcoal	$3722 \pm 22$	-25,2	2193-2044	2198-2036
20	MAMS-13262	TB10-KF-851-45	Charcoal	$3626 \pm 28$	-25,5	2026-1951	2121-1902

The Heidelberg (HD) dates were calibrated with Reimer/Stuiver, INTCAL04 und CALIB5 (Reimer *et al.* 2004). The Mannheim (MAMS) samples were calibrated with INTCAL09 (Reimer *et al.* 2009) und SwissCal 1.0 (L. Wacker, ETH Zurich).

Table 1— $^{14}\text{C}$ -dates for Tilla Bulak

and impractical for open-worked exemplars. Also, the inlay compromises the clarity of the impression, an important consideration for any sealing practice. Inlays are otherwise known from jewelry or boxes. One seal, discovered in a phase 2 refuse deposit, was outstanding for its size (diam. 8 cm), material (a translucent alabaster) and imagery (KF-557, *fig. 5: 5*): The dramatic depiction of a ferocious creature with fire (?) spouting from its mouth towering above tumbling humans must refer to a mythical story, but one whose content eludes us (for similarly vicious beasts on rectangular stone seals (see Sarianidi 1998a, nos. 930.931.1238.1628 or Sarianidi 2002, 266-270).

Up to now, evidence for the actual use of seals in the Namazga VI period is sparse. A number of sealings have been published from Margiana by Viktor Sarianidi (1998a), and according to this work, less than 10% of the glyptic finds (20 pieces) from Margiana are sealings, suggesting that even in this regional centre control of access through bureaucratic means was not a major issue. Sealings on bullae with either cylinder or stone stamp seals appear restricted to the early second-millennium Gonur South, which ties in well with another cylinder sealing from Dzarkutan (Šajdullaev *et al.* 2002, *fig. 2*; Kaniuth 2010b, *fig. 13: 1*), to date the only sealing on clay known from the Sapalli Culture. The discovery of multiple impressions of a compartmented seal on a deep pottery basin dating to Tilla Bulak phase 1 sheds further light on the functional side of glyptic art. Sealed pottery appears in eastern Iran already in the 3rd millennium BCE, and the practice is well attested during the Namazga VI period in Middle Asia (Sarianidi 1998a, nos. 1745-1750). The sealed vessel from Tilla Bulak carried at its base two further marks in relief, which must have been created with stamp seal impressions in a ceramic mould, a practice which also finds parallels in Gonur South (Sarianidi 1998a, no. 1745). All this is indicative of an at least rudimentary understanding of administrative practices, to which the numerous pre-firing pot-marks should be added.

In sum, enough seals have turned up in this settlement to argue for a fairly wide distribution among the population, especially when considering that a large number of them were destined to be deposited in funerary contexts. In conjunction with the sealed clay strip from Dzarkutan there is now uncontroversial evidence for a restricted range of administrative practices in the LBA of Southern Uzbekistan, operating presumably on a household or community level (which, in the case of Tilla Bulak, may have been the same). The sealing of clay bullae was certainly not part of administrative procedures at Tilla Bulak, because even the conflagration horizon of phase 1 did not produce a single example.

### Environment and subsistence

Beginning in 2008, flotation produced evidence for a wide range of cultivated plants. Especially when the *in situ* contexts of phase 1 were excavated in 2009 and 2010, the resulting amount of data puts us on a secure footing with respect to the food crops used. Accordingly, two well-known Near Eastern cultivated plants, barley (*H. vulgare*) and bread wheat (*T. aestivum*) were the staples of the diet. Emmer wheat (*T. dicoccum*) and rye (*Secale cereale*) played a minor role, as did oats (*Avena* sp.). The latter might have played a role as animal fodder for equids (on these, see below). It is so far unknown whether the seeds of Vitaceae discovered are to be classified as *Parthenocissus* or *Vitis*. Peas (*Pisum sativum*) and millet (*Pan. miliaceum*) are attested in small numbers (for a first summary see Peters in Kaniuth 2009, 89-91).

Concerning animal bones, preliminary data are available for the 2008 campaign, with sheep and goat predominating (79% by number/58% by weight), followed by domesticated cattle (8/18%) and hunted species (9/19%). Equids (4/4%) form only a small proportion of the bone assemblage (Sachs in Kaniuth 2010a, 141-148).

The wood remains identified in charcoal samples demonstrate the use of willow, tamarisk and pistachio brushes and twigs for firewood. Larger twigs for constructional purposes were underrepresented. So far, only juniper, ash and maple wood have been identified (Herzig in Kaniuth 2009, 91-94).

### Functional analysis

According to our current state of analysis, there is no differentiation apparent between the households on purely architectural grounds. A different image may emerge when the results from pottery, faunal and zoological studies have been integrated. Our most spectacular small finds (axe, large seal) were found near the top of the hill in secondary contexts, which may be indicative of their use in the buildings in this part of the site.

### Summary

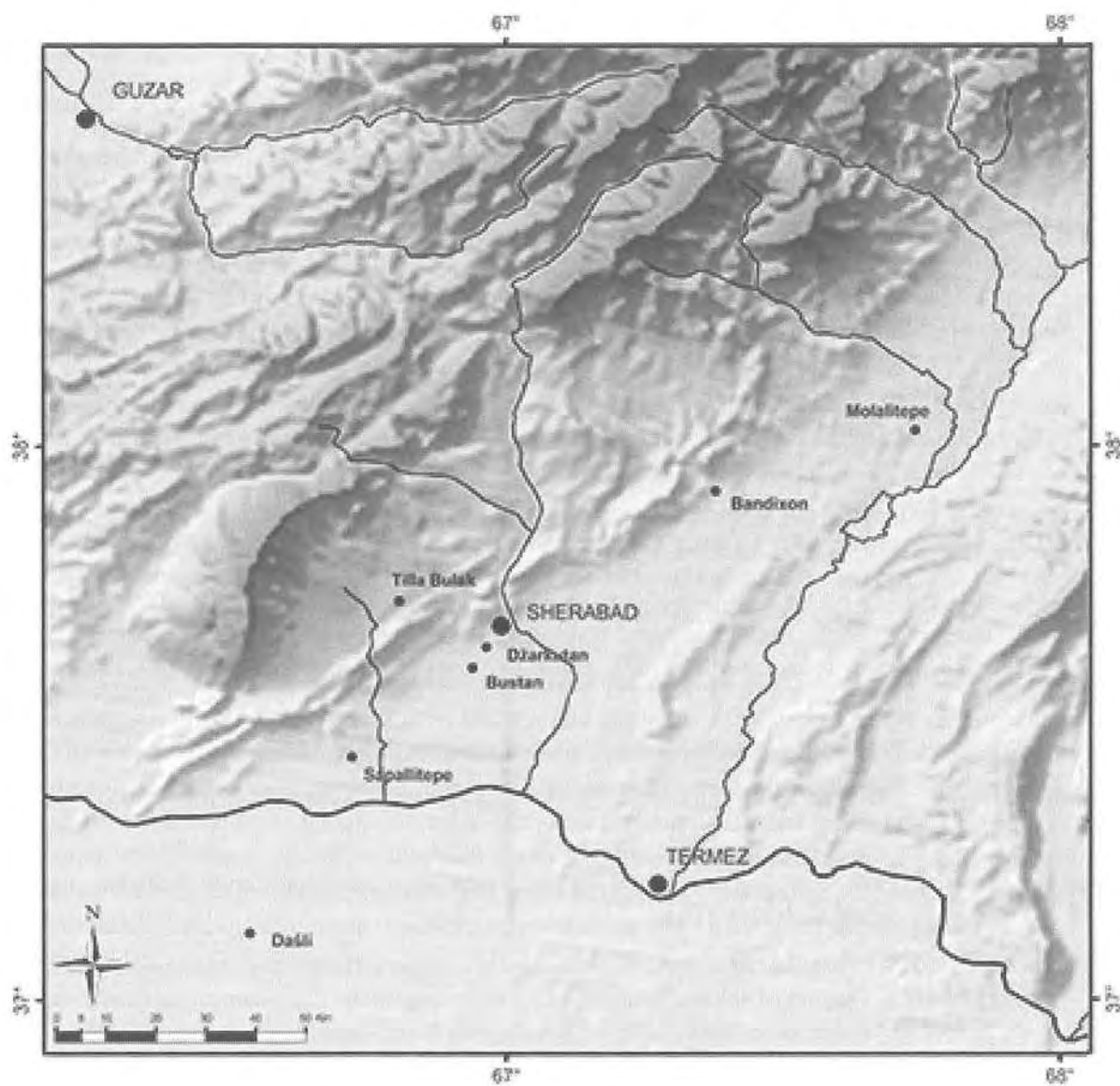
During four years of excavation, a representative proportion of the Late Bronze Age settlement of Tilla Bulak in the Surkhandarya province of Uzbekistan has been excavated. The settlement has been dated to the late 20th and 19th centuries BCE, based on a series of 20 radiocarbon dates, mostly from short-lived samples. The pottery compares well with that from other LB I sites of the Sapalli Culture, namely Sapallitepe and the earlier occupation of Dzarkutan. The deposits give evidence for the rural adaption of LBA society. The staples of subsistence were wheat and barley, with sheep/goat and cattle contributing to the diet. The entire range of cultivates included further pulses, with considerable evidence for hunting. All areas excavated appear to have been domestic, and there is no evidence for specialized activity areas within the settlement. Yet even in this small hamlet, an awareness of certain administrative procedures is suggested by the discovery of seals and of sealings on pottery containers. The patterns of village life on the margins of the ancient Near Eastern are therefore best described as a reflection of a larger set of shared practices.

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*Fig. 1—Map of Surkhandarya Province (Southern Uzbekistan) with sites mentioned in the text.*



Fig. 2—Tilla Bulak. Architectural plan of the Phase 2 settlement.



Fig. 3—Tilla Bulak. Architectural plan of the Phase 1 settlement.

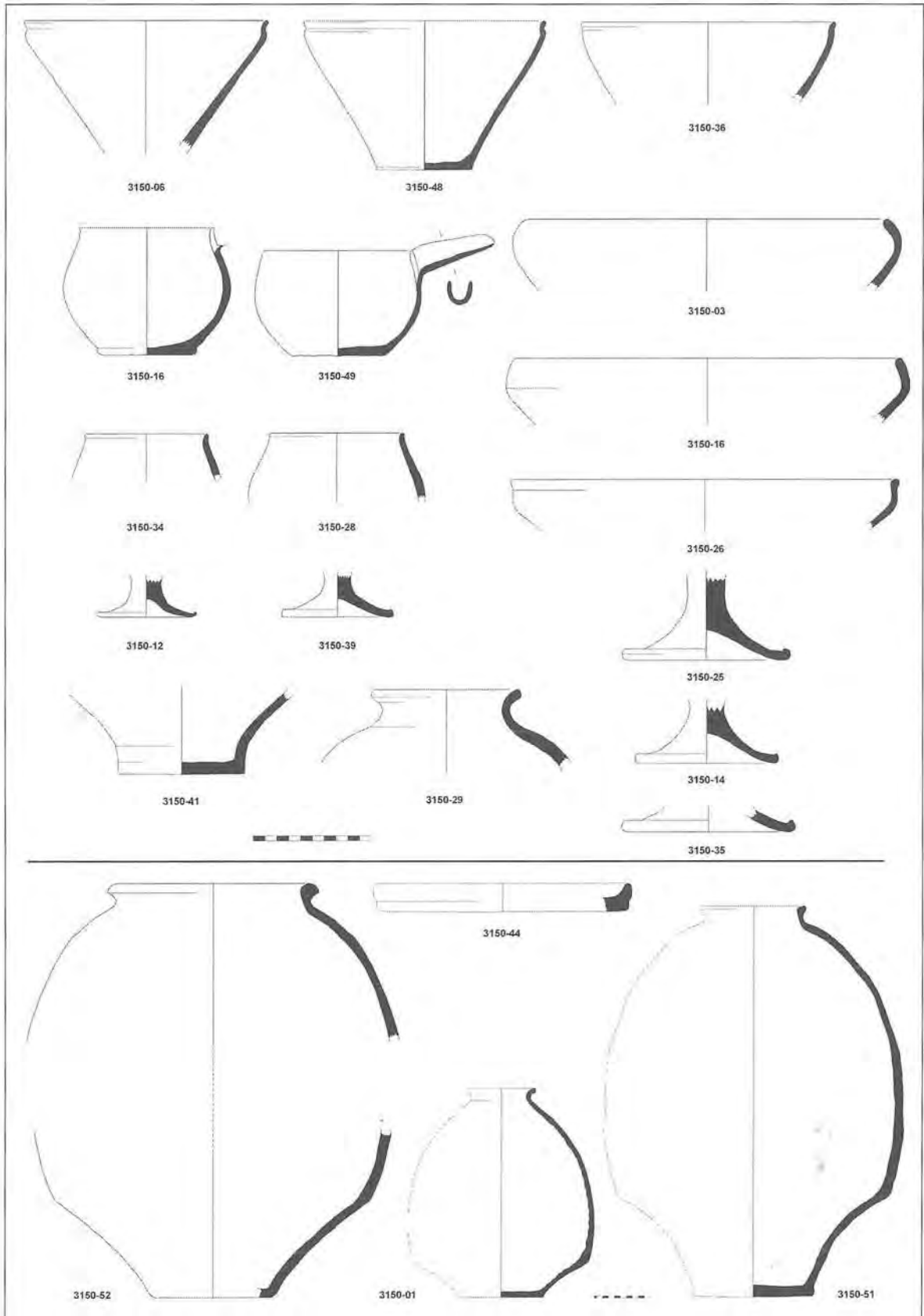


Fig. 4—Tilla Bulak. Selected pottery from lot TB10-KER-3150 (contained in the Phase 1 destruction fill TB-973).

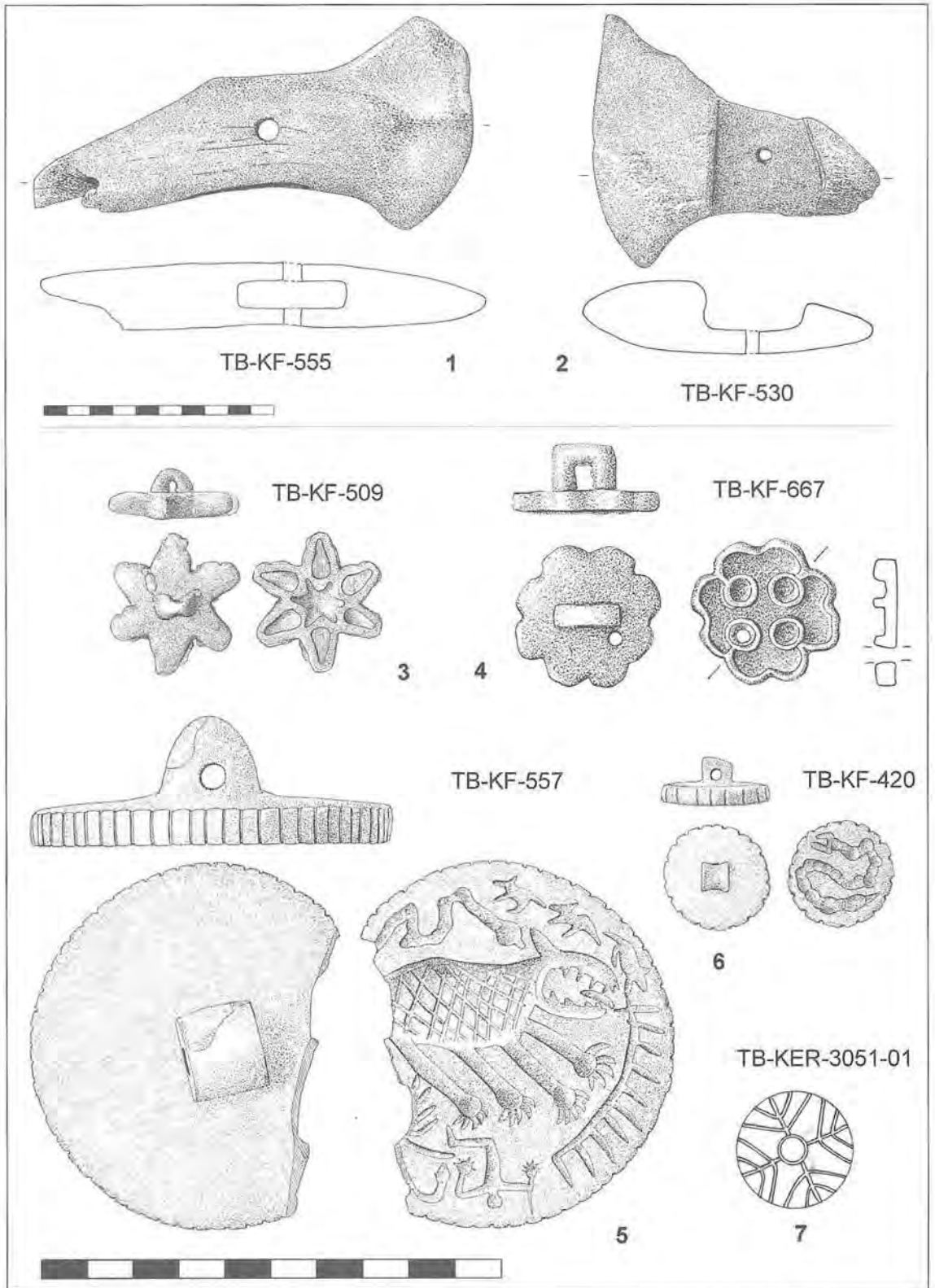


Fig. 5—Tilla Bulak. Prestige items from Phases 1 and 2.