

Corpus of Indus Seals and Inscriptions

3.3. Indo-Iranian Borderlands



CORPUS OF INDUS SEALS
AND INSCRIPTIONS

SUOMALAISEN TIEDEAKATEMIAN TOIMITUKSIA
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Corpus of Indus Seals and Inscriptions

**Volume 3: New material, untraced objects,
and collections outside India and Pakistan**

**Part 3: Indo-Iranian Borderlands
(Eastern Iran, Turkmenistan,
Tajikistan, Uzbekistan, Afghanistan)**

edited by
ASKO PARPOLA
and PETTERI KOSKIKALLIO



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Editor: Jaakko Hämeen-Anttila
Associate Editor: Petteri Koskikallio

Contact address: Dept. of World Cultures, P. O. Box 59, FI-00014 University of Helsinki, Finland
Email: j.hameen-anttila@ed.ac.uk / pkoskikallio@gmail.com

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Cover photograph: A Harappan-type stamp seal from Altyn-depe, Turkmenistan, Alt-90 A (600%)
(after V. M. Masson 1988, pl. 22, no. 1a). The seal inscription consists of two commonly occurring signs of the Indus script, yet forming a unique sequence not attested in South Asia.

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Preface

What is the purpose and scope of the *Corpus of Indus Seals and Inscriptions* (CISI)? Why should all the about 2350 non-Harappan seals, inscriptions and other objects from the “Indo-Iranian Borderlands” published in this volume appear in that series?

The Harappan/Indus Civilization (2600–1900 BCE) is one of the earliest urban cultures of the world, but in comparison to its counterparts in Mesopotamia and Egypt, little is known about its language, literature, religion, social structure, and many other things. It had a unique script of its own, and thousands of short inscriptions have survived, but the script vanished when the Indus Civilization collapsed. There is no such key as the Rosetta Stone, which opened up the secrets of the hieroglyphic writing. This does not mean that one cannot gain some understanding of the Indus script, but the problem is to be approached with proper methodical framework. The Indus script is most likely a logo-syllabic writing system like all the other earliest scripts, basically pictographic and using the rebus principle to express phonetic shapes of words. Starting from this hypothesis it has been possible to propose externally and internally cross-checked decipherment proposals for some two dozen signs and to identify the language underlying the script as Proto-Dravidian (Parpola 1994 – for the literature referred to in this preface, see the bibliography p. 530ff.).

A serious study of the Indus script requires access to all available material in good images. More than half of the Indus texts have been carved on small stone seals, which usually have some iconographic motif in addition to the text: normally there is a realistically depicted animal, but also for instance anthropomorphic figures probably representing divinities. Actually these small seals are our principal sources of Harappan art and religion. In this respect, even seals without script, also those having just geometric or other symbols, contain valuable information. The seals contribute to knowledge about Harappan administration, trade routes, crafts, and so on, by their find places, their material, and methods of manufacture. Another major inscriptional category consists of graffiti, texts incised on pottery, and also singly occurring “potter’s marks”, which are no real “texts”, but convey some information and are a possible source for script signs.

CISI was created to collect and to publish, in high quality images and as completely as possible, all the seals and inscriptions associated with the Indus Civilization. Vol. 1: *Collections in India* (1987), was produced in collaboration with the Archaeological Survey of India (ASI), and vol. 2 (1991): *Collections in Pakistan*, in collaboration with the Department of Archaeology and Museums, Government of Pakistan.

A third volume (*New material, untraced objects, and collections outside India and Pakistan*) started being prepared in the 1990s. It was soon realised that a single book could not contain all the material that remained to be published. The sites of Mohenjo-daro and Harappa have produced the great majority of the known Indus seals and inscriptions, but many objects excavated in the 1920s and 1930s were not to be found in the museum collections published in CISI 1–2. Still, photographs of lost objects could be recovered by carefully sifting the photo archives of the ASI. Besides, much new material came from the fresh excavations of the Harappa Archaeological Research Project (1986–2007). Vol. 3 Part 1: *Supplement to Mohenjo-daro and Harappa*, was brought out in collaboration with the HARP directors J. M. Kenoyer and R. M. Meadow in 2010.

Seals and inscriptions from Chanhudaro in Sindh, excavated by Ernest Mackay in 1935–36, were partly published in vol. 1; the remaining Chanhudaro material, belonging to the Boston Museum of Fine Arts, was included in CISI 3.2. Another section supplementing vol. 1 concerned the site of Kalibangan in Rajasthan, excavated in 1960–69 under the direction of B. B. Lal. A further Indian section consisted of the numerous and until then mostly unpublished “Sorath Harappan” graffiti from Rojdi, excavated between 1957 and 1995 by the Gujarat State Department of Archaeology, partly in collaboration with Gregory L. Possehl’s American team. The “Sorath Harappans” had come to Gujarat before the Indus Civilization and did not adopt the Indus script.

Vol. 1 was limited to Harappan material, save for the haphazardly added single seals from Maski, Prabhas Patan (Somnath), Mehi and Shahi-tump. In vol. 2 the scope of CISI was expanded to include systematically also seals and graffiti from Early, Pre-, and Post-Harappan sites in Northern Indus Valley and in Baluchistan. Particularly important for the prehistory of the Indus Civilization are the excavations carried out under the direction of Jean-François Jarrige in 1968–1974 at Pirak (J.-F. Jarrige & Santoni 1979) and in 1975–2002 at Mehrgarh, Nausharo and Sibri (C. Jarrige et al. 1995; J.-F. Jarrige, C. Jarrige & Quivron 2013). All these sites are situated near the strategic Bolan Pass that connects Baluchistan highlands and the Indus Valley. They have provided a continuous archaeological sequence from the Neolithic to Harappan times and (at Pirak) to the Iron Age. They form the backbone for understanding the development of the Neolithic and Chalcolithic villages of the highlands of western Pakistan and their expansion to the Indus Valley and beyond, which led to the birth of the Indus Civilization (Possehl 2002: 23–54). The seals from Mehrgarh, Nausharo and Sibri that had been published by that time were included in vol. 2, and the remaining material from these sites in vol. 3.2.

Also included in CISI 3.2 were seals excavated by Jean-Marie Casal in 1951–58 at Mundigak near Kandahar in southeastern Afghanistan (Casal 1961) and in 1962–65 at Nindowari in Pakistani Baluchistan (published with other Kulli culture material by J.-F. Jarrige, Quivron & C. Jarrige 2011). The iconography of the Kulli pottery has influenced the iconography of the Indus seals. From the end of the fourth millennium until to the middle of the third millennium, Mehrgarh evolved in close contact with the Helmand civilization of southern Afghanistan (Cortesi et al. 2008; Jarrige, Didier & Quivron 2011). This is reflected also in the great similarity of their seals (see below, *fig. 4*). The Helmand civilization extended from Mundigak along the Helmand river to the town of Shahr-i Sokhta just west of the border between Afghanistan and Iran. It was therefore natural to publish the seals of Mundigak in CISI 3.2. Shortly before vol. 3.2 went to press, I wanted to include in it also all the published seals from Shahr-i Sokhta. This proposal was welcomed by Massimo Vidale and Alessandra Lazzari, whom I asked for permission. They not only collaborated in the publication of Shahr-i Sokhta seals in CISI 3.2, but also promised to make available all the remaining, mostly unpublished, hundreds of seals and seal impressions in the archives of the Italian Archaeological Mission (MAI) that has excavated in Shahr-i Sokhta since 1967.

This promise has been fulfilled in the present volume. Alessandra Lazzari sent me the photographs and documentation data of all the remaining seals from Shahr-i Sokhta in the MAI archives under her care. Marta Ameri, who recently published an article on the “female administrators at Shahr-i Sokhta” (Ameri 2020/2022), photographed many previously undocumented reverse sides of seals from Shahr-i Sokhta; they too are published here. Massimo Vidale, Alessandra Lazzari and Marta Ameri have contributed to this volume a new introductory essay on the Shahr-i Sokhta material.

The seals and sealings from Ahar, Balathal and Gilund in Rajasthan do not represent the Indus Civilization, although the Ahar-Banas culture (partly earlier, partly contemporaneous to it) flourished very close to the Harappan area. The Ahar-Banas seals and seal impressions, included in CISI 3.2, have prototypes in seals of the “Middle Asian Interaction Sphere” (Ameri 2010). V. I. Sarianidi pointed out long ago that the Late Harappan Jhukar phase at Chanhudaro (including its seals) has numerous parallels in the Bactria and Margiana Archaeological Complex (BMAC) alias Oxus Civilization (Sarianidi 1977: 150; 1986: 247; 1990: 91–93 with *fig. 16*). Indeed, Mehrgarh VIII, Sibri, and the elite grave of Quetta (rescue-excavated in 1985) have conclusively proved the expansion of BMAC people to the southern border of the Indus Valley in the last centuries of the third millennium (Jarrige 1991; Jarrige & Quivron 2008). At Mohenjodaro, the presence of BMAC people at this time is attested by compartmented bronze stamp-seals (Franke 2010) and by the impressions of BMAC seals on bifaced “passports” stamped on the other side with Indus seals (Parpola 2005), as well as by a BMAC-type shaft-hole axe-adze (Parpola 2010); BMAC seals

were found at Harappa as well. The first Indian Bronze Age vehicle burial excavated in 2018 at the Late Harappan graveyard of Sanauli near Delhi has shown that the BMAC people advanced further to the Indian subcontinent, founding there the “Copper Hoard” culture (Parpola 2020). The BMAC people have been suspected to be speakers of an Indo-Iranian (Aryan) language, but archaeology suggests that the Aryans came to the Oxus Civilization only in its post-urban phase and to South Asia only after BMAC people (Parpola 2022). The BMAC language appears to survive only in a number of loanwords taken over by the oldest surviving forms of Iranian and Indo-Aryan languages (Lubotsky 2001; 2010; 2020).

The term “Indo-Iranian Borderlands” has been used somewhat loosely for the highlands of western Pakistan and the neighbouring areas in Afghanistan, Uzbekistan, Tajikistan and China. It has been chosen as the title of this volume in a somewhat extended meaning to include also Eastern Iran (east of, and including Tepe-Yahya, Tall-i Iblis and Tepe Hissar) and Turkmenistan, as a near synonym for the “Middle Asian Interaction Sphere” as defined by G. L. Possehl (2002: 215-236; 2007), though this latter term includes also the Gulf region (which will be part of the final volume CISI 3.4). Only three Indus-type seals have been excavated in the far-off southern Turkmenistan, two at Altyn-depe (Alt-49 and Alt-90, the latter on the cover of this volume) and one at Gonur, along with Indus-type dice and other ivory objects (Frenez 2018). Impression of an Indus seal on a pottery sherd (TY-106) comes from Tepe Yahya at the southwestern corner of the Iranian Plateau. Few as they are, these seals nevertheless document the participation of the Indus Civilization in the trade and interaction between the different cultural partners of the “Middle Asian Interaction Sphere”. The Harappan colony of Shortughai in northern Afghanistan near the lapis lazuli mines of Badakhshan further testifies to the role that the Indus people played in the important international lapis lazuli trade, which extended to Mesopotamia and Egypt.

Originally this volume was to include also the westernmost coastal and highland regions of Pakistan, traditionally a central part of the “Indo-Iranian Borderlands”. The relevant section has long been ready for publication, including material from and introductory essays on Kech-Makran coast by Aurore Didier and Benjamin Mutin; and on Gomal Plain and Bannu Basin by K. D. Thomas, Farid Khan, J. R. Knox, J. C. Morris and C. A. Petrie. However, the book has grown to such an extent that it is not possible to print it as one volume without making a major cut. The Pakistani portion was chosen as most suitable for a transfer to the final volume, which will deal with the new finds from South Asia (especially from Dholavira in Kutch, Gujarat) and with West Asia including the Gulf region. We sincerely apologize to our colleagues for this additional delay in the publication of their work. The excavations at Gonur, the capital of Margiana in southern Turkmenistan, have so far produced around 400 seals, which were kindly promised for this volume by Nadezhda A. Dubova, the late Viktor I. Sarianidi’s “right hand” and the present director of the Gonur digs. However, Dubova has been too busy to be able to fulfil her promise so far. Anyway, the Gonur seals would not have had room here, so their publication too is transferred to vol. 3.4. Among the Gonur material is a magnificent Indus seal excavated by V. I. Sarianidi in 2004. It bears the image of an elephant and an eight signs long inscription in the Indus script whose sign sequences are paralleled in the Indus Valley (Parpola 2006).

The Indo-Iranian Borderlands or the Middle Asian Interaction Sphere is important as the source of repeated eastward migrations that culminate in the evolution of the Indus Civilization. Reference has already been made to the close connection between Shahr-i Sokhta, Mundigak and Mehrgarh in 3000–2500 BCE. Some signs of the Indus script are clearly based on a pottery motif (‘three-branched fig tree with a single stem’) that occurs on Mundigak (period IV.1) beakers as well as Early to Late Harappan pottery (Parpola 1994: 235–236). Stuart Piggott (1950: 75) already suggested a historical connection between the Quetta culture of Pakistani Baluchistan and the early cultures of southern Turkmenistan; after Walter Fairservis’ excavations in the Quetta Valley (1956), V. M. Masson (1960: 30–32 with fig. 12) could list close parallels between these cultures (*fig. 1*). The seals compared by Masson are from Damb Sadaat (period III) in the Quetta Valley (Fairservis 1956: 229, fig. 23 b) and Kara-depe (Kara-14) of the Late Copper Age NMG III period (c. 3150–2700 BCE).

In 2011 Akinori Uesugi clearly demonstrated that seals of western origin were introduced into the Early Harappan and Harappan cultures. At my request, Uesugi kindly sent two of his illustrations (2011: 366, fig. 4 & 365, fig. 3) for publication here, the former in a slightly modified form (*figs. 2 and 4*, the latter placed at the end of this preface).

One seal type to which Uesugi (2011: 370–371) pays particular attention is that of square, circular and quatrefoil shapes having the design of concentric circles, often one placed in each of the quadrants plus/minus a fifth in the

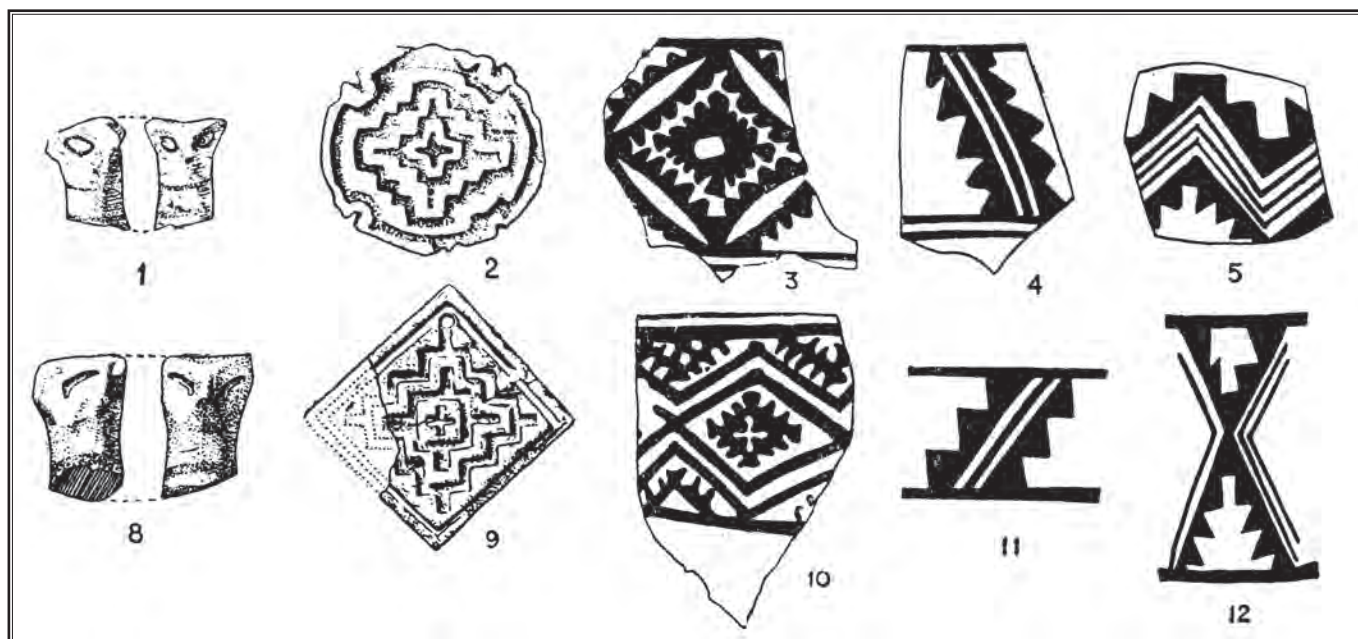


Fig. 1. Parallels in figurines, seals and painted pottery between the Quetta culture of Pakistani Baluchistan and southern Turkmenistan c. 3150–2700 BCE. After Masson 1960, fig. 12, first of the three parallel lines of comparisons.

centre. He notes that this type of seal is found in association with seals having other geometric patterns similar to Iranian geometric designs, and that it spread with these over the northern part of the Indus Valley. Uesugi considered this type of seal as unique, but noted that “the present state of our information does not permit us to conclude that this type of seal was created in the Indus Valley” (p. 371). The collection of seals from all over the Indo-Iranian Borderlands in CISI 3.3 shows that the motifs of “dot in circle” and “concentric circles” are widely found in this area, and that concentric circles arranged in sets of four or five in square are found already in Period I at Tepe Hissar (TH-122, TH-198) and for instance in southeastern Iran at Spidej (Spj-4 B) and Chegerdak (Cgk-19) as well as Altyn-depe in Turkmenistan (Alt-93). However, a concentration of that type of seal mapped by Uesugi in northern Indus Valley is found particularly among the seals coming from illegal robbery digs in Bactria. Six such seals have been published by Viktor Sarianidi (1998: 244–247; see fig. 3). One of them (no 1354) offers a very close parallel to a seal from Adam Basan 10 in Margiana (AmB10-1), even in its shape and in the motif depicted on the other side. One seal is circular and has three concentric circles divided by broken lines (no. 1324). The rest are square and have either four or five concentric circles put within the lines of a cross, the fifth in the centre. An Early Harappan seal from Rahman Dheri has the motif of “rays around concentric circles”, and a Faiz Mohammad style grey ware bowl from Mehrgarh has the motif of “sun in the four quadrants”. The motif of four (or five) concentric circles probably depicts the daily and yearly movement of the sun through the four directions (plus/minus zenith) (Parpola 2015: 190-194). The geometric seals with the symbols of swastika and cross, which also make a prominent appearance in the late phase of the Indus Civilization, have the same solar symbolism. Their prototypes have a dominant position in the glyptics of the Indo-Iranian Borderlands.

Apart from their importance for understanding the evolution of the Indus Civilization, a good reason for collecting the seals and texts of the Indo-Iranian Borderlands into a separate reference volume is that no such collection exists at the moment. S. Baghestani’s book (1997) only records the compartmented seals made of metal, and is typologically arranged, while the present volume is sitewise ordered. The texts and seals are an important source for reconstructing the general history of the area. They trace the expansion of the Elamite culture from Susiana to Tepe Yahya (27 Proto-Elamite tablets) and Konar Sandal (four tablets containing Linear Elamite script including a new type of “geometric script”) – and according to ceramic evidence (Proto-Elamite bevel-rim bowls) the Elamite influence extended eastward along the coast to Miri Qalat in Pakistani Baluchistan (Besenval 2011: 51). Even Shahdad has

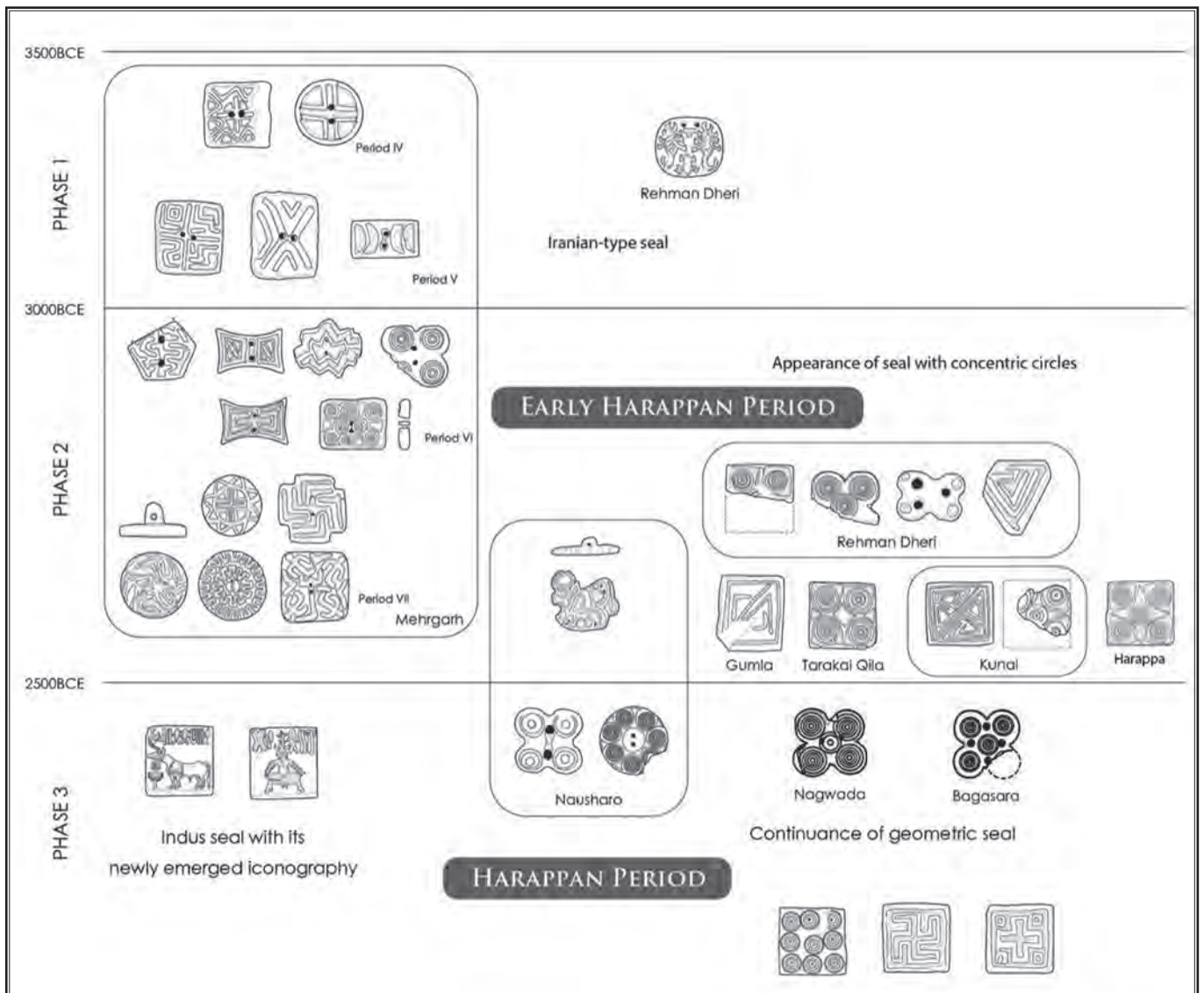


Fig. 2. Indus seal chronology according to A. Uesugi (2011).



Fig. 3. Circular and square seals from Bactria with 3, 4 or 5 concentric circles (in 100%). After Sarianidi 1998, nos. next to the images.

one Linear Elamite inscription (Shd-1) and six cylinder seals (Shd-2 to 7); an apparently Proto-Elamite cylinder seal comes from as far as Sarazm in Tajikistan (Sz-1).

Thus literacy spread from Susiana to southeastern Iran first in the form of the Proto-Elamite writing (3300–3000 BCE) and then in the now deciphered purely phonetic Linear Elamite writing (2300–1880 BCE). An illiterate wave of influence, clearly evidenced in the stamp seals, came from the Late Ubaid and Uruk period northern Mesopotamia and Syria/Anatolia to the central highlands of Iran via Tepe Giyan and Tepe Sialk, reaching Tepe Hissar after 5000 BCE, and spreading further to southern Central Asia. This spread has been charted by Mahmoud Rashad in his dissertation of 1990.

In the mostly illiterate cultures of the Indo-Iranian Borderlands, the seals and painted pottery record their ideology. The religion of the BMAC people has been studied on the basis of seal iconography especially by Viktor Sarianidi (1998) and by Sylvia Winkelmann (2021), who convincingly argues for a strong Elamite influence, especially from the Jiroft culture of southeastern Iran, represented by the seals of Konar Sandal. The decipherment of the Linear Elamite script (c 2300–1880 BCE) with the help of recently discovered new inscriptional material by François Desset and his team has shown that it is already a purely phonetic writing system (Desset et al. 2022). Internal development of the cuneiform script has made such an advance possible some 300 years after the birth of the Indus script.

In this volume it has not been possible to record potter's marks systematically except in the case of the Harappan colony of Shortughai. However, a fair selection has been included from Shahdad, and one gets an idea of the potter's marks from Tepe Yahya from the article of Daniel T. Potts republished here with the author's kind permission. An interesting category of incised and painted marks from southern Turkmenistan consists of those occurring with some regularity on the anthropomorphic female figurines, which probably represent the goddess of earth and fertility. Incised or painted images of animals and human beings on pottery have in some cases been included in the catalogue, for example in the case of the earliest periods at Kara-depe and Altyn-depe: conveying definite meanings, they may be useful for interpreting glyptics. For the same reason several iconographically interesting objects from Shahdad have been added at the end, such as a metal dish with a pair of antelopes facing opposite directions (Shd-294), a motif occurring on the foreign seal M-353 from Mohenjo-daro (CISI 3.1, p. 411), and in the Bactrian seal no. 1354 in *fig. 3* above; or a metal "flag" forming a sort of "text" (Shd-306). Naturally a catalogue of seals cannot include many such non-glyptic objects. To sum up, a comprehensive record has been attempted in this volume only for real texts and for seals/amulets. Yet, this cannot be any final publication, for there is plenty of scope for further archaeological research, and new material is constantly being found.

The plan to collect all the texts and seals of the Indo-Iranian Borderlands in this volume has been well received, and many colleagues have helped us substantially.

Reference has already been made to the hundreds of mostly unpublished seals from Shahr-i Sokhta, whose raw images and data were sent to us by Massimo Vidale, Alessandra Lazzari and Marta Ameri.

With the kind permission of Yousef Majidzadeh, Holly Pittman has published here for the first time the entire glyptic material from the 2002–2008 excavations of Konar Sandal. All the photographs and drawings as well as the data records and the order in which the material is presented are by her, and she has also written an introductory essay on the material. We just had to prepare the images for printing and do the layout.

Kai Kaniuth and Alisher Shaydullaev have similarly provided all images, their data records, the order of the material, and an introductory essay in the case of the Sapalli culture of Uzbekistan.

The Iranian archaeologist Ali A. Vahdati and his Italian colleague Raffaele Biscione likewise have supplied excellent photographs of seals coming from several little known sites, their data, and an introductory essay. These BMAC-type seals were only recently discovered in Khorasan in Iran.

Mohammad Heydari, François Desset and Massimo Vidale have permitted us to republish here, with a summary of their related essay published in 2020, the recently found very interesting 29 silver and copper seals and 19 impressions of stamp seals in terracotta from three little known sites in Iranian Baluchistan, Chegerdak, Spidej and Keshik, all disturbed by illegal digs.

Benjamin Mutin and Omran Garazhian have a collaborative archaeological project around the city of Bam in Iran. We are happy that they wanted to publish their recent finds in this volume, supplying us the images, their data and an introductory essay.

Benjamin Mutin together with Abdurauf Razzokov and Farhod Razzokov submitted images of seals from Sarazm in Tajikistan as well as their data and the related essay. Before that, I had consulted Henri-Paul Francfort for a good photo of the Sarazm cylinder seal; he referred me to Frédérique Brunet, currently in charge of the French excavations at Sarazm. Brunet graciously sent an excellent photograph of the seal and its impression (Sz-1 A and Sz-1 a) taken by Thierry Olivier for Musée Nationale des Arts Asiatiques Guimet in connection with a recent exhibition on Sarazm.

Other sites required more work from us, but nonetheless our efforts were met with a lot of good will.

Henri-Paul Francfort had already long ago permitted us to publish the two seals and the plentiful graffiti from Shortughai. We scanned the images from the excavation report and from a few photos lent by Francfort, collected the data record, and organized the material. Francfort kindly checked the resulting layout and submitted an introductory essay on Shortughai. Besides the introduction to Brunet, we thank him also for the contact with Vahdati.

C. C. Lamberg-Karlovsky kindly granted us permission to republish the relevant material from the 1967–75 excavations of Tepe Yahya. The seals were scanned mainly from the publications of Thomas Beale (the early periods) and Holly Pittman (Period IV, mainly Proto-Elamite), supplemented from other sources, and leaving out some less important drawings of reverse and side views. The Proto-Elamite tablets and their drawings were reproduced from the edition of Peter Damerow and Robert Englund (1989). Shortly before his untimely death Englund sent us digital versions of the drawings, which we however could not use. Unfortunately the numbering of the tablets, originally TY 1–27, had to be changed (TY-8 to TY-34) because objects from earlier periods (TY-1 to TY-7) preceded the tablets in the catalogue.

The Shahdad seals and graffiti excavated in 1968–77 by the late Ali Hakemi (1915–1997) were scanned from the excavation report published by the Istituto Italiano per il Medio ed Estremo Oriente (1997). The drawings of the types of seals which were too numerous to be published otherwise were included as separate items.

Gian Luca Bonora who has excavated at the oasis of Adji Kui has made it possible to publish the seals from Adji Kui 1 and 9: he has kindly sent me the late Gabriele Rossi Osmida's book on Adji Kui (2011) and the images of the seals published in Bonora et al. 2021b. Bonora has also clarified that all the seals in Rossi Osmida 2011 are from Adji Kui 9 (and not partly from Adji Kui 1 as stated in Winkelmann 2021: 220).

Barbara Cerasetti, director of the Togolok Archaeological Project, kindly permitted us to republish the new seals/amulets from Togolok-1 (Tgk1-5, Tgk1-26 and Tgk1-27).

Grateful acknowledgement is made to Pierre Amiet, centenarian in 2022: his superb drawings of cylinder seal impressions have been republished here whenever existing.

Some sites call for longer comments. Courtesy of University of Pennsylvania Museum and Holly Pittman, who contributed an introductory essay on Tepe Hissar, we publish here for the first time all the seals and seal impressions from the 1931–32 excavations by Erich F. Schmidt. Schmidt himself published in 1933 and 1937 altogether 109 seals and seal impressions, mostly only in drawings; these were all scanned. But we are now often in a position to add photographs to these drawings, and to provide better images than the photos published by Schmidt – these include the famous cylinder seal impression depicting a “proto-chariot” (TH-148 a). We also more than double the number of seals known from Tepe Hissar – the total figure is 280, including a handful of items from the 1976 restudy of Tepe Hissar by Robert H. Dyson and his colleagues. How come? The book “Tappah Hesār restudy” (Dyson & Howard 1989) contains a short article “The seals of Tappeh Hesār, 1931–1932” by Leslie Bennett (1989, pp. 127–130). From this article it appeared that the University of Pennsylvania Museum has in its archives unpublished photographic plates of seals and sealings. Holly Pittman kindly arranged for high resolution scans of these altogether 94 plates of good quality to be made by the archive – thanks are due also to the Senior Archivist, Mr Alessandro Pezzati. It turned out that all the excavated seals were photographed when the excavations were finished, but before the objects were divided between the UPM and the IBM. UPM accession numbers were afterwards added in ink at the respective objects on the plates, while “Persia” was written at the objects that remained in Iran. A few items have the abbreviation DIC of unknown meaning. The holdings of the University of Pennsylvania Museum have been separately photographed by the Museum and made digitally accessible, but not otherwise published so far. These “Penn Museum Collections” (PMC) digital photographs have been downloaded and used to supplement the other sources in order to publish the Tepe Hissar seals as well and as completely as possible. The seals have been arranged

chronologically, following the revised chronology established by Dyson and his colleagues after the 1976 restudy (Dyson & Renssen 1989: 108–109; Dyson 2009):

I A	(after 5000 BCE)
I B	(about 4000 BCE or earlier)
I C	(3980–3865 calBCE) & ephemeral II A (c. 3600–3380 BCE)
II (II B)	(3365–3030 calBCE) & ephemeral III A (c. 3000–2400 BCE)
III B	(c. 2400–2170 BCE)
III C	(c. 2170–1900 BCE): influx of BMAC/Oxus-related material

Most of the seals dated by Schmidt to Period I C have been attributed to Period I B in PMC, and this reattribution has been followed here, putting Schmidt’s dating in parentheses in the data list. The revision is probably due to Ayşe Gürsan-Salzman, whose book *The New Chronology of the Bronze Age Settlement of Tepe Hissar* (2016) became known to me too late to be taken into consideration.

The 1976 excavations produced a “tablet” or “label” (exc. no. H76-122) from Period II(–III A) approximately corresponding to the Proto-Elamite Period. This was published and discussed by Maurizio Tosi & G. M. Bulgarelli (1989, pp. 38–40, fig. 6:8). Photographs of the object were asked for, delivered by the UMP archives, and published here (TH-132): from them it appears doubtful that any “writing” is involved – natural cracks seem more likely. – The salvage excavation of Tepe Hissar 1995 is said to have produced additional unpublished tablets with signs (Dyson 2009).

Lyubov’ B. Kircho from the Institute for the History of Material Culture in St. Petersburg is currently the best expert of the cultures and seals of the Kopet Dagħ region of southern Turkmenia, especially the site of Altyn-depe (“the Golden Hill”) excavated systematically by Russian scholars from 1965. Kircho readily accepted the invitation to publish the seals of this region in CISI 3.3. As a first step in this task, she published an article on the oldest seals of the Kopet Dagħ sites (Kircho 2020). Unfortunately, other tasks – such as redaction of the journal of her Institute, preparation of an important article (Kircho 2021) – and repeated illnesses including covid-19 have prevented her from fulfilling her promise. Fortunately the manifold publications of V. M. Masson and Kircho et colleagues have made it possible to edit the material here. Greatest difficulty in this task was posed by the chronology of Altyn-depe, which is really complicated, because each of the seven main excavations at different spots of the mound have differing horizons (see Masson & Berëzkin 2005: 315–323). Following Kircho, it has been possible to give an “Altyn period” date only to relatively few objects. The respective layers are dated as follows:

Altyn 0 & later	Late NMG V	Late MBA	2100–1900 BCE
Altyn 2 & 1	Middle NMG V	MBA	2200–2100
Altyn 3	Early NMG V	MBA	2300
Altyn 4 A & B	Late NMG IV	Late EBA	2500–2400
Altyn 6 & 5	Middle NMG IV	Middle EBA	2600–2500
Altyn 8 & 7	Early NMG IV	EBA	2800–2700
Altyn 10 & 9	Late NMG III	Late Eneolithic	2900–2800

In the early 1950s Louis Dupree, an anthropologist working for the American Museum of Natural History (AMNH), examined the cave site of Shamshir Ghar about 15 miles WNW of Kandahar as well as the nearby mound of Deh Morasi Ghundai. He discovered a few seals from both sites, all published in CISI 3.3. Dupree assigns the Shamshir Ghar seals to a “Late Kushan” layer; he has probably erred, as he compares the iconography of the seals to Kushan art. Most of the seals look like belonging to the Bronze Age. The reproductions in Dupree’s report are not good. In 1992 I visited the AMNH with the Finnish photographer Jyrki Lyytikä in order to get better pictures of Dupree’s and Fairservis’s material. Jyrki’s pictures of the seal casts kept at the museum are published here. Shamshir-6 from “Islamic layer” does look late, but is included for safety’s sake.

The mound of Said Qala Ghundai 15 km southwest of Kandahar was first briefly examined by Walter A. Fairservis Jr in 1951. “Stamp seals” (how many?) were found in the levels of the latest occupation, which represent the “Morasi culture”, known from the Deh Morasi Ghundai examined by Dupree (four miles east of Panjwai in the Kandahar Plain). The earlier “Said Kala culture” levels yielded one potsherd bearing “the imprint of a rectangular stamp seal on its exterior. The design consists of a series of concentric diamonds” (Fairservis 1952: 24). Out of these finds, just one compartmented stamp seal of stone has been published (Fairservis 1971: 123, pl. 6), now included in CISI 3.3 as SQG-2.

A later archaeological mission of the AMNH in Afghanistan led by Jim G. Shaffer excavated Said Qala Tepe from the middle of December 1970 to the end of February 1971. The Bronze Age occupation of the site (Periods I to III B) corresponds to Mundigak Periods III.5.6-IV.1.

Several examples of compartmented geometric seals were found, all within the habitation area. Only three examples were not made from steatite and these were manufactured from bone and a grey-brown silicious stone. All had two central perforations and were predominantly rectangular or square. Other shapes identified were: circular, triangular, lozenge and oval. One example had deeply serrated edges. Several examples of worked steatite were found which must have represented blanks for the manufacture of such seals. (Shaffer 1978a: 160)

Altogether 22 seals were found: none from the earliest Bronze Age Period I, six from II A, six from II B, three from III A and seven from III B (Shaffer 1971). Until now, no photos or drawings of these seals have been published, however. I have been unable to get in touch with Jim Shaffer, but Gregg Jamison has kindly checked for me that Shaffer’s unpublished doctoral thesis at Madison, Wisconsin (1972), is equally laconic about seals as the printed version of the thesis (1978b), which contains only these two references: “At Mundigak, Said Qala Tepe, and Shahr-i Sokhta, compartmented seals had a very high frequency” (p. 135); and Table 1: “Compartmented steatite seals: Said Qala Tepe (Shaffer 1971, 1972); ...”.

The sites in the Geoksyur oasis on the Tedjen River and the sites in Margiana (old delta of the Murghab River) as well as the oasis of Dashly in northern Afghanistan have mainly been excavated by Viktor Sarianidi and their seals have been chiefly scanned from his numerous publications, many of which I possess thanks to the liberality of Sarianidi. Some of the older ones like the monographs on Dashly (1977) and especially the excavation report on the Togolok oasis (1990), have been printed with very poor quality, and the images are often quite small. I. S. Masimov has extensively surveyed the Murghab delta, collecting a number of seals from the surface. Masimov’s material has been partly taken into consideration by Sarianidi in his catalogue of 1998, but it was properly shifted with site locations by Sandro Salvatori (Masimov & Salvatori 2008).

I want to thank Gregg Jamison (University of Wisconsin-Milwaukee) and Sergej V. Kuz'minykh (Institute of Archaeology, RAS, Moscow) for help with literature. In spite of all efforts to make this book as comprehensive as possible, there are bound to be omissions. Many publications were simply not accessible. For instance, a seal from Shor-depe is said to have been published in I. S. Masimov’s paper “Nakhodki s Shor-depe” in *Pamyatniki Turkmenistana* 1978.1. If colleagues come across items missing in CISI 3.3 and they are willing to send images of the respective objects together with their measures, source, and other relevant data, such omissions could be repaired in CISI 3.4, which is planned to appear in the latter half of 2023.

A few words about our editorial work. The images and the related information, if we did not get them ready from our collaborators, have been searched and collected by Asko Parpola, who has also mostly prepared the images for publication and determined the order in which the material is presented. Petteri Koskikallio, my trusted coeditor from a number of publications, has been responsible for the layout of both the images and the text, for the formatting of the book, and for checking all data for accuracy and consistency.

Finally, our thanks are due to the publisher, the Finnish Academy of Science and Letters, in whose *Humaniora* series this volume is appearing like the previous volumes of the *Corpus of Indus Seals and Inscriptions*. All volumes are available at the internet bookshop Tiedekirja, <http://www.tiedekirja.fi>.

Helsinki, December 2022

ASKO PARPOLA

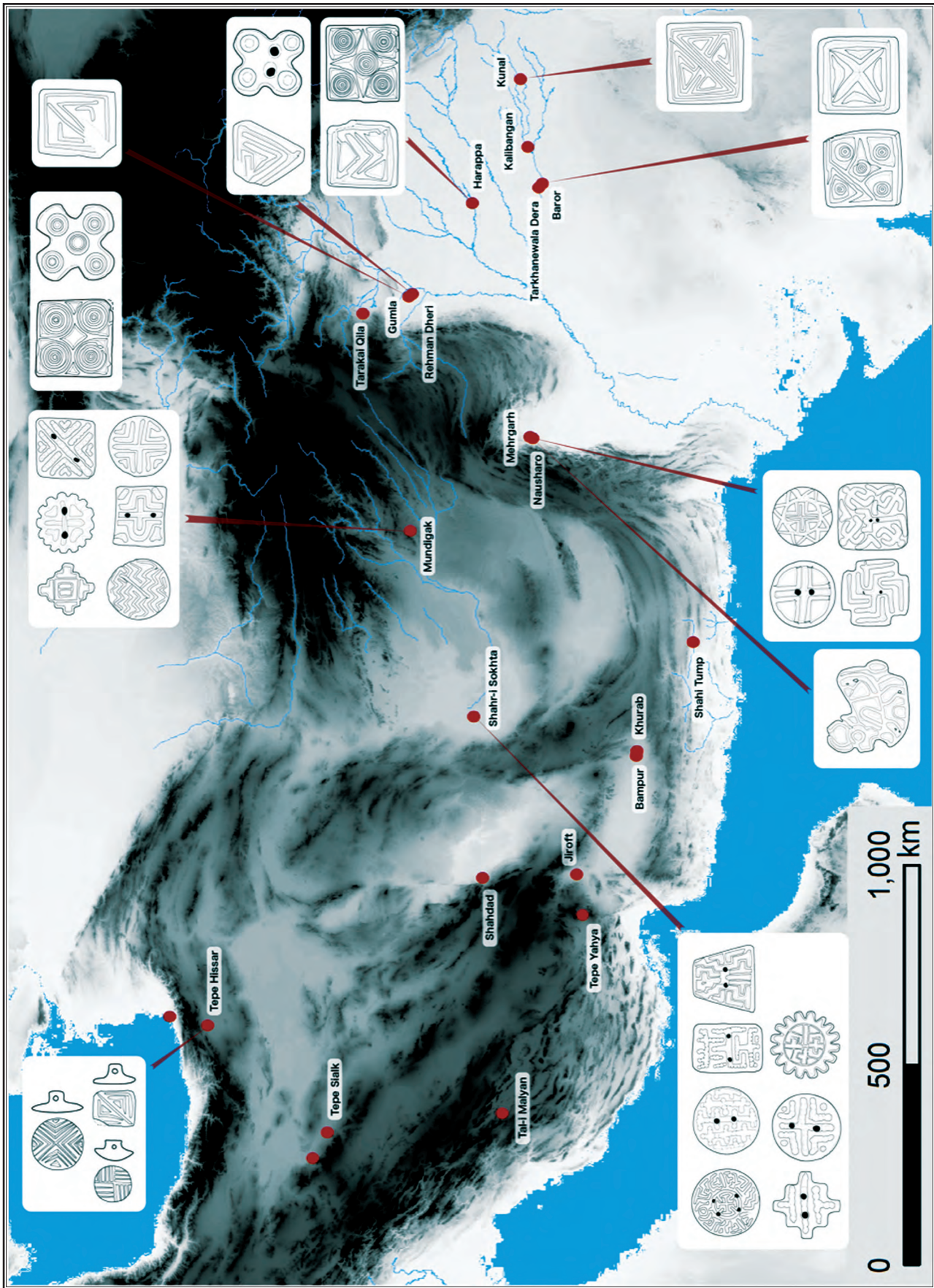


Fig. 4. Pre-urban Indus seal map by A. Uesugi (2016).

Basic data for the objects illustrated

Scaling and labelling of the images. Inscribed sides (here: sides with a motif) of an object without any size specification are in 200% size, the other sides in 100% size; deviations from this scheme are specified. If the measures are unknown, this is indicated with “(scale?)” Codes for the object sides: A = obverse, B = reverse, sides around A: C upper side, D right side, E bottom side, F left side. The three sides of triangular prisms are A, B, C.

Abbreviations and bibliography

??? = data not available

— = no number available

AAV = (photo/drawing by) Ali A. Vahdati

Afghanistan 2001 = Afghanistan: Une histoire millénaire. Barcelona: Fundación “la Caixa” – Paris: Réunion des Musées Nationaux, 2001.

AIS = Archaeological Institute, Samarkand

AL = (photo by) Alessandra Lazzari

Ameri, Marta Elena 2010. *Sealing at the Edge of Third Millennium Middle Asian Interaction Spheres: The View from Gilund, Rajasthan, India*. PhD dissertation, New York University, September 2010.

Ameri, Marta 2020/2022. Who holds the keys? Identifying female administrators at Shahr-i Sokhta. *Iran* 60.1 (2022): 1–38, published online 2 Feb 2020: <https://doi.org/10.1080/05786967.2020.1718542>.

Amiet, Pierre 1979. Les sceaux de Shahr-i Sokhta. In: J. E. van Lohuizen-de Leeuw (ed.), *South Asian Archaeology 1975*: 3–6 & pl. 1–2. Leiden: E. J. Brill.

Amiet, Pierre 1980. *La glyptique mesopotamienne archaïque*. Deuxième édition revue et corrigée avec un supplément. Contribution pour les inscriptions de Maurice Lambert. Paris: Éditions du Centre National de la Recherche Scientifique.

Amiet, Pierre 1983. The archaic glyptic at Shahr-i Sokhta (Period I). In: M. Tosi (ed.), *Prehistoric Sīstān*, I (Istituto Italiano per il Medio ed Estremo Oriente, Reports and Memoirs 19.1): 199–210 (with fig. 1: a–j on p. 200) & pls. 84 (fig. 2–7), 85 (fig. 8–13), 86 (fig. 14–18) & 87 (fig. 19–25). Rome: IsMEO.

Amiet, Pierre 1986. *L'âge des échanges inter-iraniens 3500–1700 avant J.-C.* (Notes et documents des musées de France, 11.) Paris: Éditions de la Réunion des musées nationaux.

Amiet, Pierre & Maurizio Tosi 1978. Phase 10 at Shahr-i Sokhta: Excavations in Square XDV and the late 4th millennium B.C. assemblage of Sīstān. With an epigraphic note by Piero Meriggi. *East and West* N.S. 28(1–4): 9–31 & figs. 1–35.

AMIT = Archäologische Mitteilungen aus Iran und Turan

AMNH = The American Museum of Natural History, New York

Arne, T. J. 1945. *Excavations at Shah Tepé, Iran*. (Reports from the Scientific Expedition to the North-Western Provinces of China under the leadership of Dr. Sven Hedin, Section 7: Archaeology, vol. 5. The Sino-Swedish Expedition, Publication 27.) Stockholm: Elanders boktryckeri AB.

Artamonov, M. I. (ed.) 1974. *The Dawn of Art: Palaeolithic, Neolithic, Bronze Age and Iron Age Remains Found in the Territory of the Soviet Union*. (The Hermitage Collection.) Leningrad: Aurora Art Publishers.

Ascalone, Enrico 2011. *Glittica Elamita*. (Studia Archaeologica, 182.) Roma: “L’Erma” di Bretschneider.

Askarov, A. A. 1973. *Sapallitepa*. Tashkent: FAN.

Askarov, A. A. 1977. *Drevnezemledel'cheskaya kul'tura èpokhi bronzy yuga Uzbekistana*. Tashkent: FAN.

Askarov, A. A. 1984. Problema stanovleniya rannegorodskoj kul'tury na yuge Uzbekistana i ee svyazi s Indostanov. In: V. M. Masson (ed.), *Drevnie kul'tury Srednej Azii i Indii*: 87–96. Leningrad: Nauka.

Askarov, A. A. 1993. La Bactriane à l’aube de la civilisation. *Dossiers d’Archéologie* 185: 60–69.

- Askarov, A. A. & B. Abdullaev 1983. *Dzharkutan: K probleme protogorodskoj tsivilisatsii na yuge Uzbekistana*. Tashkent.
- Askarov, A. A. & T. Širinov 1993. *Rannaya gorodskaya kul'tura epokhi bronzy yuga Srednej Azii*. Samarkand: URFA.
- Askarov et al. 1975 = A. Askarov, A. Abdurazakov, I. Bogdanova-Berezovskaya & V. Ruzanov, Khimicheskij sostav metallicheskih predmetov iz poseleniya Sapallitepa. *Istoriya Materialnoj Kul'tury Uzbekistana* 12: 72–83
- Atagarryev, E. & O. K. Berdyev 1967. Arkheologicheskoe izuchenie Turkmenistana za gody sovetsoj vlasti. *Sovetskaya Arkheologiya* 1967.3: 124–141.
- Avanesova, N. A. 1997. Spätbronzezeitliche Kulturkontakte in der baktrischen Flussoase nach den Befunden der Nekropole Bustan 6. *Archäologische Mitteilungen aus Iran und Turan* 29: 147–178.
- Avanesova, N. A. 2016. *Bustan VI: The necropolis of the fire-worshippers of pre-urban Bactria*. Samarkand: IICAS.
- Baghestani, Susanne 1997. *Metallene Compartimentsiegel aus Ost-Iran, Zentralasien und Nord-China*. (Archäologie in Iran und Turan, 1.) Rahden, Westfalen: Verlag Marie Leidorf.
- BAM = Bam Archaeological Mission
- Bāsafā, Hassān 1398 [= 2010]. Gozāresh-e fasl-e avval-e kāvosh-e bāstān shenāsi dar mohavate-ye Shahrak-e Firuzeh. [First season of excavation at Shahrak-e Firuzeh.] Archived report at the Iranian Centre for Archaeological Research. Unpublished.
- Beale, Thomas Wight 1986. *Excavations at Tepe Yahya, Iran, 1967–1975: The Early Periods*. (Bulletin of the American School of Prehistoric Research, Harvard University, 38.) Cambridge, MA: Peabody Museum, of Archaeology and Ethnology, Harvard University.
- BeM = (drawing by) Benjamin Mutin
- Bendezu-Sarmiento, Julio 2011. Pogrebal'nyj obryad i chelovecheskie ostanki iz gorodishcha bronzovogo veka Ulug depe v Turkmenistane. In: P. M. Kozhin, M. F. Kosarev & N. A. Dubova (eds.), *Na puti otkrytiya tsivilisatsii: Sbornik k 80-letiyu V. I. Sarianidi*: 513–535. Sankt-Peterburg: Aletheia.
- Bendezu-Sarmiento, Julio 2013. Archéologie funéraire et bio-anthropologie á Ulug dépe et Dzharkutan: âge du bronze au Turkménistan et en Ouzbékistan. In: Julio Bendezu-Sarmiento (ed.), *L'archéologie française en Asie centrale: nouvelles recherches et enjeux socioculturels*: 501–531. Paris: De Boccard.
- Bendezu-Sarmiento J. & S. Mustafakulov 2009. Report on the excavations at Djarkutan 2009. Unpublished manuscript.
- Bendezu-Sarmiento J. & 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. In: J. Bendezu-Sarmiento (ed.), *L'archéologie Française en Asie Centrale : nouvelles recherches et enjeux socioculturels*: 207–236. Paris: De Boccard.
- Bennett, Leslie 1989. The seals of Tappeh Hesār, 1931–1932. In: Robert H. Dyson, Jr. & Susan M. Howard (eds.), *Tappeh Hesār: Reports of the Restudy Project, 1976*: 127–130. Firenze: Casa editrice Le Lettere.
- Berdyev, O. K. 1966. “Arkhiiv” zemli raskryvaet tajny. *Pamyatniki Turkmenistana* 1966.1: 26–30.
- Besenal, Roland 2011. Between East and West: Kech-Makran (Pakistan) during protohistory. In: Toshiki Osada & Michael Witzel (eds.), *Cultural Relations between the Indus and the Iranian Plateau during the Third Millennium BCE: Indus Project, Research Institute for Humanitiues and Nature, June 7–8, 2008* (Harvard Oriental Series, Opera Minora, 7): 41–164. Cambridge, MA: Department of South Asian Studies, Harvard University.
- Besenal, R. & A. I. Isakov 1989. Sarazm et les débuts du peuplement agricole dans la région de Samarkand. *Arts asiatiques* 44: 5–20.
- Biscione, Raffaele 1985. The so-called “Nestorian seals”: Connections between Ordos and Middle Asia in Middle-Late Bronze Age. In: Gherardo Gnoli & Lionello Lanciotti (eds.), *Orientalia Iosephi Tucci Memoriae Dicata* (Serie orientale Roma, 56), I: 95–109. Rome: Istituto Italiano per il Medio ed Estremo Oriente.
- BM = The British Museum, London
- Bollati, R., G. Ceroli & E. Huber 2009. Quando l'argilla non diventa ceramica: intervento pilota su manufatti iranici del III millennio a.C. In: S. Gualteri, B. Fabbri & G. Bandini (eds.), *Le classi ceramiche: situazione degli studi. Atti della 10a Giornata di Archeometria della Ceramica (Roma, 5–7 aprile 2006)*: 213–221. Bari: Edipuglia s.r.l.
- Bonora, Gian Luca, Gabriele Rossi Osmida & Anna Cengia 2021a. Pechati iz mogil'nika Adzhikui. *Arkheologicheskie Vesti* 32: 55–68.
- Bonora, Gian Luca, Gabriele Rossi Osmida & Anna Cengia 2021b. A general overview of the Oxus Civilization graveyard of Adji Kui in Margiana (South Turkmanistan). *East and West* N.S. 2/61.1: 47–80.
- Bonora & al. 2014 = Gian Luca Bonora, Massimo Vidale, Maurizio Mariottini & Giuseppe Guida, On the use of tokens and seals along the Kopet Dagh Piedmont, Turkmenistan (ca 6000–3000 BCE). *Paléorient* 40.1 (2014): 55–71.
- Brentjes, B. 1986. Die “baktrischen Bronzen”, ihre Datierung und die Mitanni-Kunst. In: Günter Brucher (ed.), *Orient und Okzident im Spiegel der Kunst: Festschrift Heinrich Gerhard Franz zum 70. Geburtstag* (Forschungen und Berichte des Instituts für Kunstgeschichte der Karl-Franzens-Universität Graz, 7): 15–20. Graz: Akademischer Druck- und Verlagsanstalt.
- Brentjes, B. 1987. Probleme der baktrischen Bronzezeit. *Iranica Antiqua* 22: 117–163.
- Brentjes, B. 1989. Stempel- und Rollsiegel aus Baktrien und Chorasán. *Baghdader Mitteilungen* 20: 315–335.

- Brunet, F. 2013. Étude morpho-technologique préliminaire des éléments de parure de l'âge du bronze de Sapalli tépé et Dzharkutan (Ouzbékistan). In: J. Bendezu-Sarmiento (ed.), *L'archéologie Française en Asie Centrale : Nouvelles recherches et enjeux socioculturels*: 335–355. Paris: De Boccard.
- Cardi, Beatrice de 1970. *Excavations at Bampur: A Third Millennium Settlement in Persian Baluchistan, 1966*. (Anthropological Papers of the American Museum of Natural History, 51.3.) New York: The American Museum of Natural History.
- Casal, Jean-Marie 1961. *Fouilles de Mundigak*, I–II. (Mémoires de la Délégation Archéologique Française en Afghanistan, 17: 1–2.) Paris: C. Klincksieck.
- Cattani, Giuliana 2000. Administrative indicators in the Shahr-i Sokhta Eastern Residential Area of Period II (2800–2600 BC). In: Maurizio Taddei & Giuseppe De Marco (eds.), *South Asian Archaeology 1997*, I (Serie Orientale Roma 90, 1): 485–494. Rome: Istituto Italiano per l'Africa e l'Oriente.
- Chase, David W., Joseph R. Caldwell & Iren Fehérvári 1967. The Iblis sequence and the exploration of excavation areas A, C, and E. In: Joseph R. Caldwell (ed.), *Investigations at Tal-i-Iblis* (Illinois State Museum preliminary reports, 9): 111–201. Springfield, IL: Illinois State Museum.
- CISI = *Corpus of Indus Seals and Inscriptions*
 clay = unbaked clay
- Collon, Dominique 1987. *First impressions: Cylinder Seals in the Ancient Near East*. London: British Museum Publications.
- Cortesi et al. 2008 = Elisa Cortesi, Maurizio Tosi, Alessandra Lazzari & Massimo Vidale, Cultural relationships beyond the Iranian Plateau: The Helmand Civilization, Baluchistan and the Indus Valley in the 3rd millennium BCE. *Paléorient* 34.2 (2008): 5–35.
- CS: see MNAO
- CW = (drawing by) Cornelia Wolff
- D&E89 = Damerow, Peter & Robert K. Englund 1989. *The Proto-Elamite Texts from Tepe Yahya*. With an introduction by C. C. Lamberg-Karlovsky. (The American School of Prehistoric Research, Bulletin, 39.) Cambridge, Mass.: Peabody Museum of Archaeology & Ethnology, Harvard University.
- Dales, George F., Jr. 1972. Prehistoric research in southern Afghan Seistan. *Afghanistan* 24.4: 12–40. Kabul.
- Dales, George F. 1977. *Nad-i Ali (Sorkh Dagh), Afghanistan*. (Research Monograph Series.) Berkeley: Center for South and Southeast Asia Studies, University of California.
- Desset et al. 2022 = François Desset, Kambiz Tabibzadeh, Matthieu Kervran, Gian Pietro Basello & Gianni Marchesi 2022. The decipherment of Linear Elamite writing. *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 112.1: 11–60.
- diam. = diameter
- DIC = abbreviation in Tepe Hissar excavations field photographs in the archive of the Penn Museum for objects not assigned to UPM nor IBM
- dr. = drawing
- Dupree, Louis B. 1958. *Shamshir Ghar: Historic Cave Site in Kandahar Province, Afghanistan*. (Anthropological Papers of the American Museum of Natural History, 46.2: 137–312.) New York: The American Museum of Natural History.
- Dupree, Louis B. 1963. *Deh Morasi Ghundai: A Chalcolithic Site in South-Central Afghanistan*. (Anthropological Papers of the American Museum of Natural History, 50.2: 59–135.) New York: The American Museum of Natural History.
- Dupree, Louis 1981. Notes on Shortugai: An Harappan site in Northern Afghanistan. In: Ahmad Hasan Dani (ed.), *Indus Civilization – New Perspectives*: 103–115 & Maps 1–2 and Figs. 1–30. Islamabad: Centre for the Study of the Civilization of Central Asia, Quaid-i-Azam University.
- Dupree, Nancy Hatch, Louis Dupree & A. A. Motamedi 1974. *The National Museum of Afghanistan: An Illustrated Guide*. Kabul: Afghan Tourist Organization.
- Durante, Silvio 1979a. The utilization of *Xancus pyrum* (L.) at Shahr-i Sokhta: Further evidence for cultural relations between India and Iran in the 4th–3rd millennia B.C. In: J. E. van Lohuizen-de Leeuw (ed.), *South Asian Archaeology 1975*: 27–42 & pls. 9–21. Leiden: E. J. Brill.
- Durante, Silvio 1979b. Marine shells from Balakot, Shahr-i Sokhta and Tepe Yahya: Their significance for trade and technology in ancient Indo-Iran. In: Maurizio Taddei (ed.), *South Asian Archaeology 1977*, I (Istituto Universitario Orientale, Seminario di Studi Asiatici, Series minor, 6): 331–341. Naples: Istituto Universitario Orientale.
- Dyson, Robert H. 2009. Tepe Hissar. *Encyclopaedia Iranica* (online).
- Dyson, Robert H., Jr. & William C. S. Remsen 1989. Observations on architecture and stratigraphy at Tappeh Hesār. In: Robert H. Dyson, Jr. & Susan M. Howard (eds.), *Tappeh Hesār: Reports of the Restudy Project, 1976*: 69–109. Firenze: Casa editrice Le Lettere.
- EB = (photo by) E. Baldari
- EF = (photo/drawing by) Enrica Fiandra
- exc. = excavation

- Fairservis, Walter A., Jr. 1952. *Preliminary Report on the Prehistoric Archaeology of the Afghan-Baluchi Areas*. (American Museum Novitates, 1587.) New York: American Museum of Natural History.
- Fairservis, Walter A., Jr. 1956. *Excavations in the Quetta Valley, West Pakistan*. (Anthropological Papers of the American Museum of Natural History, 45.2.) New York: The American Museum of Natural History.
- Fairservis, Walter A., Jr. 1961. *Archaeological Studies in the Seistan Basin of Southwestern Afghanistan and Eastern Iran*. (Anthropological Papers of the American Museum of Natural History, 48.1.) New York: The American Museum of Natural History.
- Fairservis, Walter A., Jr. 1971. *The Roots of Ancient India*. New York: Macmillan.
- FB = (photo by) Francesca Bonardi
- FdSh = Henri-Paul Francfort, *Fouilles de Shortughai: recherches sur l'Asie centrale protohistorique*, I–II. (Mémoires de la Mission archéologique française en Asie centrale, 2.) Paris: Diffusion de Boccard.
- Feroli, Piera, Enrica Fiandra & Sebastiano Tusa 1979. Stamp seals and the functional analysis of their sealings at Shahr-i Sokhta II–III (2700–2200 B.C.). In: J. E. van Lohuizen-de Leeuw (ed.), *South Asian Archaeology 1975: 7–26 & pls. 3–8*. Leiden: E. J. Brill.
- FK = (drawing by) Felicitas Kaniuth
- Franke, Ute, 2010. From the Oxus to the Indus: Two compartmented seals from Mohenjo-daro (Pakistan). In *CISI 3.1*: xvii–xliii. Helsinki: Suomalainen Tiedeakatemia.
- Francfort et al. 2014 = Francfort, Henri-Paul, Ali A. Vahdati, Julio Bendezu-Sarmiento, Johanna Lhuillier, Eric Fouache, Margaret Tengberg, Marjan Mascour & Zohreh Shirazi, Preliminary report on the soundings at Tepe Damghani Sabzevar, Spring 2008. *Iranica Antiqua* 49 (2014): 111–158.
- Frenez, Dennys, 2018. Manufacturing and trade of Asian elephant ivory in Bronze Age Middle Asia: Evidence from Gonur Depe (Margiana, Turkmenistan). *Archaeological Research in Asia* 15: 13–33.
- Frenez, Dennys 2019. Cross-cultural trade and socio-cultural developments in the Oman Peninsula during the Bronze Age, ca. 3200 to 1600 BC. *Ocnus* 27: 7–47.
- Ganyalin, A. F. 1967. Raskopki v 1959–1961 gg. na Altyn-depe. *Sovetskaya Arkheologiya* 1967.4: 207–219.
- Gārāzhian, Omran 1391 [= 2012]. Gozaresh-e gamānezani be manzure arzyabi-ye ijad-e muze-ye fazā-ye bāzdar mohavate-ye Tappeh Dāmghāni, Sabzevār. Report on sounding at Tepe Damghani for evaluation of establishment of a site-museum, Unpublished report archived in the Cultural Heritage, Handicrafts and Tourism office of Mashhad.
- GC = (drawing by) Gabriella Ceroli
- GS = (photo by) Giannetto Silvestrini
- HA = (photo by) Hossein Abbaszadeh
- HaF = (drawing by) Hamideh Fakhr
- Hakemi, Ali 1997. *Shahdad: Archaeological Excavations of a Bronze Age Center in Iran*. Translated and edited by S. M. S. Sajjadi. With an Introduction by Pierre Amiet and a Postscriptum by Sandro Salvatori and Maurizio Tosi. (Istituto Italiano per il Medio ed Estremo Oriente, Centro Scavi e Ricerche Archeologiche, Reports and Memoirs, 27.) Rome: IsMEO.
- Harris, Mary Virginia 1989. Hesār preliminary report: Objects by materials (1976). In: Robert H. Dyson, Jr. & Susan M. Howard (eds.), *Tappeh Hesār: Reports of the Restudy Project, 1976*: 145–148. Firenze: Casa editrice Le Lettere.
- HB = (photo by) Hassan Basafa
- HD&V18 = M. Heydari, F. Desset & M. Vidale 2018. Bronze Age glyptics of Eastern Jazmurian, Iran. *Paléorient* 44.1: 133–153.
- Hiebert, Fredrik T. 2000. Unique Bronze Age stamp seal found in Central Asia. *Expedition* 42.3: 48.
- Hiebert, Fredrik T. 2002. *The Context of the Anau Seal*. (Sino-Platonic Papers, 124.) Philadelphia, PA: Department of East Asian Languages and Civilizations, University of Pennsylvania.
- Hiebert, Fredrik T. 2012. The Bronze Age World of Afghanistan. In: Joan Aruz & Elisabetta Valtz Fino (eds.), *Afghanistan: Forging Civilizations along the Silk Road* (The Metropolitan Museum of Art Symposia): 16–27. New York: The Metropolitan Museum of Art.
- HMS = Historical Museum Samarkand
- HMT = Historical Museum Tashkent
- hor. = horizon
- H-PF = (photograph supplied by) Henri-Paul Francfort
- HP = (photo/drawing by) Holly Pittman
- Huff, D. 2000. Tempel oder Palast? Dscharkutan – Monumentalbauten und Siedlung im bronzezeitlichen Baktrien. In: H. Kyrieleis (ed.), *Archäologische Entdeckungen: Die Forschungen des Deutschen Archäologischen Instituts im 20. Jahrhundert*: 115–118. Mainz: Zabern.
- IBM = Iran Bastan Museum, Teheran

ICAR = Iranian Center for Archaeological Research, Teheran

ICHHTO = Iran's Cultural Heritage Handicrafts and Tourism Organization

impr. = impression

Isakov, A. I. 1991. *Sarazm*. Dushanbe: Donish.

Isakov, A. I. 1994. Sarazm: An agricultural center of Ancient Sogdiana. *Bulletin of the Asia Institute*, New Series 8: 1–12.

IsIAO = Istituto Italiano per l'Africa et l'Oriente, Roma, formerly IsMEO

IsMEO = Istituto Italiano per il Medio ed Estremo Oriente, Roma, later IsIAO, now stopped (see Vitale & Lazzari, in this volume)

IsMEO activities 1978. *East and West* 28(1–4): 329–342.

Jarrige, Catherine & Maurizio Tosi 1981. The natural resources of Mundigak: Some observations on the location of the site in relation to its economical space. In: Herbert Härtel (ed.), *South Asian Archaeology 1979*: 115–142. Berlin: Dietrich Reimer Verlag.

C. Jarrige et al. 1995 = Jarrige, Catherine, Jean-François Jarrige, Richard H. Meadow & Gonzague Quivron (eds.), Mehrgarh field reports 1974–1985: From Neolithic times to the Indus Civilization. The reports of eleven seasons of excavations in Kachi District, Balochistan, by the French Archaeological Mission to Pakistan. Karachi: The Department of Culture and Tourism, Government of Sindh, Pakistan, 1995.

Jarrige, Jean-François 1985. Les relations entre l'Asie centrale méridionale, le Baluchistan et la vallée de l'Indus à la fin du 3e et au début du 2e millénaire. In: *L'Archéologie de la Bactriane Ancienne*: 105–118. Paris: Éditions du CNRS.

Jarrige, Jean-François 1988. Les styles de Geoksyur et de Quetta et la question des rapports entre les régions au Nord et au Sud de l'Hindu Kush à la fin du 4e et au début du 3e millénaires. In: *L'Asie centrale et ses rapports avec les civilisations orientales, des origines à l'Âge du Fer* (Mémoires de la Mission Archéologique Française en Asie Centrale, 1): 95–101. Paris: Diffusion De Boccard.

Jarrige, Jean-François 1991. The cultural complex of Mehrgarh (Period VIII) and Sibri: The 'Quetta hoard'. In: Michael Jansen, Maire Mulloy and Günter Urban (eds.), *Forgotten cities on the Indus: Early civilization in Pakistan from the 8th to the 2nd millennium B.C.*: 94–103 Mainz: Philipp von Zabern.

Jarrige, Jean-François & Gonzague Quivron 2008. The Indus Valley and the Indo-Iranian borderlands at the end of the 3rd and the beginning of the 2nd millennium BC. In: Ellen M. Raven (ed.), *South Asian Archaeology 1999* (Gonda Indological Studies, 15): Pp. 61–83. Groningen: Egbert Forsten.

Jarrige, Jean-François & Marielle Santoni 1979. *Fouilles de Pirak, I: Texte* (with English summary). Avec des contributions de Monique Lechevallier, Lorenzo Costantini et Richard Meadow et la collaboration de Catherine Jarrige. (Publications de la Commission des Fouilles Archéologiques, Fouilles de Pakistan, 2.) Paris: Diffusion de Boccard.

Jarrige, Jean-François, Aurore Didier & Gonzague Quivron 2011. Shahr-i Sokhta and the chronology of the Indo-Iranian regions. *Paléorient* 37.2: 7–34.

Jarrige, Jean-François, Gonzague Quivron & Catherine Jarrige 2011. *Nindowari, Pakistan: La culture de Kulli, ses origines et ses relations avec la civilisation de l'Indus*. Paris: Ginkgo Éditeur.

Jarrige, Jean-François, Catherine Jarrige et Gonzague Quivron 2013. *Mehrgarh, Pakistan: Neolithic period – Seasons 1997–2000*. (Mémoires des Missions Archéologiques Françaises en Asie Centrale et en Asie Moyenne, 15. Série Indus-Balochistan.) Paris: Éditions de Boccard.

J.-F. Jarrige et al. 2013 = Jarrige, Jean-François, Catherine Jarrige & Gonzague Quivron, *Mehrgarh, Pakistan: Neolithic Period – Seasons 1997–2000*. With an appendix by Luc Wengler. With the collaboration of David Sarmiento Castillo. (Mémoires des Missions Archéologiques Françaises en Asie Centrale et en Asie Moyenne, 15. Série Indus-Balochistan.) Paris: Mission Archéologique de l'Indus – Éditions de Boccard, 2013.

JL92 = Jyrki Lyytikä, photography at The American Museum of Natural History, New York in 1992

Kaniuth, K. 2006. *Metallobjekte der Bronzezeit aus Nordbakterien* (Archäologie in Iran und Turan, 6). Mainz: Zabern.

Kaniuth, K. 2010. 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. 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: V. Lefèvre, A. Didier & B. Mutin (eds.), *South Asian Archaeology and Art 2012, I: Man and environment in Prehistoric and Protohistoric South Asia: New perspectives*: 117–128. Turnhout: Brepols.

KH = (drawing by) Karlotta Herbst

Khlopin, I. N. 1960 (1961). Dashlydzhidepe i èneoliticheskie zemledel'tsy Yuzhnogo Turkmenistana. In: M. E. Masson (ed.), *Trudy Yuzhno-Turkmenistanskoj Arkheologicheskoy Kompleksnoj Èkspeditsii*, X: 134–224. Ashkhabad: Izdatel'stvo Akademii Nauk Turkmensoj SSR.

- Khlopin, I. N. 1962. Izobrazhenie kresta v drevnezemledel'cheskikh kul'turakh Yuzhnoj Turkmenii. *Kratkie Soobshchenie Instituta Arkheologii* 91: 14–21.
- Khlopin, I. N. 1969. Pamyatniki razvitogo èneolita Yugo-vostochnoj Turkmenii: Èneolit yuzhnykh oblastej Srednej Azii, chast' III. (Arkheologiya SSSR, Svod arkheologicheskikh istochnikov BZ-8.) Leningrad: Nauka.
- Kircho, L. B. 1988. The beginning of the Early Bronze Age in Southern Turkmenia on the basis of Altyn-depe materials. *East and West* N. S. 38.1–4: 33–64.
- Kircho, L. B. 1989. Seals and their imprints in the early agriculture assemblages: New materials from southern Turkmenia. In: Sándor Bökönyi (ed.), *Neolithic of Southeastern Europe and Its Near Eastern Connections* (Varia Archaeologica Hungarica, 2): 123–128. Budapest: Institute of Archaeology of the Hungarian Academy of Sciences.
- Kircho, L. B. 1990. Drevnejshie pechati i ikh ottiski iz Altyn-depe. *Sovetskaya Arkheologiya* 1990.3: 176–183.
- Kircho, L. B. 2001. Metallicheskie izdeliya Altyn-depe. In: V. M. Masson (ed.), *Osobennosti proizvodstva poseleniya Altyn-depe v èpokhu paleometalla* (Materialy Yuzhno-Turkmenistanskoj arkheologicheskoy kompleksnoj èkspeditsii, 5): 60–84. Sankt-Peterburg: Institut Istorii Material'noj Kul'tury, Rossijskaya Akademiya Nauk.
- Kircho, L. B. 2020. Drevnejshie pechati Srednej Azii: tipologiya, material, tekhnika izgotovleniya. *Zapiski Instituta Istorii Material'noj Kul'tury Rossijskoj Akademii Nauk* 23: 24–36.
- Kircho, Lyubov' B. 2021. The rise of the early urban civilization in Southwestern Central Asia: From the Middle Chalcolithic to the Middle Bronze Age in southern Turkmenistan. In: Bertille Lyonnet & Nadezhda A. Dubova (eds.), *The World of the Oxus Civilization*: 110–142. London: Routledge.
- Kircho, L. B., G. F. Korobkova & V. M. Masson 2008. *Tekhniko-tekhnologicheskij potentsiya èneoliticheskogo naseleniya Altyn-depe kak osnova stanovleniya rannegorodskoj tsivilizatsii*. Sankt-Peterburg: Evropejskij dom.
- KK = (photo/drawing) supplied by Kai Kaniuth
- Kohl, Philip L. 1977. A note on chlorite artifacts from Shahr-i Sokhta. *East and West* 27.1–4: 111–127.
- Kohl, Philip L. (ed.) 1981. *The Bronze Age Civilization of Central Asia: Recent Soviet Discoveries*. Armonk, N.Y.: M. E. Sharpe, Inc.
- Kohl, Philip L. 1984. *L'Asie centrale des origines à l'âge du fer / Central Asia: Palaeolithic Beginnings to the Iron Age*. Avec des contributions de H.-P. Francfort et J.-C. Gardin. (Synthèse, 14.) Paris: Recherche sur les Civilisations.
- Kohl, Philip L. 2001. Reflections on the production of chlorite at Tepe Yahya: 25 years later. In: D. T. Potts, *Excavations at Tepe Yahya, Iran, 1967–1975: The Third Millennium* (Bulletin of the American School of Prehistoric Research, Harvard University, 45): 209–230. Cambridge, Mass.: Peabody Museum, of Archaeology and Ethnology, Harvard University.
- Krieken-Pieters, van, Jeannette (ed.) 2006. *Art and Archaeology of Afghanistan: Its Fall and Survival. A Multidisciplinary Approach*. (Handbuch der Orientalistik, Section 8: Uralic and Central Asian Studies, 14.) Leiden : Brill.
- Kuftin, B. A. 1956. Polevoj otchët o rabote XIV otryada Yuzhno-Turkmenistanskoj arkheologicheskoy kompleksnoj èkspeditsii po izucheniyu kul'tury pervobytno-obshchinykh osedlozemledel'cheskikh poselenij èpokhi medi i bronzy v 1952 g. In: M. E. Masson (ed.), *Trudy Yuzhno-Turkmenistanskoj arkheologicheskoy kompleksnoj èkspeditsii*, VII: 260–290. Askhabad: Izdatel'stvo Akademii Nauk Turkmenskoj SSR.
- Lamberg-Karlovsky, C. C. 1970. *Excavations at Tepe Yahya, Iran, 1967–1969: Progress Report I*. (American School of Prehistoric Research Bulletin, 27; Asia Institute of Pahlavi University, Monograph 1.) Cambridge, Mass.: The Peabody Museum.
- Lamberg-Karlovsky, C. C. 1971. The Proto-Elamite settlement at Tepe Yahya. *Iran* 9: 87–96.
- Lamberg-Karlovsky, C. C. 1972. Tepe Yahya 1971: Mesopotamia and the Indo-Iranian Borderlands. *Iran* 10: 89–100.
- Lamberg-Karlovsky, C. C. 1975. Urban interaction on the Iranian Plateau: Excavations at Tepe Yahya 1967–1973. *Proceedings of the British Academy* 59 (1974): 5–43.
- Lamberg-Karlovsky, C. C. 1976. The third millennium of Tappeh Yahya: A preliminary statement. In: Firouz Bagherzadeh (ed.), *Proceedings of the IVth Annual Symposium on Archaeological Research in Iran*. Teheran: Iranian Centre for Archaeological Research.
- Lamberg-Karlovsky, C. C. 1977. Foreign relations in the third millennium at Tepe Yahya. In: *Le Plateau Iranien et l'Asie centrale des origines à la conquête islamique: leurs relations à la lumière des documents archéologiques* (Colloques internationaux du CNRS, 567): 33–43. Paris: Editions du CNRS.
- Lamberg-Karlovsky, C. C. & Philip L. Kohl 1971. The Early Bronze Age of Iran as seen from Tepe Yahya. *Expedition* 13.3–4: 14–21.
- Lambert, W. G. 1986. Seals from West Central Asia and adjacent regions. *Archäologische Mitteilungen aus Iran*, Neue Folge 19: 33–40.
- Litvinskij, B. A. 1952. Namazgadepe (po dannym raskopok 1949–1950 gg.). *Sovetskaya Ètnografiya* 1952.4: 30–52.
- L-K = C. C. Lamberg-Karlovsky
- L-K & Tosi 1973 = Lamberg-Karlovsky, C. C. & Maurizio Tosi 1973. Shahr-i Sokhta and Tepe Yahya: Tracks on the earliest history of the Iranian Plateau. *East and West* N.S. 23(1–2): 21–57, with 151 figs.

- L-K & Tosi 1989 = Lamberg-Karlovsky, C. C. & Maurizio Tosi 1989. The Proto-Elamite community at Tepe Yahya: Tools of administration and social order. In: Karen Frifelt & Per Sørensen (eds.), *South Asian Archaeology 1985* (Scandinavian Institute of Asian Studies, Occasional Papers 4): 104–113. London: Curzon Press – Riverdale, MD: The Riverdale Company.
- LM = (drawing by) Luca Mariani
- LS = (photo by) Luca Santini
- Lubotsky, Alexander 2001. The Indo-Iranian substratum. In: Christian Carpelan, Asko Parpola & Petteri Koskikallio (ed.), *Early Contacts between Uralic and Indo-European: Linguistic and Archaeological Considerations*. (Mémoires de la Société Finno-Ougrienne, 242.) Helsinki: Suomalais-Ugrilainen Seura.
- Lubotsky, Alexander 2010. Kto byli zhiteli Gonura i na kakom yazyke oni govorili? In: P. M. Kozhin, M. F. Kosarev & N. A. Dubova (eds.), *Na puti otkrytiya tsivilizatsii: Sbornik statej k 80-letiyu V. I. Sarianidi*: 18–22. Sankt-Peterburg: Aletheia.
- Lubotsky, Alexander 2020. What language was spoken by the people of the Bactria-Margiana Archaeological Complex? In: Paul W. Kroll & Jonathan A. Silk (eds.), *“At the Shores of the Sky”*: *Asian Studies for Albert Hoffstädt*: 5–11. Leiden: Brill.
- M&B 2005 = V. M. Masson & Yu. E. Berezkin (eds.) 2005. *Khronologiya èpokhi pozdnego èneolita – srednej bronzy Srednej Azii (pogrebeniya Altyn-depe)*. Sankt-Peterburg: “Nestor-Istoriya”.
- M&R&R = (photo/drawing) supplied by Benjamin Mutin, Abdurauf Razzokov and Farhod Razzokov
- M&S 2008 = Imanjan S. Masimov & Sandro Salvatori 2008. Unpublished stamp-seals from the north-western Murgab Delta. Chapter 7 in: Sandro Salvatori & Maurizio Tosi (eds.), *The Bronze Age and Early Iron Age in the Margiana Lowlands: Facts and Methodological Proposals for a Redefinition of the Research Strategies* (The Archaeological Map of the Murghab Delta, Studies and Reports, 2.; BAR International Series, 1806): 99–109. Oxford: Archaeopress.
- M&S&U 1998 = E. Masimov, S. Salvatori & B. Udeumuradov 1998. Preliminary analysis of the Bronze Age material collected by the Margiana Archaeological Project and a first chronological assessment. In: A. Gubaev, G. Koshelenko & M. Tosi (eds.), *The Archaeological Map of the Murghab Delta: Preliminary Reports 1990–95. Text and Figures*: 35–46. Rome: ISIAO.
- MA = (photo by) Marta Ameri
- MAb = (photo/drawing by) Mohammad Abdollahzadeh
- Madjidzadeh, Y. & H. Pittman 2008. Excavations at Konar Sandal in the region of Jiroft in the Halil basin: First preliminary report (2002–2008). *Iran* 46: 69–103.
- MAFM = Mission Archéologique Française au Makran
- MAI = the inventory number of Missione Archeologica Italiana, the Italian Archaeological Mission at Shahr-i Sokhta. For several reasons, some objects do not have the MAI inventory number, but they have a MNAO reference.
- Mariani, Luca & Maurizio Tosi 1987. L’universo familiare attraverso le attività domestiche e le strutture residenziali. In: Gherardo Gnoli & Lionello Lanciotti (eds.), *Orientalia Iosephi Tucci memoriae dicata* (Serie orientale Roma, 56), II: 853–879. Rome: Istituto Italiano per il Medio ed Estremo Oriente.
- Masimov, I. S. 1979. Izuchenie pamyatnikov èpokhi bronzy nizov'ev Murgaba. *Sovetskaya Arkheologiya* 1979.1: 111–131.
- Masimov, I. S. 1980. Kelleli: Novyj oasis èpokhi bronzy nizovij Murgaba. In: V. M. Masson (ed.), *Novye issledovaniya po arkheologii Turkmenistana*: 3–21 Ashkhabad: Ylym.
- Masimov, I. S. 1981a. Novye nakhodki pechatej èpokhi bronzy s nizovij Murgaba. *Sovetskaya Arkheologiya* 1981.2: 132–150.
- Masimov, I. S. 1981b. The study of Bronze Age sites in the Lower Murghab. In: Philip L. Kohl (ed.), *The Bronze Age Civilization of Central Asia. Recent Soviet Discoveries*: 194–220. Armonk, N.Y.: M. E. Sharpe, Inc.
- Masson, V. M. 1959. *Drevnezemledel'cheskaya kul'tura Margiany*. (Materialy i issledovaniya po arkheologii SSSR, 73.) Moskva: Izdatel'stvo Akademii Nauk SSSR.
- Masson, V. M. 1960a. Kara-depe u Artyka (v svete raskopok 1955–1957 gg.). In: M. E. Masson (ed.), *Trudy Yuzhno-Turkmenistanskoy Arkheologicheskoy Kompleksnoj Èkspeditsii*, X: 319–463. Ashkhabad: Izdatel'stvo Akademii Nauk Turkmenskoy SSR.
- Masson, V. M., 1960b. Yuzhnoturkmenistanskij tsentr rannezemledel'cheskikh kul'tur v svete rabot YuTAKÈ 1955–1958 gg.). In: M. E. Masson (ed.), *Trudy Yuzhno-Turkmenistanskoy Arkheologicheskoy Kompleksnoj Èkspeditsii*, X: 11–36. Ashkhabad: Izdatel'stvo Akademii Nauk Turkmenskoy SSR.
- Masson, V. M. 1974. Raskopki pogrebal'nogo kompleksa na Altyn-depe. *Sovetskaya Arkheologiya* 1974.4: 3–22.
- Masson, V. M. 1981. Seals of a Proto-Indian type from Altyn-depe. In: Philip L. Kohl (ed.), *The Bronze Age Civilization of Central Asia: Recent Soviet Discoveries*: 149–162. Armonk, NY: M. E. Sharpe, Inc.
- Masson, V. M. 1982. Èneolit Srednej Azii. In: V. M. Masson & N. Ya. Merpert (eds.), *Èneolit SSSR* (Arkheologiya SSSR) : 9–92. Moskva: Nauka.
- Masson, V. M. 1988. *Altyn-depe*. (University Museum Monograph, 55.) Translated by Henry N. Michael. Philadelphia: The University Museum, University of Pennsylvania.

- Masson, V. M. (ed.) 2001. *Osobennosti proizvodstva poseleniya Altyn-depe v èpokhu paleometalla*. Sankt-Peterburg: Rossijskaya Akademiya Nauk, Institut Istorii Material'noj Kul'tury.
- Masson, V. M. & L. B. Kircho 1999. Izuchenie kul'turnoj transformatsii rannezemledel'cheskikh obshchestv: po materialam novikh raskopok na Altyn-depe i Ilgynly-depe. *Rossijskaya Arkheologiya* 1999.2: 61–76.
- Masson, V. M. & T. P. Kiyatkina 1981. Man at the dawn of civilization. In: Philip L. Kohl (ed.), *The Bronze Age Civilization of Central Asia: Recent Soviet Discoveries*: 107–134. Armonk, NY: M. E. Sharpe, Inc.
- Masson, V. M. & V. I. Sarianidi 1972. *Central Asia: Turkmenia Before the Achaemenids*. (Ancient peoples and places, 79.) Translated and edited with a preface by Ruth Tringham. London: Thames and Hudson.
- MB = Museum of Bojnord, Bojnord, Iran
- Madjidzadeh, Youssef 2011. Jiroft tablets and the origin of the Linear Elamite writing system. In: Toshiki Osada & Michael Witzel (eds.), *Cultural Relations between the Indus and the Iranian Plateau during the Third Millennium BCE: Indus Project, Research Institute for Humanities and Nature, June 7+8, 2008* (Harvard Oriental Series, Opera Minora, 7.): 219–244. Cambridge, MA: Department of South Asian Studies, Harvard University.
- Mejtarchiyan, M. B. 1984. Amulet èpokhi bronzy s poseleniya Dzarkutan. *Istoriya Materialnoj Kul'tury Uzbekistana* 19: 41–45.
- MNAO = the inventory number of the Museo Nazionale d'Arte Orientale “Giuseppe Tucci”. CS instead of the inventory number indicates that the object was originally in the care of the Centro Scavi (Excavations Centre) of the IsMEO (Istituto per il Medio ed Estremo Oriente). Every document on the Shahr-i Sokhta excavations (materials, reports, pictures, drawings) is, at present, stored at the Museo dell Civiltà of Rome, in which the Museo d'Arte Orientale merged.
- MP = (photo by) Marcello Piperno
- MS = (photo by) Mohammad Sheikh
- MSH = Museum Sherabad
- MT = (photo by) Maurizio Tosi
- MTogh = (photo/drawing by) Mahmoud Toghraei
- Müller-Karpe, Hermann 1984. *Neolithisch-kupferzeitliche Siedlungen in der Geoksjur-Oase, Süd-Turkmenistan: Nach den Arbeiten von I. N. Chlopin und V. I. Sarianidi dargestellt*. (Materialien zur Allgemeinen und Vergleichenden Archäologie, 30.) München: Verlag C. H. Beck.
- Mustafakulov et al. 2012 = S. M. Mustafakulov, S. M., H. V. Bendezu-Sarmiento, U. Rahmonov, M. Hasanov, Z. Lyuil'e & E. Lyune 2012. Polevye raboty Uzbeko-Frantsuzskoj (MAFOUZ) èkspeditsii na Dzharkutane v 2009–2011 gg. In: A. E. Berdimuradov (ed.), *Uzbekistonda arkheologik madkikotlar 2010–2011 jullar*: 203–213. Samarkand: Uzbekiston Pespublikasi fanlar akademiyasi akademik Ya. Gulomov nomidagi arkheologiya instituti.
- Mutin, B. 2013. *The Proto-Elamite Settlement and Its Neighbors: Tepe Yahya Period IVC*. (American School of Prehistoric Research Monograph Series.) Oxford: Oxbow Books.
- MV = (drawing by) Massimo Vidale
- NMAT = National Museum of Antiquities of Tajikistan
- NT & NF = (photo by) Neda Tehrani & Nima Fakurzadeh
- OG = (photo by) Omran Garajian
- OG & MAb = (photo/drawing by) Omran Garajian & Mohammad Abdullahzadeh
- P&S 2007 = Piperno, Marcello & Sandro Salvatori 2007. *The Shahr-i Sokhta Graveyard (Sistan, Iran): Excavation Campaigns 1972–1978*. (ISIAO Reports and Memoirs, New Series, 6.) Rome: Istituto Italiano per l'Africa e l'Oriente.
- PAm = (drawing by) Pierre Amiet
- Parpola, Asko 1984. New correspondences between Harappan and Near Eastern glyptic art. In: Bridget Allchin (ed.), *South Asian Archaeology 1981* (University of Cambridge Oriental Publications, 34): 176–195. Cambridge: Cambridge University Press.
- Parpola, Asko 1994. *Deciphering the Indus Script*. Cambridge: Cambridge University Press.
- Parpola, Asko 2005. Administrative contact and acculturation between Harappans and Bactrians: Evidence of sealings and seals. In: Catherine Jarrige & Vincent Lefèvre (ed.), *South Asian Archaeology 2001*, I: *Prehistory*: 267–274. Paris: Éditions Recherche sur les Civilisations.
- Parpola, Asko 2006. A new Indus seal excavated at Gonur (Turkmenistan) in November 2004. In: Toshiki Osada (ed.), *Proceedings of the Pre-symposium of RIHN and 7th ESCA Harvard-Kyoto Roundtable*: 53–57. Kyoto: Research Institute for Humanity and Nature. (Reprinted in: Toshiki Osada (ed.), *Linguistics, archaeology and human past in South Asia*: 71–76. New Delhi: Manohar, 2009.)
- Parpola, Asko 2016. The Mohenjo-daro axe-adze: A vestige of Aryan immigrations to Central and South Asia? *Current World Archaeology* 7.2, Issue 74: 14–15.
- Parpola, Asko 2020. Royal “Chariot” Burials of Sanauli near Delhi and Archaeological Correlates of Prehistoric Indo-Iranian Languages. *Studia Orientalia Electronica* 8.1: 175–198.
- PC = private collection

- PE = Tepe Hissar excavations field photographs in the archive of the Penn Museum. Courtesy of the Penn Museum.
- Piggott, Stuart 1950. *Prehistoric India to 1000 B.C.* Harmondsworth: Penguin Books.
- Piperno, Marcello 1979. Socio-economic implications from the graveyard of Shahr-i Sokhta. In: Maurizio Taddei (ed.), *South Asian Archaeology 1977*: 123–140. Naples: Istituto Universitario Orientale.
- Piperno, Marcello & Maurizio Tosi 1975. The Graveyard of Shahr-i Sokhta, Iran. *Archaeology* 1975: 186–197.
- Pittman, Holly 2001. Glyptic art of Period IV. In: D. T. Potts, *Excavations at Tepe Yahya, Iran, 1967–1975: The Third Millennium* (Bulletin of the American School of Prehistoric Research, Harvard University, 45): 231–268. Cambridge, MA: Peabody Museum, of Archaeology and Ethnology, Harvard University.
- Pittman, H. 2008. [The Glyptic art of Konar Sandal South: Gods, chiefs and the marriage union.] (Farsi version of the article, the English version has not appeared by 2022.). In: Y. Madjidzadeh (ed.), *First International Conference of Archaeological Research in Jiroft: The Halil Basin Civilization*: 55–78. Jiroft: Research Center for ICHTO Cultural Heritage, Handicrafts and Tourism Organization of Kerman Province International Center Archaeological Research of Southeast Region.
- Pittman, H. 2012. Glyptic art of Konar Sandal South: Observations on the relative and absolute chronology in the third millennium BCE. In: H. Fahimi & M. Mashkour (eds.), *NĀMVARNĀMEH: Papers in Honour Massoud Azarnoush*: 80–94. Tehran: Iran Negar Publications.
- Pittman, H. 2013. New evidence for interaction between the Iranian plateau and the Indus valley: Seals and sealings from Konar Sandal South. In: S. Abraham, P. Gullapalli, T. Raczek & U. Rizvi (eds.), *Connections and Complexity: New Approaches to the Archaeology of South Asia*: 63–89. Walnut Creek, CA: Left Coast Press.
- Pittman, H. 2014a. Anchoring intuition in evidence: A continuing discussion of cylinder seals from southeastern Iran. In: E. Bleitreu & H. U. Steymans (eds.), *Edith Porada zum 100. Geburtstag: A Centenary Volume*. (Orbis Biblicus et Orientalis, 268): 375–396 & 629–640. Fribourg: Academic Press – Göttingen: Vandenhoeck & Ruprecht.
- Pittman, H. 2014b. Hybrid imagery and cultural identity in the Age of Exchange: Halil River Basin and Sumer meet in Margiana. In: C. C. Lamberg-Karlovsky & B. Cerasetti (eds.), “*My Life Is Like the Summer Rose*”: *Maurizio Tosi e l’archeologia come modo di vita* (British Archaeological Reports International Series, 2690): 625–636. Oxford: Archaeopress.
- Pittman, H. 2017a. Administrative role of seal imagery in the Early Bronze Age: Mesopotamian and Iranian traders on the Plateau. In: M. Ameri, S. K. Costello, G. Jamison & S. J. Scott (eds.), *Seals and Sealing in the Ancient World: Case Studies from the Near East, Egypt, the Aegean and South Asia*: 13–35. Cambridge: Cambridge University Press.
- Pittman, H. 2017b. The Shahdad standard. In: F. Biglari (ed.), *Prehistoric Cultures of the Lut Desert*: 31–43. Tehran: National Museum of Iran.
- Pittman, H. 2018a. King/man in a (war) cart: Intercultural theme or appropriated image. In: F. Pedde & N. Shelley (eds.), *Assyromania and More: In Memory of Samuel M. Paley* (Marru, 4): 323–352. Münster: Zaphon.
- Pittman, H. 2018b. Origins of monumental sculpture in Elam: Two case studies. In: J. Álvarez-Mon, G. P. Basello & Y. Wicks (eds.), *The Elamite World*. (Routledge Worlds Series): 583–599. New York: Routledge.
- Pittman, H. 2020. Bronze Age interaction on the Iranian Plateau: From Kerman to the Oxus through seals. In: J.-W. Meyer, E. Vila, M. Mashkour, M. Casanova & R. Vallat (eds.), *The Iranian Plateau During the Bronze Age: Developments of Urbanisation, Production and Trade*: 267–289. Lyon: MOM Éditions.
- Pittman, H., in press a. The glyptic and other arts of southeastern Iran: 3000–2000 BCE”. In: B. Helwing (ed.), *Western Iran: Associated Regional Chronologies in the Ancient Near East*. Turnhout: Brepols.
- Pittman, H., in press b. Royal imagery of Old Elamite kings: A competition for identity. In: K. de Graef, J. Tavernier & H. Pittman (eds.), *Proceedings of the 2nd Susa and Elam Conference Held in Louvain-la-Neuve*.
- Pittman, H., in press c. The Kerman Culture and the Old Elamites: What can the connections tell us? In: J. A. Lerner, B. Hensellek & H. P. Colburn (eds.), *In Search of Cultural Identities: Essays on the Art of Western Asia, Iran, and Central Asia in Honor of Prudence Oliver Harper* (Inner and Central Asian Art and Archaeology). Turnhout: Brepols.
- PM = (drawing by) Piero Meriggi
- PMA = Penn Museum Archives. Courtesy of the Penn Museum.
- PMC = Penn Museum Collections (digital). Courtesy of the Penn Museum.
- Possehl, Gregory L. 2002. *The Indus Civilization: A Contemporary Perspective*. Walnut Creek, CA: AltaMira Press.
- Possehl, Gregory L. 2007. The Middle Asian Interaction Sphere. *Expedition* 49.1: 40–42.
- Potts, Daniel 1980. *Tradition and Transformation: Tepe Yahya and the Iranian Plateau during the Third Millennium B.C.* Ph.D. dissertation, Dept. of Anthropology, Harvard University.
- Potts, D. T. 2001. *Excavations at Tepe Yahya, Iran, 1967–1975: The Third Millennium*. With contributions by Holly Pittman and Philip L. Kohl. (Bulletin of the American School of Prehistoric Research, Harvard University, 45.) Cambridge, MA: Peabody Museum, of Archaeology and Ethnology, Harvard University.
- pr = plot record
- PRWB = Plain Red Ware Bowl

- PRW = Plain Red Ware Jar
- PZ = (photo by) Patrizia Zolese
- Rahbar, M. 1991 [1370]. “Kenarou” dar peyvand bā tamaddonha-ye ġonub-e šarqi-ye Irān. *Miraš-e Farhangi* 2.3–4: 60–74.
- Rashad, Mahmoud 1990. *Die Entwicklung der vor- und frūhgeschichtlichen Stempelsiegel in Iran*. (Archāologische Mitteilungen aus Iran, Ergānzungsband 13.) Berlin: Dietrich Reimer Verlag.
- Razzokov, A. & S. Kurbanov 2004. Issledovaniya sarazmskogo otryada v 2003 g. [‘Research of the Sarazm team in 2003’]. *Arkheologicheskie raboty v Tadjikistane* 29: 174–192.
- RMP = Rudaki Museum, Penjikent
- RMS = Registan Museum Samarkand
- S&V97 = Sandro Salvatori & Massimo Vidale, *Shahr-i Sokhta 1975–1978: Central Quarters Excavations: Preliminary Report*. (Istituto Italiano per l’Africa e l’Oriente, Reports and Memoirs, Series minor, 1.) Roma: Istituto Italiano per l’Africa e l’Oriente, Centro Scavi e Ricerche Archeologiche, 1997.
- šajdullaev, A. 2013. Tillabulok shtamplari. *Acta NUUZ* 2013: 69–74.
- šajdullaev, A. 2018. *Sopolli madaniyatining gliptikasi va sfragistikasi (Gliptika i sfragistika kul’tury Sapalli / Glyptics and Sphragistics of Sapalli Culture)*. Tarikh fanlari bšiicha falsafa doktori (PhD) dissertatsiyasi falsafa i Avtoreferati. 07.00.06 – Arkheologiya (marikh fanlari). Tashkent.
- šajdullaev, š. 2009. *Etapy vozniknoveniya i razvitiya gosudarstvennosti na territorii Uzbekistana*. Avtoreferat doktorskoj dissertatsii. Samarkand 2009.
- šajdullaev et al. 2002 = š. šajdullaev, D. Khuff & K. Rahimov, Dzharkuton – 2001. In: T. Shirinov, B. Matbabaev & A. Gritsina (eds.), *Arkheologicheskie issledovaniya v Uzbekistane 2001*: 187–192. Samarkand .
- Salvatori, Sandro 2000. Bactria and Margiana seals: A new assessment of their chronological position and a typological survey. *East and West* N. S. 50.1–4: 97–146.
- Sarianidi, V. I. 1960. Ėneoliticheskoe poselenie Geoksyur: rezultaty rabot 1956–1957 gg. In: M. E. Masson (ed.), *Trudy Yuzhno-Turkmenistanskoj Arkheologicheskoy Kompleksnoj Ėkspeditsii*, X. Ashkhabad: Izdatel’stvo Akademii Nauk Turkmensoj SSR.
- Sarianidi, V. I. 1964. Khapuz-depe kak pamyatnik ėpokhi bronzy. *Kratkie Soobshcheniya Instituta Arkheologii* 98: 60–65.
- Sarianidi, V. I. 1965. *Pamyatniki pozdnego ėneolita Yugo-vostochnoj Turkmenii: Ėneolit yuzhnykh oblastej Srednej Azii*. (Arkheologiya SSSR, Svod arkheologicheskikh istochnikov, B 3–8, chast’ 4.) Moskva: Nauka.
- Sarianidi, V. I. 1974. Baktriya v ėpokhu bronzy. *Sovetskaya Arkheologiya* 1974.4: 49–71.
- Sarianidi, V. I. 1976a. Issledovanie pamyatnikov Dashlinskogo oazisa. In: I. T. Kruglikova (ed.), *Drevnyaya Baktriya: Materialy Sovetsko-Afganskoj ėkspeditsii 1969–1973 gg*: 21–86. Moskva: Nauka.
- Sarianidi, V. I., 1976b. Pechati-amulety murgabskogo stilya. *Sovetskaya Arkheologiya* 1976.1: 42–68.
- Sarianidi, V. I. 1977a. *Drevnie zemledel’tsy Afganistana: Materialy Sovetsko-Afganskoj ėkspeditsii 1969–1974 gg*. Moskva: Nauka.
- Sarianidi, V. I. 1977b. Ancient Horasan and Bactria. In: J. Deshayes (ed.), *Le Plateau Iranien et l’Asie Centrale des origines ā la conquġte islamique : leurs relations ā la lumiġre des documents archġologiques* Paris 22–24 mars 1976 (Actes du Colloque international du CNRS, 567): 129–142. Paris: CNRS.
- Sarianidi, V. I. 1977c. Bactrian centre of ancient art. *Mesopotamia* 12: 97–110 & figs. 23–70.
- Sarianidi, V. I. 1981a. Margiana in the Bronze Age. In: Philip L. Kohl (ed.), *The Bronze Age Civilization of Central Asia: Recent Soviet Discoveries*: 165–193. Armonk, N.Y.: M. E. Sharpe, Inc.
- Sarianidi, V. I. 1981b. Seal-amulets of the Murghab style. In: Philip L. Kohl (ed.), *The Bronze Age Civilization of Central Asia: Recent Soviet Discoveries*: 221–255. Armonk, N.Y.: M. E. Sharpe, Inc.
- Sarianidi, V. I. 1982. Novyj tsentr drevnevostochnogo isskustva. In: V. I. Gulyaev (ed.), *Arkheologiya starogo i novogo sveta*: 68–88. Moskva: Nauka.
- Sarianidi, V. I. 1984a. Raskopki monumental’nykh zdaniy na Dashly-3. In: I. T. Kruglikova (ed.), *Drevnyaya Baktriya, 3: Materialy Sovetsko-Afganskoj arkheologicheskoy ėkspeditsii*: 5–32. Moskva: Nauka.
- Sarianidi, V. I. 1984b. Southern Turkmenia and Margiana in the Bronze Age. *Information Bulletin of the International Association for the Study of the Cultures of Central Asia* 7: 5–16.
- Sarianidi, V. I. 1984c. *Baktriya skvoz’ mglu vekov*. Moskva: Mysl’.
- Sarianidi, V. I. 1986. *Die Kunst des alten Afghanistan: Architektur, Keramik, Siegel, Kunstwerke aus Stein und Metall*. Ũbersetzt aus dem Russischen von Sabine Grebe. (Acta Humaniora.) Leipzig: E. A. Seemann Verlag.
- Sarianidi, V. I. 1989. Siro-khettskie bozhestva v bakrijsko-margianskoj panteone. *Sovetskaya Arkheologiya* 1989.4: 17–24.
- Sarianidi, V. I. 1990. *Drevnosti strany Margush*. Ashkhabad: Ylym.
- Sarianidi, V. I. 1993. Un temple de Zoroastre au cœur du Karakoum. *Les Dossiers d’Archġologie* 185: 52–59.

- Sarianidi, V. I. 1998a. *Myths of Ancient Bactria and Margiana on Its Seals and Amulets*. Moscow: Pentagraphics.
- Sarianidi, V. I. 1998b. *Margiana and Protozoroastrianism*. Athens: Kapon.
- Sarianidi, V. I. 2002. *Marguş: Ancient Oriental Kingdom in the Old Delta of Murghab River*. Aşgabat: Türkmen döwlethabarlary.
- Sarianidi, V. I. & K. A. Kachuris 1968. Raskopki na Ulug depe. In: *Arkheologicheskie otkrytiya 1967*: 342–345. Moskva: Nauka.
- Schmidt, Erich F. 1933. Tepe Hissar excavations, 1931. *The Museum Journal* 23.4: 321–483.
- Schmidt, Erich F. 1937. *Excavations at Tepe Hissar, Damghan. With an Additional Chapter on the Sasanian Building at Tepe Hissar by Fiske Kimball*. (Publications of the Iranian Section of the University Museum.) Philadelphia: The University Museum.
- Schmidt, Hubert 1908. Archaeological excavations in Anau and Old Merv. In: Raphael Pumpelly (ed.), *Explorations in Turkestan: Expedition of 1904. Prehistoric Civilizations of Anau: Origins, Growth, and Influence of Environment*, I. (Carnegie Institution of Washington Publications.): 81–210, Chapters vi–x, Plates 7–56. Washington, D.C.: The Carnegie Institution of Washington.
- Shaffer, Jim. G. 1971. Preliminary field report on excavations at Said Qala Tepe. *Afghanistan* 24.2–3: 89–127.
- Shaffer, Jimmie Gray 1972. *Prehistoric Baluchistan: A Systematic Approach*. Ph.D. thesis, Department of Anthropology, University of Wisconsin at Madison.
- Shaffer, Jim. G. 1978a. The later prehistoric periods. In: F. R. Allchin & N. Hammond (eds.), *The Archaeology of Afghanistan*: 71–186. London: Academic Press.
- Shaffer, Jim. G. 1978b. *Prehistoric Baluchistan (With Excavation Report on Said Qala Tepe)*. New Delhi.: B. R. Publishing.
- Shchetenko, A. Ya. 1964. Raspisnaya keramika èpokhi bronzy iz Namazga-depe. *Kratkie Soobshcheniya Instituta Arkheologii* 98: 57–59.
- Sheikh, M. 1393 [= 2014]. *Barrasi-ye Sistemâtik-e Yârim Tappeh, Daregaz. Barrssi-ye esteqrâr-e pish-az târikhi-ye Yârim Tappeh Daregaz va tadvin-e gâhnegâri be estenâd-e yâftehâ-ye sofâli*. [Systematic survey of Yarim Tappeh: Survey of prehistoric settlement of Yarim Tappeh, Daregaz, for establishment of chronology based on pottery finds.] Thesis submitted for the M.A. degree in the Department of Archaeology, University of Sistan and Baluchistan. Unpublished.
- Širinov, T. 2002. Die frühurbane Kultur der Bronzezeit im südlichen Mittelasien: Die vorgeschichtliche Siedlung Džarkutan. *Archäologische Mitteilungen aus Iran und Turan* 34: 1–170.
- S. K. = South Kurgan
- SMS = Sarazm Museum, Sarazm
- SPACH = Society for the Preservation of Afghanistan's Cultural Heritage, Kabul
- SS = (photo by) Sandro Salvatori
- st. = steatite
- TAM = Termez Archaeological Museum
- t.c. = terracotta
- Terekhova, N. N. 1975. *Istoriya metalloobrabatyvayushchego proizvodstva u drevnikh zemledel'tsev Yuzhnoj Turkmenii*. Diss. kand. ist. nauk. NOA, Institut Arkheologii, Rossijskaya Akademiya Nau, F. 1, R. 2, No. 2199.
- Teufer, M. 2005. The Late Bronze Age chronology of Southern Uzbekistan: A reanalysis of the funerary evidence. In: U. Franke-Vogt & H.-J. Weisshaar (eds.), *South Asian Archaeology 2003: Proceedings of the seventeenth International Conference of the European Association of South Asian Archaeologists (7–11 July 2003, Bonn)*: 199–209. Aachen: Linden Soft.
- TO = (photo by) Thierry Olivier (National Museum of Antiquities of Tajikistan & Musée National des Arts Asiatiques Guimet)
- Tosi, Maurizio 1968. Excavations at Shahr-i Sokhta, a Chalcolithic settlement in the Iranian Sīstān: Preliminary report on the First Campaign, October–December, 1967. *East and West* N.S. 18.1–2: 9–66, with figs. 1–120.
- Tosi, Maurizio 1969. Excavations at Shahr-i Sokhta: Preliminary report on the second campaign, September–December, 1968. *East and West* N. S. 19.3–4: 283–386, with 306 figures.
- Tosi, Maurizio (ed.) 1983. *Prehistoric Sīstān*, I. (Istituto Italiano per il Medio ed Estremo Oriente, Reports and Memoirs, 19.1.) Rome: IsMEO.
- Tosi, Maurizio & G. M. Bulgarelli 1989. The stratigraphic sequence of squares DF 88/89 on South Hill, Tappeh Hesār. In: Robert H. Dyson, Jr. & Susan M. Howard (eds.), *Tappeh Hesār: Reports of the Restudy Project, 1976*: 35–54. Firenze: Casa editrice Le Lettere.
- Tosi, Maurizio & Massimo Vidale 1998. Le trasformazioni dell'industria delle perle nello sviluppo delle società complesse: perle orientali. In: G. Lombardo (ed.), *Perle orientali: tradizione antica e artigianato moderno nella lavorazione delle pietre semipreziose in Medio Oriente (Mostra, Museo Nazionale d'Arte Orientale, Palazzo Brancaccio, Roma, 3 aprile — 14 giugno 1998)*: 31–43. Roma: Museo Nazionale d'Arte Orientale.
- Tusa, Sebastiano 1977. Seals and seal-impressions [at Shahr-i Sokhta]. In: Giuseppe Tucci (ed.), *La città bruciata del deserto salato*: 251–261 & pls. 32–33. Venezia: Erizzo Editrice.

- Uesugi, Akinori, 2011. Development of the inter-regional interaction system in the Indus Valley and beyond: A hypothetical view towards the formation of the urban society. In: Toshiki Osada & Michael Witzel (eds.), *Cultural Relations between the Indus and the Iranian Plateau during the Third Millennium BCE: Indus Project, Research Institute for Humanities and Nature, June 7–8, 2008* (Harvard Oriental Series, Opera Minora, 7): 359–380. Cambridge, MA: Department of Sanskrit and Indian Studies, Harvard University.
- UJ = (drawing by) Ursula Jansen
- UMP = University of Pennsylvania Museum (Penn Museum), Near Eastern Section
- UMS = University Museum, Samarkand
- V&B 2021 = Vahdati, A. A. & R. Biscione 2021. The Bronze Age necropolis of Chalow. Insights into the funeral practices of “BMAC” people in North-Eastern Iran. In: N. A. Dobova (ed.), *Trudy Margianskoj arkheologičeskoj èkspeditsii*, VIII: 193–214 & col. figs. 2–3, 16 & 21. Moskva: Staryj sad.
- V&B, in press = Vahdati, A. & R. Biscione (in press). The Bronze Age cemetery of Chalow: A brief report on three seasons of excavations. In: E. Luneau, N. Boroffka & M. Teufer (eds.), *Proceedings of the Conference “Farmers, Traders and Herders: The Bronze Age in Central Asia and Khorāsān (3rd–2nd Mill. BCE)”*, Berlin, 30th November – 1st December 2015.
- Vahdati, A. & H.-P. Francfort 1389 [= 2011]. Gozāresh moghadamāti gamāneh zani dar Tappeh Dāmghāni, Sabzavār, bahār 1387. [Preliminary report on the soundings at Tappeh Damghani, Sabzevar.] *Iranian Journal of Archaeology and History* 24.2/48: 17–36. (In Persian with an English abstract.)
- Vahdati, A., R. Biscione, M. Tengberg & M. Mashkour 1397 [= 2018]. Kāvosh dar tappeh Chalow. Shavāhedi az BMAC dar dasht-e Jājarm. [Excavation at Tepe Chalow. Some evidence of “Bactria-Margiana Archaeological Complex” (BMAC) in the Plain of Jajarm, Northeastern Iran.] *Archaeology (Journal of the Iranian Center for Archaeological Research)* 1.1: 1–12. (In Persian with an English abstract.)
- Vahdati et al. 2019 = A. Vahdati, R. Biscione, R. La Farina, M. Mashkour & M. Tengberg, Preliminary report on the first season of excavations at Tepe Chalow. New GKC (BMAC) finds in the plain of Jajarm, NE Iran. In: J. W. Meyer, E. Vila, M. Mashkour, M. Casanova & R. Vallet (eds.), *The Iranian Plateau during the Bronze Age. Development of Urbanization, Production and Trade* (Archéologie(s), 1): 179–200. Lyon: Maison de l’Orient et de la Méditerranée, 2019.
- Vidale, Massimo, & Alessandra Lazzari 2016. *Lapis Lazuli Bead Making at Shahr-i Sokhta: Interpreting Craft Production in a Urban Community of the 3rd Millennium BC*. (Serie orientale Roma, Nuova serie 6.) Roma: IsMEO.
- VL = (drawing by) Vincenzo Labianca
- Wang Tao & Helen Wang 2007. The Anau seal and the questions it raises. *Journal of Inner Asian Art and Archaeology* 2/2007: 143–150.
- Winkelmann, Sylvia, 2021. BMAC glyptics: Typology, context, function, and background. In: Bertille Lyonnet & Nadezhda A. Dubova (eds.), *The World of the Oxus Civilization*: 215–292. Abingdon, Oxon – New York: Routledge.
- y. = years old
- Yusupov, Hemra 1996. Dal paleolitico all’ età de bronzo. In: Gabriele Rossi Ormida (ed.), *Turkmenistan*: 62–77. Venezia: Centro Studi Ricerche Ligabue.
- ZM = Archaeological Museum of South-Eastern Iran in Zahedan (Sistan-Baluchistan Province)

The Sapalli Culture Seal Corpus

KAI KANIUTH
ALISHER SHAYDULLAEV

Introduction: The Sapalli Culture

The Sapalli Culture is a local variant of the Middle to Late Bronze Age Namazga group of cultures, which dominate the south of the modern republics of Turkmenistan, Uzbekistan and Tajikistan, as well as parts of Iran and Afghanistan between the mid-3rd and mid-2nd millennia BC. Various names have been brought forward to describe this interregional phenomenon, of which BMAC (Bactria-Margiana Archaeological Complex) and Oxus Civilization are the best-known.¹

The Sapalli Culture sites extend over the entire Uzbek province of Surkhandarya, as well as the westernmost Tajik districts of Tursunzoda and Shahrinov. It has no known local forerunners and is therefore thought to have been introduced by settlers from Turkmenistan or Afghanistan, regions with which it has the closest ties. The first sites were discovered only in the late 1960s, mostly by teams of the Samarkand Institute of Archaeology's Surkhandarya expedition, headed by A. A. Askarov. Sapallitepe, the first settlement excavated on a larger scale, became the eponymous site. The relative chronology of the Sapalli Culture is debated. We consider it in its entirety part of the Late Bronze Age, and suggest a subdivision into two stages, LB I (20th–18th centuries BC) and LB II (18th–15th centuries BC).²

Today, we know some two dozen settlements. Apart from the half dozen sites in the lower Surkhan valley, these are smaller hamlets in the eastern piedmont zone of the Kugitang mountains (fig. 1), which has seen only very limited agricultural activity in recent decades (Stančo, Shaydullaev & Shaydullaev 2017; Kaniuth 2021). Only four sites have so far produced any glyptic material: Sapallitepe (Аскарлов 1973), Dzarkutan (Аскарлов & Абдуллаев 1983; Širinov 2003; Ш. Б. Шайдуллаев, Хуфф & Рахимов 2002; Bendezu-Sarmiento 2018)³, Bustan (Avanesova 2016)⁴ and Tilla Bulak (Kaniuth 2011).

¹ For the wider picture see fundamentally Сарияниди 1974; Kohl 1984; Francfort 2009; Salvatori 2016; Rouse 2020 and, more recently, the contributions to Lyonnet & Dubova 2021.

² For the diverse chronological schemes see Аскарлов & Абдуллаев 1983; Luneau 2014; Teufer 2005; Bendezu-Sarmiento et al. 2014. There is no disagreement about the absolute dates. So far, the oldest Sapalli Culture remains date to the 20th century BC (Kaniuth 2016). The latest phase falls into the 15th century BC judging by one ¹⁴C-date from Dzarkutan (Görsdorf & Huff 2001) and the earliest dates for the succeeding Early Iron Age (14th century BC, Görsdorf 2007). On this late period, see fundamentally Luneau 2014 and 2021. The transition from LB I to II is currently not radiometrically fixed but must lie within the mid- to late 18th century BC.

³ The authors would like to thank Julio Bendezu-Sarmiento for his generous permission to include here a number of unpublished pieces from his excavations at Dzarkutan.

⁴ The hills of Bustan form part of the Dzarkutan irrigation zone.

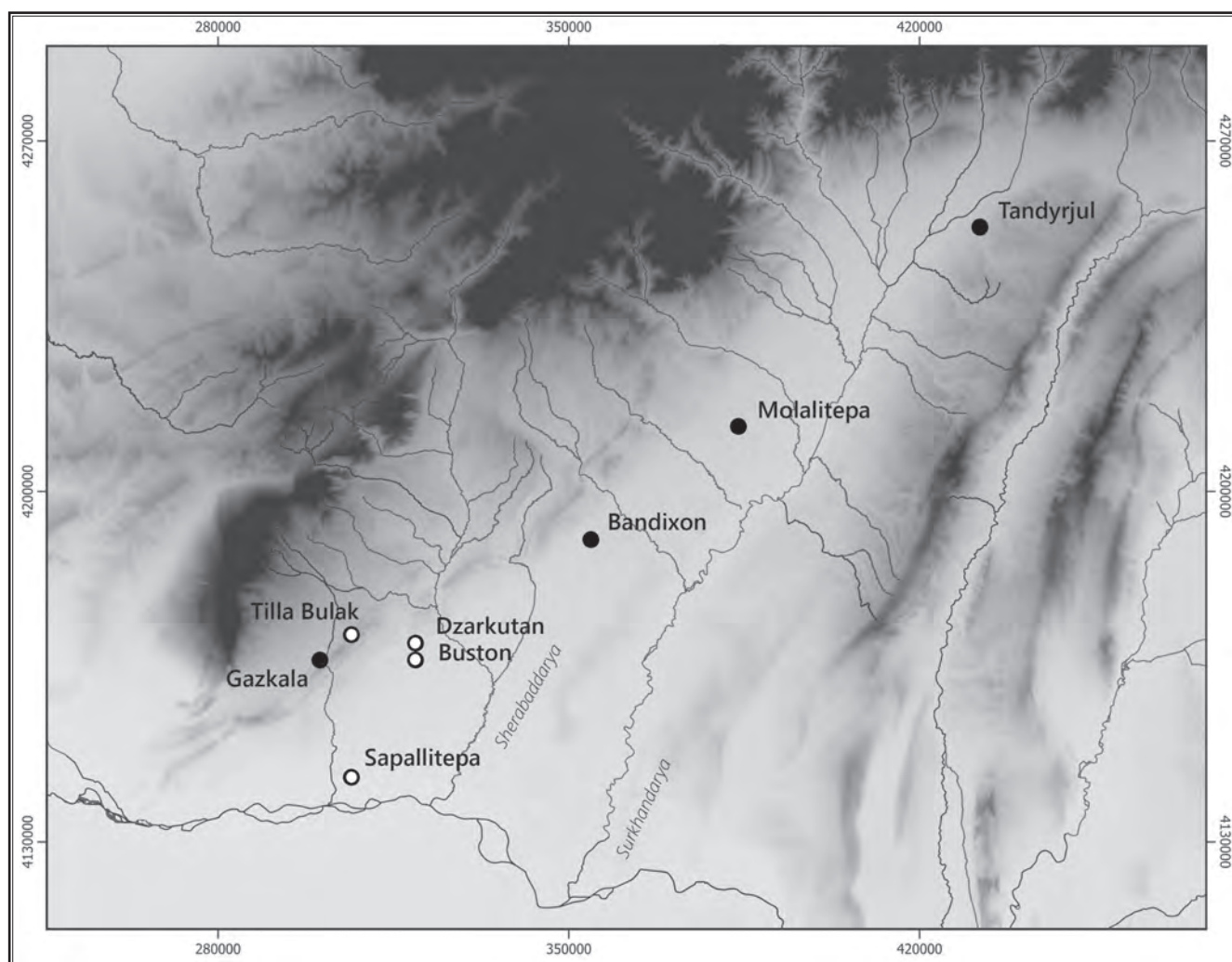


Fig. 1. Map of the major Sapalli Culture sites. Sites with glyptic material are marked by black and white dots.

The Sapalli Culture Corpus of Seals

Seals are the Sapalli Culture's most prominent source of images. Up to now, only two publications were specifically dedicated to this corpus, and both are not widely available (A. Шайдуллаев 2018; Shaydullaev 2020).

Various criteria can be used to differentiate seals from other artefacts. The one usually employed is functional. Accordingly, a seal is an artefact that was used, or could have been used, for leaving an imprint to mark ownership or signal authorization in an – often implicitly assumed – administrative context. This notion ultimately derives from Western Asian public economies, where the sealing was used as a permanent, unique identifier. Since the evidence for sealing is not abundant in Middle Asia,⁵ other criteria are often employed: These may be an object's shape, which may agree with those of pieces elsewhere demonstrably used for producing impressions, or the presence of a design to make the (imprint of the) object unique and recognizable, or the existence of a lug or knob to facilitate its handling when creating an impression.

No single attribute permits a clear definition of Sapalli Culture glyptic art. To the contrary, the attested imagery exhibits a tendency to crosscut both material boundaries and functional categories. The iconography of the seals,

⁵ See Bonora et al. 2014, Tab. 4 for the early-3rd-millennium BC evidence from Turkmenistan (discussing the evidence from Кирчо 1990); Kaniuth 2010b: 14–16 and Winkelmann 2021, Tab. 8.10 (both mostly referring to the data presented by Sarianidi 1998) for the late 3rd and early 2nd mill. BC sealing practice.

for example, is shared with larger, often elaborately shaped but laterally strung beads. Even though several strung pieces from Sapallitepe carry designs which might have reproduced well on clay, their regular association with sparsely or un-decorated beads in burial contexts suggests, that all pieces with such perforations once formed sets of personal adornment whose primary function was not administrative in any sense. Similarly, a significant overlap exists between the designs of metal compartmented seals and the elaborate heads of dress pins (see below).

For the purposes of this catalogue 43 seal images are assembled, which either constitute direct physical proof of the practice (i.e., sealings) or which suggest through their shape, and the presence of a knob, lug or other means of handling, that their primary function would have been the production of imprints or at least a reference to such a usage. Their numbers are prefaced by “SC” (for Sapalli Culture) and a letter – A for metal compartmented seals, B for cylinder seals, and C for stamp seals of stone, metal, clay, frit, or wood. A non-exhaustive list of comparisons from related artefact classes is appended, prefaced SC-D for laterally strung beads and SC-E for compartmented pin heads. The differentiation between seals, beads and pins is, therefore, based on formal criteria and to a certain degree arbitrary with respect to their function as sealing devices.

Object properties investigated include the date of deposition, the archaeological context (settlement or burial), formal characteristics (shape, design, material) and usage. Our classification departs from the shape and materiality of the original object used for creating the impression, so the sealings are grouped within the category of seals that produced them.

SC-A (n=19): Metal compartment seals are the most distinctive group of BMAC seals: Six originals have come to light at Dzarkutan, eight seals were discovered at Sapallitepa and two at Tilla Bulak. Two impressions from Tilla Bulak and one from Dzarkutan demonstrate that these objects were used as seals locally.⁶ Most carry geometric designs, based either on the cross or on the rosette. Five- to eight-petalled rosette-shaped compartment seals of bronze are the most distinct glyptic type of the Sapalli Culture. All analysed pieces were cast in high-lead bronze. In one instance (SC-A-12 = TiB-1) were the compartments inlaid in wood (Kaniuth 2010: 139). While this arguably reduces the precision of an imprint, it would have considerably enhanced the seals’ appearance. There are two compartment seals with a theriomorphic motif (SC-A-01 = Sap-1 and SC-A-02 = Dza-1), a design better known from the much larger corpora of Northern Afghanistan and Turkmenistan.⁷

SC-B: Cylinder seals: A single limestone cylinder seal (SC-B-01 = Dza-8) and one sealing (SC-B-02 = Dza-9) on clay testify to the use of this classic Western Asian seal type. Both were discovered at Dzarkutan and both show figural imagery with caprines and snakes that appears very much local.

SC-C: These stamps with cut designs form the majority of seals (n=22). They come from all sites that have seen extensive excavation – Sapallitepe, Dzarkutan and Tilla Bulak. Possibly for technological reasons most of them were executed in stone, with rare pieces made of metal, terracotta and wood. Round and geometric shapes prevail, as do geometric designs. The latter decorations are not easy to make sense of, unless we consider them imitations of the rosette-decorated metal compartment seals. There is a proportion of animal motifs, again with birds of prey and snakes predominating. A spectacular alabaster seal from Tilla Bulak with a diameter of 8 cm (SC-C-01 = TiB-5) develops this theme of dominant wild animals further, integrating it into the clearest narrative formula of a mythical composite being overwhelming humans. SC-C-09 = Dza-12 seems to be the single sealing preserved of a stone stamp on pottery. On the other end of the spectrum, there are clumsily executed pieces of stone or terracotta incised with simple hatchings (SC-C-20 to -22 = Dza-19 to Dza-21).

Selected examples of two groups of artefacts will here be shown in the following which illustrate the proximity between image-bearing object classes

⁶ Note that the diameter of one of the Dzarkutan imprints (SC-A-19) leaves open the possibility that it was left by a compartment-headed pin, since it falls within their size range rather than that of preserved seals.

⁷ Cf. Sarianidi 1998 for the largest catalogue and Winkelmann 2021 for a recent, though necessarily abbreviated discussion. A dress pin with a compartment-type head in the form of a stylized goat from Dzarkutan (SC-E-06) is the only other example of a compartmented figurative design from Southern Uzbekistan.

SC-D: Laterally strung beads are regularly found in excavation of Sapalli Culture burials. Apart from colourful barrel- or tear-shaped beads of lapis lazuli, limestone, or carnelian there is a large number of flat or lenticular beads with one- or two-sided decoration. Here, they are sorted according to their outer form (star or rosette, stepped cross, (sub-) rectangular, round, miscellaneous). Designs are rarely precisely cut, but more often drilled. Whenever discernible, the motifs mirror those of seals, both geometric and figurative.

SC-E: Especially the compartmented pins (SC-E) may have actually been used in sealing, since their dimensions closely correspond to imprints on pottery (SC-A-19 = Dza-7). There are 17 Sapalli Culture pin heads with rosette- or star-shaped compartmented heads (Kaniuth 2006, type F-1; Sap-54 to Sap-58 & Dza-33 to Dza-44) and they may well have doubled as seals. Like the seals, pins are exclusively part of female burial assemblages. However, they are not mutually exclusive, as Sapallitepe Grave 082 and Dzarkutan 4a Grave 192 contained both a seal and a pin with compartmented head.

Seal type		Form	Imagery	Contexts	Date
Metal compartment seals and impressions (SC-A)	19	round, star-shaped, rosette, cloisonne form	animals (rare), geometric, plants, rosettes	burial settlement	LB I
Stone cylinder seals and seal impressions (SC-B)	2	cylindrical	figurative	settlement	unknown
Stone stamp seals and seal impression (SC-C)	17	round, prism, star-shaped, rectangular, cone-shaped, cross, rosette, oval, disc-shaped, quadrate, button-shaped	animals, geometrical, plants, human	burial settlement	LB I
Wooden stamp seals (SC-C)	1	round	figurative	settlement	LB I
Metal stamp seal (SC-C)	1	prism	figurative (?)	burial	LB I
Clay or ceramic stamp seals (SC-C)	3	cone-shaped	geometric	settlement	LB I
Laterally strung beads and amulets (SC-D)	(52)	stepped cross (rare), rectangular, round	stylized figurative or geometric; most often drilled motifs	settlement and burial	LB I
Compartment-headed pins (SC-E)	17	star- or rosette-shaped, very rarely figurative	geometric (rosettes, plants); very rarely figurative	burials and settlement	LB I

Table 1. Chart of seal types, their formal characteristics and contexts.

Our evidence for seals stems from both settlement and burial remains (Table 1). Only rarely is a precise stratigraphic or contextual description available for settlement material, and we usually have to make do with an overall date for any given site. The situation is much better for seals discovered in burials, where an attribution to gender⁸, age and wealth groups within the population is possible. All known seals were found in well-furnished womens' graves, a pattern repeated elsewhere in the region.⁹ Material analyses are available only for metal seals.

⁸ Most burials excavated were not sexed anthropologically, but through their grave goods and burial rite. The high degree of conformity in sex-specific body placement among the SC burials suggests that this is generally a reliable indicator.

⁹ Baghestani 1997; Kaniuth 2006; Sarianidi 2007; Luneau 2008.

An interesting pattern emerges, in that all of them were produced from high-lead bronze, an alloy also chosen for other gender-specific grave goods such as flacons, mirrors and some dress pins (Kaniuth 2006: 74).

Cylinder and compartment seals were demonstrably used as such, the latter exclusively on pottery. Interestingly, two out of three sealed vessels from the Sapalli Culture bore multiple markings. Below one or more ordinarily sized imprints of a compartment seal¹⁰ several smaller rosettes were also impressed, much in the way of countermarks. Two pieces from the Sapalli Culture corpus fit the size of these “countermarks”. On one vessel from Tilla Bulak, round protrusions on a model-formed vessel base suggest, that also clay stands, which were regularly employed as models for the bases of larger vessels, were “marked”, leaving a positive on the final product.

The vast majority of the objects discussed here dates to the LB I phase (20th–18th century BC), with the exception of three pieces from the Bustan 6 graveyard (SC-C-18, SC-D-08, SC-D-33 = Bus-1 to Bus-3). Whether these graves immediately postdate LB I (continuing, probably still within the 18th century BC, an older tradition) or whether we are dealing with heirlooms contained in 16th century BC burials is a matter leading to the heart of the chronological debate and opinion among the authors of this paper is divided. It is universally agreed, however, that the practice of sealing did not play a role after the end of LB I anymore.

Setting aside the exceptionally large SC-C-01 = TiB-5, all seals fall into a range of 20–50 mm in diameter, with metal compartmented seals – particularly from Sapallitepe – slightly larger than stone stamp seals. Smaller impressions were likely made with the compartmented heads of pins.

Most images feature geometric designs such as rosettes, crosses and stars. Amongst the figurative motifs, birds of prey, hybrid predators and snakes take a special place, with caprines, humans and plants of lesser importance. Possibly for technological reasons most of them were executed in stone, but SC-C-03 = TiB-6, preserved thanks to specific anaerobic conditions, is a reminder, that a considerable number of seals from perishable materials will have disappeared.

Summary

The corpus of seals and sealings from the Sapalli culture is small but highly varied. Their relatively low number precludes any statistically valid generalizations, or the description of more localized types. Seals only fulfilled their specific function in the first quarter of the 2nd millennium BC. Whatever the rationale behind their production was obsolete afterwards. Wherever seals can be associated with an individual, these are female, showing the clearest gender-specific distribution among the BMAC cultures. The burials with seals or seal-related items were disproportionately well-furnished, with both personal adornments such as jewellery, and larger numbers of pottery. Seals may therefore be considered among the status-marking objects. On the other hand, obvious markers of rank such as maces or axes are conspicuously absent, suggesting that the importance of seals and sealing within the economic sphere did not directly relate to political authority.

Cylinder sealings are currently attested only on a clay bulla while compartment sealings were only impressed on ceramic vessels.¹¹ A class of small stamps (possibly pin heads) appears to have served for counter-stamping the latter, pointing to a sophisticated practice of marking. A practice, to be sure, that need not have been organized institutionally or supra-regionally (pace Lyonnet 2005: 196).

The Sapalli Culture seals’ iconography is not exclusive: The same imagery of wild animals and geometric designs is found, albeit in a much less elaborate execution, on strung beads,¹² while compartment-type heads often occur with dress pins.¹³ The association further strengthens the link between the functional and ornamental, and

¹⁰ The ordinary seals are between 20–50 mm in diameter, with compartment seals among the larger ones.

¹¹ The fact that the largest number of sealings by compartment seals is attested on pottery (mainly small storage vessels or stands) eventually leads over to the consideration of pot-marks, the second category of ceramic markings, and a topic too broad to be covered here. The evidence for sealing is more diverse in neighbouring Turkmenistan (Winkelmann 2021), suggesting that the small amount of data available from Uzbekistan distorts our picture.

¹² Аскарлов 1973, fig. 47 and pl. 30; Аскарлов 1977: 75 and pl. 43.

¹³ Аскарлов 1977, pl. 40; Kaniuth 2006: 107–109.

possibly apotropaic aspects of ancient seals. The iconography employed in glyptics transcends the object classes and appears to ultimately have its origin(s) in apotropaic symbolism.¹⁴

Bibliography

- ANTONOVA, E. V. 2021. Some thoughts on the imaginary representations in the Bactria-Margiana Archaeological Culture. In: B. Lyonnet & N. Dubova (eds.), *The World of the Oxus Civilization*: 178–194. London: Routledge.
- AVANESOVA, N. A. 2016. *Buston VI: The necropolis of the fire-worshippers of pre-urban Bactria*. Samarkand: IICAS.
- BAGHESTANI, S. 1997. *Metallene Compartimentsiegel aus Ost-Iran, Zentralasien und Nord-China*. (Archäologie in Iran und Turan, 1.) Rahden: Leidorf.
- BENDEZU-SARMIENTO, J. 2018. La Bactriane : les révélations de la Délégation archéologique française en Afghanistan. *Archéologia* 562: 62–69.
- BENDEZU-SARMIENTO, J. & S. MUSTAFAKULOV 2009. Report on the excavations at Djarkutan 2009. Unpublished Manuscript.
- BENDEZU-SARMIENTO, J. & 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. In: J. Bendezu-Sarmiento (ed.), *L'archéologie Française en Asie Centrale : nouvelles recherches et enjeux socioculturels*: 207–236. Paris: Bocard.
- BONORA et al. 2014 = G. BONORA, M. VIDALE, M. MARIOTTINI & G. GUIDA, On the use of tokens and seals along the Kopet Dagh Piedmont, Turkmenistan (ca. 6000–3000 BCE). *Paléorient* 40.1 (2014): 55–71.
- BRENTJES, B. 1987. Probleme der baktrischen Bronzezeit. *Iranica Antiqua* 22: 117–163.
- DURING CASPERS, E. 1994. Widening horizons: Contacts between Central Asia (the Murghabo-Bactrian culture) and the Indus Valley civilization. *Annali dell'Istituto Orientale di Napoli* 54: 171–198.
- FRANCFORT, H.-P. 2009. L'âge du bronze en Asie centrale : la civilisation de l'Oxus. *Anthropology of the Middle East* 4.1: 91–111.
- GÖRSDDORF, J. 2007. Informationen zu den 14C-Datierungsergebnissen von Majdatepa (Bandixon I). *Труды Байсунской Научной Экспедиции: Археология, История и Этнография* 3: 132.
- GÖRSDDORF, J., & D. HUFF 2001. 14C-Datierungen von Materialien aus der Grabung Dzarkutan, Uzbekistan. *Archäologische Mitteilungen aus Iran und Turan* 33: 75–87.
- HUFF, D. 2000. Tempel oder Palast? Dscharkutan – Monumentalbauten und Siedlung im bronzezeitlichen Baktrien. In: H. Kyrieleis (ed.), *Archäologische Entdeckungen. Die Forschungen des Deutschen Archäologischen Instituts im 20. Jahrhundert*: 115–118.
- KANIUTH, K. 2006. *Metallobjekte der Bronzezeit aus Nordbaktrien* (Archäologie in Iran und Turan, 6). Mainz: Zabern.
- KANIUTH, K. 2010a. Tilla Bulak 2009 – Vorbericht zur dritten Kampagne. *Archäologische Mitteilungen aus Iran und Turan* 42: 129–163.
- KANIUTH, K. 2010b. 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. 2011. Tilla Bulak 2010 – Vorbericht über die vierte Grabungskampagne. *Archäologische Mitteilungen aus Iran und Turan* 43: 261–282.
- 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: V. Lefèvre, A. Didier & B. Mutin (eds.) *South Asian Archaeology and Art 2012, I: Man and environment in Prehistoric and Protohistoric South Asia: New perspectives*: 117–128. Turnhout: Brepols.
- KANIUTH, K. 2021. Life in the countryside: The rural archaeology of the Sapalli Culture. In: B. Lyonnet & N. Dubova (eds.), *The World of the Oxus Civilization*: 457–486. London: Routledge.
- KOHL, P. L. 1984. *Central Asia: Palaeolithic beginnings to the Iron Age. L'Asie Centrale des origines à l'âge du fer*. (Éditions recherche sur les civilisations. Synthèse, 14.) Paris: Éditions recherche sur les civilisations.
- LUNEAU, É. 2008. Tombes féminines et pratiques funéraires en Asie Centrale Protohistorique. *Paléorient* 34.1: 131–157.
- LUNEAU, É. 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.)*. (Mémoires des missions archéologiques françaises en Asie centrale et en Asie moyenne, 16.) Paris: Bocard.
- LUNEAU, É. 2021. The end of the Oxus Civilization. In: Bertille Lyonnet & Nadezhda A. Dubova (eds.), *The World of the Oxus Civilization*: 496–524. London: Taylor & Francis.
- LUNEAU, É., J. BENDEZU-SARMIENTO & S. MUSTAFAKULOV 2014. Ceramics and chronology at Dzharkutan: A revision of the periodization of the Sapalli Culture (Uzbekistan, c. 2100–1500 BC). In: P. Bieliński, M. Gawlikowski, R. Koliński,

¹⁴ Antonova (2021: 186) arrives at a similar conclusion, albeit with a different – and, in our opinion, problematic – argumentation.

- D. Ławecka, A. Sołtysiak & Z. Wygnańska (eds.), *Proceedings of the 8th International Congress on the Archaeology of the Ancient Near East, 30 April – 4 May 2012, University of Warsaw, II: Excavation and progress reports, posters*: 529–542. Wiesbaden: Harrassowitz.
- LYONNET, B. 2005. Another possible interpretation of the Bactria-Margiana culture (BMAC) of Central Asia: The tin trade. In: Catherine Jarrige & Vincent Lefèvre (eds.), *South Asian Archaeology 2001*, I: 191–200. Paris: Éditions Recherche sur les Civilisations.
- LYONNET, B. & N. A. DUBOVA (eds.) 2021. *The World of the Oxus Civilization*. London: Taylor & Francis.
- ROUSE, L. M. 2020. Silent partners: Archaeological insights on mobility, interaction and civilization in Central Asia's past. *Central Asian Survey*: 1–22.
- SALVATORI, S. 2016. Bactria-Margiana Archaeological Complex: How terminology hides historical processes. In: Н. А. Дубова (ed.), *Памяти Виктора Ивановича Сараниди*: 449–460. Москва: Старый сад.
- SARIANIDI, V. 1998. *Myths of Ancient Bactria and Margiana on Its Seals and Amulets*. Moscow: Pentagrapic, Ltd.
- SARIANIDI, V. 2007. *Necropolis of Gonur*. Athens: Kapon Editions.
- SHAYDULLAEV, A. 2020. *Glyptics of Bactria in the Bronze Age*. (Institut français d'études sur l'Asie centrale Working Paper, 30.) https://f.hypotheses.org/wp-content/blogs.dir/1268/files/2020/04/Shaydullaev_IFEAC-WP.pdf (last accessed Oct. 12 2021).
- ŠIRINOV, T. 2003. *Die frühurbane Kultur der Bronzezeit im südlichen Mittelasien: Die vorgeschichtliche Siedlung Dzarkutan*. Berlin: Reimer.
- STANČO, L. S, S. SHAYDULLAEV & A. SHAYDULLAEV 2017. Archaeological survey in the eastern Kugitang Piedmonts (South Uzbekistan): Preliminary report for seasons 2016 and 2017. *Studia Hercynia* 21: 121–138.
- TEUFER, M. 2005. The Late Bronze Age chronology of Southern Uzbekistan: A reanalysis of the funerary evidence. In: U. Franke-Vogt & H.-J. Weisshaar (eds.), *South Asian Archaeology 2003: Proceedings of the seventeenth International Conference of the European Association of South Asian Archaeologists (7–11 July 2003, Bonn)*: 199–209. Aachen: Linden Soft.
- WINKELMANN, S. 2021. BMAC glyptics: Typology, context, function, and background. In: B. Lyonnet & N. Dubova (eds.), *The World of the Oxus Civilization*: 215–292. London: Routledge.
- АНТОНОВА, Е. В. 1983. Мургабские печати в свете религиозно-мифологических представлений первобытных обитателей юга Средней Азии и их соседей.. In: Б. Литвинский (ed.), *Средняя Азия, Кавказ и Зарубежный Восток в древности*: 13–31. Москва: Наука.
- АСКАРОВ, А. А. 1973. *Сапаллитена*. Ташкент: ФАН.
- АСКАРОВ, А. А. 1977. *Древнеземледельческая культура эпохи бронзы юга Узбекистана*. Ташкент: ФАН.
- АСКАРОВ, А. А. 1984. Проблема становления раннегородской культуры на юге Узбекистана и ее связи с Индостаном. In: В. М. Массон (ed.), *Древние культуры Средней Азии и Индии*: 87–96. Ленинград: Наука.
- АСКАРОВ, А. А. & Б. А. АБДУЛЛАЕВ 1983. *Джаркутан*. Ташкент: ФАН.
- АСКАРОВ, А. А. & Т. ШИРИНОВ 1993. *Ранняя городская культура эпохи бронзы юга Средней Азии*. Самарканд: УРФА.
- КИРЧО, Л. Б. 1990. Древнейшие печати и их оттиски из Алтын Тепе. *Советская Археология* 1990.3: 176–183.
- МЕЙТАРЧИЯН, М. Б. 1984. Амулет эпохи бронзы с поселения Дзаркутан. *История материальной культуры Узбекистана* 19: 41–45.
- МУСТАФОКУЛОВ, С. М., Х. В. БЕНДЕЗУ-САРМЕНЬТО, У. РАХМОНОВ, М. ХАСАНОВ, Ж. ЛЮИЛЬЕ & Э. ЛЮНЕ 2012. Полевые работы Узбекско-Французской (MAFOUZ) экспедиции на Джаркутане в 2009-2011 гг. In: А.Э. Verdimuradov (ed.), *Ўзбекистонда археологик тадқиқотлар 2010-2011 йиллар*: 203–213. Самарканд: Ўзбекистон Республикаси фанлар академияси академик Я. Гуломов номидаги археология институти.
- САРИАНИДИ В. И. 1974. Бактрия в эпоху бронзы. *Советская Археология* 1974.4: 49–71.
- ШАЙДУЛЛАЕВ, А. 2013. Тиллабулок штамплари. *Вестник НУУз / Acta NUUZ* 2013: 69–74.
- ШАЙДУЛЛАЕВ, А. 2018. *Сополли маданиятининг глиптикаси ва сфрагистикаси (Глиптика и сфрагистика культуры Сапалли / Glyptics and sphragistics of Sapalli culture). Тарих фанлари бўйича фалсафа доктори (PhD) диссертацияси Автореферати. 07.00.06 – Археология (тарих фанлари)*. Тошкент.
- ШАЙДУЛЛАЕВ, Ш. Б., Д. ХУФФ & К. РАХИМОВ 2002. Zharkuton – 2001. In Т. Ширинов, Б. Матбабаев & А. А. Грицина (ed.), *Археологические Исследования в Узбекистане 2001 года*: 187–192. Самарканд.

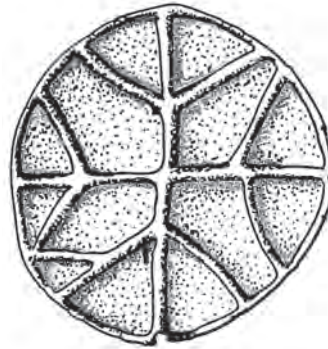
Sapalli-tepa



Sap-1 A (100%)



Sap-1 D



Sap-2 A (100%)



Sap-2 D



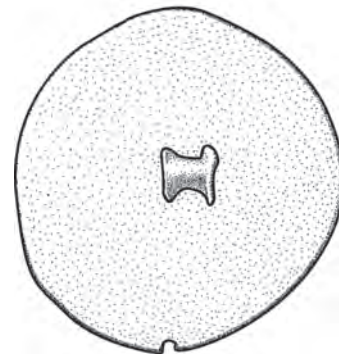
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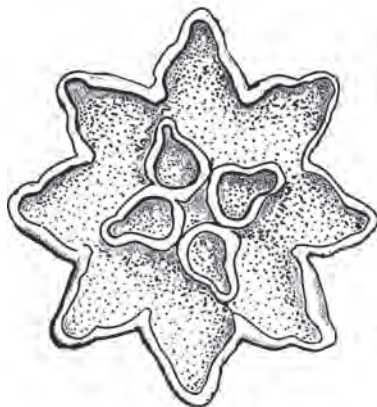
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Sap-3 D



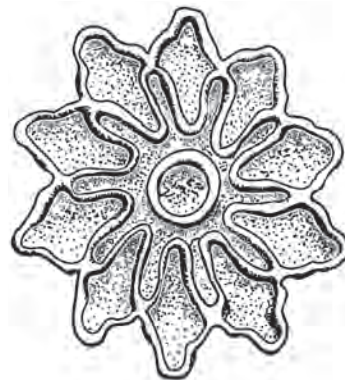
Sap-2 B



Sap-4 A (100%)



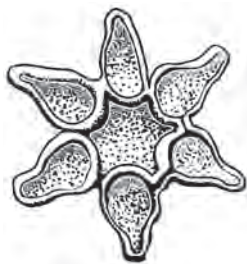
Sap-4 D



Sap-5 A (100%)



Sap-5 D



Sap-6 A (100%)



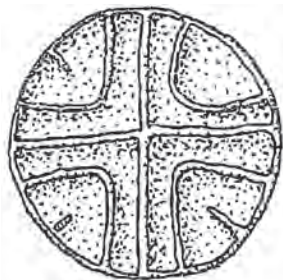
Sap-6 D



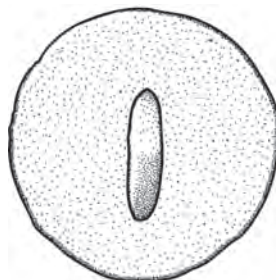
Sap-7 A (100%)



Sap-7 D



Sap-8 A (100%)



Sap-8 B



Sap-8 D



Sap-9 A (100%)



Sap-9 D



Sap-10 A



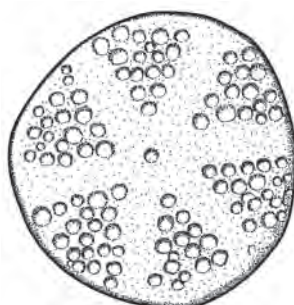
Sap-10 A bis (100%)



Sap-10 D



Sap-10 B



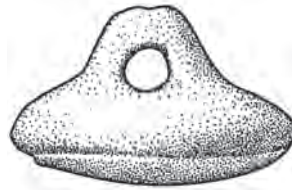
Sap-11 A (100%)



Sap-11 C



Sap-12 A (100%)



Sap-12 C



Sap-13 A (100%)



Sap-13 F



Sap-13 B-C



Sap-14 A (100%)



Sap-14 C



Sap-14 F



Sap-15 A (100%)



Sap-15 F



Sap-16 A



Sap-17 B



Sap-16 A (100%)



Sap-17 A (100%)



Sap-17 B bis (100%)



Sap-17 D



Sap-18 A (100%)



Sap-18 B (100%)



Sap-19 A (100%)



Sap-19 B (100%)



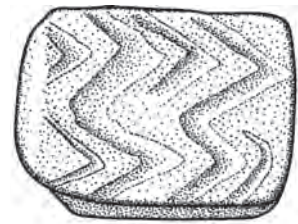
Sap-20 A (100%)



Sap-20 B (100%)



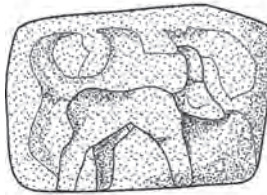
Sap-20 D



Sap-22 A (100%)



Sap-21 A



Sap-21 A bis (100%)



Sap-21 B (100%)



Sap-23 A



Sap-23 A bis (100%)



Sap-21 D



Sap-23 E



Sap-24 A (100%)



Sap-24 B (100%)



Sap-24 E



Sap-23 B (100%)



Sap-25 A (100%)



Sap-25 E



Sap-25 B (100%)



Sap-26 A (100%)



Sap-26 D



Sap-26 B (100%)



Sap-27 A (100%)



Sap-27 B (100%)



Sap-27 E



Sap-28 A (100%)



Sap-28 B (100%)



Sap-28 F



Sap-29 A (100%)



Sap-29 B (100%)



Sap-29 D



Sap-30 A (100%)



Sap-30 B (100%)



Sap-30 E



Sap-31 A (100%)



Sap-31 B (100%)



Sap-31 D



Sap-32 A (100%)



Sap-32 B (100%)



Sap-32 E



Sap-33 A (100%)



Sap-33 B (100%)



Sap-33 E



Sap-34 A (100%)



Sap-34 B (100%)



Sap-34 E



Sap-35 A (100%)



Sap-35 D



Sap-36 A (100%)



Sap-36 B (100%)



Sap-36 D



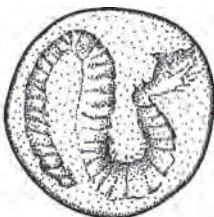
Sap-37 A (100%)



Sap-37 B (100%)



Sap-37 D



Sap-35 B (100%)



Sap-38 A (100%)



Sap-38 B (100%)



Sap-38 D



Sap-39 A (100%)



Sap-39 B (100%)



Sap-39 D



Sap-40 A (100%)



Sap-40 B (100%)



Sap-41 A (100%)



Sap-41 B (100%)



Sap-41 D



Sap-40 D



Sap-42 A (100%)



Sap-42 B (100%)



Sap-42 D



Sap-43 A (100%)



Sap-43 B (100%)



Sap-43 D



Sap-44 A (100%)



Sap-44 B (100%)



Sap-44 D



Sap-45 A (100%)



Sap-45 B (100%)



Sap-45 D



Sap-46 A (100%)



Sap-46 B (100%)



Sap-46 D



Sap-47 A (100%)



Sap-47 B (100%)



Sap-47 D



Sap-48 A (100%)



Sap-48 B (100%)



Sap-48 D



Sap-49 A (100%)



Sap-49 B (100%)



Sap-50 A (100%)



Sap-50 B (100%)



Sap-50 D



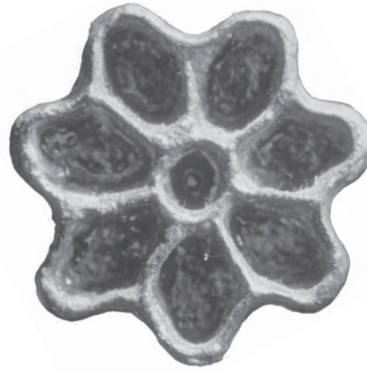
Sap-49 D



Sap-51 A (100%)



Sap-51 D



Sap-54 A



Sap-54 A bis (100%)



Sap-52 A (100%)



Sap-53 A (100%)



Sap-54 E



Sap-52 B (100%)



Sap-53 E



Sap-52 D



Sap-56 A (100%)



Sap-57 A (100%)



Sap-55 A (100%)



Sap-57 E



Sap-55 E



Sap-56 E

Tilla Bulak



TiB-1 A



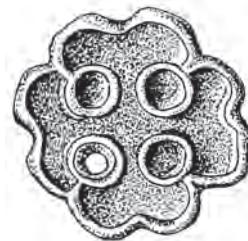
TiB-2 A



TiB-1 A bis (100%)



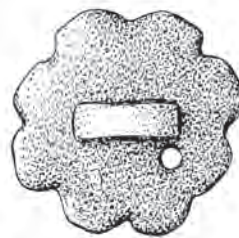
TiB-1 B



TiB-2 A bis (100%)



TiB-1 C



TiB-2 B



TiB-2 D



TiB-2 C



TiB-3 A



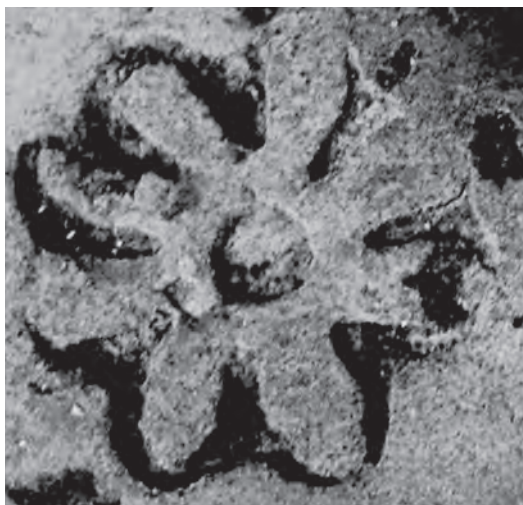
TiB-3 A bis (100%)



TiB-4 A bis (100%)



TiB-5 A (150%)



TiB-4 A



TiB-5 B (50%)



TiB-5 D (50%)



TiB-5 A bis (100%)



TiB-6 A



TiB-6 A bis (100%)



TiB-6 B



TiB-6 C



TiB-7 A



TiB-8 A



TiB-8 B



TiB-7 B



TiB-8 A bis (100%)



TiB-8 B bis (100%)



TiB-8 D



TiB-8 F



TiB-7 A bis (100%)



TiB-7 B bis (100%)



TiB-7 C

Džarkutan



Dza-1 A



Dza-1 A bis (100%)



Dza-1 B



Dza-1 D



Dza-2 A



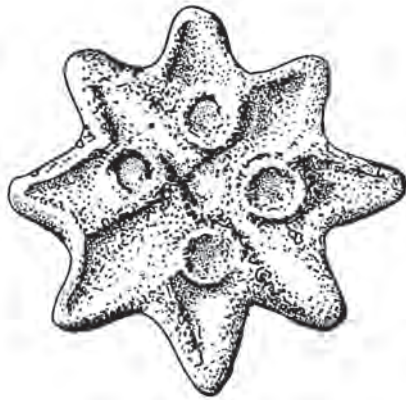
Dza-2 A bis (100%)



Dza-2 D



Dza-3 A (150%)



Dza-3 A bis (100%)



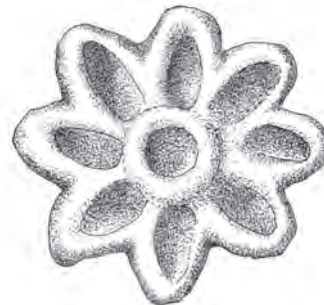
Dza-3 D



Dza-3 B



Dza-4 A



Dza-4 A bis (100%)



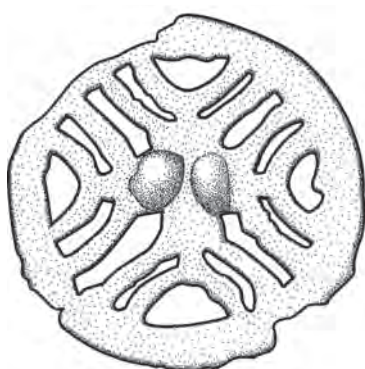
Dza-4 D



Dza-5 A



Dza-5 A bis (100%)



Dza-5 B



Dza-5 D



Dza-6 A (100%)



Dza-6 F



Dza-6 F bis



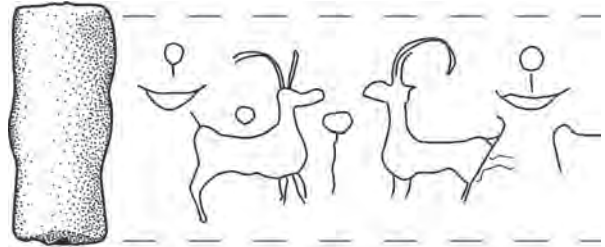
Dza-7 A



Dza-8 A (100%)



Dza-7 A bis (100%)



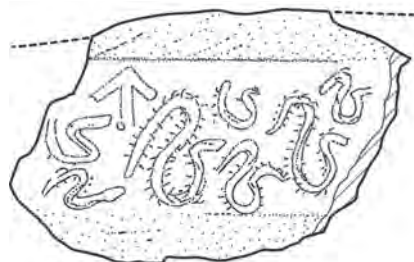
Dza-8 A & a (100%)



Dza-9 A (150%)



Dza-9 A bis (100%)



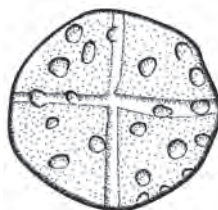
Dza-9 A ter (100%)



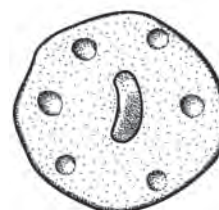
Dza-9 D



Dza-10 A



Dza-11 A (100%)



Dza-11 D



Dza-12 D



Dza-11 D



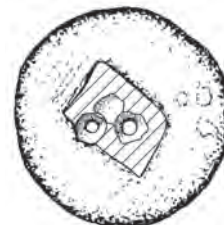
Dza-10 A bis (100%)



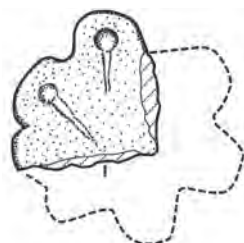
Dza-10 C



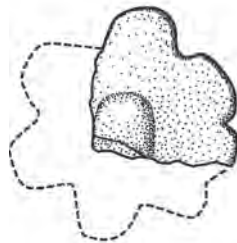
Dza-12 A (100%)



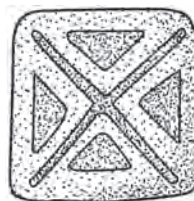
Dza-12 B



Dza-13 A (100%)



Dza-13 B



Dza-15 A (100%)



Dza-15 F



Dza-13 D



Dza-16 A (100%)



Dza-16 F



Dza-14 A (100%)



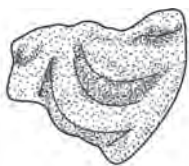
Dza-14 B



Dza-14 D



Dza-16 B–C



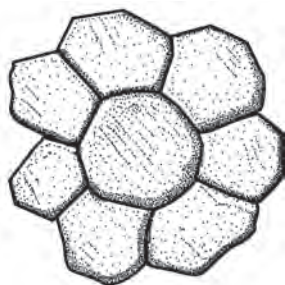
Dza-17 A (100%)



Dza-17 C



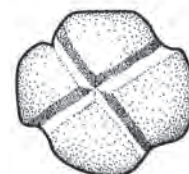
Dza-18 A



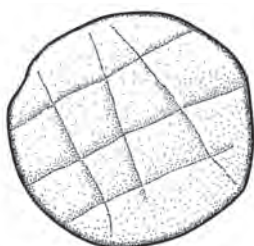
Dza-19 A (100%)



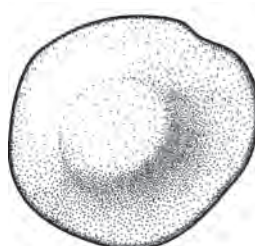
Dza-19 D



Dza-19 B (100%)



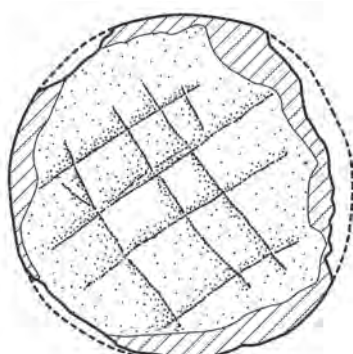
Dza-20 A (100%)



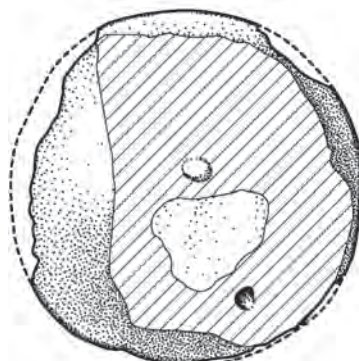
Dza-20 B



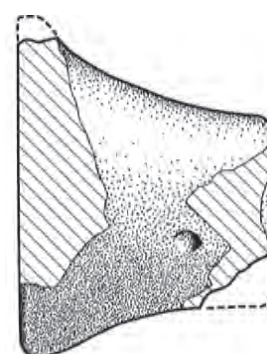
Dza-20 D



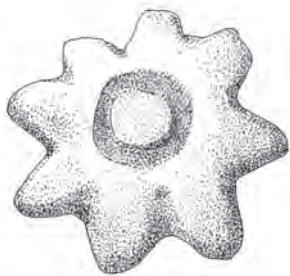
Dza-21 A (100%)



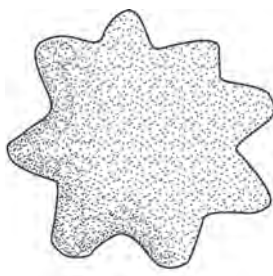
Dza-21 B



Dza-21 D



Dza-22 A (100%)



Dza-22 B



Dza-22 D



Dza-23 A (100%)



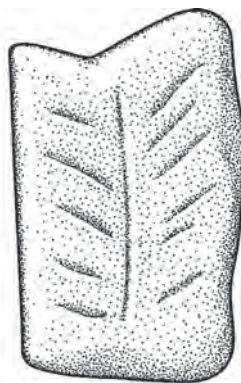
Dza-23 B



Dza-23 D



Dza-24 A



Dza-24 A (100%)



Dza-25 A (100%)



Dza-25 B (100%)



Dza-25 E



Dza-26 A (100%)



Dza-26 B (100%)



Dza-26 E



Dza-27 A



Dza-27 a



Dza-27 A bis (100%)



Dza-27 B (100%)



Dza-28 A



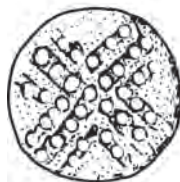
Dza-27 b



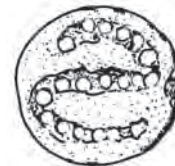
Dza-27 D



Dza-28 A bis (100%)



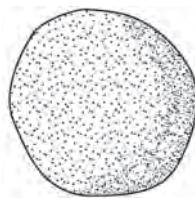
Dza-29 A (100%)



Dza-29 B (100%)



Dza-29 D



Dza-28 B



Dza-30 A (100%)



Dza-30 B (100%)



Dza-30 D



Dza-28 D



Dza-31 F (200%)



Dza-31 A (100%)



Dza-30 C (200%)



Dza-32 A (100%)



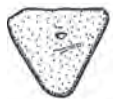
Dza-32 B (100%)



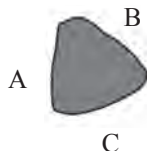
Dza-32 C (100%)



Dza-33 A (100%)



Dza-32 E (100%)



Dza-32 D (100%)



Dza-33 E



Dza-34 A (100%)



Dza-35 A (100%)



Dza-36 A



Dza-34 E



Dza-35 E



Dza-36 E



Dza-36 A bis (100%)



Dza-37 A (100%)



Dza-38 A (100%)



Dza-39 A (100%)



Dza-40 A (100%)



Dza-37 E



Dza-38 E



Dza-39 E



Dza-39 B



Dza-40 E



Dza-41 A (100%)



Dza-42 A (100%)



Dza-43 A (100%)



Dza-44 A (100%)



Dza-41 E



Dza-42 E



Dza-43 E



Dza-44 E

Bustan



Bus-1 A (100%)



Bus-1 B



Bus-1 D



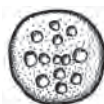
Bus-2 A (100%)



Bus-2 B (100%)



Bus-2 D



Bus-3 A (100%)



Bus-3 D



Bus-3 D bis

UCH-DEPE
p. 475: Uch-1

CISI no.	Find data	CISI drawings	Publications & references	Material	Size	Additional information
<i>p. 475 SEALS, metal</i>						
Uch-1	surface	A, D: Baghestani 1997: 373, fig. 120, no. 627A	Sarianidi 1990, pl. 60, no. 3	bronze	21x19x5	

MERV
p. 475: Merv-1

CISI no.	Find data	CISI photos	Publications & references	Material	Size	Additional information
<i>p. 475 SEALS, metal</i>						
Merv-1	Ghiaur Kala fort in Old Merv, Upper Digging, within 2.5 feet of surface	A, D: H. Schmidt 1908, pl. 51, no. 8	Baghestani 1997: 343, fig. 105, no. 5	bronze	diam. 25	seal with a ring eyelet on back

UZBEKISTAN

SAPALLI-TEPA
pp. 476–482: Sap-1 to Sap-57

CISI no.	Reg. no.	Find data	Museum (+ no.)	CISI drawings/ photo	Publications & references	Material	Size	Additional information
<i>pp. 476–477 COMPARTMENT SEALS, metal</i>								
Sap-1	SC-A-01	Grave 113	HMT	A, B, D: UJ, KK	Askarov 1977, Pl. 46.5; Askarov 1984, fig. 5.2; Baghestani 1997, 87, 298, fig. 84, no. 413; Kamiuth 2006, no. 22; A. Šajdullaev 2018, Table 1.1.8	metal	diam. c. 35	Round compartment seal; figural design (bird of prey)
Sap-2	SC-A-04	settlement (surface find)	RMS A433-1340	A, B, D: UJ, KK	Askarov 1977, Pl. 46.9; Kohl 1984, Pl. 16c; Brentjies 1987, fig. 9.9; Askarov 1993, 65; Baghestani 1997, 88, 353, fig. 111, no. 570; Kamiuth 2006, no. 25; A. Šajdullaev 2018, Table 1.1.9	high-lead bronze	diam. c. 44	Round compartment seal; geometric design (cross)

Sap-3	SC-A-05	settlement, Eastern Corridor 2	RMS A433-1341	A (photo), A bis, D: UJ, KK	Askarov 1977, Pl.46.2; Kohl 1984, Pl.16c; Baghestani 1997, 8, 347, fig 107, no. 552; Kaniuth 2006, no. 26; A. Šajdullaev 2018, Table 1, 1.6	high-lead bronze	diam. 25	Round compartment seal (?); geometric design (cross)	
Sap-4	SC-A-08	Grave 101	HMT	A, D: UJ, KK	Askarov 1977, Pl. 46.4; Brentjies 1987, fig. 9.4; Baghestani 1997, 88, 217, fig. 45, no. 172; Kaniuth 2006, no. 29; Teufer 2015, Pl. 81, 7; A. Šajdullaev 2018, Table 1, 1.2	metal	diam. c. 51	Rosette compartment seal	
Sap-5	SC-A-09	Grave 113	HMT	A, D: UJ, KK	Askarov 1977, Pl. 46.6; Brentjies 1987, fig. 9.6; Baghestani 1997, 87, 218, fig. 45, no. 173; Kaniuth 2006, no. 30; A. Šajdullaev 2018, Table 1, 1.3	metal	diam. c. 50	Rosette compartment seal	
Sap-6	SC-A-10	settlement find	HMT	A, D: UJ, KK	Askarov et. al. 1975, Pl. 3.6; Askarov 1977, 78 Pl. 46.3; Brentjies 1987, fig. 9.3; Baghestani 1997, 88, 216, fig. 44, no. 169; Kaniuth 2006, no. 31; A. Šajdullaev 2018, Table 1, 1.15	high-lead bronze	diam. c. 33	Rosette compartment seal	
Sap-7	SC-A-11	settlement find	RMS A433-1342	A, D: UJ, KK	Askarov 1977: 78, Pl. 46.1; Kohl 1984, Pl.16c; Brentjies 1987, fig. 9.1; Baghestani 1997: 88, 217, fig. 44, no. 170; Kaniuth 2006, no. 32; A. Šajdullaev 2018, Table 1, 1.16	lead bronze	diam. 26	Rosette compartment seal; plant design (7 petals)	
Sap-8	SC-A-13	settlement find	???	A, B, D: UJ, KK		metal	diam. 36	Round compartment seal; geometric design (cross)	
<u>pp. 477–478 STAMP SEALS, stone, clay</u>									
Sap-9	SC-C-02	settlement context	HMT	A, D: UJ, KK	Askarov 1977, Pl. 46.8; A. Šajdullaev 2018, Table 1, 1.5	stone	27x28	Cross-shaped stamp seal; figural design (eagle)	
Sap-10	SC-C-06	settlement context	TAM	A (photo), A bis, B, D: CW, KK	Askarov 1973: 162, Pl. 24.35 & 32.9; Askarov & Širinov 1993, fig. 64/7; Širinov 2002, fig. 60/A,7; A. Šajdullaev 2018, Table 1.3.6	stone	38x37	Rosette stamp seal; geometric design (cross)	
Sap-11	SC-C-07	Grave 14	HMT	A, C: CW, KK	Askarov 1973: 162, Pl. 24.40; Teufer 2015: 397, Pl. 19,11; A. Šajdullaev 2018, Table 1, 1.7	stone	diam. 38	Round stamp seal; geometric design (drilled triangles)	
Sap-12	SC-C-08	settlement context	HMT	A, C: CW, KK	Askarov 1977, Pl. 46.7; A. Šajdullaev 2018, Table 1, 1.4	clay	diam. 38	Round stamp seal; rosette (?) design	
Sap-13	SC-C-12	Grave 41	HMT	A, B–C, F: KH, KK	Askarov 1973, Pl. 30.14 (left); Askarov 1977, Pl. 44, 1; A. Šajdullaev 2018, Table 1, 1.10	stone	diam. 19	Round stamp seal; geometric design (drilled triangles)	
Sap-14	SC-C-13	Grave 41	HMT	A, C, F: KH, KK	Askarov 1973, Pl. 30.14 right; A. Šajdullaev 2018, Table 1, 1.11	stone	diam. 19	Round stamp seal; geometric design (swastika?)	
Sap-15	SC-C-14	settlement context, room 53	???	A, F: KH, KK	Askarov 1973, Pl. 30.12; A. Šajdullaev 2018, Table 1, 1.12	stone	diam. 19	Round stamp seal; geometric design (drilled triangles)	
<u>pp. 478–482 BEADS/AMULETS, stone, etc.</u>									
Sap-16	SC-D-03		RMS A433-1343	A (photo), A bis: CW, KK	Brunet 2013, fig. 1, 13 (right)	stone	28x30	Star-shaped bead/amulet; geometric design (star or rosette)	

Sap-34	SC-D-25	Grave 41	HMT	A, B, E: FK, KK	Askarov 1977, Pl. 55,8; A. Šajdullaev 2018, Table 1,2,22	stone	10x13	Rectangular bead/amulet, flat sides; geometric (dots) / figurative (snake?) design
Sap-35	SC-D-27		HMT	A, B, D: CW, KK	Askarov 1973: 162, Pl. 24,42; A. Šajdullaev 2018, Table 1,2,18	stone	diam. 28	Round bead/amulet, flat sides; figurative (snake) design
Sap-36	SC-D-30	Grave 94	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,31; A. Šajdullaev 2018, Table 1,2,17	stone	diam. 15	Round bead/amulet, flat sides; geometric (?) design
Sap-37	SC-D-31	settlement context, room 6	HMT	A, B, D: FK, KK	A. Šajdullaev 2018, Table 1,2,1	stone	diam. 15	Round bead/amulet, flat sides; geometric (?) design
Sap-38	SC-D-32	Grave 82	HMT	A, B, D: K, KK	Askarov 1977, Pl. 55,11; A. Šajdullaev 2018, Table 1,2,9	stone	diam. 15	Round bead/amulet, flat sides; geometric (?) / figurative (snake?) design
Sap-39	SC-D-35	Grave 82	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,7; A. Šajdullaev 2018, Table 1,2,8	stone	diam. 12	Round bead/amulet, flat sides; geometric (?) design
Sap-40	SC-D-36	Grave 41	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,15; A. Šajdullaev 2018, Table 1,2,13	stone	diam. 20	Round bead/amulet, flat sides; geometric (?) / figurative (snake) design
Sap-41	SC-D-37	Grave 41	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,14; A. Šajdullaev 2018, Table 1,2,3	stone	diam. 12	Round bead/amulet, flat sides; figurative (rosette? and snake) design
Sap-42	SC-D-38	Grave 41	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,25; A. Šajdullaev 2018, Table 1,2,2	stone	diam. 15	Round bead/amulet, flat sides; geometric (?) design
Sap-43	SC-D-39	Grave 82	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,17; A. Šajdullaev 2018, Table 1,2,10	stone	diam. 16	Round bead/amulet, flat sides; figurative (tree?) design
Sap-44	SC-D-40	Grave 107	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,6; A. Šajdullaev 2018, Table 1,2,16	stone	diam. 12	Round bead/amulet, flat sides; geometric (circle; cross) design
Sap-45	SC-D-41	Grave 82	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,24; A. Šajdullaev 2018, Table 1,2,14	stone	diam. 12	Round bead/amulet, flat sides; figurative (quadruped) design
Sap-46	SC-D-43	Grave 82	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,4; A. Šajdullaev 2018, Table 1,2,7	stone	diam. 20	Round bead/amulet, flat sides; geometric (?) / figurative (?) design
Sap-47	SC-D-44	Grave 82	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,12; A. Šajdullaev 2018, Table 1,2,12	stone	diam. 20	Round bead/amulet, flat sides; geometric (cross in circle) and figurative (tree/centipede?) design
Sap-48	SC-D-45	Grave 50	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,1; A. Šajdullaev 2018, Table 1,2,6	stone	diam. 16	Round bead/amulet, flat sides; figurative (rosette?, snake?) design
Sap-49	SC-D-46	Grave 41	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,5; A. Šajdullaev 2018, Table 1,2,4	stone	diam. 15	Round bead/amulet, flat sides; figurative (?) design
Sap-50	SC-D-47	Grave 41	HMT	A, B, D: FK, KK	Askarov 1977, Pl. 55,18; A. Šajdullaev 2018, Table 1,2,5	stone	diam. 10	Round bead/amulet, flat sides; geometric (?) design
Sap-51	SC-D-48	Grave 82	HMT	A, D: FK, KK	Askarov 1977, Pl. 55,29; A. Šajdullaev 2018, Table 1,2,11	stone	diam. 20	Round bead/amulet, flat sides; rosette (?) design

Sap-52	SC-D-49	Grave 93	???	A, B, D: FK, KK	Askarov 1977, Pl. 45.27 & 43.2; Teuffer 2015, 452 Pl. 74.7; A. Šajdullaev 2018, Table 1.2.15	stone	diam. 19	Round bead/amulet, flat sides; figurative (bird of prey; tree?) design
p. 482. PINS with compartmented head. metal								
Sap-53	SC-E-01	settlement context, room 20	RMS A517-003	A, E: UJ, KK	Askarov 1977, Pl. 40.7; Kaniuth 2006, no. 159; A. Šajdullaev 2018, Table 1.1.18	metal	diam. 13	Pin with compartmented head; 6-petalled rosette design
Sap-54	SC-E-02	settlement context, room 20	RMS A433-1336	A (photo), A bis, E: UJ, KK	Askarov 1977, Pl. 40.8; Kaniuth 2006, no. 157; A. Šajdullaev 2018, Table 1.1.19	metal	diam. 24	Pin with compartmented head; 7-petalled rosette design
Sap-55	SC-E-03	settlement context, room 20	HMT	A, B, E: UJ, KK	Askarov 1977, Pl. 40.13; Kaniuth 2006, no. 158; A. Šajdullaev 2018, Table 1.1.20	metal	diam. 19	Pin with compartmented head; 6-petalled rosette design
Sap-56	SC-E-04		HMT	A, B, E: UJ, KK	Askarov 1977, Pl. 40.9; Kaniuth 2006, no. 155; A. Šajdullaev 2018, Table 1.1.21	metal	diam. 27	Pin with compartmented head; 8-petalled rosette design
Sap-57	SC-E-05	Grave 82	HMT 253-054	A, B, E: UJ, KK	Askarov 1977, Pl. 40.10; Kaniuth 2006, no. 156; A. Šajdullaev 2018, Table 1.1.22	metal	diam. 23	Pin with compartmented head; 7-petalled rosette design

TILLA BULAK**pp. 483–485: TiB-1 to TiB-8**

CISI no.	Reg.no.	Exc. no. / Find data	Museum (+ no.)	CISI drawings & photos	Publications & references	Material	Size	Additional information
p. 483. COMPARTMENT SEALS. metal								
TiB-1	SC-A-12	TB09-KF-509; settlement, context 631	TAM	A (photo); A bis, B, C (dr.): CW, KK	Kaniuth 2010, fig. 16; A. Šajdullaev 2013: 72, fig. 3; Kaniuth 2016, fig. 5.3; A. Šajdullaev 2018, Table 1.4.1	metal, with wooden inlays	diam. 31 x12	Rosette compartment seal; plant design (6 petals)
TiB-2	SC-A-16	TB10-KF-667; settlement, context 725	TAM	A (photo); A bis, B, C, D (dr.): CW, KK	Kaniuth 2016, fig. 5.4; A. Šajdullaev 2018, Table 1.4.2	metal	diam. 30–32 x15	Rosette, button-shaped compartment seal; plant (eight-petal) & geometric (four circles) design
pp. 484–485. STAMP SEALS. terracotta, alabaster, wood								
TiB-3	SC-A-17	TB10-KER-3051-01; settlement, context 791	TAM	A (photo); A bis (dr.): KH, KK	Kaniuth 2011, fig. 17; Kaniuth 2016, fig. 5.7	t.c.	diam. 28	Round compartment seal impression; geometric (cross and circle) design
TiB-4	SC-A-18	TB10-KER-3046-29; settlement, context 785	TAM	A (photo); A bis (dr.): KH, KK	A. Šajdullaev 2018, Table 1.4.6	t.c.	diam. 32	Rosette compartment seal impression

TiB-5	SC-C-01	TB10-KF-557; settlement, context 684	TAM-6703	A (photo); A bis, B, D (dr.); CW, KK	Kaniuth 2010, fig. 17; A. Šajdullaev 2013: 72, fig. 2; Kaniuth 2016, fig. 5.5; A. Šajdullaev 2018, Table 1, 1.3	alabaster	diam. 80 x24	Round stamp seal; figural (predator, dogs, snake & human) design	
TiB-6	SC-C-03	TB09-KF-420; settlement, context 513	TAM	A (photo); A bis, B, C; CW, KK	Kaniuth 2010, fig. 15; A. Šajdullaev 2013: 73, fig. 4; Kaniuth 2016, fig. 5.6; A. Šajdullaev 2018, Table 1, 4.5	wood	diam. 22	Round stamp seal; figural (snake) design	
p. 485 <i>BEADS/AMULETS, limestone</i>									
TiB-7	SC-D-28	TB09-KF-507; settlement, context 628	TAM	A (photo); A bis, B, C; CW, KK		limestone	diam. 30 x11	Round bead/amulet, flat sides; geometric (wheel, hatching) design	
TiB-8	SC-D-52	TB09-KF-527; settlement, context 669	TAM	A (photo); A, B, D, F (dr.): CW, KK	Kaniuth 2010, fig. 18; A. Šajdullaev 2018, Table 1, 4.4	limestone	24x31	Bird-of-prey-shaped bead/amulet; figurative (quadruped, centipede?) design	

DŽARKUTAN**pp. 486–495: Dza-1 to Dza-44**

CISI no.	Reg.no.	Exc. no. / Find data	Museum (+ no.)	CISI drawings/ (& photo)	Publications & references	Material	Size	Additional information
pp. 486–488 <i>COMPARTMENT SEALS, metal, terracotta</i>								
Dza-1	SC-A-02	4A-192-22; Grave 4A-192	HMT	A (photo); A bis, B, D (dr.): CW, KK	Askarov 1977: 84, Pl. 57,10; Kohl 1984, Pl.17c; Baghestani 1997: 89, 304, fig. 86, no. 433; Kaniuth 2006, no. 23; A. Šajdullaev 2018, Table 1, 3.11	metal	diam. c. 25	Round compartment seal; figural design (bird of prey and snakes)
Dza-2	SC-A-03	Tepe 5, settlement context	AIS	A (photo); A bis, D (dr.); CW, KK	Askarov & Širinov 1993, fig. 64/II,11; Širinov 2002, fig. 60/A,11; Kaniuth 2006, no. 24; A. Šajdullaev 2018, Table 1, 3.13	metal	diam. c. 58	Round compartment seal; geometric design (circles)
Dza-3	SC-A-06	4A-694-21; Grave 4A-694	HMT 287-037	A (photo); A bis, B, D (dr.): CW, KK	Askarov & Abdullaev 1983, Pl. 32,1; Baghestani 1997: 89, 219, fig. 46, no. 178; Kaniuth 2006, no. 27; A. Šajdullaev 2018, Table 1, 3.5	metal	diam. 49	Rosette compartment seal; geometric design (circles)
Dza-4	SC-A-07	Tepe 5, room 5	TAM	A (photo); A bis, D (dr.); CW, KK	Askarov & Širinov 1993, fig. 24/II,11; Širinov 2002, fig. 21/B,11; Kaniuth 2006, no. 28 (there attributed to Cit, Palace); A. Šajdullaev 2018, Table 1, 3.7	metal	diam. c. 42	Rosette compartment seal
Dza-5	SC-A-14	Dza00.4.14.29; T4, settlement find	AIS	A (photo); A bis, B, D (dr.): CW, KK	A. Šajdullaev 2018, Table 1, 3.12	metal	diam. 47	Cloisonne-form compartment seal; geometric design (cross, half-circle)
Dza-6	SC-A-15	Tepe 6, settlement context	AIS	A, F, F bis (dr.): CW, KK	Š. Šajdullaev 2009, Pl. 38,12; A. Šajdullaev 2018, Table 1, 3.25	metal	14x28x20	Compartment seal; geometric design (circles)

p. 489 SEAL IMPRESSIONS									
Dza-7	SC-A-19	M111; Citadel Mound, settlement context	AIS	A (photo by J. Bendezu- Sarmiento); A bis (dr.): CW, KK	Bendezu-Sarmiento & Mustafakulov 2009, M.111	t.c.	diam. 15	Rosette compartment seal impression	
Dza-8	SC-B-01	T5_Raum 30	AIS	A, a; CW, KK	Męjtarchiyan 1984, fig. 1; Širinov 2002, fig. 39/B,6; A. Šajdullaev 2018, Table 1,3.23	limestone	11–13x32	Cylinder seal; figural design (goats and plants – poppy?)	
Dza-9	SC-B-02	Tepe 6, settlement context	???	A, D; Dietrich Huiff, CW, KK	Šajdullaev et al. 2002, fig. 2; Š. Šajdullaev 2009, Pl. 38, 13.; A. Šajdullaev 2018, Table 1,3.22	clay	54x34	Cylinder seal impression; figural design (snakes)	
pp. 490–491 STAMP SEALS, stone, etc.									
Dza-10	SC-C-04	Tepe 5, room 6	MSH	A (photo), A bis, C; KH, KK	Askarov & Širinov 1993, fig. 24/II,12; Širinov 2002, fig. 21/B, 12; A. Šajdullaev 2018, Table 1,3.15	limestone	diam. c. 35	Round stamp seal; geometric design (cross and drillings)	
Dza-11	SC-C-05	Citadel Mound, settlement context	???	A, B, D (dr.): KH, KK	Askarov & Širinov 1993, fig. 24/I, 2; Širinov 2002, fig. 21/A, 2; A. Šajdullaev 2018, Table 1,3.14	stone	diam. 27	Round stamp seal; geometric design (cross)	
Dza-12	SC-C-09	surface find	???	A, B, D (dr.): KH, KK		limestone	28x29	Round stamp seal; geometric design (cross)	
Dza-13	SC-C-10	trash pit	???	A, B, D (dr.): KH, KK		limestone	20x20; reconstructed diam. 30	Rosette stamp seal; geometric design	
Dza-14	SC-C-11		???	A, B, D (dr.): KH, KK		limestone or gypsum?	10x18; reconstructed 15x18	Oval, button-shaped stamp seal; geometric design (cross-hatching)	
Dza-15	SC-C-15	Tepe 6, settlement context	AIS	A, F (dr.): KK	Huiff 2000	metal	25x25	Square stamp seal; geometric design (cross)	
Dza-16	SC-C-16	Citadel Mound, settlement context	AIS	A, B–C, F (dr.): KH, KK	Bendezu-Sarmiento & Mustafakulov 2009, M.053	stone	diam. 30	Round stamp seal; geometric design (spiral)	
Dza-17	SC-C-17	Citadel Mound, settlement context	AIS	A, C (dr.): KH, KK	Bendezu-Sarmiento & Mustafakulov 2009, M.074	stone	diam. 30	Button-shaped stamp seal; geometric design	
Dza-18	SC-C-19	Citadel surface find	???	A (photo): J. Bendezu- Sarmiento	Mustafakulov et al. 2012, fig. 3; Bendezu-Sarmiento & Mustafakulov 2013, fig. 10; A. Šajdullaev 2018, Table 1,3.18	t.c.	diam. 36	Round stamp seal impression; figural design (human and snake?)	
Dza-19	SC-C-20	Tepe 5, settlement context	???	A, B, D (dr.): CW, KK	Askarov & Širinov 1993, fig. 49/I, 12; Širinov 2002, fig. 45/A, 12; A. Šajdullaev 2018, Table 1,3.9	t.c.	diam. c. 37 & c. 23 x31	Cone-shaped stamp seal; geometric (cross) and rosette design	
Dza-20	SC-C-21	Tepe 6, Room 8	???	A, B, D (dr.): CW, KK	Askarov & Širinov 1993, fig. 50/I, 2; Širinov 2002, fig. 46/A, 2; A. Šajdullaev 2018, Table 1,3.10	gypsum	diam. 32	Cone-shaped stamp seal; geometric design (hatching)	
Dza-21	SC-C-22	Dza98.x; settlement context	???	A, B, D (dr.): CW, KK		clay	diam. 46 x34	Cone-shaped stamp seal; geometric design (hatched lines)	

pp. 492–494 BEADS/AMULETS, stone, etc.									
Dza-22	SC-D-01	Citadel Mound, "Palace"	AIS	A, B, D (dr.): CW, KK	Š. Šajdullaev 2009, Pl. 37, 4; Brunet 2013, fig. 1, 13 left; A. Šajdullaev 2018, Table 1, 3, 4	frit	diam. c. 35	Star-shaped bead/amulet with one surface; geometric design (star or rosette)	
Dza-23	SC-D-02	Citadel Mound, "Palace"	AIS	A, B, D (dr.): CW, KK	Š. Šajdullaev 2009, Pl. 37, 3; A. Šajdullaev 2018, Table 1, 3, 4	gypsum	diam. 38	Star-shaped bead/amulet with one surface; geometric design (star or rosette)	
Dza-24	SC-D-12	Dza98xxxx	???	A (photo); A bis (dr.): CW, KK		stone	30x49	Rectangular bead/amulet; geometric design (herringbone)	
Dza-25	SC-D-13	Grave 29	AIS	A, B, E (dr.): FK, KK	Askarov 1977, Pl. 55, 19; A. Šajdullaev 2018, Table 1, 3, 20	stone	18x12	Rectangular bead/amulet, flat sides; figurative design (bird of prey, snake?, scorpion/centipede?)	
Dza-26	SC-D-16	Grave 29	AIS	A, B, E (dr.): FK, KK	Askarov 1977, Pl. 55, 20; A. Šajdullaev 2018, Table 1, 3, 21	stone	15x15	Square bead/amulet, flat sides; figurative (caprine) and geometric (herringbone?) design	
Dza-27	SC-D-26	Tepe 5, settlement context	AIS	A, a, b (photo); A bis, A bis, D (dr.): CW, KK	Š. Šajdullaev 2009, Pl. 32, 6; A. Šajdullaev 2018, Table 1, 3, 1	stone	diam. 25	Round bead/amulet, flat sides; figurative design (lion; predator?)	
Dza-28	SC-D-29	Citadel Mound, settlement context	AIS	A (photo); A bis, B, D (dr.): CW, KK	Bendezu-Sarmiento/Mustafakulov 2009, M.51	stone	diam. 25	Round bead/amulet, flat sides; corroded	
Dza-29	SC-D-34	Tepe 4, Burial 8	AIS	A, B, D (dr.): DH, KK	Brunet 2013, fig. 1, 12; Kaniuth 2014, fig. 6, 6	frit	diam. 22	Round bead/amulet, flat sides; geometric (cross) / figurative (snake) design	
Dza-30	SC-D-42	Tepe 6, settlement context	???	A, B, D (dr.): CW, KK	Askarov & Širinov 1993, fig. 50/1, 1; Širinov 2002, fig. 46/A, 1	gypsum	diam. 18	Round bead/amulet, flat sides; geometric (dots) and figurative (snake?) design	
Dza-31	SC-D-50		???	A, C, F (dr.): CW, KK		limestone	8x10x12	Prism-shaped bead/amulet; geometric design	
Dza-32	SC-D-51	Tepe 4, Burial 7	AIS	A, B, C, D, E (dr.): UJ, KK	Kaniuth 2006, no. 34; Kaniuth 2014, Fig. 6, 5	metal	13x20	Prism-shaped bead/amulet (triangular); corroded	
p. 494–495 PINS with compartmented head, metal									
Dza-33	SC-E-06	Tepe 4a, Burial 545	RMS	A, E (dr.): UJ, KK	Askarov & Abdullaev 1983, Pl. 32, 5; Kaniuth 2006, no. 143; A. Šajdullaev 2018, Table 1, 3, 26	metal	21x19	Pin with compartmented head; figurative design (goat)	
Dza-34	SC-E-07	Tepe 4a, Burial 642	HMT 287-002	A, E (dr.): UJ, KK	Askarov & Abdullaev 1983, Pl. 32, 9; Kaniuth 2006, no. 152; A. Šajdullaev 2018, Table 1, 3, 27	metal	diam. 20	Pin with compartmented head; 8-petalled plant design	
Dza-35	SC-E-08	Tepe 4a, Burial 419	RMS A517-009	A, E (dr.): UJ, KK	Askarov & Abdullaev 1983, Pl. 34, 1; Kaniuth 2006, no. 150; A. Šajdullaev 2018, Table 1, 3, 28	metal	diam. 25	Pin with compartmented head; 6-petalled plant design	

Dza-36	SC-E-09	Tepe 4a, Burial 192	RMS	A (photo); A bis, E (dr.); UJ, KK	Askarov & Abdullaev 1983, Pl. 34,2; Kaniuth 2006, no. 147; A. Šajdullaev 2018, Table 1,3,29	metal	diam. 22	Pin with compartmented head; 6-petalled plant design
Dza-37	SC-E-10	Tepe 4a, Burial 340	RMS A517-006	A, E (dr.); UJ, KK	Askarov & Abdullaev 1983, Pl. 34,8; Kaniuth 2006, no. 148; A. Šajdullaev 2018, Table 1,3,30	metal	diam. 23	Pin with compartmented head; 6-petalled plant design
Dza-38	SC-E-11	Tepe 4a, Burial 403	HMT	A, E (dr.); UJ, KK	Askarov & Abdullaev 1983, Pl. 35,4; Kaniuth 2006, no. 149; A. Šajdullaev 2018, Table 1,3,31	metal	diam. 22	Pin with compartmented head; 8-petalled plant design
Dza-39	SC-E-12	Tepe 5	RMS	A, B, E (dr.); UJ, KK	Kaniuth 2006, no. 153	metal	diam. 19	Pin with compartmented head; 8-petalled rosette design
Dza-40	SC-E-13		RMS A517-12	A, E (dr.); UJ, KK	Kaniuth 2006, no. 144	metal	diam. 27	Pin with compartmented head; 7-petalled rosette design
Dza-41	SC-E-14		RMS A517-27	A, E (dr.); UJ, KK	Kaniuth 2006, no. 145	metal	diam. 20 (re-constructed)	Pin with compartmented head; 7-petalled rosette design
Dza-42	SC-E-15		HMT 287-003	A, E (dr.); KK	Askarov & Abdullaev 1983, Pl. 45,1; Kaniuth 2006, no. 146	metal	16x16	Pin with compartmented head; rosette design (4 circles)
Dza-43	SC-E-16	Tepe 4a, Burial 513	RMS A517-010	A, E (dr.); KK	Kaniuth 2006, no. 151	metal	diam. 19	Pin with compartmented head; 8-petalled rosette design
Dza-44	SC-E-17	Tepe 5	MSH	A, E (dr.); UJ, KK	Askarov & Širinov 1993, Pl. 59/B.13; Kaniuth 2006, no. 154	metal	diam. 16	Pin with compartmented head; 6-petalled rosette design

BUSTAN**p. 495: Bus-1 to Bus-3**

CISI no.	Reg.no.	Exc. no. / Find data	Museum	CISI drawings	Publications & references	Material	Size	Additional information
<u>p. 495 STAMP SEALS, stone</u>								
Bus-1	SC-C-18	M.126-10; Tepe 6, Grave 126	UMS	A, B, D: UJ, KK	Avanesova 1997, fig. 2,2; Kaniuth 2006, no. 35 (wrongly labelled as metal); Avanesova 2016: 47, Pl. 16,10, photo XV,2	gypsum	diam. c. 28	Rosette stamp seal
<u>p. 495 BEADS/AMULETS, stone</u>								
Bus-2	SC-D-08	M.121-04; Tepe 6, Grave 121	UMS	A, B, D: UJ, KK	Avanesova 2016, fig. 15,4, photo XIV,10	stone	27x22	Prism-shaped bead/amulet (stepped triangular); figurative design (tree?)
Bus-3	SC-D-33	M.054-10; Tepe 6, Grave 54	UMS	A, D, D bis: UJ, KK	Avanesova 2016: 284, Pl. 7,10	lazurite	diam. c. 13	Disc-shaped bead/amulet with two surfaces; geometric (?) design