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# A GRAVE OF THE HALIL RUD VALLEY (JIROFT, IRAN, CA. 2400-2200 BC): STRATIGRAPHY, TAPHONOMY, FUNERARY PRACTICES

BY

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**Abstract:** We present the excavation of a grave at Mahtoutabad, near Konar Sandal South, Kerman, Iran, one of the protohistoric cemeteries plundered in the Jiroft area since 2001. This grave, at present, is the only scientifically excavated and published burial of the Bronze Age urban civilization of the Halil Rud valley, famous for the outstanding quality of its looted chlorite artefacts. Among the furnishings of the grave were animal bones and food offerings, ceramics, and stone and copper items. The objects set the grave in a coherent cultural and chronological framework, around 2400-2200 BC.

Micro-stratigraphic recording provided information on the funerary practices. These latter included notably the consumption of the meat of an ovicaprine. As different parts of the animal were found in different locations of the stratified mortuary structure, the feast can be synchronized with different steps of the funeral and burial processes. A re-opening of the grave, for shifting part of the skeleton to a different, secondary burial, remains unexplained. Considering the effects of a wide range of post-depositional processes, we explore possible symbolic implications of the grave's spatial patterns<sup>1</sup>.

**Keywords:** Halil Rud civilization, Konar Sandal South, Jiroft cemeteries, Mahtoutabad, taphonomy, micro-stratigraphy

## 1. Introduction

As widely reported (Madjidzadeh 2003a, 2003b, 2004 and 2008; Perrot and Madjidzadeh 2003 and 2004 and Madjidzadeh & Pittman 2008), the

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destruction since 2001 of several ancient cemeteries in the valley of the Halil Rud (Kerman, Iran: Pl. 1) flooded the antiquarian market with thousands of artefacts in carved chlorite, alabaster, copper and other materials (Aruz 2003; Madjidzadeh 2003c; Piran and Hesari 2005 and Piran and Madjidzadeh 2013). In a subsequent rescue operation, some undisturbed graves were excavated by H. Choubak of the Iranian Centre for Archaeological Research (ICAR) in the cemetery site of Riganbar, near Konar Sandal South (hereafter KSS), while Y. Madjidzadeh, between 2003 and 2009, directed an international project centred in major ancient settlement areas near the small village of Konar Sandal.

During the last field campaign, in January-February 2009, the authors of the present article found an undisturbed burial in Mahtoutabad, another looted cemetery of the Halil Rud culture (Pl. 2) about 1400 m northeast of KSS (Pl. 3 a and b). The graveyard occupied an area inhabited for good part of the 4<sup>th</sup> millennium BC. Occupations were labelled Mahtoutabad I (ca. 4100-3700 14C cal. BC; Vidale and Desset 2013), II (ca. 3700-3400 BC) and III (ca. 3400-3000 BC; Desset *et al.* 2013).

Considering the materials dumped or lost by the looters, the graveyard occupied at least 6 ha (ca. 400 × 150 m; see Pl. 4). The same materials show that it was used from the 25<sup>th</sup>-24<sup>th</sup> to the 23<sup>rd</sup>-22<sup>nd</sup> centuries BC, Mahtoutabad IV in our periodization. The grave we excavated was catacomb-like, with a vertical access pit and a lateral dug-out chamber, like those of other contemporary cemeteries of the Iranian Plateau and central western Asia such as Shahr-i Sokhta or Gonur Depe. At the time, the bed of the Halil Rud was probably located 2.5 km W of the current one (Fouache *et al.* 2005: 115 and Fouache 2008/2012).

We will describe the discovery of the grave (part 2), its micro-stratigraphy and transformations in time (parts 3 and 4), then the possible spatial symbolic implications of the burial process (part 5). Finally we will present the grave furnishings and their chronological implications (part 6).

## 2. Discovery

In 2004, one of the authors (M. Vidale) was appointed by Y. Madjidzadeh to join his team and excavate the heavily plundered graveyard of Mahtoutabad. In the winters of 2006 and 2007, Vidale dug there trenches I-IV, clearing many pits of the illegal excavators and sieving debris, trying to identify patches of the original stratigraphy and searching for undisturbed

burials<sup>2</sup>. These latter were not found, except, in the south-eastern corner of the trench (Pl. 5), an ancient pit containing the secondary partial interment of a cranium and scattered post-cranial bones. It was named Grave 1. The local deposits of silty clay, completely dried up by the extensive network of shafts and interconnected, collapsed tunnels that had devastated the site, were not very informative. At the end of November 2006, the main trench was enlarged to the north, removing entirely the robbers' pits and exposing the little that was left of the lowermost deposits (Pl. 5).

In January - February 2009, M. Vidale and N.A. Soleimani co-directed a final campaign, and discovered a late 5<sup>th</sup>-early 4<sup>th</sup> millennium BC oval hut (Mahtoutabad I period; Vidale & Desset 2013) and a secondary deposit with a large amount of late 4<sup>th</sup> millennium BC Uruk-related pottery (Mahtoutabad III period; Desset *et al.* 2013). Near the eastern wall of trench I/IV came to light an undisturbed burial of the 3<sup>rd</sup> millennium BC (Grave 2) which is the subject of the present paper (Pl. 6; see Vidale & Desset 2013: 236-239 for a preliminary report). Although the bones were not examined by a physical anthropologist, there is the possibility that the human remains found in Grave 1 actually came from Grave 2. In fact, this latter was re-opened, subtracting the cranium and the upper part of the skeleton, and the missing remains seem to match those found in Grave 1.

### 3. Stratigraphy: burial practices and taphonomy

Grave 2 had been casually spared by illegal diggers because it laid 20 cm below the floor of an illegal shaft. The burial was stratigraphically excavated by our team in about 15 days of work in January - February 2009. The flow chart of Pl. 7 presents a list of 21 detected events, based upon archaeological features located in the sequence of the maps of pls. 8, 11 and 12. In the following, such events are described and labelled with Arabic numbers, 1 to 21, in square brackets; while the objects found in the grave are listed with letters (from a to n). Keeping in mind that the upper deposit of the burial had previously been partially truncated by the recent looting pit, the 21 events may be grouped in five main stages of a prolonged funerary process.

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<sup>2</sup> See Vidale 2015: 17-19 and Pl. 1a/1b/1c, 2 and 3 for chlorite and ceramic fragments recovered in the looting debris on surface.

The first stage of the funeral materially reflected in the gravesite (Pl. 8), includes the excavation of a vertical shaft [1], whose bottom was presumably located 2-2.5 m below the trampling horizon of the 3<sup>rd</sup> millennium graveyard and 3.5-4 m below the current surface<sup>3</sup>, and the killing of an immature ovicaprine (it was not possible to identify specifically a sheep or a goat), whose lower limbs were put in the bottom. The bones of the animal's legs, including the hooves, were found undisturbed, in primary context of deposition, surrounded by the dark grey halo of the soft parts of the severed limbs that had decomposed *in situ*. In addition there was a small pottery jar (vessel f), standing against the northern wall of the shaft. Both the bones and the jar, event [2], were immediately covered by filling the bottom of the shaft with a layer of re-deposited silty clay ca. 20-30 cm thick, event [3]. We interpret the animal limbs and pot as a symbolic opening offer of "food and drink" (Pl. 9). Because at the time of this offer there was no grave, since the destined occupant was elsewhere, it is possible that these preliminary offers were meant not for the incoming dead, but for one or more supernatural entities of the underworld.

In a second stage (back to Pl. 8), people re-entered the partially filled shaft and dug on its eastern side a rectangular mortuary chamber (ca. 1.5 m N-S; 1.25 m W-E) [4], whose four sides were roughly oriented to the cardinal points. The pit cut through the edge of the partially filled shaft, damaging the mouth of the buried jar f deposited in event [2]. The way the vessel was impacted and cut on the shoulder (Pl. 9, top right) demonstrate that when it was hit by the digging tool, it was then supported by sediment (being buried together with the animal's lower limbs). The missing sherds were not found and must have been dumped outside the shaft.

The bottom of the chamber was probably covered with a mat [5], appearing as a continuous film of decayed woven vegetal fibres on the floor. Then the chamber received the furnishings and the body of the occupant. Among the first ingressions range the lumbar vertebrae and complete tail of an ovicaprine [6] oriented W-E, the vertebrae in primary connection. If the lower limbs are the non-edible, bony parts, the tail might have been the fat, the most palatable one (possibly of the the same animal). Between the hooves and the tail, we have ideally to place the cooking and consumption of the rest of the meat at the funerary feast. This must have taken place

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<sup>3</sup> The original trampling level of the graveyard was identified ca. 1.5 m below the present surface.

after the access shaft [1] had been dug, and before the excavation of the mortuary chamber [4]. Vessel d certainly entered the chamber first, in event [7], before the prepared body [8] deposited with vessel c between the lower legs<sup>4</sup> and with beads m and n near the pelvis, probably part of a belt<sup>5</sup>. Copper vessel k, holder of a yellow pigment and closed with a wooden lid (see below; Pl. 16.k), might have been inserted at the same time.

A patch of clay reddened by fire with ash and a cluster of charcoal bits, event [9], were evidently taken from an oven and ritually placed over the mat of the grave's floor. This small layer was found just S-W of the tail, under a group of ceramics (vessels a, b, e) including also a coarse cooking pot (vessel h). Vessel a contained some fish, probably Persian Gulf shark or ray, whose vertebrae were found near its downturned mouth (Pl. 10) (Marjan Mashkour, personal communication). The placing of such kitchenware and oven residues on the grave mat was named event [10].

The deceased [8] was laid in flexed position on her/his right side, oriented N-S. Originally, the hands were probably clutched in front of the face. Vessel j, a painted canister jar, and alabaster vase l containing in the bottom some red ochre-looking pigment (see below, Pl. 16.l), for simple reasons of space, were almost certainly deposited after the body in event [11]. The status of vessel i, a painted spouted globular jar, is uncertain, because it was found in a secondary context, a later manipulation of the gravesite (see the third stage below). However, given its technical and formal affinity with vessel j, vessel i might have been also originally placed near the head of the deceased.

In the following event [12], the mortuary chamber was sealed by fixing on its opening a light screen, possibly another mat, supported and fixed by a row of wooden logs, 3-4 cm in diameter. While digging, the winding row of the moulds of these logs was followed and unearthed for great part of the chamber's opening. This perishable, ephemeral screen is a variant of the more common mud brick walls that at Shahr-i Sokhta, Gonur Depe, Shahdad and other sites separate the chambers of "catacomb graves" from their vertical access shafts<sup>6</sup>.

<sup>4</sup> This demonstrates the probable absence of a continuous shroud.

<sup>5</sup> In Shahr-i Sokhta also, beads were also found frequently nearby the pelvis of the deads (Piperno 1977: 143).

<sup>6</sup> Most probably, the graves that at Shahr-i Sokhta were and are considered as "bipartite graves" are more simply collapsed catacomb-like graves, or graves of the same construction recognized and mapped only at the depth of the main depositional floors. It is clear that in

In a third stage (Pl. 11), a layer of highly fragmented animal bones (ovicaprine mandible and pieces of ribs) and a large jar<sup>7</sup> were set in front of the screen [12]. This event [13] — a final deposition of a standing jar paired by animal bones — seems to replicate, in terms of “food and drink”, the offer made at the first shaft, i.e. event [2]. Thus the beginning and the end of the burial sequence appear to have been punctuated by the same ritual act. Later, the grave was finally closed by filling the whole shaft with the excavated silty clay (event [14]).

After closure, the chamber was far from static. Many changes took place soon after interment, to be described in terms of taphonomic processes. The earthen filling of the shaft started to crush and bend inwards the light screen of the chamber’s entrance. Some of the vessels placed beside the dead were turned down inwards (for example, vessels a, e, j and h), pouring out the residual contents. In the empty space of the chamber, the decomposition liquids of the stomach corroded the surface of alabaster vessel l, which touched the belly of the occupant (see Pl. 16.l, the triangles near the section); meanwhile, vessel j was squeezed between the inflated body and the bent screen. The lumbar vertebrae were probably disjoined by the explosion of the colon (Duday 2005: 67). The walls started to cave in giving way to small heaps of silt that covered part of the furnishings, and started to occupy the bodily volumes caved in by decomposition [15].

Then, event [16], the vault collapsed in large, heavy lumps of yellowish silt. The left tibia of the occupant, resting directly above vessel c, shattered in two fragments breaking at the same time the rim of the bowl. The same violent impact turned the finger bones of the left foot of ca. 180°, but as the same fingers retained most of their weak joins (Duday 2005), the fall probably happened soon after the primary interment. While the right femur broke and flattened to the floor vessel d, a heavy collapse also invested the coxal bones. These latter split into two large parallel fragments that, supported by the eastern wall of the chamber, retained their original vertical setting. The head of the femur did not lose the articulation with its

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many cases the shaft was not identified by the excavators as such, or its base was misidentified for part of the mortuary chamber. The archaeological label of “bipartite grave”, at present, should be rejected (contra Piperno & Tosi 1975: 189 and Sajjadi 2003: 26).

<sup>7</sup> This vessel had been subtracted after 2006 during our absence and only its imprint remained: see also events [20] and [21] in the flow chart of Pl. 7 and in the following text.

acetabulum. As the patella, in spite of the impacts, remained in its place, it is possible that the body, at the moment, was still protected by cloth<sup>8</sup>.

#### 4. Stratigraphy: Re-opening and secondary burial (fourth stage; Pl. 11)

The round pit [17] and its filling [19] were identified on the cleaned surface of the trench since the beginning of the excavation (visible in Pl. 6a). Pit [17] had been dug after the collapse of the vault, from the partially filled access shaft and/or thanks to a marker on surface, precisely where the head of the occupant was expected to be. The cranium, hands, clavicles, scapulae, thoracic vertebrae and part of the upper rib cage were removed and brought, as we suspect, to the irregular secondary burial of Grave 1 (Pl. 5; see above). The tool used for digging [17] was probably a kind of copper pick-adze: it left the imprint of its horizontal blade on the wall of vessel j, casually hit at the lower edge of the pit (see Pl. 13, top). At that time, vessel j probably stood unbroken and got crushed only later, impacted from above, when sherds of the mouth sunk into the base (Pl. 13, bottom). This showed that the impacts of the falling vault were probably prolonged in time.

During this second access to the mortuary space, the bones of the fore-arms were truncated, the cranium was removed losing some fragments, and at least two vessels, i and g, were manipulated and displaced. Vessel g, belonging or not to the pre-existing furnishings, was deposited above and among the lumps of the fallen ceiling in event [18]. Similarly, the fine globular painted spouted vessel i remained in the fine, homogeneous matrix of [19], the final filling of the re-opening pit. In the same filling were also found sherds, a fragment of a cranium, pieces of copper slag and the astragalus or talus bone of an ovicaprine. The reasons or possibly the symbolism of this intervention, meant to re-locate the skull of the deceased, are unknown. The access shaft [1] and the reopening pit [17] had been certainly refilled, but the truncation of the uppermost deposits left no evidence of this.

After abandonment, the grave was certainly affected by enduring cycles of waterlogging. Like in other disturbed funerary assemblages at Mahtoutabad, copper-based objects changed into powdery, lumps of chlorides and carbonates. Nonetheless, we could reliably reconstruct the shape of the copper alloy vessel k (see below; Pl. 14k).

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<sup>8</sup> But see footnote 4.

In a final fifth stage (Pl. 12), a very recent pit [20] partially destroyed the grave fillings to remove the big jar deposited after the closure of the chamber in event [13]. Its location was still recognizable through an imprint in the filling [14]. The jar was spotted and removed from the excavated surface, and its pit was filled with ancient sherds and pieces of plastic bags [21].

## 5. Spatial symbolism

Looking at the map of grave 2, although the upper part of the skeleton and presumably part of the furnishing there placed are lost, there is a possible allusive order. The fine painted canister jar *j* was at the height of the hands, and although the original location of the spouted vessel *i*, displaced in episodes [17]-[19], is unknown, it might have been placed nearby. If so, the two finer painted vessels found in the grave, probably used in pouring and serving beverages and clearly distinguished from the other plain pots, were placed in front of the face. The talus bone, possibly used in games, rituals or for an other unknown activity, was also found there, although, like vessel *i*, in a secondary context.

At mid height, between chest and the joined feet, were two common bowls, *c* and *d*, but also two cosmetic containers (the alabaster vase *l* with a red pigment and the copper one *k* with a yellow substance; see Pl. 16) and two beads, all items linked to personal ornamentation.

Close to the feet were a coarse cooking pot (*h*), fired clay lumps, ash and charcoal taken from a fireplace, a cheap restricted jar for liquids (*e*) and two common serving bowls (*a* and *b*), containing decayed food and parts of fish.

Eventually, the spatial patterning of the furnishings in the mortuary chamber may reflect two aspects:

- the identity of the deceased in the middle with cosmetic containers (*l* and *k*) and personal ornamentation (*m* and *n*);
- and the relation of the survivors' group with the dead through the signs of the funerary banquet. Beverages serving pots (vessels *i* and *j*) were placed near the head, while cooking and serving vessels (*a*, *b*, *e* and *h*) accompanied the lower limbs. To the ceramics should be added the animal's body, present in the grave mainly through its extremities (limbs, tail, mandible), suggesting *in absentia* the collective performance of a funerary meal.

## 6. Grave furnishings and chronological considerations

Five samples of bones from destroyed graves underwent 14C tests at CEDAD, Lecce, Italy, but unfortunately collagen was not preserved, probably because of the water table fluctuations. However, the objects found in Grave 2 (Pls. 14 and 15) belong to known archaeological repertoires, and may be compared to ceramics and other artefacts of nearby contemporary sites. The involved cultural-chronological framework dates to ca. 2500/2400-2200/2100 BC. Most of the parallels (see Pl. 1) are with sites in Kerman (Halil Rud valley, Tepe Yahya and Shahdad), Baluchistan (Bampur, Khurab, Chegerdak, Espidej, Damin, Miri Qalat / Shahi Tump), Sistan (Shahr-i Sokhta) and in United Arab Emirates and Oman (particularly Tell Abraq, Hili, Umm an-Nar). The grave furnishings also confirm that, in the second half of the 3<sup>rd</sup> millennium BC, material assemblages from Kerman were clearly different from those of Fars (Kaftari period).

- Vessel a (Pl. 14.a and Pl. 15.a). Truncated cone-like bowl with a simple rounded rim. H. 9,5 cm, max. diam. 17.6 cm. Medium to coarse ware with a sandy component, light reddish grey (2.5Y 7/1). Wheel-thrown, detached from the wheel's disk with a cord. The interior bottom of this bowl contained a dark organic substance; outside, the edge was in contact with a fall of fish vertebrae scattered on the grave's floor.
- Vessel b (Pl. 14.b and Pl. 15.b). Small truncated cone-like bowl with a simple rounded rim. H. 7 cm, max. diam. 13 cm. Medium-coarse ware with sand, brown (2.5Y 6/3). It was fastly thrown on a potter's wheel, from which it was detached by cutting the base with a cord.
- Vessel c (Pl. 14.c and Pl. 15.c). Truncated cone-like bowl with a simple rounded rim. H. 10 cm, max. diam. 17 cm. Medium ware, including sand with abundant tiny mica sheets, reddish grey (2.5Y 7/2). Wheel-thrown, detached from the wheel's disk by pulling a cord.
- Vessel d (Pl. 14.d and Pl. 15.d). Small truncated cone-like bowl with a rounded rim, slightly projecting inwards. H. 7 cm, max. diam. 13.7 cm. Medium-coarse ware, including sand, orange (7.5YR 7/6). Fastly thrown on a potter's wheel, detached from the wheel's with a cord.

Vessels a, b, c and d all belong to the 'standard bowls' found in large amounts in KSS (Madjidzadeh & Pittman 2008: 93 and fig. 26) as well as in graves located near Qaleh Koutchek tepe, 6 km northwest of Mahtoutabad graveyard (Y. Madjidzadeh, personal communication). Few sherds of

this type were found also in Tepe Yahya (phase IVB5; Potts 2001: fig. 4.34.E and F and fig. 7.9 L). The type, apparently a cheap food container, is not reported outside the Halil Rud valley, but it is quite abundant in the contemporary assemblages of southern Mesopotamia.

- Vessel e (Pl. 14.e and Pl. 15.e). Small restricted ovoid jar with a short everted rim. H 16.2 cm, max. diam. 14 cm. Coarse ware, tempered with coarse sand, light grey on surface (2.5Y 8/2) due to overfiring in slightly reducing conditions. Made rapidly but with confidence on the potter's wheel in a single technical step (the body's horizontal section is also oval). The outer base was thinned by turning.
- Vessel f (Pl. 14.f and Pl. 15.f). Small ovoid short-necked jar with a simple rounded rim. H 18 cm, max. diam. 12 cm. Medium coarse ware, with coarse sand and lime-like particles. Dull orange (5YR 7/4). Made on the potter's wheel, thinned by turning on the bottom. This vessel was deposited in the access shaft in event [2] (first stage), before the digging of the burial chamber.
- Vessel g (Pl. 14.g and Pl. 15.g). Small ovoid slightly restricted jar with subvertical rounded rim. H 15 cm, max. diam. 12 cm. Medium coarse ware, with coarse sand and abundant lime-like particles. Dull orange (7.5YR 7/4). Made on the potter's wheel, turned along the bottom. This vessel was probably deposited in the burial chamber (event [18]) after the reopening of the grave during the fourth stage.

Ovoid coarse jars similar to e, f and g are also known at Tepe Yahya (phase IVC1; Potts 2001: fig. 2.14.F) and Shahdad (Hakemi 1997: 568, type Aa and p. 704) as well as in some graves of Chegerdak (M. Heydari, personal communication) or in Shahr-i Sokhta (phase 5a; Salvatori & Vidale 1997: fig. 151) where it became one of the most common forms in phases 5B (*ibidem*, fig. 179) and 4 (*ibidem*, fig. 201). Some graves of Shahr-i Sokhta confirm that the earliest specimens appear in phase 5 (Piperno & Salvatori 2007: fig. 33, 6617; fig. 70, 6458; fig. 91, 6507; fig. 180, G38 Inf.1). The type however becomes gradually more common in phases 4 and 3 (*ibidem*, fig. 345, 6622; fig. 348; see in particular G. 131, 7127, but also 7126, 7135; some specimens from G. 205, fig. 424; best matches in G. 711, fig. 567, 7580; fig. 570, 7581, 7603; G. 712, fig. 573, 7637; G. 728, fig. 661, 8481, 8490; G. 731, fig. 687, 8060, and fig. 688, 8061, 8067; G. 734, fig. 702, 8108 and 8116; G. 751, fig. 767, 8543, all belonging to phase 3).

- Vessel h (Pl. 14.h and Pl. 15.h). Sturdy subglobular deep bowl with a rounded, slightly everted rim. Coarse ware with coarse sand and recognizable mica particles, dull orange (5YR 7/4). H 16.9 cm, max. diam. 18 cm. Built with a sequence of 6-7 coils, cursorily mounted, fashioned and thinned on the potter's wheel. It was very probably a cooking pot.
- Vessel i (Pl. 14.i and Pl. 15.i). Subglobular spouted vessel with everted rim and disk-like base, painted on shoulder with a row of fringed angles. A band of opposed segments is visible on the spout. H 14.2 cm, max. diam. 17 cm. Medium-fine ware, dull orange (5YR 7/3) painted greyish brown (5YR 4/2). Made on the potter's wheel and turned on the lower base, before applying the disk-base, equally thrown on the wheel. The spout was similarly made on the wheel and applied in a second time. This vessel was found in the filling [19] of the pit [17] (4<sup>th</sup> stage) and it is not sure if it belonged to the original furnishing of the grave.

Globular spouted plain or painted vessels, probably imitating metallic models, known in the Halil Rud valley (Madjidzadeh 2003c: 159) were found also in Shahdad (see for examples Hakemi 1997: 574, 575, 586 / Ed.9, 594 / Ej.10, p. 592 / El.12 in cemetery A and p. 702, vessel 4 for site D), in Chegerdak and Espidej (M. Heydari, personal communication) as well as in Bampur (period II; de Cardi 1970: fig. 21.125). Its absence in Tepe Yahya' records is probably accidental, while the type was probably not used in the Arabian peninsula and in Pakistani Baluchistan. Stein also found such a specimen during his survey in Fars (in Mung, in Bavanat county; Stein 1936: Pl. XX.21).

- Vessel j (Pl. 14.j and Pl. 15.j). Subcylindrical necked jar with concave neck and everted rim. On the shoulder appears a band of hatched triangles; below, another band or frieze filled with alternating half-circles, hatched vertically. H 14.9 cm, max. diam. (below the shoulder) 15.6 cm. Very fine orange ware (5YR 7/6) originally slipped red and painted dark grey, but slip (orange, 2.5YR 6/6) and pigment (now 5YR 5/1, brownish grey) have both, to a great extent, vanished; the vessel, in fact, was well crafted on the potter's wheel but fired at rather low temperatures.

Vessel j corresponds to the well-known canister jars found in Konar Sandal South and the Halil Rud valley (Madjidzadeh & Pittman 2008: fig. 24 and Madjidzadeh 2003c: 162; and many unpublished examples), in Tepe Yahya (Potts 2001: fig. 7.7.D), in Bampur (period VI; de Cardi

1970: fig. 43.481; see also an incised grey ware canister: Stein 1937: Pl. XXXI.11), Chegerdak (M. Heydari, personal communication), Damin (Tosi 1970: fig. 5 and 6), Shahr-i Sokhta (Piperno & Salvatori 2007: Grave 131, 7130, fig. 379, dated to Period III, phase 3; and in the Burnt Building, period IV, see Tosi 1983: fig. 8), Tepe Graziani (H. Fazeli, personal communication) in Makran (Miri Qalat IIIB/IIIC; Besenval & Didier 2004: 169 and fig. 12.6, 13.7 and 16.6) as well as in the Arabian peninsula (in Tell Abraq, Hili and Umm an-Nar among others; Bibby 1970: 300-301, Potts 2003: 7-8 and fig. 9, 10 and 13 and 2005, p. 72-74; moreover, the canister jar found in Tell Abraq comes from a grave dated with C14 between 2197 and 2036 BC). The best comparisons with the vessel of the grave 2 of Mahtoutabad are found at Shahdad (Hakemi 1997: 588.Ef.6 and p. 595.Ek.9), in particular the band of alternating half-circles, hatched vertically under the shoulder.

Plates 17 and 18 show 46 canister jars, which can be distinguished in different sub-groups. In specimens 1 to 5 (Pl. 17), shoulder and profile are rounded, and they bear friezes of alternating hatched semi-circles. Friezes with triangles between bands of triangles oriented to the left are the main designs in canister jars 6 to 12 (Pl. 17), while the central pattern represents stylized palm trees with two or three rows of branches (Pl. 17, n° 20-22), sometimes alternating with big hatched “M” signs (Pl. 17, n° 15 to 19). On canister jars 23 to 30 (Pl. 18), one sees straight horizontal bands of stylised ibexes separated by lines, while vases 31 to 34 (Pl. 18) belong to the incised grey ware group with door or geometrical motives (possibly imitating chlorite models). Jars 40 and 41 (Pl. 18) present a similar geometrical pattern while vessels 42 to 46 (Pl. 18) were decorated with animal patterns. Vessel 46 is exceptional since it is a chlorite version, decorated with several lines of scorpion motives, of the common ceramic canister jar.

- Copper or bronze vessel k (Pl. 14.k, Pl. 15.k and Pl. 16.k). This container<sup>9</sup>, almost entirely turned to powder by corrosion, was carefully micro-excavated and graphically reconstructed in the mission’s lab. It was a hemispherical restricted bowl on a ring-like foot, with a S-shaped contour. H 10.5 cm, max. diam. 16 cm. Another metal object nearby had

<sup>9</sup> XRF qualitative analyses carried out at ISCR, Rome, on ca. 30 tiny fragments of corroded, smashed objects in copper-bronze from the robbers’ dumps of Mahtoutabad, indicate the use of a very standardized Cu-Pb-As alloy. The same alloy might have been used for the vessel in question (Desset & Vidale, ongoing research project).

decayed beyond possibility of recognition. Vessel k was originally covered with a thick wooden lid (the section of Pl. 16.k shows how this upper cover was smashed and pushed inside by the collapse). Small crumbles of the lid were observed at an ESEM revealing the distinctive microstructure of wood. Although the content was partially dispersed by the impacts and probably by repeated exposures to the local water table, a bright yellow substance was evidently contained in the interior, possibly a cosmetic<sup>10</sup>.

No pertinent parallel was found for this item, even not in the abundant metallic vessels corpus from Shahdad.

- Stone vessel l (Pl. 14.l, Pl. 15.l and Pl. 16.l). Subcylindrical carinated vessel made of a yellowish-white alabaster (banded travertine) with white and transparent contrasting veins. H 9.5 cm, max. diam. (at the mouth) 12.9 cm. The excavation of the interior sediments revealed, near the inner bottom, some flat lenses of a bright red material, possibly what was left of a cosmetic (unfortunately, not available for analysis). The surface of this vessel deposited in contact with the belly of the deceased was corroded by decomposition organic liquids.

This type of alabaster bowl (type IIa-IIb in Casanova 1991; see Casanova 1991: fig. 2, Pl. 2, p. 18 and 32) was already known in the Halil Rud valley (Piran & Hesari 2005: 54, n° 27 and p. 63, n° 48 and Piran and Madjidzadeh 2013: 54/107), in Khurab (Stein 1937: Pl. VI Khur.E.i.252), in Tepe Hissar (phase IIIC, grave CH 64X-2; Schmidt 1937: Pl. LIX/H3615 and p. 213, fig. 125) and in Southern Bactriana (Pottier 1984: Pl. 25, n° 196). It also reminds some artefacts found in Tepe Yahya (Lamberg-Karlovsky & Tosi 1973: fig. 93; artefacts attributed to Period VA but not published in Beale 1986), Shahdad (Hakemi 1997: 608-609), Shahr-i Sokhta (Tosi 1968: fig. 20.b and Sajjadi 2003: fig. 33.h / fig. 35.g), Altyn

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<sup>10</sup> Minimal fractions of this substance could be observed at the same ESEM-EDS and preliminarily analyzed through XRD at ISCR in Rome. While XRD patterns were not immediately informative (showing the presence of quartz, calcite and clay minerals from the local sediments, plus peaks of clinocllore), chemical spectra and elemental maps indicate that the yellow phase contained iron and traces of sulphur. In this light the bright yellow material within the vessel might have included jarosite or natrojarosite —  $\text{Na Fe}_3(\text{SO}_4)_2(\text{OH})_6$  — minerals available in the evaporitic formations of southern Baluchistan. Natrojarosite is sometimes found within alabaster vessels at Shahr-i Sokhta (Vidale et al. in press) where it was presumably used for cosmetic purposes.

Depe (late NMG IV and NMG V; Berezkin & Masson 2005: fig. 23, types 4A and 4B, n° 12-21), Gonur Depe (Sarianidi 2007: 111, fig. 193.c and fig. 195.a) and Ur (Wooley 1934: P179, U 8216, grave 159 and Pl. 246, types 64 and 66).

- Agate beads m and n (Pl. 14.m, Pl. 14.n, Pl. 15.m and Pl. 15.n). m is a long barrel-shaped bead (length 5.89 cm, max. diam. 1.62 cm, hole diam. 0.46 cm) made of a red and yellow banded agate with greenish stains. Because of these latter, it would better fall under the label of heliotrope, not the commonest semiprecious stone of the chalcedony group. Bead n is thinner and proportionally more elongated (length 2.51 cm, max. diam. 0.67 cm, hole diam. 0.2 cm). It is made of the typical, bright red carnelian with thin parallel white bands frequently found in the Eastern Iran Bronze age bead making activity areas.

## 7. Conclusions

The tepe of KSS is crowned by imposing mud-brick architectural remains, only partially exposed up to now. Other monumental constructions, walls or platforms were located around this elevated compound, together with well-built domestic dwellings. Semiprecious stones working debris, sometimes associated with discarded clay seal impressions, are abundant and a metalworking neighbourhood was located in the south-eastern extension of the settlement. As the site was never systematically surveyed, its actual extension is unknown. The site of Konar Sandal North, ca. 1,5 km N of KSS, was probably part of the same site complex although its upper layers are to be dated from the Iron age to the early historic period. In the light of P. Steinkeller's hypothesis, there is consequently little doubt that Konar Sandal was one of the leading Marhašean urban poles.

The Mahtoutabad cemetery was one of the graveyards of this important 3<sup>rd</sup> millennium BC settlement as well as another burial area found nearby the Iron Age to Parthian period Qaleh Koutchek Tepe (Azadi *et al.* 2012), 5.5 km N-W of KSS (Pl. 3.a). N.A. Soleimani excavated there several big catacomb graves, sometimes with a built chamber, probably already looted in antiquity but containing still some rich furnishings probably associating those graves to the Marhašean upper-class society. Nazmabad and Riganbar graveyards, a little further south of Konar Sandal, probably belonged to other settlements along the Halil Rud during the 3<sup>rd</sup> millennium BC. From

these examples, it seems that, in this valley, the funerary areas were clearly distinct from the urban centres, as happened in the contemporary early cities of the Jaz-Murian basin as well as in Shahdad, Shahr-i Sokhta, Mundi-gak and Gonur Depe<sup>11</sup>, probably reflecting a collective management of the death.

Given the generalized destruction of good part of the Halil Rud cemeteries, Grave 2, here discussed, acquires a peculiar meaning. Because of jars i and j, it is highly related and probably contemporaneous with graves 32, 34, 39, 72, 88 and 134 of Shahdad cemetery A (see Hakemi 1997: 187, 189, 200, 234-235, 250 and 293). Shahdad's Grave 39, in particular, contained a carved chlorite vessel in the Halil Rud style, strengthening the partial association between the cemeteries of the two sites.

Our data demonstrate that funerary meals can be reflected in Bronze age gravesites of the Iranian Plateau in an articulated way. The micro-stratigraphic dig and the taphonomic evaluation of the evidence, allowed us to re-trace a complicated set of prolonged events, some of which having a formal and quite likely ritual character, that probably involved at various level the community of the survivors. Both the opening and closing of the funerary chamber were accompanied by food and drink offerings probably related to a funerary feast in which meat and sea fish, imported in dried parts from the Persian Gulf shore, were consumed. After an unknown lapse of time, the grave was reopened and the upper skeletal parts were collected and brought to another location, in the frame of an unknown practice that involved also a further manipulation of the ceramic offerings.

Reconstructing this chain of events, and the performance of involved rituals of sorrow and death, required on our side relatively long times of excavation and discussion, and the humility of admitting one's limits in the face of the complexity of the record. In contrast, Bronze Age graves in Middle Asia are often considered in roughly synchronic contexts and static ideological frames, being consequently excavated by the dozens in each campaign with little stratigraphic attention. The lesson of Grave 2 is how much we are going to lose, even when a grave escaped the lootings, if we do not subject the most relevant questions to the test of stratigraphy.

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<sup>11</sup> As no grave was found in Tepe Yahya period IV, there was probably a small graveyard nearby. This situation contrasts with contemporary 3<sup>rd</sup> millennium BC sites such as Tureng Tepe, Tepe Hissar, Altyn Depe and probably Susa, where most of the dead were directly buried in the settlement, either in still occupied or abandoned areas.

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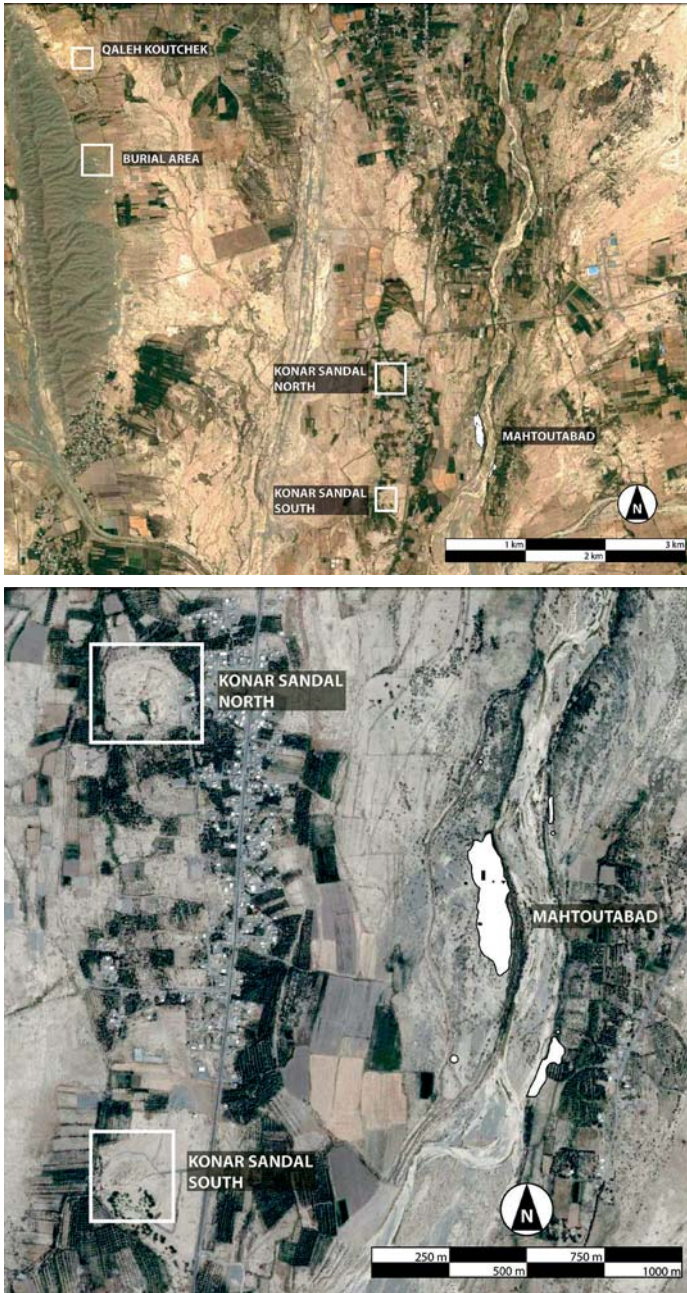
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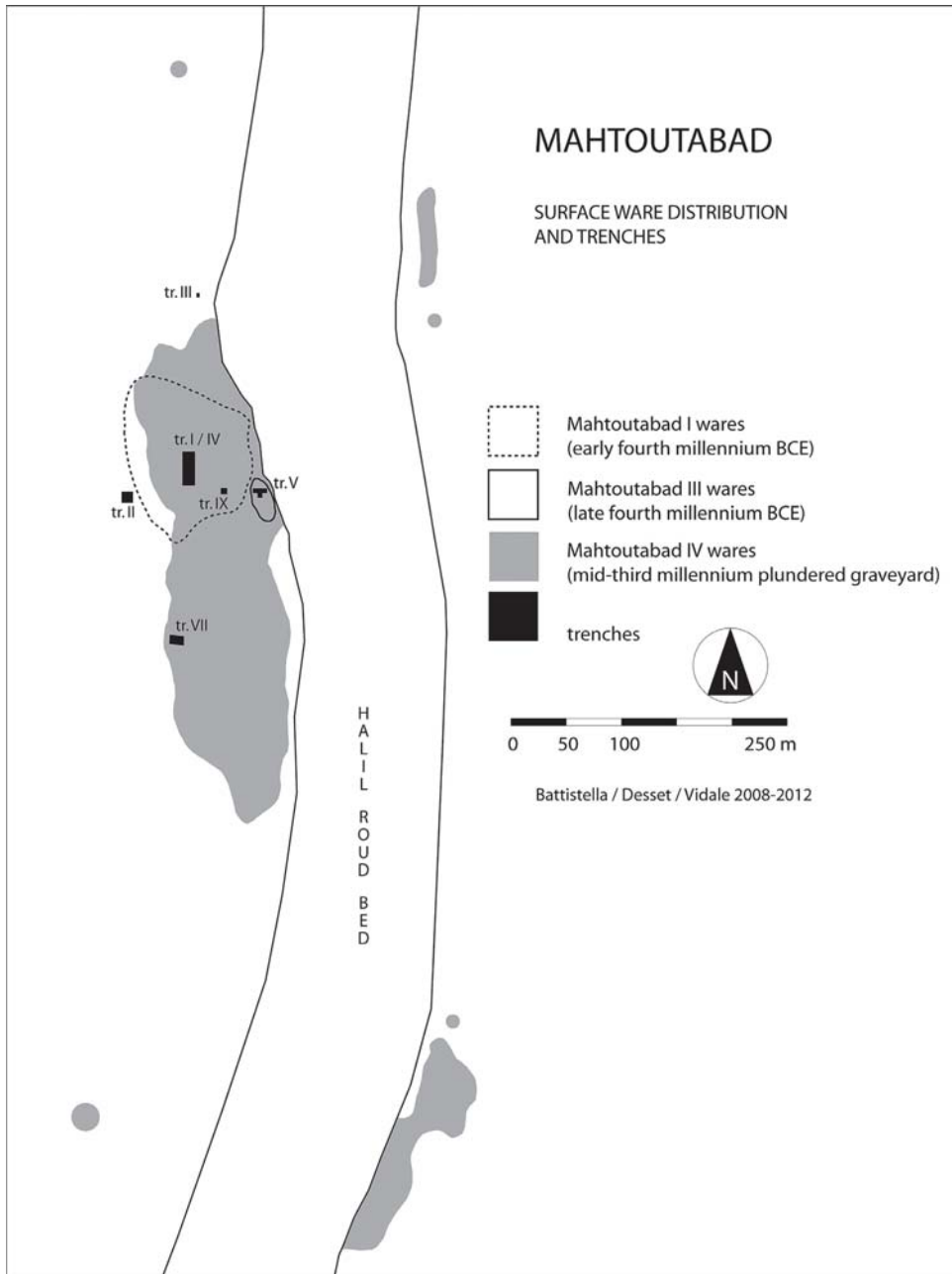
Pl. 1. Map of Iran with the sites mentioned in the text (drawing F. Desset).



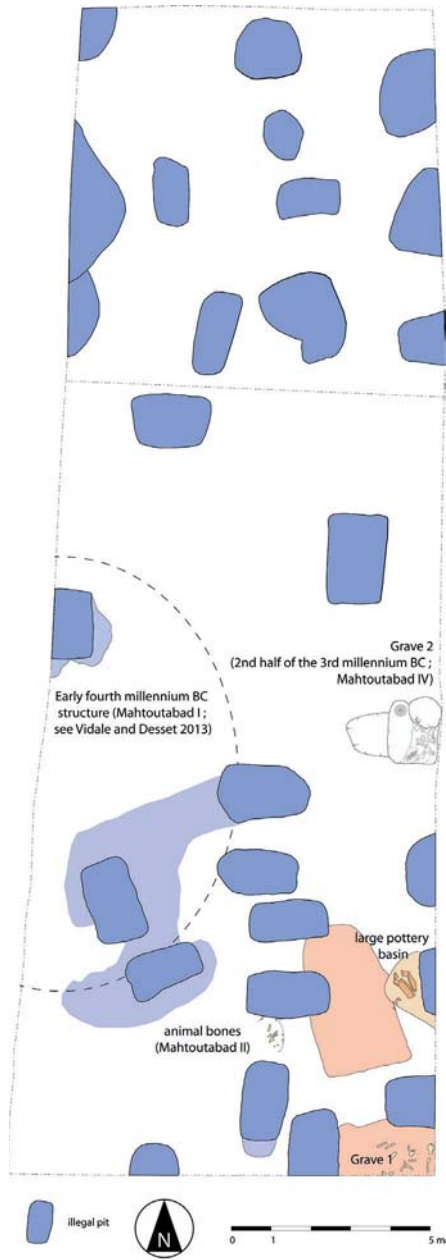
Pl. 2. Aerial view of the site of Mahtoutabad showing its very disturbed surface (courtesy HARP project).



Pl. 3a. General view of the central Halil Rud valley; b. The archaeological area of Konar Sandal, with the location of the Mahtoutabad looted site (both elaborated by F. Desset from Google Earth images).

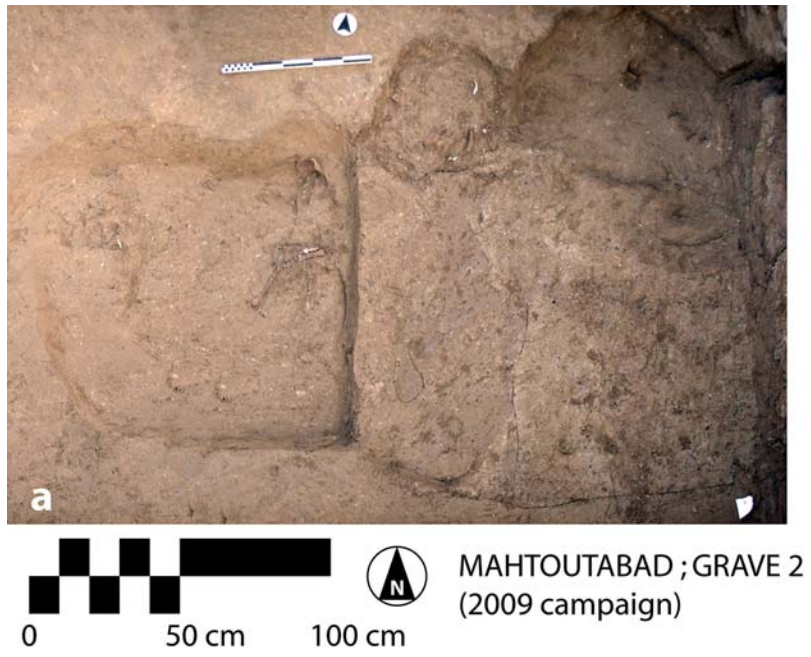


Pl. 4. Map of the Mahtoutabad site, showing the location of the excavated trenches, the original extent of the graveyard (Mahtoutabad IV) and the probable limits of the Mahtoutabad I and Mahtoutabad III deposits (drawing F. Desset).

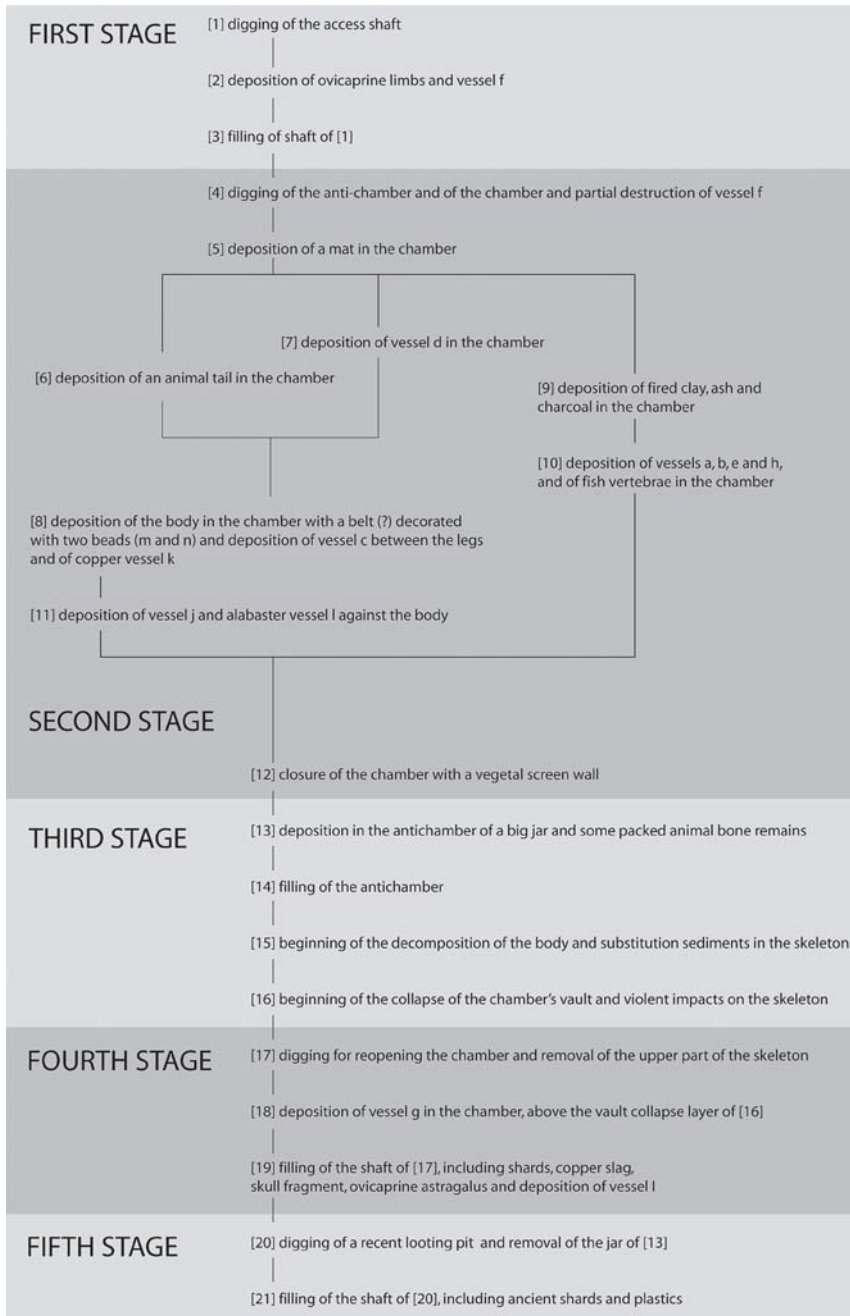


Mahtoutabad, trench I-IV  
January- February 2009 excavation

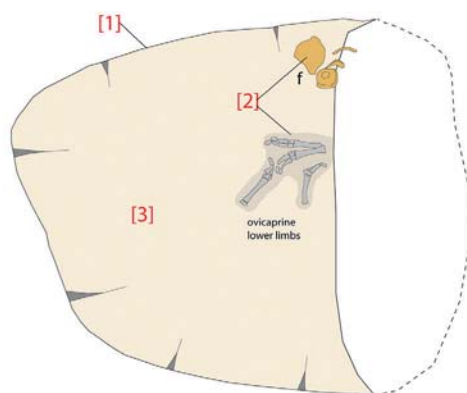
Pl. 5. Mahtoutabad, 2006–2009: map of Trench I-IV with the location of Graves 1 and 2 (drawing F. Desset).



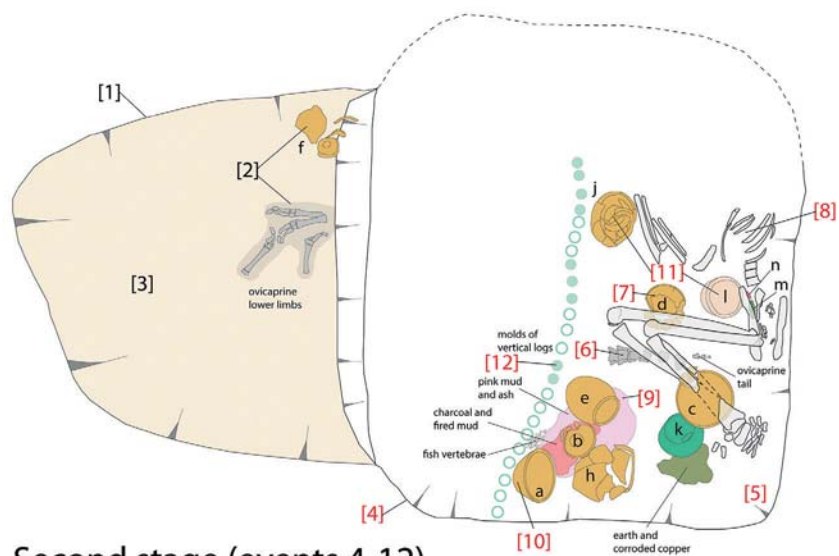
Pl. 6. Mahtoutabad, Grave 2; a. at the beginning of the excavation;  
b. at the end of the excavation (photographs by M. Vidale).



Pl. 7. Flow chart presenting the 21 detected archaeological events organized in 5 different stages (drawing F. Desset; for details, see the text).



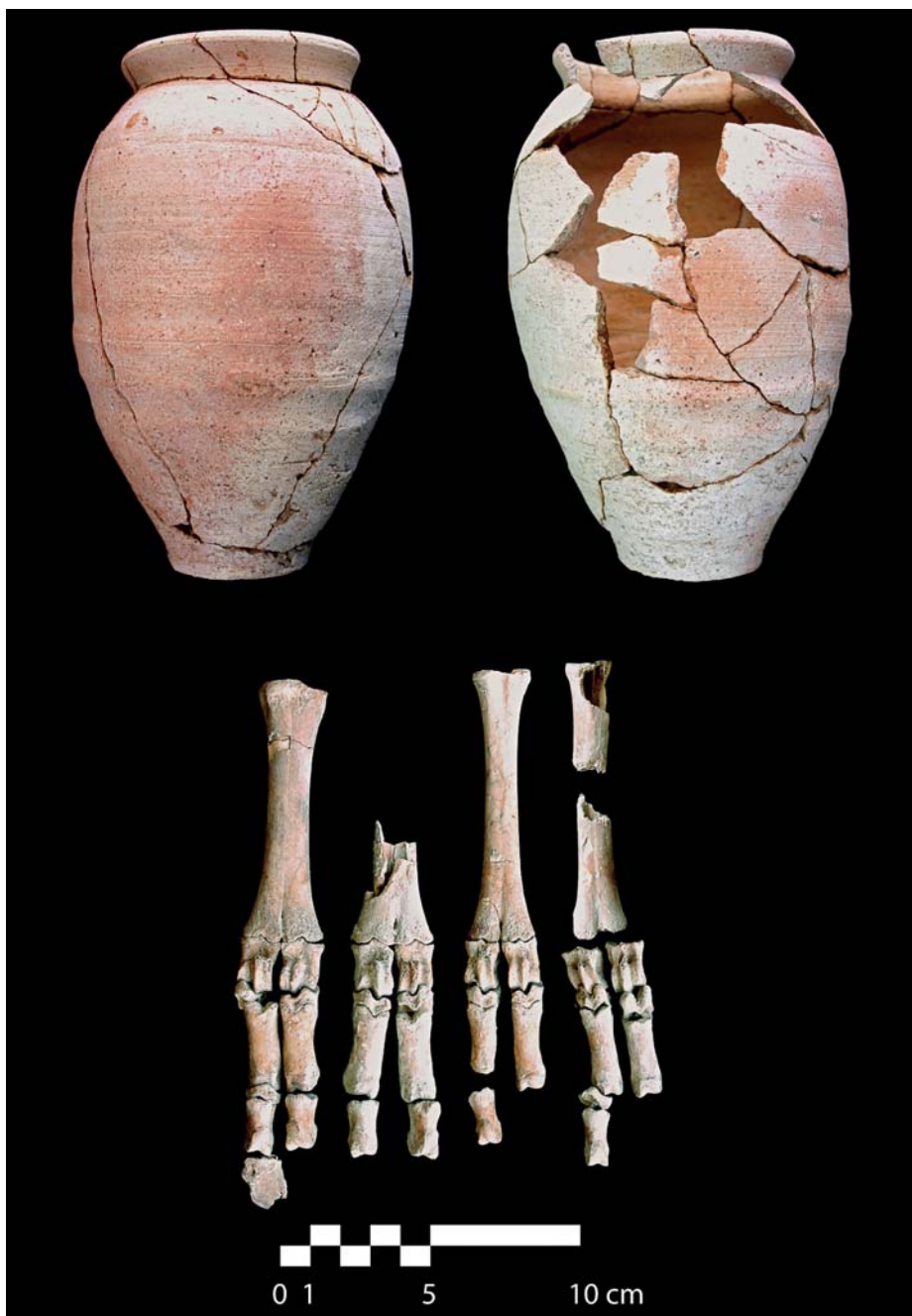
### First stage (events 1-3)



### Second stage (events 4-12)



Pl. 8. Above: map of the first stage of Grave 2;  
 below: map of the second stage of Grave 2  
 (drawing F. Desset).

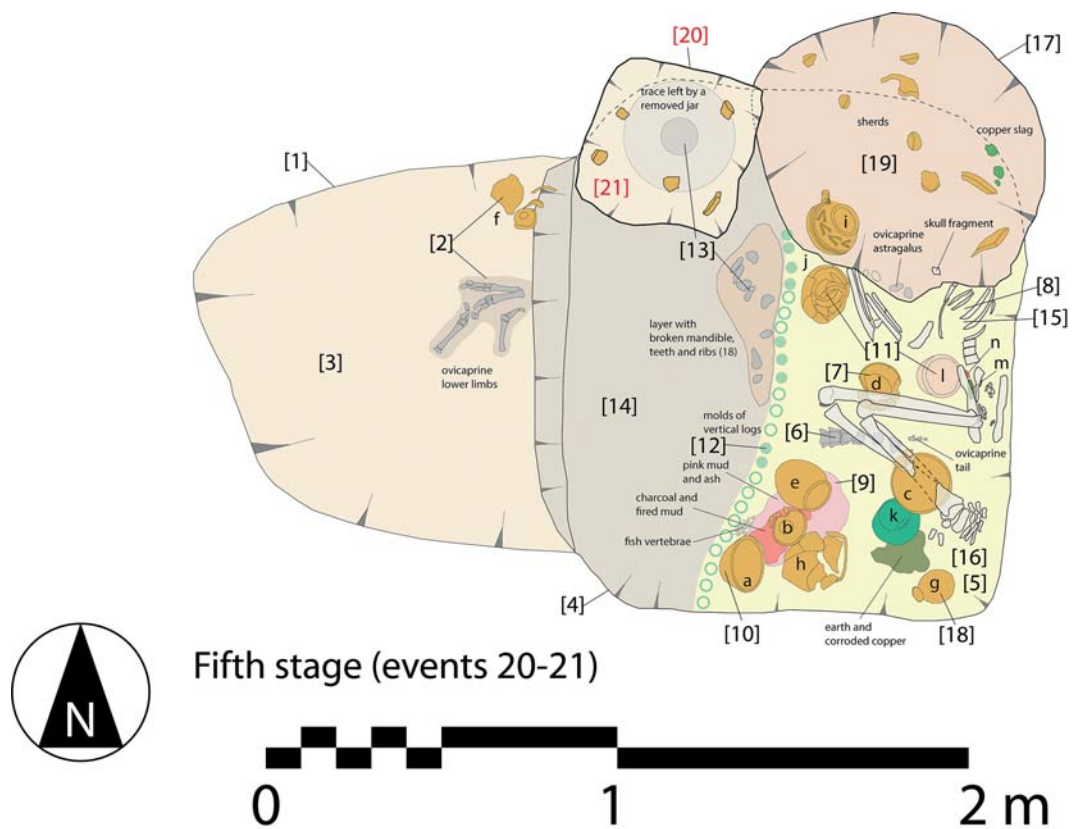


Pl. 9. Mahtoutabad, Grave 2. Food offers found at the bottom of the vertical shaft, deposited before the excavation of the funerary chamber: a standing restricted jar and ovicaprine limbs, both deposited in event [2] (photograph M. Vidale).



Pl. 10. Fish vertebrae found nearby vessel a  
(photograph M. Vidale).





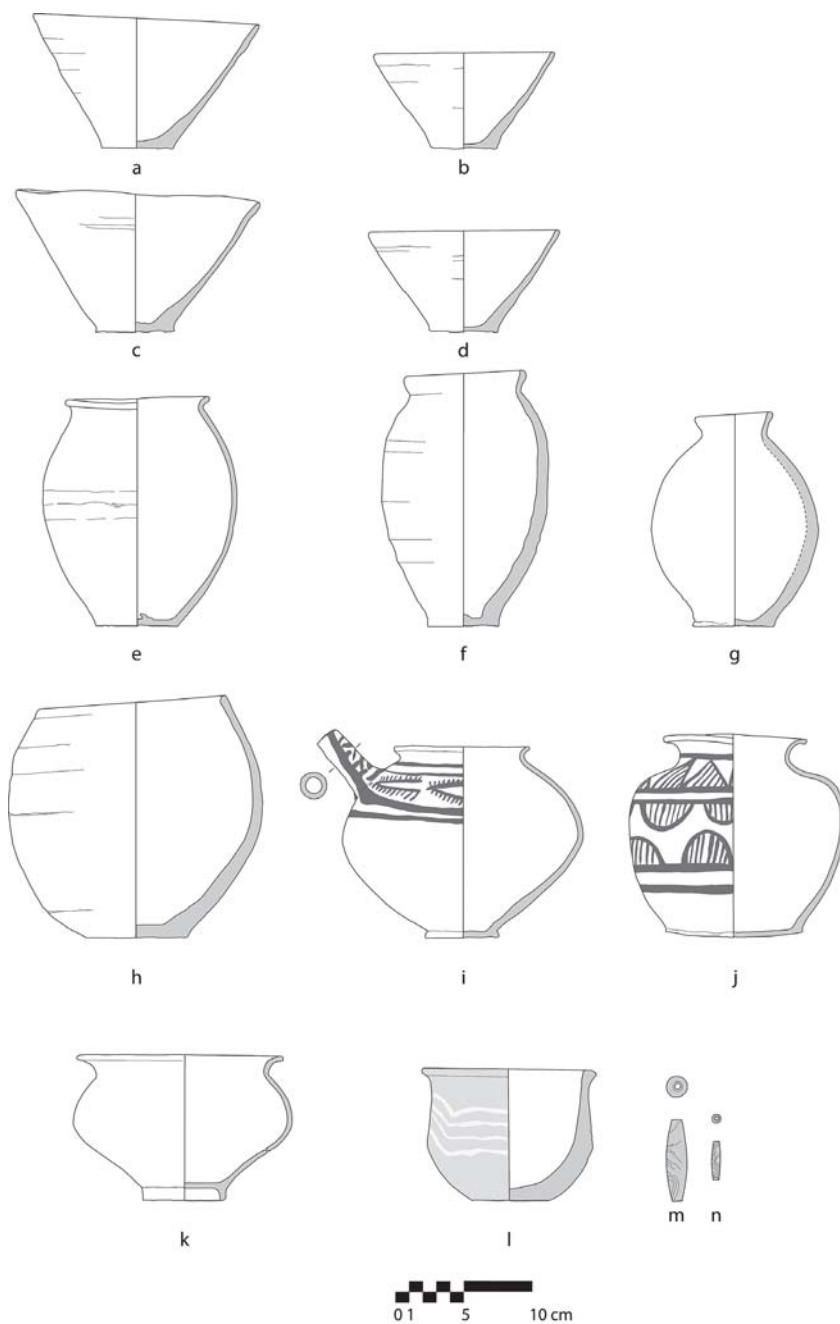
Fifth stage (events 20-21)



Pl. 12. Mahtoutabad, Grave 2. Map of the fifth stage (drawing F. Desset).



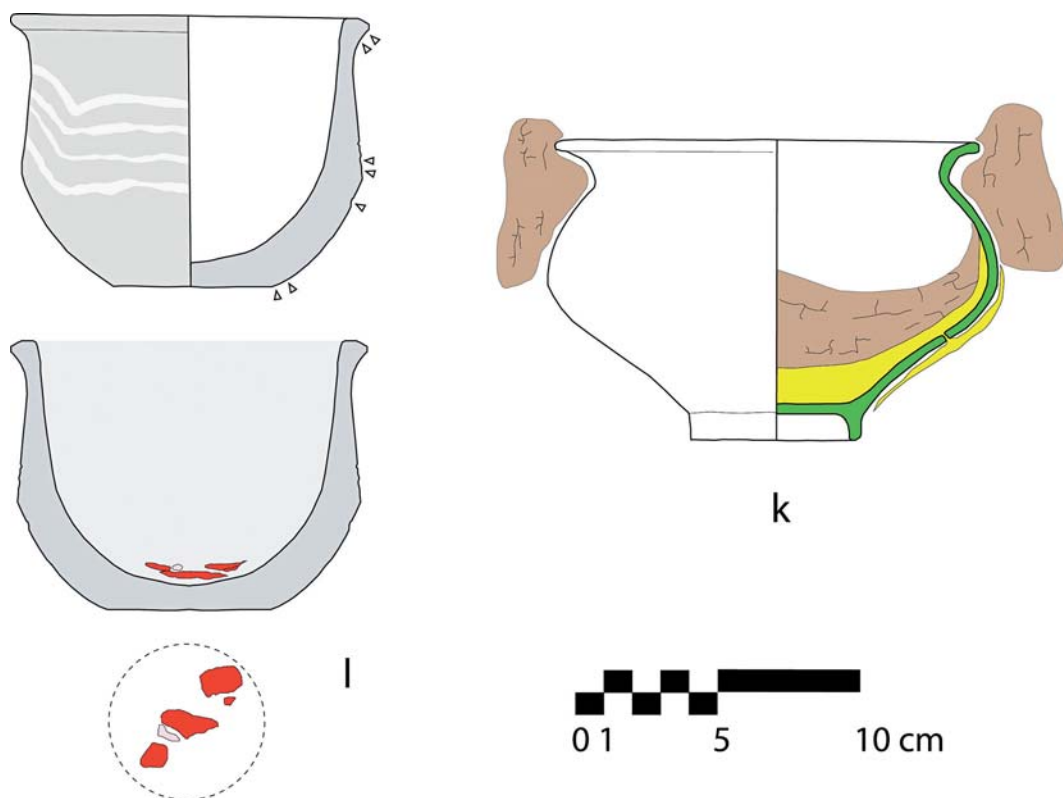
Pl. 13. Mahtoutabad, Grave 2. Vessel j as found in the funerary chamber, collapsed onto itself under the impact of part of the vault (below) and as later restored (above). The hole on the wall retains the trace of a copper pick-adze used to re-excavate the grave in event [17] (photograph M. Vidale).



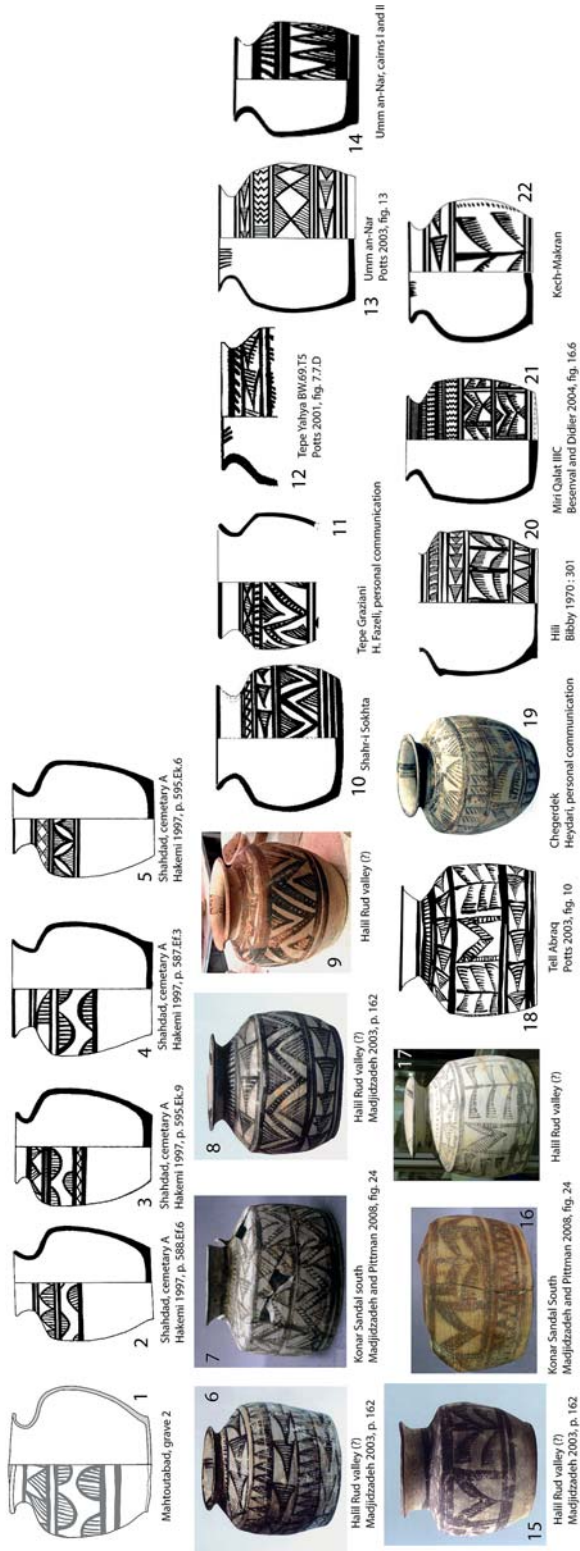
Pl. 14. Archaeological drawings of the furnishings of Grave 2  
(drawing F. Desset).



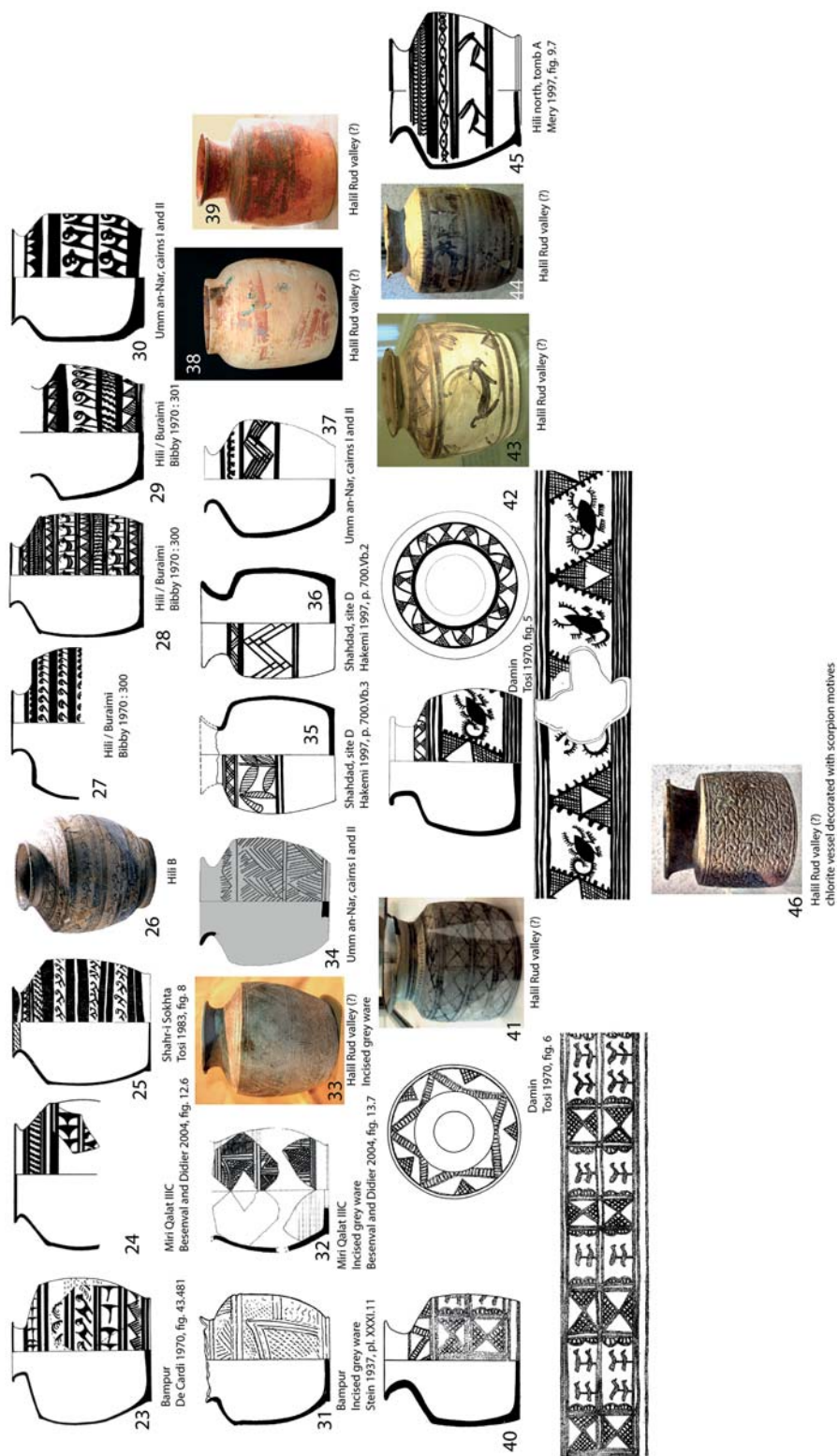
Pl. 15. Pictures of the furnishings of Grave 2 (beads m and n are on a different scale).  
Photographs M. Vidale.



Pl. 16. Mahtoutabad, Grave 2. Sections of alabaster vessel I and copper vessel k, showing details of the contents. Vessel I may have contained ochre, vessel k, perhaps, natrojarosite. For details see text (drawing F. Desset).



Pl. 17. Selection of canister jars from various sites of the second half of the 3<sup>rd</sup> millennium BC; the canister jars are not at the same scale (composed by F. Desset).



Pl. 18. Selection of canister jars from various sites of the second half of the 3<sup>rd</sup> millennium BC; the canister jars are not at the same scale (composed by F. Desset).