

# SHAHR-I SOKHTA NEW REVISED SEQUENCE<sup>1</sup>

BY

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**Abstract:** Recent research in Shahr-i Sokhta has changed our knowledge of Sistan's main settlement. Archaeological excavations, together with palaeobotanical, archaeozoological, anthropological, topographical and laboratory analyses, have helped rewrite the history of eastern Iran. Specifically, <sup>14</sup>C dating of material from archaeological contexts has made it possible to reconstruct the chronological sequences of the site, which is believed now to have arisen around 3550 BC and finally collapsed around 2300 BC, with subsequent sporadic occupation between 2100 and 2000 BC.

**Keywords:** Shahr-i Sokhta, absolute chronology, eastern Iran, Bronze Age, Sistan, multidisciplinary studies.

## 1. Introduction

Iranian and Italian excavations at Shahr-i Sokhta that began in 2016 have shed new light on the processes of growth and development of Shahr-i Sokhta (Ascalone & Sajjadi 2019, 2022a, 2022b). Indeed, new evidence from Areas 26, 33, 35 and 36 has enabled the identification of previously undiscovered architectural complexes (Areas 26 and 33) from Periods II to IV and has yielded new data on the stratigraphic sequences (Areas 35 and 36) related to the site's most ancient periods (Period I). Together with anthropological, palaeobotanical, archaeozoological and topographical analyses, the collection of new excavation data has allowed us to build a clear picture of life in the settlement in the second half of the fourth and the entire third millennia BC (Ascalone & Fabbri 2019; Minniti 2019; Mozoon & Vahdati Nasab 2019; Fabbri & Vincenti 2022; Fiorentino &

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<sup>1</sup> Paragraphs 2.2 and 3.2 were written by P. Vecchio and the entire remaining text by E. Ascalone.

Minervini 2022; Fiorentino, Madella & Minervini 2022; Minniti & Potenza 2022; Potenza 2022). It has been possible to reconstruct a new settlement sequence on the basis of stratigraphic excavations (Ascalone & Sajjadi 2019, 2022a, 2022b) and archaeological comparisons with the previous work carried out at the site by M. Tosi (Tosi 1983; Salvatori & Vidale 1997) (Tabs. 1-2). In addition to this type of study and research, new palaeogenetic and radiocarbon laboratory analyses have been carried out, expanding the spectrum of our knowledge about Sistan's main settlement.

Specifically, radiocarbon analyses carried out on organic material collected in Areas 26, 33, 35 and 36 have allowed us to create a new chronological grid for Shahr-i Sokhta's archaeological sequences (Pl. 1 and Tables 3-4)<sup>2</sup>. In this new chronological framework, the settlement is believed to have existed from the mid fourth millennium BC to the end of the third millennium BC, correcting the previous proposals of S. Salvatori and M. Tosi, who, in the 20<sup>th</sup> century, had identified four periods and 11 archaeological phases (Salvatori & Tosi 2005). These proposals, already contested by French studies (Jarrige, Didier & Quivron 2011), must now be revised on the basis of the new evidence arising from the excavations and analysis carried out in 2017-2019, tackling inconsistencies in the earlier work of the Italian team. Specifically, the uranium isotope datings proposed by M. Tosi and S. Salvatori, which had been used to date Phase 10, Phase 5 and Phase 1, have margins of error ranging between  $\pm 390$  and  $\pm 570$  years and are thus not useful (Salvatori & Tosi 2005: 285-286 and 290). The radiocarbon datings of Phase 7 are also problematic, since they all fall between  $2170 \pm 50$  and  $2080 \pm 60$  BC (Salvatori & Tosi 2005: 291 n. 8), which is not consistent with the datings subsequently proposed by the same authors (ca. 2800-2700 BC) (Salvatori & Tosi 2005: Fig. 12). Similar considerations can be made for the later periods: the previously published <sup>14</sup>C-based chronologies of Period IV are not congruent with the chronologies assigned by the same researchers to the site's final phases (Biscione 1979: 291 n. 1). Indeed, the 10 samples analysed provide a chronological range of 2950 BC to 2110 BC, with a concentration of values (6 dates out of 10) between  $2950 \pm 70$  and  $2440 \pm 70$ , far from the

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chronological range of ca. 2200-1800 BC successively proposed. In addition, it should be noted that the radiocarbon results published in R.W. Ehrich (1992: 128, tab. 1) are higher than what had been proposed in the previous and successive publications (especially see Salvatori & Tosi 2005), with Period III (7 samples) dated to 2665-2540 BC and Period IV to 2405-2180 BC (12 samples), and are consistent with our results. As well as these findings, a chronological review by J.-F. Jarrige, J.-F. Didier and G. Quivron raises the chronology of Shahr-i Sokhta on the basis of comparisons with archaeological material found in Baluchistan (Jarrige, Didier & Quivron 2011).

The sequences of Areas 26, 33, 35 and 36, associated with the archaeological finds and the contexts of the samples subject to  $^{14}\text{C}$  analysis, yield a chronological range of 3550 to 2300 BC (with a later short occupation – ca. 2100-2000 BC – after a period of abandonment). The newly established sequence is thus organised into five macro-periods, divided into 11 phases (Ascalone 2022b: Figs. 9-10): the first period (IA-C; Layers 7-2 in Area 35 and 36) (see also Layer 5 in Salvatori & Vidale 1997: 23-26) corresponds to SiS 10-7. The three sub-periods of the second period (IIA, IIB and IIC in Layers 4-2) correspond respectively to SiS 6A-B, 5A-B and 4. Period III is exemplified by ‘Building 33’ in Area 33 (IIIA, SiS 3 in Layer 1). After a period (IIIB) of definitive abandonment of Area 33 (Ascalone 2019a, 2022a, 2022b) and the ‘Central Quarters’ (Salvatori & Vidale 1997), Period IV is clearly attested in Area 26 (Sajjadi & Moradi 2015: 152-158), specifically in Layers 2-0 and the ‘Upper Layer’, where  $^{14}\text{C}$  datings raise the date of abandonment of the settlement to 2300 BC (Moradi 2019: 117-136, 2022: 339-368).

Summing up, Period IV of Shahr-i Sokhta should now be dated to 2400-2300 BC, with a very short and sporadic later occupation around 2100-2000 BC (Period V, Phase 0), while the earliest period of occupation (IA-C) should be ascribed to 3550-3000 BC.

The chronological sequence derived from the stratigraphy and architectural units of Areas 26, 33, 35 and 36 can be summarised as follows:

- Period IA1 – 3550-3450 BC – SiS 10 – Areas 35 and 36: Layers 6-7
- Period IA2 – 3450-3350 BC – SiS 9 – Areas 35 and 36: Layer 5
- Period IB – ca. 3350-3100 BC – SiS 8 – Areas 35 and 36: Layers 4-3
- Period IC – ca. 3100-3000 BC – SiS 7 – Areas 35 and 36: Layer 2
- Period IIA – ca. 3000-2850 BC – SiS 6A-B – Area 33: Layers 4a-b – ‘Western Building’ and ‘Eastern Building’

- Period IIB – ca. 2850-2650/2620 BC – SiS 5A-B – Area 33: Layers 3a-b – ‘House of the Courts’
- Period IIC – ca. 2650/2620-2600 BC – SiS 4 – Area 33: Layer 2 – ‘Squatter occupation’
- Period IIIA – ca. 2600-2450 BC – SiS 3 – Area 33: Layer 1 – ‘Building 33’
- Period IIIB – 2450-2400 – SiS 2 – Area 26: Layer 1
- Period IV – 2400-2300 BC – SiS 1 – Area 26: Layer 0 and Upper Layer GAP – 2300-2100 BC
- Period V – 2100-2000 BC – SiS 0 – ‘Burnt Building’

This paper will address the stratigraphy, archaeological contexts, pottery comparisons and absolute chronology of Shahr-i Sokhta Periods II-III as evidenced in Area 33 (for the archaeological associations, analytical stratigraphical sequences and distributive and contextual analyses, see Ascalone 2019a: 26-36; 2022a: 195-238; 2022b: 166-226). For the analyses of Periods I and IV, the reader is referred to the valuable studies of Areas 25, 35, and 36 by S.M.S. Sajjadi and H. Moradi (see Moradi 2022; Moradi et al. 2022; Sajjadi & Moradi 2022).

## 2. Period II

Isotopic analyses yielded six findings concerning Period II in Area 33 characterised by great consistency; Period IIA, identified in Layer 4 of Area 33, shows a chronology ranging from 3030 (the highest value) to 2853 BC (the lowest value), while for Period IIB, evidenced in the ‘House of the Courts’ in Layer 3, the results were between 2880 and 2620 BC. On the basis of these results, it was decided to generically date Period IIA to ca. 3000-2850 BC and Period IIB to ca. 2850-2620 BC, just before the strong contraction of the area in Period IIC. The latter, seen in Layer 2, is to be dated to ca. 2620-2600 BC, given the <sup>14</sup>C results from Layer 1 (2632-2433 BC) (Pl. 1).

### 2.1. Stratigraphy

The excavation of the Period II layers of Area 33 was carried out in 2018 and 2019, enabling the acquisition of new data on Shahr-i Sokhta’s formative period (Ascalone 2021; Ascalone & Sajjadi 2022b). Specifically, in combination with isotopic analyses, the area’s uninterrupted stratigraphic

sequence allowed us to paint a picture of the general development of the site in Periods II and III that changed our perception of the site during the third millennium BC as a whole. On the basis of the excavation sequences, Period II may be divided into three sub-periods (Tab. 1):

- Period IIA = ‘Western Building’ and ‘Eastern Building’ – ca. 3000-2850 BC;
- Period IIB = ‘House of the Courts’ – ca. 2850-2620 BC;
- Period IIC = ‘Squatter occupation’ – ca. 2620-2600 BC.

Each period is associated with a single stratigraphic sequence that is easily recognisable on the basis of the individual stratigraphic units excavated. For Period IIA, the area returns two structures (the ‘Western Building’ and the ‘Eastern Building’) situated within a complex but chaotically organised urban layout. Period IIB however shows a deep change in the urban arrangement and a new use of the buildings’ internal and external space. This is the period when the so-called ‘House of the Courts’ was built (Ascalone 2022b: 174-180). Period IIC sees the abandonment of the whole sector, with Area 33 now only sporadically occupied, especially for bronze production, as shown by the numerous furnaces found, which testify to reduced occupation (Pl. 2).

### *Period IIA*

On the basis of the stratigraphic sequences, two main sub-periods were identified in Period IIA during the life of the ‘Western Building’ and ‘Eastern Building’ (Pl. 3 and Table 4), corresponding to:

- Layer 4a, from which LTL21158, LTL20266A and LTL20267A were collected;
- Layer 4b: from which LTL21159 and LTL21162 were collected.

Period IIA is exemplified by two architectural units separated from each other by a road running south-east/north-west (Ascalone 2021: 37-39; 2022b: 177-180, 212-226). The two units, called the ‘Western Building’ (Pl. 4) and the ‘Eastern Building’ (Pl. 5), have yielded two separate architectural phases (Layers 4a and 4b) that are easily recognisable from the succession of their floor levels and certain interventions that changed their internal circulation over time. The samples used for the <sup>14</sup>C analysis were collected directly from the floor surfaces of L.167, 169 and 176 (‘Western Building’) and L.149 (‘Eastern Building’). The ‘Western Building’ is believed to have been a complex with a courtyard (L.176), into which the

entrance from the street L.148 opened (see R.216 in Pl. 3). It is composed of several sectors that unfortunately have not yet been extensively excavated. Particularly significant are the objects found, which show extensive accounting activities and administrative functions in general. Specifically, the presence in L.176 of more than 200 small clay rectangular bars with simple numerical notations on them allows us to recognise a local accounting system, quite distinct from the previous Proto-Elamite model (Rivoltella 2022: Figs. 122-134). From the same room comes one ovoid weight, while the presence of numerous alabaster vessels also appears significant (Festuccia 2022: 519-552).

In the compartments of the 'Eastern Building', numerous tools related to administrative accounting were found, including 4 fragments of alabaster vessels, 40 spondonoid objects used for accounting, 10 cretulae (one with an impression), 1 seal impression and 3 spherical counters (for a more detailed architectural and stratigraphic description, see Ascalone 2022b: 193-211).

### *Period IIB*

The 'House of the Courts' (11 × 12.40 m), where LTL20269A was found, is a traditional architectural form from Period II and partly Period III of Shahr-i Sokhta (Ascalone 2021: 39-41; 2022b: 174-177, 193-212) (Pls. 6-7). This type is also seen in 'Building 20', 'Building 1', and to a certain degree in the 'House of the Pit', the eastern part of the 'House of the Stairs', the 'House of' has yielded evidence of six distinct construction phases (A-F), of which the first five (A-E) are attributable to Shahr-i Sokhta Periods II and III and are thus contemporary with the 'House of the Courts', while 'Building 20' has been attributed to the later phases of Period III and the first few years of Period IV (Sajjadi & Moradi 2014: Fig. 4; 2017: 143). Although not completely excavated, the 'House of the Jars' also has a structure with double courtyards with rooms around them, very similar to what was excavated in Area 33. The 'House of the Jars', excavated in the 'Central Quarters', is dated to Period II, although the whole area continued to be occupied until Phase 3 (Salvatori & Vidale 1997: 28-38, Fig. 47). The 'House of the Pit' in the 'Eastern Residential Area' has the same chronological time-span, while the 'House of the Foundations' seems to be used until Period III (Tosi 1983: 102-122, Figs. 8-19).

The entire complex is centred on two large spaces or courtyards (L.217 and L.185+L.186), around which are arranged groups of rooms (two or three), believed to have been used mainly for administrative activities. L.122 and L.142 for example contained seals and numerous seal impressions (Ascalone, in press a), together with 5 spherical counters, 10 cretulae, 6 spondonoid counters and 3 tokens in L.122 and 2 cretulae and 1 balance weight in L.142.

The entire complex is believed to have had an entrance facing north, which was later closed during the conversion of the area in Period IIC (Layer 2). The building had two construction phases (corresponding to Layer 3a and 3b respectively), as documented by the floors and the closure of the entire eastern sector (L.220 and L.221), which in the later phase was completely filled with bricks and reused as a stairwell.

The ‘House of the Courts’ seems to have coincided with a total revision of the architectural space: no longer inserted in a chaotic urban layout as with ‘Building 1’ (Sajjadi & Moradi 2017) but rather in an area that seems to have been specifically created to house the architectural complex.

The building was later abandoned, being sporadically reused in the following period (corresponding to Layer 2), when the entire sector was used for metalworking, as indicated by the numerous furnaces that partly reused the old structures of the ‘House of the Courts’.

### *Period IIC*

After Period IIB (corresponding to Layer 3) the whole area underwent a drastic contraction<sup>3</sup>. The ‘House of the Courts’ was abandoned and its masonry structures were used as support for bronze-working installations (Ascalone 2021: 42; 2022b: 172-174, 193) (Pls. 8-9). The sporadic structures of this period differ sharply from those of the previous period, both in terms of the relative flimsiness of the walls, their orientation (corresponding to nothing previously seen in Area 33) and the size of the bricks, which no longer follow the standard dimensions of 11 × 22 × 44 cm typical of Periods IIA and IIB.

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<sup>3</sup> Period IIC was identified on the basis of the stratigraphic sequences that were well understood during the excavation and shows a strong continuity of the ceramic horizon with the earlier period (IIB), although lacking structural continuity. Absolute dates are lacking for this period, and assigned chronologies are based on the <sup>14</sup>C results of the earlier and later layers.

In conclusion, in Period IIC the entire area seems to have undergone a sharp contraction. It was only in the subsequent period (Period IIIA) that Area 33 was re-occupied by a new monumental building ('Building 33'), abandoned at the end of Period IIIA, along with the rest of the area, as a result of the historical vicissitudes of the adjacent 'Central Quarters'.

## 2.2. Pottery

Shahr-i Sokhta's changed chronological framework involves the entire production of its material culture, and thus recalibrating the functional classes of the pottery into an up-to-date system integrated with the surrounding cultures is set to be an enormous task. Reassessment of the pottery sequence in the next few years will aim to accurately determine the association of each type of vessel production – with or without decoration – with each phase of the settlement. However, this entails dealing with two important methodological problems, hitherto not adequately addressed: the concept of 'residuality' and the use of functional forms. The first of these – given the nature of the archaeological record – poses a large number of hermeneutical questions (Hodder 1987; Brown 1995), especially in Shahr-i Sokhta when seeking to establish a diachronic and chronological framework within which to build a pottery classification (Vecchio 2022: 309-346). The question becomes even more central if the entire system of absolute dating is based on periods spanning hundreds of years (Salvatori & Tosi 2005; Jarrige, Didier & Quivron 2011).

On the second theme – the use and function of pottery forms – future research will include a gas-chromatography study (Evershed et al. 2002) which hopefully will help to identify the residues of the contents in the vessels, starting from the next campaign<sup>4</sup>.

Concerning the previous Italian excavations, the volume published by S. Salvatori and M. Vidale (1997) on the 'Central Quarters' represents the only chronological sequence available for a domestic context, including the analyses of materials found in archaeological association. Notwithstanding the formal correctness of the interpretation, the archaeological section of the 'deep test' which shapes the chronological chart is

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<sup>4</sup> Thanks to recent cooperation with Prof. Paola Russo and Dr Paola Di Matteo of the laboratory of the Department of Chemical Engineering Materials Environment of "La Sapienza" University of Rome.



problematic, as activities and processes associated with different events are included in the same time phase. As an example, the pottery retrieved from the level below a certain floor, from the floor itself and from the debris lying on top of the floor is all included in Phase 5a (Salvatori & Vidale 1997: 23-26, Fig. 37, layers 2, 3, 4). In this case, the levels and the percentages of pottery residues and sherds linked to the three phases 5a, 5b and 6 will have been mixed to the point where there is no reasonable degree of accuracy.

Another issue with the archaeological research in this region is the silty and loose soils, which make it difficult to recognise ancient pits and cuts during the dig, which often results in “intrusive” finds, a common problem affecting pottery complexes such as those in Tepe Yahya and Tepe Grazi-ani (Mutin 2013: 45; Kavosh, Vidale & Fazeli Nashli 2019: 106, 115).

A further notable discrepancy concerns the relationship between the necropolis and the settlement, with no available chronological datum or formal comparison that could match the vessels from the tombs with the ones from the urban digs. The small number of articles published over the years discuss few dates and contain no comprehensive discussion (Biscione 1974; Piperno & Tosi 1975; Bonora et al. 2000; Cortesi et al. 2008: 11-13 and more recently Krvavac 2022; for exhaustive publication on necropolis see now Sajjadi 2022a, 2022b).

All these considerations raise doubts – in a time span of two hundred years or more and even in a well stratified context – concerning whether it is possible to evaluate the duration and function of shapes and decorations, especially in Shahr-i Sokhta, where the motifs are subject to much variation and innovation in the course of its periods. Thus, identification of the pottery fabrics, assessing the persistence of types and shapes, analysis of the possible uses of vessels and their general classification will all feature in the study of the pottery of the settlement in the forthcoming research.

The aim of this paper – aware of the issues and considering the proposals for the future – is to identify and discuss sherds from the <sup>14</sup>C-dated contexts and to establish guidelines for a broader and more complete study in the near future<sup>5</sup>.

The sherds from the loci under scrutiny found in well stratified contexts and/or directly on the floor belong to a range of categories and shapes with

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<sup>5</sup> A comprehensive monograph on these issues and the relationships with neighbouring cultures is currently in progress.

a high degree of formal variability: open forms typical of this period include dishes/plates, truncated cone vessels and cups/bowls.

In the older phase of Period IIA (Ascalone 2022b: 177-180, 212-226) (Pl. 10: 1, 2, 3) the bowls with flared walls (the so-called truncated cone shape<sup>6</sup>) have rims with two slightly different profiles, while the decoration has a continuous frieze of triangles with insertions of triangular garlands or loops, also with triangular garlands, alternating with oblique 'S' motifs. Triangles and a garland are also seen on a beaker (see below) and a plate (Pl. 10: 4), although the style is different, simpler and less detailed than the richer and more intricate decoration of the flared vessels<sup>7</sup>. The association of triangles with garlands is present on a goblet from Mundigak III (Casal 1961: Fig. 56, 92), and the first record of this motif in Shahr-i Sokhta is from Tosi, who dates it to Period I (1969: Fig. 38, c). The tradition established decades ago (Lamberg-Karlovsky & Tosi 1973: 38, 44; Biscione 1974: 136) connected Mundigak III with Shahr-i Sokhta I. However, considering the chronological complexity of the city's first period resulting from the more recent research and the absence of absolute dates for Mundigak, it would be appropriate to evaluate new correspondences between sites and to consider a longer period, encompassing the very first two centuries (roughly 3000-2800 BC) of the third millennium BC. Other old convictions have also been refuted by the petrographic analysis and by the Turkmenian connections in Shahr-i Sokhta (Mutin & Minc 2019: 893, 895), and it is true that the study of decorations does not work without a systematic analysis of the pottery's physical characteristics (Mutin & Minc 2019: 897).

A review should also be conducted of the stylised bird in Pl. 10: 5, which again appears in Mundigak III (Casal 1961: Fig. 57, 105) and was used by the potters of Shahr-i Sokhta on various vessels in various periods.

A chain of oblique hatched triangles is seen on a hemispherical bowl (Pl. 10: 6). This design is common in Shahr-i Sokhta (although the orientation of the frieze is unique). In Mundigak it appears in Period II (Casal

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<sup>6</sup> It would be better to use a simpler label for this type of vessel without a misleading and lengthy description.

<sup>7</sup> This discrepancy will be studied by comparing the ceramic pastes of the vessels to determine whether it is due to chronology or different production sites.

1961: Fig. 51, 37a), and it is attested until Tepe Yahya IVC (Mutin & Minc 2019: 887).

The upper part of the neck of a beaker has the same decoration as the flared bowl, albeit clumsier (Pl. 10: 7), while the older level of Locus 176 contained two other interesting links to the surrounding cultures. One is a stepped motif on the rim of a beaker (Pl. 10: 8), by then already common in Shahr-i Sokhta (Vidale 1984: 93, Fig. 11.13; Piperno & Salvatori 2007: 177, G. 131, No. 7137), similar to a motif seen on cups from Period II of Sohr Damb/Nal (Cortesi 2015: 206, no. 394, with many examples). The other is a polychrome jar (Pl. 10: 9) (US 63.19, see above) which has a very distinctive pattern with double symmetrical stepped lines on both sides of three vertical lines flanked by a diagonal chain of solid red triangles outlined in black. This pattern recalls a design framework that is seen in Baluchistan and is known as the Nal horizon<sup>8</sup> (Cortesi 2015: 193 no. 335, 217 no. 442<sup>9</sup>). It could represent a local approach to a design of foreign origin (Eftekhari et al. 2021).

In the later phase (Ascalone 2019c, 2022b), chains of hanging loops and simple festoons appear on flared vases and basins (Pl. 11: 10, 11), while a bowl once more has hanging triangles and a garland (Pl. 11: 12). A basin/bowl bears a specific “minimalist” decoration represented by just a drop of paint on the sherd’s inner and interior surfaces (Pl. 11: 13). A potential parallel could be another fragment, although the drop is only on the inner surface, retrieved from a survey of the Bambur valley without an established chronological context (Mutin et al. 2017: 16, Fig. 8, 11). Afghan connections are visible between the basin of Pl. 11: 14 and a similar vessel from Mundigak (Casal 1961: Figs. 54: 66), bearing the same design (a loop divided into two halves filled with a wavy motif).

A smaller bowl with inner decoration consisting of a simple chain of hanging triangles (or festoons?) may be a relic from a much older phase. Clumsily painted with a large brush and dark reddish pigment (Pl. 11: 15), it was recovered in the ‘Central Quarters’<sup>10</sup> and may be linked to the

<sup>8</sup> Already seen at Shahr-i Sokhta; see Salvatori & Tosi 2005: 282, Fig. 2.2, and Cortesi et al. 2008: 11-13, Fig. 3-5.

<sup>9</sup> According to the authors, both pieces are chronologically contemporary with Period II of Sohr Damb/Nal, 3100-2800/2700 BC.

<sup>10</sup> A similar technique appears in Tosi 1969: 324, Fig. 34, e, k, as the author writes: “the paint has usually a red-brown colour”.

category of patterns recently collected by B. Mutin and L. Minc (2019: 887, Fig. 2, SIS11, with bibliography).

Found in Locus 176 is a necked jug from late Phase IIA with a decoration that recalls the frieze already present in the previous level, enhanced with a motif of diagonally hatched triangles joined with apexes (Pl. 12: 16): this motif is connected to the variety of hatched triangle patterns common on Kech-Makran vessels from Period IIIb (Didier & Mutin 2013: 471, Fig. 5; Didier & Mutin 2015), also seen in Tepe Yahya (Mutin 2013: 128, Fig. 3.116). A similar frieze appears on a canister from Grave 131 in Shahr-i Sokhta (Piperno & Salvatori 2007: 176, Fig. 379, no. 7130). This is an interesting parallel and although the design does not overlap completely with our piece, it appears to be a composition deriving from a tradition that evolved over a long period.

During this phase some sherds again show contact with Afghanistan and, as already stated, although the comparison of Pl. 12: 17 and the “butterfly” decoration on a closed shape from Mundigak III (Casal 1961: Figs. 53, 58) is inconclusive, the size of the repertoire of “images/concepts” shared along the valley of the Hilmand from the late fourth millennium BC onwards is remarkable.

A polychrome jar (black, red and yellow) displays schemes (Pl. 12: 18) which could be connected to a type already found in Shahr-i Sokhta, as stated by L. Mugavero and M. Vidale (2003: Fig. 14, 10b).

### 3. Period III

Period III returned a chronological range of ca. 2650 to 2400 BC, samples collected for Period IIIA having values between 2632 and 2433 BC (Pl. 13). For the determination of the period as a whole, in addition to the pottery comparisons, we are supported and complemented by 11 new absolute dates collected at Tepe Graziani (Helwing, Vidale & Fazeli Nashli 2019: 151-156), where the period was indeed found to be from 2600 to 2450 BC, perfectly in line with our absolute dates (see LTL20268A and Pl. 14).

#### 3.1. Stratigraphy

This phase is exemplified by a large building (‘Building 33’) occupying a total of 550 m<sup>2</sup>, although it is heavily eroded due to its exposure to the

elements (Pls. 13-14). The building represents the area's last phase of occupation (Period IIIA), after which the entire sector was definitively abandoned (Period IIIB). Its elevation fluctuates between 10 and 30 cm, being completely lost in the southern sector, where drainage channels were naturally created, removing entire building structures. The building was constructed directly on top of Layer 2 (Period IIC), representing a strong break with the previous period (Ascalone 2019a: 36-73; 2021: 42-44; 2022a: 207-243; 2022b: 167-172, 182-193). Period III may be divided into two sub-periods:

- Period IIIA = 'Building 33' – ca. 2600-2450 BC;
- Period IIIB = abandonment.

Together with 'Building 33', the whole area was abandoned again, this time permanently. No occupation was seen in Area 33 during Period IIIB, which was a time of great crisis in the whole of the western sector of the site, as well as in the 'Central Quarters' (Salvatori & Vidale 1997).

### *Period IIIA*

The architectural and functional characteristics of 'Building 33' are very different from those of previous periods; the building is characterised by intricate architectural and functional organisation and is the result of spatial planning established before its construction. Specifically, at least 5 functional sectors can be recognised:

- kitchen sector;
- storage sector;
- residential sector;
- public sector;
- outdoor courtyard.

The kitchen sector can be recognised in rooms L.33, L.36, L.37 and L.43, and is itself divided into an area for food processing (L.36 and L.43) and another for cooking (L.33 and L.37). The food-processing area has yielded an impressive amount of cutting tools (Ascalone 2019d), in both stone and bronze, while the cooking area has 9 ovens, 4 (T.34-37) in L.37 and 5 (T.38-42) in L.33 and two benches (B.41 and B.50), one for each room.

To the north of the kitchens, 4 long narrow rooms with numerous storage jars found in situ were used for storing foodstuffs (L.68, L.80, L.81 and L.120), which were probably destined to be processed in L.36 and L.43 and finally cooked in L.33 and L.37.

The distribution of the material, the context and the archaeological associations appear to show a clear organisational and functional division of the northern sector of 'Building 33', not seen in other architectural units in southern and eastern Iran. From this perspective, 'Building 33' seems to resemble large Western architectural complexes, in which rationalisation of space and its functions is widely documented.

The public or representation area is organised around the courtyard L.19, which seems to be the central core of the entire architectural complex. The peripheral rooms are organised around the courtyard but the absence of structures in the eastern sector unfortunately does not help our understanding of the arrangement of the courtyard. Indeed, the water-driven erosion of the area east of L.19, which has completely removed the structures of 'Building 33' originally present there, prevents us from investigating the central core of the building and establishing its internal circulation.

The courtyard L.19, whose importance is also well documented by a well-made floor, is believed to have had two entrances: one on the southern side and one on the northern side connected by a brick-paved path whose closest typological parallels are the 'Governors' Building' of Tell Asmar/Eshnunna in Diyala, dated to the Neo-Sumerian period, with a paved corridor built across the main courtyard of the building (Frankfort, Lloyd & Jacobsen 1940: Plate 1); the courtyard granting access to the palatial complex of Niqmepa in Alalakh/Tell Atchana, i.e. Level IV of Courtyard 1 (Woolley 1955: 113, Fig. 44); and the courtyards granting access to the sanctuaries of the Middle Elamite religious complex of Choga Zambil, dedicated to Shimut and Belet-ali, Adad, Shala and Pinigir (Ghirshman 1968: 9-41, Figs. 2-3).

Latitudinal circulation within a courtyard also seems to find strong similarities with western buildings but appears to be completely unknown on the Iranian plateau. Specifically, the courtyard with longitudinal development and axial entrances consistent with latitudinal circulation is seen in Susa in Courtyard 191 of the 'East Complex' (AXIV) (Mofidi-Nasrabadi 2018: Fig. 25.2b-c), the 'House of Rabibi' on Level A XII (Steve, Gasche & De Meyer 1980: Fig. 6) and Level 2 of the 'Maison du Culte' (AXV) of the Ville Royale (Mofidi-Nasrabadi 2018: Fig. 25.1).

There is some uncertainty concerning the residential sector, which is indicated however by a courtyard, the thickness of the walls of the rooms

surrounding L.19 and the presence of a completely paved room (R.53), which could be a stairwell for access to a second floor.

The eastern sector (represented by the courtyard L.119 and the sectors delineated by W.93) should be considered as lying outside the main building but forming part of the 'Building 33' complex. The southern part of the building has unfortunately been completely lost due to wind and rain erosion, while the best-preserved part, to the north, contains a silo, more (larger) ovens (T.84 and T.99) and a water collection basin (I.98), which seem to be related to the adjacent kitchen and food storage area to the west and north respectively. It thus seems likely that the northern sector of the open-air courtyard L.119 may have played a role in relation to the kitchens, as indicated by the ovens, cistern and storage sector (silo), as well as areas used for dumping food waste, as documented by the impressive number of goat/sheep bones found in F.104.

To the east of the large courtyard L.119, separated by W.93, two spaces (L.92 and L.107) are believed to have been used for housing animals, mostly goats/sheep, as may be assumed from the presence of bowls (I.100 and I.101) directly fixed in the ground in L.107.

On the whole, 'Building 33' presents architectural traits that are very different from those of Shahr-i Sokhta in the first half of the third millennium BC; the characteristic elements, from Courtyard L.19 to the architectural devices adopted (see the brick-paved path R.53), are in fact more closely related to Mesopotamian and Susian traditions in the second half of the third millennium BC, while they appear to be completely unknown in Sistan or south-eastern Iran.

Similarly, the monumental nature of the building, which is known to have had a façade of at least 30 m wide, and its functional division seem to document a large architectural space in which numerous people lived together with different functions and roles. In 'Building 33' we can recognise a specialisation of the activities carried out within it and features that make this complex closer to the western palatial model than the architectural tradition of Sistan.

### *3.2. Pottery*

The flared vases of stratum US 34.17 in L.36 (a floor) do not show significant differentiation in their rims or pastes, at least on the basis of a

macroscopic analysis (Pl. 15: 19, 20) while the other forms (Pl. 15: 21, 22) are made of clay with a distinct colour<sup>11</sup>. In addition, there is a clear separation between the two friezes with wavy and zigzag decoration and the others with festoons and similar insertions. S. Salvatori and M. Vidale document this coexistence in their account of Phase 6 (1997: 96-98), and primitive versions of both designs are attested in M. Tosi (1969: Fig. 34, a, Fig. 35, d, l) for Period I.

The basin/large bowl with the internal frieze of triangles (Pl. 15: 23), whose association of design and shape does not appear in the current literature, is made with a red paste and seems to have no parallel among the profiles published to date.

While layer US 34.17 is on a floor (L.36) without a significant amount of pottery embedded in it, the overlying infill has yielded a broad spectrum of diagnostic sherds. A significant feature of the pottery classes is the concomitance of two different drinking items, the cups in Grey Ware with black decoration and the plain coarse cups with convex profiles and everted rims (Pl. 16: 24-25, 26-27). An issue to be tackled by future research is whether this joint presence is a sign of a new approach to drinking, considering that, other than the beakers<sup>12</sup>, we do not yet have a clear explanation for the relationship between the consumption of liquids and the shapes of the vessels in Shahr-i Sokhta. The two types, Grey Ware and plain coarse ware, could represent two different responses to specific occasions or events within the family group – luxury versus daily use, for example – or items which identify, possibly hierarchically, members of the family or group. As a matter of fact, these plain cups do not appear in S. Salvatori and M. Vidale (1997) and are not represented in the necropolis, where the only specimen that could be compared with ours is from the later Grave 711, a later evolution of a type that was already well known (Piperno & Salvatori 2007: 248).

For the Grey Ware, the two different shapes – flared or almost vertical – belong to the above-mentioned production from Kech-Makran dated to the period between 2800 and 2600 BC (Wright 1984: 131-133, Fig. 3.25-26; Méry et al. 2012: 198, Fig. 2, A 1484; Didier & Mutin 2015: 325, No. 689). The first (Fig. 16: 24) has the vertically hatched frieze of lozenges below the outer lip, a motif found in both the necropolis of Shahr-i Sokhta

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<sup>11</sup> 7.5YR 7/4-8/3, pink; 2.5Y 8/2, pale yellow; 10YR 8/3, very pale brown.

<sup>12</sup> However, their use for handling liquids has been questioned (Vidale 1984: 82).



(Piperno & Salvatori 2007: 163, G. 118, No. 6633) and the settlement (Salvatori & Vidale 1997: 145, Fig. 191, 15). Inside, the cup also shows a distinctive motif consisting of hatched triangles (leaves?), so far not seen in Shahr-i Sokhta or other sites<sup>13</sup>, while the second, i.e. the cup with straight walls (Pl. 16: 25) has a chaotic cross-hatched frieze between simple bands on the upper portion of the outside of the body that has no parallels.

Regarding the large open forms, one bowl has a double loop below the rim enclosing a festoon (Pl. 16: 28) (on the profile, see Salvatori & Vidale 1997: 130, Fig. 170, 4, Phase 5B), while a basin has stepped lines (Pl. 16: 29) with several parallels from Phase 5A in the ‘Central Quarters’ (some of the examples are examined in Salvatori & Vidale 1997: 111, Fig. 134, 5, 113, Fig. 138, 4).

A large basin with a tooth-edged Maltese cross (Pl. 16: 30) has a lip with a profile that seems to belong to Phase 6 (Salvatori & Vidale 1997: 95, Fig. 103, 4), and the Maltese cross<sup>14</sup> also appears in Tepe Graziani at the beginning of the same period (Kavosh, Vidale & Fazeli Nashli 2019: 105, Fig. 104, 22).

Among the closed forms, a fragment of a biconical jar (Pl. 17: 31) has the distinctive “sigma” frieze on the shoulder and a continuous sequence within double bands above hatched triangles: a possible parallel is found in de Cardi 1970: 286, fig. 22, no. 129, Bampur III<sup>15</sup>.

Zoomorphic motifs appear (Pl. 17: 32) in a fragmentary frieze with ibexes with long curving horns and arched bodies, a distinctive theme already described by R. Biscione and G.M. Bulgarelli (1983: 235, No. 0145) that may be linked to Bampur (de Cardi 1970: 283, Fig. 20, 92, Bampur II), and on a neck fragment of a beaker with a frieze of birds with straight legs (Pl. 17: 33), a motif seen in only one other case, a jar from the necropolis (Piperno & Salvatori 2007: 99, G. 44, Fig. 197, no. 6283, dated to Period II according to Mugavero & Vidale 2003: 90).

Patterns and relations between types are the key to a better comprehension of the material culture of Shahr-i Sokhta. Organising the classes of

<sup>13</sup> On a possible parallel of the inner design, see Jarrige 1974: 498, Fig. 1, phase 4.

<sup>14</sup> The central part of the motif on our piece is empty.

<sup>15</sup> The piece from Bampur is fragmentary. The apexes could belong to triangles, but they do not seem to be hatched.

vessels of this complex and interconnected settlement into a sophisticated chronological and functional scheme will require great effort.

#### 4. Conclusions

The results achieved by the recent research in Shahr-i Sokhta represent a middle ground between the ideas of M. Tosi and S. Salvatori (2005) and the scheme proposed by the French team of Jarrige, Didier & Quivron (2011). They are also closely consistent with the results of the radiocarbon analysis performed on material from Tepe Graziani (whose chronological relationship with Shahr-i Sokhta is discussed in Helwing, Vidale & Fazeli Nashli 2019: 151-155 and illustrated in table 1 in Vidale & Lazzari 2019: xv), which show that the dates of Shahr-i Sokhta Phases 6-3 are very similar to those based on material collected during excavation campaigns in Area 33. The combination of the two results, obtained independently, seems to decisively confirm the correctness of the new proposed chronology, which seems to offer the most reliable basis for the reconstruction of a definitive sequence at Shahr-i Sokhta and the surrounding area. Furthermore, the new proposal is also based on the following data and considerations:

1. the absolute dates obtained from carbon isotope analysis by M. Tosi at the site for Phases 7 and 2-0 (respectively in Salvatori & Tosi 2005: 291 n. 8 and Biscione 1979: 291 n. 1) are in line with the new  $^{14}\text{C}$ -based analyses;
2. the uranium-based dating used by M. Tosi and S. Salvatori is unreliable as a tool for dating Phases 10, 5 and 1 of the site, due its limited accuracy (to within ca. 5/6 centuries; Salvatori & Tosi 2005: 285-286 and 290);
3. the  $^{14}\text{C}$ -based absolute chronologies given in R.W. Ehrich (1992: tabs. 1-2) regarding periods III and IV of Shahr-i Sokhta are in line with our findings;
4. the absolute dating of 11 samples from Tepe Graziani returned chronologies that are highly consistent with our final results (Helwing, Vidale & Fazeli Nashli 2019: 151-156);
5. the archaeological excavations in Shahr-i Sokhta have yielded very little BMAC material, with only sporadic finds, in contrast to what is seen throughout Sistan and southern Iran in the late third and early second millennia BC (Moradi et al. 2022: 233-266);

6. the presence of Proto-Elamite material (seals and a tablet from Shahr-i Sokhta Period I) has recently been interpreted with reference to stratigraphic and chronological data, which indicate that the Proto-Elamite cultural horizon arose in the second half of the fourth millennium BC (Dahl, Petrie & Potts 2013: 360-365);
7. There is hardly any Nal pottery at Shahr-i Sokhta dated to Period I, the majority of specimens being dated to Period II. The production appears to be regional in nature (see also the specimens from Grave 413 in Amiet & Tosi 1978: 22; Biscione 1984); it is familiar from Mehrgarh VB and Nausharo IA-B (ca. 3000 BC), and it is consistent with the new chronological scheme of Shahr-i Sokhta II;
8. The Emir Grey Ware or Faiz Mohammed Ware recovered from Shahr-i Sokhta II also appears in Mehrgarh VI-VII (ca. 3100-2600 BC) and Nausharo I (ca. 3500-2800 BC), in chronologically higher contexts than those previously assigned to Shahr-i Sokhta; it has also been found in Miri Qalat IIIa (ca. 3600-2900 BC);
9. There are numerous parallels between Shahr-i Sokhta I and Namazga III pottery (ca. 3500-3000 BC) (Biscione 1973);
10. the pottery of Shahr-i Sokhta Phase 5 and that of Namazga IV (ca. 3000-2500 BC) share a number of features;
11. the hook-like pierced handles (scorpion type) found in the 'Central Quarters', dated to Phase 5b (Salvatori & Vidale 1997; Salvatori & Tosi 2005: 286, Fig. 7) are also seen in Mundigak IV1-2 and Yahya IVC, which are dated to the late fourth millennium BC and first few centuries of the third (Mutin 2013: 292, Tab. 1.2);
12. the Wet Ware associated with Shahr-i Sokhta Phase 3 (Salvatori & Tosi 2005: 287-288, Fig. 10) is also found in Mundigak IV.3 (Casal 1961: Fig. 98.465) and Nausharo ID-II (ca. 2800-2500 BC; Quivron 1994: 636);
13. the pottery from Shahr-i Sokhta's final phase bears little resemblance to that of Namazga V (ca. 2500-2200 BC);
14. seal SiS.19.33.159 (Ascalone 2022b: Figs. 61-62 and tab. 3) found in L.122 in Layer 3 has parallels with material from sites in the Greater Indus valley, e.g. Damb Sadaat III, Mehrgarh VII, Nausharo I, Rehman Dheri II, Harappa 2, Kunal III, Baror I and Tharakanewala Dera (Early Harappa), linked to contexts dated to no later than 2600 BC (Ascalone, in press a).

The new chronological scheme makes it possible to resolve a number of issues that have arisen over the years and to formulate new proposals concerning the historical role of Shahr-i Sokhta within a wider historical system encompassing Oxus, Jiroft, Baluchistan and the Greater Indus Valley.

The occupation of Shahr-i Sokhta is believed to have begun in the second half of the fourth millennium BC, to which the seals, seal impressions and two tablets of Proto-Elamite origin should thus also be dated, along with the spread of Namazga III pottery.

The presence of artefacts associated with the Proto-Elamite tradition as early as the mid fourth millennium BC prompts numerous considerations regarding the timing and mechanism of the development and dissemination of Proto-Elamite culture on the Iranian plateau. Similarly, the presence of Namazga III and Baluchistan ceramics at Shahr-i Sokhta is consistent with a broader historical framework in which the settlement was founded around the middle of the fourth millennium BC.

The hypothetical destruction of the settlement around 3000 BC (the end of SiS 7), documented in the stratigraphic sequences of the 'Central Quarters' (Layer 5) but not those of Area 33, might represent a clear break with the first period. Its rebirth, as documented in Area 33, appears to be culturally quite distinct from Period I, with a new pottery horizon that would persist, with some variations, until the end of Period III (ca. 2400 BC). In Period II (ca. 3000-2600 BC), Shahr-i Sokhta seems to have played a key role in the network of relations that were established across the Iranian plateau, especially with the alluvial settlements of Mesopotamia. It is precisely this period that saw the introduction of new accounting and economic recording tools in Shahr-i Sokhta. The cylindrical seals of Proto-Elamite origin were abandoned in favour of locally produced stamp seals, often in steatite/chlorite, with figurative and geometric designs. Similarly, while the presence of *cretulae* and clay bars with numerical annotations on their surface confirms the clear break with respect to the accounting systems used in the previous period, those artefacts also reveal hitherto unseen patterns with regard to the dynamics of socio-economic development in Iranian Sistan during the first half of the third millennium BC.

Although the pottery horizon of Period III remains broadly similar to that of Period II, with a few morphological variables, a new red pottery (which would become widespread during Period IV) arises and a new buff slip on Red Ware and a black-painted buff slip on Red Ware appear. Also documented in the stratigraphy of Area 33, the start of Period III (ca.

2600-2400 BC, Period IIIA) followed a major contraction during the second half of the 27<sup>th</sup> century BC (Period IIC, SiS 4), when many sectors of the settlement appear to have been partially abandoned. The period from 2600 to 2400 BC (Period IIIA-B) saw a recovery, with the appearance of new architectural forms (Ascalone 2019a: 36-62) and ‘morphological-cultural western convergences’ (Piperno & Salvatori 1982; 1983: 177; Ascalone 2019a: 68-69).

Period IV is marked by the abandonment of entire sectors facing the small lake inside the settlement, including the two sectors excavated so far: Area 33 and the ‘Central Quarters’. It has been suggested that the entire settlement in this period was confined to the central ridge, shifting its centre of gravity eastwards. The severe crisis hypothesised by M. Tosi can be ruled out (Moradi 2019: 24-117), but the settlement clearly underwent a significant contraction, perhaps due to changing environmental conditions and unsustainable water extraction from the site’s lake, which would have been an important resource in Periods II and III.

In conclusion, Shahr-i Sokhta seems to have endured four major collapses. The first, around 3000 BC (period IC, SiS 7), put an end to the cultural complex that is believed to have been responsible for the settlement’s foundation and marks the transition from Period I to Period II. The second historical break occurred around 2650/2600 BC (Period IIC, SiS 4), when the stratigraphy of Area 33 shows an abandonment of the sector followed by a new occupation accompanied by new ceramic types, which however are closely related to the production of the previous period. This second break thus marks the transition from Period IIC to Period IIIA (from SiS 4 to SiS 3). The third break corresponds to the abandonment of the sectors facing the lake (Area 33 and the ‘Central Quarters’) in about 2400 BC, when the entire settlement seems to shift towards the central plateau of the site. This coincides with the rise of a new red pottery, which for the first time displaces the long-established buff pottery as the dominant type (the third break thus corresponds to the transition from Period III to Period IV, from SiS 2 to SiS 1). The final ‘historic leap’, occurring around 2300 BC, entailed the definitive abandonment of Shahr-i Sokhta, although there was a further short and superficial occupation in Period V (SiS 0). The causes of its demise remain unresolved.

The new chronologies of Sistan and its main settlement make it possible to explain some historical inconsistencies and to formulate new considerations regarding the main cultural phenomena arising in Shahr-i Sokhta.

Regarding Period I (3550-3000 BC), the presence of pottery from Namazga III fits neatly into the contemporary cultural horizon of the Kopet Dagh regions, while the presence of Proto-Elamite material confirms a more widespread dissemination of its archaeological markers, already hypothesised by J.L. Dahl, C.A. Petrie and D.T. Potts (2013: 353-378). Indeed, the archaeological contexts of other regions on the Iranian plateau and Khuzistan confirm the spread of Proto-Elamite cultural traits until the second half of the fourth millennium BC, as documented in the Susa tablets from Acropole (Levels 16 to 14B see Le Brun 1971; Le Brun & Vallat 1978; for the one tablet found in Level 18 on the Ville Royale see Carter 1980: 67), Tepe Sialk, period IV (Ghirshman 1938: 58-71), Tepe Ozbaki (Madjidzadeh 2001: 145), Tepe Sofalin (Hessari & Akbari 2007), Tal-e Ghazir (Caldwell 1971: 348), Tall-i Malyan in the Middle Banesh period (Sumner 1988: 308-310) and Tepe Yahya IVC (Damerow & Englund 1989; see also Potts 2001).

With regard to Period II (ca. 3000-2600 BC), further considerations can be made that help to better understand the historical context in which the site developed: there is no doubt that this period represents the settlement's most extensive phase, when its large-scale relations began to take on international characteristics. Between 3000 and 2600 BC, Shahr-i Sokhta appears to have had strong links with Baluchistan (Sohr Damb II-III) and to have played a dominant role within its region and throughout eastern Iran. The Harappa civilisation was not yet fully formed (Harappa 2 or Early Harappa; see Meadow & Kenoyer 1993) and the Oxus centres do not appear to have been sufficiently organised for long-range trade, although the first proto-state organisations did appear (Namazga IV) (Kohl 1984: 105-115).

Together with Konar Sandal, best documented in this period in the 'Lower Town' (Madjidzadeh 2008), Shahr-i Sokhta seems to have played a major role in relations between Central Asia and the Indus valley on one hand, and the Iranian plateau on the other. In the same period, Malyan underwent a phase of settlement regression (the 'Transitional phase', see Miller & Sumner 2003, 2004; Ascalone 2006: 43-44) and Shahdad was still a small settlement (Takab IV.1-2) apparently detached from international dynamics (Hakemi 1997).

In this period Shahr-i Sokhta may have also played a key role in the distribution across the Iranian plateau of raw materials extracted in Central Asia, thereby contributing to embryonic forms of large-scale trade that

would spread to Mesopotamia in the following period, as well documented by western textual sources. During the first half of the third millennium BC, Shahr-i Sokhta may have had direct access to mining areas producing lapis lazuli (in Kol-i Lal, Tajikistan, and Sar-i Sang, Badakshan), copper (in Badamu, Darbinai, Guru, Surkha, Bandar Hanza, Sang-e Esha, Acoros Marghi, Bahresman, Gerdukulu, Daralu, Panegeen, Tal-e Madan, Anarak district, Tall-i Iblis and the mining complex of Veshnoveh; see Potts 1994: 145-151; Steinkeller 2013: 309, n. 104; 2016: 130), lead (Katuk, Panegeen and Qanat Marvan), silver (Katuk), gold (Avoros Marghi and Baghrai), molybdenum (Bahresman) and zinc (Qanat Marvan). It was also involved in the trade in tin, from mines in Uzbekistan, Tajikistan, Kazakhstan (Garner 2013a, 2013b; Weisberger & Cierny 2002, 2003), Afghanistan (Boroffka & Parzinger 2003: 7) and the central Iranian plateau (Berthoud & Cleziou 1982; Pigott 2012: 223).

It is, however, only in Period III (ca. 2600-2400 BC) that Mesopotamian sources document this international market, to which the steatite artefacts produced in the Jiroft area may also be added. In ca. 2700/2600 BC, south-eastern Iran joined Shahr-i Sokhta in trading with Mesopotamia, but while Shahr-i Sokhta seems to have acted as an intermediary between the extraction areas and western clients, Jiroft traded directly with the political entities of Mesopotamia by exporting above all the chlorite/steatite artefacts that were particularly sought after throughout the alluvial area.

With the addition of the Jiroft region, trade dynamics on the Iranian plateau seem to have been dominated by the two major settlements of Shahr-i Sokhta and Konar Sandal, who shared the benefits of trade with Mesopotamia. At the end of this period however (ca. 2400 BC), Shahr-i Sokhta seems to have undergone a progressive crisis, documented by its contraction, probably due to palaeoclimatic factors (Giesche et al. 2023) and a shift in the commercial relations that it had itself contributed to since the first century of the third millennium BC.

Indeed, in Period IV (ca. 2400-2300 BC), two concomitant factors seem to have contributed to the collapse of Shahr-i Sokhta: 1) the endemic belligerence of the Sargonid dynasty across the Iranian plateau (Potts 1994: 28 and n. 179; Steinkeller 2021: 185) and 2) the growth of the Harappa civilisation (Harappa 3B) and the consequent development of a maritime market monopolised by Akkad (Steinkeller 2013), which cut Shahr-i Sokhta off from the main trade routes to Mesopotamia (Ascalone 2022b: 226-227; in press b).

In a broader historical analysis, the collapse of Shahr-i Sokhta seems to have facilitated the spread of BMAC throughout eastern and southern Iran; the political vacuum that was created and the absence of a valid interlocutor opening up to a western market prompted the Oxus/BMAC communities to establish a new political equilibrium on the Iranian plateau. The growth of Gonur, in the so-called 'Gonur phase' (ca. 2200-1800/1700 BC), was a response to the lack of a central settlement linking the Iranian plateau and the Oxus regions. Seen from this perspective, during the end of the third and beginning of the second millennia BC, Gonur and Shahdad (Takab III.1-2) represented two gateways to Oxus from Jiroft and *vice versa*, replicating the role played by Shahr-i Sokhta during the first half of the third millennium BC.

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Table 1. New chronological sequence at Shahr-i Sokhta.

Absolute chronology based on <sup>14</sup> C analysis from Shahr-i Sokhta Ascalone - Sajjadi 2021b	Shahr-i Sokhta Ascalone - Sajjadi 2021b	Area 33 Ascalone 2021b	Area 35 and 36 Moradi - Sajjadi In press	Area 26 Moradi - Sajjadi In press	Central Quarter Salvatori - Vidale 1997	Shahr-i Sokhta Salvatori - Tosi 2005	Tappeh Graziari Helwing <i>et alii</i> 2019
<b>PERIOD IA</b> 3550-3350 BC	SIS I.10 (Early Uruk) (Harappa 1)	Virgin soil	Layer 6-7		Virgin soil	1.10	?
	SIS I.9 (Early Uruk) (Harappa 1)		Layer 5			1.9	
<b>PERIOD IB</b> 3350-3100 BC	SIS I.8 (Late Uruk) (Harappa 1)	Layer 5 Sounding in L.386	Layer 4-3		Layer 6	1.8	
	SIS I.7 (Jemdet Nasr) (Harappa 1)		Layer 2			1.7	
<b>PERIOD IIA</b> 3000-2850 BC	SIS II.6A-B (ED I) (Harappa 2)	Layer 4a-b Western Building Eastern Building			Layer 5 Destruction layer Layers 4-3	II.6	Tosi Phase 6 (?-2850)
	SIS II.5A-B (ED II) (Harappa 2)					Layer 2	
<b>PERIOD IIB</b> 2850-2620 BC	SIS II.4 (ED II) (Harappa 2)	Layer 2 Squatter occupation			Layer 1	II.5b	Tosi Phase 5 (2850-2600)
	SIS III.3 (ED IIa) (Harappa 3A)					Layer 1 Building 33	
<b>PERIOD IIC</b> 2620-2600 BC	SIS III.2 (Harappa 3B)	Abandon			Abandon	III.2	Tosi Phase 2 (2450-2400)
	SIS IV.1 (ED IIb) (Harappa 3B)					IV.1	
<b>PERIOD IIIA</b> 2600-2450 BC	SIS V.0 (UR III) (Harappa 3C) (BMAC)				GAP		?
<b>PERIOD IIIB</b> 2450-2400 BC							
<b>PERIOD IV</b> 2400-2300 BC							
<b>GAP</b> 2300-2100 BC							
<b>PERIOD V (RUD-I BIABAN PHASE)</b> 2100-2000 BC							

Table 2. Regional archaeological and historical periods in Sistan, Indus, the Iranian highlands, Baluchistan, Mesopotamia, Susiana and Southern Central Asia on the basis of <sup>14</sup>C dating analysis of samples collected in Shahr-i Sokhta excavations and earlier publications.

Absolute chronology (BC)	ICS period Ascalone 2019	Elam Miller - Summer 2003 and 2004	Jiroft Madjidzaeidi, 2008 Eskandari 2021	Kerman Hakemi 1997	Sistan Ascalone 2022b	Greater Indus Meadow - Kenoyer 1993	Central Asia Kohl 1984	Baluchistan Görsdorf 2005 Jarrige et al. 2011 Cardfi 1968	Susiana Ascalone 2006	Mesopotamia Ehrlich 1992
3550-3350		Middle Banesh	Mahtoutabad II Varamin III		Early Chalcolithic Sistan IA SIS I.10-9	Ravi Culture Harappa 1	Late Aeneolithic Namazga III	Sohr Damb I Miri Qalat IIIA	Susa transition	Early Uruk
3350-3100		Late Banesh	Mohoutabad III Varamin IV		Late Chalcolithic Sistan IB SIS I.8		Kara depe		Susa II	Late Uruk
3100-3000					Early Bronze I Sistan IC SIS II.7			Sohr Samb II Naussharo IB-D	Susa IIIA	Jemdet Nasr
3000-2850	<b>Pre-ICS</b>	Transitional phase		Takab IV.2	Early Bronze I Sistan IIA SIS II.6		Early Bronze Namazga IV			ED I
2850-2650			Konar Sandal South Lower Town	Takab IV.1	Early Bronze IIB Sistan IIB SIS II.5	Early Harappa Harappa 2		Sohr Damb III Miri Qalat IIIB Bampur I-IV Naussharo II	Susa IIIB	ED II
2650-2600					Early Bronze IIC Sistan IIC SIS II.4		Shoortugai I			
2600-2450	<b>Proto-ICS</b>		Konar Sandal South Citadel		Middle Bronze I Sistan IIIA SIS III.3	Mature Harappa Harappa 3A	Middle Bronze Namazga V	Miri Qalat IIIC	Susa IVA	ED IIIa
2450-2400	<b>Early ICS</b>	?	Mohutatabad IV Varamin V	Takab III.2	Middle Bronze II Sistan IIIB SIS III.2	Mature Harappa Harappa 3B	Shoortugai II	Sohr Damb IV		ED IIIb
2400-2300					Middle Bronze III Sistan IV SIS IV.1			Naussharo III		
2300/2200-2000	<b>Late ICS</b>	Kaftari	Konar Sandal North	Takab III.1	Late Bronze I Sistan VA SIS GAP (2300-2100) SIS V.0 (2100-2000)	Mature Harappa Harappa 3C	Late Bronze Namazga VI Gonur depe phase	Naussharo IV Miri Qalat IV Bampur V-VI	Susa IVB Susa VA Susa VBI	Akkad Lagash II Ur III
2000-1800/1700					Late Bronze II Sistan VB	Late Harappa Harappa 4-5	Shoortugai III		Susa VB2	Isin/Larsa



Table 3a. Area 33, stratigraphic flow chart summarising architectural units, ceramic horizons and radiocarbon dates.

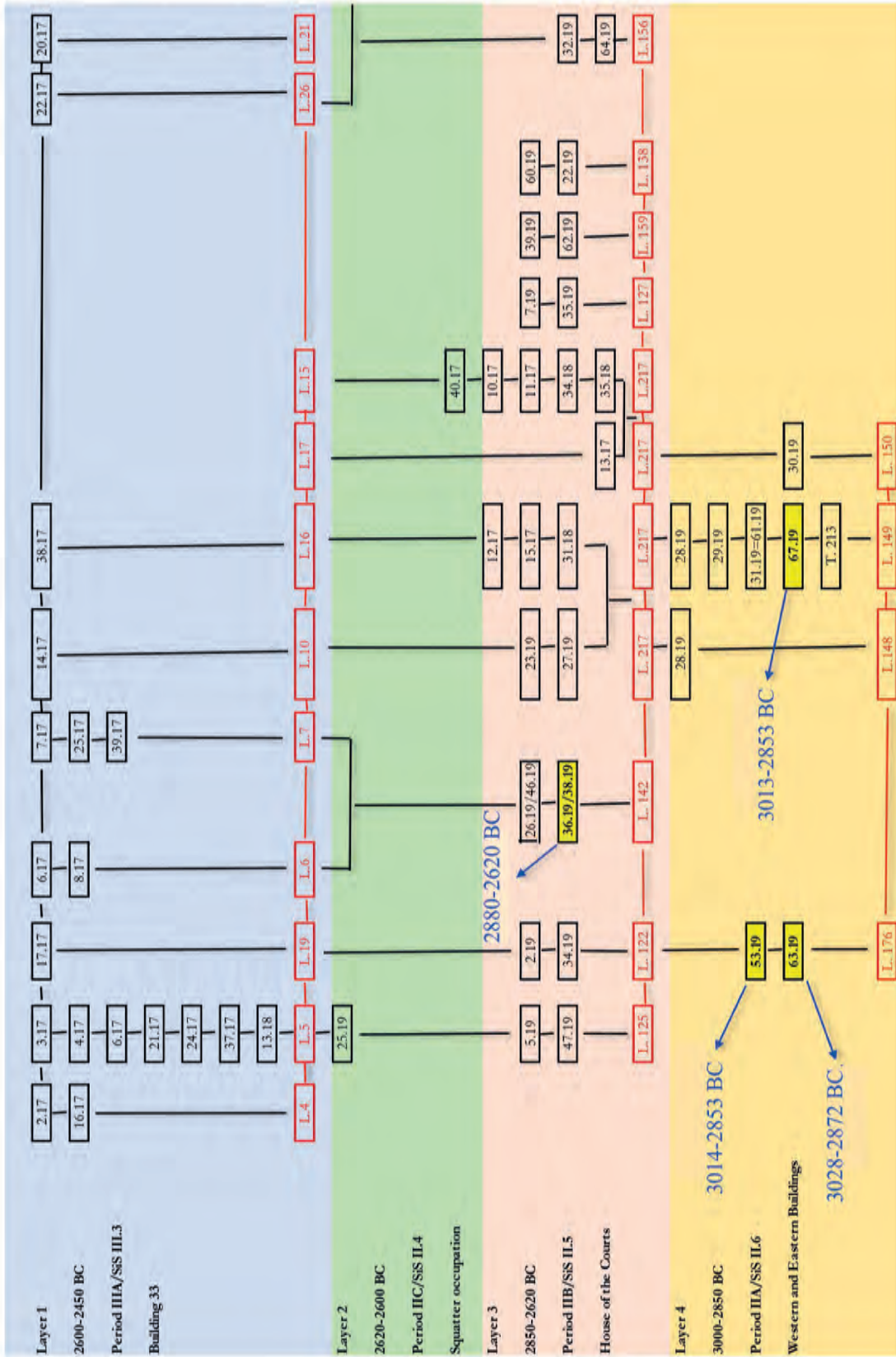


Table 3b. Area 33, stratigraphic flow chart summarising architectural units, ceramic horizons and radiocarbon dates.

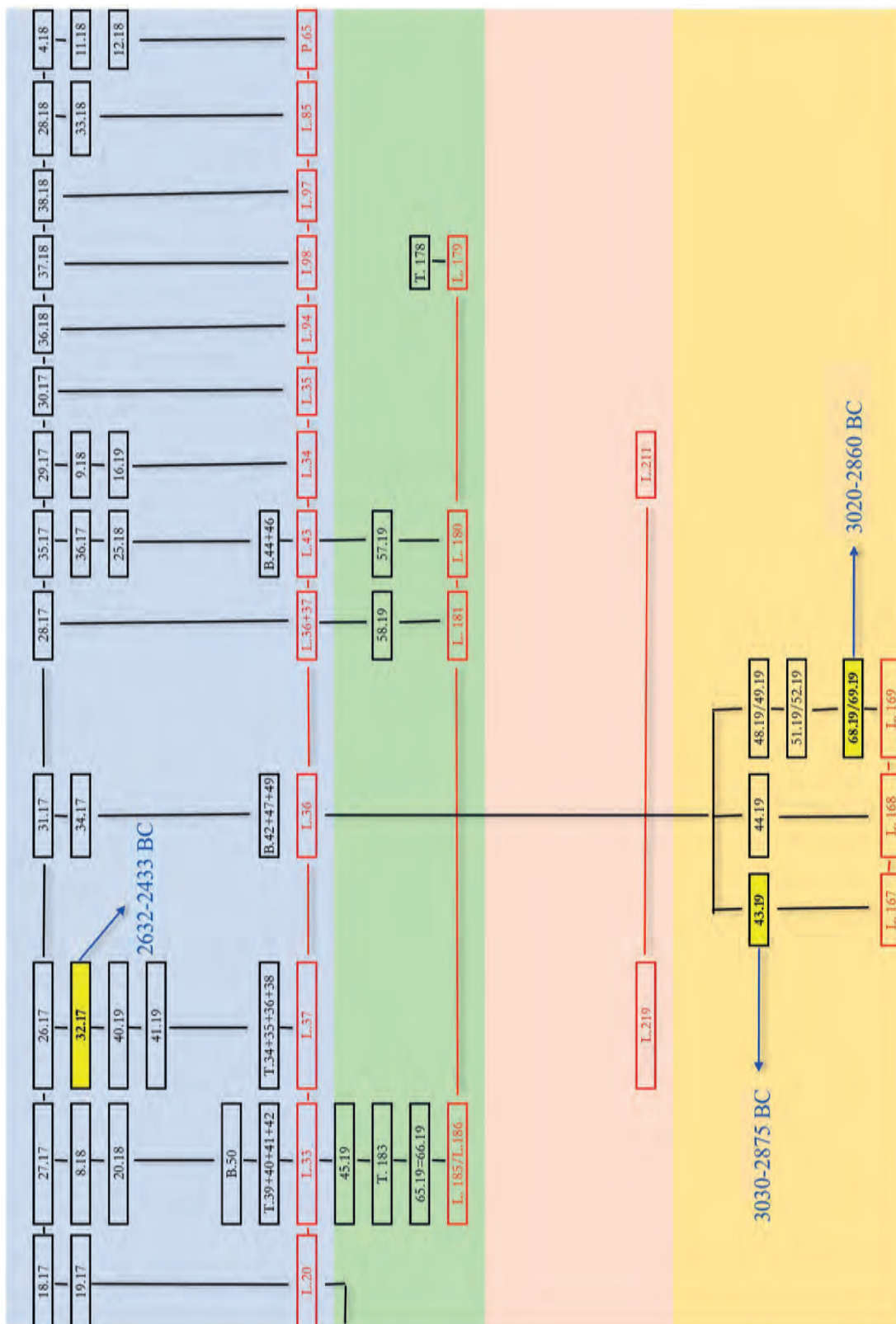
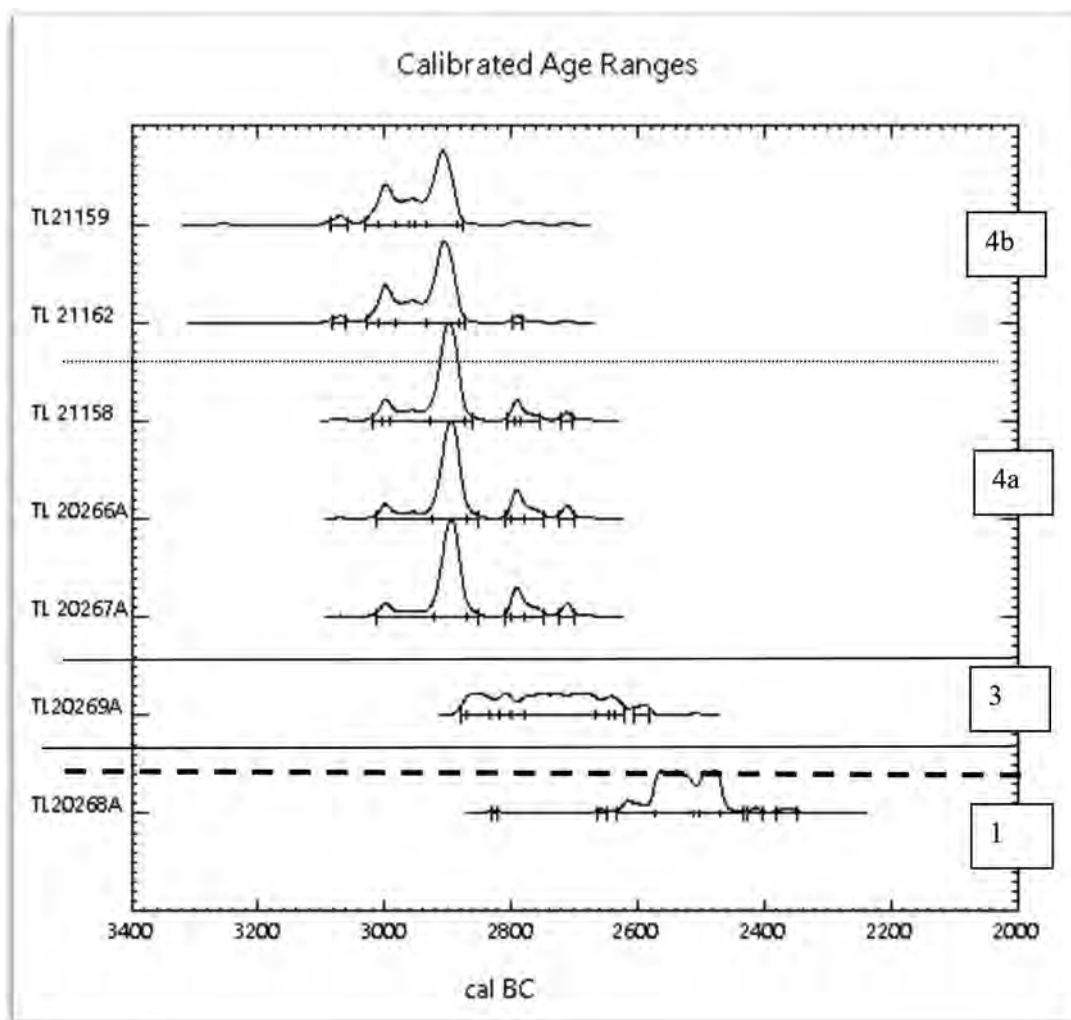


Table 4: archaeological contexts of samples with radiocarbon calibration. According to Reimer P., Austin W.E.N., Bard E., Bayliss A., Blackwell P.G., Bronk Ramsey C., Butzin M., Cheng H., Edwards R.L., Friedrich M., Grootes P.M., Guilderson T.P., Hajdas I., Heaton T.J., Hogg A.G., Hughen K.A., Kromer B., Manning S.W., Muscheler R., Palmer J.G., Pearson C., van der Plicht J., Reimer R.W., Richards D.A., Scott E.M., Southon J.R., Turney C.S.M., Wacker L., Adolphi F., Büntgen U., Capano M., Fahrni S., Fogtmann-Schulz A., Friedrich R., Köhler P., Kudsk S., Miyake F., Olsen J., Reinig F., Sakamoto M., Sookdeo A. & Talamo. S. 2020. The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0–55 cal kBP). *Radiocarbon* 62. doi: 10.1017/RDC.2020.41.

Period	Phase	Area	Layer	Context	Locus	US	Lab ID	Type of remains	Years BP	$\delta^{13}C$	Calibrated age BC (One Sigma Ranges)	Calibrated age BC (Two sigma ranges)
IIA	6	33	4a	Western Building	L.176	53.19	LTL20266A	Populus/salix	4270±45	-28.2±0.5	2923-2871 (0,87423)	3014-2853 (0,790171)
IIA	6	33	4a	Eastern Building	T.213 in L.149	67.19	LTL20267A	Capparacea	4269±45	-26.5±45	2923-2870 (0,861591)	3013-2853 (0,780411)
IIA	6	33	4b	Western Building	L.167	43.19	LTL21159	Tamarix sp	4311±45	-25±0.6	2935-2886 (0,687574)	3030-2875 (0,966089)
IIA	6	33	4b	Western Building	L.176	63.19	LTL21162	Tamarix sp	4303±45	-23.4±0.3	2934-2882 (0,775146)	3028-2872 (0,962322)
IIA	6	33	4a	Western Building	L.169	68.19	LTL21158	Populus/salix	4280±45	-28.7±0.4	2927-2874 (0,896201)	3020-2860 (0,870123)
IIB	5	33	3	House of the Courts	L.142	36.19	LTL20269A	Tamarix sp	4149±45	-22.0±0.6	2779-2666 (0,642312)	2880-2620 (0,954875)
IIIA	3	33	1	Building 33	T.36 in L.37	32.17	LTL20268A	Burned vegetal	4002±45	-30.7±0.5	2572-2513 (0,634081)	2632-2433 (0,942686)



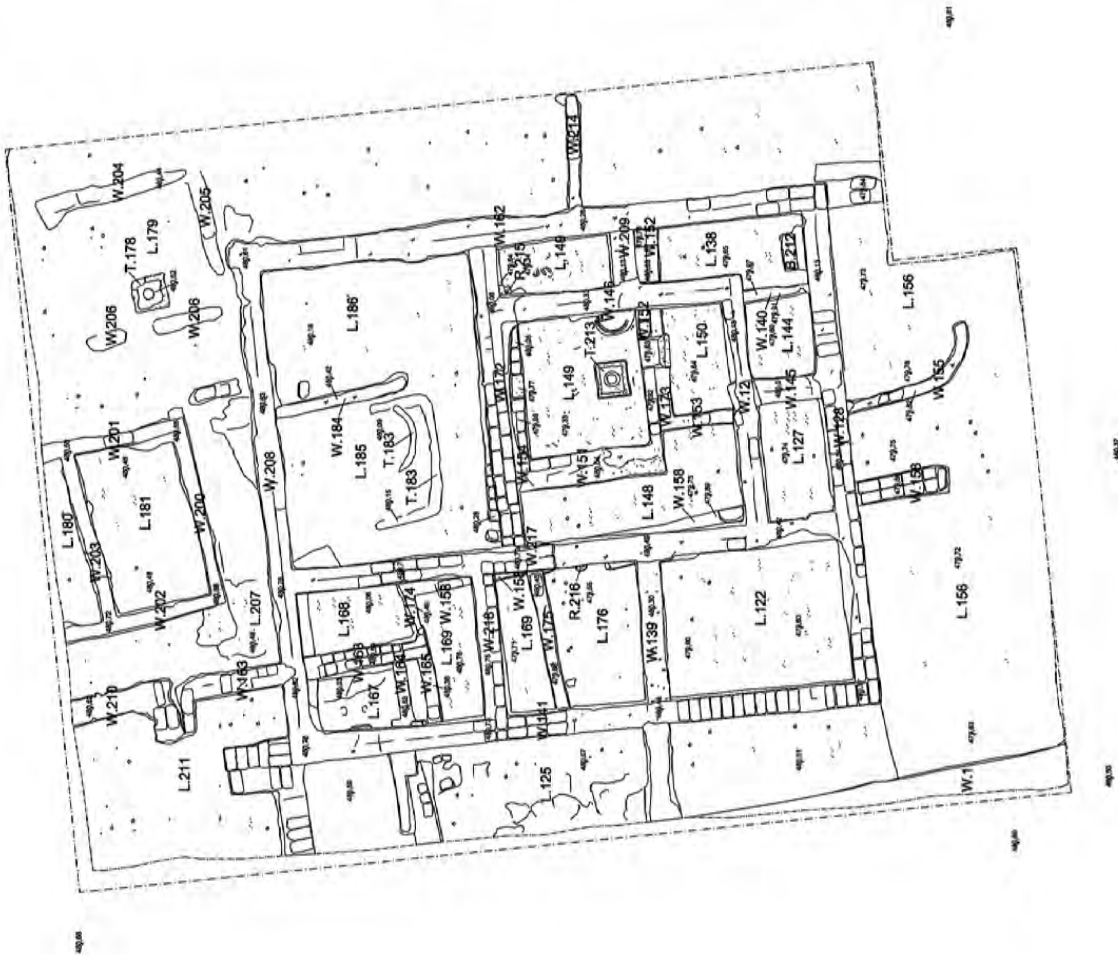
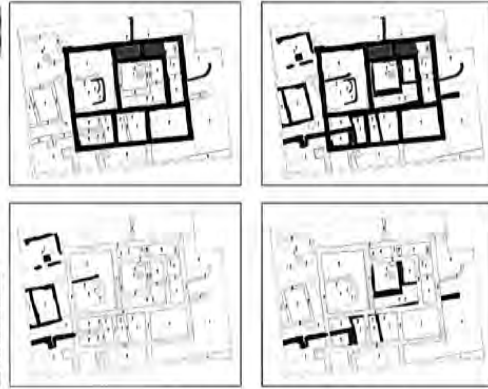
Pl. 1. Radiocarbon analysis chronological distribution on samples from Shahr-i Sokhta.

SHAHR-I SOKHTA, 2019  
WORKSHOP 33 - TABLE I  
GENERAL PLAN  
13/12/2019  
Disegnato Giuseppe Abate-Milano



Piante di fase  
Scala 1:250

- FASE I
- FASE II
- FASE III
- FASE IV



Pl. 2. Shahr-i Sokhta, Area 33, Layers 2-4.



Pl. 3. Shahr-i Sokhta, Area 33, Layer 4.

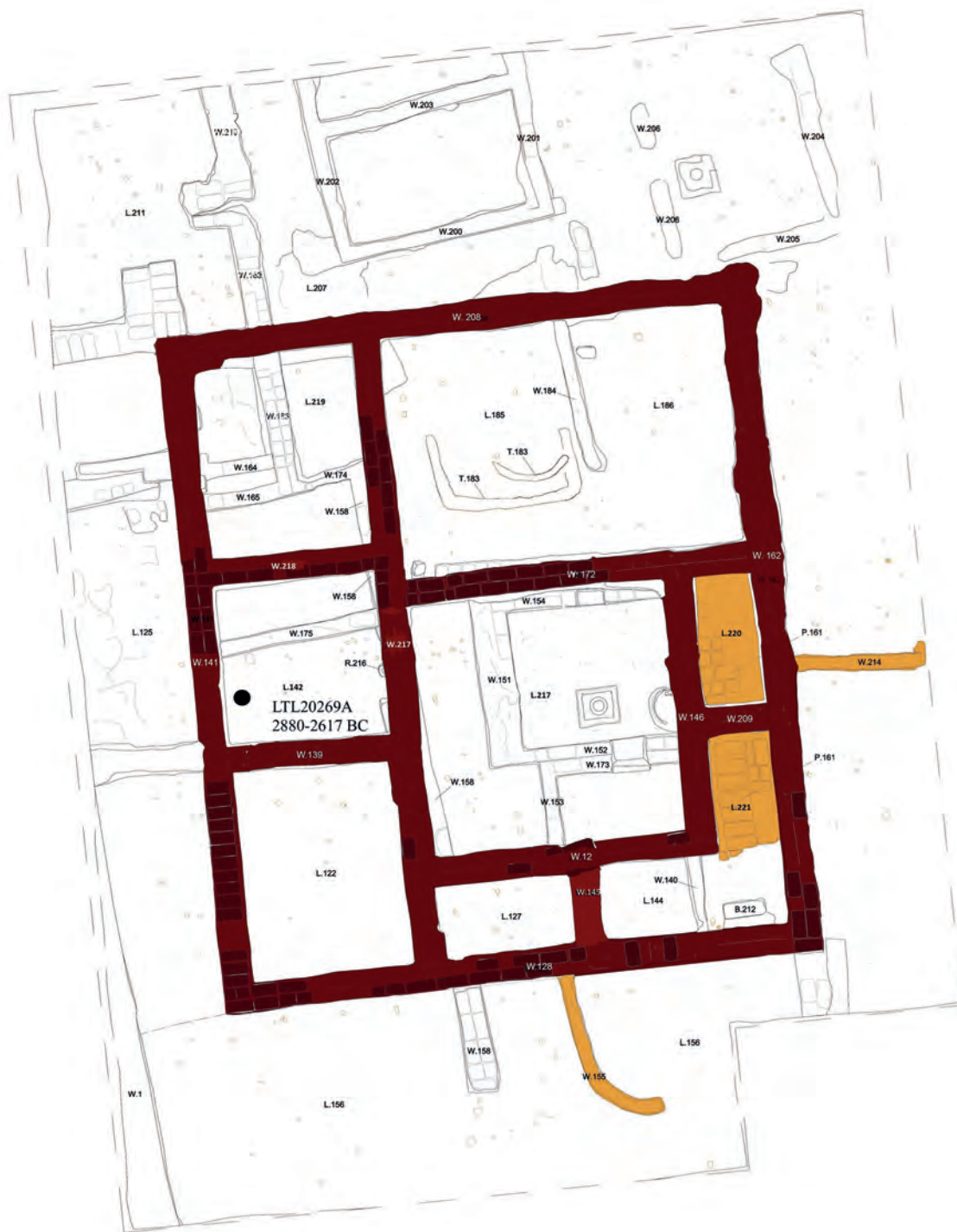


Pl. 4. The 'Western Building' from Area 33, Layer 4, Period IIA, SiS 6, 3000-2850 BC.



Pl. 5. The 'Eastern Building' from Area 33, Layer 4, Period IIA, SiS 6, 3000-2850 BC.





Pl. 6. Shahr-i Sokhta, Area 33, Layer 3.



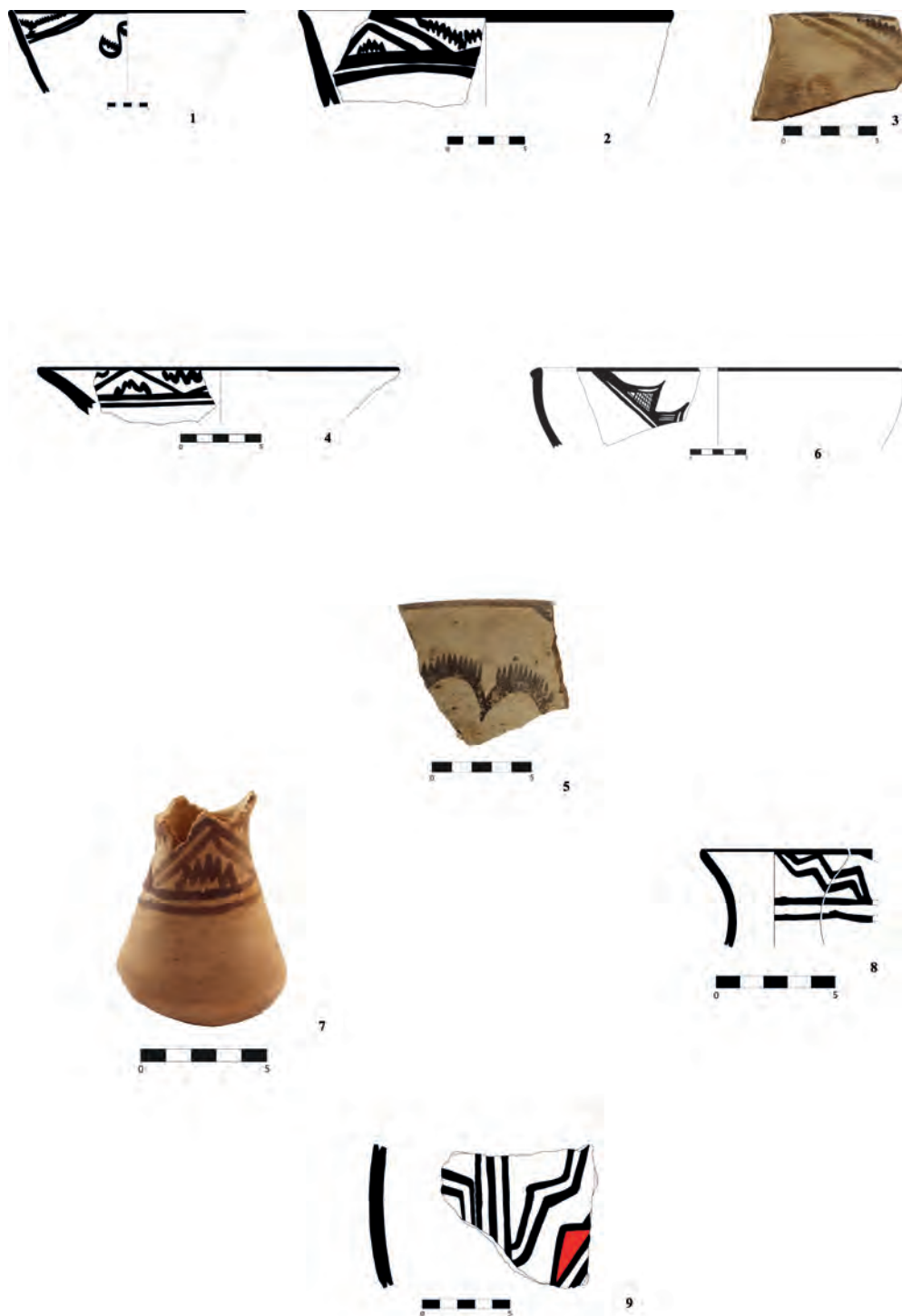
Pl. 7. The 'House of the Courts' in Area 33 (drone image), Layer 3, Period IIB, SiS 5, 2850-2620 BC.



Pl. 8. Shahr-i Sokhta, Area 33, Layer 2.

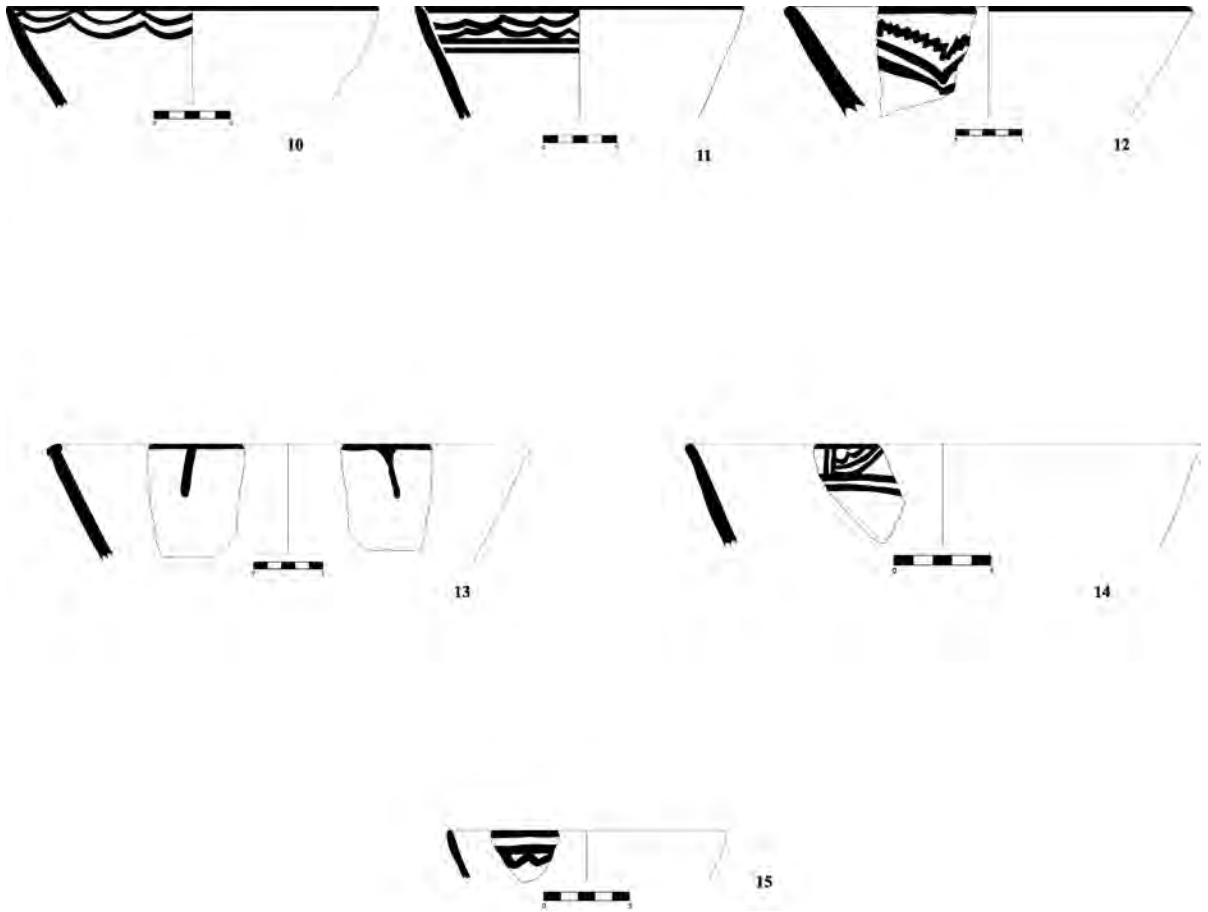


Pl. 9. Furnace from Area 33, Layer 2, Period IIC, SiS 4, 2620-2600 BC.



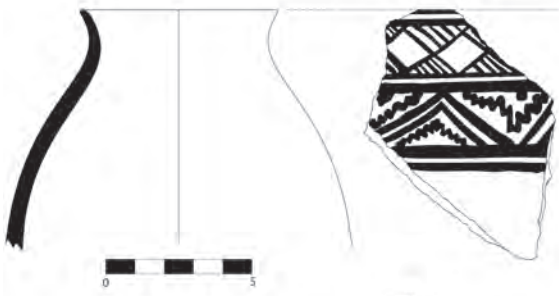
Pl. 10. Pottery from Area 33, Layer 4, Period IIA, SiS 6, 3000-2850 BC.

- |  |   |
|--|---|
| 1. SiS.19.33.67/2, US 67.19, Locus 149 | 2. SiS.19.33.67/4, US 67.19, Locus 149  |
| 3. SiS.19.33.51, US 51.19, Locus 169   | 4. SiS.19.33.63/11, US 63.19, Locus 176 |
| 5. SiS.19.33.51, US 51.19, Locus 169   | 6. SiS.19.33.67/1, US 67.19, Locus 149  |
| 7. SiS.19.33.51, US 51.19, Locus 169   | 8. SiS.19.33.63/4, US 63.19, Locus 176  |
|  | 9. SiS.19.33.63/6, US 63.19, Locus 176  |



Pl. 11. Pottery from Area 33, Layers 4-3, Period IIA-B, SiS 6-5, 3000-2620 BC.

- 10. SiS.19.33.53/8, US 53.19, Locus 176
- 11. SiS.19.33.53/14, US 53.19, Locus 176
- 12. SiS.19.33.53/10, US 53.19, Locus 176
- 13. SiS.19.33.61/1, US 61.19, Locus 182
- 14. SiS.19.33.53/9, US 53.19, Locus 176
- 15. SiS.19.33.61/4, US 61.19, Locus 182



16



17



18

Pl. 12. Pottery from Area 33, Layers 4-3, Period II A-B, SiS 6-5, 3000-2620 BC.

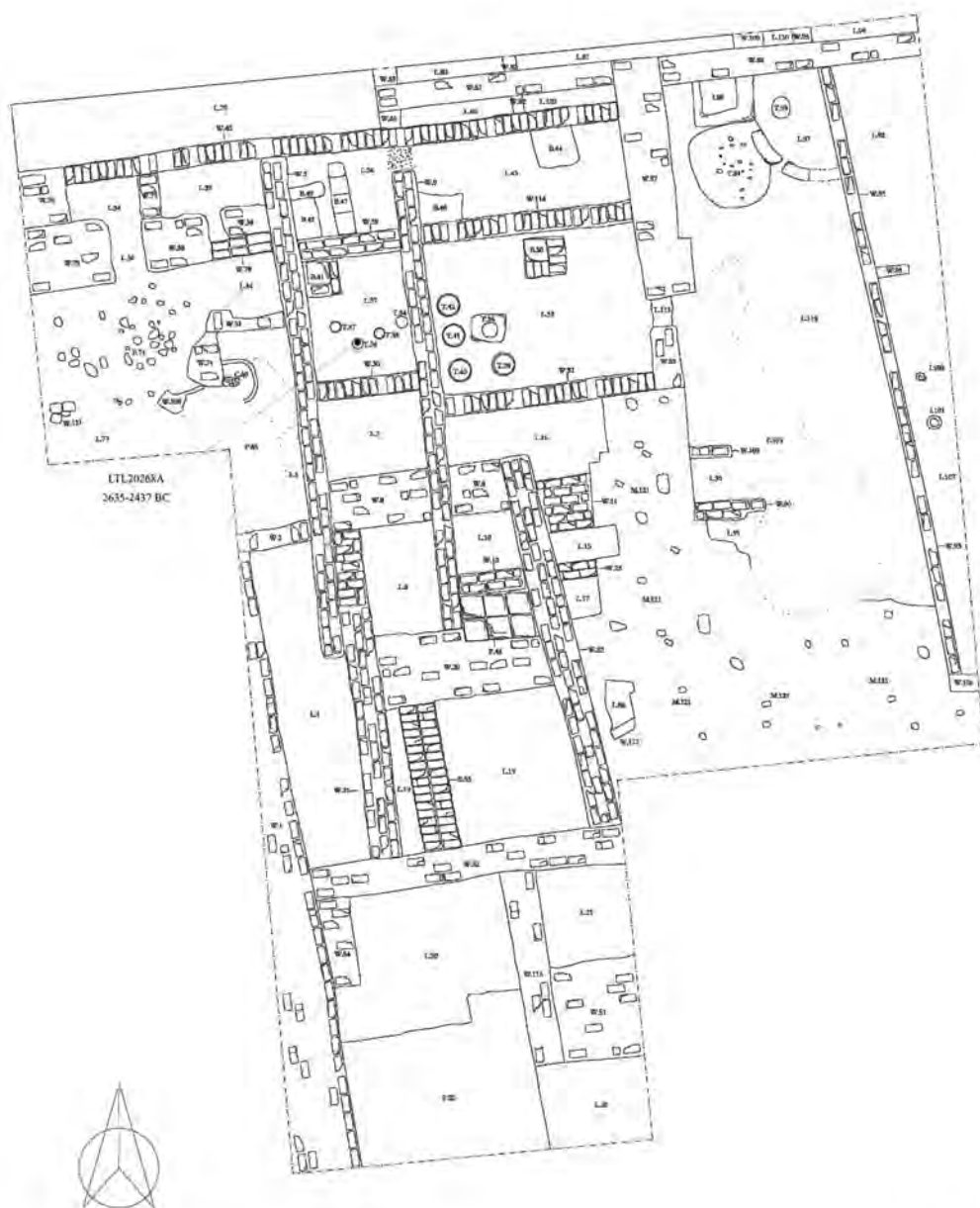
16. SiS.19.33.53/12, US 53.19, Locus 176

17. SiS.19.33.61/3, US 61.19, Locus 182

18. SiS.19.33.53/15a-b, US 53.19, Locus 176

## Building 33

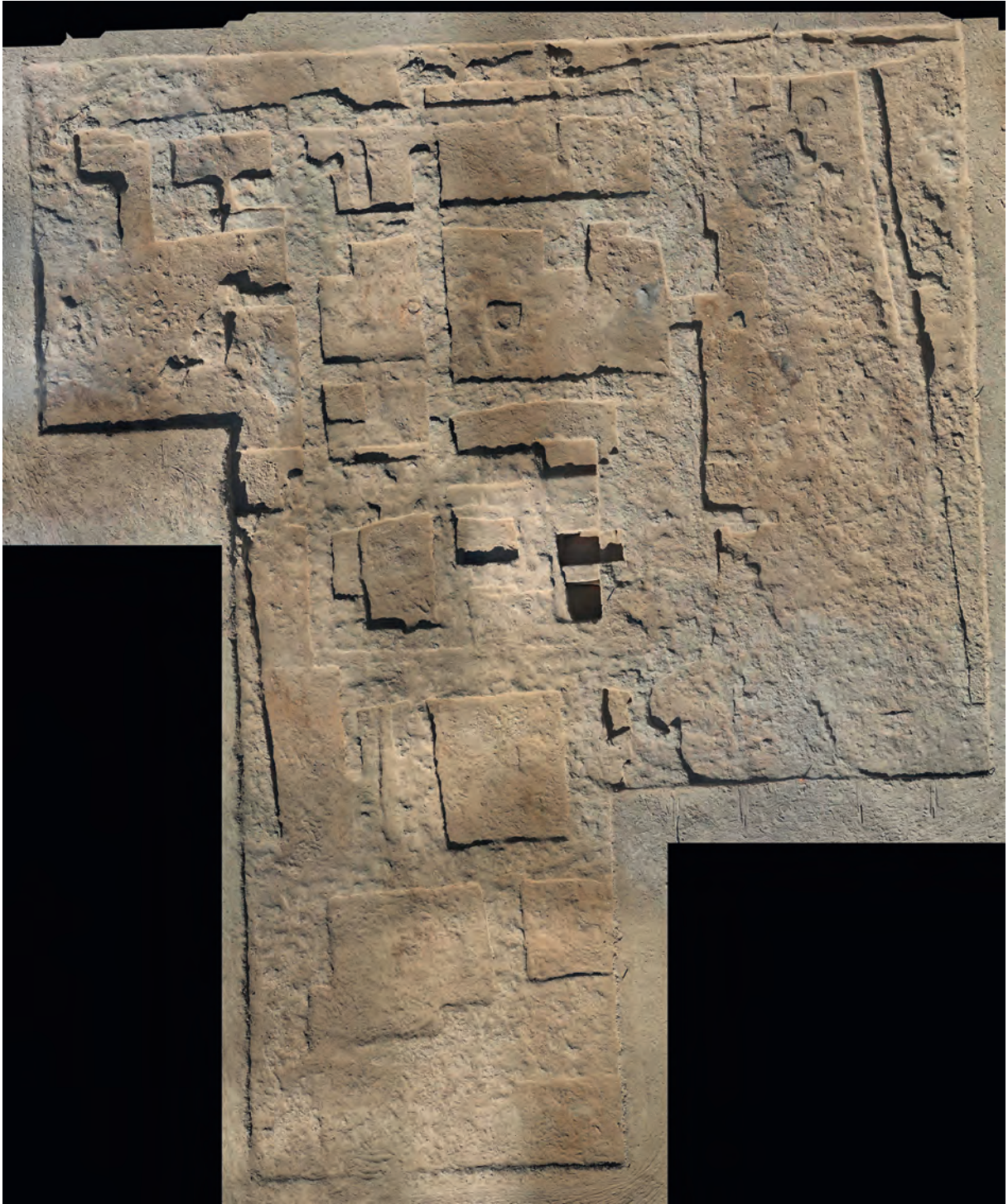
### 2018 excavation season



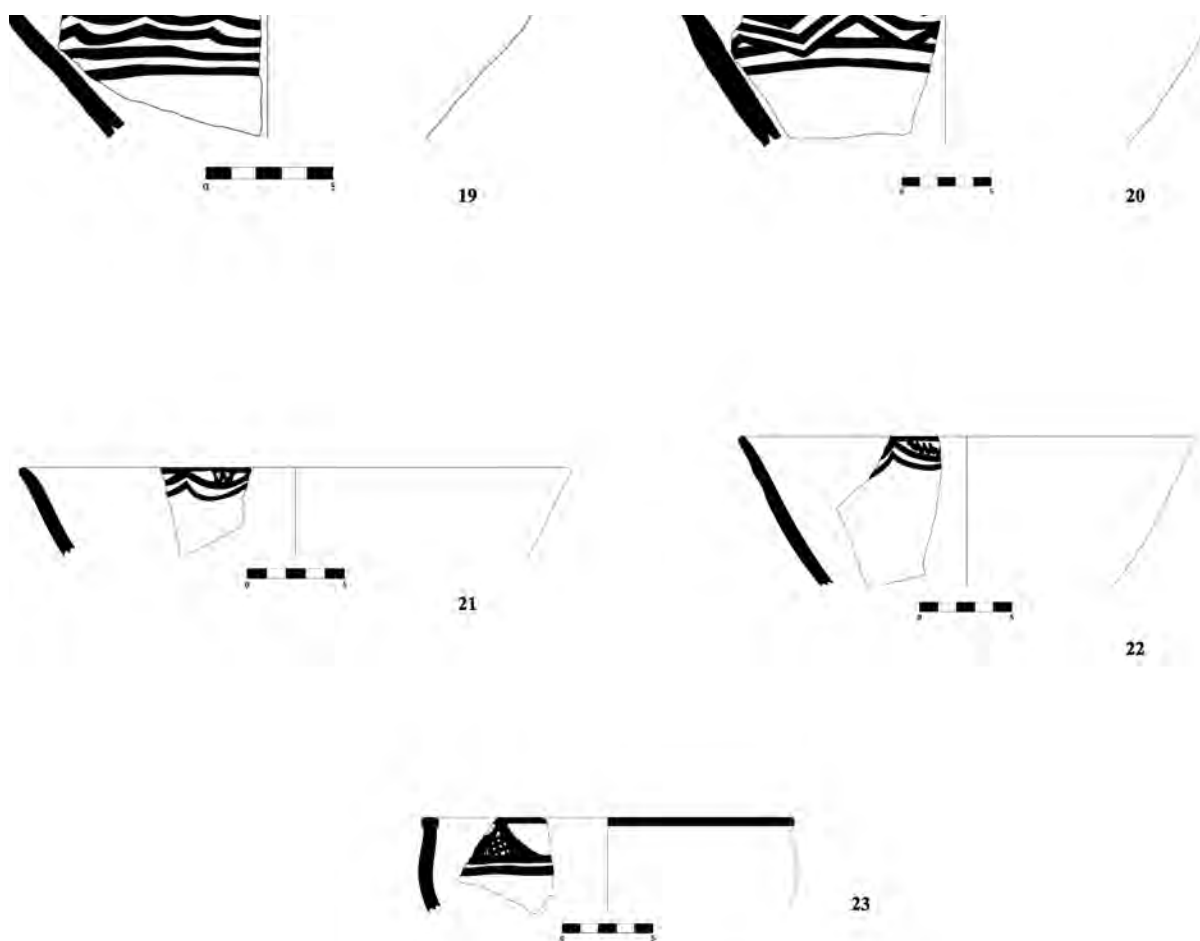
Graphic: R. Rivoltella

Pl. 13. 'Building 33' from Area 33, Layer 1, Period IIIA, SiS 3, 2600-2450 BC.





Pl. 14. 'Building 33' from Area 33 (drone image), Layer 1, Period IIIA, SiS 3, 2600-2450 BC.



Pl. 15. Pottery from Area 33, 'Building 33', Layer 1, Period IIIA, SiS 3, 2600-2450 BC.

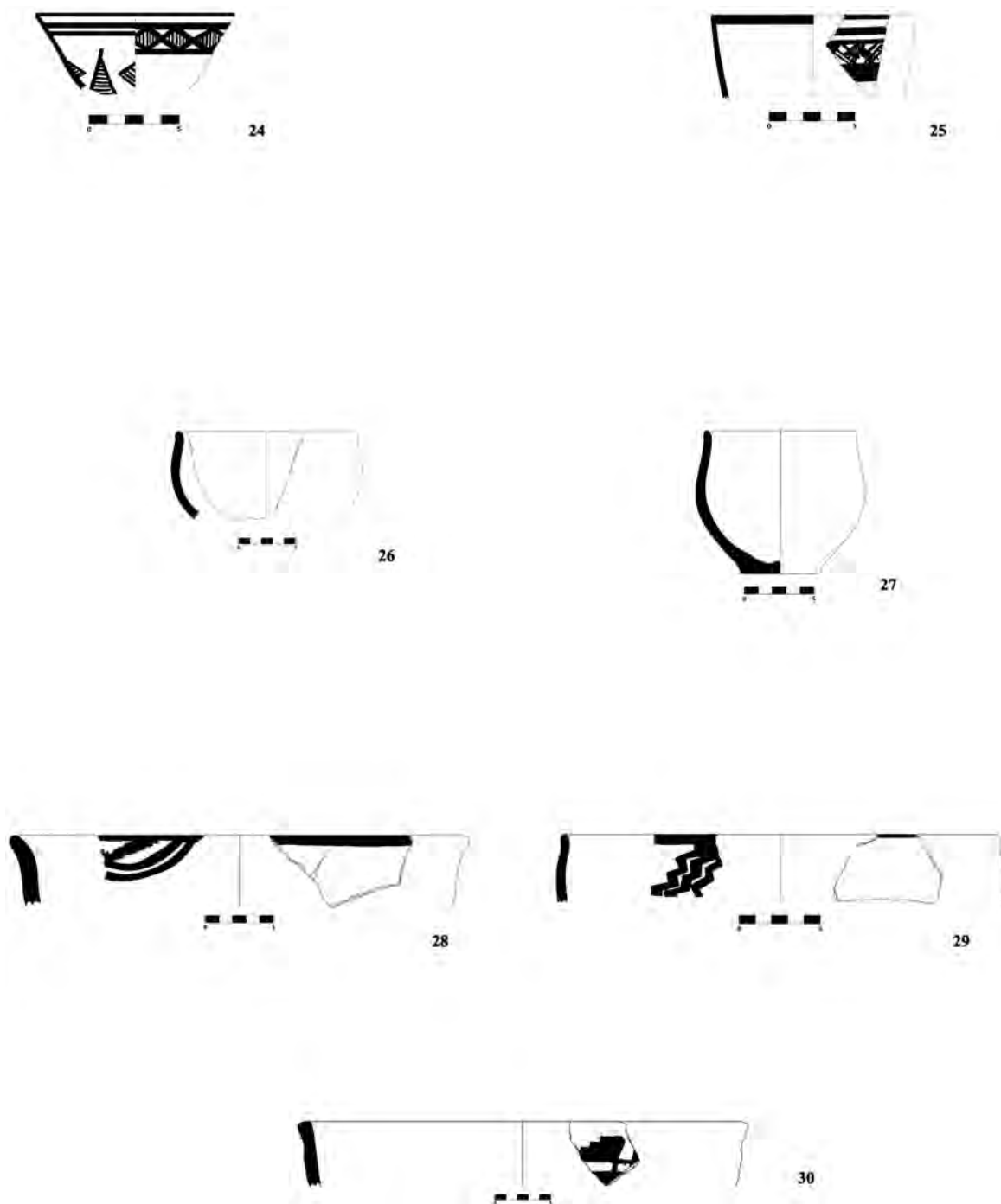
19. SiS.19.33.34/1, US 34.19, Locus 19

20. SiS.19.33.34/2, US 34.19, Locus 19

21. SiS.19.33.34/6, US 34.19, Locus 19

22. SiS.19.33.34/3, US 34.19, Locus 19

23. SiS.19.33.34/4, US 34.19, Locus 19



Pl. 16. Pottery from Area 33, 'Building 33', Layer 1, Period IIIA, SiS 3, 2600-2450 BC.

- 24. SiS.19.33.2/150, US 2.19, Locus 19
- 25. SiS.19.33.2/151, US 2.19, Locus 19
- 26. SiS.19.33.2/44, US 2.19, Locus 19
- 27. SiS.19.33.2/153, US 2.19, Locus 19
- 28. SiS.19.33.2/77, US 2.19, Locus 19
- 29. SiS.19.33.2/78, US 2.19, Locus 19
- 30. SiS.19.33.2/79, US 2.19, Locus 19



Pl. 17. Pottery from Area 33, 'Building 33', Layer 1, Period IIIA, SiS 3, 2600-2450 BC.

31. SiS.19.33.2/105, US 2.19, Locus 19

32. SiS.19.33.2/104, US 2.19, Locus 19

33. SiS.19.33.2/103, US 2.19, Locus 19